Form No. 3455-463 Rev A

High-Flow Hydraulic Kit

Workman® HDX or HDX-D Series Utility Vehicle

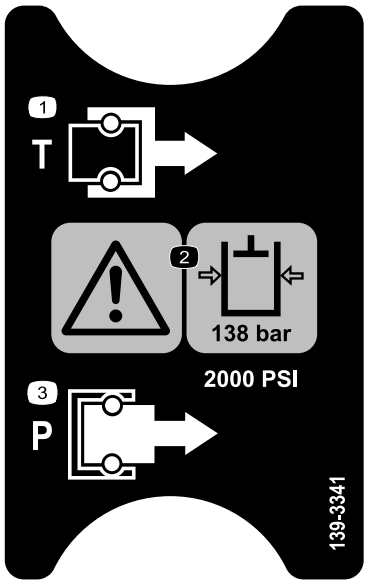
Model No. 07316

Installation Instructions

Safety

Safety and Instructional Decals

Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



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139-3341

1. Tank
2. Warning—the hydraulic-fluid pressure is 138 bar (2,000 psi).
3. Pressure

8111 Lyndale Avenue South
Bloomington, MN 55420

Register at www.Toro.com.

Original Instructions (EN)
Printed in the USA

3455-463

Installation

Loose Parts

Use the chart below to verify that all parts have been shipped.

Procedure	Description	Qty.	Use
1	No parts required	–	Prepare the machine.
2	No parts required	–	Remove the cargo bed.
3	No parts required	–	Remove the radiator screen.
4	No parts required	–	Remove the hood.
5	High-flow pump assembly	1	Install the hydraulic pump.
6	90° fitting with O-rings Straight fitting with O-rings	1 1	Install the fittings onto the hydraulic pump.
7	Hydraulic-tank assembly Cable tie Small P-clamp Tank clamp Screw (5/16 x 2 inches) Flat washer (11/32 inch) Tank hold-down Flange-head screw (5/16 x 1 inch) Flange nut (5/16 inch)	1 2 2 2 2 2 2 2 4	Install the hydraulic tank.
8	Hydraulic filter Filter head 90° barbed fitting Straight barbed fitting with O-ring Flange-head screw (1/4 x 3/4 inch)	1 1 1 1 2	Install the hydraulic filter.
9	Valve T fitting Flange-head screw (1/4 x 1-7/8 inches)	1 2 2	Install the valve.
10	Quick-coupler assembly Flange-head screw (1/4 x 3/4 inch) Flange nut (1/4 inch)	1 2 2	Install the quick-coupler assembly.
11	Hard hydraulic line Hard-line clamp Screw (5/16 x 1-1/2 inches)	2 2 1	Install the hard hydraulic lines.
12	Cooler	1	Install the cooler.

Procedure	Description	Qty.	Use
13	Hose (3/4 x 7 inches) Hose (1/2 x 14-1/2 inches) Hose with fitting (1/2 x 51 inches) Hose (1/2 x 63 inches) High-pressure hose (32 inches) Large hose clamp Small hose clamp Cable tie	1 1 1 1 1 2 5 2	Route and install the hydraulic hoses.
14	Switch Harness adapter	1 1	Install the switch.
15	No parts required	–	Fill the hydraulic reservoir with fluid.

1

Preparing the Machine

No Parts Required

Procedure

1. Park the machine on a level surface.
2. Engage the parking brake.
3. Shut off the engine and remove the key.

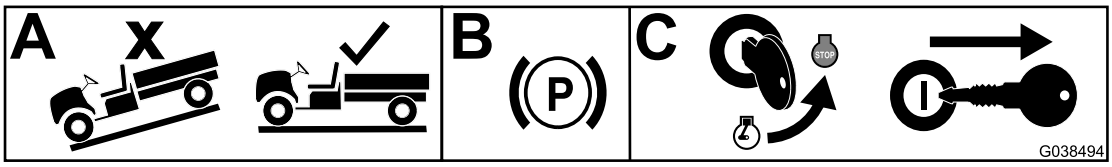

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Figure 1

2

Removing the Cargo Bed

No Parts Required

Procedure

Remove the cargo bed from the machine; refer to your *Operator's Manual*.

3

Removing the Radiator Screen

No Parts Required

Procedure

Open the latches and remove the radiator screen from the radiator housing (Figure 2).

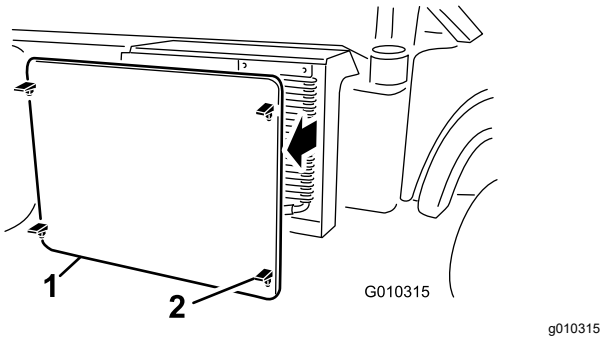

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Figure 2

1. Radiator screen
2. Latch

4

Removing the Hood

No Parts Required

Procedure

1. While grasping the hood in the headlight openings, lift up the hood to release the lower mounting tabs from the frame slots (Figure 3).

