

SERVICE MANUAL

Boomer™ 40 Cab / Boomer™ 50 Cab Compact Tractor

*Boomer™ 40 - From PIN 0 to 2103012735; From PIN 2103012736 to 2106014859; PIN 2106014860 and above;
Boomer™ 50 - From PIN 0 to 2105012137; From PIN 2105012138 to 2105013791; PIN 2105013792 and above*

Part number 48017703

1st edition English
December 2016

AGRICULTURE

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Safety rules - Personal safety

Boomer™ 40	WE
Boomer™ 50	WE

General safety rules

Read this manual carefully before starting, using carrying out maintenance, refueling or performing any other type of operation on the tractor.

Read all the safety decals on the tractor and follow the instructions thereon before starting, operating, refueling or carrying out maintenance on the tractor. Promptly replace any decals that are damaged, lost or illegible. Clean the decals if they are covered by mud or debris.

The tractor must only be used by responsible personnel, trained in tractor use and authorized to operate the tractor.

Use caution when operating the tractor on slopes. Raised equipment, full tanks and other loads will change the center of gravity of the tractor. The tractor can tip or roll over when near ditches and embankments or uneven surfaces.

Avoid using the tractor in unsuitable physical conditions, stop work instead.

Never permit anyone other than the operator to ride on the tractor.

Never operate the tractor under the influence of alcohol, drugs, or while otherwise impaired.

When digging or using ground engaging attachments be aware of buried cables. Contact local utilities to determine the locations of services.

Pay attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety.

Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.
- Stop engine, remove key and relieve the pressure before connecting or disconnecting fluid lines.
- Make sure all components are in good condition and tighten all connections before starting the engine or pressurizing the system.
- If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.
- Before removing any hydraulic tubing, check that the system is not pressurized.

Do not alter the calibration of the pressure relief valves in the various hydraulic circuits (steering, hydraulic lift, auxiliary distributors, etc.).

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the tractor while it is being operated or components are in motion.

Make sure all guards and shields are in good condition and properly installed before operating the tractor. Never operate the tractor with shields removed. Always close access doors or panels before operating the tractor.

Enter and leave the tractor using the steps and handles provided. Dirty or slippery steps, ladders, walkways, and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.

A person or pet within the operating area of a tractor can be struck or crushed by the tractor or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

1. Manufacturer's identification
2. Property class
3. Clock marking of property class and manufacturer's identification (optional), i.e. marks **60 °** apart indicate Class 10 properties, and marks **120 °** apart indicate Class 8.

Inch non-flanged hardware

Nominal size	SAE Grade 5 bolt and nut		SAE Grade 8 bolt and nut		Lock nut Grade B with Grade 5 bolt	Lock nut Grade C with Grade 8 bolt
	Unplated or plated Silver	Plated with ZnCr Gold	Unplated or plated Silver	Plated with ZnCr Gold		
1/4	8 N·m (71 lb in)	11 N·m (97 lb in)	12 N·m (106 lb in)	16 N·m (142 lb in)	8.5 N·m (75 lb in)	12.2 N·m (109 lb in)
5/16	17 N·m (150 lb in)	23 N·m (204 lb in)	24 N·m (212 lb in)	32 N·m (283 lb in)	17.5 N·m (155 lb in)	25 N·m (220 lb in)
3/8	30 N·m (22 lb ft)	40 N·m (30 lb ft)	43 N·m (31 lb ft)	57 N·m (42 lb ft)	31 N·m (23 lb ft)	44 N·m (33 lb ft)
7/16	48 N·m (36 lb ft)	65 N·m (48 lb ft)	68 N·m (50 lb ft)	91 N·m (67 lb ft)	50 N·m (37 lb ft)	71 N·m (53 lb ft)
1/2	74 N·m (54 lb ft)	98 N·m (73 lb ft)	104 N·m (77 lb ft)	139 N·m (103 lb ft)	76 N·m (56 lb ft)	108 N·m (80 lb ft)
9/16	107 N·m (79 lb ft)	142 N·m (105 lb ft)	150 N·m (111 lb ft)	201 N·m (148 lb ft)	111 N·m (82 lb ft)	156 N·m (115 lb ft)
5/8	147 N·m (108 lb ft)	196 N·m (145 lb ft)	208 N·m (153 lb ft)	277 N·m (204 lb ft)	153 N·m (113 lb ft)	215 N·m (159 lb ft)
3/4	261 N·m (193 lb ft)	348 N·m (257 lb ft)	369 N·m (272 lb ft)	491 N·m (362 lb ft)	271 N·m (200 lb ft)	383 N·m (282 lb ft)
7/8	420 N·m (310 lb ft)	561 N·m (413 lb ft)	594 N·m (438 lb ft)	791 N·m (584 lb ft)	437 N·m (323 lb ft)	617 N·m (455 lb ft)
1	630 N·m (465 lb ft)	841 N·m (620 lb ft)	890 N·m (656 lb ft)	1187 N·m (875 lb ft)	654 N·m (483 lb ft)	924 N·m (681 lb ft)

NOTE: For imperial units, **1/4 in** and **5/16 in** hardware torque specifications are shown in pound-inches. **3/8 in** through **1 in** hardware torque specifications are shown in pound-feet.

General specification

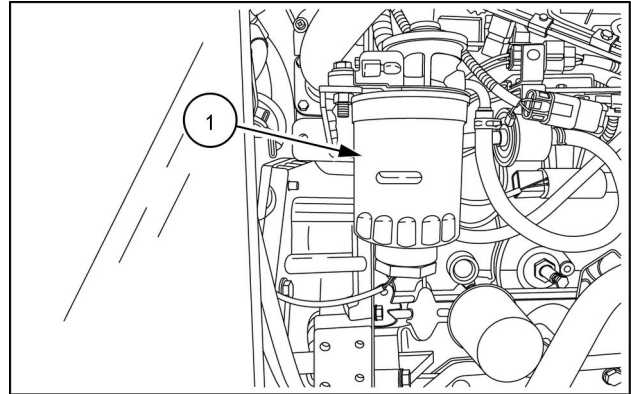
Boomer™ 40	WE
Boomer™ 50	WE

	Model Boomer 40 - Hydrostatic/Gear	Model Boomer 50 - Hydrostatic/Gear
ENGINE		
Type	Diesel	Diesel
Model	S4QL	S4QL
Engine Gross Horsepower	30.2 kW (40.4 Hp)	34.6 kW (46.4 Hp)
Cylinders	4	4
Bore	88 mm (3.46 in)	88 mm (3.46 in)
Stroke	103 mm (4.05 in)	103 mm (4.05 in)
Displacement	2.50 l (152.56 in³)	2.50 l (152.56 in³)
Compression Ratio	22.0:1	20.0:1
Firing Order	1-3-4-2	1-3-4-2
Low Idle Speed	830±20 RPM	830±20 RPM
Maximum Speed:		
High Idle	2780±30 RPM	2780±30 RPM
Rated	2600 RPM	2600 RPM
Valve Clearance (Cold)		
Intake	0.25 mm (0.010 in)	0.25 mm (0.010 in)
Exhaust	0.25 mm (0.010 in)	0.25 mm (0.010 in)
COOLING SYSTEM		
Type	Pressurized Liquid with Recirculating Bypass	Pressurized Liquid with Recirculating Bypass
Water Pump:		
Type	Centrifugal	Centrifugal
Drive	V-Belt	V-Belt
Belt Deflection	10 - 13 mm (0.4 - 0.5 in) when 10 kg (22 lb) pressure is applied midway between belt pulleys	10 - 13 mm (0.4 - 0.5 in) when 10 kg (22 lb) pressure is applied midway between belt pulleys
Fan Diameter	380 mm (15.0 in)	380 mm (15.0 in)
Thermostat:		
Start to Open	76.5 °C (170 °F)	76.5 °C (170 °F)
Fully Open	90 °C (194 °F)	90 °C (194 °F)
Radiator Cap	90 kPa (13 psi)	90 kPa (13 psi)
ELECTRICAL SYSTEM		
Alternator	12 V, Heavy Duty, 50 A	12 V, Heavy Duty, 50 A
Battery	12 V, w/ negative ground, 660 cca BCI Group 34	12 V, w/ negative ground, 660 cca BCI Group 34
Starting Motor	Solenoid Pre-Engaged Reduction	Solenoid Pre-Engaged Reduction
FUEL SYSTEM		
Fuel Type	Diesel	Diesel
Type of Fuel to Use if Above 4 °C (40 °F)	No. 2-Diesel, Cetane Rating: Minimum 40	No. 2-Diesel, Cetane Rating: Minimum 40
Type of Fuel to Use if Below 4 °C (40 °F)	No. 1-Diesel, Cetane Rating: Minimum 40	No. 1-Diesel, Cetane Rating: Minimum 40
Injection Pump:		
Type	In-Line	In-Line

Fuel filters - Replace fuel filter

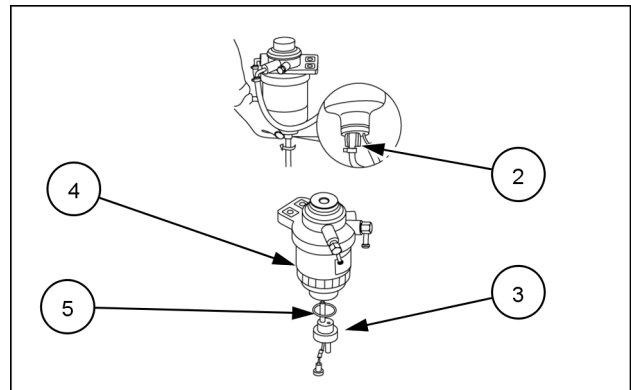
Boomer™ 40	WE
Boomer™ 50	WE

NOTE: Change the diesel fuel filter (1) after the first 50 hours of operation, then following every 500 operating hours thereafter.

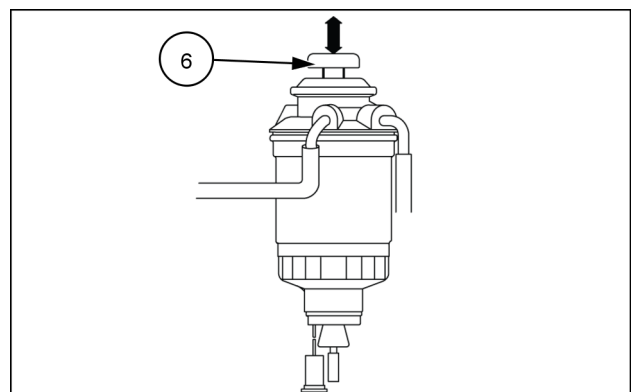


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1. Loosen fuel filter drain plug (2) and drain fuel from the filter.
2. Disconnect the electrical connector from the fuel filter sensor (3).
3. Remove the fuel filter element (4) from the filter base
4. Remove the fuel filter sensor (3) from the original element and install sensor with O-ring (5) onto new element.
5. Install new element onto the filter base.
6. Connect electrical connector to the fuel filter sensor.
7. Tighten fuel filter drain plug.
8. Bleed the air from the fuel filter, by pressing the manual fuel feed pump (6) several times. The manual feed pump will bleed the air back to the fuel tank. There is no need to open any bleed ports in the fuel system.



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NOTE: (Refer to figure 1 for locations.)

(4) Dimensions		
(KF) = The distance between the 'Barrel' and the 'Plunger' before increase of 'Head' pressure.	5.700 - 5.900 mm (0.224 - 0.232 in)	5.700 - 5.900 mm (0.224 - 0.232 in)
(MS) = Distance between governor sleeve and control lever. Controls fuel quantity when starting.	0.900 - 1.100 mm (0.035 - 0.043 in)	0.900 - 1.100 mm (0.035 - 0.043 in)
(K) = The distance between the 'Barrel' and the 'Plunger' after increase of 'Head' pressure.	3.200 - 3.400 mm (0.126 - 0.134 in)	3.200 - 3.400 mm (0.126 - 0.134 in)
(BCS)		

Control lever angle		
(a)	14 - 22 °	14 - 22 °
(A)	mm	mm
(b)	33 - 43 °	33 - 43 °
(B)	mm	mm

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(*) See content for specific models

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SERVICE

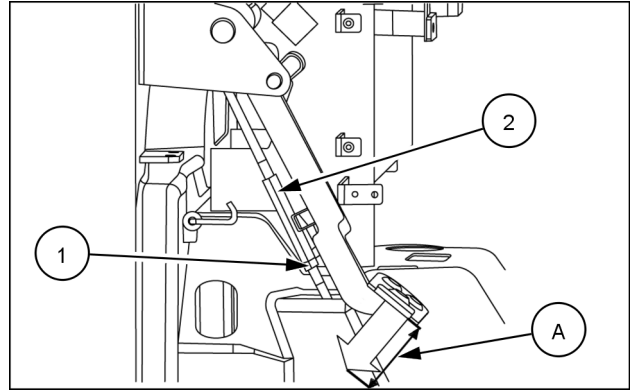
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(*) See content for specific models

Clutch hydraulic release control - Adjust - Pedal free play

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

1. Loosen adjustment nut **(1)**, and turn joint **(2)** to attain **20 - 30 mm (0.78 - 1.18 in)** of free play **(A)**. Tightening the joint will decrease the amount of free play, loosening the joint will increase the amount of free play.
2. Apply grease to appropriate areas of all moving parts
3. Tighten adjustment nut after specified free play is achieved.
4. Verify that pedal travels smoothly throughout range of motion.



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Contents

Clutch - 18

Slip clutch or flywheel damper - 112

SERVICE

Slip clutch or flywheel damper	
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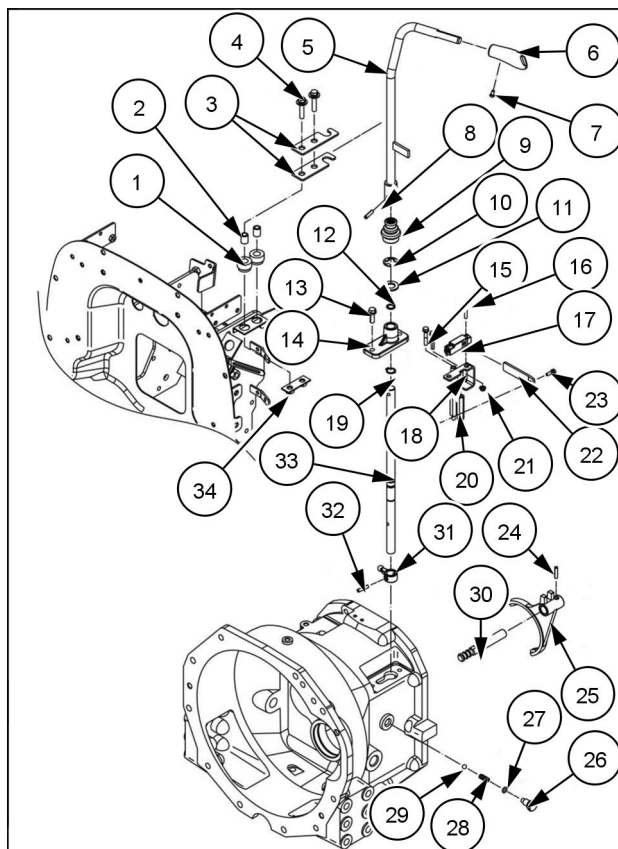
(*) See content for specific models

Ref.	Description		Ref.	Description
(1)	PTO drive shaft		(14)	Reverse idler gear
(2)	Pinion drive shaft		(15)	Forward/reverse driven shaft
(3)	Mid PTO drive shaft		(16)	Forward/reverse synchromesh selector
(4)	Range drive gear		(17)	Gear (1 - 2) synchromesh selector
(5)	Range selector (R1 - R3)		(18)	Main gear driven shaft
(6)	Range gear driven shaft		(19)	Gear (3 - 4) synchromesh selector
(7)	Range selector (R2 - R4)		(20)	Forward/reverse drive shaft
(8)	Mid PTO output shaft		(21)	Reverse drive gear
(9)	Range gear drive shaft		(22)	Forward drive gear
(10)	Four wheel drive selector		(23)	Main gear shaft
(11)	Four wheel drive gear		(24)	PTO shaft
(12)	Four wheel drive shaft		(25)	PTO clutch
(13)	Reverse idler shaft		(26)	PTO clutch output shaft

(8) Snap ring	(17) Forward driven gear (44T)	(26) Spacer, forward and reverse driven shaft	(35) Shift sleeve
(9) Forward drive gear (38T)	(18) Ball bearing	(27) Sleeve gear	(36) Synchronizer ring

Mechanical transmission - Exploded view shift lever and fork mechanical transmission

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

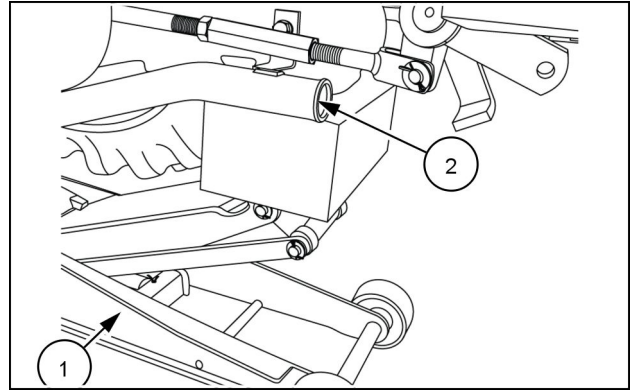


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Shift lever and fork mechanical transmission components

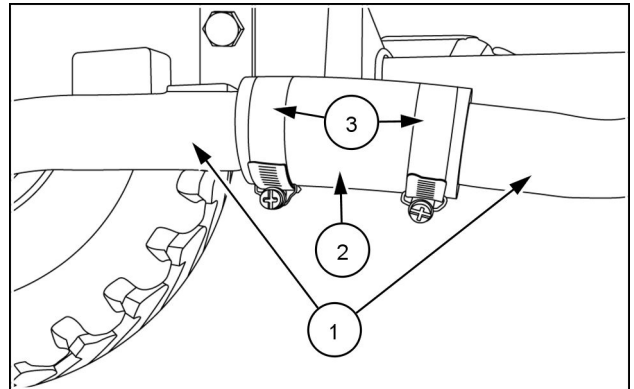
(1) Pedal frame mount	(8) Spring pin	(15) Hex bolt, M6 x 35mm	(22) Target plate	(29) Shift fork ball
(2) Mount spacers	(9) Dust cover	(16) Hex bolt, M5 x 30mm	(23) Hex bolt with washer, M5 x 16mm	(30) Forward and reverse rail
(3) Forward / reverse lever guide	(10) Snap ring	(17) Proximity switch	(24) Spring pin	(31) Shift arm
(4) Hex bolt with washer, M8 x 1.25 x 40mm	(11) Washer	(18) Neutral switch bracket	(25) Forward and reverse fork	(32) Spring pin
(5) Hand lever, forward and reverse shift	(12) O - ring	(19) Snap ring	(26) Rail bolt	(33) Forward and reverse lever
(6) Knob	(13) Hex bolt, M8 x 1.25 x 25mm	(20) Neutral switch support	(27) O - ring	(34) Lock plate
(7) Screw , M5 x 10mm	(14) Forward and reverse lever guide	(21) Flange nut, M5	(28) Spring	

8. Roll the floor jack **(1)** out of the way.
9. Remove the cap **(2)**.



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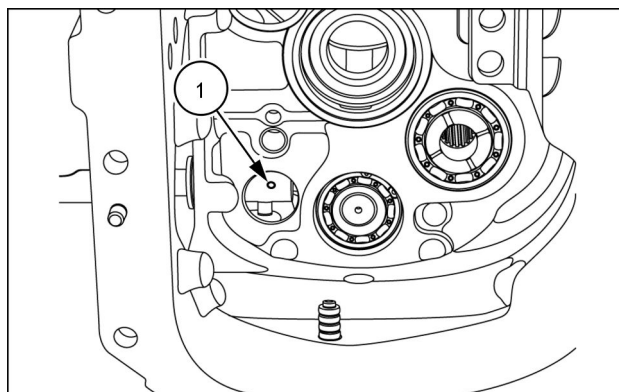
10. Connect oil return line **(1)** by installing a flexible union **(2)** and two hose clamps **(3)**.



93109767 8

3. Remove spring pin **(1)** from four wheel drive lever.

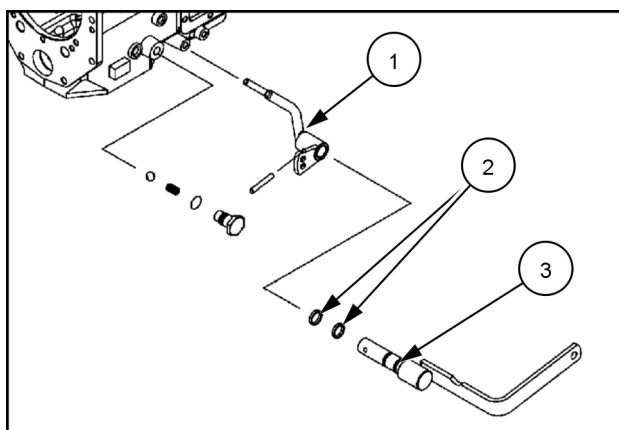
NOTE: Access the spring pin from the hole in the center casing.



93112270 3

4. Remove four wheel drive arm **(3)**, check O-rings **(2)** for wear and replace if damaged.

5. Remove four wheel drive lever **(1)**.

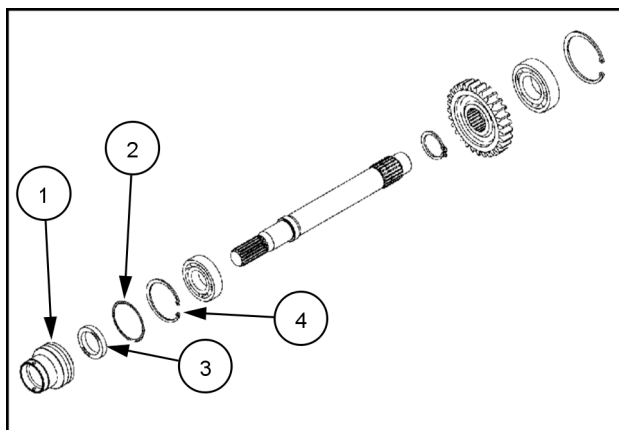


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6. Remove the four wheel drive seal housing **(1)**.

