



AutoSteer Kit

Multi Pro® 5800 Turf Sprayer with GeoLink®

Model No. 41636—Serial No. 400000000 and Up

Installation Instructions



If you are installing this kit on a Multi Pro® 5800 Turf Sprayer (Serial Number 316000001 through 406294344) with GeoLink®, refer to the AutoSteer Finish Kit *Installation Instructions* for both kits.

Introduction

The AutoSteer kit is an accessory for the GeoLink™ spray system, used for a turf spray application vehicle, and is intended to be used by professional, hired operators in commercial applications. It is designed primarily for spraying on well-maintained lawns in parks, golf courses, sports fields, and on commercial grounds. Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely.

Visit www.Toro.com for product safety and operation training materials, accessory information, help finding a dealer, or to register your product.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. [Figure 1](#) identifies the location of the model and serial numbers on the product. Write the numbers in the space provided.

Important: With your mobile device, you can scan the QR code (if equipped) on the serial number plate to access warranty, parts, and other product information.

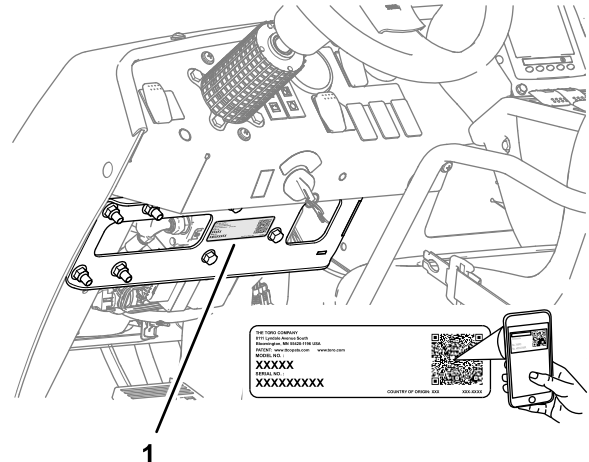


Figure 1

1. Model and serial number location

Model No. _____

Serial No. _____

This manual identifies potential hazards and has safety messages identified by the safety-alert symbol ([Figure 2](#)), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.



Figure 2

1. Safety-alert symbol

This manual uses 2 words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.



Contents

Introduction	1
Safety	2
Safety and Instructional Decals	3
Setup	4
1 Remove the Negative Battery Cable	6
2 Removing the Wheel.....	6
3 Installing the Wheel Angle Sensor Shim.....	6
4 Installing the Steering Position Sensor	7
5 Verifying the Software Version	9
6 Verifying the Minimum Hardware Requirements	10
7 Downloading the Software and Diagnostic Data Files.....	11
8 Installing the Software and Diagnostic Data Files.....	11
9 Selecting the Gateway Channel	16
10 Installing the Firmware Release Package Files	17
11 Preparing the Machine	21
12 Removing the Hood	22
13 Removing the Heat Shield and Undercarriage Shroud.....	23
14 Removing the Steering Valve Hoses	23
15 Installing the EHI Steering Valve	27
16 Drilling the Console Base	29
17 Installing the Electrical Harness	30
18 Replacing the Steering Valve O-rings	39
19 Installing the Hoses.....	40
20 Installing the Negative Battery Cable	50
21 Purging Air from the Hydraulic System.....	50
22 Checking for Hydraulic Leaks.....	51
23 Installing the Hood	51
24 Installing the Heat Shield and Undercarriage Shroud.....	52
25 Setting Up and Calibrating the Software.....	52
26 Checking the Hydraulic Fluid Level.....	63
Schematics	64

Safety

⚠ WARNING

Chemical substances used in the spray system may be hazardous and toxic to you, bystanders, animals, plants, soil, or other property.

- **Carefully read and follow the chemical warning labels and safety data sheet (SDS) for all chemicals used and protect yourself according to the chemical manufacturer's recommendations. For example, use appropriate personal protective equipment (PPE), including face and eye protection, gloves, or other equipment to guard against personal contact with a chemical.**
- **There may be more than 1 chemical used and information on each chemical; assess each chemical.**
- **Refuse to operate or work on the sprayer if this information is not available.**
- **Before working on a spray system, ensure that the system has been triple rinsed and neutralized according to the recommendations of the chemical manufacturer(s) and that all the valves are cycled 3 times.**
- **Verify that there is an adequate supply of clean water and soap nearby, and immediately wash off any chemicals that contact you.**

Shut off the machine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.

Improperly using or maintaining this machine can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety-alert symbol ⚠, which means Caution, Warning, or Danger—personal safety instruction. Failure to comply with these instructions may result in personal injury or death.

Safety and Instructional Decals



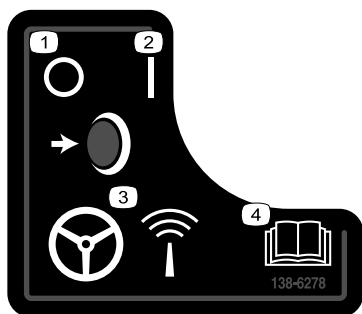
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



138-6259

decal138-6259

-
- | | |
|-------------------|---------------|
| 1. Transport mode | 2. Spray mode |
|-------------------|---------------|



138-6278

decal138-6278

-
- | | |
|--------|--|
| 1. Off | 3. Autosteer
engage/disengage button |
| 2. On | 4. Read the <i>Operator's
Manual</i> . |
-

Installation

Loose Parts

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

Procedure	Description	Qty.	Use
1	No parts required	–	Remove the negative battery cable.
2	No parts required	–	Remove the wheel.
3	No parts required	–	Install the wheel angle sensor shim.
4	Steering position sensor (magnetic target and sensor) Jam nut (10 mm) Sensor bracket Sensor alignment tool Pan-head screw (#4 x 3/4 inch) Locknut (#4) Flange-head capscrew (1/4 x 3/4 inch) Locknut (1/4 inch)	1 1 1 1 2 2 2 2	Install the steering position sensor.
5	No parts required	–	Verify the software version.
6	No parts required	–	Verify the minimum hardware requirements.
7	No parts required	–	Download the software and files.
8	No parts required	–	Install the Danfoss PLUS+1 service tool software
9	No parts required	–	Select the gateway channel.
10	No parts required	–	Install the firmware release package files.
11	No parts required	–	Prepare the machine.
12	No parts required	–	Remove the hood.
13	No parts required	–	Remove the heat shield and shroud.
14	Cap	1	Remove the hydraulic hoses.

Procedure	Description	Qty.	Use
15	Manifold mount	1	Install the steering valve.
	Flange-head capscrew (1/4 x 1/2 inch)	2	
	Washer (1/4 inch)	2	
	Flange locknut (1/4 inch)	2	
	U-bolt (3/8 inch)	2	
	Flange locknut (3/8 inch)	4	
	Model/serial decal	1	
	EHI steering valve	1	
	Straight hydraulic fitting (-6 x 12 mm)	2	
	Straight hydraulic fitting (-8 x 22 mm)	4	
	Straight hydraulic fitting (-6 x 18 mm)	4	
	Flange-head capscrew (8 x 16 mm)	3	
16	Grommet	1	Drill the console base.
17	2-position switch	1	Install the electrical harness.
	Transport decal	1	
	Wire harness	1	
	Cable tie	7	
	Fuse (10 A)	1	
	Push-button switch, jam nut, and lock washer	1	
	AutoSteer remote-engage decal	1	
18	O-ring 9.2/1.8 mm (0.364/0.070 inch)	3	Replace the steering valve O-rings.
	O-ring 7.6/1.8 mm (0.301/0.070 inch)	2	
19	Hose 6 x 203 mm (1/4 x 8 inches); -6 (straight) and -6 (45°) fittings	1	Install the hoses.
	O-ring 12.4/1.8 mm (0.489/0.070 inch)	2	
	Hose 6 x 2819 mm (1/4 x 111 inches); -4 (90°) and -6 (90°) fittings	1	
	Hose 6 x 673 mm (1/4 x 26-1/2 inches); -4 (straight) and -6 (90°) fittings	1	
	Hose 6 x 711 mm (1/4 x 28 inches); -4 (straight) and -6 (90°) fittings	1	
	Hose 10 x 187 mm (3/8 x 7-3/8 inches); -6 (straight) and -8 (90°) fittings	1	
	Hose 10 x 264 mm (3/8 x 10-3/8 inches); -8 (90°) and -6 (45°) fittings	1	
	O-ring 9.2/1.8 mm (0.364/0.070 inch)	2	
	Hose 6 x 1397 mm (1/4 x 55 inches); -6 (straight) and -6 (90°) fittings	1	
	Hose 6 x 1270 mm (1/4 x 50 inches); -6 (straight) and -6 (90°) fittings	1	
	Hose 10 x 2921 mm (3/8 x 115 inches); -8 (90°) and -8 (90°) fittings	1	
	O-ring 7.6/1.8 mm (0.301/0.070 inch)	1	
	Cable tie	3	
20	No parts required	—	Finish the kit installation.
21	No parts required	—	Purge air from the hydraulic system.
22	No parts required	—	Check for hydraulic leaks.

Procedure	Description	Qty.	Use
23	Push-in fasteners	6	Install the hood.
24	No parts required	–	Install the heat shield and shroud.
25	No parts required	–	Set up the GeoLink software.
26	No parts required	–	Check the hydraulic fluid level.

1

Remove the Negative Battery Cable

No Parts Required

Procedure

1. Remove the cover from the battery box (Figure 3).

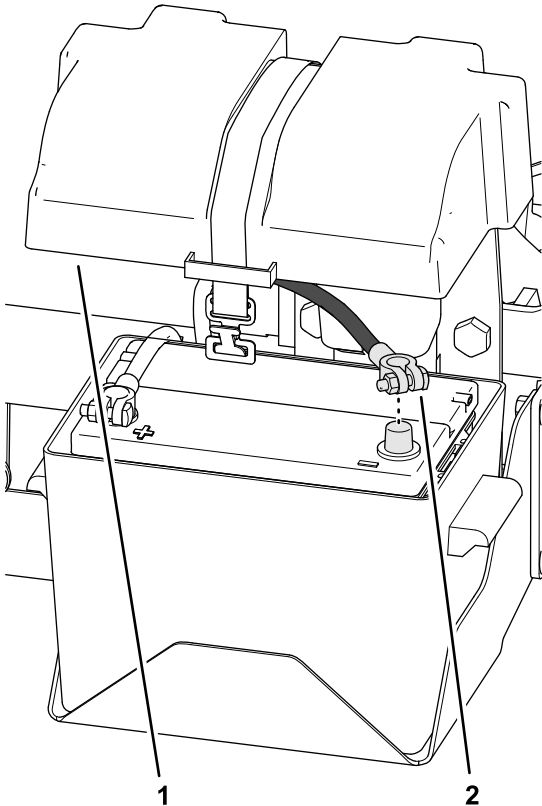


Figure 3

g292314

1. Cover
2. Negative battery cable

2. Remove the negative-battery cable from the battery (Figure 3).

2

Removing the Wheel

Machine Serial No. 406294345 and Later

No Parts Required

Procedure

1. Lift the machine and support it with jack stands; refer to the *Operator's Manual* for your machine.
2. Remove the 5 wheel nuts that secure the left tire and wheel to the wheel hub, and remove the wheel from the machine (Figure 4).

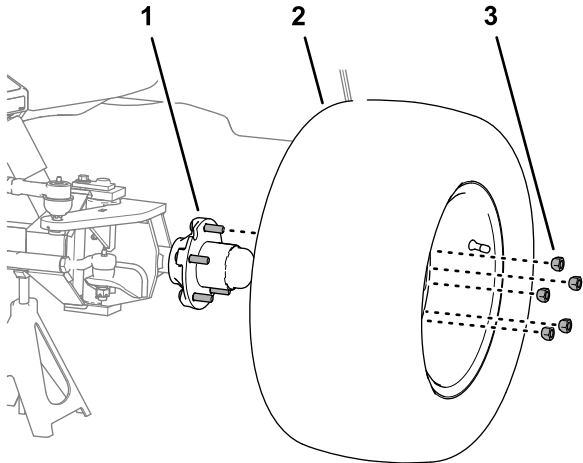


Figure 4

g299511

1. Wheel hub
2. Wheel nut
3. Tire and wheel

3

Installing the Wheel Angle Sensor Shim

No Parts Required

Procedure

1. Remove the left front tire.
2. Remove the bolt and washer at the top of the king pin and remove the king pin.
3. Rotate the wheel hub/spindle assembly away from the machine.
4. Install the shim into the wheel hub/spindle assembly.
5. Install the wheel hub/spindle assembly, king pin, and wheel. Torque the lug nuts to 75 to 102 N·m (55 to 75 ft·lb).
6. Operate the machine and ensure that the issue has been resolved.

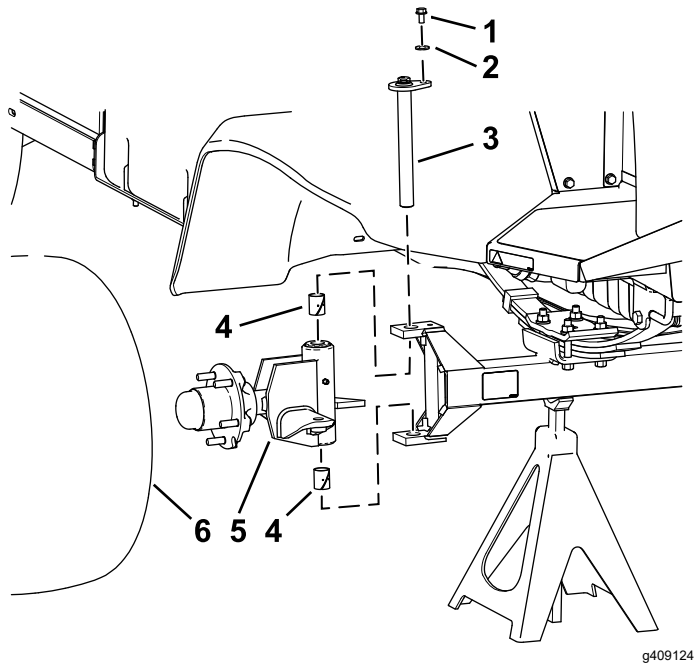


Figure 5

- | | |
|-------------|-------------------------------|
| 1. Bolt | 5. Shim |
| 2. Washer | 6. Wheel hub/spindle assembly |
| 3. King pin | 7. Front tire |
| 4. Bushing | |

4

Installing the Steering Position Sensor

Parts needed for this procedure:

1	Steering position sensor (magnetic target and sensor)
1	Jam nut (10 mm)
1	Sensor bracket
1	Sensor alignment tool
2	Pan-head screw (#4 x 3/4 inch)
2	Locknut (#4)
2	Flange-head capscrew (1/4 x 3/4 inch)
2	Locknut (1/4 inch)

Installing the Sensor Bracket

1. Remove the capscrew from the end of the kingpin ([Figure 6](#)).

Note: Discard the capscrew.

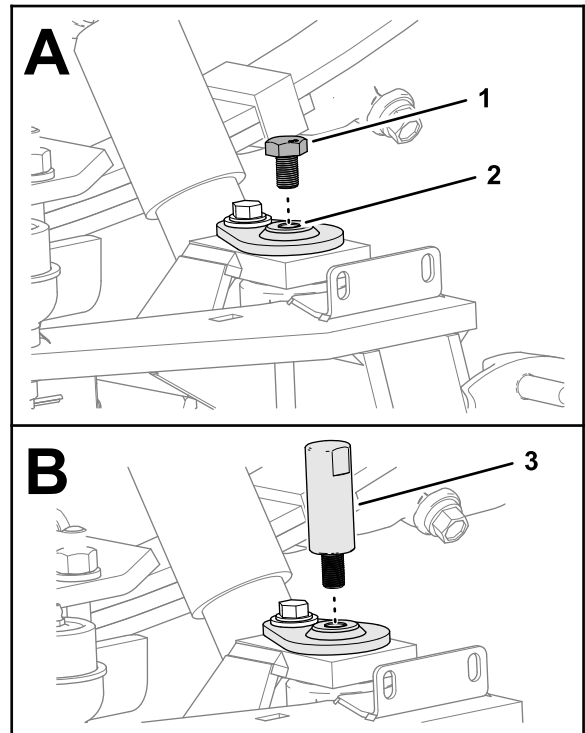


Figure 6

- | | |
|-------------|-------------------|
| 1. Capscrew | 3. Alignment tool |
| 2. King pin | |

2. Thread the alignment tool into the top of the king pin (Figure 6).
3. Align the sensor bracket over the alignment tool and the slots in the flange of the spindle (Figure 7).

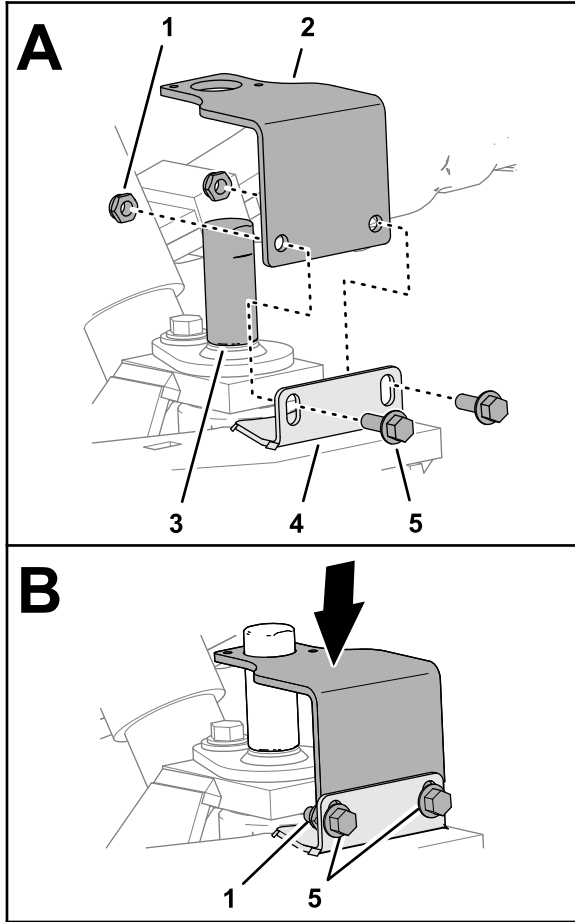


Figure 7

g313637

1. Locknut (1/4 inch)
 2. Sensor bracket
 3. Alignment tool
 4. Flange (spindle)
 5. Flange-head capscrews (1/4 x 3/4 inch)
4. Loosely assemble the bracket to the flange (Figure 7) with 2 flange-head capscrews (1/4 x 3/4 inch) and 2 locknuts (1/4 inch).
 5. Position the bracket to the bottom of the slots in the flange of the spindle, and tighten the flange-head capscrews and locknuts (Figure 7).
 6. Remove the alignment tool (Figure 8).

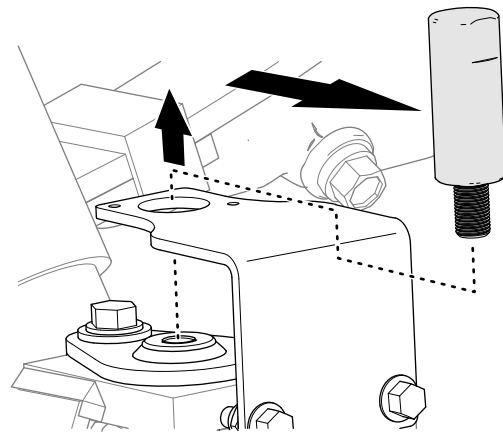


Figure 8

g299597

Assembling the Magnetic Target and Sensor

1. Fully thread the jam nut onto the magnetic target (Figure 9).

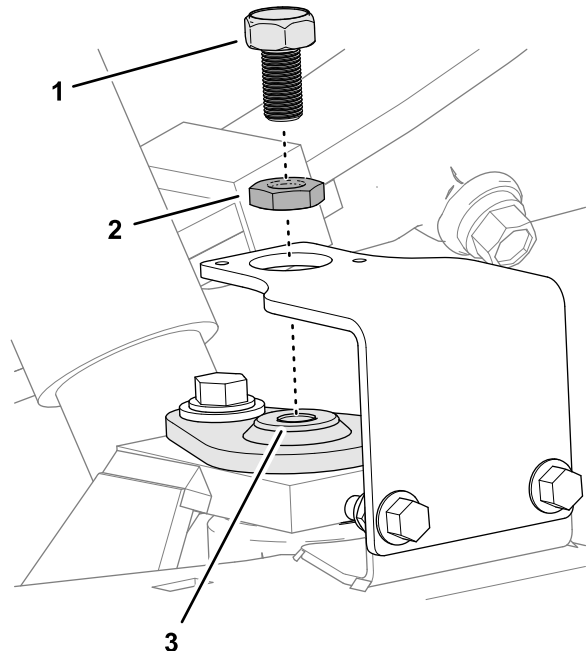


Figure 9

g299594

1. Magnetic target
 2. Jam nut
 3. King pin
2. Thread the magnetic target into the top of the king pin (Figure 9).
 3. Assemble the steering position sensor to the sensor bracket with 2 pan-head screws (#4 x 3/4 inch) and locknuts (#4), and tighten the screws and locknuts (Figure 10).

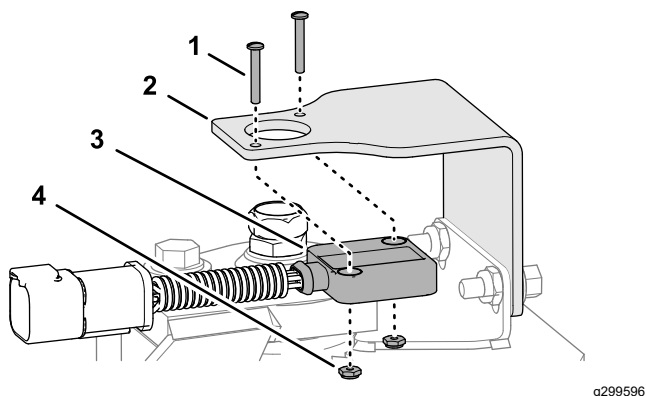


Figure 10

1. Pan-head screws (#4 x 3/4 inch)
2. Sensor bracket
3. Steering position sensor
4. Locknuts (#4)

Adjusting the Magnetic Target

1. Adjust the position of the magnetic target until you measure a gap 4 mm (0.16 inch) between the target and the face of sensor (Figure 11).

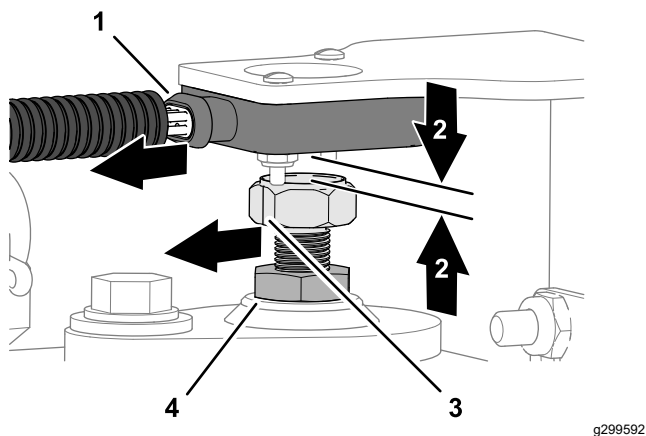


Figure 11

1. Wiring port (sensor)
2. Gap 3.5 mm (0.14 inch)
3. Indicator line (magnetic target)
4. Jam nut

2. Rotate the magnetic target until the indicator line that is stamped into the flat of the magnetic target aligns with the wiring port of the sensor (Figure 11).
3. Tighten the jam nut (Figure 11).
4. Measure the gap between the target and the face of sensor (Figure 11). You should measure 2 to 4 mm (0.08 to 0.16 inch).

Note: If the gap is smaller than 2 mm (0.08 inch) or larger than 4 mm (0.16 inch)—adjust the position of the magnetic target, align the indicator line, and tighten the jam nut.

Installing the Wheel

1. Align the holes of the wheel onto the studs of the wheel hub (Figure 12).

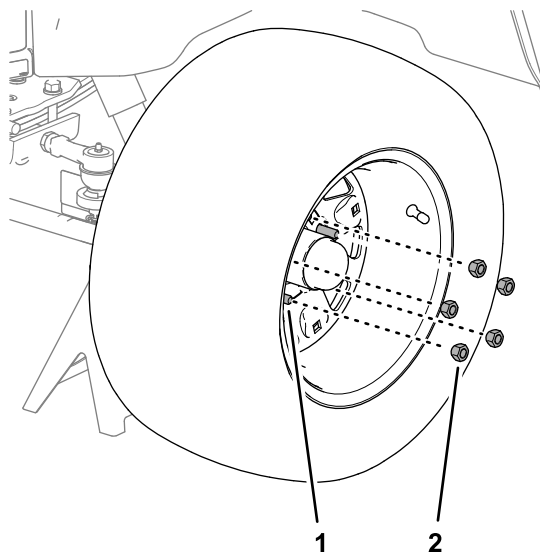


Figure 12

1. Stud
2. Wheel nut

2. Assemble the wheel to the studs with the 5 wheel nuts, and tighten them by hand (Figure 12).
3. Lower the machine and remove the jack stands.
4. Torque the wheel nuts in a crossing pattern to 75 to 102 N·m (55 to 75 ft-lb).

5

Verifying the Software Version

GeoLink Control Console

No Parts Required

Procedure

1. Turn the ignition key to the RUN(gasoline) or PREHEAT/RUN (diesel) position.
2. Press the ABOUT (Toro) icon at the upper left corner of the control console (Figure 13).

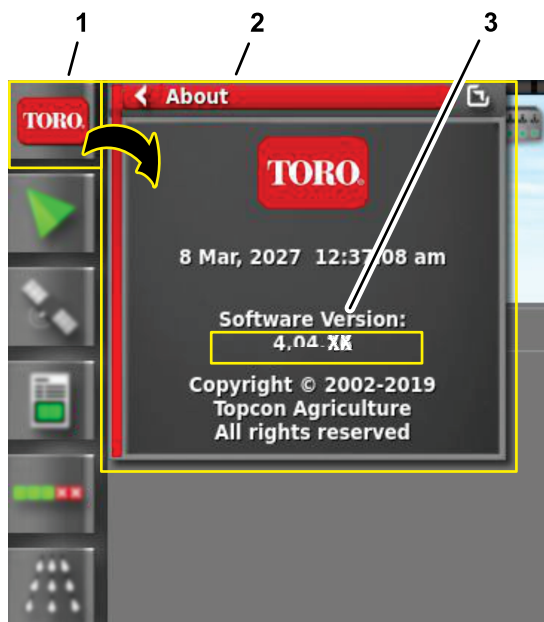


Figure 13

g302935

1. ABOUT (Toro) icon
2. ABOUT fly-out-window
3. When the software version is correct, the About dialog box displays software version 4.04 or higher.

Note: If the software versions differ, contact the Toro technical assistance center.

6

Verifying the Minimum Hardware Requirements

Laptop Computer

No Parts Required

Procedure

Ensure that your laptop computer that meets the hardware, operating system, and application requirements before installing the Danfoss PLUS+1® Service Tool; refer to the tables that follow.

Hardware

Component	Minimum Capacity
CPU*	1.5 GHz, 32-bit, 1 core, 2008 or later
Memory	1 GB
Unused Hard Drive Space	Greater than 1 GB
Minimum Display Resolution	1024 x 768
USB Port	Version 2.0 or higher

* The CPU must be intended for laptop use. Processors intended for netbooks, tablets, or similar devices are not recommended.

Operating System

Software	Version
Operating System Version	Microsoft Windows 7—32 bit
OS Components	MSXML 4.0, Service Pack 2 (Microsoft XML Core Services)
User Account Rights	Local administrator access

Applications

Software	Notes
Email Client/Reader	For license registration.
PDF Reader	Any recent standards compliant reader.
Web Browser	Any recent standards compliant web browser (for HTML based F1 Help).

7

Downloading the Software and Diagnostic Data Files

Laptop Computer

No Parts Required

Procedure

1. Access the [Toro Connect](#) web page (Figure 14).

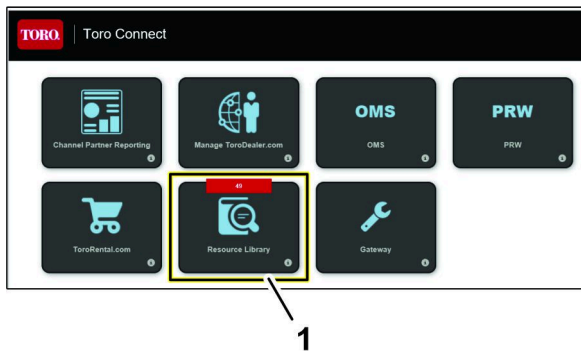


Figure 14

1. Resource Library icon
2. Left click the Resource Library icon (Figure 14).
3. On the Library web page, type AUTOSTEER in the Enter Search Terms text box, and left click the search button (Figure 15).