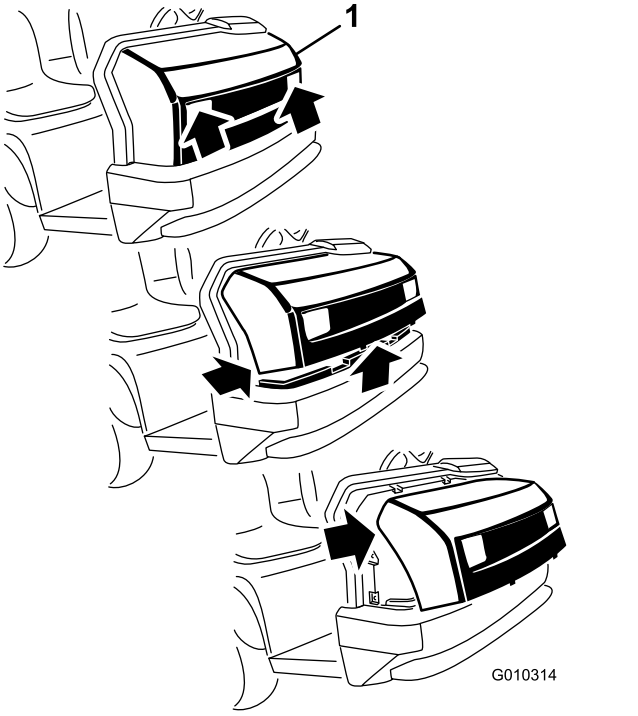

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Figure 3

1. Hood

2. Pivot the bottom of the hood upward until you can pull the top mounting tabs from the frame slots (Figure 3).
3. Pivot the top of the hood forward and unplug the wire connectors from the headlights (Figure 3).
4. Remove the hood.

5

Installing the Hydraulic Pump

Parts needed for this procedure:

1	High-flow pump assembly

Procedure

1. Thoroughly clean the area around the hydraulic pump end cap to prevent contamination from entering the pump (Figure 4).

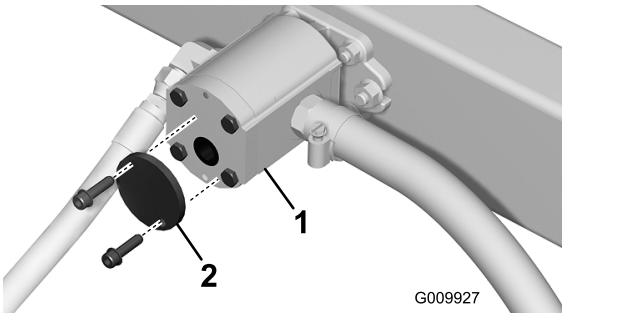

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Figure 4

1. Hydraulic pump
2. End cap

2. Remove the 2 bolts securing the end cap to the hydraulic pump, and remove the end cap (Figure 4).
3. Remove the top, left screw and bottom, right screw from the existing pump plate (Figure 5).

   Note: Discard the screws. Do not remove the remaining 2 screws from the pump end plate.

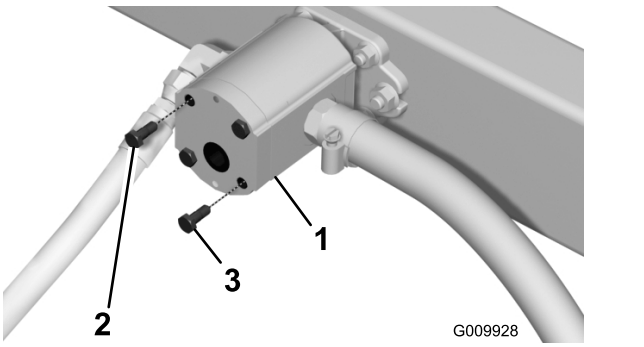

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Figure 5

1. Pump plate
2. Top, left screw
3. Bottom, right screw

4. Using the 2 long bolts, assemble the high-flow pump onto the existing pump (Figure 6).

   Note: Make sure that the mating surfaces are clean, and that the stub shaft is lubricated with Molybdenum Grease and is inserted into the pump.

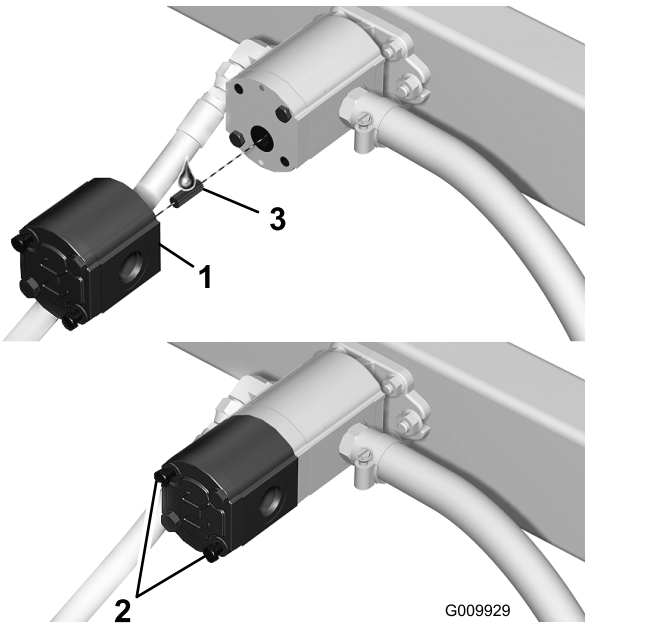

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Figure 6

1. High-flow pump
2. Long bolts
3. Stub shaft

5. Thread the bolts into the existing pump and torque them to 30 N·m (22 ft-lb).

6

Installing the Fittings onto the Hydraulic Pump

Parts needed for this procedure:

1	90° fitting with O-rings
1	Straight fitting with O-rings

Procedure

Note: Make sure that the O-rings are lubricated with hydraulic fluid and in place before installing the fittings.

1. Thread the straight fitting into the driver's side of the pump (Figure 7).
2. Thread the 90° fitting into the right side of the pump (Figure 7).

   When positioned correctly, the end of the fitting should point to the rear and should be angled upward at approximately 45° (Figure 7).