NOTE: Check the condition of the O-ring **(2)** and the oil seal **(3)**, if damaged, replace.

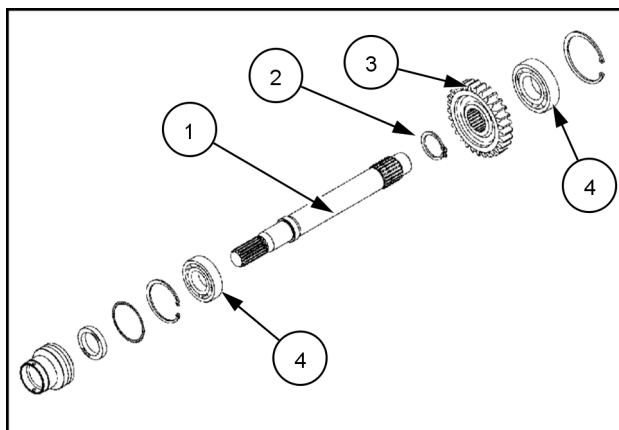
7. Remove the snap ring **(4)**.



761002904 5

8. Remove the four wheel drive shaft **(1)**, gear **(3)**, snap ring **(2)**, and bearings **(4)**.

NOTE: The shaft can be driven out from the rear, through the center casing.



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Transmission internal parts - Assemble - Creeper gears

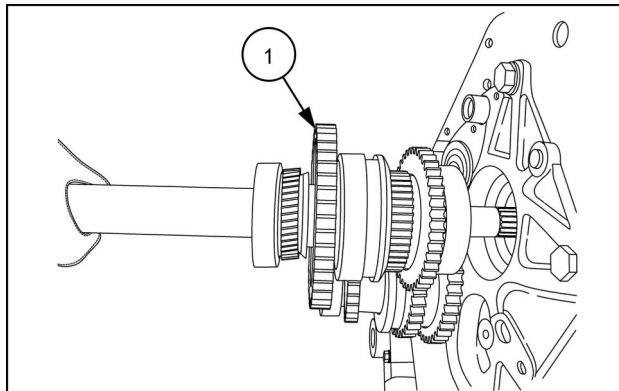
Boomer™ 40

WE

Boomer™ 50 4WD, Cab, Europe

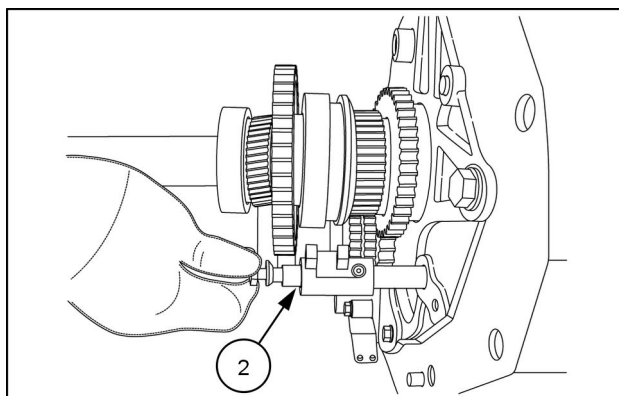
WE Platform - With cab

1. Install creeper gear sliding coupler assembly **(1)** into housing.



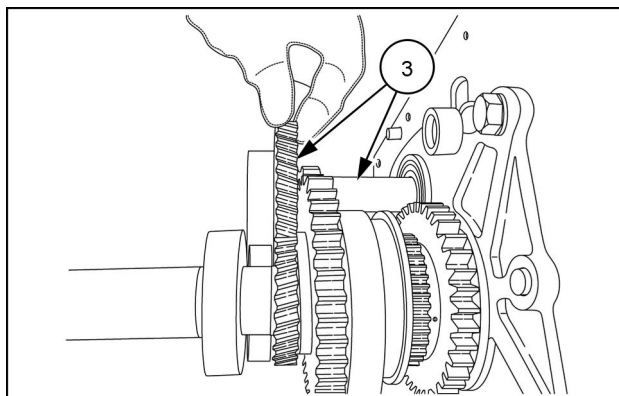
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2. Install the Forward/Reverse shift fork and rail **(2)**.



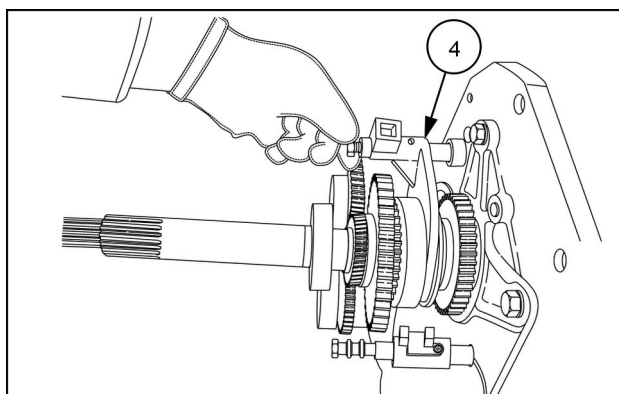
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3. Install creeper gear idler gear and shaft **(3)**.



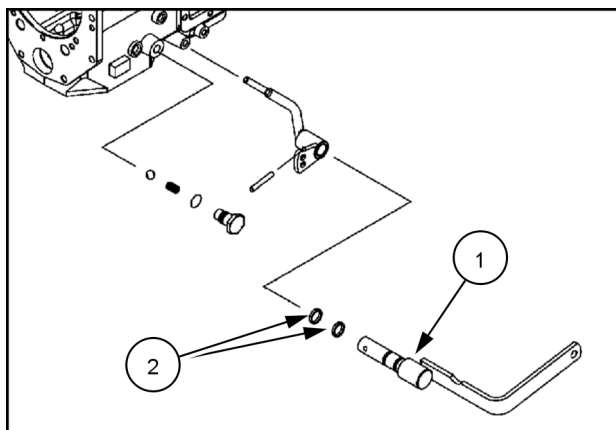
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4. Install creeper shift fork and rail **(4)**.



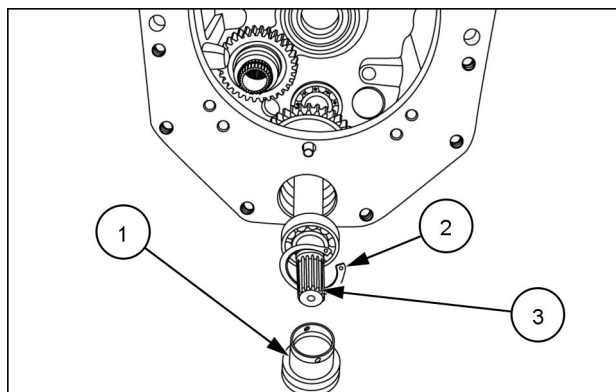
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4. Remove the four wheel drive arm **(1)**. Inspect O-rings **(2)** and replace if necessary.



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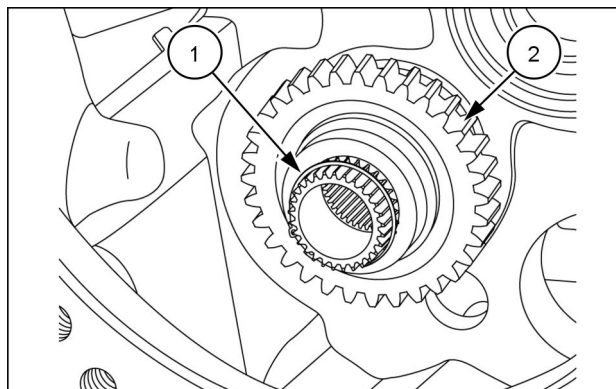
5. Remove the four wheel drive shaft seal housing **(1)**.
6. Remove the snap ring **(2)**.
7. Remove four wheel drive shaft, gear and bearing **(3)**.



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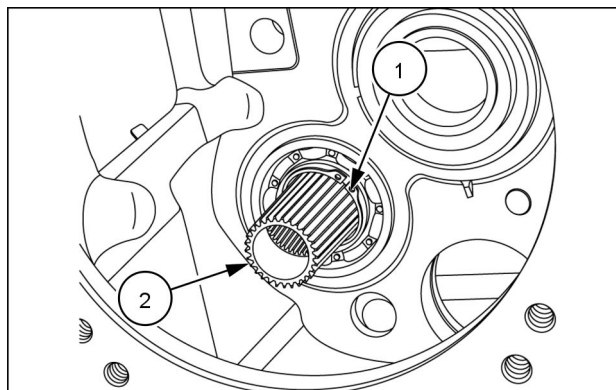
Four wheel drive input shaft

1. Remove the snap ring **(1)** and the gear **(2)**.



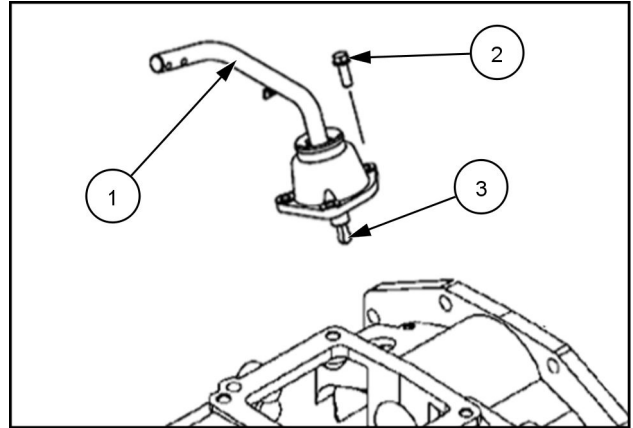
93112273 33

2. Remove the snap ring **(1)**.
3. Drive the four wheel drive input shaft **(2)** rearward to remove.



93112274 34

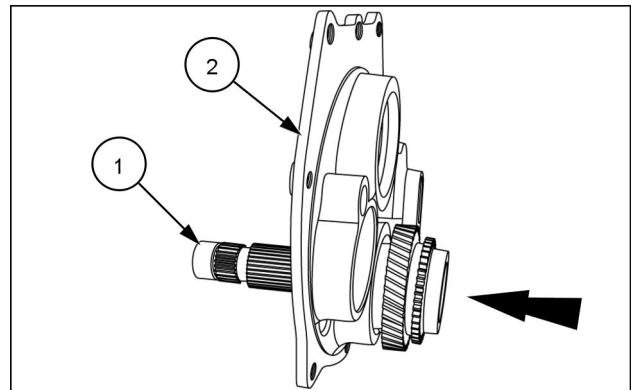
17. Install the gear shift lever (1) using the three M8 x 25 bolts (2). Make sure the shift lever tab (3) is in the slot made by the main shift rail assemblies.



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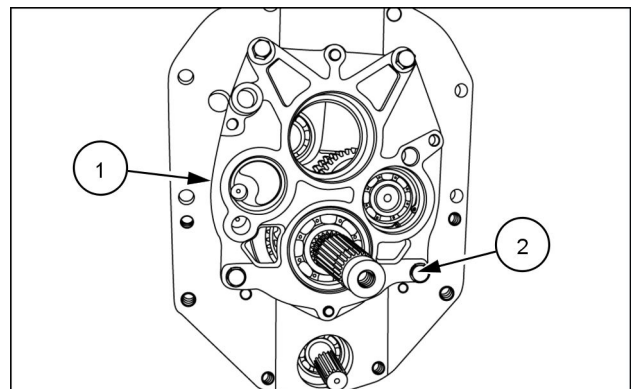
Center casing cover installation

1. Install the forward/reverse driven shaft and bearing (1) into the center case cover (2). Insert forward/reverse driven shaft in direction of arrow.



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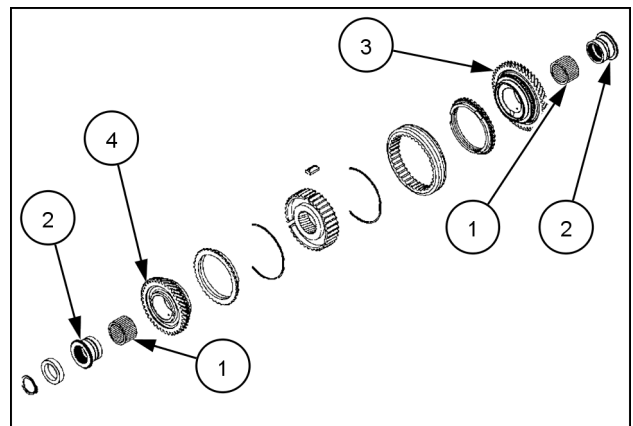
2. Install the center casing cover (1) using four M10 x 25 bolts (2). Torque hardware to **24.5 - 29.4 N·m (18.1 - 21.7 lb ft)**.



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3. Insert needle bearings (1) and bearing sleeves (2) in the forward driven gear (44T) (3) and reverse driven gear (37T) (4).
4. Assemble the forward/reverse synchronizer with the forward driven gear (44T) (3) to the rear and the reverse driven gear (37T) (4) to the front.

NOTE: Front and rear of the synchronizer is determined by the beveled side of the synchronizer sleeve. The largest beveled surface is the rear.



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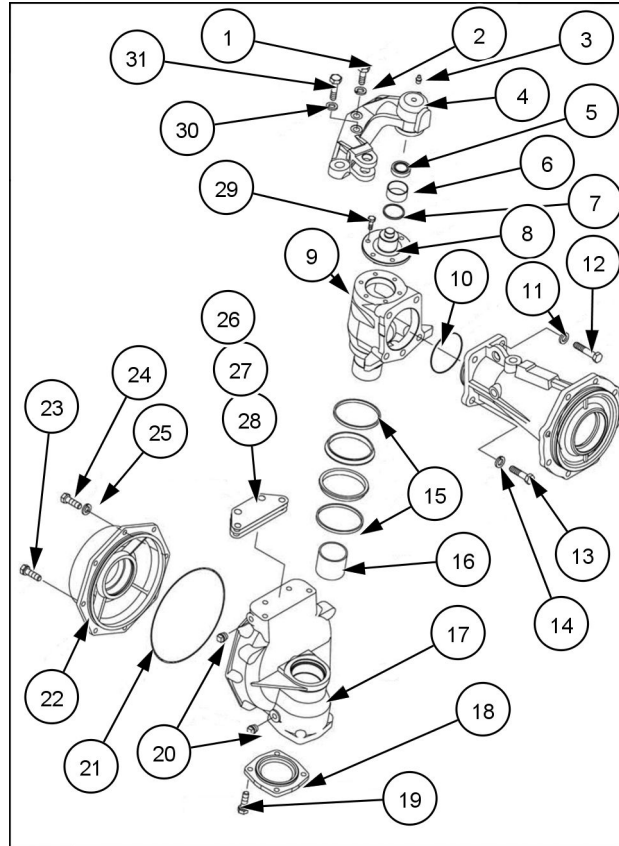
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All data given in this publication is subject to production variations. Dimensions and weight are approximate only and the illustrations do not necessarily show products in standard condition. For exact information about any particular product, please consult your NEW HOLLAND Dealer.

Powered front axle - Exploded view

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE



NHIL14CT00338BA 1

King pin and gear box components - right hand side

(1) Hex bolt, M12 x 30	(7) Dust seal	(13) Bolt, M14 x 40	(19) Hex bolt, M10 x 35	(25) Lock washer
(2) Lock washer	(8) Arm holder	(14) Lock washer	(20) Plug	(26) Shim
(3) Grease zerk	(9) King pin case	(15) Seal assembly	(21) O - ring	(27) Shim
(4) Arm (RH)	(10) O - ring	(16) Bushing	(22) Front axle shaft cover	(28) Shim
(5) Taper bearing	(11) Lock washer	(17) Gear case (RH)	(23) Hex bolt, M10 x 30	(29) Hex bolt, M8 x 25
(6) Bushing	(12) Bolt, M14 x 50	(18) Cover with bearing case	(24) Hex bolt, M10 x 35	(30) Lock washer
				(31) Bolt, M12 x 35

Powered front axle - Filling

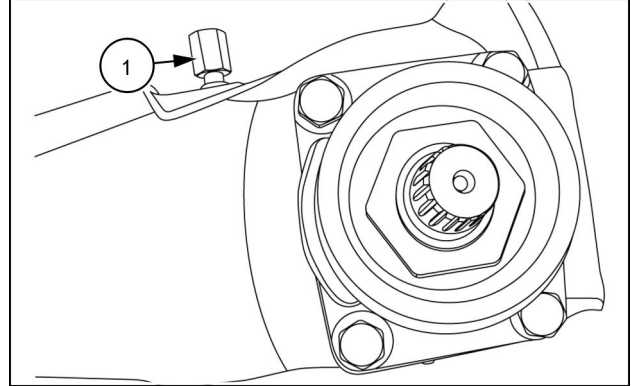
Boomer™ 40	WE
Boomer™ 50	WE

Prior operation:

Powered front axle - Drain fluid (25.100)

NOTICE: The automatic vent is made up of small parts, use care in removal. Removing , allows for accelerated filling.

1. Remove the automatic vent (1) to accelerate the fill process.

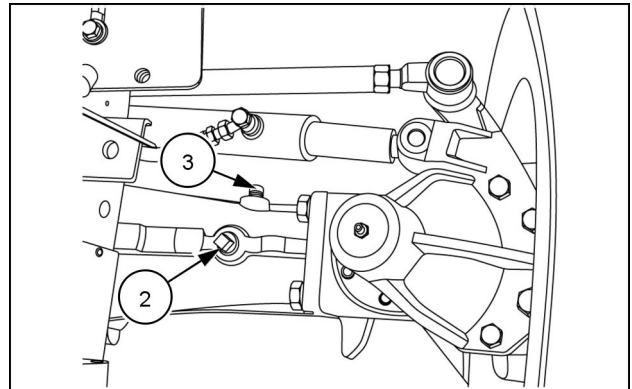


93112187 1

2. Remove filler plug (2) and check plug (3).
3. Install oil into plug opening (2) until oil flows out of plug opening (3).

NOTE: Remove the plug at opposite end of the axle to accelerate oil refill.

4. Use **NEW HOLLAND AMBRA HYPOIDE 90** gear oil.
5. Install all plugs when complete.



93109782 2

Differential - Assemble

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

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

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Final drive hub, steering knuckles, and shafts - 108

SERVICE

Steering knuckle and king pin

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Disassemble (*)	5
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Assemble (*)	11
Install (*)	14
Install - Steering arm installation (*)	16

Axle shaft

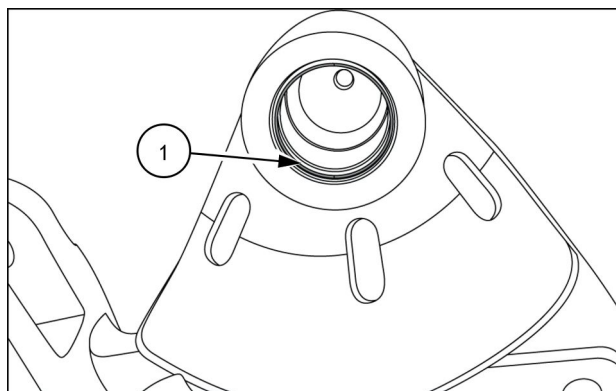
Remove (*)	18
Install (*)	19

(*) See content for specific models

Steering knuckle and king pin - Install - Steering arm installation

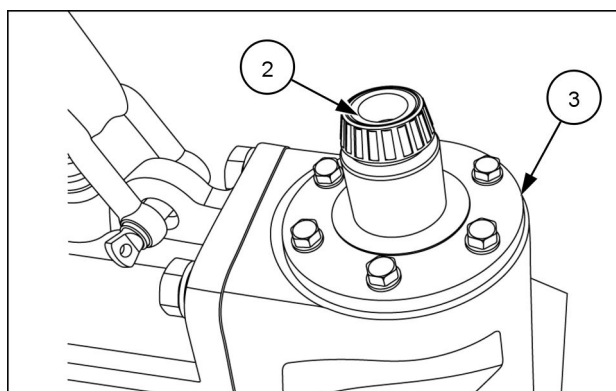
Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

1. Inspect the tapered bearing race (1) installed in the steering arm housing.



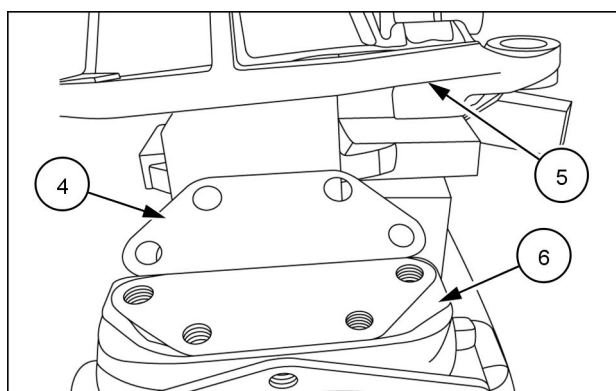
93112152 1

2. Place the steering arm housing onto the tapered bearing (2) and king pin housing (3)



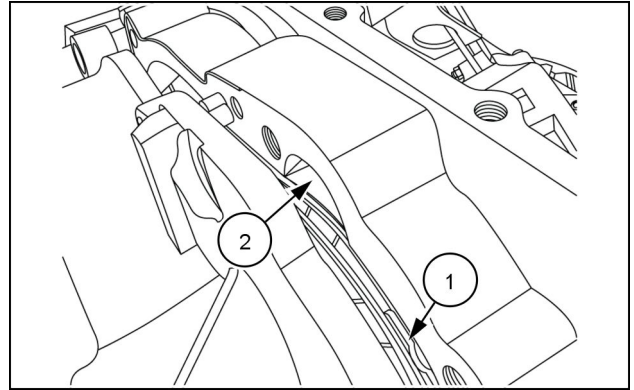
93112153 2

3. Install shim(s) (4) that were removed during disassembly, between the steering arm housing (5) and gear case housing (6).