Figure 15

1. AutoSteer Danfoss Software (Enter Search Terms text box)
2. Search button
4. In the Showing Documents list, double-click the AutoSteer Danfoss Software hyperlink (Figure 16).

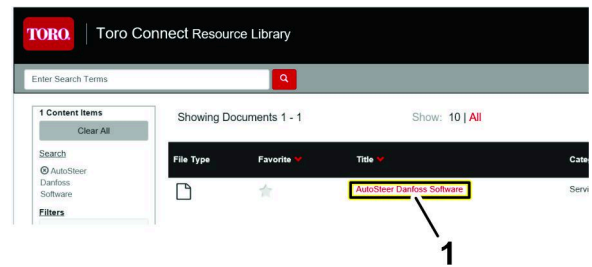


Figure 16

1. AutoSteer Danfoss Software hyperlink

5. On the Document Information page, click the PVED-CLS 2.00 firmware release package.zip hyperlink (Figure 17).



Figure 17

1. PVED-CLS 2.00 firmware release package.zip hyperlink
2. Save button

6. Click the Save button (Figure 17).

Note: The file saves to the Downloads directory of your laptop computer.

7. On the Document Information page, click the Plus1 Service Tool hyperlink (Figure 18).

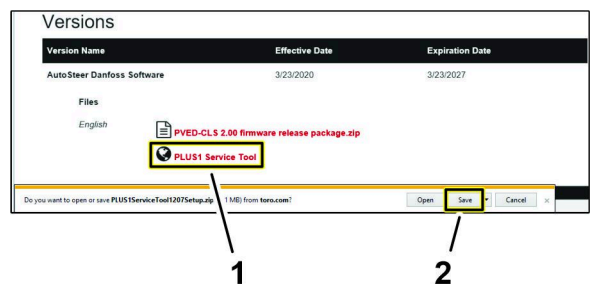


Figure 18

1. Plus1 Service Tool hyperlink
2. Save button

8. Click the Save button (Figure 18).

Note: The file saves to the Downloads directory of your laptop computer.

8

Installing the Software and Diagnostic Data Files

Laptop Computer

No Parts Required

Installing the Software

Important: The person installing the PLUS+1 Service tool must have administrative privileges on the laptop computer.

1. Open the Download directory on your laptop computer, and right click the PLUS1ServiceTool1207Setup.zip file link, and click Extract All... link in the drop-down menu (Figure 19).



Figure 19

1. PLUS1ServiceTool1207Setup.zip file link
2. Extract All... link

2. In the Extract Compressed dialog box, ensure that the SHOW EXTRACTED FILES WHEN COMPLETE check box is selected, and click the EXTRACT button (Figure 20).

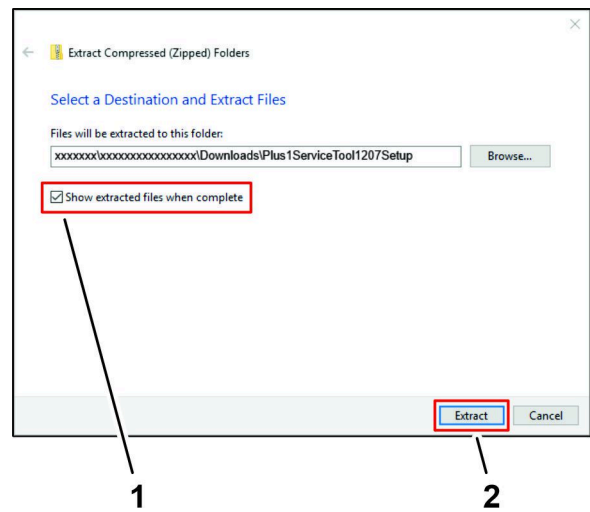


Figure 20

1. SHOW EXTRACTED FILES WHEN COMPLETE check box
2. EXTRACT button

3. In the PLUS1SERVICETOOL1207SETUP directory, double click the PLUS+1_ServiceTool_12.7_Setup.exe file (Figure 21).

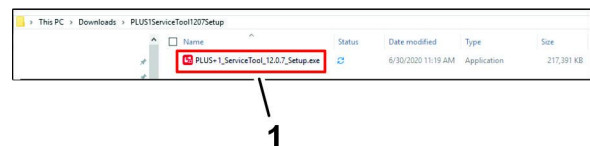


Figure 21

1. PLUS+1_ServiceTool_12.7_Setup.exe file

4. If the User Account Control dialog box displays, click the YES button (Figure 22).

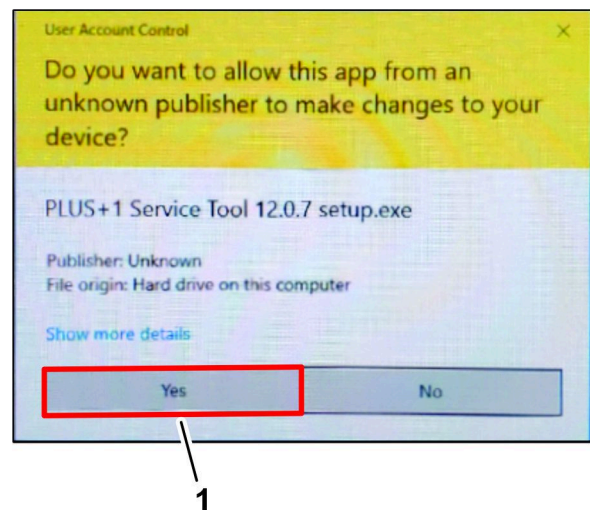


Figure 22

1. YES button

5. In the Select Destination Location dialog box, click the NEXT button (Figure 23).

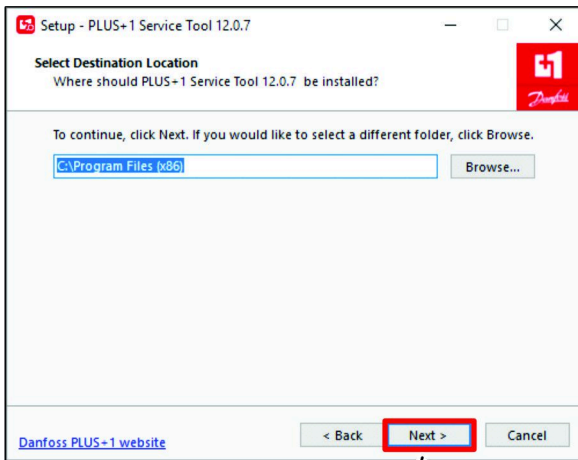


Figure 23

1. NEXT button

6. In the Plus+1 Online dialog box, click the NEXT button (Figure 24).

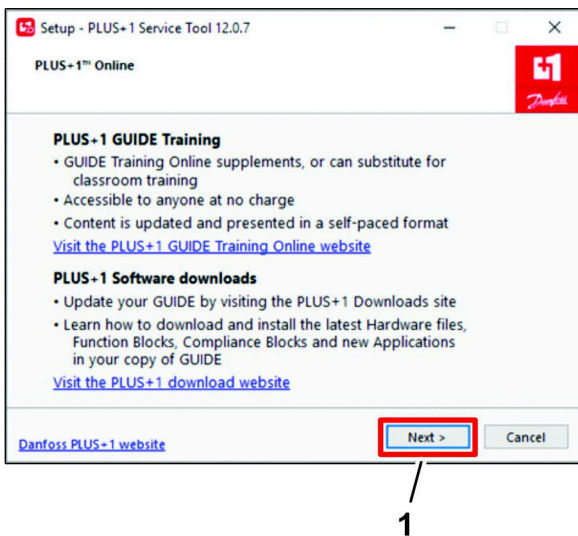


Figure 24

1. NEXT button

7. In the Select Additional Tasks dialog box, click the NEXT button (Figure 25).

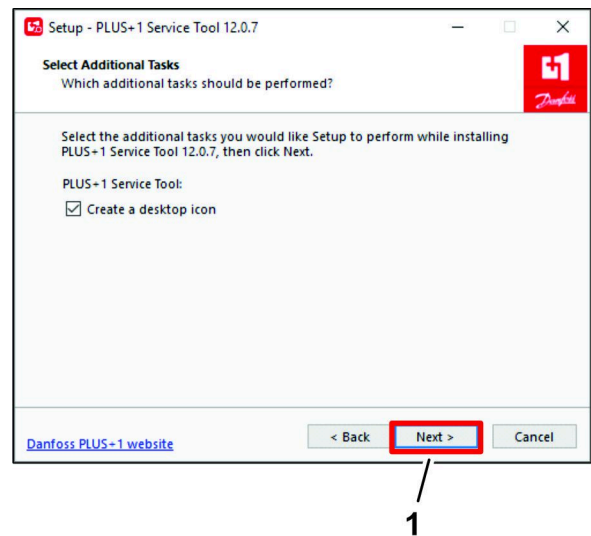


Figure 25

1. NEXT button

8. In the Ready to Install dialog box, click the INSTALL button (Figure 26).

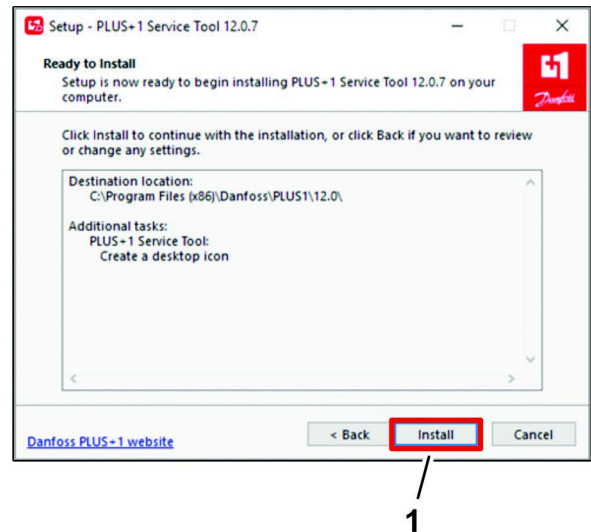


Figure 26

1. INSTALL button

Note: The progress dialog box (Figure 27) displays.

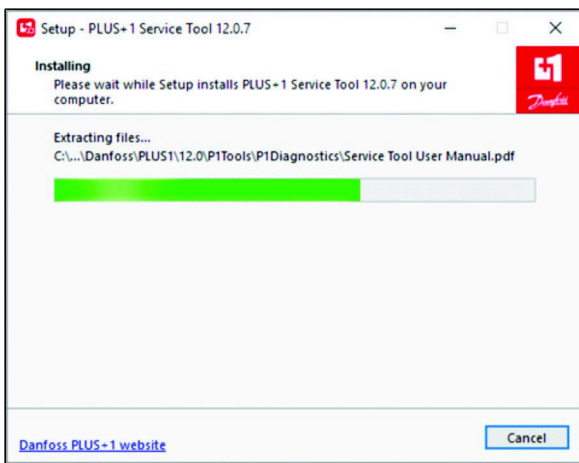


Figure 27

g333498

9. In the Completing Service Tool Setup Wizard dialog box, click the FINISHED button (Figure 28).

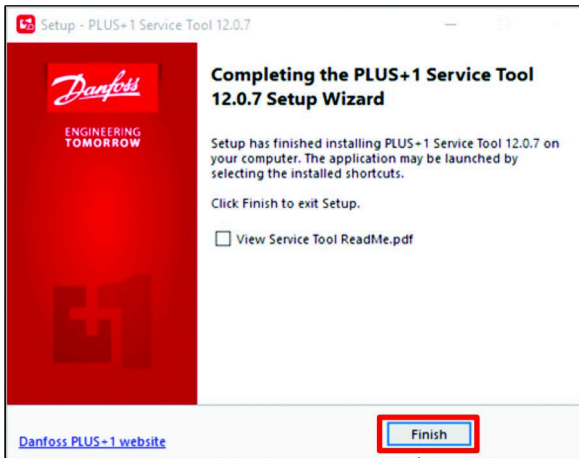


Figure 28

g333503

1. FINISHED button

Installing the Drivers

1. In the Select Destination Location dialog box, click the NEXT button (Figure 29).

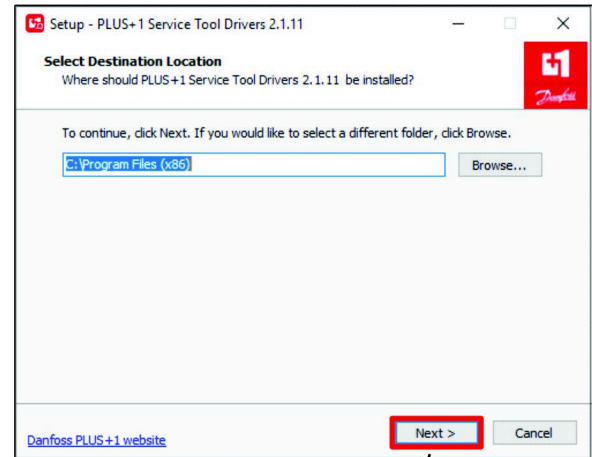


Figure 29

g333494

1. NEXT button
2. In the Ready to Install dialog box, click the INSTALL button (Figure 30).

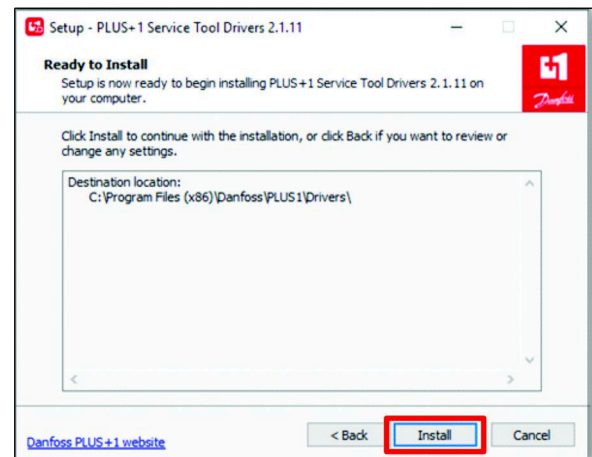


Figure 30

g333500

1. INSTALL button

Note: The progress dialog box (Figure 31) displays.

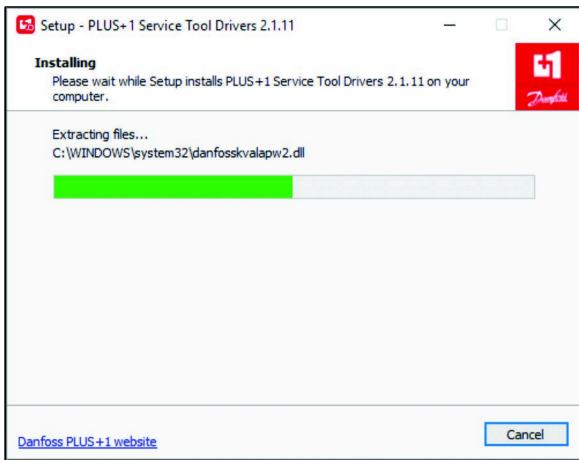


Figure 31

g333496

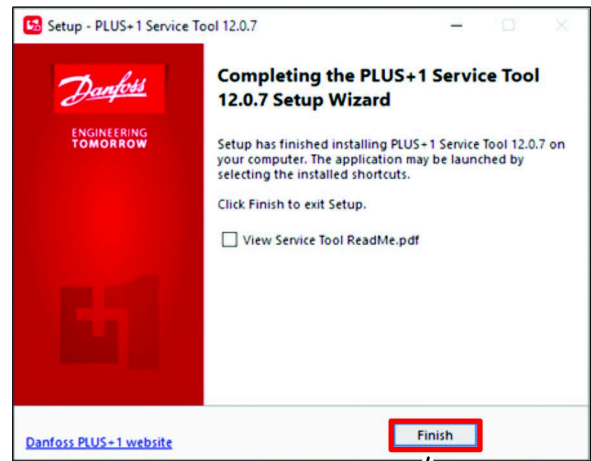


Figure 33

g333497

1. FINISHED button

3. In the Completing Service Tool Drivers Setup Wizard dialog box, click the FINISHED button (Figure 32).



Figure 32

g333495

1. FINISHED button

Preparing the Diagnostic Data Files

1. Open the Download directory on your laptop computer, and right click the 6763_14472.en.zip link, and click Extract All... link in the drop-down menu (Figure 34).



Figure 34

g334266

1. 6763_14472.en.zip link 2. Extract All... link

2. In the Extract Compressed dialog box, click the BROWSE button (Figure 35).

4. In the Completing Service Tool Setup Wizard dialog box, click the FINISHED button (Figure 33).

9

Selecting the Gateway Channel

Laptop Computer

No Parts Required

Procedure

1. Plug a Toro Diag cable into the USB port of the laptop computer.
2. In Windows task bar, click the SEARCH icon (Figure 37).

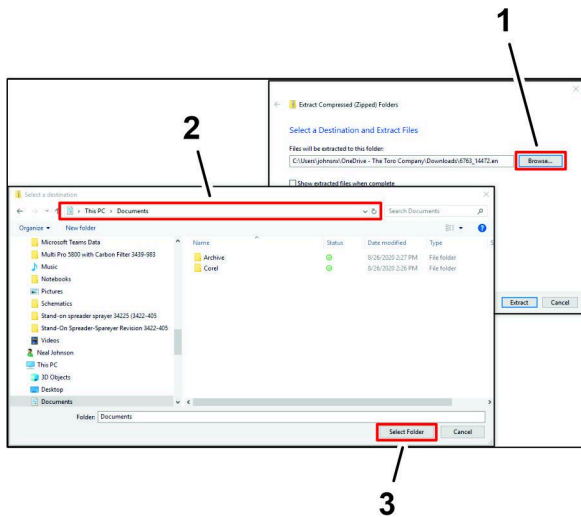


Figure 35

g334284

1. BROWSE button (Extract Compressed dialog box)
2. DOCUMENTS folder
3. In the Select a destination dialog box, navigate to the DOCUMENTS folder, and click the SELECT FOLDER button (Figure 35).
4. In the Extract Compressed dialog box, deselect the SHOW EXTRACTED FILES WHEN COMPLETE check box, and click the EXTRACT button (Figure 36).



Figure 36

g334283

1. SHOW EXTRACTED FILES WHEN COMPLETE check box
2. EXTRACT button

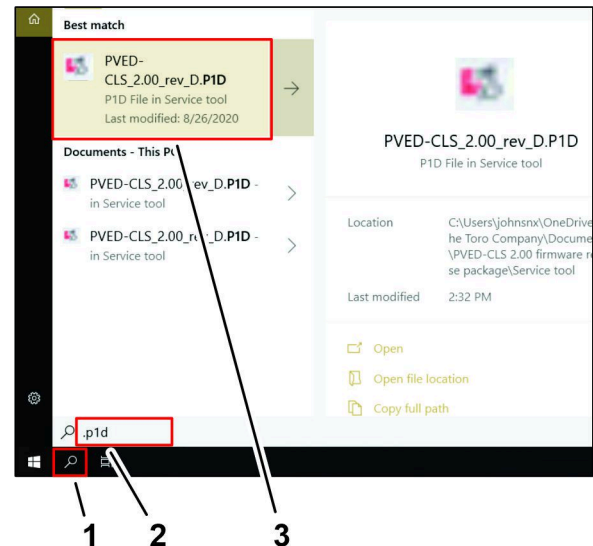


Figure 37

Windows 10 shown.

g334306

1. SEARCH icon
2. .P1D (TYPE HERE TO SEARCH text box)
3. PVED-CLS_2.00_rev_D.P1D icon
4. Click PVED-CLS_2.00_rev_D.P1D icon (Figure 37).

Note: The Plus+1 Service Tool application displays on your laptop (Figure 38).

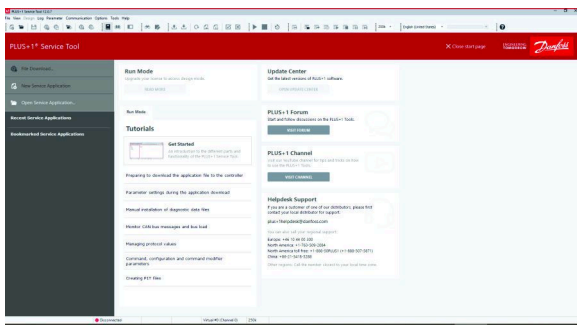


Figure 38

g333571

5. If the Select Gateway Channel screen displays on your computer, skip to step 10.
6. On the ribbon bar, click the Communication button (Figure 39).

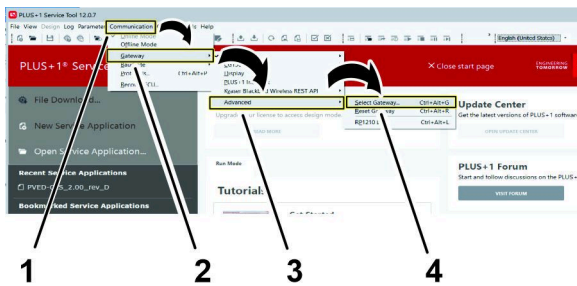


Figure 39

g332822

1. Communication button
2. Gateway button
3. Advanced button
4. Select Gateway... button

7. In the Communication drop-down menu, click the Gateway button (Figure 39).
8. In the Gateway drop-down menu, click the Advanced button (Figure 39).
9. In the Advanced drop-down menu, click the Select Gateway... button (Figure 39).
10. On the Select Gateway Channel screen, click the Kvaser option in the Gateways list (Figure 40).

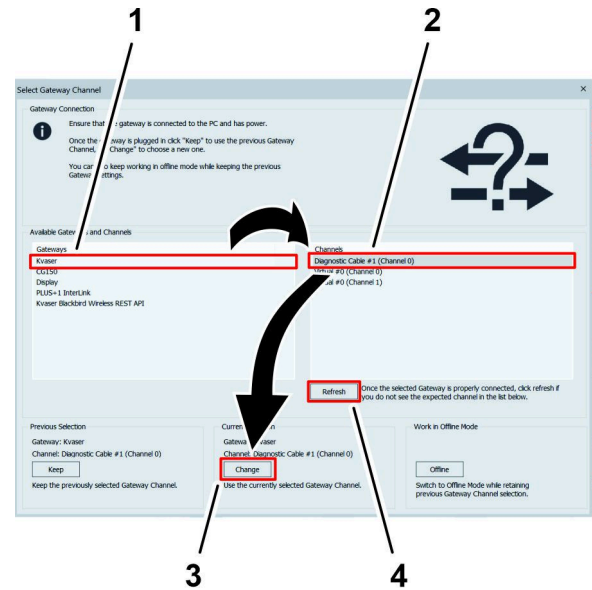


Figure 40

g332837

1. Kvaser option (Gateways list)
2. Diagnostic Cable option (Channels menu)
3. CHANGE button (Current Selection heading)
4. Refresh button

11. In the Channels menu, click the Diagnostic Cable option (Figure 40).

Note: If a diagnostic cable option does not display in the Channels menu, verify that the Toro Diag cable is plugged into the USB port of the laptop computer, press the Refresh button (Figure 40) on the Select Gateway Channel screen, and click the Diagnostic Cable option.

12. Click the CHANGE button under the Current Selection heading (Figure 40).

10

Installing the Firmware Release Package Files

Laptop Computer

No Parts Required

Installing the APP_CLS_M Data file

Important: You must have administrative rights on the laptop before installing the PVED CLS firmware release package.

1. On your laptop computer, open the Danfoss Plus+1 service tool on your laptop computer.
2. Click the FILE icon, and in the drop-down list, click the INSTALL DIAGNOSTIC DATA . . . icon (Figure 41).

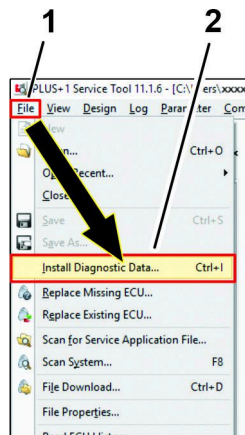


Figure 41

1. FILE icon
2. INSTALL DIAGNOSTIC DATA . . . icon

3. In the Install Diagnostic Data dialog box, click the PLUS+1 protocol icon, and press the INSTALL icon (Figure 42).

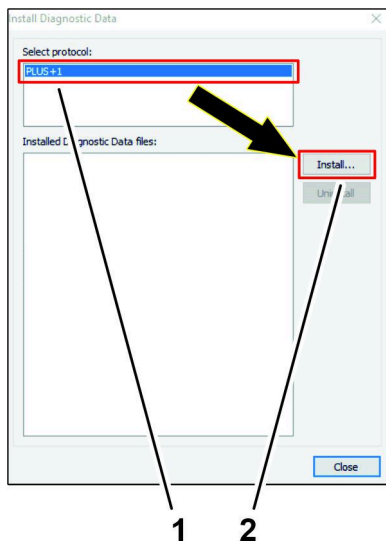


Figure 42

1. PLUS+1 protocol icon
2. INSTALL icon

4. Navigate to the PVED-CLS 2.00 firmware release package.zip file, click the PVED-CLS 2.00 firmware release package folder, and click the OPEN icon (Figure 43).

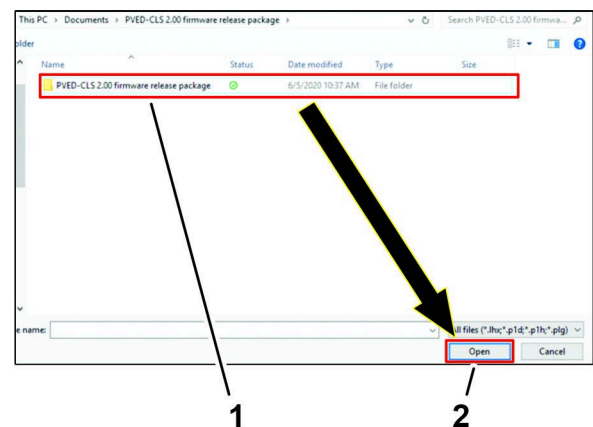


Figure 43

1. PVED-CLS 2.00 firmware release package folder
2. OPEN icon

5. Click the Diagnostic data files folder, and click the OPEN icon (Figure 44).

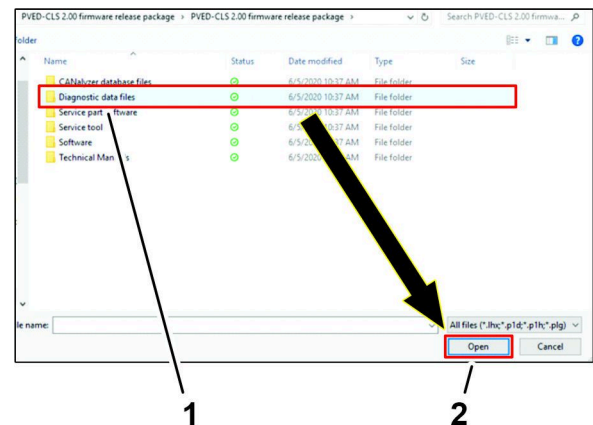


Figure 44

1. Diagnostic data files folder
2. OPEN icon

Click the APP-CLS-M_R200_SEHS_11153340_... file, and click the OPEN icon (Figure 45).



Figure 45

g332309

1. APP_CLS-M_R200_SEHS----_11153340_... file
2. OPEN icon

6. In the RESULT INFORMATION dialog box, click the CLOSE icon (Figure 46).

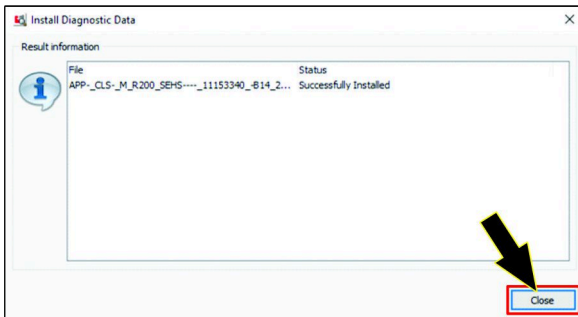


Figure 46

g332305

Installing the APP_CLS_S Data file

1. Click the FILE icon, and in the drop-down list, click the INSTALL DIAGNOSTIC DATA . . . icon (Figure 47).

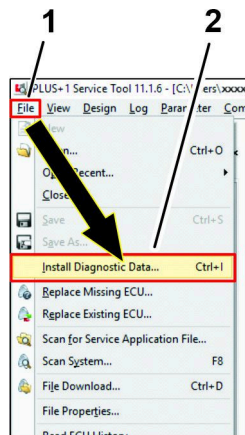


Figure 47

g332308

1. FILE icon
2. INSTALL DIAGNOSTIC DATA . . . icon

2. In the Select Protocol dialog box, click the PLUS+1 icon, and press the INSTALL icon (Figure 48).

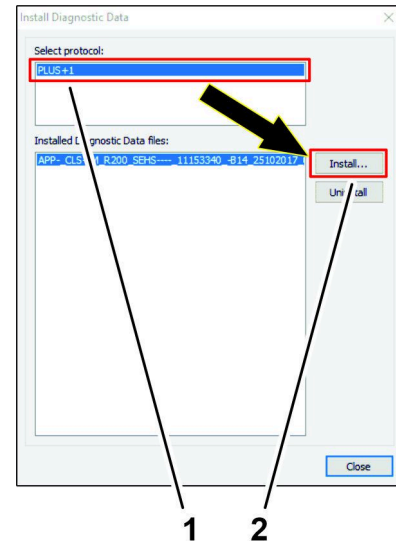


Figure 48

g332315

1. PLUS+1 protocol icon
2. INSTALL icon

3. Navigate to the PVED-CLS 2.00 firmware release package.zip file, click the PVED-CLS 2.00 firmware release package folder, and click the OPEN icon (Figure 49).