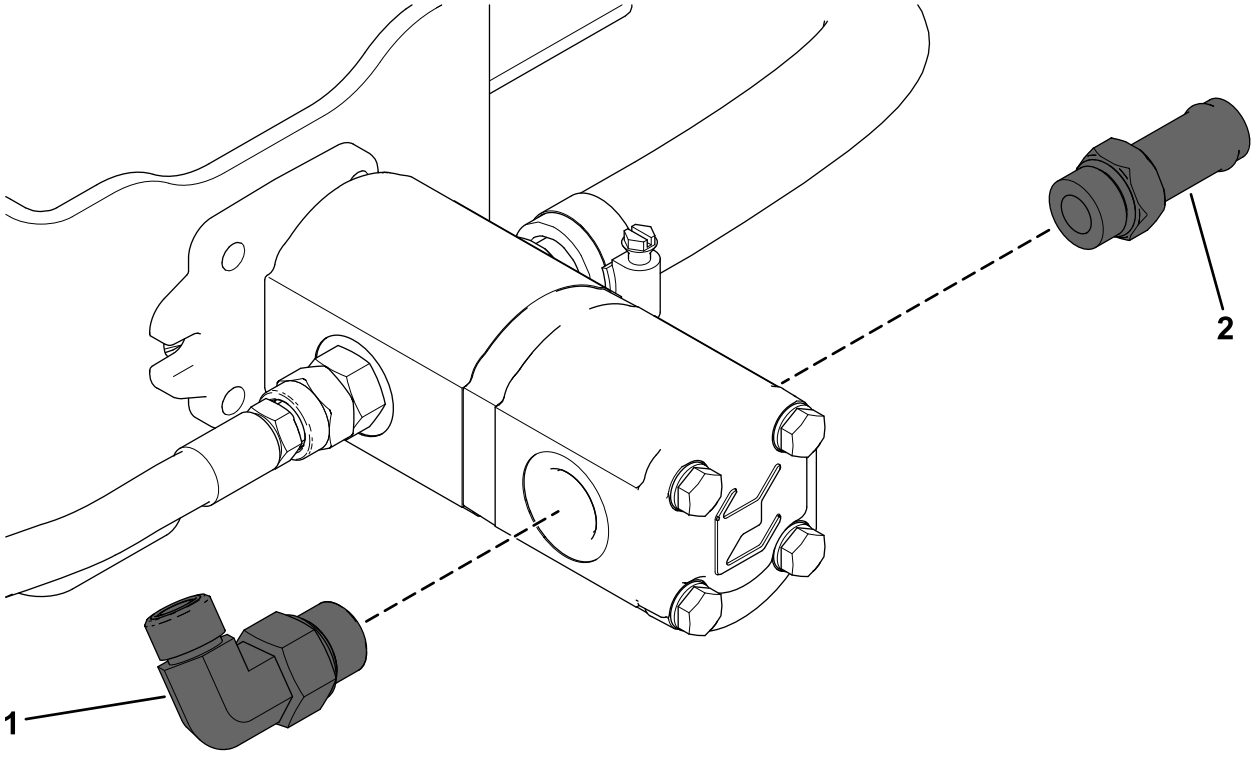

Figure 7

1. 90° fitting
2. Straight fitting

7

Installing the Hydraulic Tank

Parts needed for this procedure:

1	Hydraulic-tank assembly
2	Cable tie
2	Small P-clamp
2	Tank clamp
2	Screw (5/16 x 2 inches)
2	Flat washer (11/32 inch)
2	Tank hold-down
2	Flange-head screw (5/16 x 1 inch)
4	Flange nut (5/16 inch)

Procedure

1. Position the hydraulic tank so that one side fits over the lower, left frame channel, and the slot on the other side of the tank aligns with the holes in the frame brace (Figure 8).

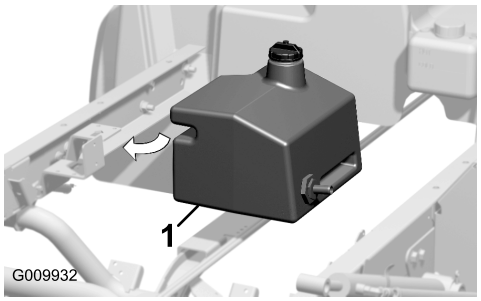

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Figure 8

1. Hydraulic tank

2. Secure the bottom of the hydraulic tank to the frame brace with 2 tank clamps, 2 small P-clamps, 2 screws (5/16 x 2 inches), 2 flat washers (11/32 inch), and 2 flange nuts (5/16 inch) as shown in Figure 9.

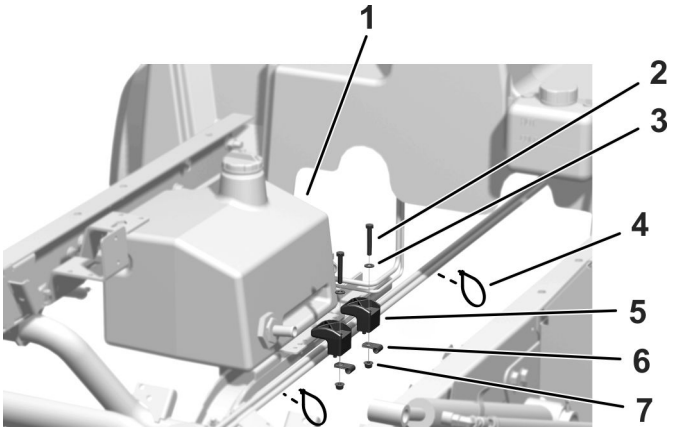

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Figure 9

1. Hydraulic tank
2. Screw (5/16 x 2 inches)
3. Flat washer (11/32 inch)
4. Cable tie
5. Tank clamp
6. Small P-clamp
7. Flange nut (5/16 inch)

3. Secure the cables using the 2 cable ties (Figure 9).

4. Loosely install the tank hold-down to the left frame channel with 2 flange-head screws (5/16 x 1 inch) and 2 flange nuts (5/16 inch) as shown in Figure 10.