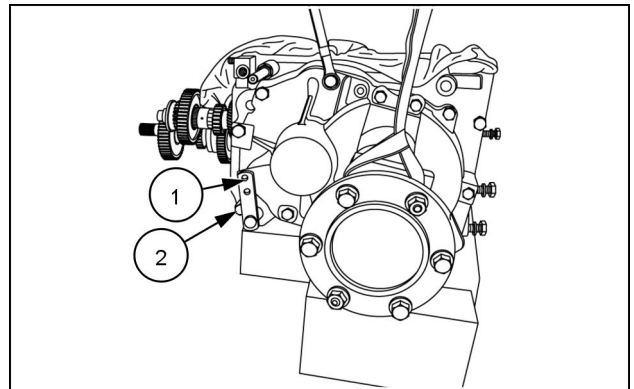
93112143 3

5. Ensure the tabs on the intermediate discs **(1)** align with the notches on the axle casing **(2)**.



93109724 3

6. Slowly rock the final drive assembly up and down, side to side, while keeping the tabs and notches aligned.
7. Install the eight **M14 x 40 mm** bolts and two **M14 mm** nuts. Torque these fasteners to **147 - 167 N·m (108 - 123 lb ft)**
8. Install the brake lever in a vertical position **(1)**.
9. Secure with a **M10 x 20 mm** bolt and lock washer, **(2)** torque to **49 - 53.9 N·m (36 - 40 lb ft)**.



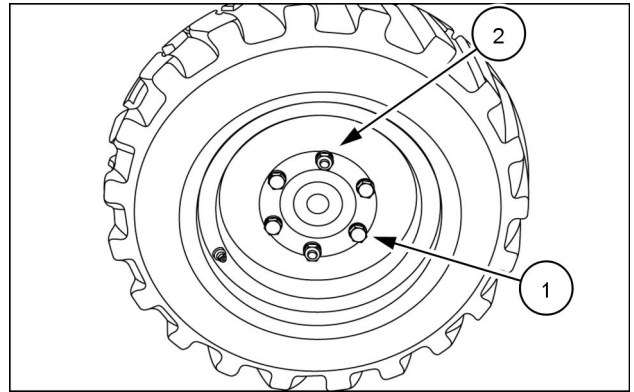
93109718 4

Install the tire and the wheel assembly.

Tighten the wheel bolts (1) and nuts (2) to the specified torque any time the wheel assembly is removed from the tractor or the wheel bolts are loosened.

Front Wheel Torque

- 176 - 196 N·m (130 - 145 lb ft)



93100874 15

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Rear axle system - 27

Rear bevel gear set and differential - 106

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Exploded view differential lock components HST transmission (*)	8
Exploded view differential lock components 16 x 16 mechanical transmission (*)	9

SERVICE

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Differential lock	
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Install (*)	28

(*) See content for specific models

Differential - Assemble

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

⚠ 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

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.

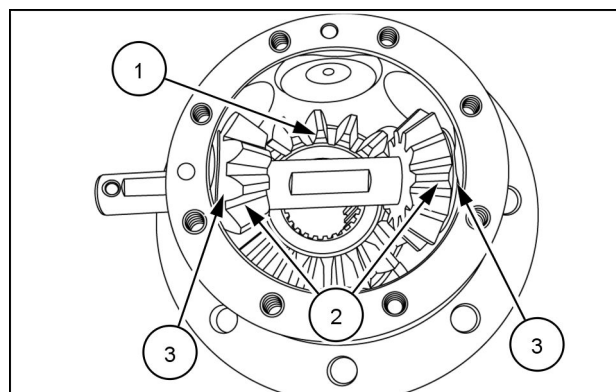
Failure to comply could result in death or serious injury.

W0398A

Prior operation:

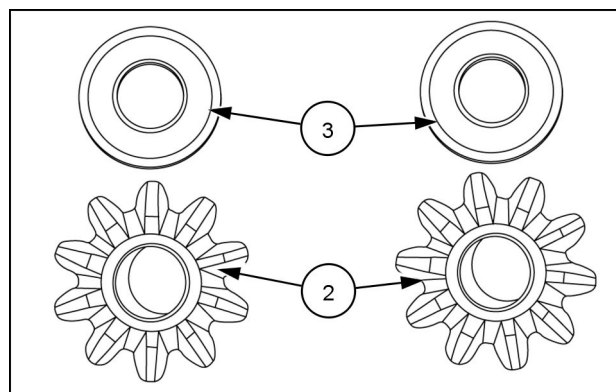
Differential - Disassemble (27.106)

1. Install the drive shaft spider gear (1).



93104582 1

2. Install the two spider gears (2) and shims (3). (Refer to figure 1.)



93104583 2

Index

Rear axle system - 27

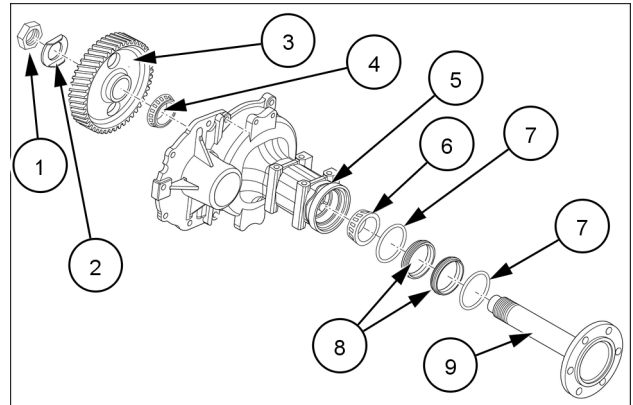
Rear bevel gear set and differential - 106

Differential - Assemble (*)	16
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Differential - Detailed view (*)	4
Differential - Disassemble (*)	13
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Differential lock - Install (*)	28
Differential lock - Overview (*)	7
Differential lock - Remove (*)	25

(*) See content for specific models

Installation of axle shaft into rear axle housing

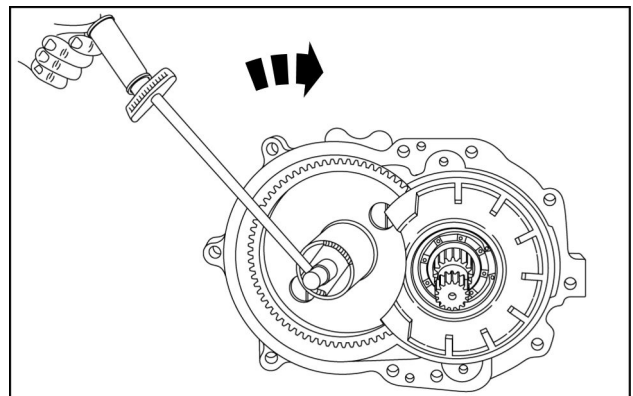
1. Clean and lubricate both sealing surfaces (8) of axle seal before installation of axle shaft.



NHIL12CT00991GA 7

NOTICE: Lubricate both bearings before installation of axle into housing.

2. Install bearing (6) onto axle shaft (9).
3. Install axle shaft (9) with bearing (6) into housing (5).
4. Install inner bearing (4) and gear (3) onto axle shaft (9).
5. Install locking device (2) and nut (1) onto end of axle shaft (9).
6. Tighten nut (1) to preload bearings until a rolling torque of **15 - 17 N·m (133 - 150 lb in)** is obtained.
7. After correct rolling torque is obtained, retain nut (1) in place by bending tab of locking plate (2) over nut flat.



NHIL13CT00371AA 8

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Transmission command - Test - Hydrostatic Transmission (HST) neutral switch (*)	7
Transmission command - Install - Hydrostatic Transmission (HST) neutral switch (*)	8

(*) See content for specific models

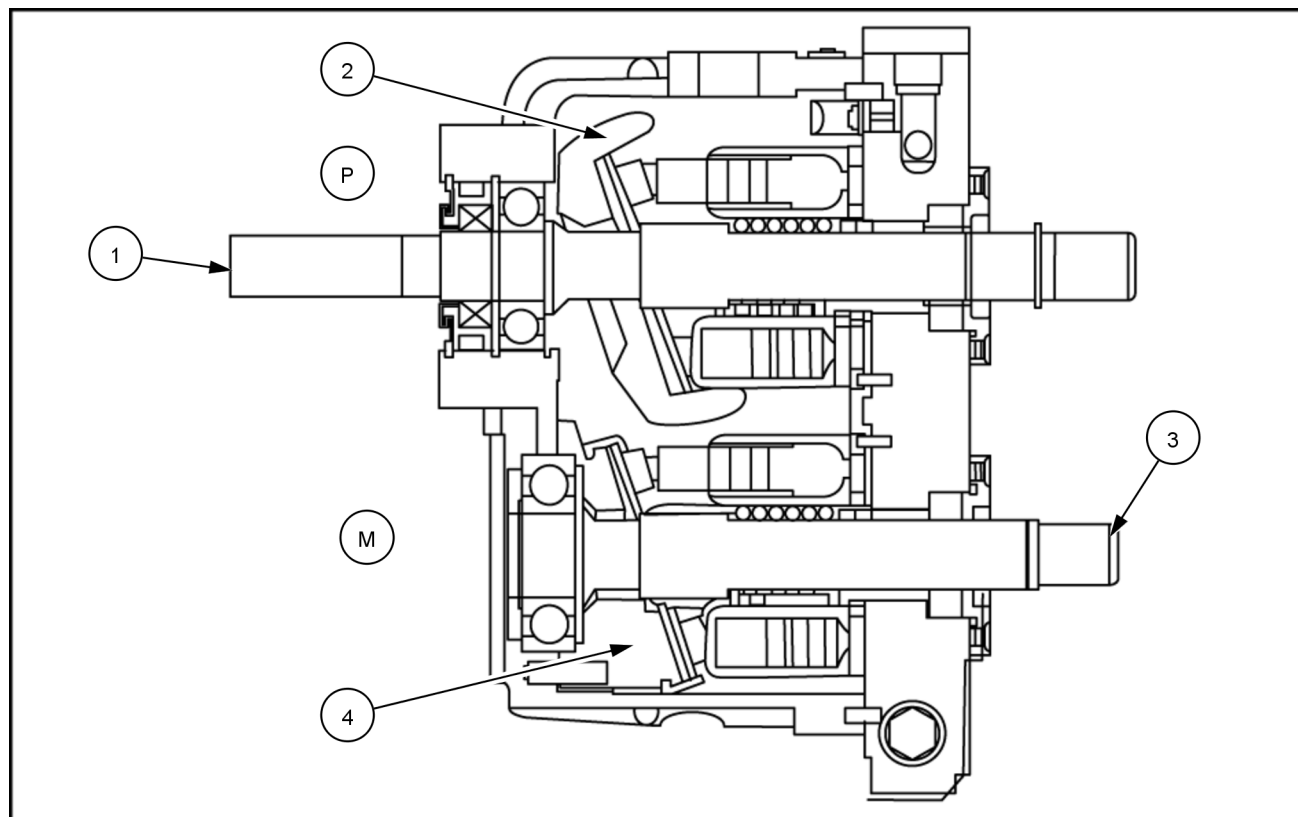
Hydrostatic transmission - Dynamic description

Boomer™ 40

WE

Boomer™ 50

WE



93102282 1

(P) Pump, (M) Motor.

The flywheel damper plate directly drives input shaft **(1)**. Movable cam plate **(2)** pivots on input shaft, is connected to the F/R pedal, and driven by pedal movement.

The direction of hydraulic oil flow is determined by the movable cam plate. Oil drives output shaft **(3)** by inflow to fixed cam plate **(4)** in the lower section.

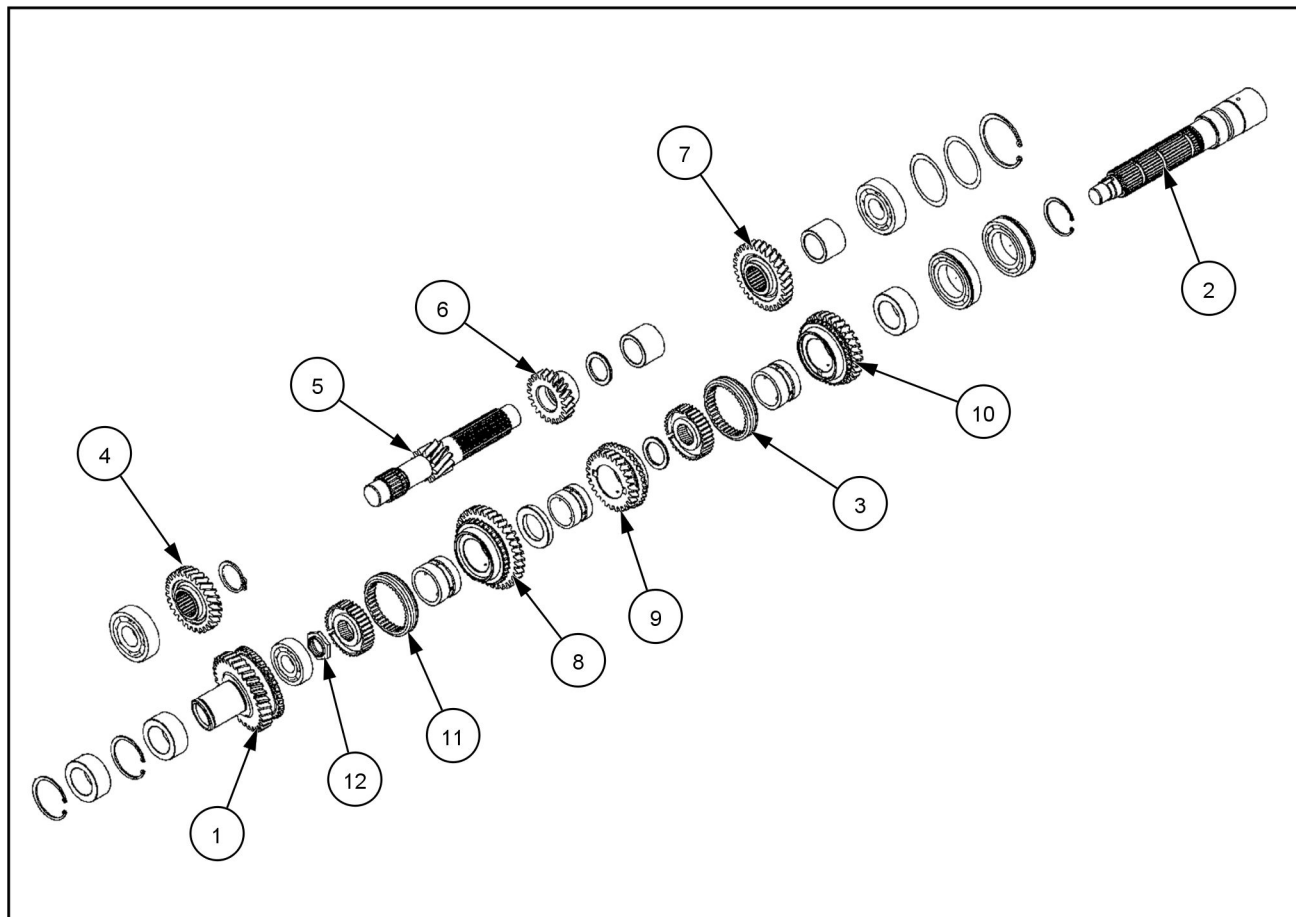
Hydrostatic transmission - Exploded view - Range gears

Boomer™ 40

WE

Boomer™ 50

WE

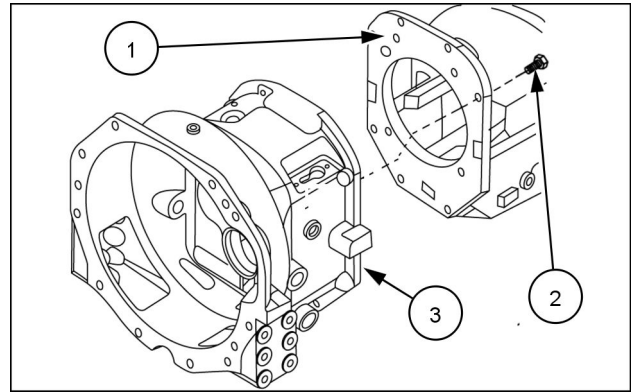


76113110B 1

Range drive gears and shafts location

- | | |
|----------------------------|----------------------------|
| (1) Range shaft drive gear | (7) Shift sleeve (1 - 2) |
| (2) Range drive shaft | (8) Range driven gear, 4th |
| (3) Range drive gear, 4th | (9) Range driven gear, 1st |
| (4) Range drive gear, 3rd | (10) Shift sleeve (3 - 4) |
| (5) Range driven shaft | (11) Nut, lock, M25 |
| (6) Range driven gear, 3rd | (12) Range input gear |

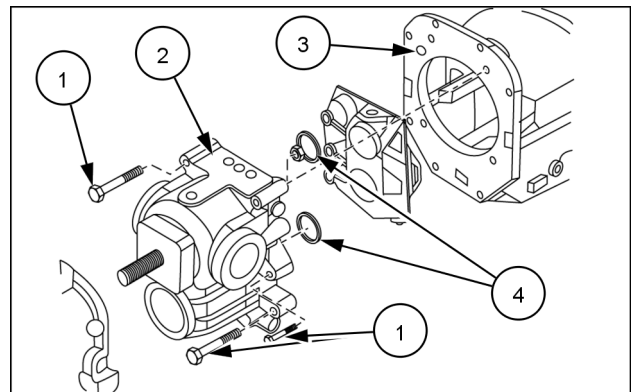
6. Remove the M12 bolts **(2)** to separate the clutch housing **(3)** from the center case **(1)**.



93102280A 4

7. Remove the bolts **(1)** to separate the Hydrostatic Transmission (HST) unit **(2)** from the center case **(3)**.

8. Remove the oil seals **(4)**.

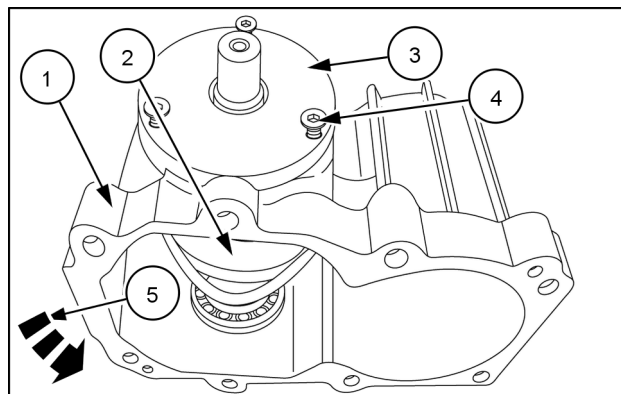


93102281 5

Next operation:
Hydrostatic transmission - Disassemble HST unit (29.202)

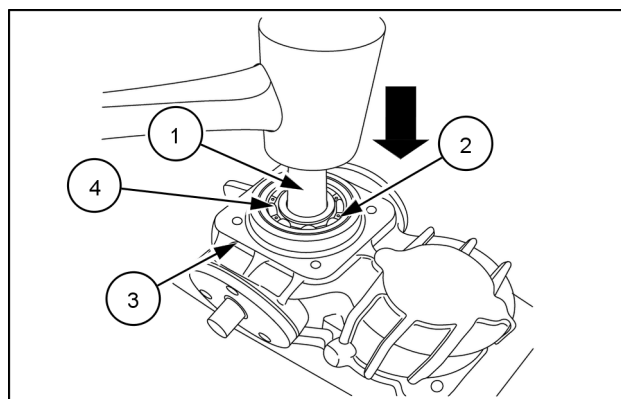
Swash plate assembly

1. Install the swash plate (2), into the body (1).
2. Install cover (5) (Not shown), and cover (3). Secure with three screws (4) in each cover.
3. Torque the screws (4) to **3.92 N·m (3 lb ft)**



NHIL12CT01054AA 10

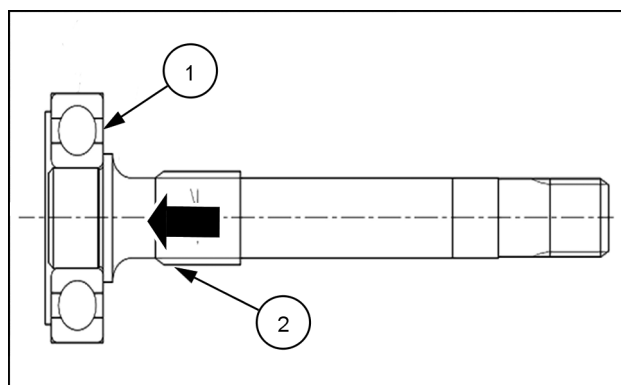
4. Install pump shaft (1) and bearing (4) assembly.
5. Secure with snap ring (4), in the body (3).



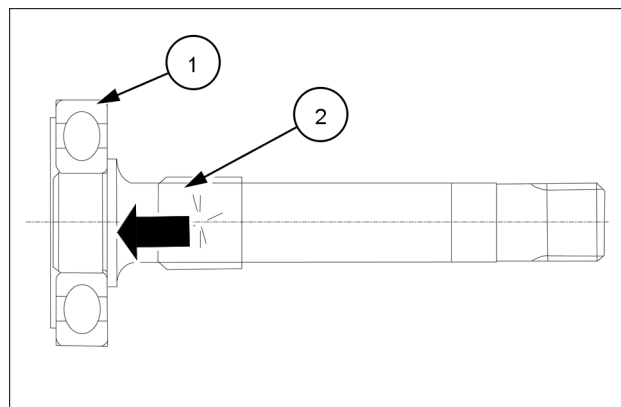
NHIL12CT01058AA 11

Motor shaft assembly

1. Press bearing (1) on the motor shaft (2) as shown.

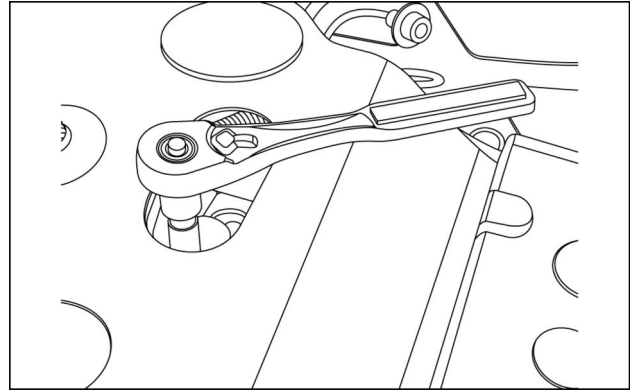


NHIL14CT00478AA 12



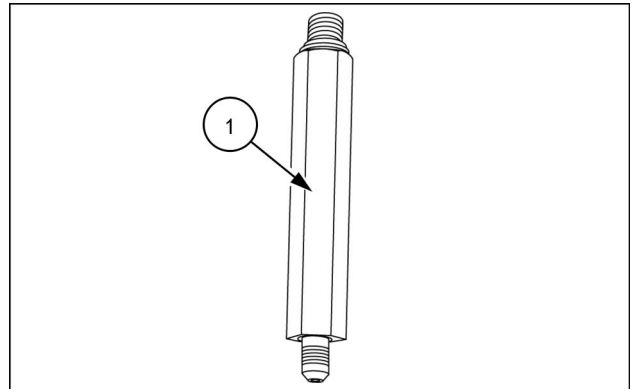
NHIL12CT01077FA 13

3. Remove either the right or left hand side test plug from the top of the transmission.



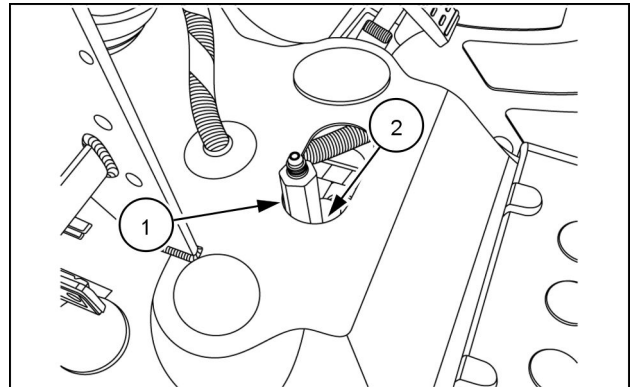
93109703 3

Test fitting **380003307 (1)**.