Figure 49

g332313

1. PVED-CLS 2.00 firmware release package folder
2. OPEN icon

4. Click the Diagnostic data files folder, and click the OPEN icon (Figure 50).

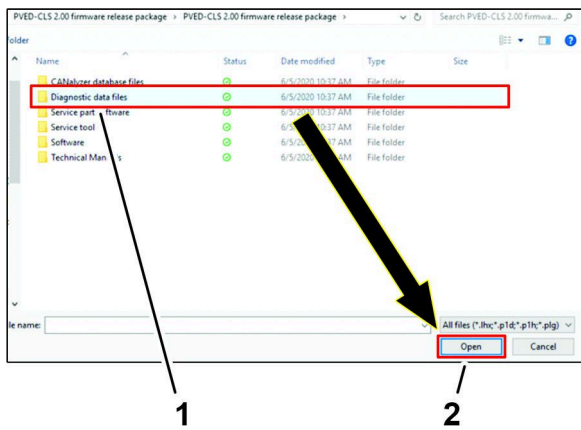


Figure 50

1. Diagnostic data files folder
2. OPEN icon

5. Click the APP-_CLS-_S_R200_SEHS---_11153341_... file, and click the OPEN icon (Figure 51).



Figure 51

1. APP-_CLS-_S_R200_SEHS---_11153341_... file
2. OPEN icon

6. In the RESULT INFORMATION dialog box, click the CLOSE icon (Figure 52).



Figure 52

Installing the BOOTP_CLS Data file

1. Click the File icon, and in the drop-down list, click the Install Diagnostic Data . . . icon (Figure 53).

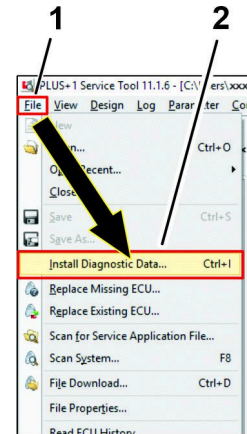


Figure 53

1. File icon
2. Install Diagnostic Data . . . icon

2. In the Install Select Protocol dialog box, click the PLUS+1 icon, and press the INSTALL icon (Figure 54).

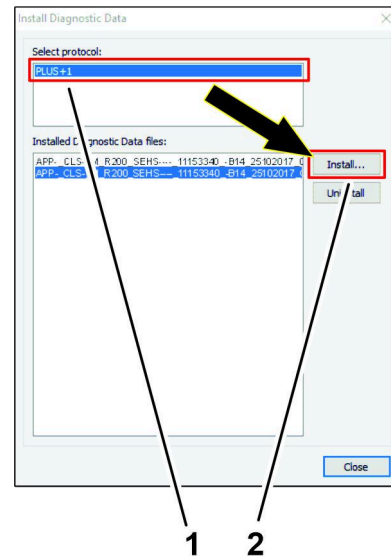


Figure 54

1. PLUS+1 protocol icon
2. INSTALL icon

3. Click the PVED-CLS 2.00 firmware release package folder, and click the OPEN icon (Figure 55).



Figure 55

1. PVED-CLS 2.00 firmware release package folder
2. OPEN icon



Figure 57

1. BOOT-_CLS-_M_R385_KWP2000-_1115347_... file
2. OPEN icon

4. Click the Diagnostic data files folder, and click the OPEN icon (Figure 56).

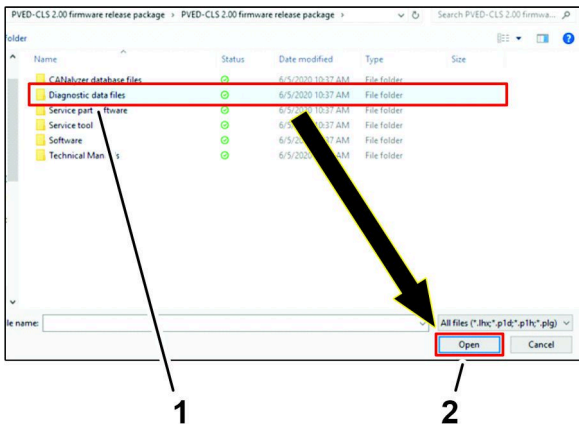


Figure 56

1. Diagnostic data files folder
2. OPEN icon

6. In the RESULT INFORMATION dialog box, click the CLOSE icon (Figure 58).

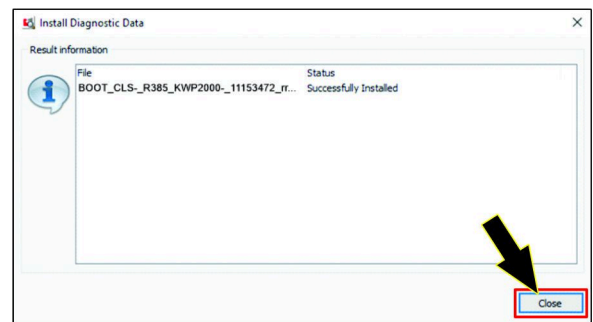


Figure 58

5. Click the BOOT-_CLS-_M_R385_KWP2000-_1115347_... file, and click the OPEN icon (Figure 57).

11

Preparing the Machine

No Parts Required

Procedure

⚠ CAUTION

Chemicals are hazardous and can cause personal injury.

- Read the directions on the chemical labels before handling the chemicals and follow all manufacturer recommendations and precautions.
- Keep chemicals away from your skin. Should contact occur, wash the affected area thoroughly with soap and clean water.
- Wear goggles and any other protective equipment recommended by the chemical manufacturer.

1. Park the machine on a level surface.
2. Engage the parking brake.
3. Ensure that the tires are aligned straight ahead.
4. Shut off the engine and remove the key.
5. Wait for all movement to stop before leaving the operator's seat.
6. Clean the sprayer; refer to Cleaning the Sprayer in the *Operator's Manual* for the machine.
7. Allow the machine components to cool.

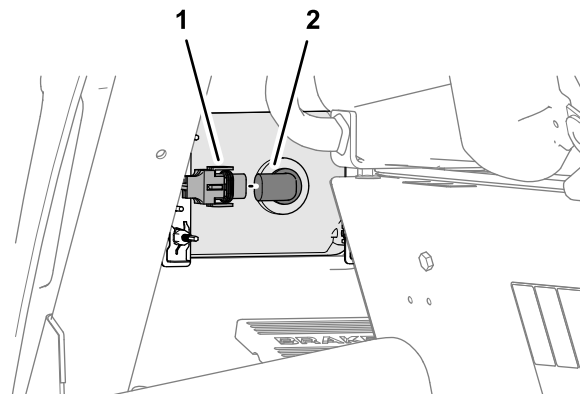
12

Removing the Hood

No Parts Required

Procedure

1. Remove the headlight connector of the machine wire harness from the connector of the headlight bulb (Figure 59).

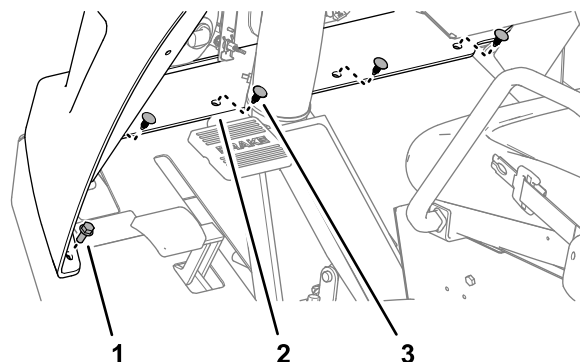


g298936

Figure 59

1. Connector (machine harness—headlight)
2. Connector (bulb)

2. Repeat step 1 at the other headlight.
3. Remove the 4 push-in fasteners that secure the bottom flange of the hood to the machine (Figure 60).



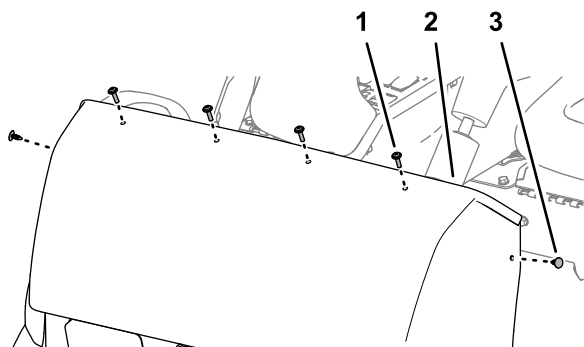
g298939

Figure 60

1. Flange-head bolt (5/16 x 3/4 inch)
2. Flange (hood)
3. Push-in fastener

4. Remove the 2 flange-head bolts (5/16 x 3/4 inch) that secure the bottom flange to the machine (Figure 60).

5. Remove the 4 Phillips pan-head screws (1/4 x 1 inch) that secures the hood to the dash support (Figure 61).



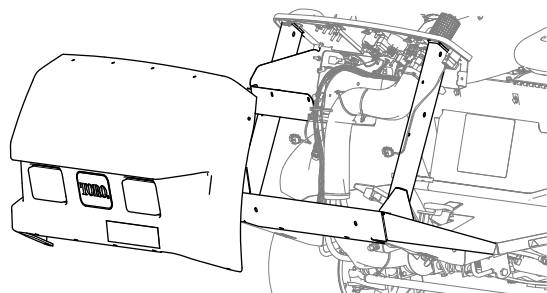
g298940

Figure 61

1. Phillips pan-head screw (1/4 x 1 inch)
2. Hood
3. Push-in fastener

6. Remove the 2 push-in fasteners that secure the hood to the dash support (Figure 61).
7. Remove the hood from the machine (Figure 62).

Note: Retain the hood, 2 flange-head bolts, and 4 Phillips pan-head screws.



g298938

Figure 62

13

Removing the Heat Shield and Undercarriage Shroud

2015 and Later Machines

No Parts Required

Procedure

If equipped, remove the heat shield and shroud from the bottom of the machine; refer to the *Operator's Manual* for your machine.

14

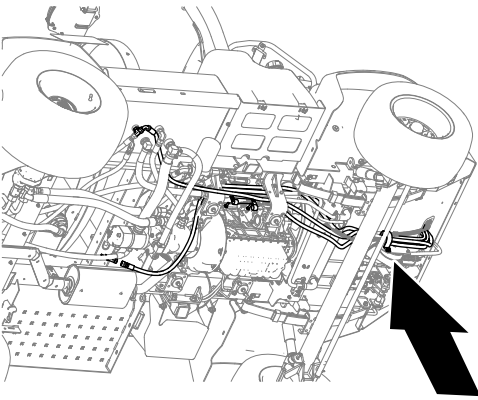
Removing the Steering Valve Hoses

Parts needed for this procedure:

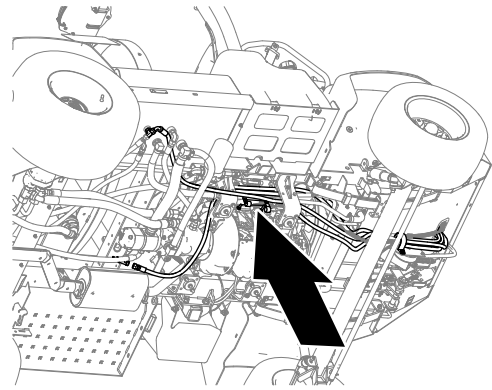
1	Cap
---	-----

Removing the Hose Support Clamps

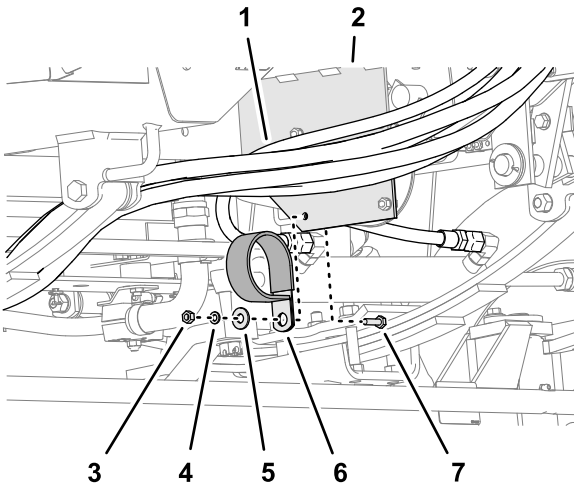
1. Under the floor plate, remove the nut (1/4 inch), lock washer (1/4 inch), washer (3/8 x 7/8 inch), and capscrew (1/4 x 7/8 inch) that secure the clamp supporting the hydraulic hoses to the clutch plate, and remove the clamp (Figure 63).



g300044



g300043

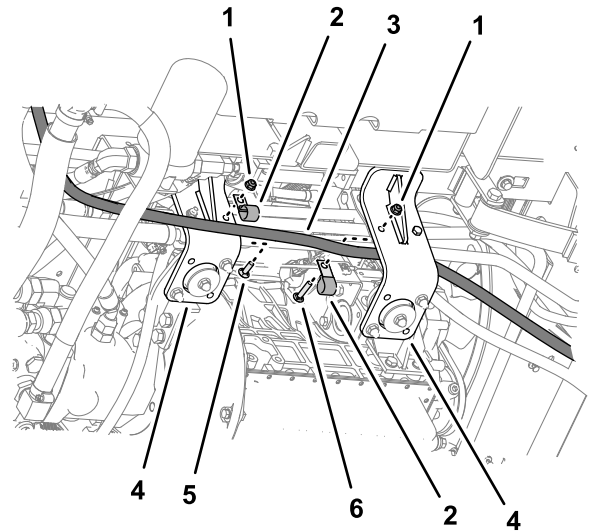


g300053

Figure 63

- | | |
|---------------------------|------------------------------|
| 1. Hydraulic hoses | 5. Washer (3/8 x 7/8 inch) |
| 2. Clutch plate | 6. Support clamp |
| 3. Nut (1/4 inch) | 7. Capscrew (1/4 x 7/8 inch) |
| 4. Lock washer (1/4 inch) | |

2. At the right side of the machine, remove the flange locknuts (5/16 inch), carriage bolt (5/16 x 1 inch), and carriage bolt (5/16 x 1-1/2 inches) that secure the 2 clamps supporting the return hose of the steering valve to the engine mounts, and remove the clamps ([Figure 64](#)).

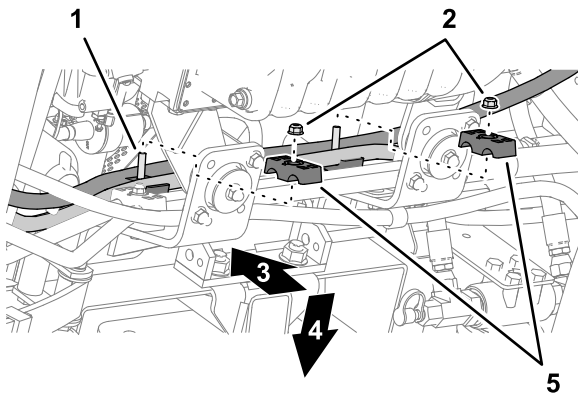


g300247

Figure 64

- | | |
|---------------------------------|--|
| 1. Flange locknut (5/16 inch) | 4. Engine mount |
| 2. Support clamp | 5. Carriage bolt (5/16 x 1 inch) |
| 3. Return hose (steering valve) | 6. Carriage bolt (5/16 x 1-1/2 inches) |

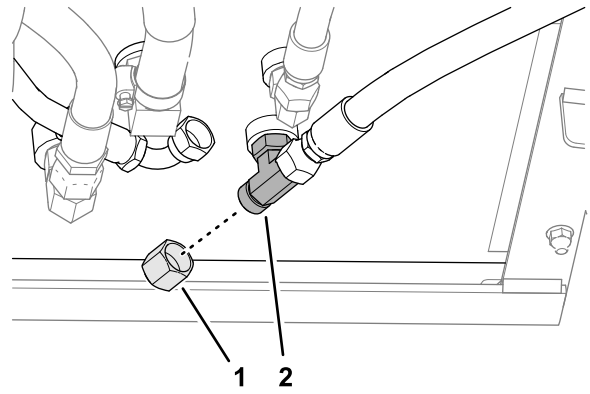
3. Remove the 2 flange locknuts (5/16) securing the 2 upper tube-clamp halves as shown in [Figure 65](#), and remove the clamp halves.



g300246

Figure 65

1. Carriage bolt (5/16 x 2 inches)
2. Flange locknut (5/16 inch)
3. Top of the machine
4. Right side of the machine
5. Tube-clamp half (upper location)



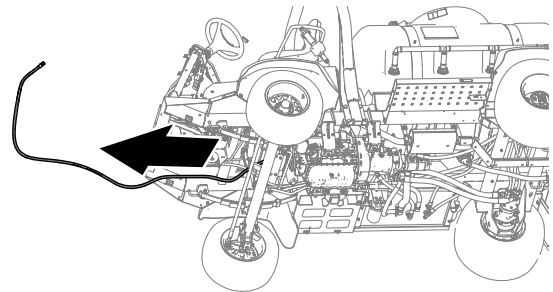
g314043

Figure 67

1. Cap
2. T-fitting (hydraulic tank)

3. Remove the return hose for the steering valve from the machine ([Figure 68](#)).

Note: Discard the return hose.

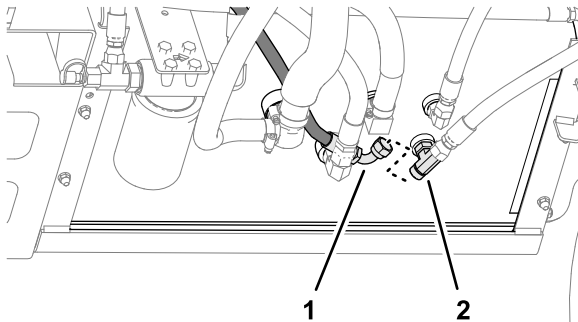


g300052

Figure 68

Removing the Return Hose for the Steering Valve

1. Disconnect the return hose for the steering valve from the T-fitting at the bottom of the hydraulic tank ([Figure 66](#)).



g300051

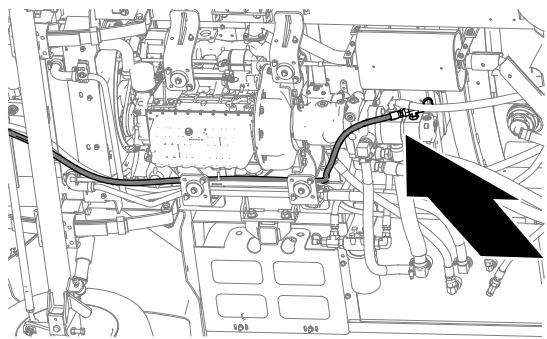
Figure 66

1. Return hose (steering valve)
2. T-fitting (hydraulic tank)

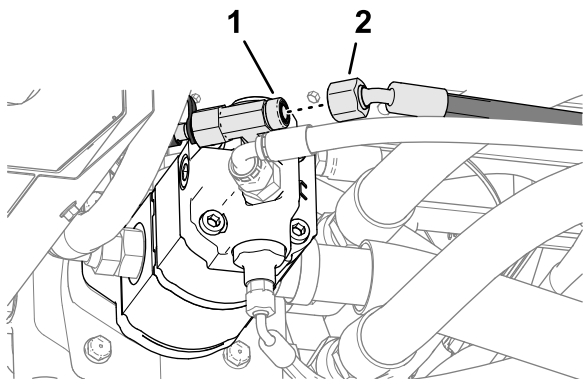
2. Install the cap onto the T-fitting, as shown in [Figure 67](#).

Removing the Pressure Hose for the Steering Valve

1. Disconnect the pressure hose for the steering valve from the T-fitting at the end of the hydraulic pump ([Figure 69](#)).



g300042



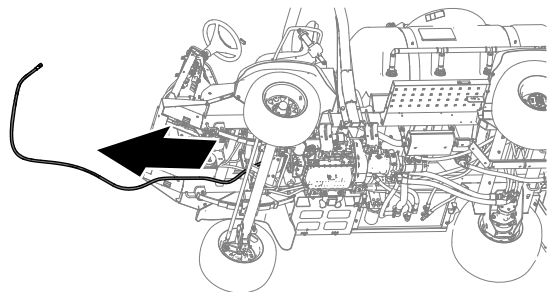
g337773

Figure 69

1. T-fitting (hydraulic pump)
2. Pressure hose (steering valve)

2. Remove the pressure hose from the machine ([Figure 70](#)).

Note: Discard the pressure hose.

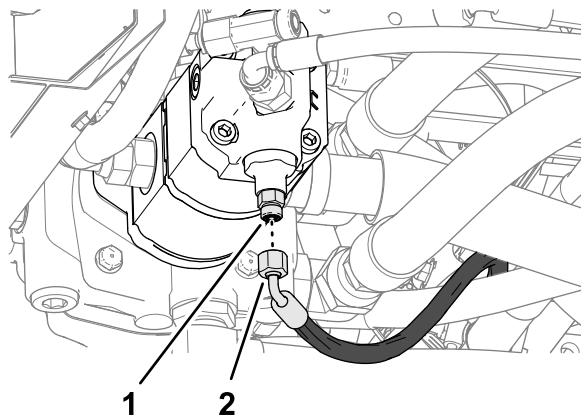


g300052

Figure 70

Removing the Load Sense Hose

1. Disconnect the load-sense hose for the steering valve from the straight fitting at the bottom of the hydraulic pump ([Figure 71](#)).

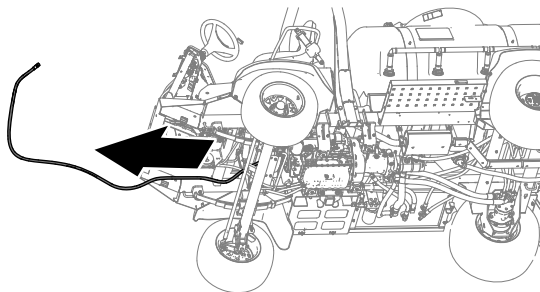


g337772

Figure 71

1. Straight fitting (hydraulic pump)
2. Load-sense hose (steering valve)

2. Remove the pressure hose from the machine ([Figure 72](#)).

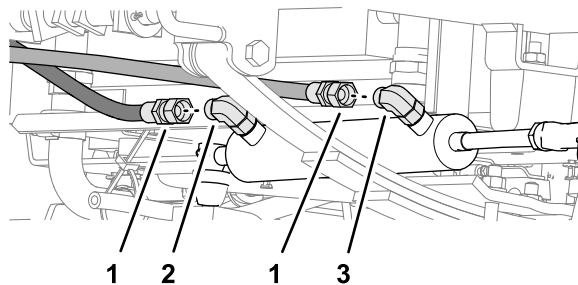


g300052

Figure 72

Removing the Steering Cylinder Hoses

1. Disconnect the steering-cylinder hoses from the 90° fittings in the extend and retract ports of the steering cylinder ([Figure 73](#)).



g300049

Figure 73

1. Steering-cylinder hose
2. 90° fitting (extend port—steering cylinder)
3. 90° fitting (retract port—steering cylinder)

2. Remove the steering-cylinder hoses from the machine.

Note: Discard the steering-cylinder hoses.

15

Installing the EHI Steering Valve

Parts needed for this procedure:

1	Manifold mount
2	Flange-head capscrew (1/4 x 1/2 inch)
2	Washer (1/4 inch)
2	Flange locknut (1/4 inch)
2	U-bolt (3/8 inch)
4	Flange locknut (3/8 inch)
1	Model/serial decal
1	EHI steering valve
2	Straight hydraulic fitting (-6 x 12 mm)
4	Straight hydraulic fitting (-8 x 22 mm)
4	Straight hydraulic fitting (-6 x 18 mm)
3	Flange-head capscrew (8 x 16 mm)

Installing the Manifold Mount

1. Align the manifold mount to the front of the machine as shown in [Figure 74](#).

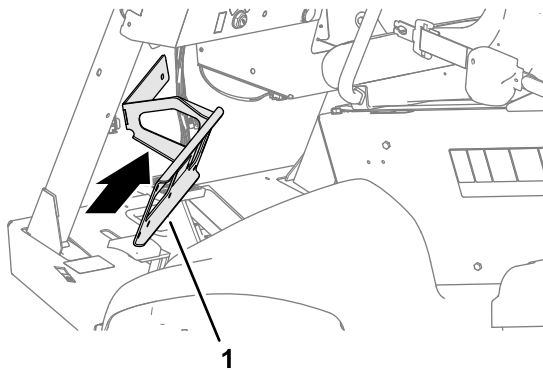


Figure 74

1. Manifold mount

2. Align the holes in the manifold mount with the slots in the flange of the storage compartment ([Figure 75](#)).

Note: Ensure that the wires harness is not pinched between the mount and the compartment.

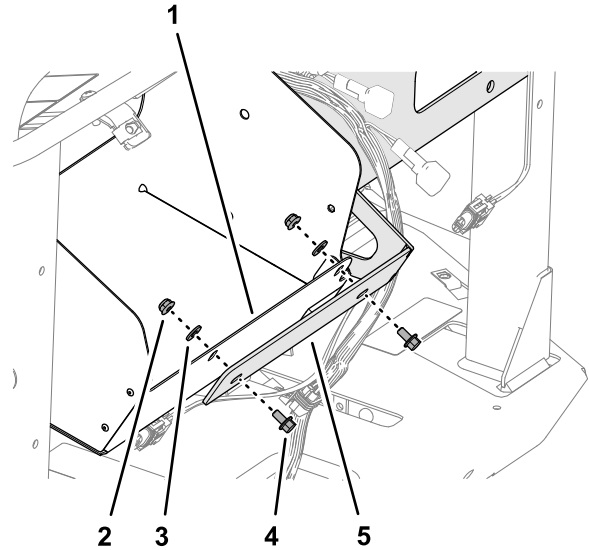


Figure 75

1. Flange (storage compartment)
2. Flange locknut (1/4 inch)
3. Washer (1/4 inch)
4. Flange-head capscrew (1/4 x 1/2 inch)
5. Manifold mount

3. Loosely assemble the manifold mount to the flange ([Figure 75](#)) with 2 flange-head capscrews (1/4 x 1/2 inch), 2 washers (1/4 inch), and 2 flange locknuts (1/4 inch).
4. Loosely assemble the manifold mount to the dash support tube ([Figure 76](#)) with 2 U-bolts (3/8 inch) and 4 flange locknuts (3/8 inch).