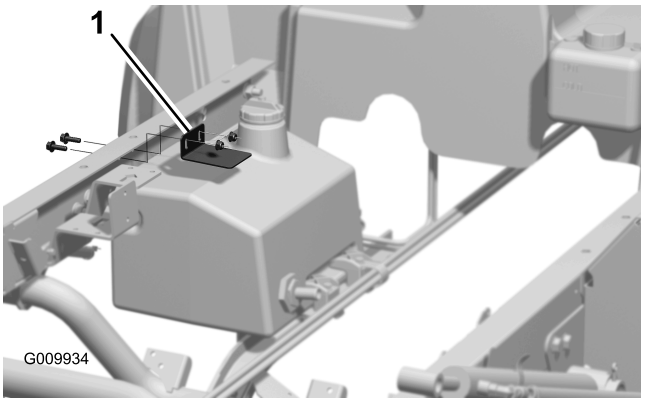

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Figure 10

1. Tank hold-down

5. While holding the tank hold-down to the tank, tighten the screws and nuts.

8

Installing the Hydraulic Filter

Parts needed for this procedure:

1	Hydraulic filter
1	Filter head
1	90° barbed fitting
1	Straight barbed fitting with O-ring
2	Flange-head screw (1/4 x 3/4 inch)

Procedure

Note: Make sure that the O-rings are lubricated with hydraulic fluid and in place before installing the fittings.

1. Mount a 90° barbed fitting to the inlet port of the filter head (Figure 11).

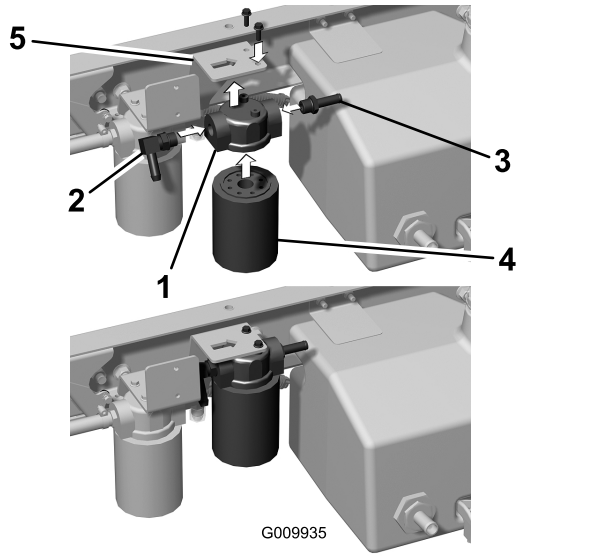

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Figure 11

1. Filter head
2. 90° barbed fitting
3. Straight fitting
4. Hydraulic filter
5. Frame bracket

2. Mount a straight barbed fitting to the outlet port of the filter head (Figure 11).

   Note: Orient the fitting so that it points toward the engine-mount bolt when the filter head is installed.

3. Mount the filter head to the frame bracket with 2 flange-head screws (1/4 x 3/4 inch) as shown in (Figure 11).

4. Lubricate the new filter-sealing gasket, and hand-turn the filter onto the filter head until the gasket contacts the filter head, then tighten 3/4 turn further.

9

Installing the Valve

Parts needed for this procedure:

1	Valve
2	T fitting
2	Flange-head screw (1/4 x 1-7/8 inches)

Procedure

Note: Make sure that the O-rings are lubricated with hydraulic fluid and in place before installing the fittings.

1. Loosely install the 2 T fittings onto the valve (Figure 12).
2. Mount the valve to the frame bracket with 2 flange-head screws (1/4 x 1-7/8 inches) as shown in Figure 12.
3. Install the electrical connector to the connection on the valve (Figure 12).

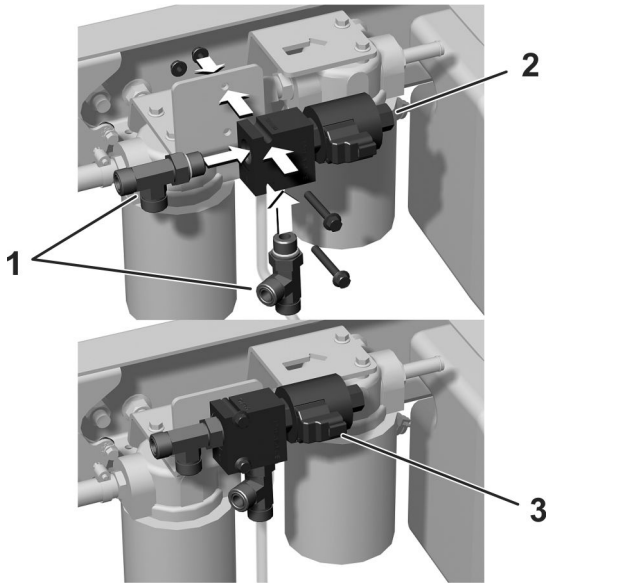

Figure 12

1. T fittings
2. Valve
3. Connect the electrical connector here.

10

Install the Quick-Coupler Assembly

Parts needed for this procedure:

1	Quick-coupler assembly
2	Flange-head screw (1/4 x 3/4 inch)
2	Flange nut (1/4 inch)

Procedure

Mount the quick-coupler assembly to the rear frame bracket with 2 flange-head screws (1/4 x 3/4 inch) and 2 flange nuts (1/4 inch) as shown in Figure 13.