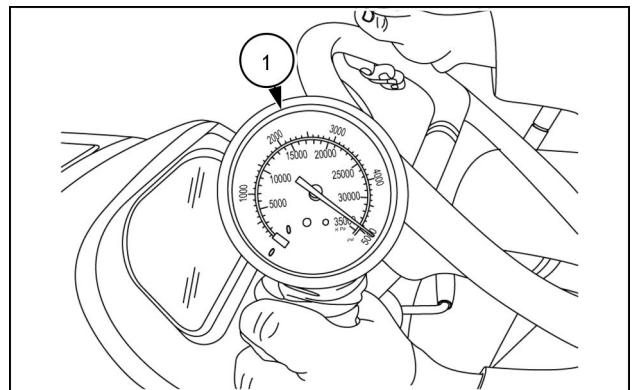
93109707 4

4. Install test fitting **380003307 (1)** into the port that the plug was removed from.



93109715 5

5. Install a **0.0 - 68947.6 kPa (0 - 10000 psi)** gauge (1) onto the test fitting.



93109710 6

NOTE: Have tractor hydraulic oil warmed to normal operating temperature.

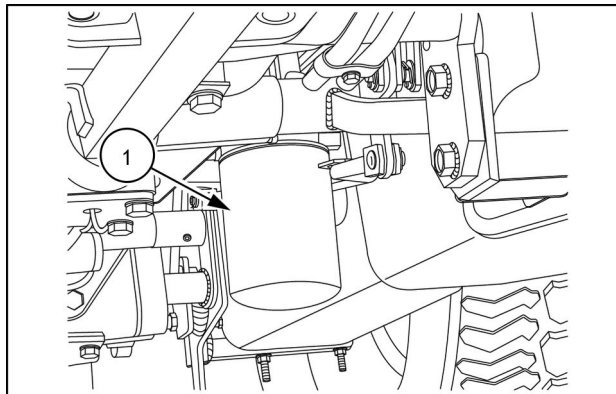
Hydrostatic transmission - Replace - Filter

Boomer™ 40	WE
Boomer™ 50	WE

NOTE: Change the Hydrostatic Transmission (HST) system oil filter after the first 50 hours of operation, and then following every 300 hours of operation thereafter.

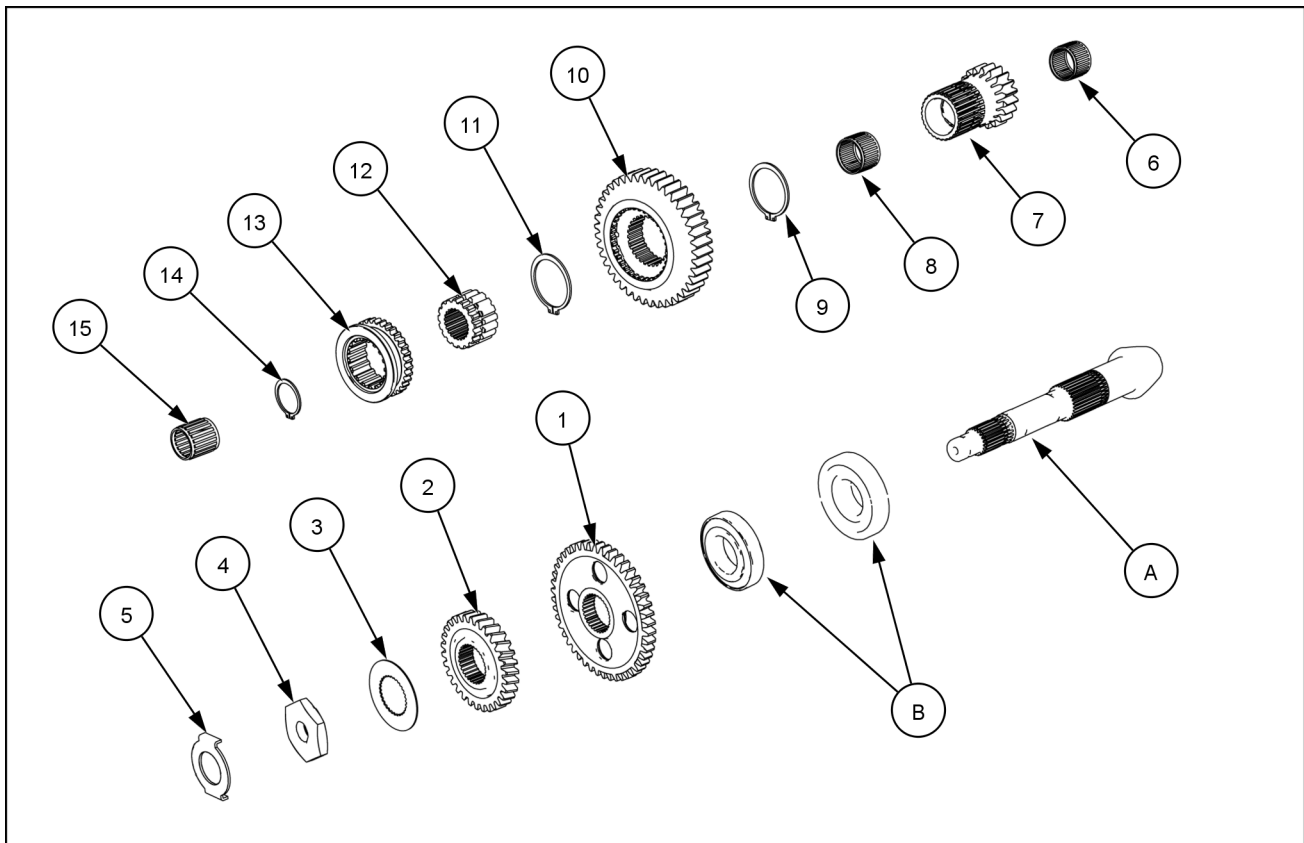
The hydrostatic system uses a spin-on type oil filter (1), located on the left-hand side of the tractor underneath the operator's platform.

1. Unscrew the used oil filter and discard.
2. Coat the gasket on the new filter with a film of clean oil. Screw the filter into place until the gasket contacts the sealing surface, then tighten the filter by hand approximately three-quarters of a turn. Do not overtighten.
3. Start the engine and check the filter for leaks.
4. Stop the engine and check the hydraulic system oil level. Add oil if necessary.



NHIL13CT01245AA 1

Installation of ground drive PTO driver gear



NHILCT000255FA 4

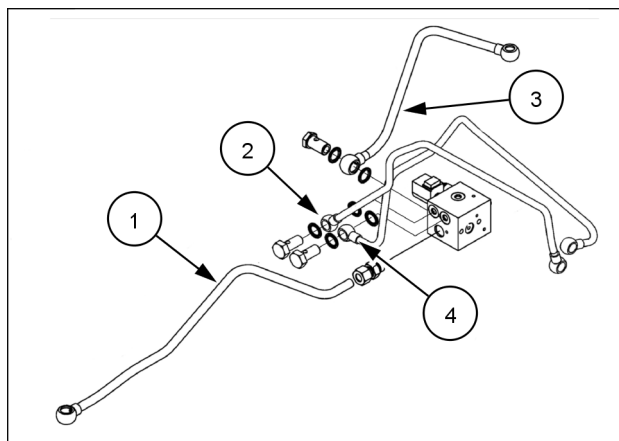
The ground drive PTO driver gear **(1)** is located on the rear axle pinion shaft **(A)**.

NOTE: Tapered bearings **(B)** are previously assembled on the pinion shaft **(A)**, not part of this procedure.

Install the following parts on the pinion shaft **(A)**

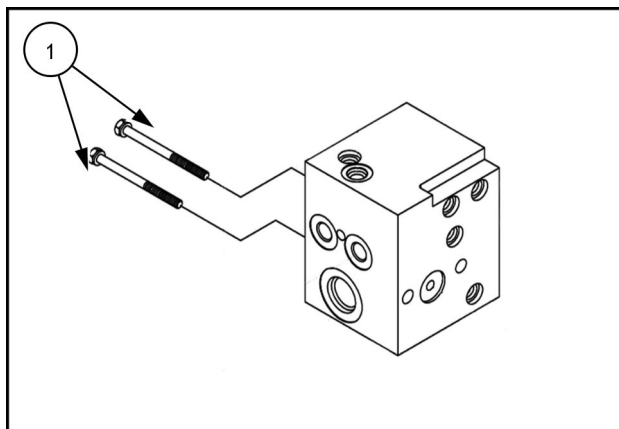
- PTO ground drive driver gear, 46 tooth **(1)**
- Gear, 30 tooth **(2)**
- Thrust washer **(3)**
- Lock nut **(4)**, Tighten nut to obtain **1 - 1.2 N·m (9 - 11 lb in)** of rolling torque of the pinion shaft.
- Lock washer **(5)**, bend tabs of the lock washer over the nut.
- Needle bearing **(6)**
- Gear, 19 tooth **(7)**
- Needle bearing **(8)**
- Snap ring **(9)**
- Gear, 42 tooth **(10)**
- Snap ring **(11)**
- Hub **(12)**
- Sliding coupler **(13)**
- Snap ring **(14)**
- Needle bearing **(15)**

3. Disconnect the hydraulic supply line **(1)** from the front of the valve.
4. Disconnect the PTO clutch engagement line **(2)** and PTO clutch lubrication line **(4)** from the front of the valve.
5. Disconnect the pressure beyond line **(3)** from the right side of the valve.



76110422 6

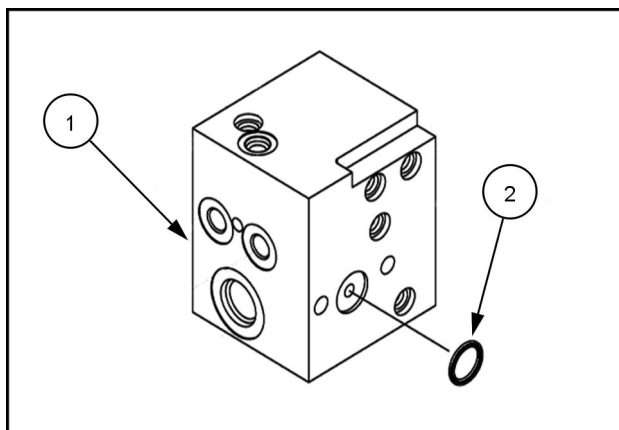
6. Remove the two M8 x 90 bolts and lock washers **(6)** that attach the PTO control valve to the transmission case.



76110423 7

7. Remove the PTO control valve **(1)** from the transmission case.

NOTICE: Be careful not to lose the O-ring **(2)** that is located between the valve and the transmission case.



76110420 8

Power Take-Off (PTO) clutch - Remove

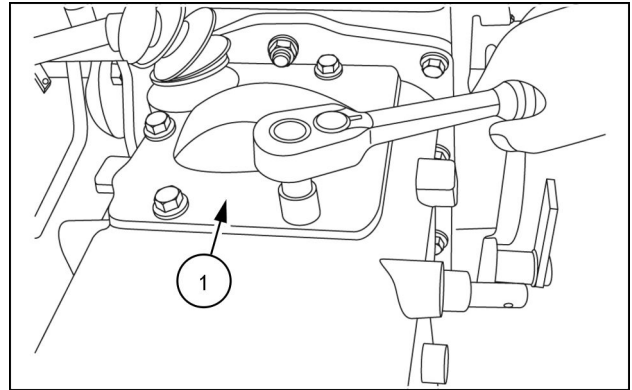
Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

⚠ WARNING

Heavy object!
ALWAYS use a hoist or get assistance to lift the component.
 Failure to comply could result in death or serious injury.

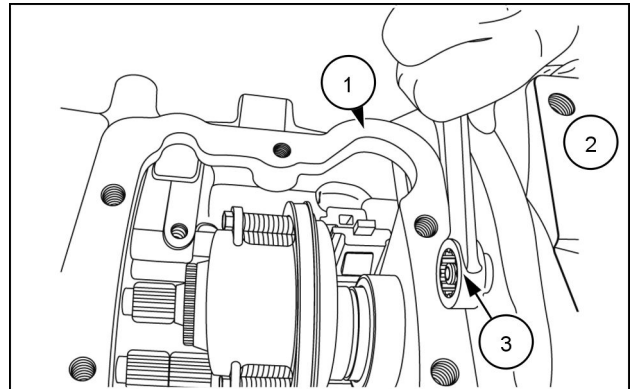
W0086A

1. Remove the PTO cover (1).



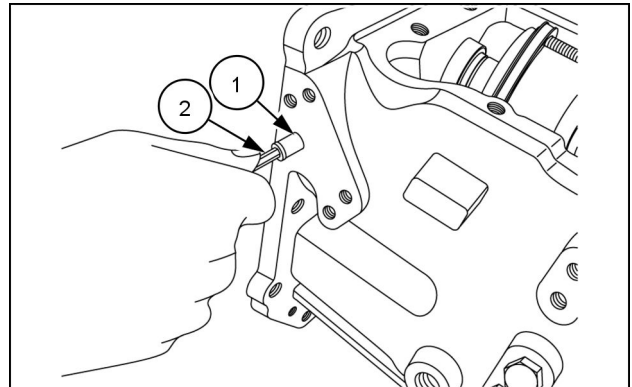
93102339 1

2. Separate the center housing (1) from the axle housing (2) by removing bolts (3).



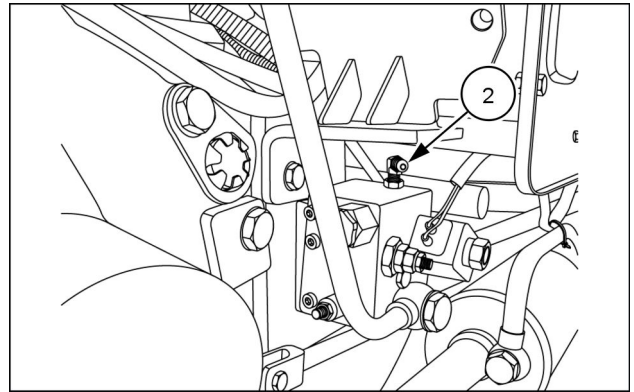
93102341 2

3. Remove pipe (1) with a 6 mm bolt (2).



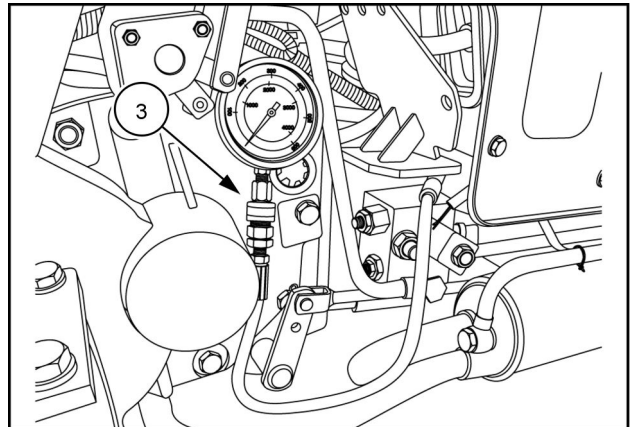
93102342 3

4. Install test fitting (2) **380200141** and a pressure gauge (3) capable of reading **2068 kPa (300 psi)** into G2 port.



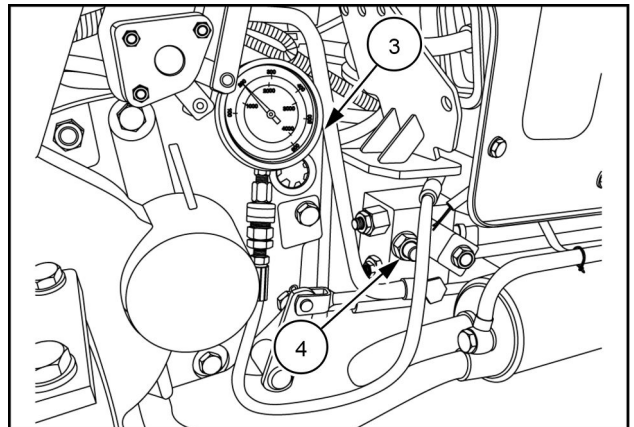
93110401 9

5. Start the engine.
6. The pressure at the G2 port with the PTO switch in the "OFF" position should read **0 kPa (0 psi)**.



76110415 10

7. Push and turn the PTO switch to the "ON" position. After a **1 s**, the pressure gauge (3) should read **1373 - 1569 kPa (200 - 227 psi)**. If the pressure needs adjustment, turn the adjusting screw on the reduction valve (4) to increase or decrease the pressure to the PTO clutch. A quarter turn of the adjusting screw will increase or decrease the pressure by approximately **138 kPa (20 psi)**.



93110402 11

8. Turn the engine OFF. Remove test fitting and insert the plug into G2 port.
9. If the hydraulic pressure to the PTO clutch cannot be adjusted to **1373 - 1569 kPa (200 - 227 psi)** check the system hydraulic pressure for adequate supply pressure and volume.

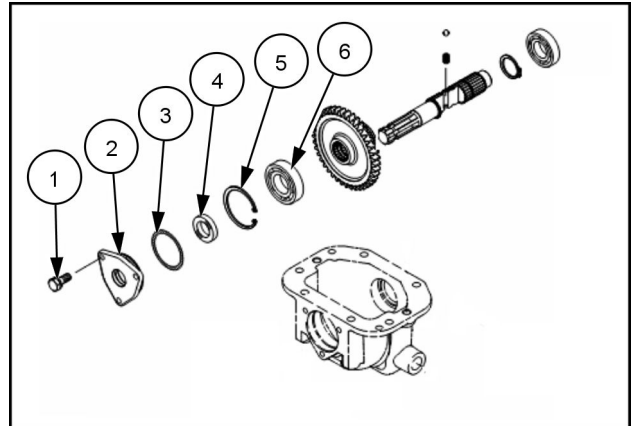
Central Power Take-Off (PTO) - Disassemble

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:

Central Power Take-Off (PTO) - Remove (31.120)

1. Remove three bolts (1) from the middle PTO shaft cover (2).
2. Remove the shaft cover (2), shaft cover seal (3), and the middle PTO shaft seal (4).
3. Remove the bearing retaining snap ring (5) and bearing (6). Inspect bearing for damage and wear and replace if necessary.

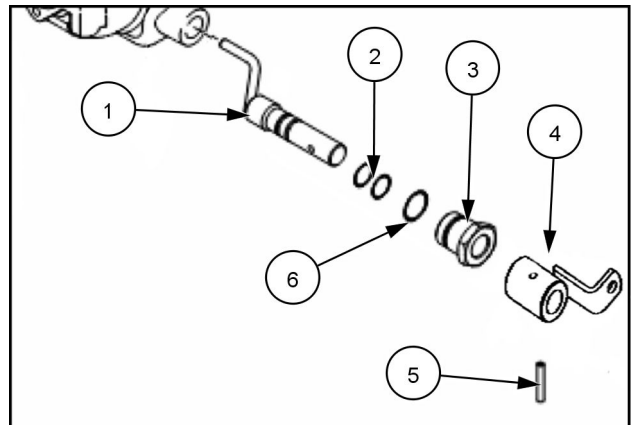


76110441 1

4. Remove spring pin (4) from middle PTO control shaft assembly (5). Remove shaft control assembly.
5. Remove middle PTO control shaft retainer and seal (3). Remove seal (6) and shims (2) from the middle PTO control shaft (1).

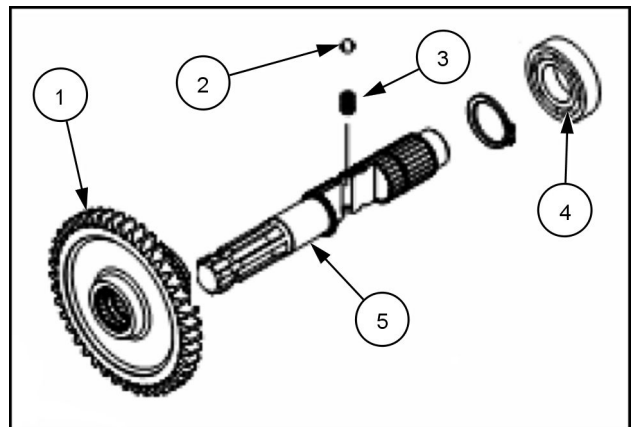
NOTE: Use the same number of shims removed from the middle PTO control shaft during assembly.

6. Remove the middle PTO control shaft from the middle PTO housing.



76110439 2

7. Remove the middle PTO driven gear (1), middle PTO shaft (5) from the middle PTO housing.
8. Disassemble the gear and shaft, remove the ball (2) and spring (3). Inspect the middle PTO driven gear, middle PTO shaft, and bearing (4) for damage and wear and replace if necessary.