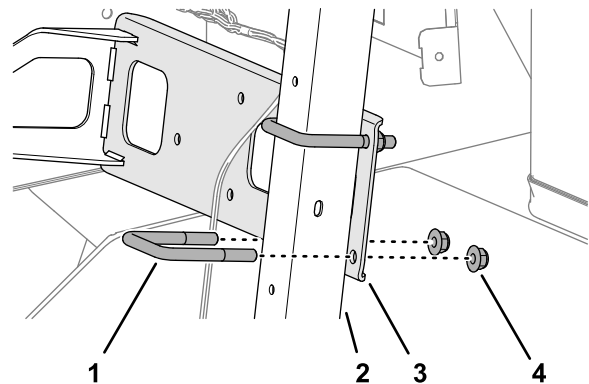


Figure 76

1. U-bolt (3/8 inch)
2. Dash support tube
3. Manifold mount
4. Flange locknut (3/8 inch)

5. Tighten the capscrews, U-bolts, and locknuts.

Affixing the Model/Serial Decal

1. Remove the backing from the model/serial decal.
2. Affix the decal to the manifold mount as shown in [Figure 77](#).

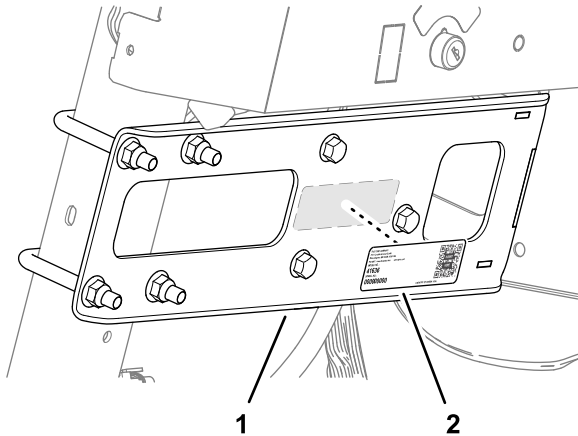


Figure 77

g303489

Preparing the EHI Steering Valve

1. Assemble 2 straight hydraulic fittings (-6 x 12 mm) into the EHI steering valve ([Figure 78](#)) as follows:
 - Port LS1
 - Port LS2

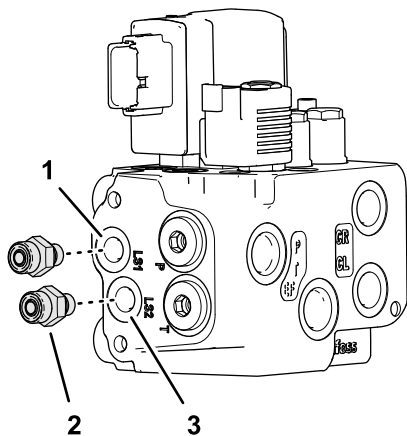


Figure 78

g299718

1. Port LS1 (EHI steering valve)
2. Straight hydraulic fitting (-6 x 12 mm)
3. Port LS2

2. Remove the 2 plugs from port P and port T of the EHI steering valve ([Figure 79](#)).

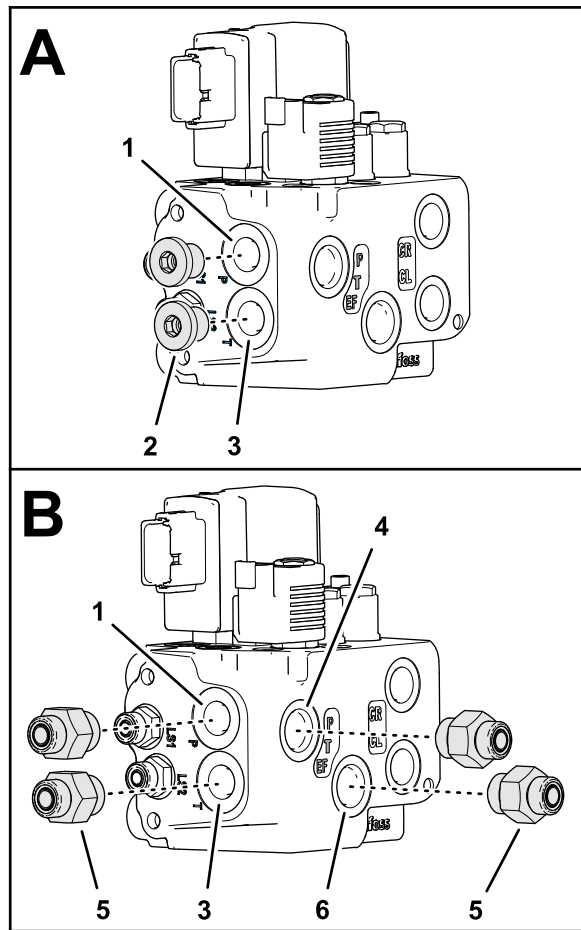


Figure 79

g299720

1. Port P (EHI steering valve)
2. Plug
3. Port T
4. Port P (EF)
5. Straight hydraulic fitting (-8 x 22 mm)
6. Port T (EF)

3. Assemble 4 straight hydraulic fittings (-6 x 22 mm) into the valve ([Figure 79](#)) as follows:
 - Port P
 - Port T
 - Port P (EF)
 - Port T (EF)
4. Assemble 4 straight hydraulic fittings (-6 x 18 mm) into the EHI steering valve ([Figure 80](#)) as follows:
 - Port CR
 - Port R
 - Port CL
 - Port L

16

Drilling the Console Base

Parts needed for this procedure:

1	Grommet
---	---------

Procedure

1. Tilt the passenger seat forward to access the console base (Figure 82).

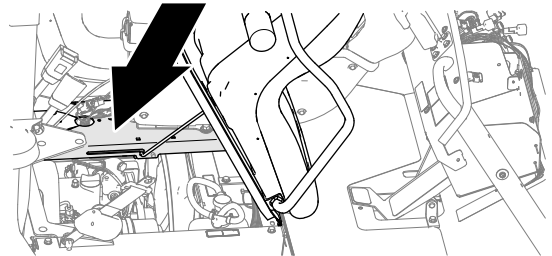


Figure 82

g299797

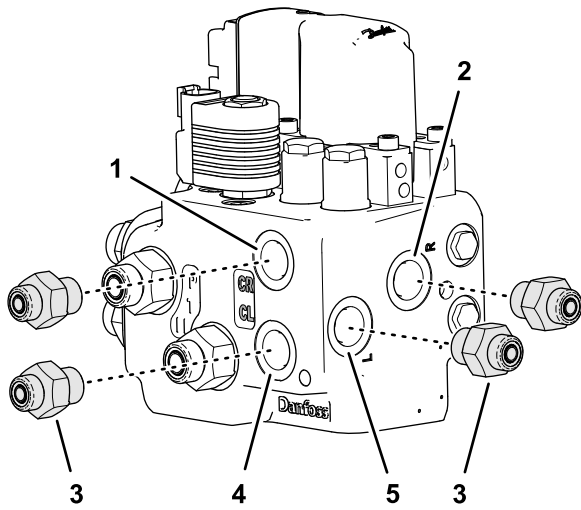


Figure 80

g299719

1. Port CR (EHI steering valve)
2. Port R
3. Straight hydraulic fitting (-6 x 18 mm)
4. Port CL
5. Port L

Installing the EHI Steering Valve

1. Align the holes in the body of the EHI steering valve with the holes in the manifold mount (Figure 81).

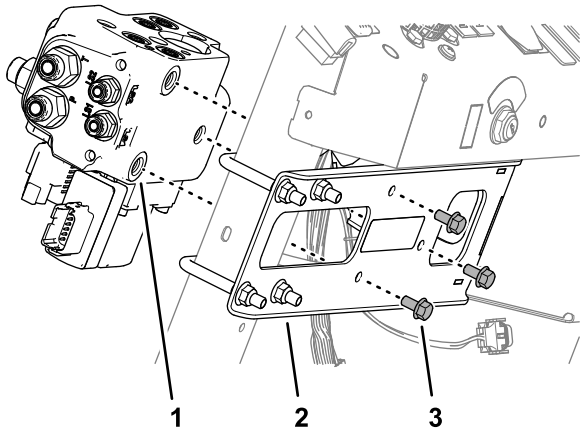


Figure 81

g299722

1. EHI steering valve
2. Manifold mount
3. Flange-head capscrew (8 x 16 mm)

2. Secure the valve to the mount (Figure 81) with 3 flange-head capscrews (8 x 16 mm).

2. Align a piece of sheet metal, approximately 120 mm (4 inches) wide, through the prop-rod slot in the console base, between the base and the wire harness below it.

Note: The sheet metal protects the wire harness when you drill through the console base.

3. Measure 69 mm (2-11/16 inches) rearward from the square hole near the prop-rod slot in the console base, and mark the console base (Figure 83).

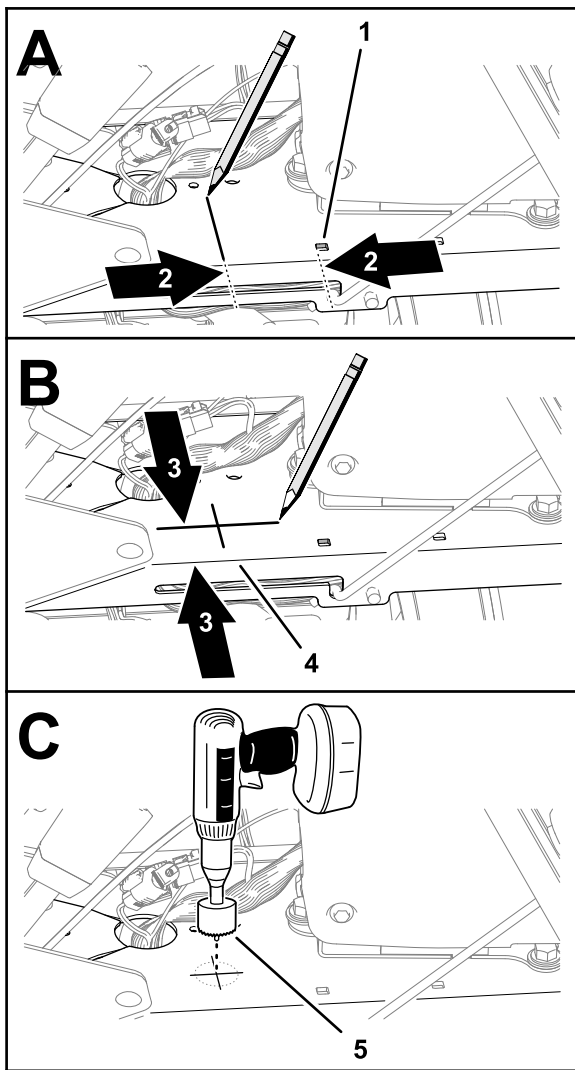


Figure 83

g299798

1. Square hole (above the prop-rod slot)
 2. Mark 69 mm (2-11/16 inches)
 3. Mark 45 mm (1-3/4 inches)
 4. Slotted flange (console base)
 5. Drill bit 32 mm (1-1/4 inches)
-
4. Measure 45 mm (1-3/4 inches) inward from the slotted flange of console base, and mark the console base ([Figure 83](#)).
 5. Center punch the console base at the intersection of the marks.
 6. Drill a hole in the console base at the centerpunch mark with a 32 mm (1-1/4 inches) drill bit ([Figure 83](#)).
 7. Remove the sheet piece of sheet metal, and remove any burrs around the hole.
 8. Install the grommet into the hole ([Figure 84](#)).

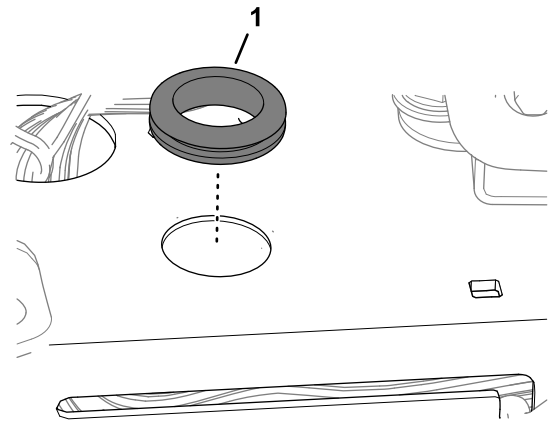


Figure 84

g299800

1. Grommet

17

Installing the Electrical Harness

Parts needed for this procedure:

1	2-position switch
1	Transport decal
1	Wire harness
7	Cable tie
1	Fuse (10 A)
1	Push-button switch, jam nut, and lock washer
1	AutoSteer remote-engage decal

Assembling the Road Switch to the Dash

1. Remove the plug in the dash panel as shown in [Figure 85](#).

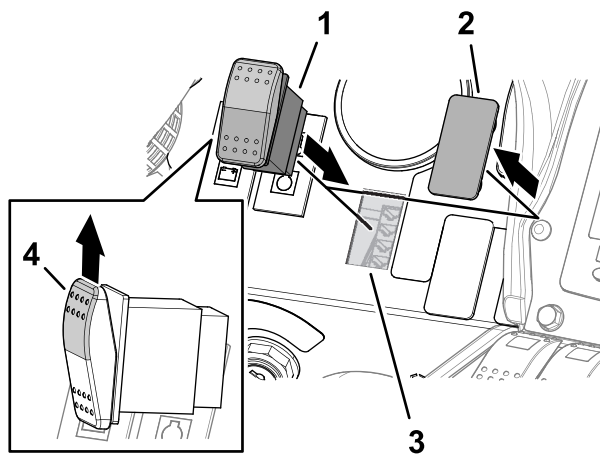


Figure 85

g337814

1. 2-position switch
2. Plug
3. Hole (dash panel)
4. Shoulder—aligned (2-position switch)

2. Align the 2-position switch with the shoulder of the switch (Figure 85) aligned to the top of the dash panel.
3. Insert the 2-position switch into the hole in the dash panel (Figure 85).
4. Apply the transport decal over the dash decal as shown in Figure 86.

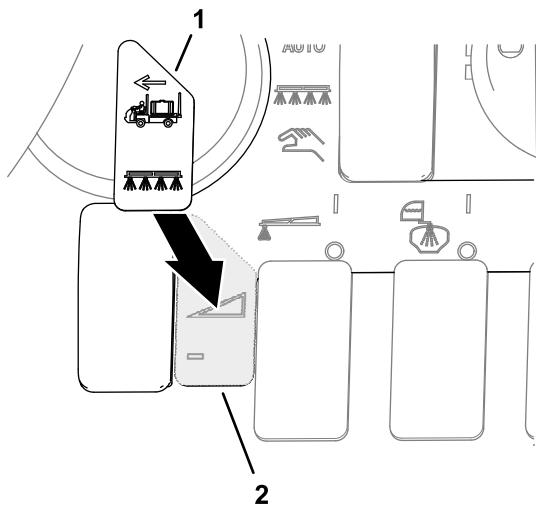
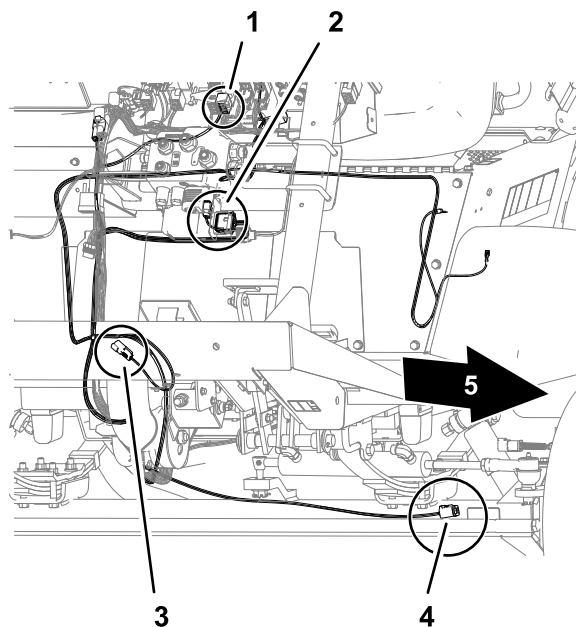


Figure 86

g299866

1. Transport decal
2. Dash decal

Routing the Wire Harness at the Dash

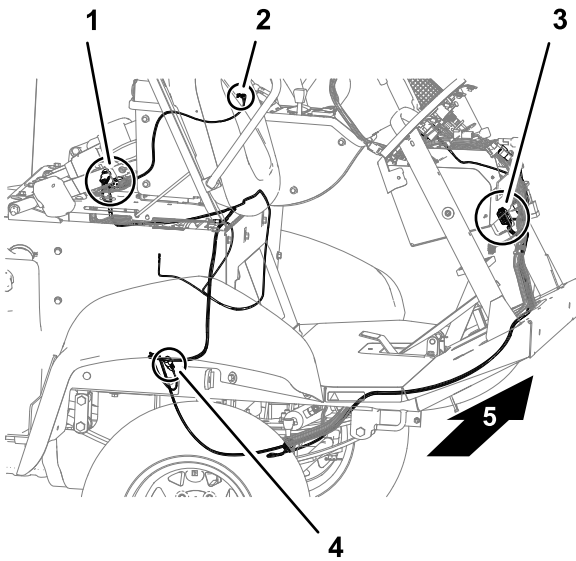


g315010

Figure 87

Harness overview—left

- | | | |
|---|---------------------------------|-----------------------------|
| 1. ROAD SWITCH connector | 3. ISOBUS CONNECTOR | 5. Left side of the machine |
| 2. EHI A KEY (GREY) and EHI SOLENOID CONNECTORS | 4. WHEEL ANGLE SENSOR connector | |

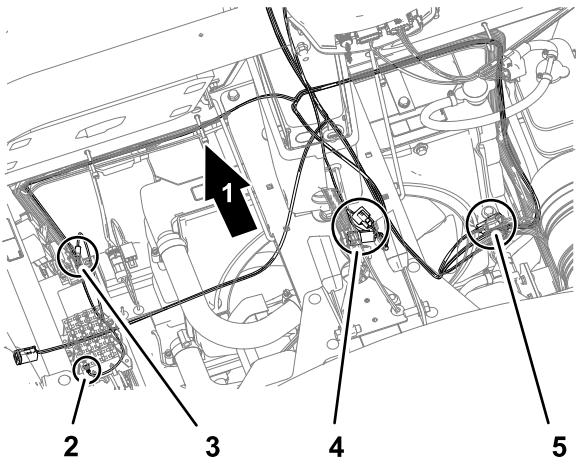


g315011

Figure 88

Harness overview—right

- | | | |
|--|---|------------------------------|
| 1. TO MACHINE DIAG CONNECTOR and REMOTE ENGAGE SWITCH connectors | 3. EHI A KEY (GREY) and EHI SOLENOID CONNECTORS | 5. Right side of the machine |
| 2. REMOTE ENGAGE SWITCH terminals | 4. ISOBUS CONNECTOR | |



g315012

Figure 89

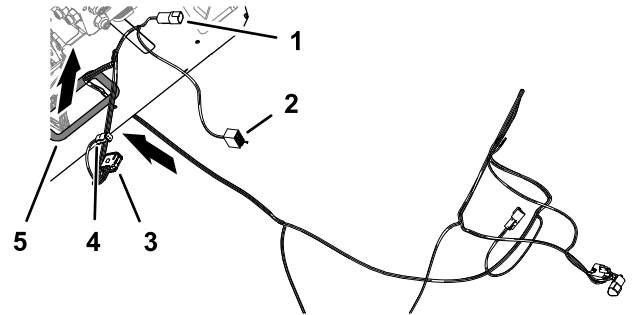
Harness overview—top

- | | | |
|--------------------------|--|---------------------|
| 1. Front of the machine | 3. GROUND terminal | 5. ISOBUS CONNECTOR |
| 2. SWITCHED PWR terminal | 4. TO MACHINE DIAG CONNECTOR and REMOTE ENGAGE SWITCH connectors | |

1. At the front of the machine, route the wire-harness connectors ([Figure 90](#)) with the

following labels through the bottom of the floor plate:

- ISOBUS CONNECTOR
- ROAD SWITCH
- EHI SOLENOID
- LABELED EHI A KEY (GREY)

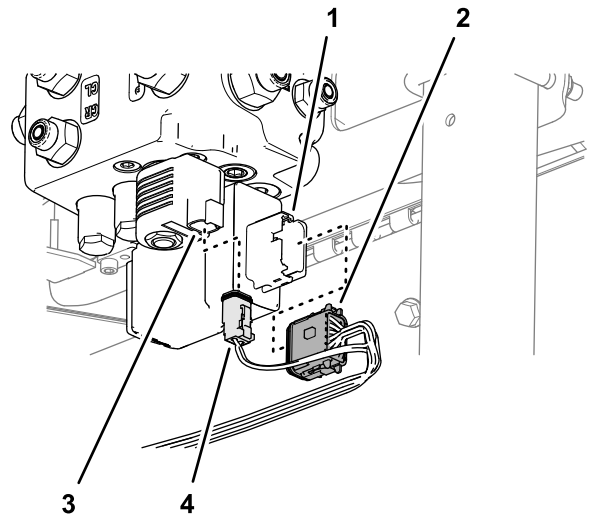


g299869

Figure 90

- | | |
|--|--|
| 1. 4-pin connector—wire harness (labeled ISOBUS CONNECTOR) | 4. 12-socket connector—wire harness (labeled EHI A KEY (GREY)) |
| 2. 8-socket connector—wire harness (labeled ROAD SWITCH) | 5. Grommet (floor plate) |
| 3. 2-socket connector—wire harness (labeled EHI SOLENOID) | |

2. Plug the 12-socket wire-harness connector labeled EHI A KEY (GREY) into the 12-pin connector of the EHI steering-valve ([Figure 91](#)).



g299867

Figure 91

- | | |
|--|---|
| 1. 12-pin EHI steering-valve connector | 3. 2-pin EHI-solenoid connector |
| 2. 12-socket connector—wire harness (labeled EHI A KEY (GREY)) | 4. 2-socket connector—wire harness (labeled EHI SOLENOID) |

3. Plug the 2-socket wire-harness connector labeled EHI SOLENOID into the 2-pin connector of the EHI-solenoid ([Figure 91](#)).
4. Remove the cap from the 4-socket connector GeoLink wire harness labeled CAN 1 ISOBUS ([Figure 92](#)).

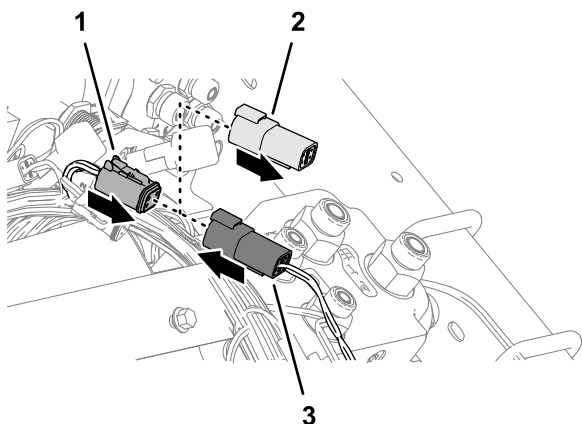


Figure 92

g299922

1. 4-socket connector (labeled CAN 1 ISOBUS)
2. Cap
3. 4-pin connector (labeled ISOBUS CONNECTION)

5. Plug the 4-pin connector of the kit wire harness labeled ISOBUS CONNECTION into the 4-socket connector labeled CAN 1 ISOBUS ([Figure 92](#)).
6. Plug the 8-socket connector of the kit wire harness labeled ROAD SWITCH ([Figure 93](#)) into the 2-position switch that you installed in [Assembling the Road Switch to the Dash](#) (page 30).

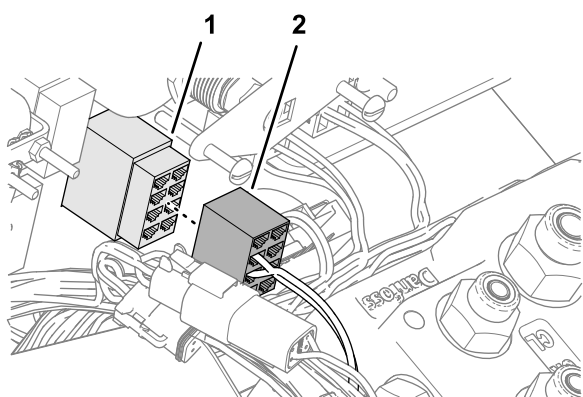


Figure 93

g299921

1. 2-position switch
2. 8-socket connector (labeled ROAD SWITCH)

Routing the Wire Harness Under the Operator's Platform

1. Route the wire harness for the kit rearward, along the wire harness for the machine ([Figure 94](#)).

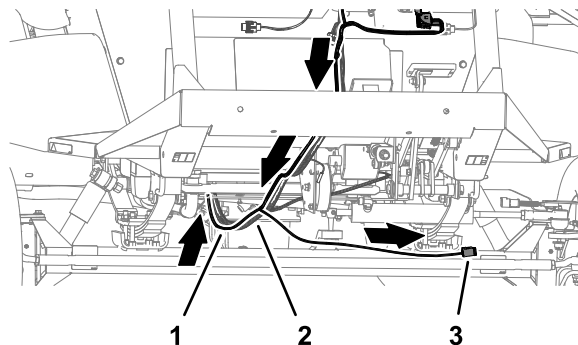


Figure 94

g301673

1. Kit wire harness
2. Machine wire harness
3. Wheel angle sensor branch (kit wire harness)

2. Route the wire harness branch with the connector labeled WHEEL ANGLE SENSOR along the back of the front axle tube ([Figure 94](#)).
3. At the bottom, back side of the radiator, route the wire harness up, along the machine wire harness ([Figure 95](#)).

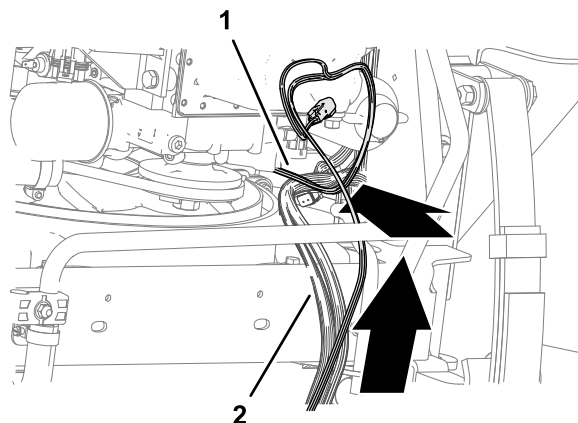


Figure 95

g301676

1. Kit wire harness
2. Machine wire harness

Connecting the Wheel Angle Sensor

1. Plug the 6-pin connector of the angle-sensor harness into the 6-socket connector of the kit wire harness labeled WHEEL ANGLE SENSOR ([Figure 96](#)).

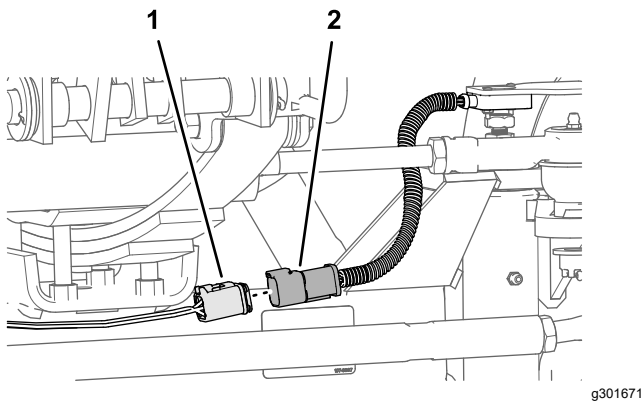
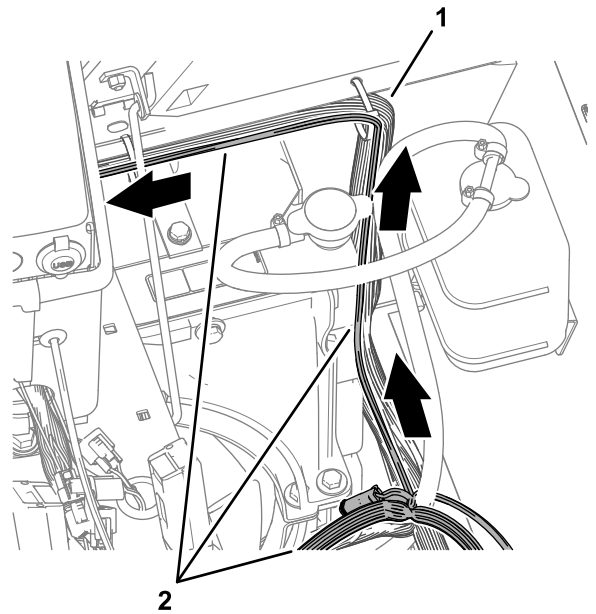


Figure 96

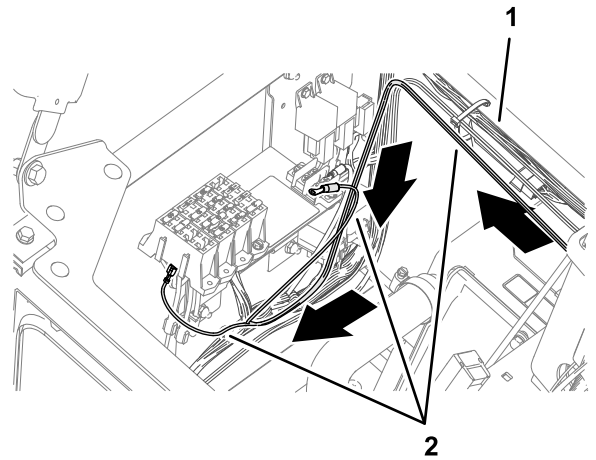
1. 6-socket connector (labeled WHEEL ANGLE SENSOR—kit wire harness)
 2. 6-pin connector (angle-sensor harness)
-
2. Secure the harness of the wheel angle sensor and the angle-sensor branch of the kit wire harness to the axle tube with 2 cable ties.