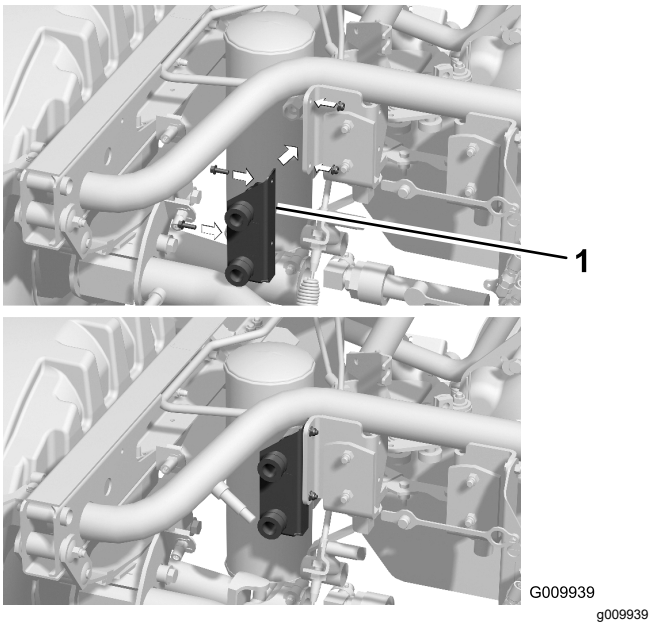

Figure 13

1. Quick coupler

11

Installing the Hydraulic Lines

Parts needed for this procedure:

2	Hard hydraulic line
2	Hard-line clamp
1	Screw (5/16 x 1-1/2 inches)

Procedure

1. Loosely install a hard hydraulic line to the lower quick coupler and rear T fitting on the valve (Figure 14).

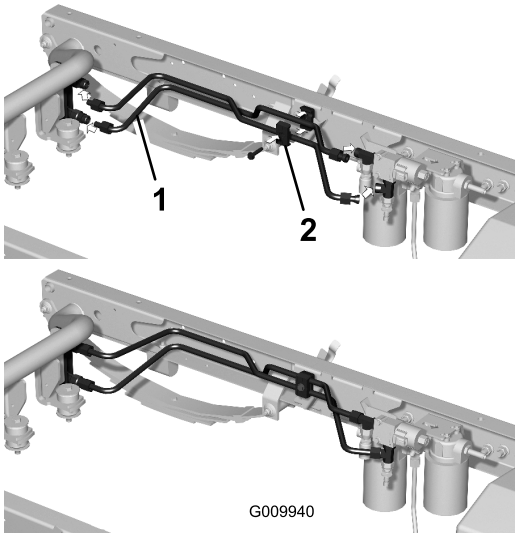

Figure 14

1. Hard hydraulic line
2. Hard-line clamp

2. Loosely install a hard hydraulic line to the upper quick coupler and bottom T fitting on the valve (Figure 14).
3. Secure the hard lines with clamps and a screw (5/16 x 1-1/2 inches), and position the clamps as shown in Figure 14.
4. Tighten the hard lines and valve fittings.

12

Installing the Cooler

Parts needed for this procedure:

1	Cooler

Procedure

1. Insert the cooler-mounting tabs into the slots below the radiator (Figure 15).
2. Rotate the cooler up and fasten the top of the cooler with the 1/4-turn fasteners on the radiator (Figure 15).

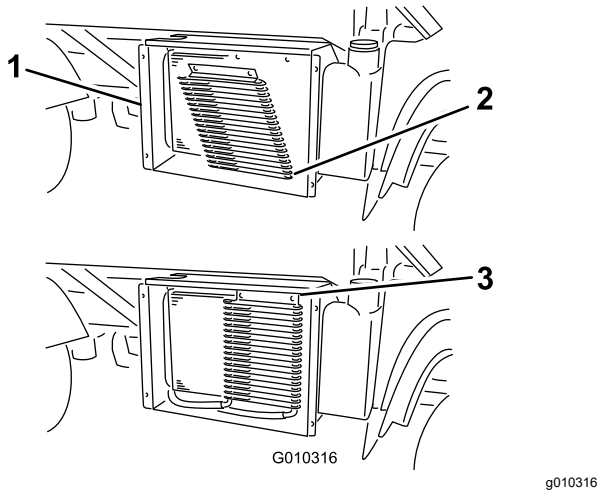

Figure 15

1. Cooler
2. Slots
3. 1/4-turn fasteners

13

Routing and Installing the Hydraulic Hoses

Parts needed for this procedure:

1	Hose (3/4 x 7 inches)
1	Hose (1/2 x 14-1/2 inches)
1	Hose with fitting (1/2 x 51 inches)
1	Hose (1/2 x 63 inches)
1	High-pressure hose (32 inches)
2	Large hose clamp
5	Small hose clamp
2	Cable tie

Procedure

Route and install the hoses as follows (Figure 16):

- Secure the hose (3/4 x 7 inches) to the hydraulic-pump fitting and tank fitting with the 2 large hose clamps.
- Secure the hose (1/2 x 14-1/2 inches) to the hydraulic-filter head outlet fitting and tank fitting with 2 small hose clamps.
- Secure the hose (1/2 x 51 inches) with fitting to the rear cooler fitting and the fitting on the bottom of the valve as shown in Figure 17 and Figure 18. Secure the hose to the cooler fitting with a small hose clamp.

  Important: **Do not bend the hose within approximately 51 mm (2 inches) of the fitting.**
- Secure the high-pressure hose (32 inches) to the hydraulic-pump fitting and T fitting at the rear of the valve.
- Secure the hose (1/2 x 63 inches) to the front cooler fitting and the hydraulic-filter head inlet fitting as shown in Figure 17 and Figure 18. Secure the hoses with 2 small hose clamps.
- Using 2 cable ties, secure the cooler hoses to the lift-cylinder hoses routed under the front of the engine.