76106776 3

Next operation:

Central Power Take-Off (PTO) - Assemble (31.120)

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Install the parking brake micro switch, lever and cable (*)	6
Parking brake discs - Adjust (*)	8

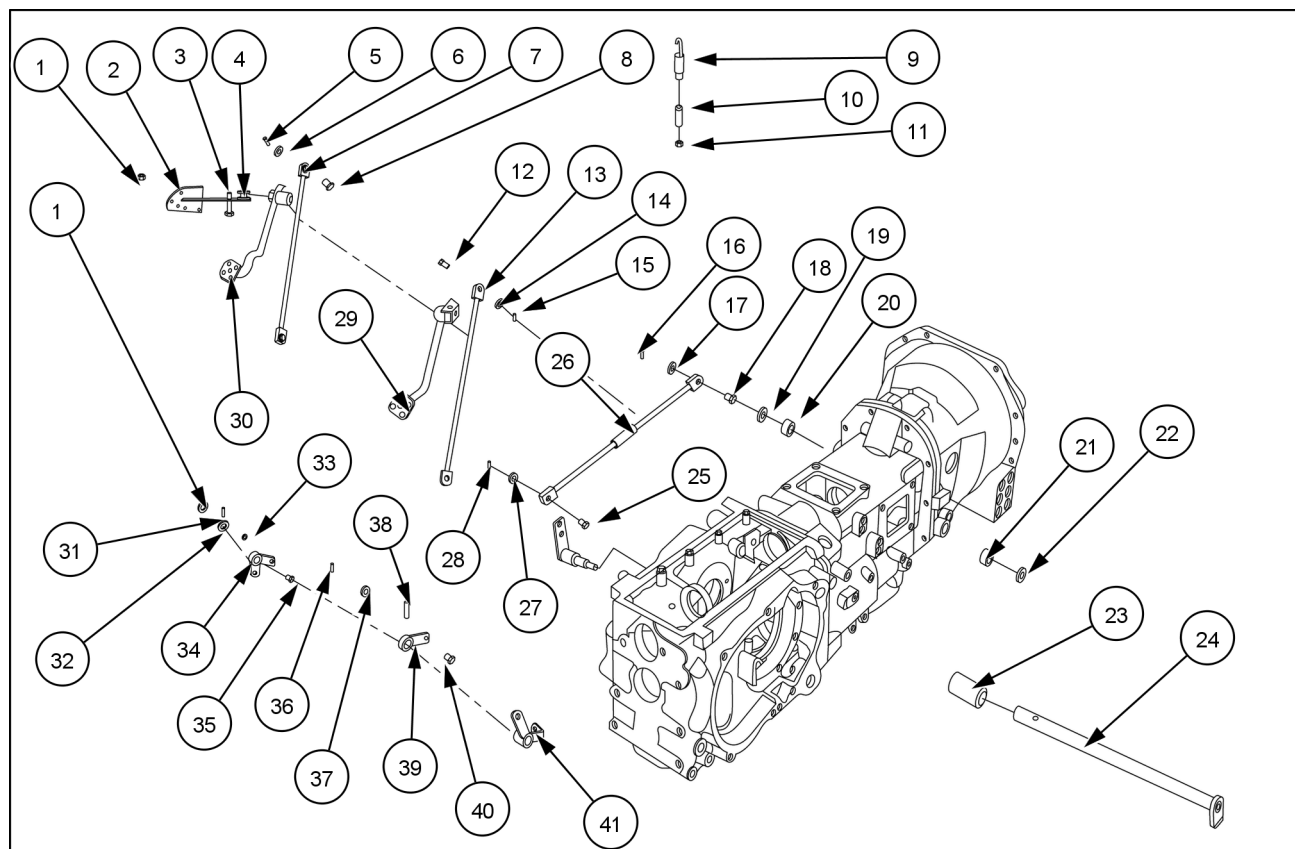
DIAGNOSTIC

Parking brake or parking lock	
Troubleshooting (*)	9

(*) See content for specific models

Mechanical service brakes - Exploded view HST transmission

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE



NHIL14CT00498FA 1

Brake linkage HST transmission

(1) Snap ring	(8) Pin	(15) Cotter pin	(22) O - ring	(29) Brake pedal (RH)	(36) Cotter pin
(2) Clutch pedal stopper	(9) Spring	(16) Cotter pin	(23) Spacer	(30) Brake pedal (LH)	(37) Washer
(3) Hex bolt, M8 x 20	(10) Adjusting bolt	(17) Washer	(24) Brake pedal shaft	(31) Spring pin	(38) Spring pin
(4) Brake pedal shaft	(11) Lock nut	(18) Pin	(25) Pin	(32) Washer	(39) Brake arm (LH)
(5) Cotter pin	(12) Pin	(19) O - ring	(26) Brake rod assembly	(33) Washer	(40) Pin
(6) Washer	(13) Brake rod assembly	(20) Bushing	(27) Washer	(34) Brake arm (LH)	(41) Parking brake arm
(7) Brake rod assembly	(14) Pin	(21) Bushing	(28) Cotter pin	(35) Pin	

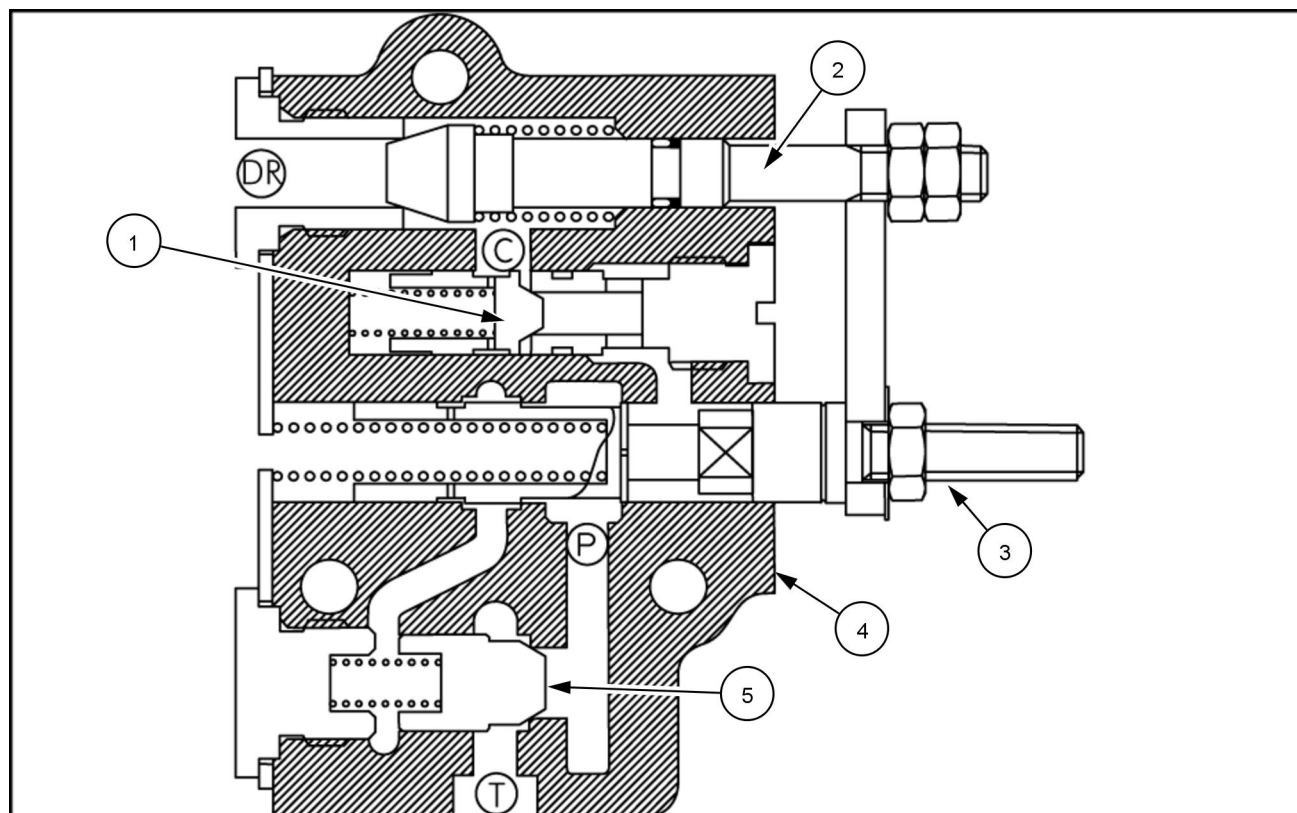
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[35.104] Fixed displacement pump.....	35.2
[35.114] Three-point hitch control valve	35.3
[35.116] Three-point hitch cylinder	35.4
[35.204] Remote control valves	35.5
[35.300] Reservoir, cooler, and filters.....	35.6
[35.350] Safety and main relief valves	35.7
[35.355] Hydraulic hand control	35.8

Hitch control valve - Detailed view

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE



93102600A 1

Control valve components

- | | |
|----------------------|---|
| (1) Check valve | (C) Cylinder circuit |
| (2) Lowering valve | (P) Pressure oil input from pump |
| (3) Main valve spool | (T) Tank, return oil |
| (4) Body | (DR) Drop Rate valve, exhaust oil from cylinder |
| (5) Unload valve | |

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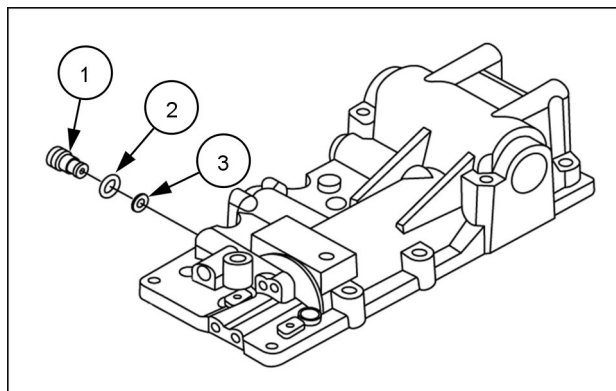
- Please note: If there is no response to **CLICKING** the link, please download this PDF first and then click on it.

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Relief valve - Remove

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

1. Lower the three-point hitch completely, to relieve any oil in the lift cylinder.
2. Remove the safety relief valve **(1)** from the Hydraulic Power Lift (HPL) housing.
3. Inspect the O-ring **(2)** and copper seal washer **(3)** for damage.



76109555 1

Next operation:
Relief valve - Install (35.114)

Contents

Hydraulic systems - 35

Remote control valves - 204

FUNCTIONAL DATA

Remote control valve

Open center mechanical remote valve - Static description - Front two spool (*)	3
Detailed view - Front two spool (*)	5
Open center mechanical remote valve - Static description - Rear (*)	6
Detailed view - Rear (*)	7

SERVICE

Remote control valve

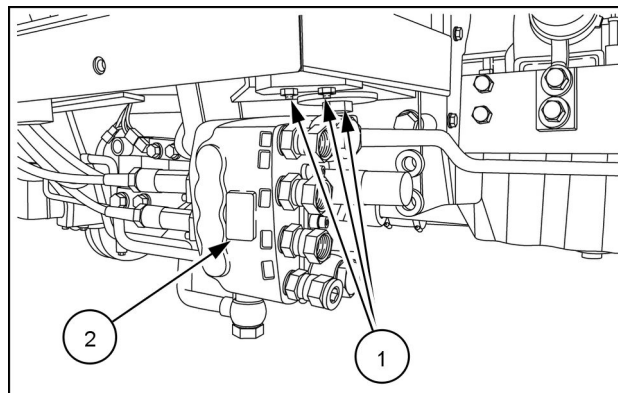
Remove (*)	8
Open center mechanical remote valve - Disassemble - Front two spool - joystick (*)	10
Open center mechanical remote valve - Assemble - Front two spool joy stick (*)	12
Install (*)	16

(*) See content for specific models

Remote control valve - Install

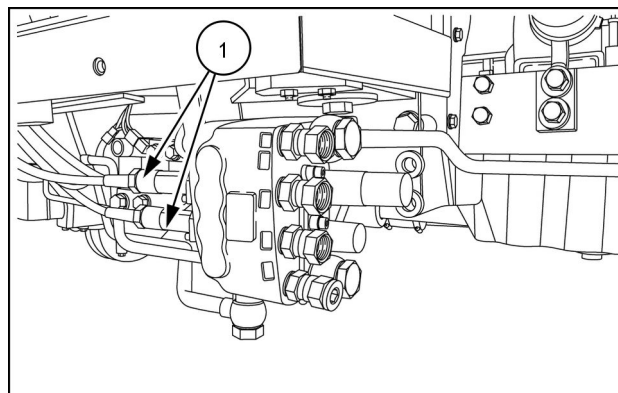
Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

1. Install the mid mount valve body (2) onto the tractor and secure with the three M8 x 25 bolts (1).



NHIL13CT00915AA 1

2. Install the joystick cables (1). Refer to **Remote control valve Open center mechanical remote valve - Assemble - Front two spool joystick (35.204)**.

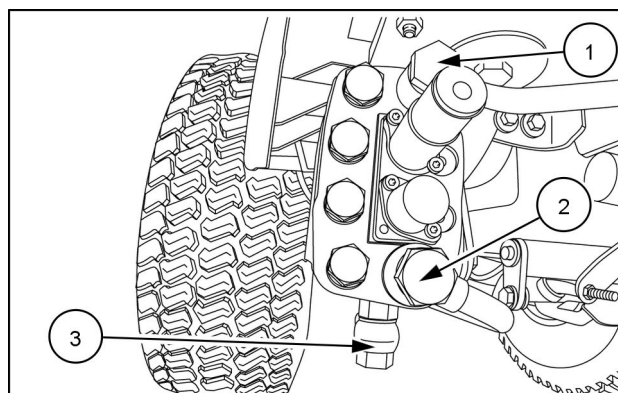


NHIL13CT00915AA 2

3. Install the hydraulic return line (3) onto the valve body and secure with a banjo bolt.

NOTE: Make sure all banjo bolts have a sealing washer on both sides.

4. Install the power beyond supply line (2) onto the valve block.
5. Install the hydraulic supply line (1) to the valve body.



NHIL13CT00910AA 3

Main relief valve - Test

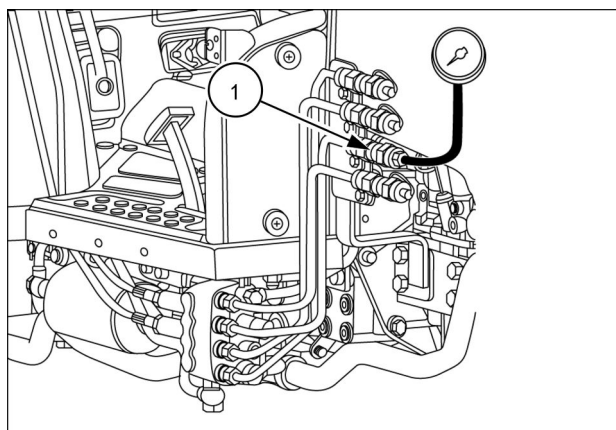
Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

⚠ WARNING

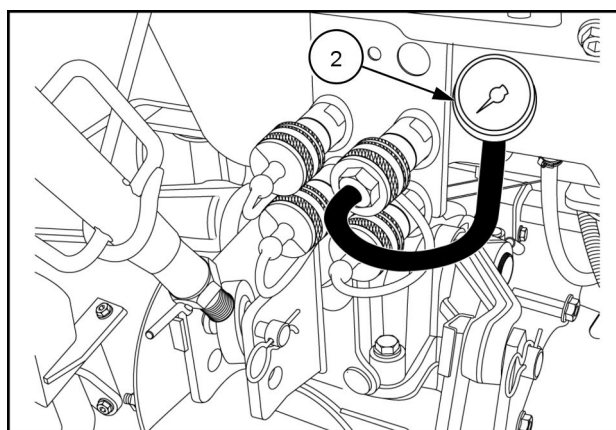
Pressurized hydraulic fluid can penetrate the skin and cause severe injuries. Tighten all of the connections before starting the engine. If hydraulic fluid has penetrated the skin, seek medical assistance immediately. Failure to comply could result in death or serious injury.

W0117A

1. The hydraulic system relief pressure can be checked at the following locations, front remote couplers (1) or rear remote couplers (2) using a 0 - 20685 kPa (0 - 3000 psi) gauge and male quick coupler.



76109568 1



76109569 2

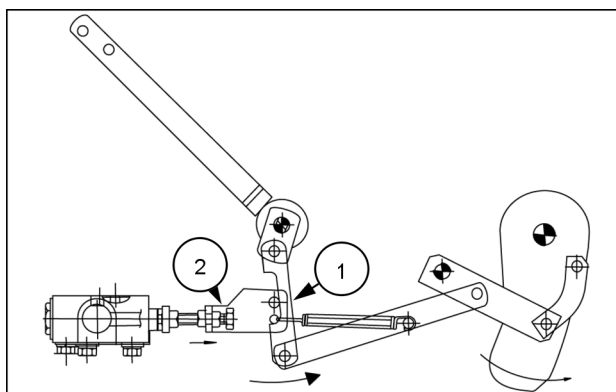
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[37.108] Rear three-point hitch external controls	37.2
[37.110] Rear three-point hitch	37.3

Neutral position during raise cycle

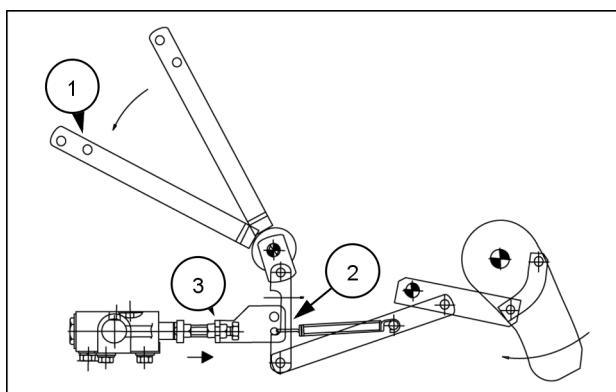
As the 3pt hitch arms raise, the pivot link (1) rotates rearward. When the pivot link rotates rearward, pressure against the valve link (2) is released allowing the valve spool to return to the neutral position.



93102606 4

Lowering Operation

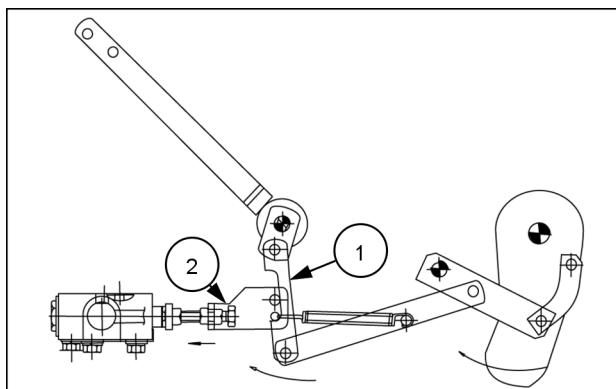
To lower the 3pt hitch, move the HPL position lever (1) frontward to the desired position. Pivot link (2) will pull on valve link (3) moving the valve spool outward to the lower position.



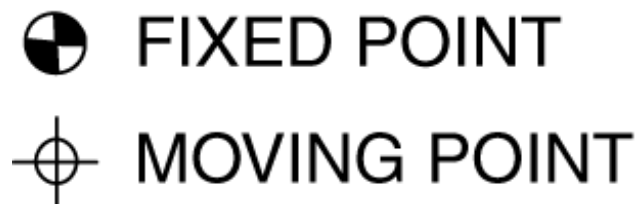
93102607 5

Neutral position during lower cycle

As the 3pt hitch arms lower, the pivot link (1) rotates frontward. When the pivot link rotates frontward, the pulling on the valve link (2) is released allowing the valve spool to return to the neutral position.



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76109559 7

Contents

Hitches, drawbars, and implement couplings - 37

Rear three-point hitch - 110

FUNCTIONAL DATA

Rear three-point hitch

Dynamic description - Hydraulic Power Lift (HPL) system (*)	4
Static description - Hydraulic Power Lift (HPL) (*)	5

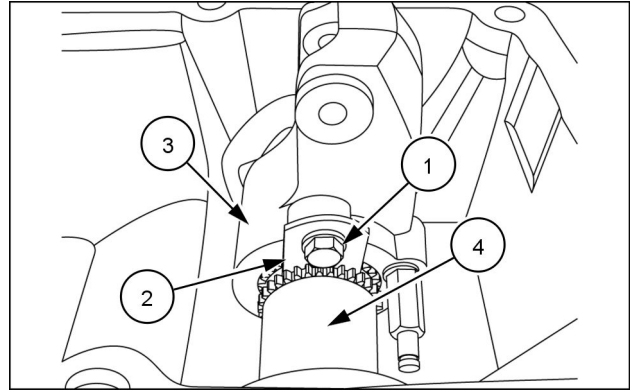
SERVICE

Rear three-point hitch

Remove - Hydraulic Power Lift (HPL) housing (*)	6
Disassemble (*)	8
Assemble (*)	9
Install - Hydraulic Power Lift (HPL) housing (*)	10
Adjust - Mechanical draft control (*)	12
Remove - HPL linkage (*)	13
Install - HPL linkage (*)	17
Remove - HPL housing (*)	21
Install - HPL housing (*)	23

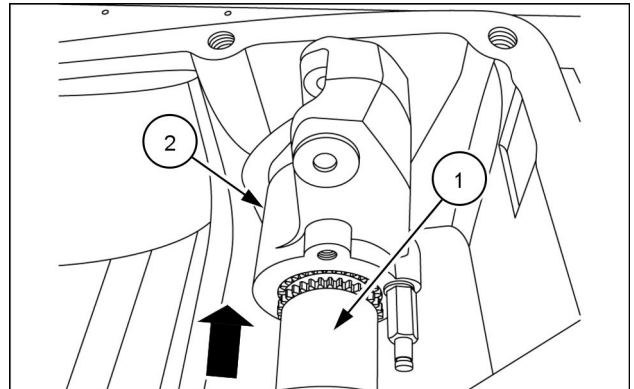
(*) See content for specific models

11. Remove bolt (1) and lock plate (2) from the pivot arm (3) and cross shaft (4).



93109586 11

12. Drive the cross shaft (1) out of the HPL housing, from the right side towards the left side. Remove the pivot arm (2) from the housing.