Connecting the Wire Harness to the Ground Block and Fuse Block

1. Route the wire harness branch with the terminals labeled GROUND and SWITCHED PWR across the top of the radiator, along the machine wire harness (Figure 97).



g301675



g301795

Figure 97

1. Machine wire harness
2. Kit wire harness (switched power and ground branch)

-
2. Remove a terminal screw from the ground block (Figure 98).

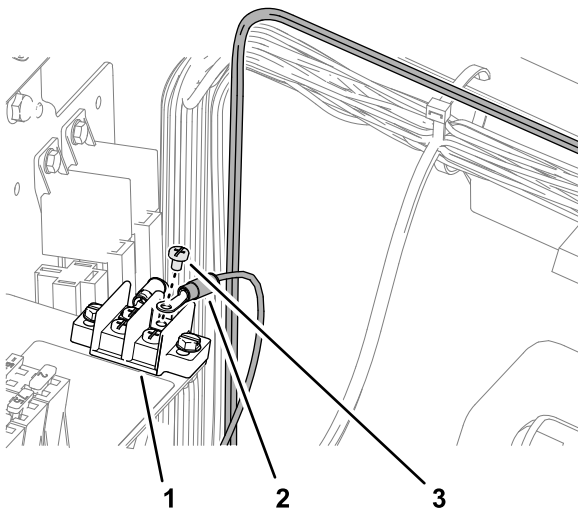


Figure 98

1. Ground block
2. Ring terminal (labeled GROUND—kit wire harness)
3. Terminal screw

3. Assemble the ring terminal of the kit wire harness labeled GROUND to the ground block with the terminal screw (Figure 98).
4. Plug the terminal of the kit wire harness labeled SWITCHED PWR into the blade connector for options power of the fuse block (Figure 99).

Note: If the fuse block of your machine does not have an available options-power circuit, install an additional options-fuse block; refer to your authorized Toro distributor.

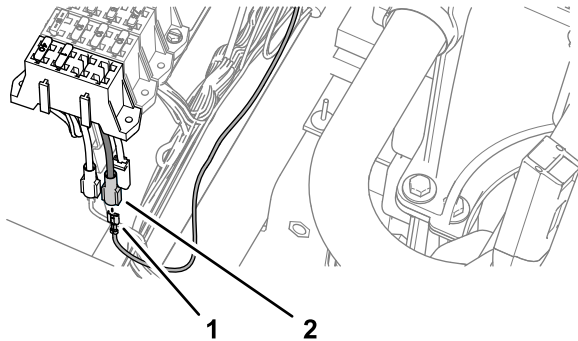


Figure 99

1. Terminal (labeled SWITCHED PWR—kit wire harness)
2. Blade connector (options power—fuse block)

5. Insert the fuse (10 A) into the fuse-block socket (Figure 100) for the options power circuit that you used in step 4.

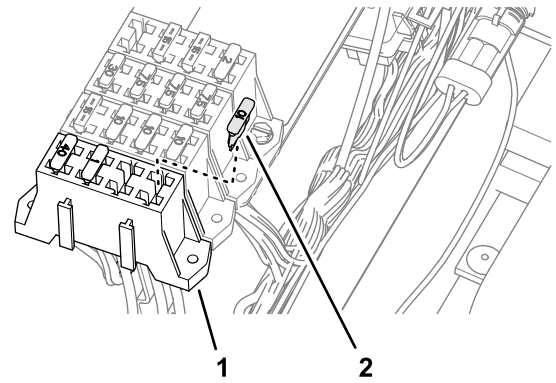


Figure 100

1. Fuse block
2. Fuse (10 A)

6. Secure the switched power and ground branch of the kit wire harness to the machine wire harness with 4 cable ties.

Connecting the Remote Engage Connectors

Plug the 2-pin connector of the kit wire harness labeled REMOTE ENGAGE CONNECTOR into the 2-socket connector of the GeoLink wire harness labeled REMOTE ENGAGE (Figure 101).

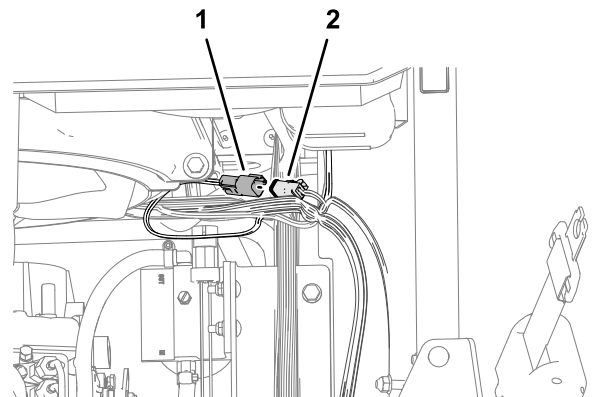


Figure 101

1. 2-pin connector (labeled REMOTE ENGAGE CONNECTOR—kit wire harness)
2. 2-socket connector (labeled REMOTE ENGAGE—GeoLink wire harness)

Removing the Armrest

1. Remove 4 flange-head capscrews (1/4 x 3/4 inch) that secure the side panel of the center console as shown in [Figure 102](#).

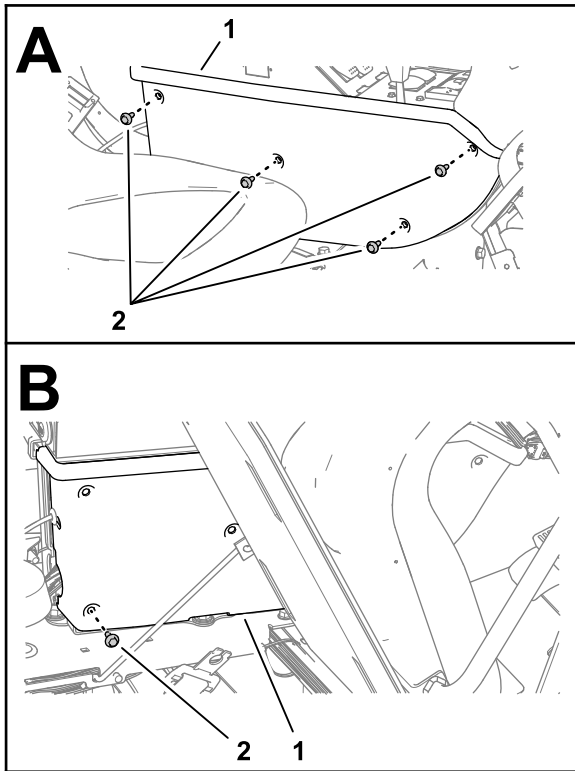
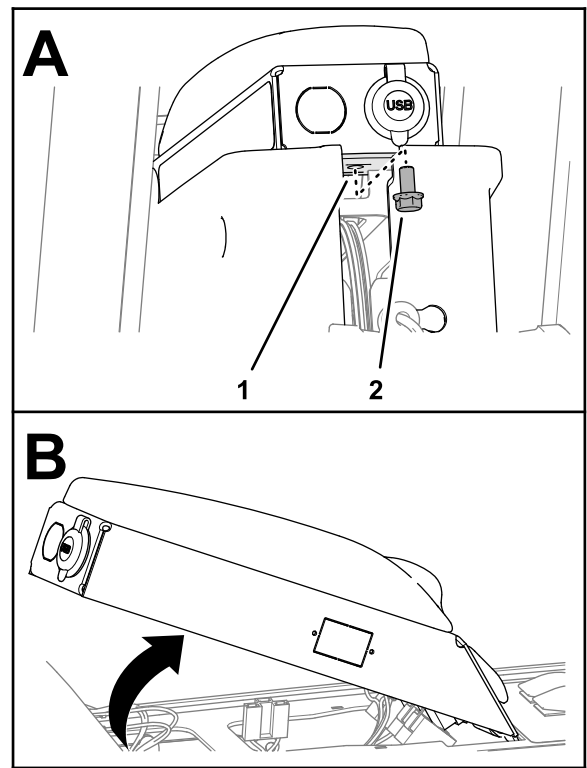


Figure 102

g301406

1. Side panel
2. Flange-head capscrews (1/4 x 3/4 inch)

2. Tilt the seat forward, and remove the lower rear flange-head capscrew ([Figure 102](#)).
3. Repeat steps 1 and 2 at the other side of the center console.
4. Remove the flange-head capscrew (5/16 x 5/8 inch) that secures the arm panel to the console frame ([Figure 103](#)).



g301405

Figure 103

1. Hole (console frame)
2. Flange-head capscrew (5/16 x 5/8 inch)

5. Lift the arm panel from the frame ([Figure 103](#)).

Drilling a Hole in the Armrest

1. Measure 260 mm (10-1/4 inches) from the back end of the arm panel, and mark the panel ([Figure 104](#)).

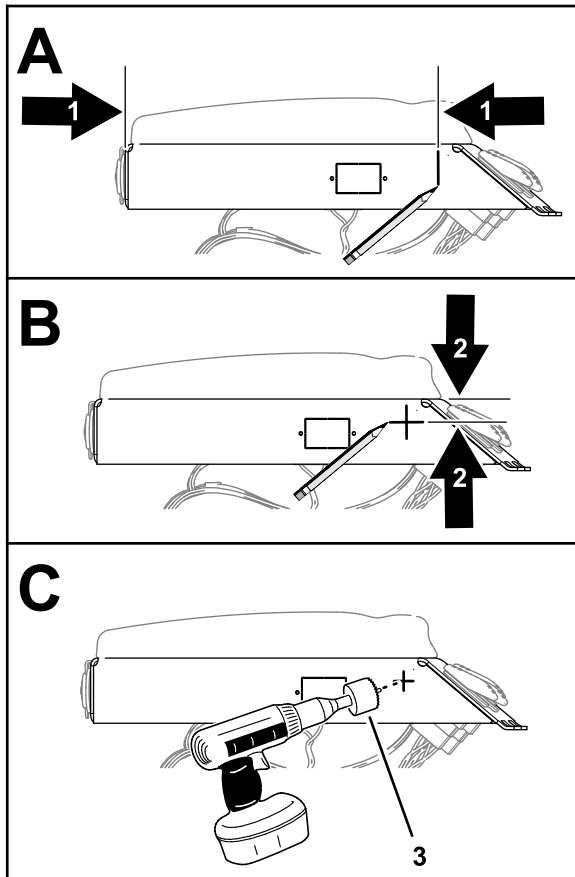


Figure 104

g301404

1. 260 mm (10-1/4 inches) measurement
2. 35 mm (1-3/8 inches) measurement
3. Drill bit 17 mm (11/16 inch)

2. Measure 35 mm (1-3/8 inches) from the top of the arm panel, and mark the panel ([Figure 104](#)).
3. Center punch the intersection of the marks.
4. Protect the wire in the arm panel.
5. Drill a 17 mm (11/16 inch) hole in the arm panel at the centerpunch mark ([Figure 104](#)).
6. Remove any burrs from the hole.

Assembling the Push-Button Switch to the Armrest

1. Insert the push-button switch into the hole in the arm panel ([Figure 105](#)).

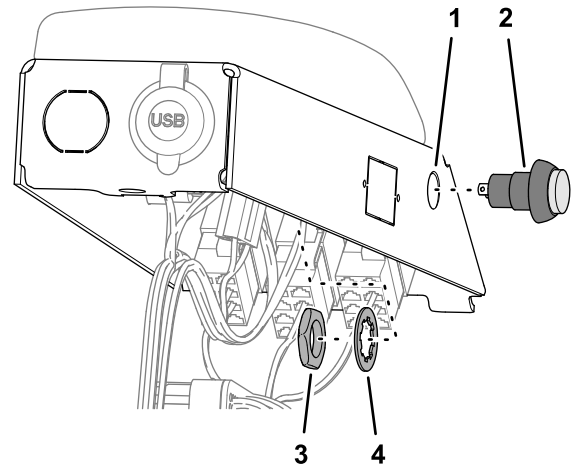


Figure 105

g301402

1. Hole (arm panel)
2. Push-button switch
3. Jam nut
4. Lock washer

2. Secure the switch to the panel with the lock washer and jam nut that came with the switch ([Figure 105](#)).

Routing the Wire Harness to the Remote Engage Switch

1. Route the wire harness branch labeled REMOTE ENGAGE SWITCH through the grommet ([Figure 106](#)) that you installed in [16 Drilling the Console Base \(page 29\)](#).

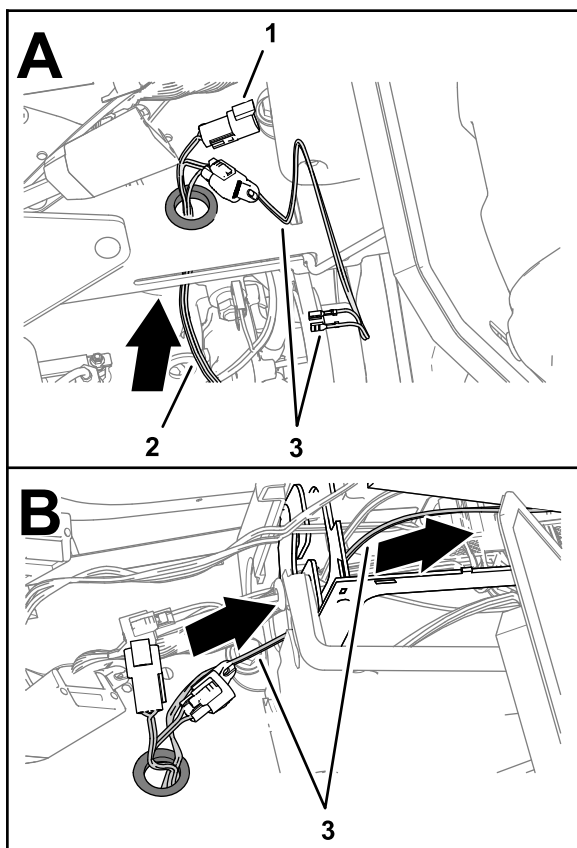


Figure 106

g301408

1. 3-pin connector (labeled TO MACHINE DIAG CONNECTOR)
 2. Wire harness branch—89 cm (35 inches)
 3. Wire harness branch labeled REMOTE ENGAGE SWITCH
-
2. Route the wire harness branch labeled REMOTE ENGAGE SWITCH) into the center console (Figure 106).
 3. Route the wire harness branch labeled REMOTE ENGAGE SWITCH) toward the arm panel (Figure 107).

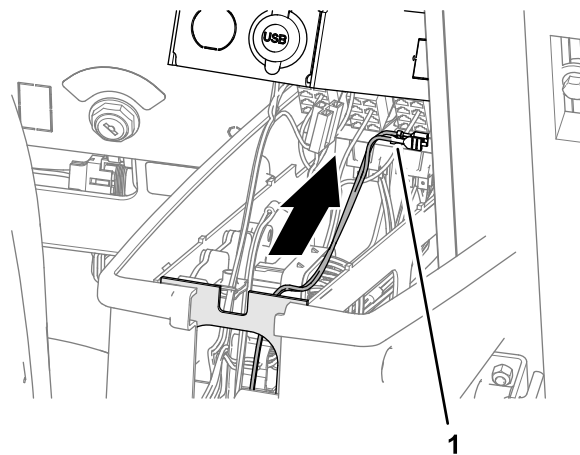


Figure 107

g301407

1. Wire harness branch labeled REMOTE ENGAGE SWITCH

4. Assemble the terminals of the wire harness branch labeled REMOTE ENGAGE SWITCH) onto the terminals of the push-button switch (Figure 108).

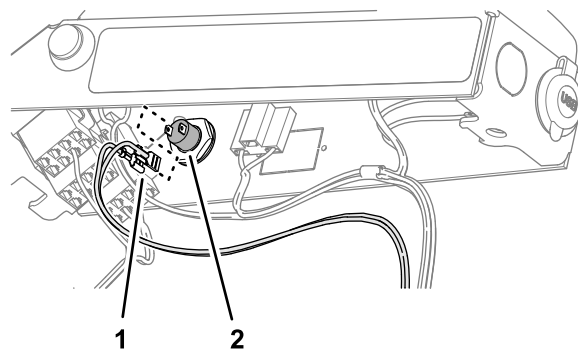


Figure 108

g301403

1. Terminals (wire harness branch labeled REMOTE ENGAGE SWITCH)
 2. Push-button switch
-
5. Secure the wire harness branch to the machine wire harness with a cable tie.

Assembling the Arm Panel to the Console Frame

1. Align the tabs at the front of the arm panel with the slots in the console frame, and rotate the arm pane down ([Figure 109](#)).

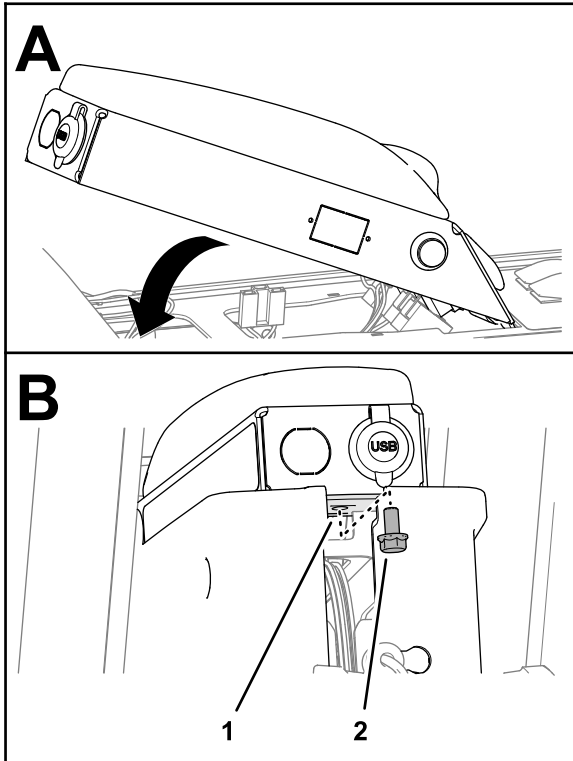


Figure 109

g301409

1. Console frame
 2. Flange-head cap screw (5/16 x 5/8 inch)
2. Secure the arm panel to the console frame ([Figure 109](#)) with the flange-head cap screw (5/16 x 5/8 inch).
 3. Assemble the side panel to the console frame ([Figure 110](#)) with 4 flange-head cap screws (1/4 x 3/4 inch).

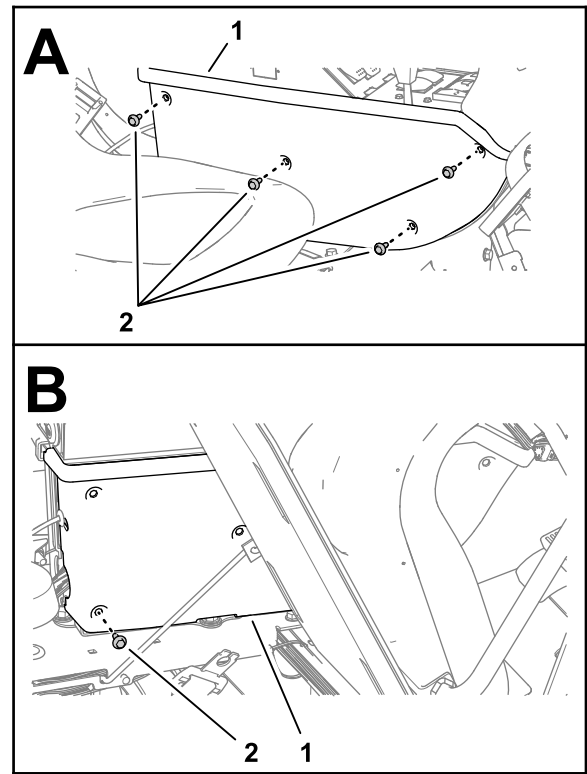


Figure 110

g301406

1. Side panel
 2. Flange-head cap screws (1/4 x 3/4 inch)
4. Tilt the seat forward and install the lower rear flange-head cap screw ([Figure 110](#)).
 5. Repeat steps 3 and 4 at the other side of the center console.
 6. Affix the AutoSteer remote-engage decal to the arm panel as shown in [Figure 111](#).

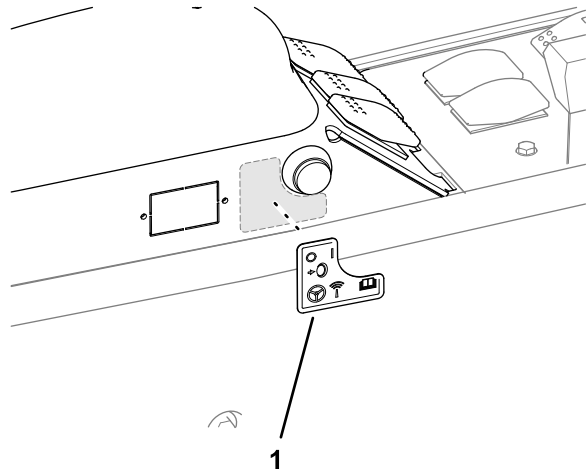


Figure 111

g301794

1. AutoSteer remote-engage decal

18

Replacing the Steering Valve O-rings

Parts needed for this procedure:

3	O-ring 9.2/1.8 mm (0.364/0.070 inch)
2	O-ring 7.6/1.8 mm (0.301/0.070 inch)

Procedure

1. Remove the 3 O-rings from the face of the -6 fittings of the steering valve ([Figure 112](#)).

Note: Discard the O-ring.

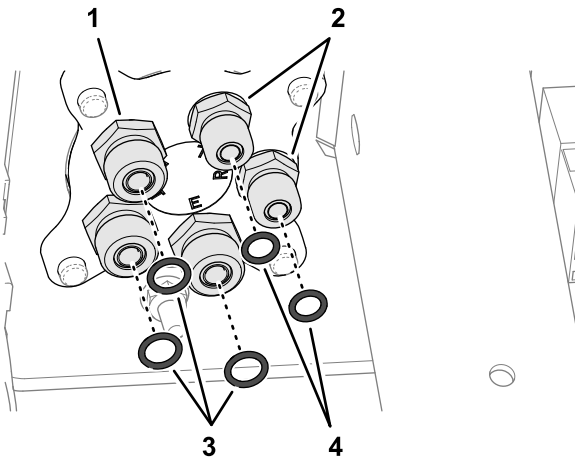


Figure 112

g313836

- | | |
|---------------------------------|--|
| 1. -6 fitting (steering valve) | 3. O-rings 9.2/1.8 mm (0.364/0.070 inch) |
| 2. -4 fittings (steering valve) | 4. O-rings 7.6/1.8 mm (0.301/0.070 inch) |

2. Install a 3 new O-ring 9.2/1.8 mm (0.364/0.070 inch) into the grooves of the -6 fittings ([Figure 112](#)).

3. Remove the 2 O-rings from the face of the -4 fittings ([Figure 112](#)).

Note: Discard the O-ring.

4. Install a 2 new O-ring 7.6/1.8 mm (0.301/0.070 inch) into the grooves of the -4 fittings ([Figure 112](#)).

19

Installing the Hoses

Parts needed for this procedure:

1	Hose 6 x 203 mm (1/4 x 8 inches); -6 (straight) and -6 (45°) fittings
2	O-ring 12.4/1.8 mm (0.489/0.070 inch)
1	Hose 6 x 2819 mm (1/4 x 111 inches); -4 (90°) and -6 (90°) fittings
1	Hose 6 x 673 mm (1/4 x 26-1/2 inches); -4 (straight) and -6 (90°) fittings
1	Hose 6 x 711 mm (1/4 x 28 inches); -4 (straight) and -6 (90°) fittings
1	Hose 10 x 187 mm (3/8 x 7-3/8 inches); -6 (straight) and -8 (90°) fittings
1	Hose 10 x 264 mm (3/8 x 10-3/8 inches); -8 (90°) and -6 (45°) fittings
2	O-ring 9.2/1.8 mm (0.364/0.070 inch)
1	Hose 6 x 1397 mm (1/4 x 55 inches); -6 (straight) and -6 (90°) fittings
1	Hose 6 x 1270 mm (1/4 x 50 inches); -6 (straight) and -6 (90°) fittings
1	Hose 10 x 2921 mm (3/8 x 115 inches); -8 (90°) and -8 (90°) fittings
1	O-ring 7.6/1.8 mm (0.301/0.070 inch)
3	Cable tie

Installing the Steering Valve Hoses

1. Assemble the 45° fitting of the hose 6 x 203 mm (1/4 x 8 inches) onto the port LS2 fitting of the EHI steering valve ([Figure 113](#)).

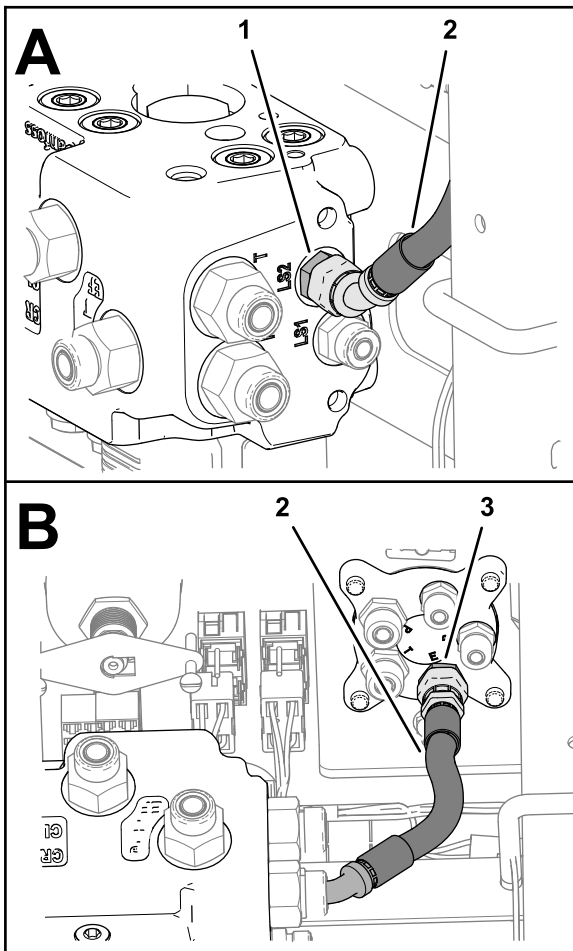


Figure 113

1. Port LS2 fitting (EHI steering valve)
2. Hose 6 x 203 mm (1/4 x 8 inches)
3. Port E fitting (steering valve)

2. Assemble the straight fitting of the hose 6 x 203 mm (1/4 x 8 inches) onto the port E fitting of the steering valve, and tighten both hose fittings ([Figure 113](#)).
3. Route the end of the hydraulic pump hose 6 x 2819 mm (1/4 x 111 inches) with the -4, 90° fitting through the grommet in the floor plate ([Figure 114](#)).