  Important: **Use cable ties to secure the hoses away from the 4-wheel drive shaft and engine crank shaft to prevent damaging the hoses.**

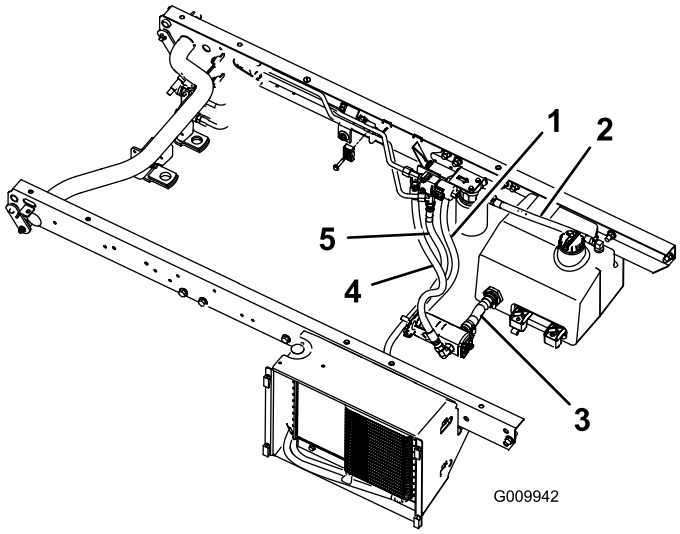

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Figure 16

1. Hose (1/2 x 63 inches)
2. Hose (1/2 x 14-1/2 inches)
3. Hose (3/4 x 7 inches)
4. Hose with fitting (1/2 x 51 inches)
5. High-pressure hose (32 inches)