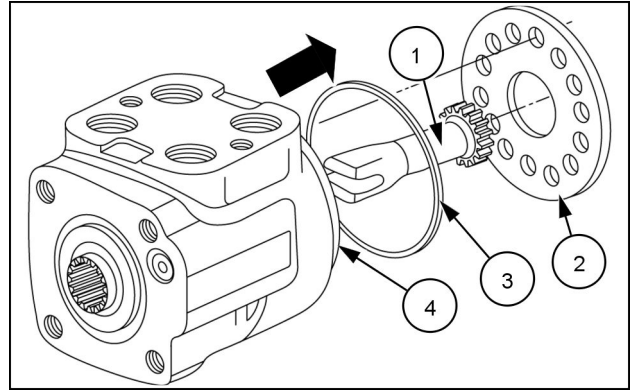


93109587 12

The steering valve controls the oil flow to the steering cylinder **(2)** which in turn, turns the wheels to the left or to the right.

If the steering system pressure ever increases above the relief valve **(5)** setting, the oil will then return to the transmission sump through the steering relief valve .

8. Remove spacer plate (2).
9. Remove the O-ring (3) from housing (4).
10. Remove rotor drive shaft (1).

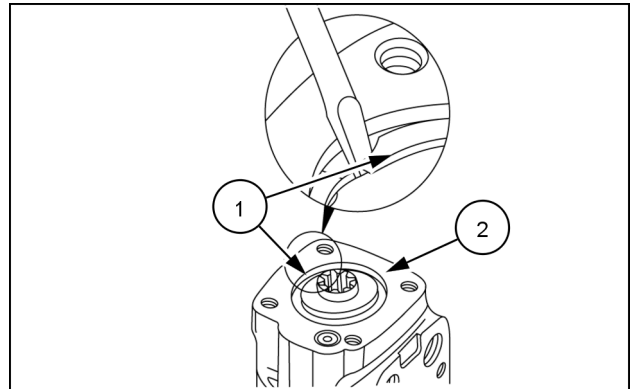


93102647 4

Disassembly of the control shaft

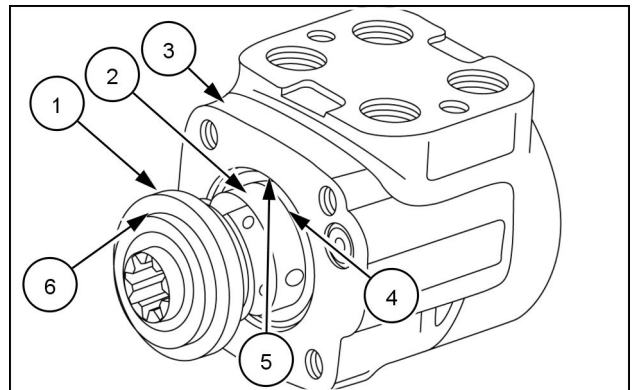
NOTE: Mark the spool and sleeve for re-assembly reference. Carefully remove the spool and sleeve by slowly turning from right to left.

1. Remove the housing from the vice and cover the top of machined surface with a clean cloth.
2. Use a small screwdriver to remove the retaining ring (1) from the housing (2).



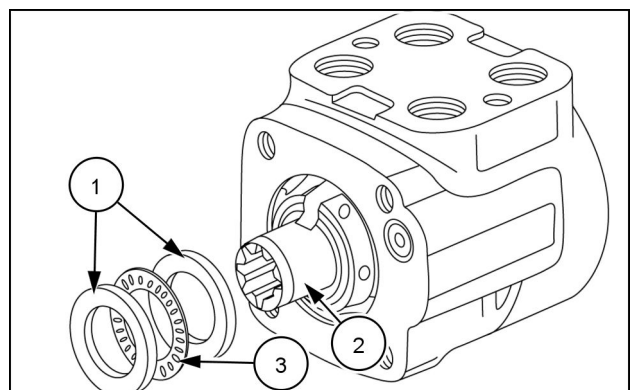
93102648 5

3. Rotate the valve body (3) so the spool (2) is in a horizontal position. Push the seal (1) and retainer (6) off of the spool and remove the seal retainer (5) from the valve body.
4. Remove the oil seal (1) from seal retainer (6).
5. Use a screwdriver to remove the dust seal (4).



93102649 6

6. Remove the two races (1) and the thrust bearing (3), from the spool assembly (2).



93102650 7

Hydraulic control components - Troubleshooting - For the steering control unit

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Problem	Possible Cause	Correction
Steering wheel excessively stiff	Control valve - External misalignment	Repair (loosen bolts and realign parts)
	Control valve - Seized by contamination in spool and sleeve	Replace or repair spool and sleeve
	Control valve - Torque of seven bolts in end cap too high	Torque end cap bolts to the prescribed torque value
	Pump - No operation	Check pump drive gear
	Pump - Worn or defective	Replace or repair pump
	Pump - Rotates in the opposite direction	Crossed pressure ports. Realign pressure ports
	Pump - Discharge pressure low	Readjust pump pressure and capacity
	Relief valve - Faulty (poor operation)	Replace relief valve
	Relief valve - Pressure setting too low	Adjust pressure setting of the relief valve
	Cylinder - Low cylinder force	Replace or repair cylinder
Oil leakage	The spool oil seal is worn	Replace
	The excessive pressure	Set to correct pressure
	Contact side of housing, space plate, rotor set and end cap O ring damaged	Replace O rings
Tractor turns opposite direction of the steering wheel	Control valve - Steering valve timing incorrect	Correct the timing
	Plumbing - Right and left high pressure ports reversed	Correct plumbing
Steering wheel does not return to the "neutral" position or moves freely.	Control valve - Contamination in spool and sleeve	Replace or repair
	Control valve - Back pressure high	Repair for adjustment
When turning the steering wheel, slow or no response in steering	Control valve - Air in system	Remove air and tighten the connection
	Pump - Low hydraulic oil flow	Replace or repair
	Cylinder - Air in system	Remove air and tighten the connection
	Cylinder - Piston seal broken	Replace
	Overload Excessive weight on the front axle.	Remove the excess weight

Steering cylinder - Inspect

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:

Steering cylinder - Disassemble (41.216)

Refer to **Steering cylinder - Exploded view (41.216)**

Inspect the following :

1. Two copper gaskets at the banjo bolt.
2. The wire ring.
3. The dust seal.
4. The gasket.
5. The cylinder.
6. The piston rod.

Next operation:

Steering cylinder - Assemble (41.216)

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[44.520] Rear wheels.....	44.2

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(*) See content for specific models

Temperature control - Dynamic description

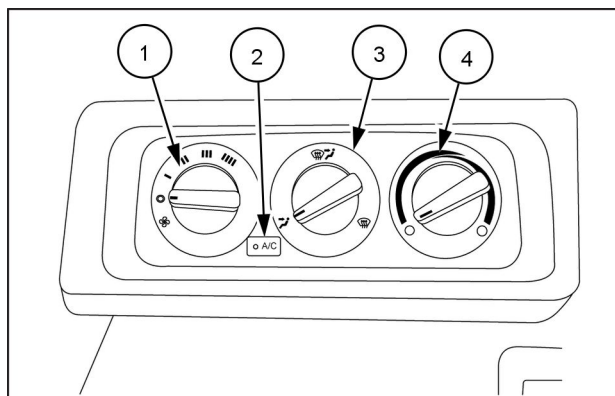
Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab

Mode selection

1. Blower speed control dial (1).
2. Air conditioning switch (2).

NOTE: Press this switch to operate the air conditioner. Its Light Emitting Diode (LED) comes on during operation.

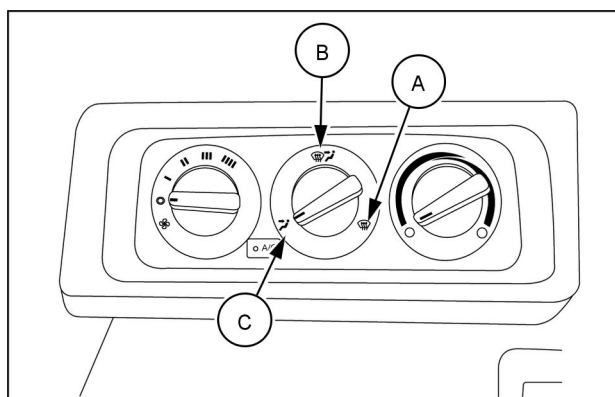
3. Air direction mode dial (3).
4. Temperature control (4).



NHIL15CT00518AA 1

Air direction switch position

- A. Air is blown toward the windshield (A).
- B. Air is blown toward an operator and windows (B).
- C. Air is blown toward an operator (C).



NHIL15CT00518AA 2

Heater control valve - Install

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab

⚠ WARNING

Hazardous chemicals!

Coolant can be toxic. Avoid contact with skin, eyes, and clothing. Antidotes:

EXTERNAL - Rinse thoroughly with water. Remove soiled clothing.

INTERNAL - Rinse the mouth with water. **DO NOT** induce vomiting. Seek immediate medical attention.

EYES - Flush with water. Seek immediate medical attention.

Failure to comply could result in death or serious injury.

W0282A

⚠ WARNING

Burn hazard!

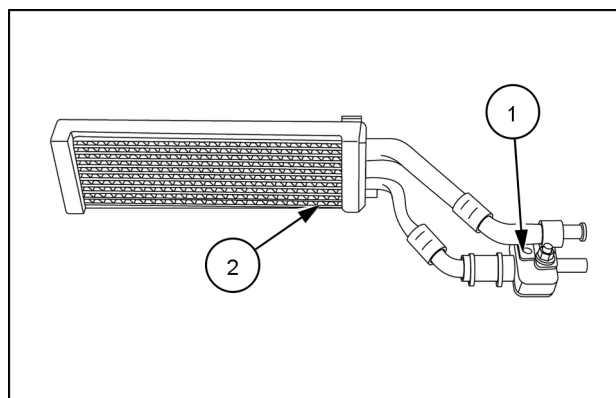
Do not handle any service fluid (engine coolant, engine oil, hydraulic oil, etc.) at temperatures that exceed 49 °C (120 °F). Allow fluids to cool before proceeding.

Failure to comply could result in death or serious injury.

W0330B

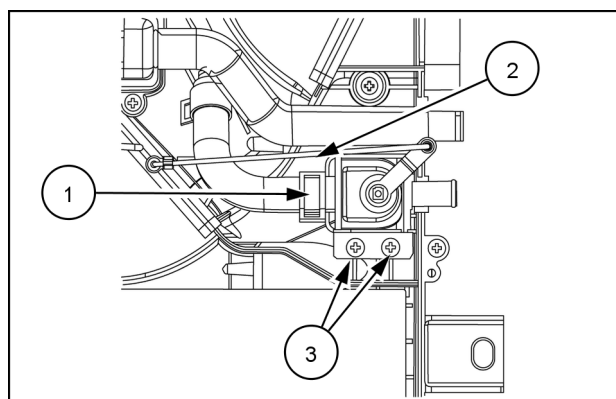
NOTICE: Drain the engine coolant system after it cools down in temperature.

1. Install the heater core. See **Heating, Ventilation, and Air-Conditioning (HVAC) unit - Assemble air conditioning and heater components (50.100)**.
2. The heater control valve (1) is located on the heater core (2).
3. Install the heater control valve.



NHIL15CT01062AA 1

4. Install the two screws (3).
5. Install the hose clamp (1).
6. Install the operating linkage (2).



NHIL15CT01145AA 2

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Air conditioning

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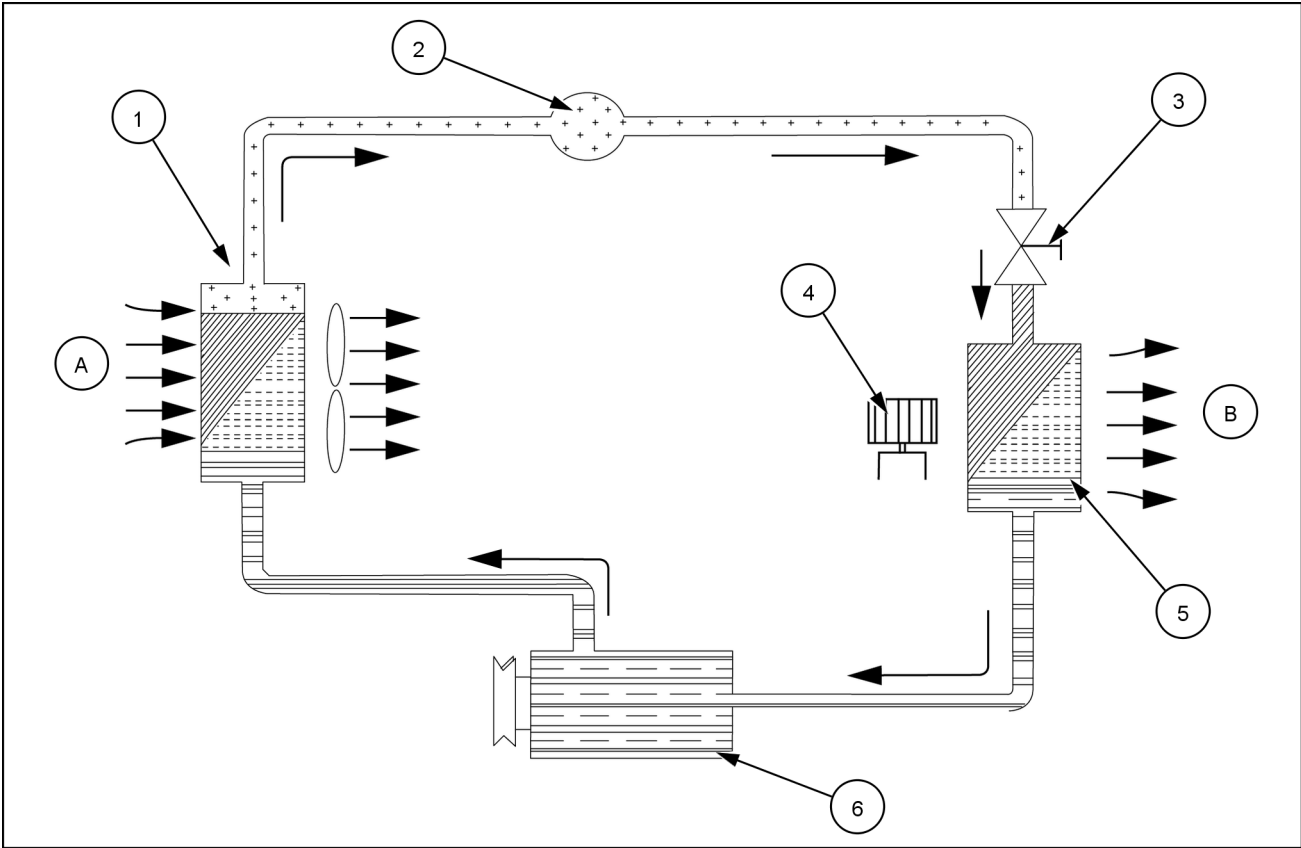
Air-conditioning evaporator

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Dynamic description of the evaporator temperature sensor (*)	30

(*) See content for specific models

Air-conditioning compressor - Dynamic description refrigerant flow diagram

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab



- (1) Condenser

(2) Receiver/dryer
- (3) Thermal Expansion Valve (TXV)

(4) Blower motor/cooling fan
- (5) Evaporator

(6) Compressor
- (A) Air flow across the condenser

(B) Air flow across the evaporator

High-temperature high pressure gaseous refrigerant in the compressor (6) is delivered to the condenser (1) to change its state into the low-temperature high-pressure liquid through heat exchange, before going through the receiver/dryer (2) which acts as a filter.

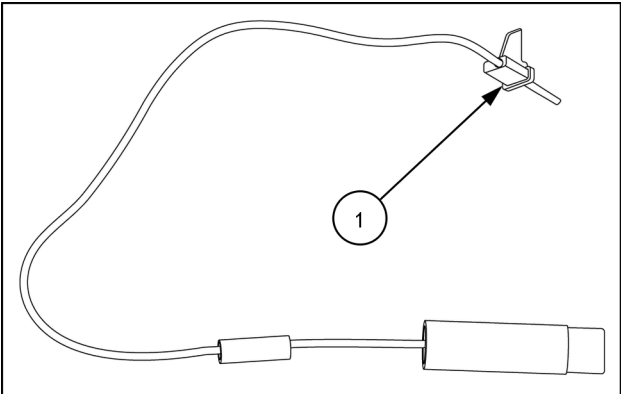
Then, as this liquid refrigerant passes through the expansion valve (3), it is changed into low-temperature low pressure liquid and gaseous refrigerant. Finally, while this mist passes through the evaporator (5), it is evaporated and its cooling fan (4) removes heat from air passing through the evaporator fin.

NOTE: Therefore, the temperature of the surrounding is lowered.

Air-conditioning evaporator - Dynamic description of the evaporator temperature sensor

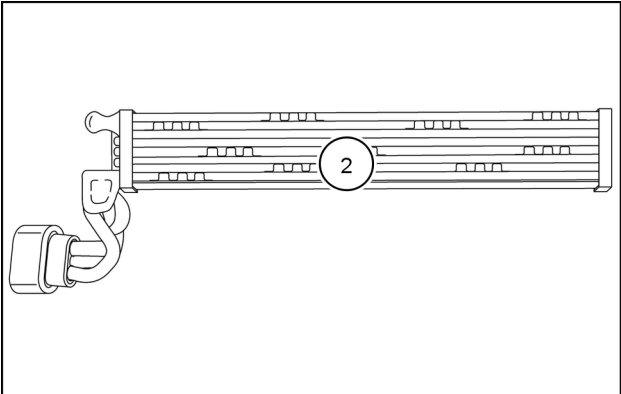
Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab

The evaporator temperature sensor **(1)** detects the temperature of the evaporator fin in the HVAC system and connects power according to this information in order to control the operation of the compressor.



NHIL15CT01031AA 1

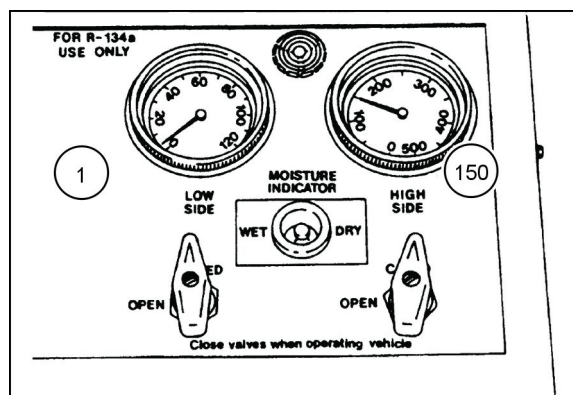
It is installed to the evaporator core **(2)** so that it can detect its temperature and prevent freezing of the evaporator.



NHIL15CT01016AA 2

Air conditioning - Pressure test Example 1

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab



200900735 1

Symptoms

1. Evaporator air is lukewarm
2. Low side pressure is too low. The gauge should read **20.7 - 207 kPa (3 - 30 psi)**
3. High side pressure is too low. See pressure-temperature chart **Air conditioning - General specification - Ambient temperature versus manifold pressure gauge reading (50.200)** for correct gauge readings.

DIAGNOSIS: System refrigerant is low. A small leak may cause this.

Corrective Procedures

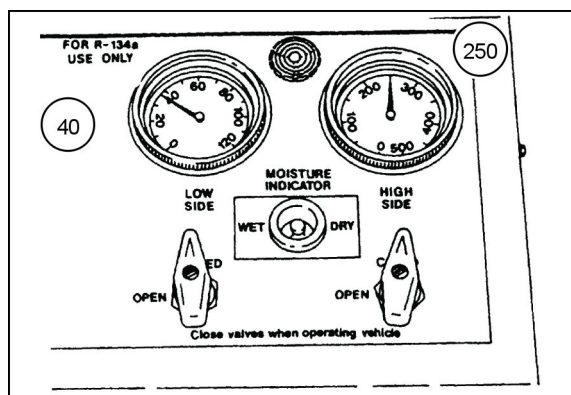
1. Leak test the system.
2. Extract the refrigerant from the system.
3. Repair the leaks. Replace any faulty lines or components.
4. Check compressor oil and add oil if necessary.
5. Evacuate the system.
6. Charge the system.
7. Performance test the system.

NOTE: Test procedure based upon ambient temperature of **35 °C (95 °F)**. For proper high side gauge reading for other ambient temperatures, refer to the pressure-temperature chart.

Ambient Temperature* °C (°F)	High Pressure Gauge Reading kPa (psi)
21 °C (70 °F)	786 - 924 kPa (114 - 134 psi)
24 °C (75 °F)	869 - 1007 kPa (126 - 146 psi)
26 °C (80 °F)	972 - 1110 kPa (141 - 161 psi)
29.5 °C (85 °F)	1096 - 1234 kPa (159 - 179 psi)
32 °C (90 °F)	1158 - 1296 kPa (168 - 188 psi)

Air conditioning - Pressure test - Example 8

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab



200900742 1

Symptoms

1. Insufficient or no cooling.
2. The low side pressure reading is too high. The gauge should read **21 - 207 kPa (3 - 30 psi)**.
3. The high side pressure reading is normal but drops when the low side reading shows a vacuum. Reference pressure-temperature chart: for correct gauge readings.
4. Evaporator air is sufficiently cold until the low side pressure gauge shows a vacuum; then it becomes warm.

DIAGNOSIS: Thermostatic expansion valve is allowing too much refrigerant to flow through the evaporator coils. The valve may be stuck open, or the temperature sensing bulb may be incorrectly mounted.

Corrective Procedures

1. Check for a sticking expansion valve:
 1. Operate the system at maximum cooling.
 2. Check the low side gauge. The pressure should drop slowly.
2. If the test indicates that the expansion valve is defective, proceed as follows:
 1. Extract the refrigerant from the system.
 2. Replace the expansion valve.
 3. Evacuate the system.
 4. Charge the system.
 5. Performance test the system.

Ambient Temperature* °C (°F)	High Pressure Gauge Reading kPa (psi)
21 °C (70 °F)	786 - 924 kPa (114 - 134 psi)
24 °C (75 °F)	869 - 1007 kPa (126 - 146 psi)

Air conditioning - Leakage test

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab

WARNING

Explosion hazard!

Air-conditioning refrigerant boils at -12 °C (10 °F)!

-NEVER expose any part of the air-conditioning system to a direct flame or excessive heat.

-NEVER disconnect or disassemble any part of the air-conditioning system.