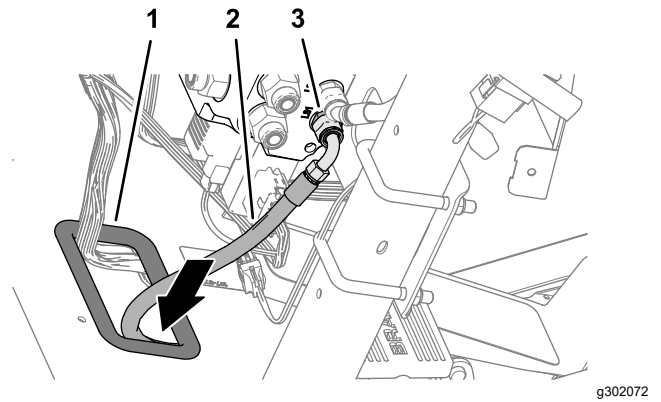
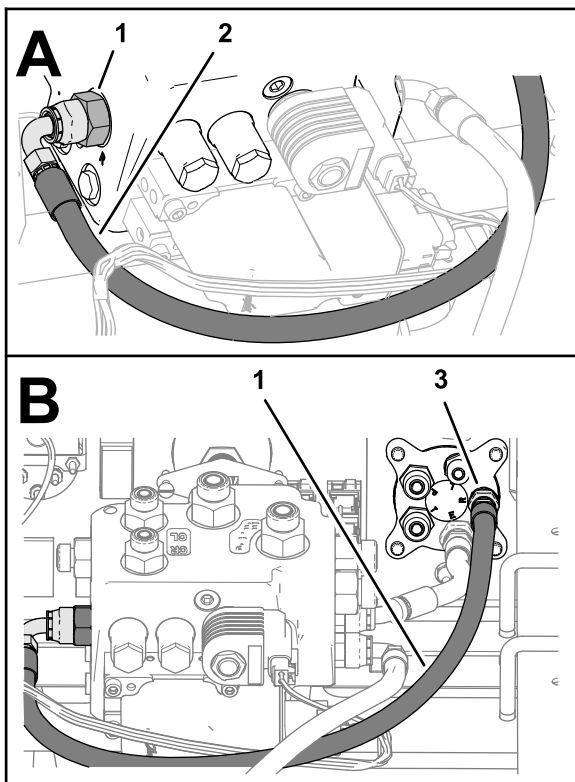


Figure 114

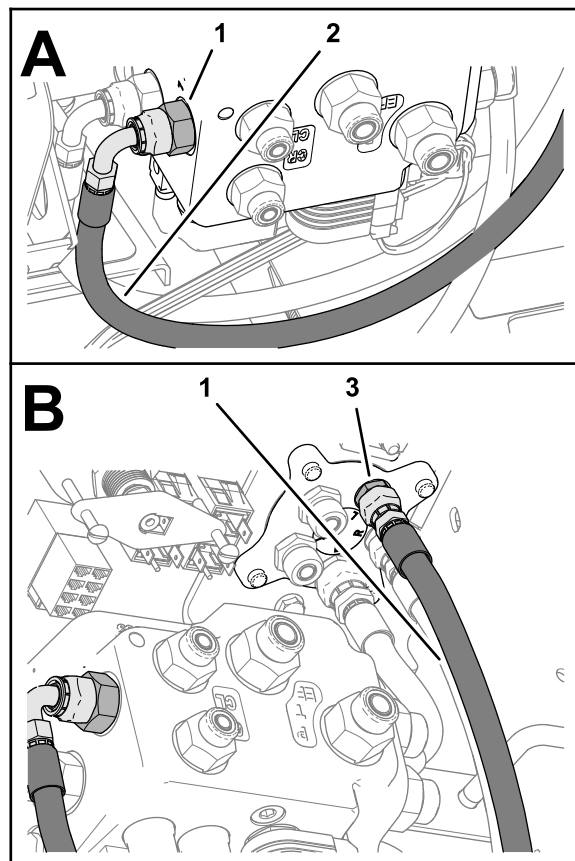
1. Grommet
 2. Hydraulic pump hose 6 x 2819 mm (1/4 x 111 inches)
 3. Port LS1 fitting (EHI steering valve)
-
4. Assemble the -6, 90° fitting of the hose 6 x 2819 mm (1/4 x 111 inches) onto the port the LS1 fitting of the EHI steering valve, and tighten the hose fitting ([Figure 114](#)).
 5. Assemble the 90° fitting of the hose 6 x 673 mm (1/4 x 26-1/2 inches) into the port R fitting of the EHI steering valve ([Figure 115](#)).



g302130

Figure 115

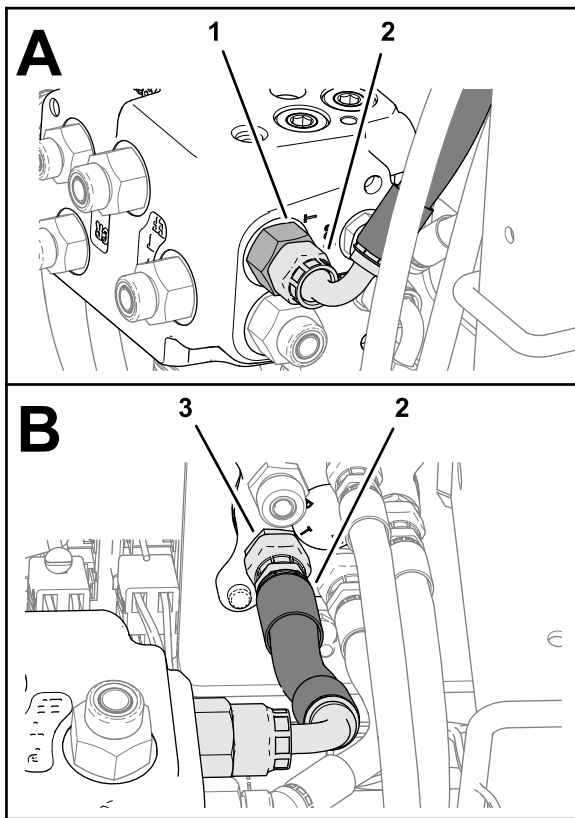
1. Port R fitting (EHI steering valve)
 2. Hose 6 x 673 mm (1/4 x 26-1/2 inches)
 3. Port R fitting (steering valve)
-
6. Assemble the straight fitting of the hose 6 x 673 mm (1/4 x 26-1/2 inches) into the port R fitting of the steering valve, and tighten both hose fittings ([Figure 115](#)).
 7. Assemble the 90° fitting of the hose 6 x 711 mm (1/4 x 28 inches) onto the port L fitting of the EHI steering valve ([Figure 116](#)).



g302131

Figure 116

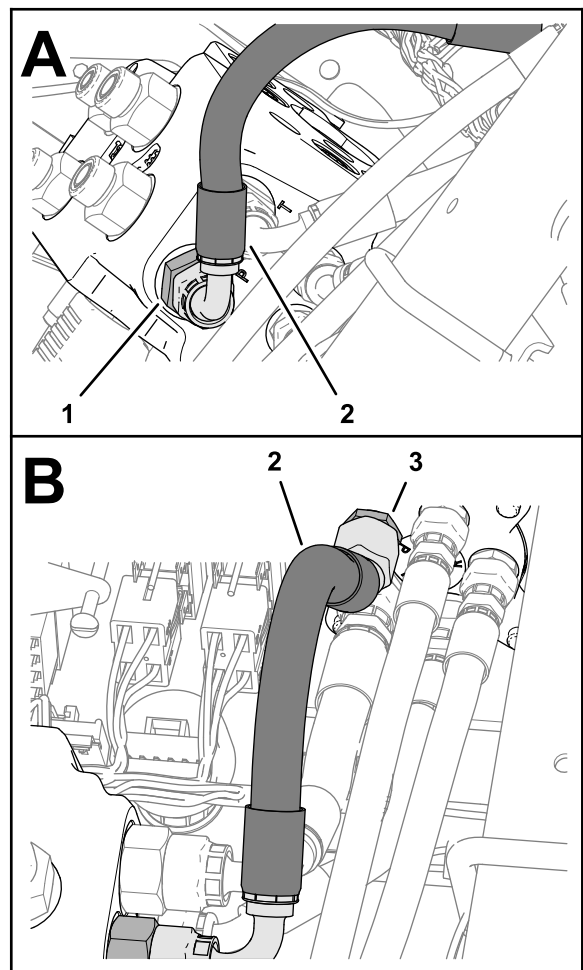
1. Port L fitting (EHI steering valve)
 2. Hose 6 x 711 mm (1/4 x 28 inches)
 3. Port L fitting (steering valve)
-
8. Assemble the straight fitting of the hose 6 x 711 mm (1/4 x 28 inches) onto the port L fitting of the steering valve, and tighten both hose fittings ([Figure 116](#)).
 9. Assemble the 90° fitting of the hose 10 x 187 mm (3/8 x 7-3/8 inches) onto the port T fitting of the EHI steering valve ([Figure 117](#)).



g302044

Figure 117

1. Port T fitting (EHI steering valve)
2. Hose 10 x 187 mm (3/8 x 7-3/8 inches)
3. Port T fitting (steering valve)



g302042

Figure 118

1. Port P fitting (EHI steering valve)
2. Hose 10 x 264 mm (3/8 x 10-3/8 inches)
3. Port P fitting (steering valve)

10. Assemble the straight fitting of the hose 10 x 187 mm (3/8 x 7-3/8 inches) onto the port T fitting of the steering valve, and tighten both hose fittings ([Figure 117](#)).
11. Assemble the 90° fitting of the hose 10 x 264 mm (3/8 x 10-3/8 inches) onto the port P fitting of the EHI steering valve ([Figure 118](#)).

12. Assemble the 45° fitting of the hose 10 x 264 mm (3/8 x 10-3/8 inches) onto the port P fitting of the steering valve, and tighten both hose fittings ([Figure 118](#)).

Installing the Steering Cylinder Hoses

1. Route the end of the hose 6 x 1397 mm (1/4 x 55 inches) with the straight fitting through the grommet in the floor plate ([Figure 119](#)).

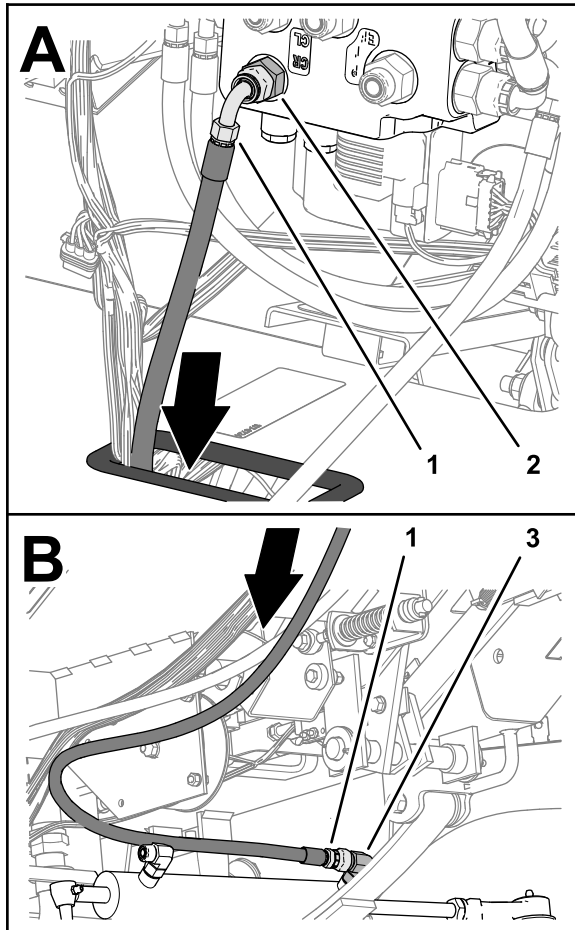


Figure 119

1. Hose 6 x 1397 mm (1/4 x 55 inches); -6 (straight) and -6 (90°) fittings
2. Port CR fitting (EHI steering valve)
3. 90° fitting (retract port—steering cylinder)

2. Assemble the 90° fitting of the hose 6 x 1397 mm (1/4 x 55 inches) onto the port CR fitting of the EHI steering valve ([Figure 119](#)).
3. Remove the 2 O-ring in the face 90° fittings in the extend and retract ports of the steering cylinder ([Figure 120](#)).

Note: Discard the O-ring.

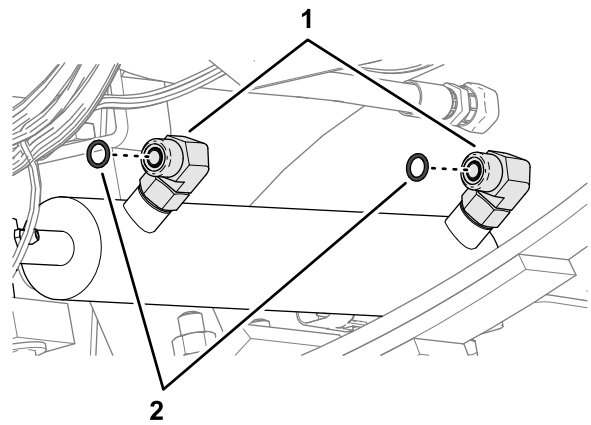


Figure 120

1. 90° fittings
2. O-rings 9.2/1.8 mm (0.364/0.070 inch)

4. Install a 2 new O-ring 9.2/1.8 mm (0.364/0.070 inch) into the groove of the 90° fittings ([Figure 120](#)).
5. Assemble the straight fitting of the hose 6 x 1397 mm (1/4 x 55 inches) onto the 90° fitting in the retract port of the steering cylinder, and tighten both hose fittings ([Figure 119](#)).
6. Route the end of the hose 6 x 1270 mm (1/4 x 50 inches) with the straight fitting through the grommet in the floor plate ([Figure 121](#)).

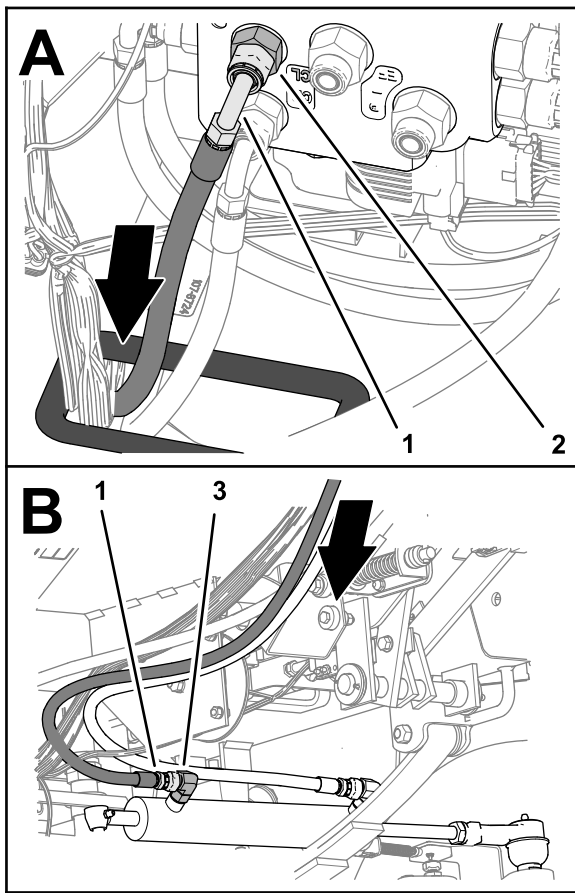
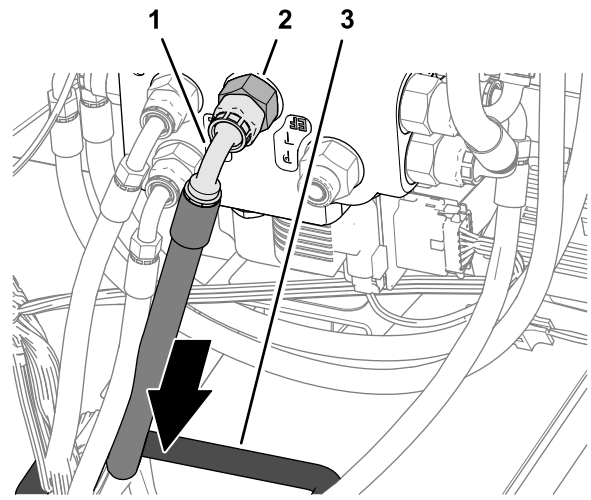


Figure 121

g302037

1. Hose 6 x 1270 mm (1/4 x 50 inches); -6 (straight) and -6 (90°) fittings
 2. Port CL fitting (EHI steering valve)
 3. 90° fitting (extend port—steering cylinder)
7. Assemble the 90° fitting of the hose 6 x 1270 mm (1/4 x 50 inches) onto the port CL fitting of the EHI steering valve (Figure 121).
 8. Assemble the straight fitting of the hose 6 x 1270 mm (1/4 x 50 inches) onto the 90° fitting in the extend port of the steering cylinder, and tighten both hose fittings (Figure 121).



g302098

Figure 122

1. Tank-return hose 10 x 2921 mm (3/8 x 115 inches); -8 (90°) and -8 (90°) fittings
 2. Port EF fitting (EHI steering valve)
 3. Grommet
3. Assemble the 90° fitting of the tank-return hose 10 x 2921 mm (3/8 x 115 inches) onto the port EF fitting of the EHI steering valve, and tighten the hose fitting (Figure 122).
 4. Identify the hydraulic-pump hose 10 x 2921 mm (3/8 x 115 inches) with a 90° fitting and a 45° fitting.
 5. Route the end of the hydraulic-pump hose 10 x 2921 mm (3/8 x 115 inches) with the 45° fitting through the grommet in the floor plate (Figure 123).

Assembling the Tank-Return Hose and Hydraulic-Pump Hose to the EHI Steering Valve

1. Identify the tank-return hose 10 x 2921 mm (3/8 x 115 inches) with 2 fittings (90°).
2. Route the end of the tank-return hose 10 x 2921 mm (3/8 x 115 inches) through the grommet in the floor plate (Figure 122).

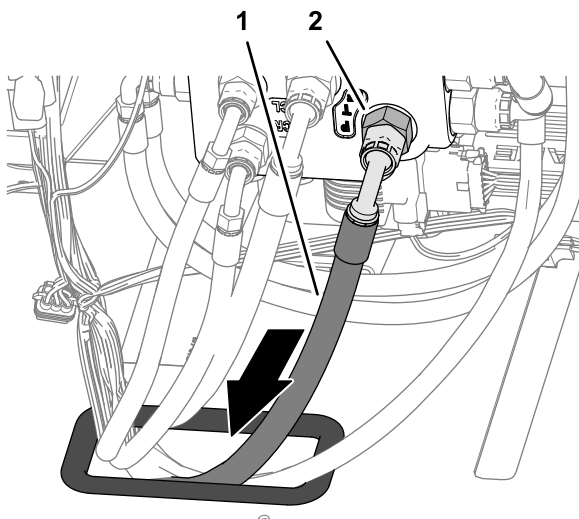


Figure 123

g302123

1. Port PT fitting (EHI steering valve)
2. Hydraulic-pump hose 10 x 2921 mm (3/8 x 115 inches); -8 (90°) and -6 (45°) fittings

6. Assemble the 90° fitting of the hydraulic-pump hose 10 x 2921 mm (3/8 x 115 inches) onto the port PT fitting of the EHI steering valve, and tighten the hose fitting (Figure 123).
7. Route the 2 hydraulic pump hoses and the tank-return hose rearward, along the right frame tube of the machine (Figure 124).

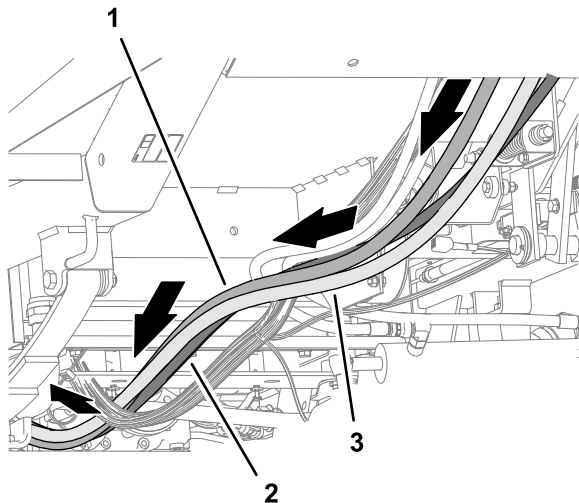


Figure 124

g302154

1. Tank-return hose 10 x 2921 mm (3/8 x 115 inches); -8 (90°) and -8 (90°) fittings
2. Hydraulic-pump hose 10 x 2921 mm (3/8 x 115 inches); -8 (90°) and -6 (45°) fittings
3. Hydraulic-pump hose 6 x 2819 mm (1/4 x 111 inches); -4 (90°) and -6 (90°) fittings

Routing the Hydraulic Pump Hoses

1. Route the hydraulic pump hose 10 x 2921 mm (3/8 x 115 inches—EHI steering valve port PT) with the 45° fitting into the top groove of the tube-clamp half at the upper location (Figure 125).

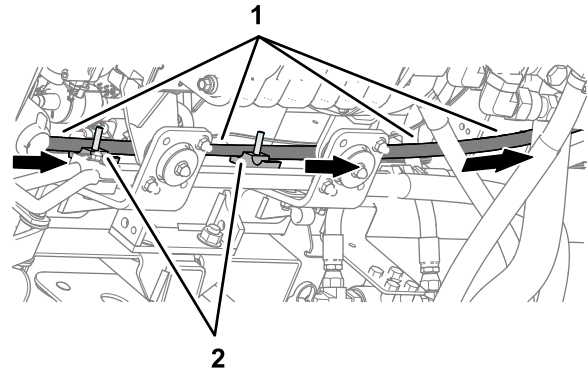


Figure 125

g302043

1. Hydraulic pump hose 10 x 2921 mm (3/8 x 115 inches—EHI steering valve port PT) with the 45° fitting
2. Upper groove—tube-clamp half (upper location)

2. Route the 45° fitting of the hose toward the hydraulic pump.
3. Route the hydraulic pump hose 6 x 2819 mm (1/4 x 111 inches—EHI steering valve port LS1) with the 90° fitting into the bottom groove of the tube-clamp half at the upper location (Figure 126).

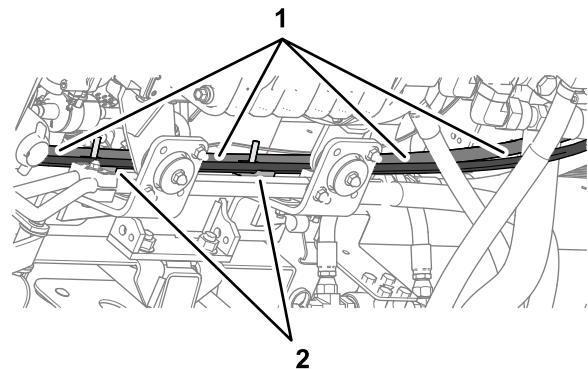


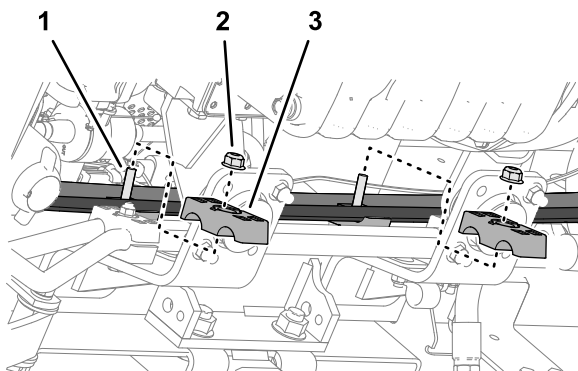
Figure 126

g302040

1. Hose 6 x 2819 mm (1/4 x 111 inches—EHI steering valve port LS1) 90° fitting
2. Lower groove—tube-clamp half (upper location)

4. Route the 90° fitting of the hose toward the hydraulic pump.
5. Assemble the 2 tube-clamp halves onto the capscrews, and secure the tube-clamp halves

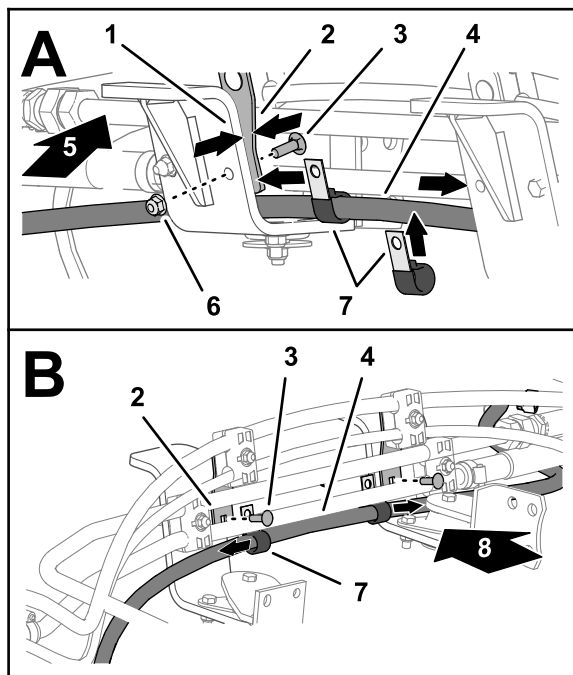
and hoses ([Figure 127](#)) with 2 flange-head locknuts (5/16 inch).



g302036

Figure 127

1. Capscrew (5/16 x 2-1/4 inch)
2. Flange-head locknut (5/16 inch)
3. Tube-clamp half



g302152

Figure 128

1. Engine mount bracket
2. Tube clamp mount plate
3. Carriage bolt (5/16 x 1 inch)
4. Tank-return hose 6 x 2819 mm (1/4 x 111 inches—EHI steering valve port EF)
5. Left side of the machine
6. Flange locknut (5/16 inch)
7. P-clamp
8. Right side of the machine

Installing the Hydraulic Tank Return Hose

1. Route the tank-return hose 6 x 2819 mm (1/4 x 111 inches—EHI steering valve port EF) across the top of the right engine mount brackets ([Figure 128](#)).

2. Assemble the 2 P-clamps onto the hose as shown in [Figure 128](#).
3. Align the 2 P-clamps between the tube clamp mount plates and the engine mount brackets ([Figure 128](#)).
4. Secure the clamp mount plates and P-clamps to the engine mount brackets ([Figure 128](#) and [Figure 129](#)) with the 2 carriage bolt (5/16 x 1 inch) and 2 flange locknut (5/16 inch).

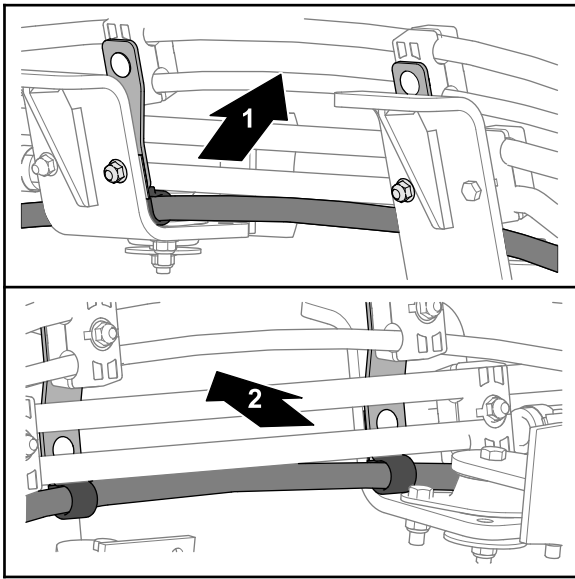


Figure 129

g302153

1. Left side of the machine
2. Right side of the machine

5. Remove the O-ring in the face of the T-fitting of the hydraulic tank (Figure 130).

Note: Discard the O-ring.

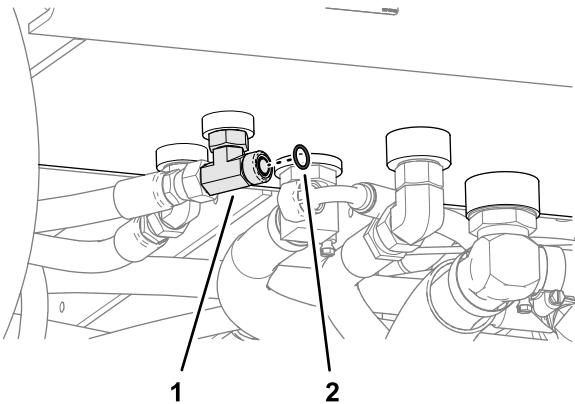


Figure 130

g313837

1. T-fitting (hydraulic tank return)
2. O-ring 12.4/1.8 mm (0.489 /0.070 inch)

6. Install a new O-ring 12.4/1.8 mm (0.489/0.070 inch) into the groove of the T-fitting (Figure 130).
7. Assemble the 90° fitting of the tank-return hose 6 x 2819 mm (1/4 x 111 inches) onto the T-fitting, and tighten the hose fitting (Figure 131).

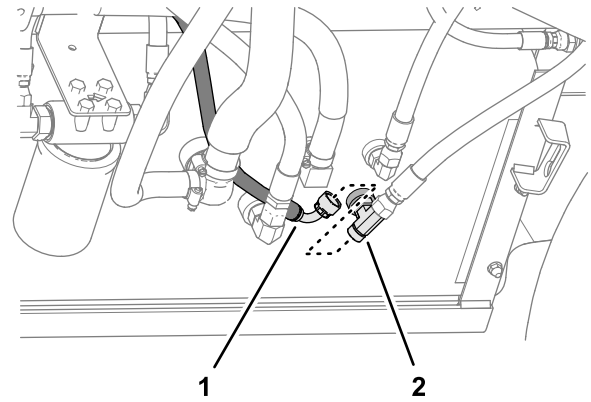


Figure 131

g302101

1. Hose 10 x 2921 mm (3/8 x 115 inches)
2. T-fitting (hydraulic tank x 115 inches)

Installing the Hydraulic Pump Hoses

1. Remove the O-ring in the face of the T-fitting at the end the hydraulic pump (Figure 132).

Note: Discard the O-ring.

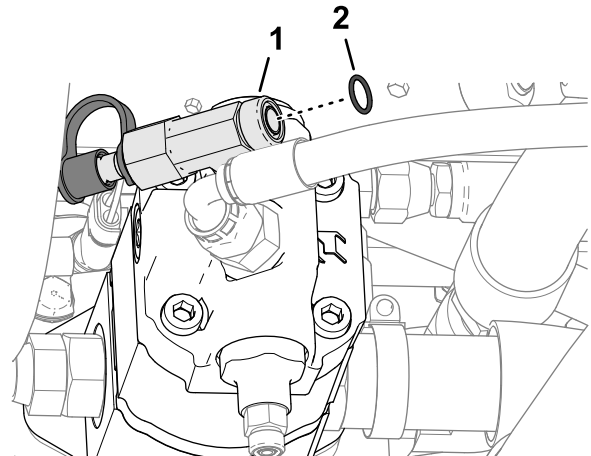


Figure 132

g337828

1. T-fitting
2. O-ring 12.4/1.8 mm (0.489/0.070 inch)

2. Install a new O-ring 12.4/1.8 mm (0.489/0.070 inch) into the groove of the T-fitting (Figure 132).
3. Assemble the 45° fitting of the hose 10 x 2921 mm (3/8 x 115 inches) onto the T-fitting, and tighten the hose fitting (Figure 133).