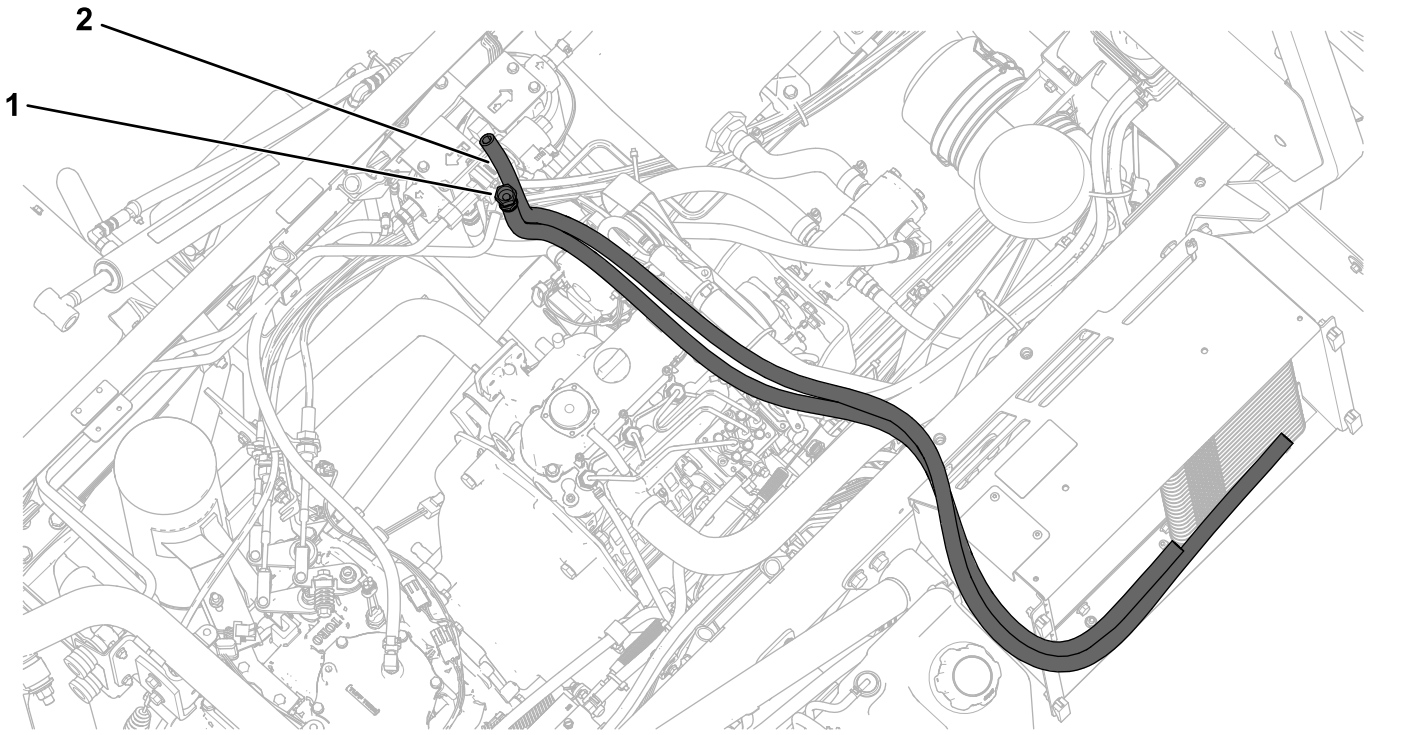

Figure 17

1. Hose with fitting (1/2 x 51 inches)
2. Hose (1/2 x 63 inches)

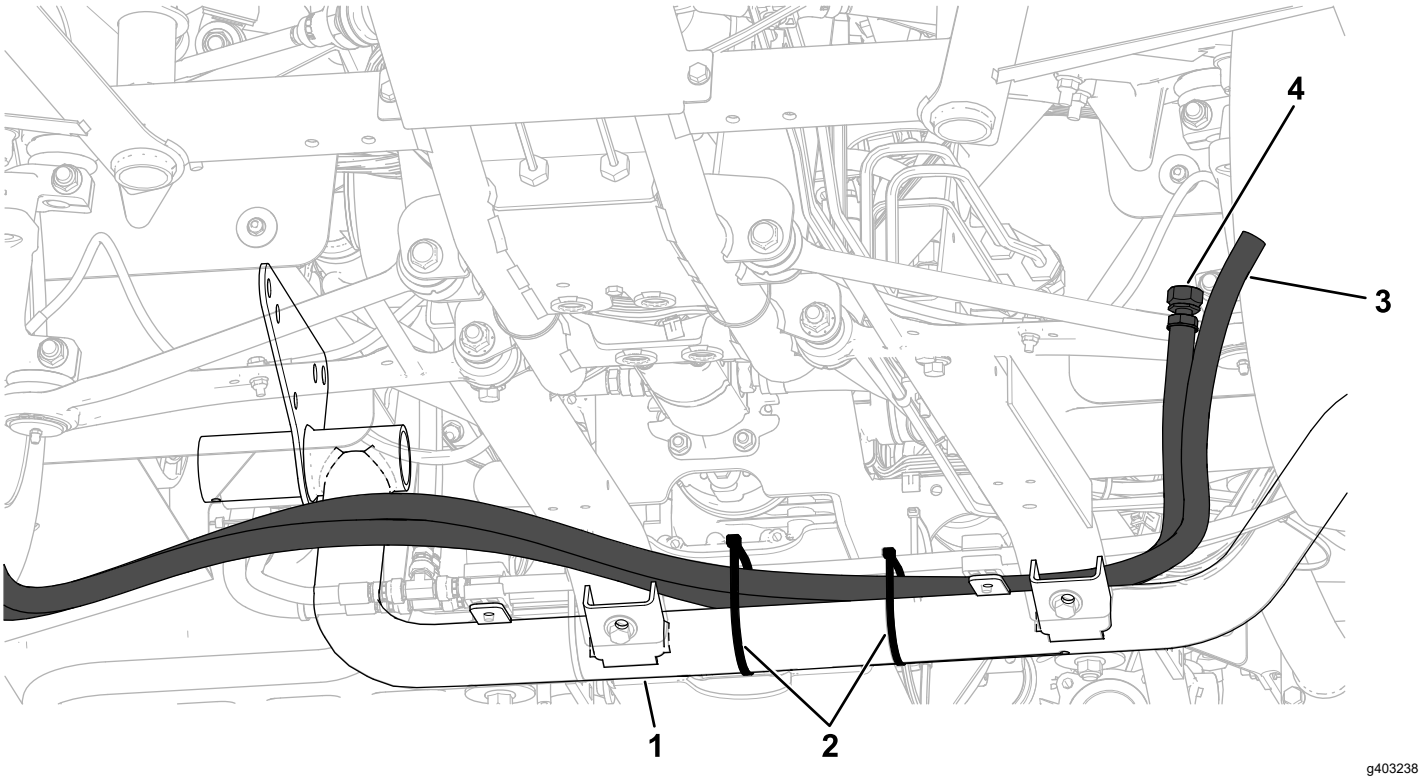

Figure 18

1. Bottom frame tube
2. Cable ties
3. Hose (1/2 x 63 inches)
4. Hose with fitting (1/2 x 51 inches)

14

Installing the Switch

Parts needed for this procedure:

1	Switch
1	Harness adapter

Procedure

1. Remove the plastic plug from the dashboard (Figure 19).

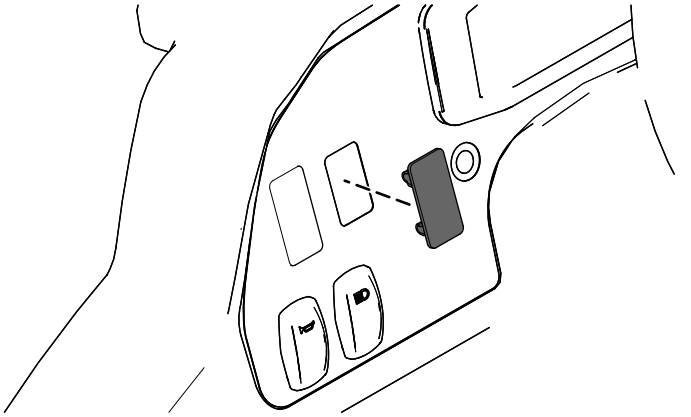

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Figure 19

2. Locate the wire harness labeled HIGH-FLOW HYDRAULIC with the loop-back connector and connect the switch to the connector (Figure 20).

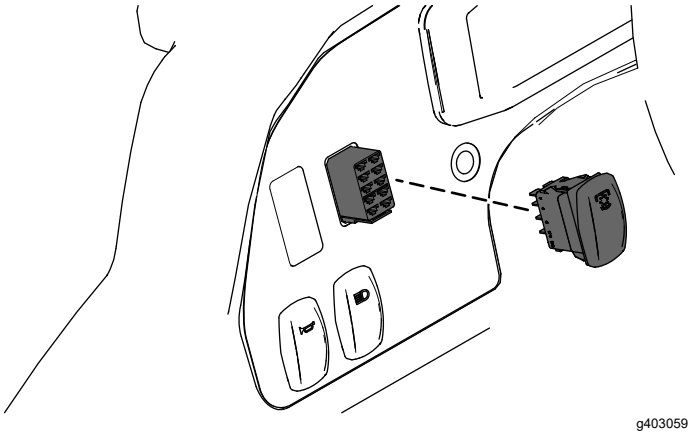

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Figure 20

15

Filling the Hydraulic Reservoir with Fluid

No Parts Required

Procedure

Fill the hydraulic reservoir with approximately 15.1 L (4 US gallons) of high-quality hydraulic fluid. **Check the level of hydraulic fluid before starting the engine, and daily, thereafter. The appropriate hydraulic fluids are listed below.**

Recommended replacement fluid: Toro PX Extended Life Hydraulic Fluid; available in 19 L (5 US gallon) pails or 208 L (55 US gallon) drums.

Note: A machine using the recommended replacement fluid requires less frequent fluid and filter changes.

Alternative fluids: If Toro PX Extended Life Hydraulic Fluid is not available, you may use another conventional, petroleum-based hydraulic fluid having specifications that fall within the listed range for all the following material properties and that it meets industry standards. Do not use synthetic fluid. Consult with your lubricant distributor to identify a satisfactory product.

Note: Toro does not assume responsibility for damage caused by improper substitutions, so use products only from reputable manufacturers who will stand behind their recommendation.