Discharging refrigerant gas into the atmosphere is illegal in many countries.

Failure to comply could result in death or serious injury.

W0340A

1. Shut off the engine.
2. Use electronic leak detector **380001327** to inspect all connections. Use instructions from manufacturer of leak finding tool.

NOTE: To properly check the expansion valve for leaks, remove the insulation tape.

3. Check Compressor oil level. Refill as necessary.
4. Repair all leaks and recharge the system.

Air conditioning - Decontaminating - Post flushing procedures

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab

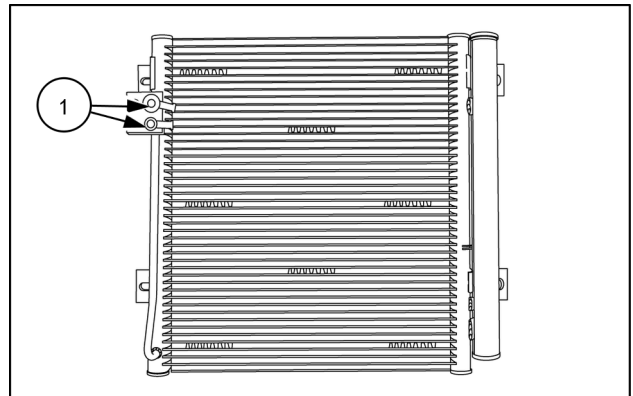
Prior operation:

Air conditioning - Decontaminating - Complete circuit flushing (50.200)

Prior operation:

Air conditioning - Decontaminating - Component flushing (50.200)

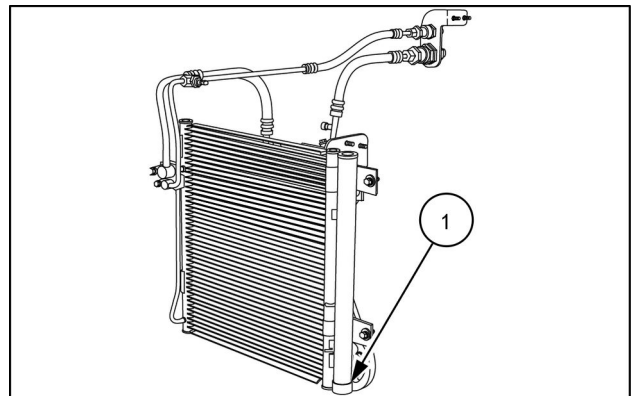
1. Identify and remove the source of the contamination.
2. Reconnect all fittings using new HNBR “green” HFC-134a compatible O-rings **(1)**. Lubricate the O-rings with mineral oil prior to installation.



NHIL15CT01127AA 1

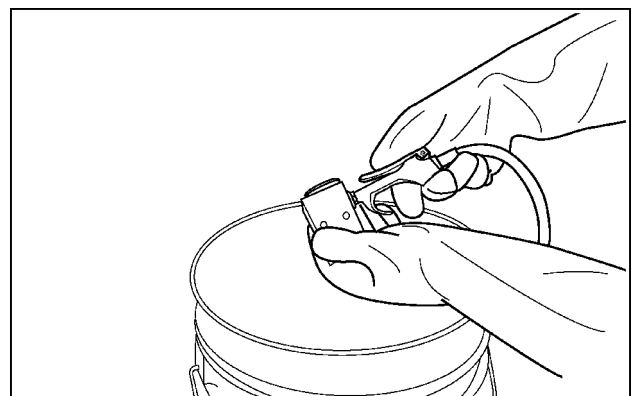
3. Install a new receiver-dryer desiccant bag **(1)**.

NOTE: The receiver-dryer desiccant bag should be replaced just before the system is drawn to a deep vacuum to avoid saturating it with moisture.



NHIL15CT01144AA 2

4. Clean or replace the thermal expansion valve.



RCPH07CCH371ABC 3

Air-conditioning compressor - Remove

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab

⚠ 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.

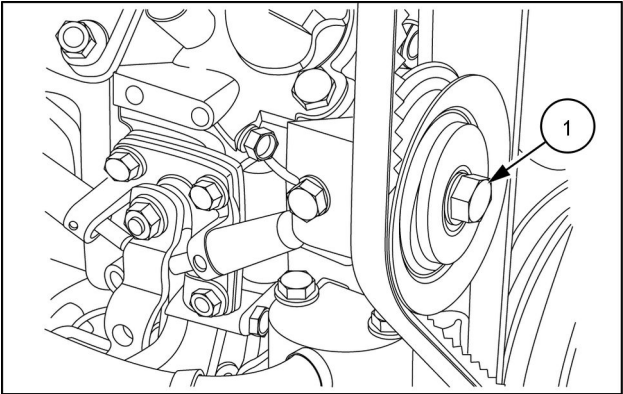
Failure to comply could result in death or serious injury.

W0208A

Prior operation:

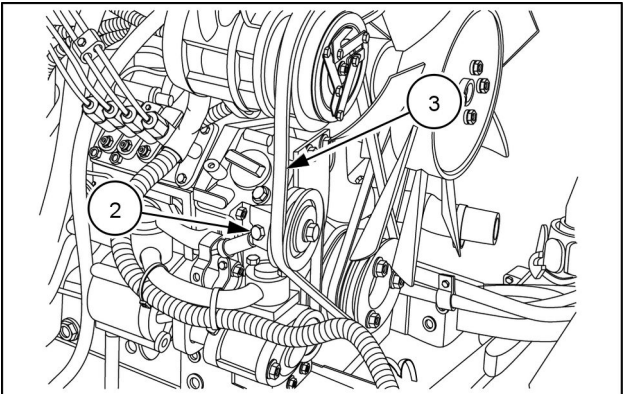
Air conditioning - Service instruction - Evacuating the Refrigerant (50.200)

1. Open the hood.
2. Loosen the tension pulley mounting bolt (1).



NHIL15CT01069AA 1

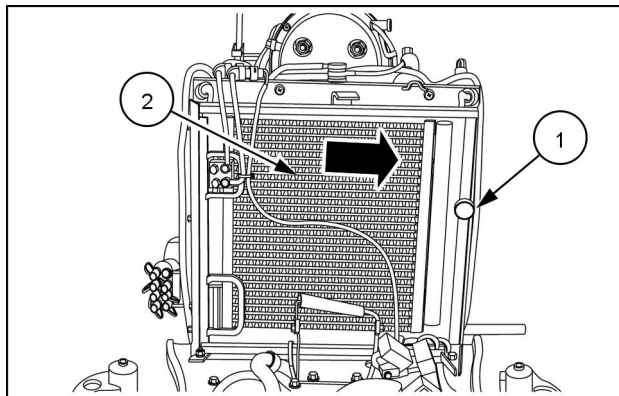
3. Unscrew the tension adjustment bolt (2) to relieve belt tension and to remove the belt (3).



NHIL15CT01070AA 2

NOTICE: This component can only be removed after the entire system has been discharged using an appropriate recovery system.

5. Install the condenser screen **(2)**.
6. Install the condenser screen retaining knob **(1)**.



NHIL15CT01066AA 4

Next operation:

Electronic module - Install (55.640)

Next operation:

Battery - Install (55.302)

Next operation:

Engine - Install air cleaner housing (10.001)

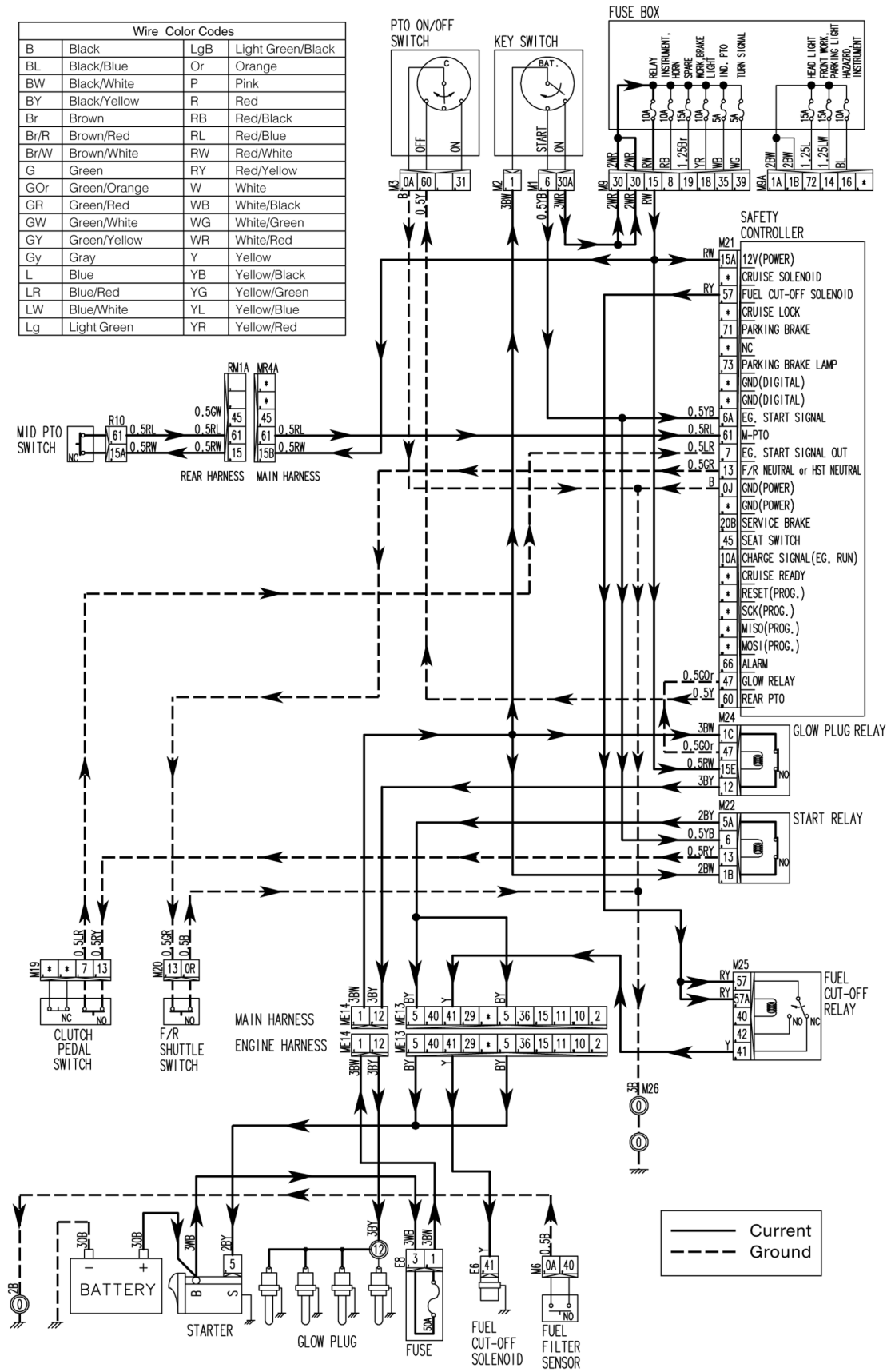
Next operation:

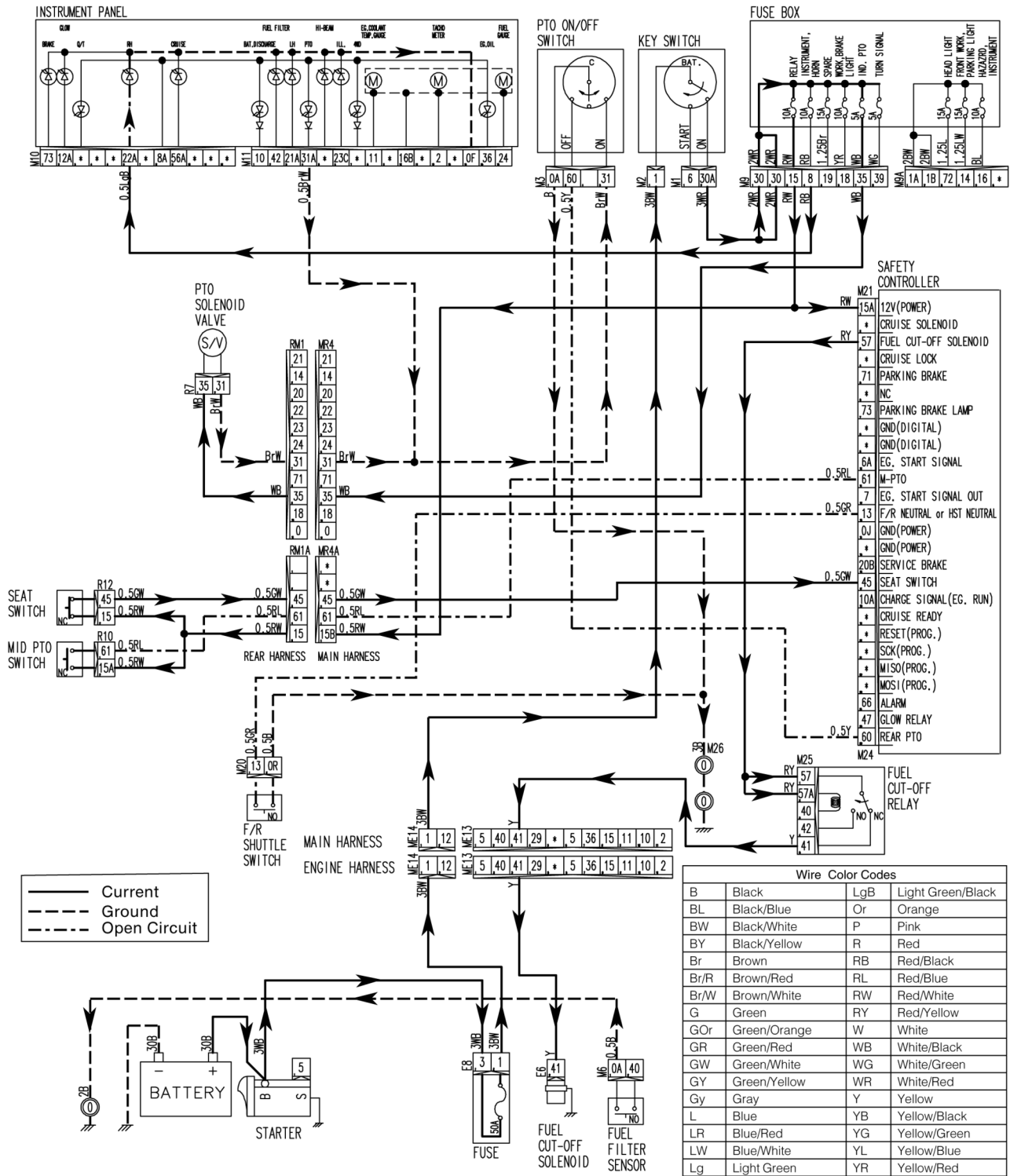
Air conditioning - Charging (50.200)

Contents

Electrical systems - 55

[55.000] Electrical system	55.1
[55.010] Fuel injection system.....	55.2
[55.011] Fuel tank system	55.3
[55.012] Engine cooling system	55.4
[55.013] Engine oil system	55.5
[55.031] Parking brake electrical system.....	55.6
[55.048] Rear Power Take-Off (PTO) control system	55.7
[55.100] Harnesses and connectors.....	55.8
[55.201] Engine starting system.....	55.9
[55.202] Cold start aid	55.10
[55.302] Battery.....	55.11
[55.404] External lighting	55.12
[55.405] External lighting switches and relays	55.13
[55.408] Warning indicators, alarms, and instruments	55.14
[55.525] Cab engine controls.....	55.15
[55.610] Ground speed control	55.16
[55.640] Electronic modules	55.17





76110386

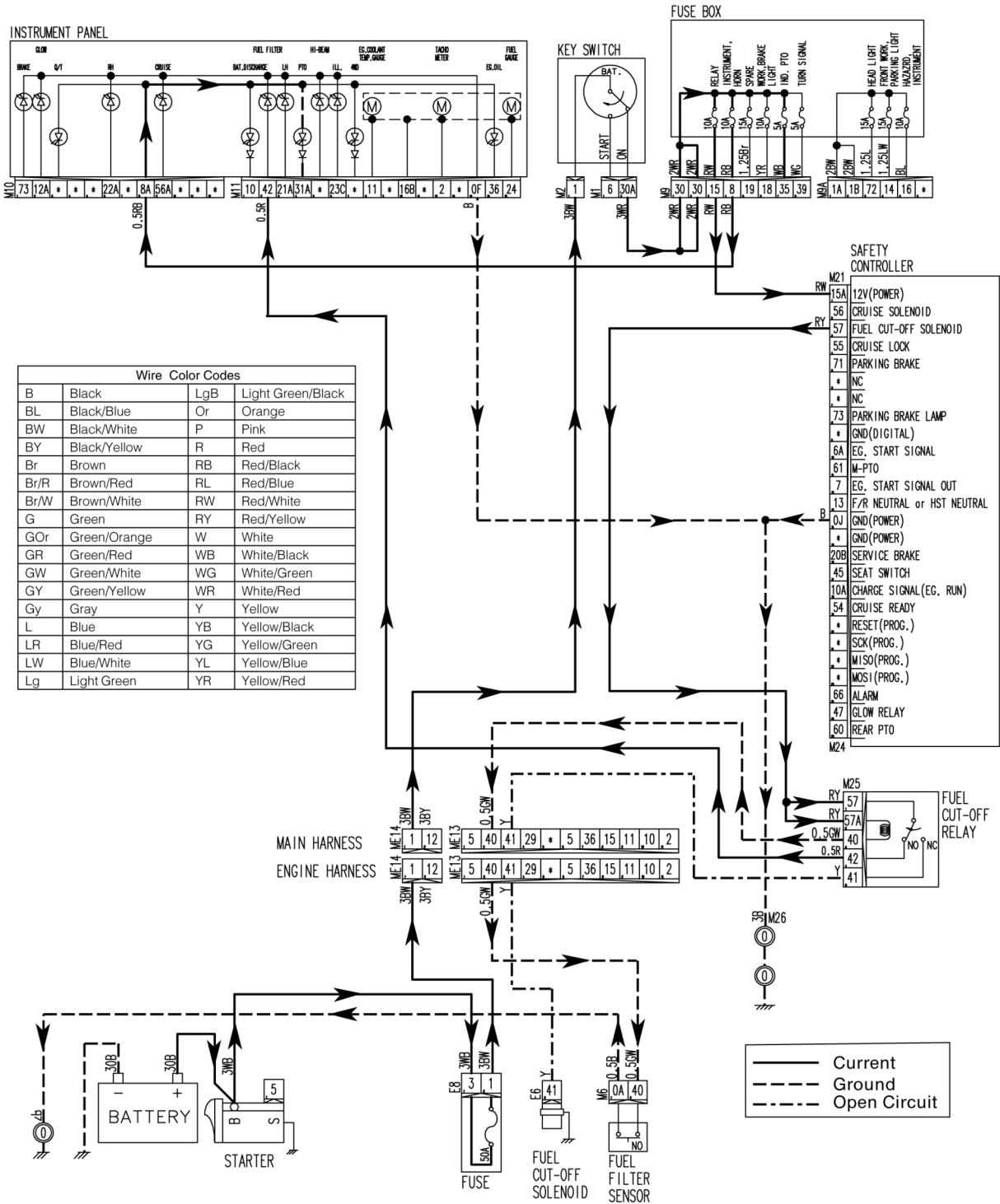
76110386A 1

Electrical system - Electrical schematic sheet 11 - Road lights

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE Platform - With cab
Boomer™ 40 [2103012736 - 2106014859]	WE Platform - With cab
Boomer™ 40 [2106014860 -]	WE Platform - With cab
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE Platform - With cab
Boomer™ 50 [2105012138 - 2105013791]	WE Platform - With cab
Boomer™ 50 [2105013792 -]	WE Platform - With cab

Electrical system - Electrical schematic sheet 17 - Fuel filter sensor

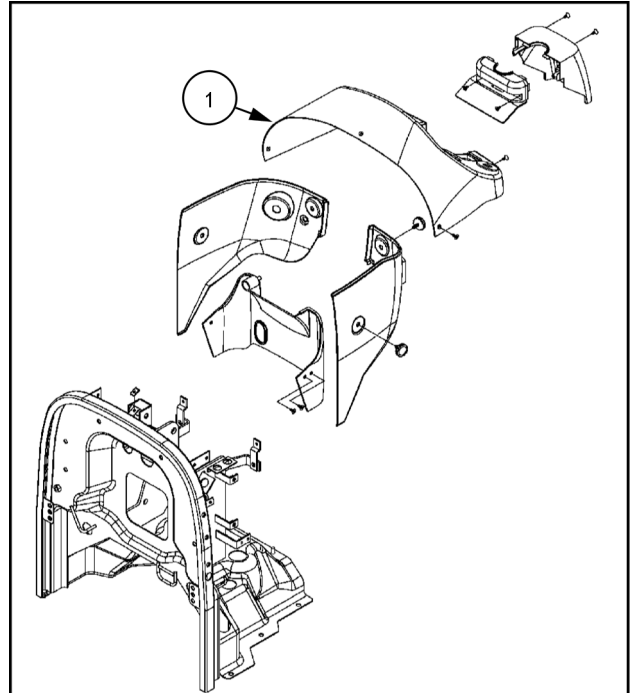
Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE



Fuel shutoff solenoid - Remove - Fuel Shut Off Relay

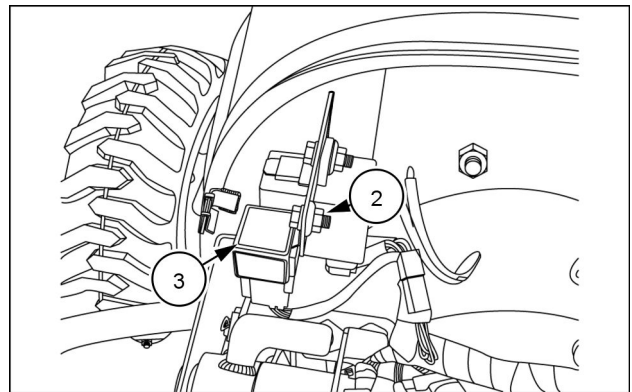
Boomer™ 40 4WD, Cab, Europe	WE
Boomer™ 50 4WD, Cab, Europe	WE

1. Remove negative (-) battery cable from negative (-) battery terminal.
2. Remove the instrument panel console **(1)** from the tractor.