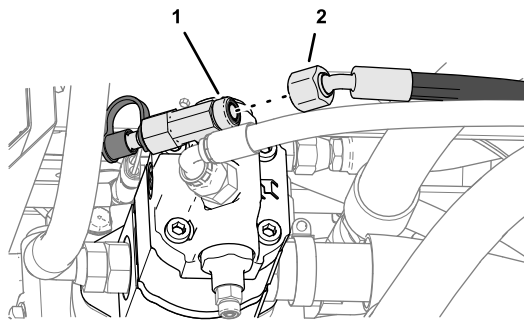


Figure 133

g337827

1. Hose 10 x 2921 mm (3/8 x 115 inches—45° fitting)
2. T-fitting—hydraulic pump

4. Remove the O-ring in the face of the straight fitting at the end of the hydraulic pump ([Figure 134](#)).

Note: Discard the O-ring.

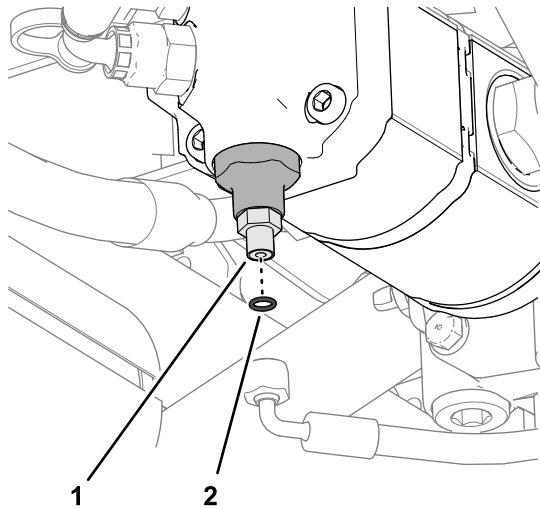


Figure 134

g313834

1. Straight fitting
2. O-ring 7.6/1.8 mm (0.301/0.070 inch)

5. Install a new O-ring 7.6/1.8 mm (0.301/0.070 inch) into the groove of the straight fitting ([Figure 134](#)).
6. Assemble the 90° fitting of the hose 6 x 2819 mm (1/4 x 111 inches) onto the straight fitting, and tighten the hose fitting ([Figure 135](#)).

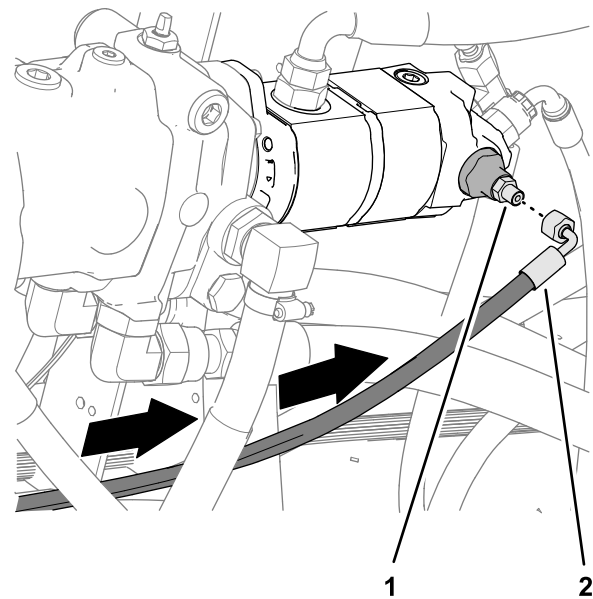


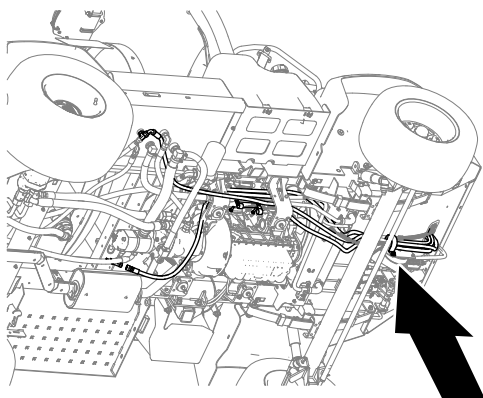
Figure 135

g314161

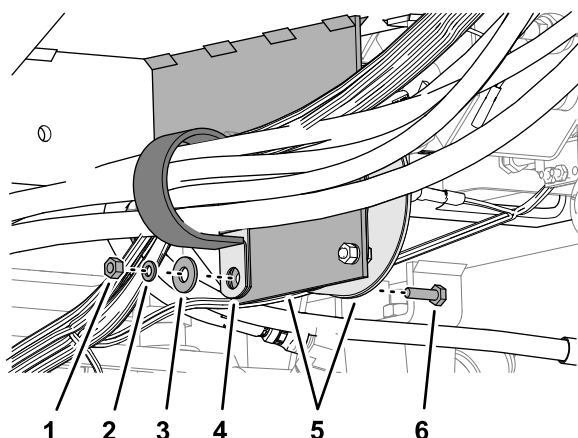
1. Straight fitting (1/4 x 1/4 inch)
2. Hose 6 x 2819 mm (1/4 x 111 inches—90° fitting)

Installing the Lower Hose Cover

1. Under the floor plate, secure the hoses and wire harnesses to the clutch and clutch plate as shown in [Figure 136](#) with the support clamp, capscrow (1/4 x 7/8 inch), nut (1/4 inch), lock washer (1/4 inch), and washer (3/8 x 7/8 inch) that you removed in [Removing the Hose Support Clamps](#) (page 23).



g300044

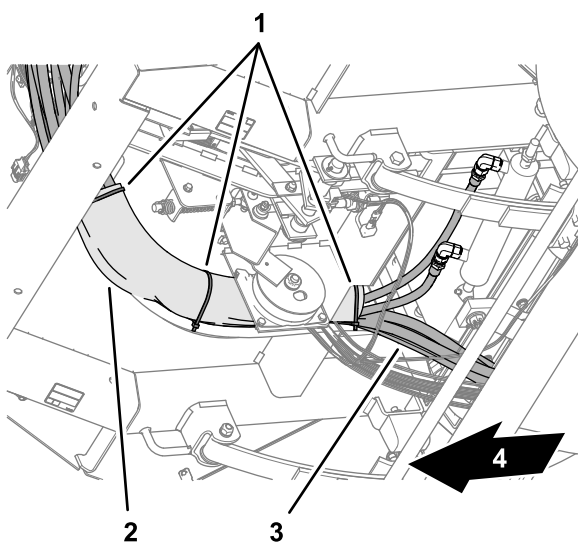


g313648

Figure 136

- | | |
|----------------------------|------------------------------|
| 1. Nut (1/4 inch) | 4. Support clamp |
| 2. Lock washer (1/4 inch) | 5. Clutch and clutch plate |
| 3. Washer (3/8 x 7/8 inch) | 6. Capscrew (1/4 x 7/8 inch) |

2. Assemble the lower hose cover over the steering hoses (Figure 137).



g299125

Figure 137

- | | |
|---------------------|-------------------------|
| 1. Cable ties | 3. Steering hose |
| 2. Lower hose cover | 4. Front of the machine |

3. Secure the cover to the hoses with 3 cable ties (Figure 137).

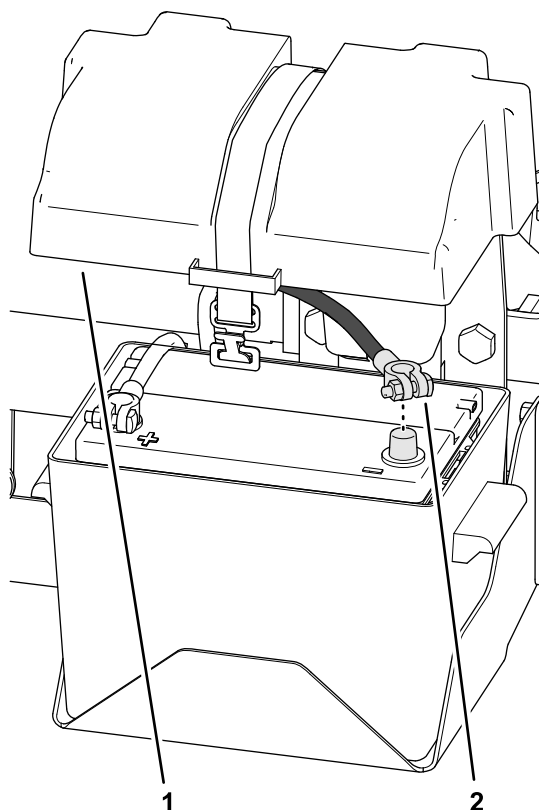
20

Installing the Negative Battery Cable

No Parts Required

Procedure

1. Install the negative-battery cable onto the battery terminal (Figure 138).



g292314

Figure 138

- | | |
|----------|---------------------------|
| 1. Cover | 2. Negative battery cable |
|----------|---------------------------|

2. Assemble the cover onto the battery box, and secure the cover with the strap (Figure 138).

21

Purging Air from the Hydraulic System

No Parts Required

Procedure

1. Start the engine.
2. Fully turn the steering wheel left and right until the wheel turns smoothly.
3. Shut off the engine and remove the key.

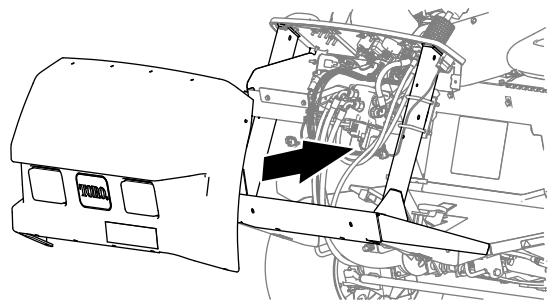


Figure 139

g298935

2. Assemble the hood to the dash support with 2 push-in fasteners (Figure 140).

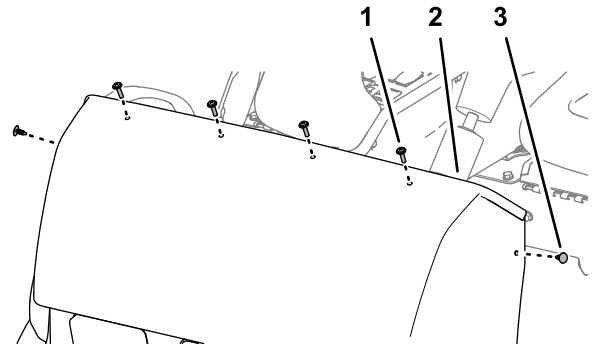


Figure 140

g298940

1. Phillips pan-head screw (1/4 x 1 inch)
2. Hood
3. Push-in fastener

22

Checking for Hydraulic Leaks

No Parts Required

Procedure

1. Check the hoses and fittings at the EHI steering valve and the steering valve for hydraulic leaks.

Important: Fix all leaks before installing the hood.

2. Check the hoses and fittings at the hydraulic tank and hydraulic pump for leaks.

Important: Fix all leaks.

3. Secure the hood to the dash support (Figure 140) with 4 Phillips pan-head screws (1/4 x 1 inch).
4. Assemble the bottom flange of the hood to the machine with 4 push-in fasteners (Figure 141).

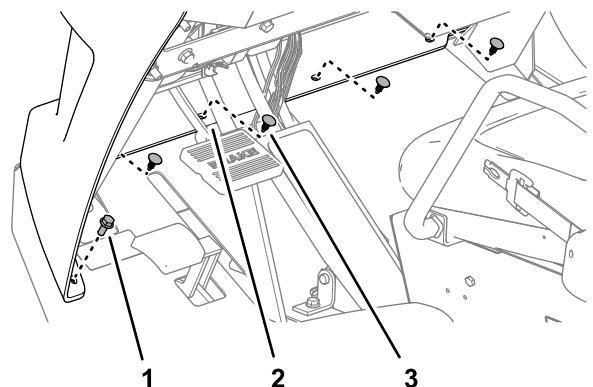


Figure 141

g298937

1. Flange-head bolt (5/16 x 3/4 inch)
2. Flange (hood)
3. Push-in fastener

23

Installing the Hood

Parts needed for this procedure:

6	Push-in fasteners
---	-------------------

Procedure

1. Align the holes in the hood with the holes in the chassis of the machine (Figure 139).

5. Secure the flange to the machine (Figure 141) with 2 flange-head bolts (5/16 x 3/4 inch).

6. Assemble the headlight connector of the machine wire harness to the connector of the headlight bulb ([Figure 142](#)).

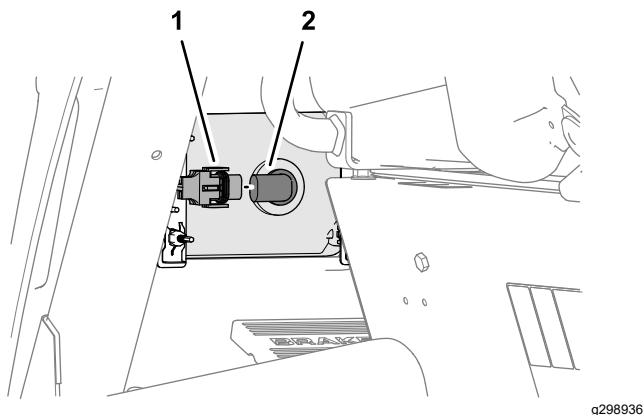


Figure 142

1. Connector (machine harness—headlight) 2. Connector (bulb)

7. Repeat step 6 at the other headlight.

24

Installing the Heat Shield and Undercarriage Shroud

2015 and Later Machines

No Parts Required

Procedure

If removed, installed the heat shield and undercarriage shroud to the bottom of the machine; refer to the *Operator's Manual* for your machine.

25

Setting Up and Calibrating the Software

No Parts Required

Calibrating the Compass

Ensure that the GeoLink compass is calibrated, refer to the X25 GeoLink *Operator's Manual* for your machine.

Preparing to Calibrate the Machine

Installer provided equipment: a USB/CAN interface cable (Toro DIAG cable) Part No. 115-1944

1. Park the machine on the grass at a level location.
2. Shut off the engine and engage the parking brake.

Connecting the Laptop Computer to the Machine

Note: You must complete the following procedures before connecting the laptop computer to the machine for software calibration:

- [6 Verifying the Minimum Hardware Requirements \(page 10\)](#)
 - [8 Installing the Software and Diagnostic Data Files \(page 11\)](#)
 - [7 Downloading the Software and Diagnostic Data Files \(page 11\)](#)
 - [9 Selecting the Gateway Channel \(page 16\)](#)
 - [10 Installing the Firmware Release Package Files \(page 17\)](#)
1. If the Toro Diag application is running on the laptop computer, close the Toro Diag application.
Important: Do not begin the calibration process if the Toro Diag application is running on the laptop computer.
 2. Plug the USB/CAN interface cable into a USB port of the laptop computer.
 3. At the machine, rotate the key to the ON position.
 4. In Windows task bar, click the SEARCH icon ([Figure 143](#)).

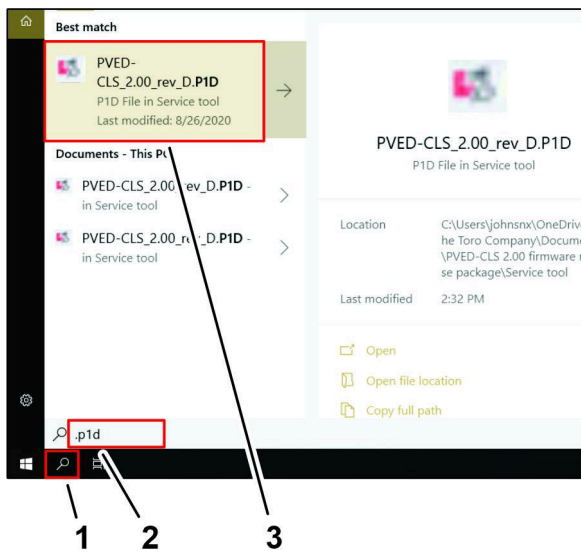


Figure 143

Windows 10 shown.

1. SEARCH icon
2. .P1D (TYPE HERE TO SEARCH text box)
3. PVED-CLS_2.00_rev_D.P1D icon

5. In the TYPE HERE TO SEARCH text box, type .P1D and press the enter key (Figure 143).
6. Click PVED-CLS_2.00_rev_D.P1D icon (Figure 143).

Note: The Plus+1 Service Tool application displays on your laptop (Figure 144).

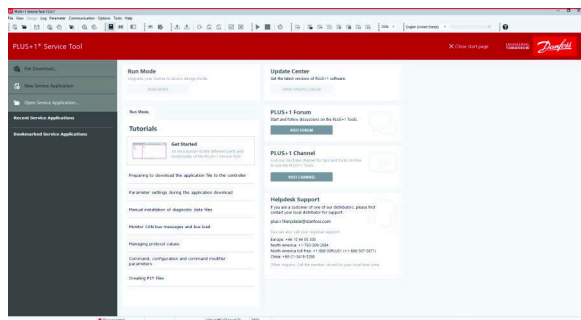


Figure 144

7. Remove the cap from the 3-socket connector of the kit wire harness CAN port labeled DUPLICATE DIAG CONNECTOR, and plug the 3-pin connector USB/CAN interface cable into the 3-socket connector (Figure 145).

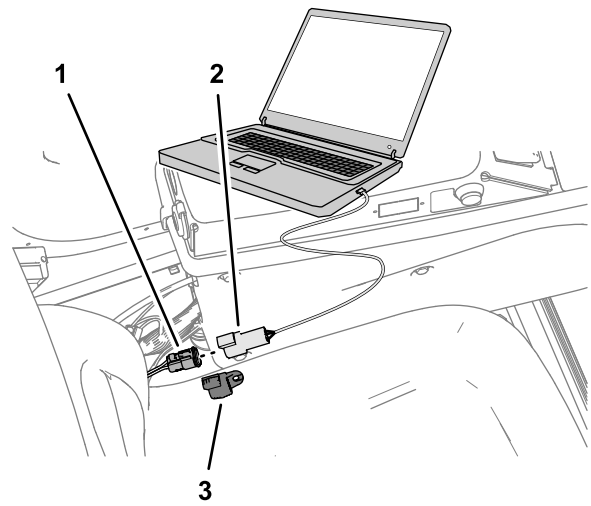


Figure 145

1. 3-socket connector (labeled DUPLICATE DIAG CONNECTOR—kit wire harness)
2. 3-pin connector (USB/CAN interface cable)
3. Cap

8. On the dash panel of the machine, press enable/transport switch to the ENABLE MODE position (Figure 146).

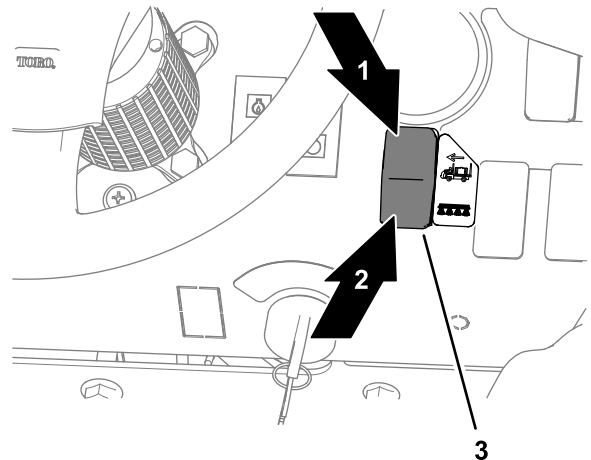


Figure 146

1. TRANSPORT MODE position
2. ENABLE MODE position
3. Enable/transport switch

9. On your laptop computer, click the PVED-CLS_2.00_REV_D.P1D file.
10. In the System Navigator tab, navigate the AUTO CALIBRATION directory, and click the + icon (Figure 147).

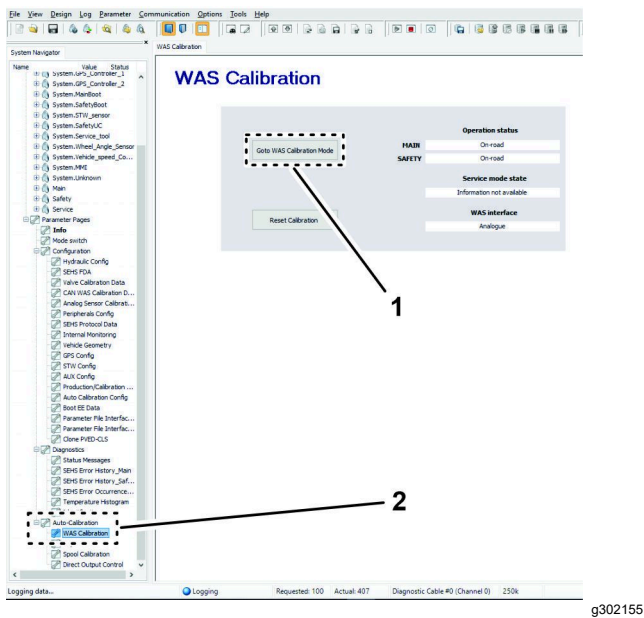


Figure 147

1. GOTO WAS CALIBRATION MODE icon
2. System Navigator tab, AUTO CALIBRATION directory, and WAS CALIBRATION icon

6. Click the CAPTURE R icon (Figure 149).

Note: The sensor value changes as you turn the steering wheel.

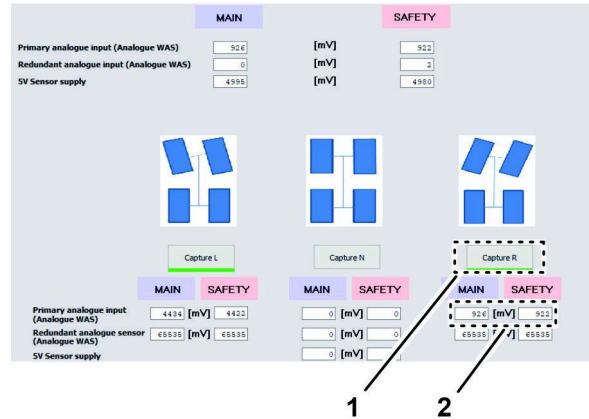


Figure 149

1. Sensor value
2. CAPTURE R icon

7. Turn the steering wheel until the tires align straight ahead and stop.

8. Click the CAPTURE N icon (Figure 150).

Note: The sensor value changes as you turn the steering wheel.

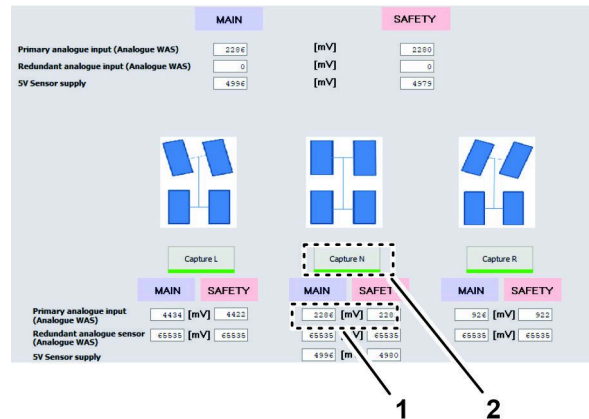


Figure 150

1. Sensor value
2. CAPTURE N icon

9. Click the ACCEPT AND SAVE icon (Figure 151).

11. Click the WAS CALIBRATION icon (Figure 147).

Capturing Steering Values

1. Start the engine of the machine.
2. On the WAS CALIBRATION screen, click the GOTO WAS CALIBRATION MODE icon (Figure 147).
3. Fully turn the steering wheel to the left and stop.
4. Click the CAPTURE L icon (Figure 148).

Note: The sensor value changes as you turn the steering wheel.

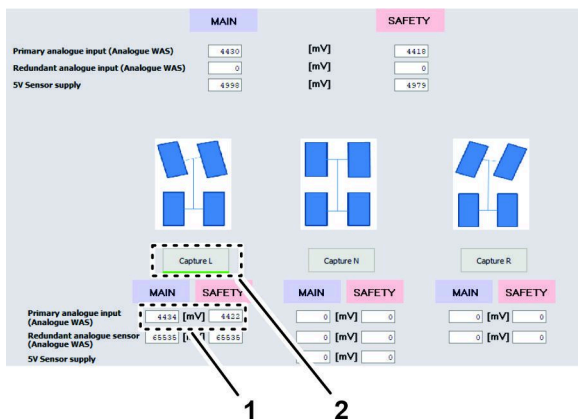


Figure 148

1. Sensor value
2. CAPTURE L icon

5. Fully turn the steering wheel to the right and stop.

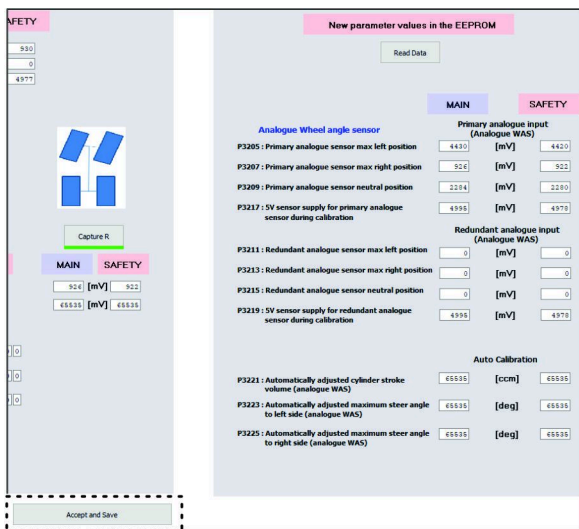


Figure 151

1. ACCEPT AND SAVE icon

Running Spool Calibration Process

1. Turn the steering wheel as needed to position the front tires straight ahead.
2. On your laptop computer, click to the SPOOL CALIBRATION icon (Figure 152).

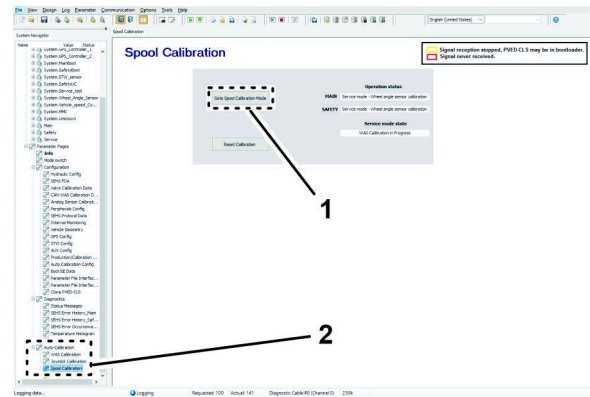


Figure 152

1. GOTO SPOOL CALIBRATION
2. Spool calibration menu MODE icon

3. On the spool calibration page, click the GOTO SPOOL CALIBRATION MODE icon (Figure 152).
4. Click the START CALIBRATION icon (Figure 153).

Note: The service mode state must display Spool Calibration Armed before starting calibration.

Important: Do not touch the steering wheel.

The steering wheel moves while spool calibrations proceeds. The spool calibration

process takes several minutes. Note that the wheel movement status changes in Status tab. Calibration is finished when Service Mode State field displays SPOOL PARAMETERS READY TO UPDATE.



Figure 153

g302250

1. Service mode state field—SPOOL CALIBRATION ARMED
 2. START CALIBRATION icon
 3. Service mode state field—SPOOL CALIBRATION IN PROGRESS
 4. Wheel movement status
 5. Service mode state field—SPOOL PARAMETERS READY TO UPDATE
5. At the bottom of the spool calibration screen, click the ACCEPT AND SAVE icon (Figure 154).

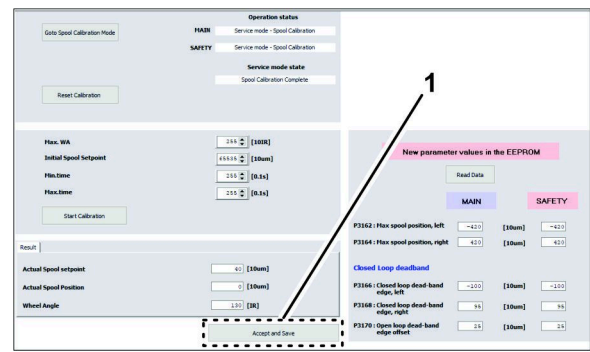


Figure 154

g302248

1. ACCEPT AND SAVE icon
6. Shut off the engine.
7. Remove the connector of the USB/CAN interface cable from the connector of the kit wire harness, and install the cap onto the wire harness connector (Figure 155).