High Viscosity Index/Low Pour Point Anti-wear Hydraulic Fluid, ISO VG 46

Material Properties:

Viscosity, ASTM D445	cSt @ 40°C (104°F) 44 to 48
Viscosity Index ASTM D2270	140 or higher
Pour Point, ASTM D97	-37°C to -45°C (-34°F to -49°F)
Industry Specifications:	Eaton Vickers 694 (I-286-S, M-2950-S/35VQ25 or M-2952-S)

Note: Many hydraulic fluids are almost colorless, making it difficult to spot leaks. A red dye additive for the hydraulic fluid is available in 20 ml (0.67 fl oz) bottles. A bottle is sufficient for 15 to 22 L (4 to 6 US gallons) of hydraulic fluid. Order Part No. 44-2500 from your authorized Toro distributor.

1. Clean the area around the filler neck and the cap of the hydraulic tank (Figure 21).
2. Remove the cap from the filler neck.

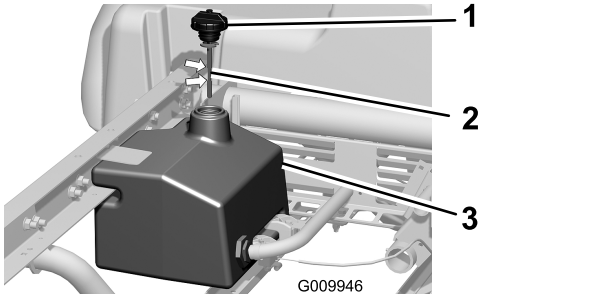

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Figure 21

1. Cap
2. Dipstick
3. Hydraulic tank

3. Remove the dipstick from the filler neck and wipe it with a clean rag.
4. Insert the dipstick into the filler neck; then remove it and check the fluid level.

   Note: The fluid level should be between the 2 marks on the dipstick.
5. If the level is low, add the appropriate fluid to raise the level to the upper mark.
6. Install the dipstick and cap onto the filler neck.
7. Start the engine and turn on the kit, and let them run for about 2 minutes to purge air from the system.
8. Shut off the engine and kit, and check for leaks.

⚠ DANGER

Hydraulic fluid escaping under pressure can penetrate skin and cause serious injury or death.

- **Seek immediate medical attention if fluid is injected into your skin.**
- **Make sure that all hydraulic-fluid hoses and lines are in good condition and all hydraulic connections and fittings are tight before applying pressure to the hydraulic system.**
- **Keep your body and hands away from pinhole leaks or nozzles that eject high-pressure hydraulic fluid.**
- **Use cardboard or paper to find hydraulic leaks.**
- **Safely relieve all pressure in the hydraulic system before performing any work on the hydraulic system.**

Maintenance

Changing the Hydraulic Fluid and Filter

Change the hydraulic fluid after every 800 hours.

Change the hydraulic filter:

- After the first 10 hours
- After every 800 hours

If the hydraulic fluid becomes contaminated, contact your local Toro distributor to flush the system. Contaminated fluid may look milky or black when compared to clean fluid. You may need to increase the service intervals if you use multiple attachments, as fluid may become contaminated more quickly with the mixing of different hydraulic fluids.

1. Clean the area around the new filter mounting area, place a drain pan under the filter, and remove the filter.

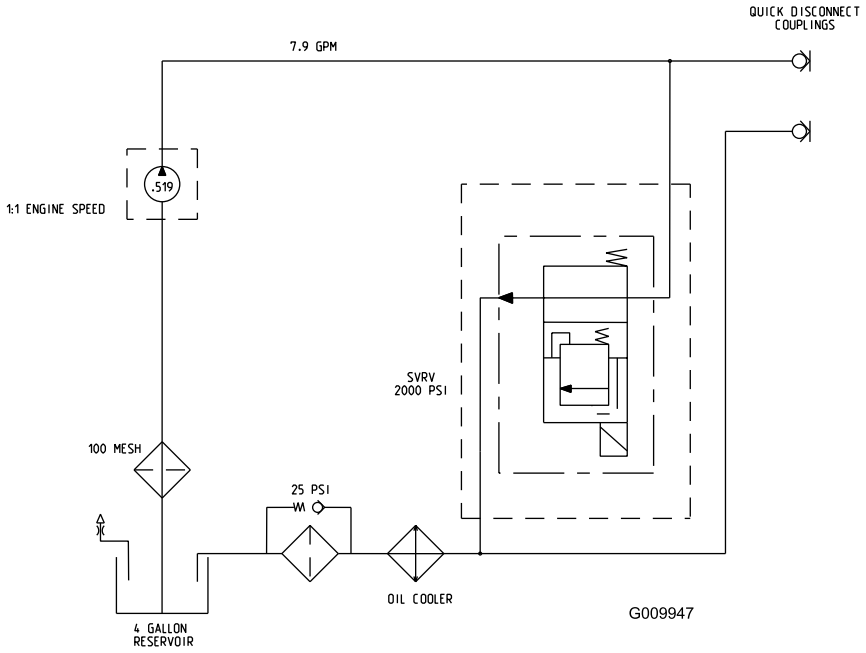
   Note: If the fluid is not going to be drained, disconnect and plug the hydraulic line going to the filter.

2. Lubricate the new filter-sealing gasket and hand-turn the filter onto the filter head until the gasket contacts the filter head, then tighten 3/4 turn further.

   Note: The filter should now be sealed; refer to 15 Filling the Hydraulic Reservoir with Fluid (page 15) for a list of recommended hydraulic fluids.

3. Fill the hydraulic reservoir with approximately 15 L (4.0 US gallons) of hydraulic fluid.
4. Start the engine and run it at idle for about 2 minutes to circulate the fluid and to purge air trapped in the system.
5. Shut off the engine and check the fluid level.
6. Dispose of the hydraulic fluid properly.

Schematics



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Hydraulic Schematic (Rev. A)

Notes:

Count on it.