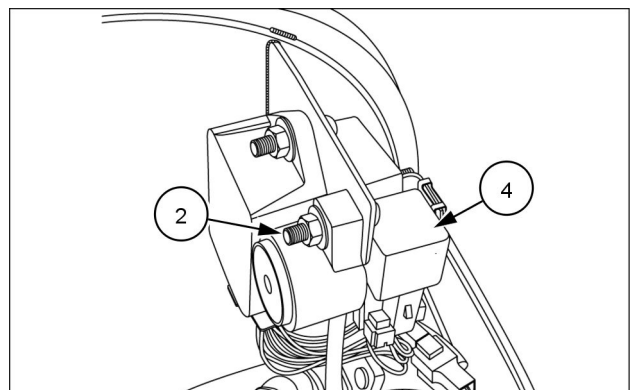


76105667 1

3. Disconnect the relay connector from the tractor wire harness.
4. Remove retaining bolt **(2)** from relay **(3)** (HST model) or **(4)** (Gear model) mounting tab and remove relay from the tractor.



93105594 2



93105612A 3

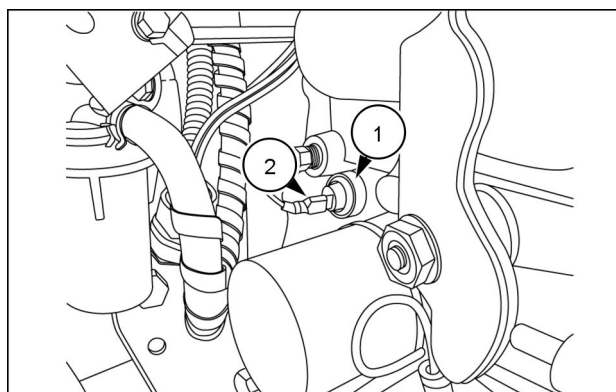
Engine oil pressure sensor and switch - Install - Switch

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:

Engine oil pressure sensor and switch - Test - Switch (55.013)

1. Install thread sealer on the threads of the oil pressure switch and install switch **(1)** onto engine block.
2. Connect wire harness connector **(2)** onto terminal of oil pressure switch.



93105592 1

3. Connect negative (-) battery cable to the negative (-) battery terminal.

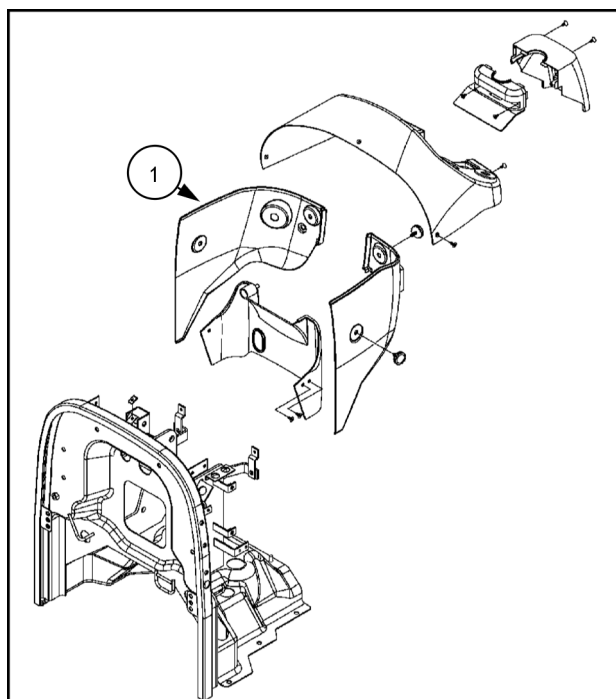
Power Take-Off (PTO) speed sensor - Remove - PTO Switch

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:

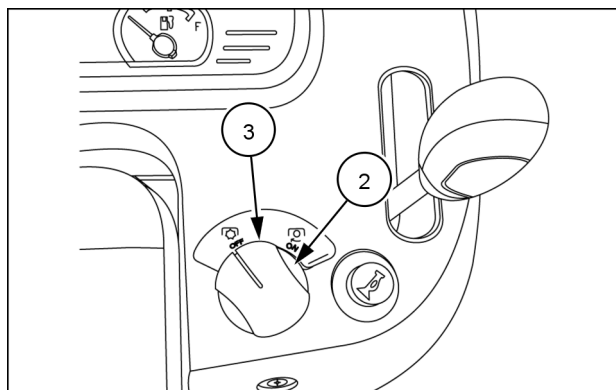
Power Take-Off (PTO) speed sensor - Service instruction - PTO Switch (55.048)

1. Remove negative (-) battery cable from negative (-) battery terminal.
2. Remove right-hand side console panel (1).



76105667 1

3. Remove wire harness connector from the switch
4. Remove retaining screw (2) from knob (3) and remove knob from the switch.



93099338 2

5. Remove retaining nut from the switch and remove switch from the bottom side of the dash panel.

Next operation:

Power Take-Off (PTO) speed sensor - Test - PTO Switch (55.048)

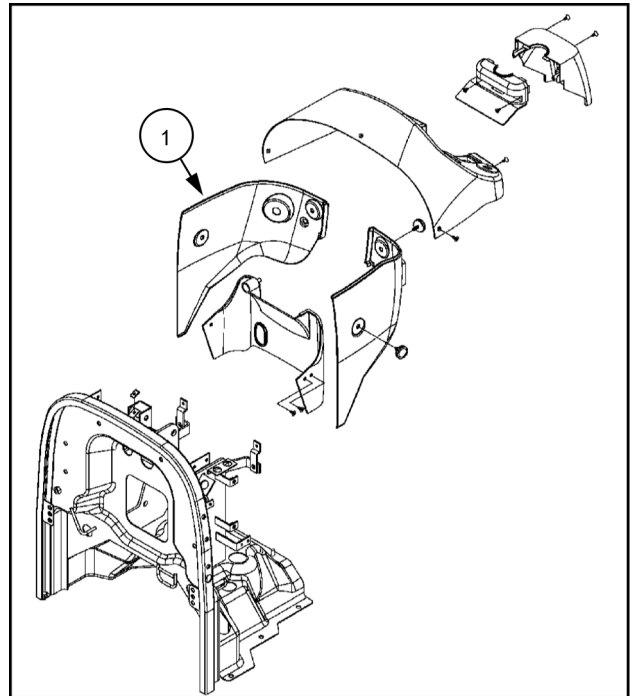
Ignition switch - Remove

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:

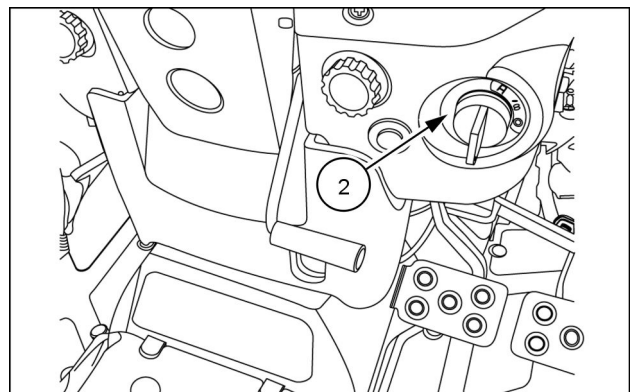
Ignition switch - Service instruction (55.201)

1. Remove negative (-) battery cable from negative (-) battery terminal.
2. Remove right-hand side console panel (1).



76105667 1

3. Disconnect the two wire harness connectors from the switch harness.
4. Remove retaining nut (2) from the switch and remove switch from the back side of the console panel.



93099330 2

Next operation:

Ignition switch - Test (55.201)

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Cold start aid - 202

SERVICE

Grid heater relay

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Glow plug system

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DIAGNOSTIC

Glow plug system

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---------------------------	----

(*) See content for specific models

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Glow plug system - Remove (*)	11
Glow plug system - Service instruction (*)	10
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Glow plug system - Troubleshooting (*)	15
Grid heater relay - Install Glow plug relay (*)	8
Grid heater relay - Remove Glow plug relay (*)	4
Grid heater relay - Service instruction - Glow plug relay (*)	3
Grid heater relay - Test Glow plug relay (*)	6

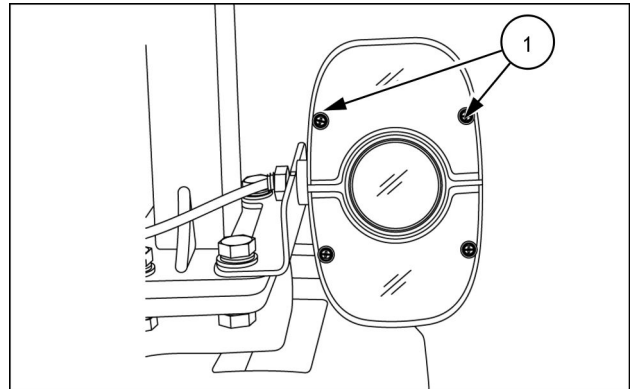
(*) See content for specific models

Turn signal and/or hazard lights - Replace - Bulb

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

To replace the top flasher light bulb:

1. Remove the two screws (1) retaining the top flasher light lenses and remove the lenses.

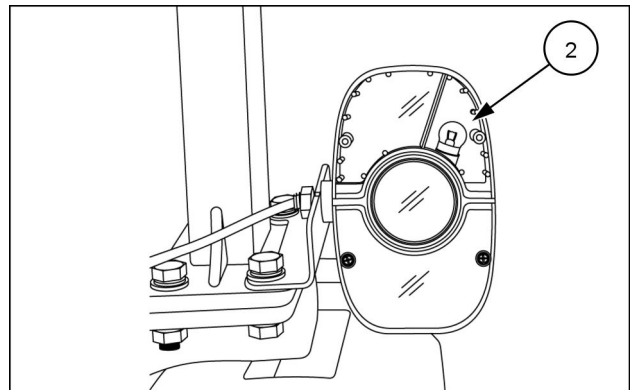


93100885 1

2. Push in on the bulb (2) and rotate bulb counter-clockwise in socket to remove.

NOTE: Replace with a P21 watt bulb.

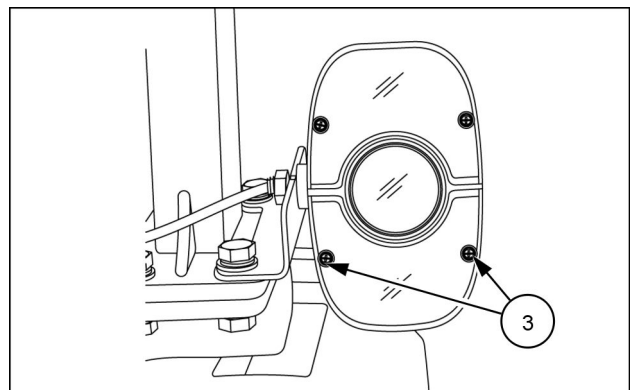
3. Insert the new bulb into the socket and turn it clockwise until the bulb locks into place.
4. Install lenses and retaining screws.



93100894 2

To replace the bottom flasher light bulb:

5. Remove the two screws (3) retaining the top flasher light lenses and remove the lenses.



93100885 3

Turn signal and/or hazard lights - Troubleshooting - Right turn signal circuit

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

NOTE: See *Electrical system - Electrical schematic sheet 12 - Right turn signal (55.000)*

Problem	Possible Cause	Correction
Inoperative turn signal	Faulty key switch	Test switch, replace if necessary
	Blown #9 10-amp fuse	Replace 10-amp fuse
	Blown #6 5-amp fuse	Replace 5-amp fuse
	Faulty turn signal switch	Test switch, replace if necessary
	Faulty flasher unit	Test flasher unit, replace if necessary
	Failed bulb	Replace bulb
	Improper ground	Check ground location, for clean contact area

Turn signal and/or hazard lights - Troubleshooting - Left turn signal circuit

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

NOTE: See *Turn signal and/or hazard lights - Troubleshooting - Left turn signal circuit (55.404)*

Problem	Possible Cause	Correction
Inoperative turn signal	Faulty key switch	Test switch, replace if necessary
	Blown #9 10-amp fuse	Replace 10-amp fuse
	Blown #6 5-amp fuse	Replace 5-amp fuse
	Faulty turn signal switch	Test switch, replace if necessary
	Faulty flasher unit	Test flasher unit, replace if necessary
	Failed bulb	Replace bulb
	Improper ground	Check ground location, for clean contact area

Turn signal switch - Test

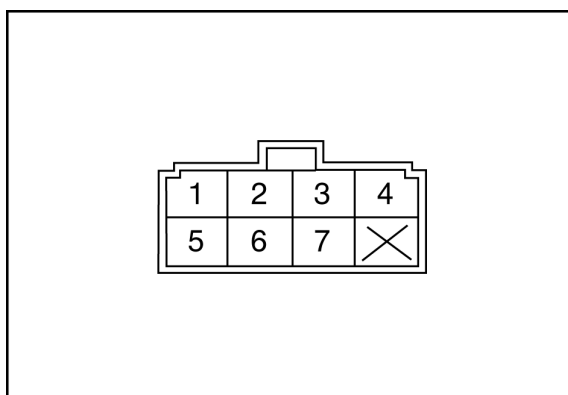
Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:

Turn signal switch - Remove (55.405)

Switch connector terminal identification with rectangle connector

Terminal #	Function
1	Lighting supply current from 10 amp fuse
2	1st position, hazard lights
3	2nd position, work lights
4	3rd position road lights/hazard
5	Turn signal supply current from 5 amp fuse
6	Right turn signal
7	Left turn signal

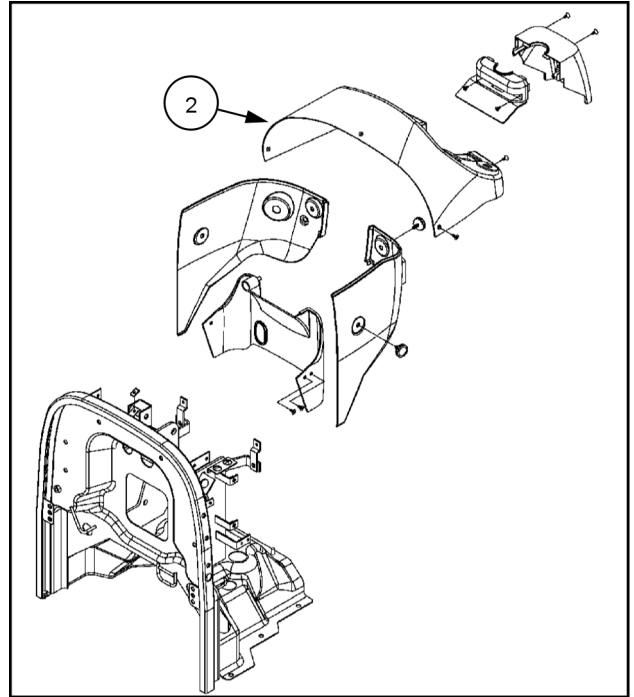


76105671 1

Switch lighting circuit test

1. Switch Lighting Circuit Test
2. Place light switch in 1st position (hazard lights) **(1)**. Continuity should exist across terminals 1&2 of the switch connector.
3. Place light switch in the 2nd position (work lights) **(2)**. Continuity should exist across terminals, 1&2, 1&4, and 2&4 of the switch connector.

5. Install instrument panel console **(2)** onto tractor.
6. Connect negative (-) battery cable to the negative (-) battery terminal.



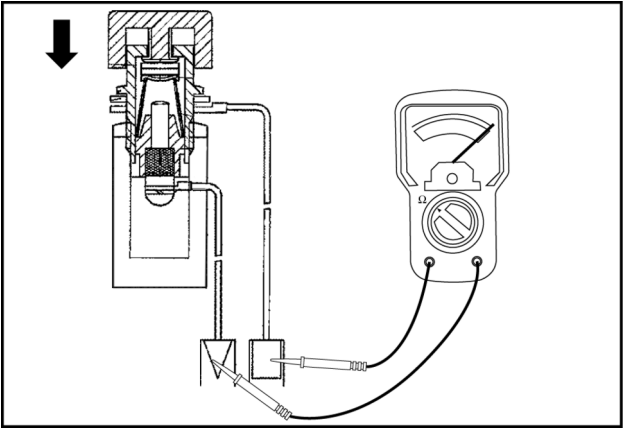
76105667 3

Buzzer - Test - Switch

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:
Buzzer - Remove - Switch (55.408)

- 1. Disconnect horn switch from tractor wire harness.
- 2. Place an ohmmeter across the two wire leads of the horn switch
- 3. Depress switch, there should be continuity across the two switch leads.



76106734 1

- 4. If continuity does not exist when switch is depressed, replace the switch.

Next operation:
Buzzer - Install - Switch (55.408)

Instrument cluster Analog instrument cluster - Test - Safety controller

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:

Instrument cluster Analog instrument cluster - Remove - Safety controller (55.408)

- Control connector terminals identification. Check terminals for proper function for related circuit.

Terminal #	Function	Terminal #	Function
1	Input current (+) to controller from 10 amp fuse.	14	Ground (-)
2	Output current (+) to cruise control magnet.	15	Ground (-)
3	Output current (+) to fuel shut off solenoid.	16	Input current (+) from brake light switch.
4	Input current (+) cruise lock, from cruise switch.	17	Input current (+) from seat switch.
5	Input current (+) from park brake switch	18	Input current (+) engine run signal from alternator.
6	(Not Used)	19	Input current (+) cruise ready, from cruise control switch.
7	(Not Used)	20*	Program Maintenance
8	Output current (+) to park brake light in instrument panel	21*	Program Maintenance
9*	Digital ground (-) used for program maintenance.	22*	Program Maintenance
10	Input current (+) engine start circuit, from key switch.	23*	Program Maintenance
11	Input current (+) from mid PTO switch.	24	Out current (+) to alarm
12	Ground source output (-) to start relay coil.	25	Ground source (-) output to glow plug relay coil.
13	Ground source (-) input from neutral switch (HST) or Forward/Reverse shuttle switch (Gear)	26	Ground source (-) input, from PTO switch

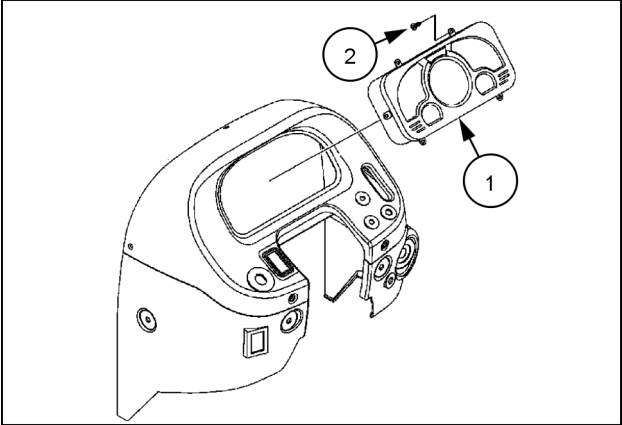
NOTE: * Terminals 9, 20, 21, 22, and 23 are used for program maintenance.

Instrument cluster Analog instrument cluster - Install

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

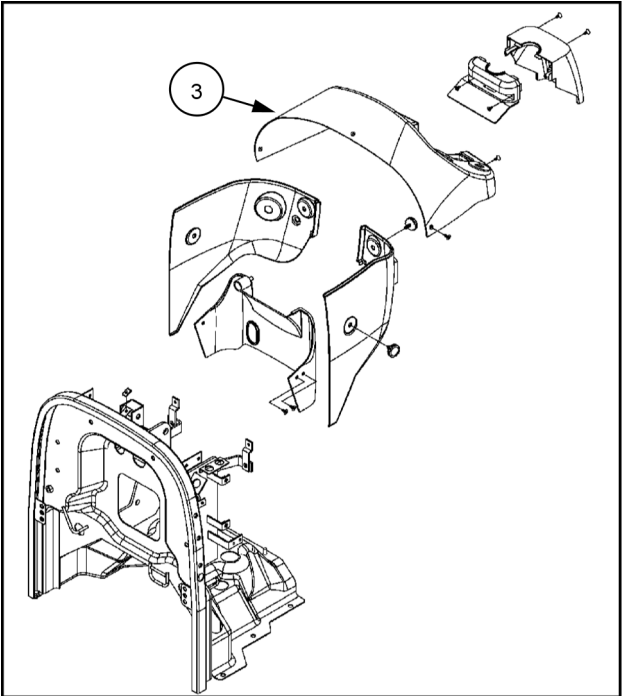
Prior operation:
Instrument cluster Analog instrument cluster - Test (55.408)

1. Install instrument panel (1) from the underside of the console, secure instrument panel to console with six screws (2).



76105695 1

2. Connect wire harness connectors to instrument panel.
3. Install instrument panel console (3) onto tractor.



76105667 2

4. Reconnect the negative (-) battery cable to the negative (-) battery terminal.

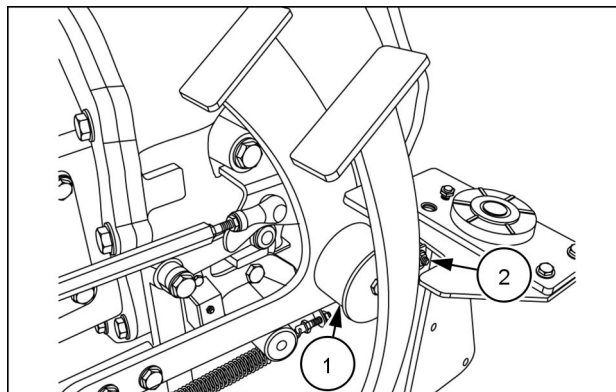
Throttle control - Install - Cruise control magnet

Boomer™ 40 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 40 [0 - 2103012735]	WE
Boomer™ 40 [2103012736 - 2106014859]	WE
Boomer™ 40 [2106014860 -]	WE
Boomer™ 50 4WD, Cab, Europe	WE Platform - With cab
Boomer™ 50 [0 - 2105012137]	WE
Boomer™ 50 [2105012138 - 2105013791]	WE
Boomer™ 50 [2105013792 -]	WE

Prior operation:

Throttle control - Test - Cruise control magnet (55.525)

1. Install the cruise control magnet **(1)** to the mounting bracket using two M8 x 30mm bolts **(2)**.



93105599 1

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

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