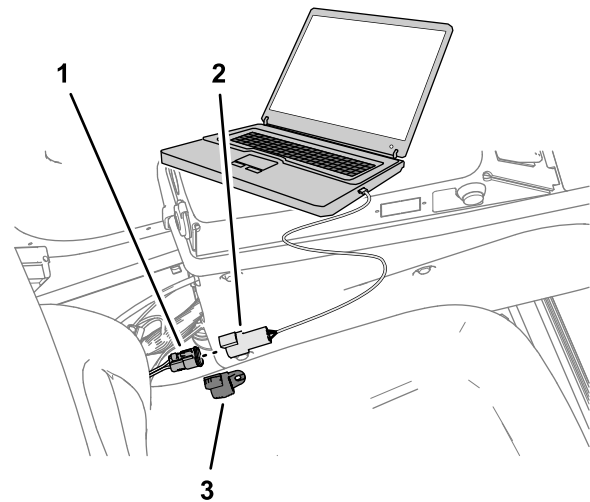


Figure 155

g302258

1. 3-socket connector (labeled DUPLICATE DIAG CONNECTOR—kit wire harness)
2. 3-pin connector (USB/CAN interface cable)
3. Cap

Enabling AutoSteer

1. Rotate the key to the ON position.
2. Start the X25 control console, and press the SETUP icon.
3. Press the SYSTEM icon, FEATURES icon, and the GUIDANCE icon (Figure 156).

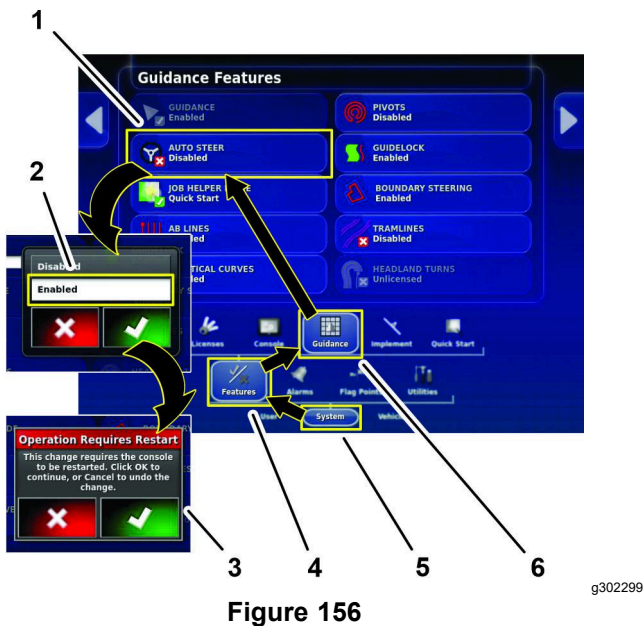


Figure 156

1. AUTO STEER icon
2. ENABLE icon (dialog box)
3. Restart dialog box
4. FEATURES icon
5. SYSTEM icon
6. GUIDANCE icon

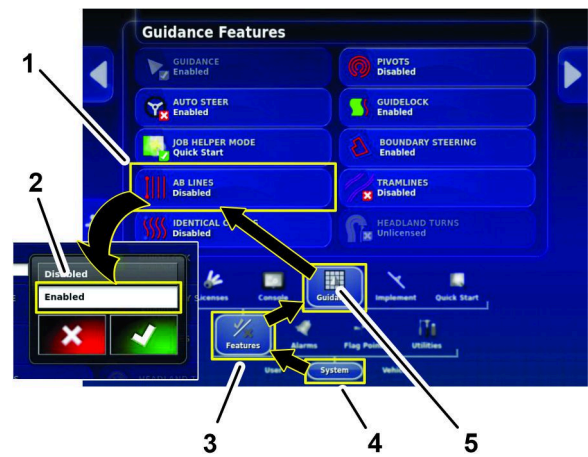


Figure 157

1. AB LINES icon
2. ENABLE icon (dialog box)
3. FEATURES icon
4. SYSTEM icon
5. GUIDANCE icon

2. Press the AB LINES icon (Figure 157).
3. In the dialog box, press the ENABLE icon, and press the confirm icon (Figure 157).

4. Press the AUTO STEER icon (Figure 156).
 5. In the dialog box, press the ENABLE icon, and press the confirm icon (Figure 156).
 6. In the operation requires restart dialog box, press the confirm icon (Figure 156).
- The X25 control console restarts in the standard user mode.

Enabling AB Lines

1. Press the SYSTEM icon, FEATURES icon, and the GUIDANCE icon (Figure 157).

Setting the Steering Engage Value

1. On the setup screen, press the USER icon, and the ACCESS LEVEL icon (Figure 158).

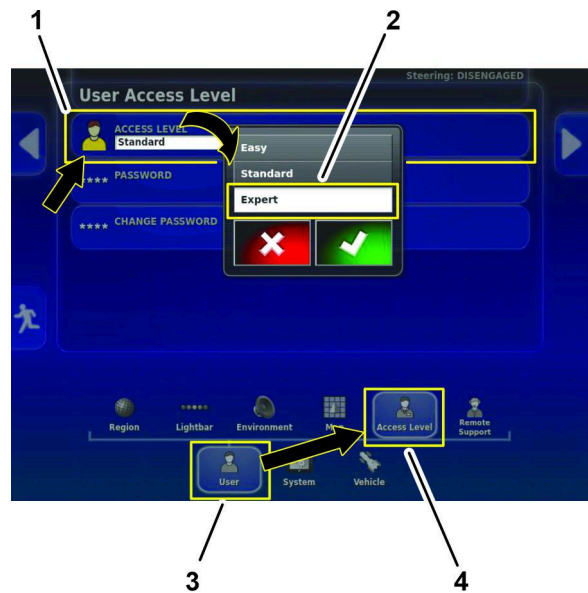


Figure 158

1. ACCESS LEVEL icon (access level screen)
2. EXPERT icon (dialog box)
3. USER icon
4. ACCESS LEVEL icon (setup screen)

2. On the user access screen, ACCESS LEVEL icon (Figure 158).

3. In the dialog box, press the EXPERT icon, and press the confirm icon (Figure 158).
4. Press the PASSWORD icon, type the dealer password with the pop-up keyboard window, and press the confirm icon (Figure 159).

Note: The user access level displays dealer.

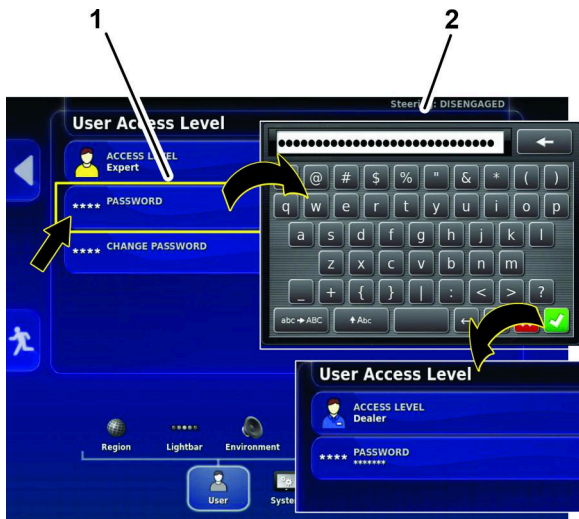


Figure 159

1. PASSWORD icon
2. Pop-up keyboard

5. Press the VEHICLE icon, and press the STEERING icon (Figure 160).

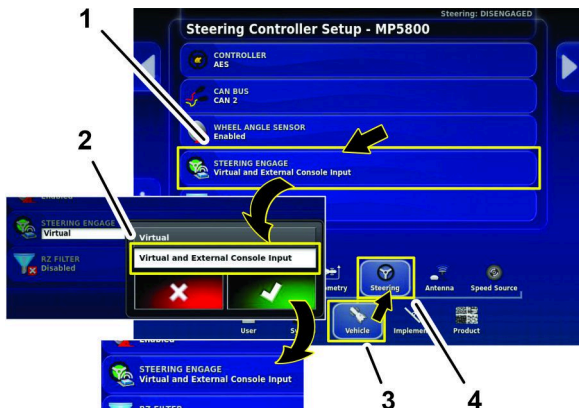


Figure 160

1. STEERING ENGAGE icon
2. VIRTUAL AND EXTERNAL CONSOLE INPUT icon (dialog box)
3. VEHICLE icon
4. STEERING icon

6. Press the STEERING ENGAGE icon (Figure 160).
7. In the dialog box, press the VIRTUAL AND EXTERNAL CONSOLE INPUT icon, and press the confirm icon (Figure 160).

Calibrating the Wheel Angle Sensor

1. Move the machine to an open, flat area; clear of trees and buildings; and where you can drive the machine in a straight line for 92 m (300 ft).
2. Press the STEERING OPTIONS icon (Figure 161).

The steering options menu displays.



Figure 161

1. WHEEL ANGLE SENSOR icon
2. AUTO STEER CALIBRATION icon
3. STEERING OPTIONS icon

3. Press the AUTO STEER CALIBRATION icon (Figure 161).

The steering calibration menu displays.

4. Press the WHEEL ANGLE SENSOR icon (Figure 161).

The wheel angle sensor calibration wizard starts.

Note: If a NOT INITIALIZED message displays in the control console, drive the machine for several minutes.

5. At step 1, wait until the wheel angle sensor calibration initializes, and press the next step icon (Figure 162).

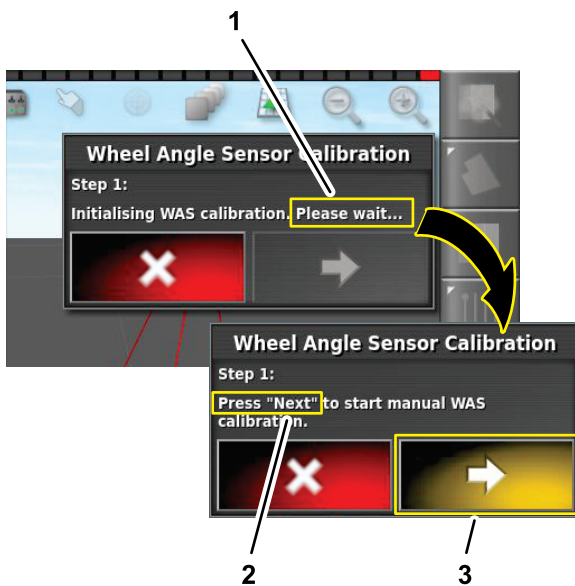


Figure 162

g303590

1. Initializing ... wait message
2. Step 1 press NEXT message
3. Next step icon

6. At step 2, fully turn the steering wheel to the left, stop, and press the next step icon (Figure 163).

Important: Verify that the wheel-angle sensor values change when the steer wheel turns.

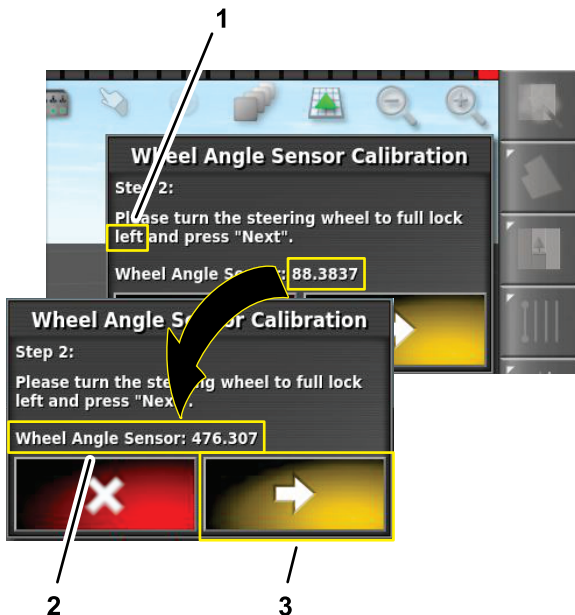


Figure 163

g303591

1. Step 2: turn the steering wheel left message
2. Wheel-angle sensor value
3. Next step icon

7. At step 3, fully turn the steering wheel to the right, stop, and press the next step icon (Figure 164).

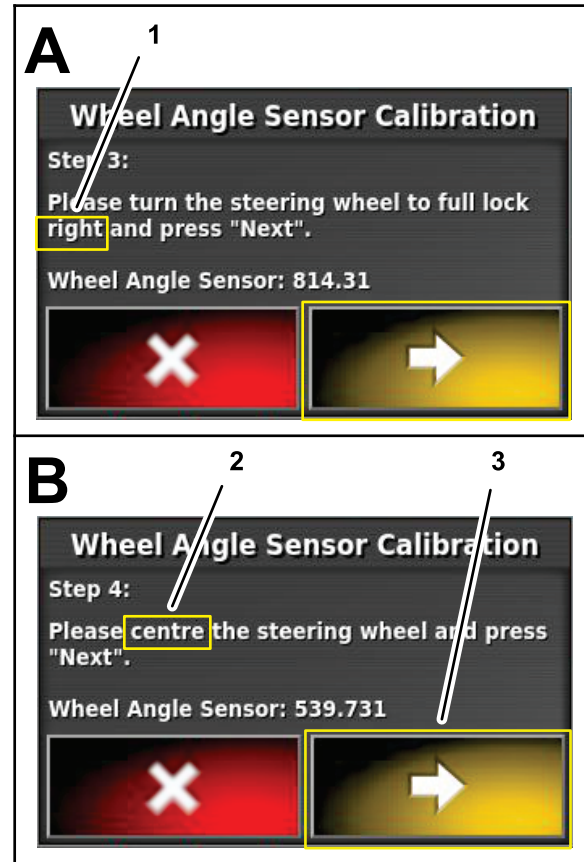


Figure 164

g303593

1. Step 3: turn the steering wheel right message
2. Step 4: turn the steering wheel to center message
3. Next step icon

8. At step 4, turn the steering wheel until the tires align straight ahead, stop, and press the next step icon (Figure 164).
9. At step 5, wait until the wheel angle sensor calibration saves data, and press the next step icon (Figure 165).

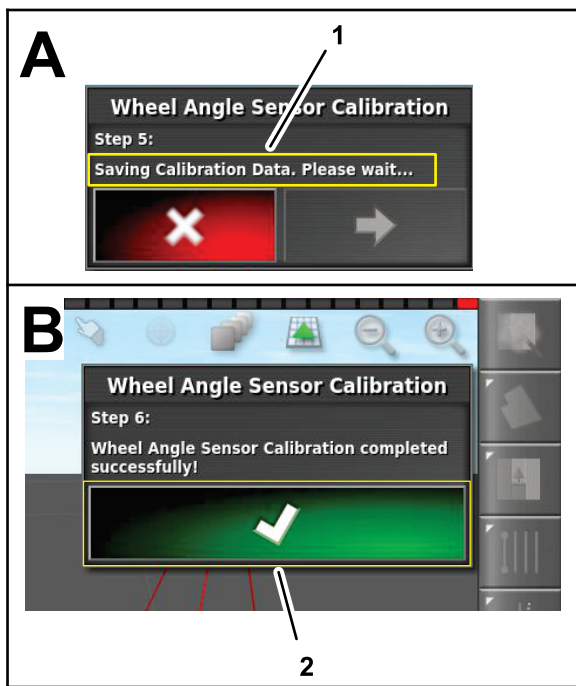


Figure 165

1. Step 5:saving calibration data message
2. Confirm icon

10. At step 6, press the conform icon (Figure 165).

Calibrating the Mounting Bias for Auto Steer

Use this procedure to calibrate the receiver position on your machine. Calibrate the satellite receiver mounting bias when it is first installed or if the satellite receiver is replaced.

Note: For this calibration, you need a flat open area to drive a straight line for 76 m (250 ft) or more.

1. Press the STEERING OPTIONS icon (Figure 166).
The steering options menu displays.

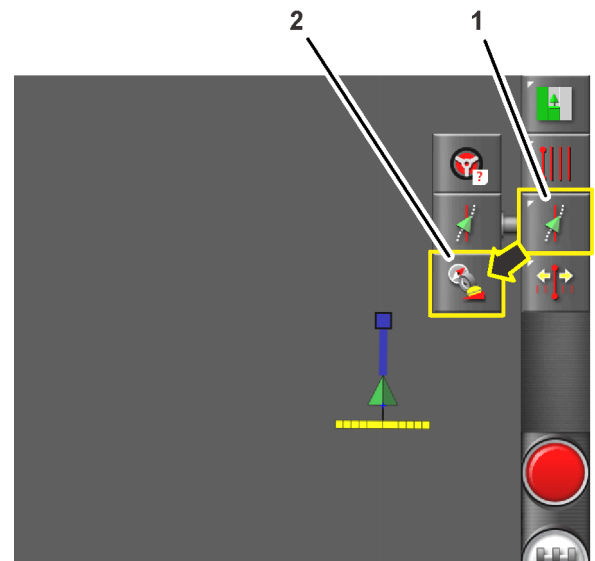


Figure 166

1. STEERING OPTIONS icon
2. AUTO STEER CALIBRATION icon

2. Press the STEERING CALIBRATION icon (Figure 166).

The steering calibration menu displays.

3. Press the MOUNTING BIAS icon (Figure 167).

The mounting bias calibration wizard displays.

Note: If the Mounting Bias icon indicates NOT REQUIRED, you do not need calibrate the mounting bias setting.

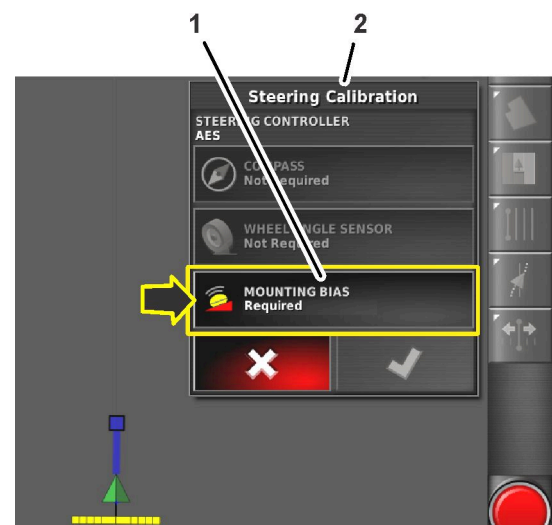


Figure 167

1. MOUNTING BIAS icon
2. Steering calibration menu

4. Drive the machine to the end of the open area, align it straight, and press the POSITION A icon.

Note: The point A symbol displays on the control console.

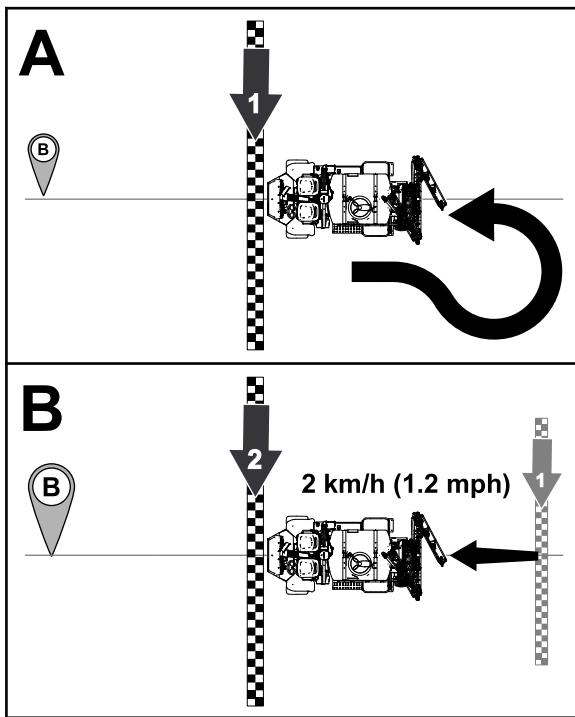



Figure 170

g314845

1. Engage the throttle lock of the machine
2. Press the Autosteer icon

7. Drive the machine toward point B and press the AUTO STEER icon .

Important: Allow the auto steer function to steer the machine.

8. Before reaching point B, set the ground speed for machine to 2 km/h (1.2 mph), and engage the throttle lock of the machine (Figure 170).

Note: Autosteer steers the machine between points B and A (Figure 171).

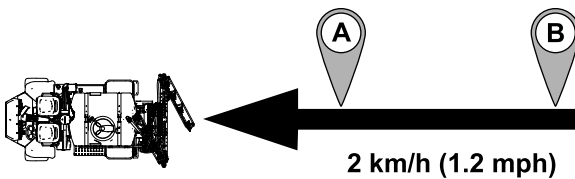


Figure 171

g314844

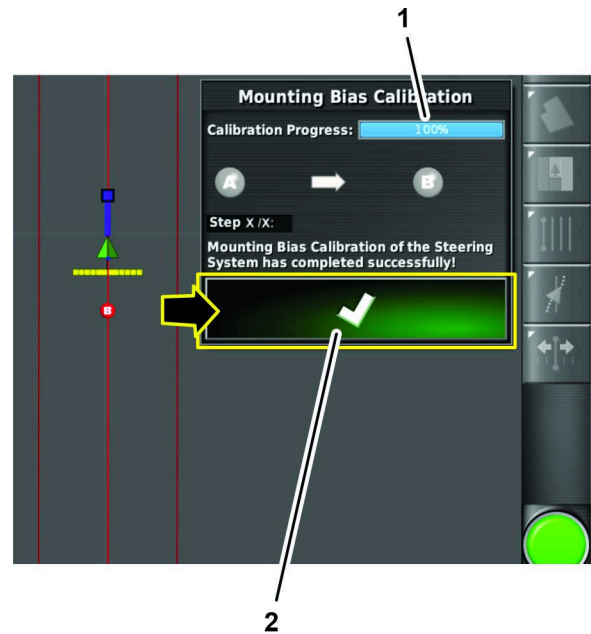


Figure 172

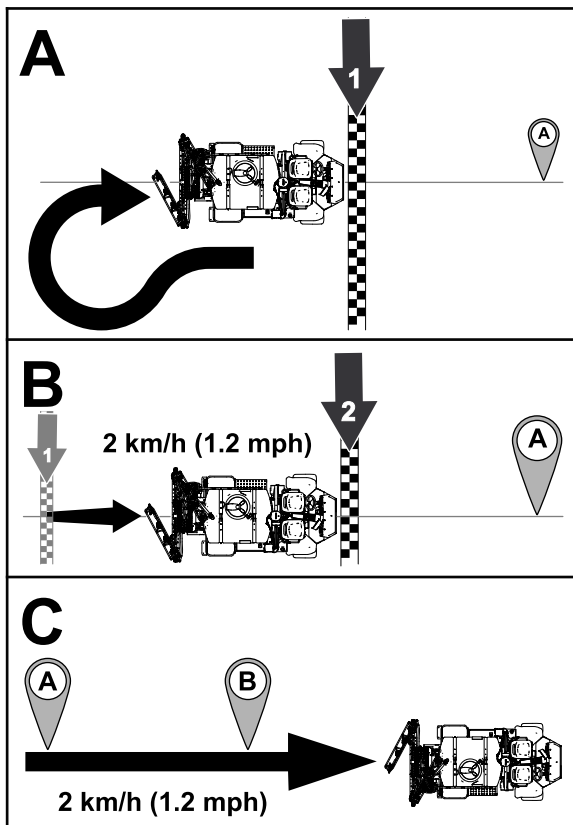
g314858

1. Mounting bias calibration progress (100%—complete)
2. Confirm icon

- Dialog boxes with additional steps to perform a point A to point B mounting bias calibration pass.

Note: If the system does not indicate 100% calibration progress after performing the point A to point B mounting bias calibration pass, contact the Toro technical assistance center.

9. Stop the machine.
10. The command console displays the following:
 - The dialog box indicating 100% calibration progress, press the confirm icon (Figure 172).



g314843

Figure 173

1. Press the Autosteer icon
2. Engage the throttle lock of the machine

26

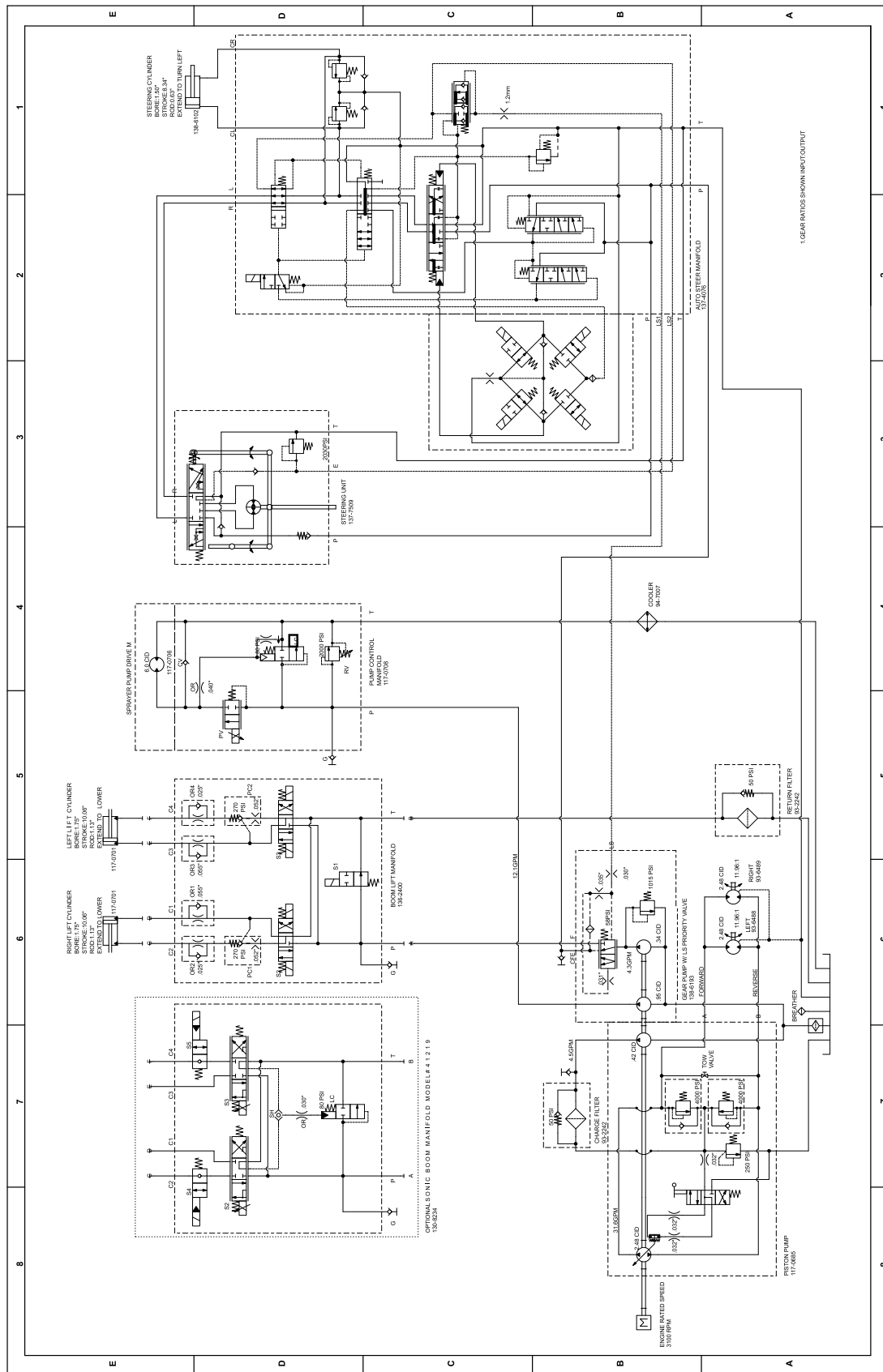
Checking the Hydraulic Fluid Level

No Parts Required

Procedure

Check the hydraulic fluid level. If the fluid level is low, add fluid to the hydraulic tank; refer to the *Operator's Manual* for the hydraulic fluid specification and checking procedure.

Schematics



Hydraulic Schematic 138-6255 (Rev. A)

g300521

Notes:

Notes:



The Toro Warranty

Two-Year or 1,500 Hours Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial product ("Product") to be free from defects in materials or workmanship for 2 years or 1,500 operational hours*, whichever occurs first. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with an hour meter.

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Commercial Products Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists. If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196

952-888-8801 or 800-952-2740
E-mail: commercial.warranty@toro.com

Owner Responsibilities

As the product owner, you are responsible for required maintenance and adjustments stated in your *Operator's Manual*. Repairs for product issues caused by failure to perform required maintenance and adjustments are not covered under this warranty.

Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This warranty does not cover the following:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, or modified non-Toro branded accessories and products.
- Product failures which result from failure to perform recommended maintenance and/or adjustments.
- Product failures which result from operating the Product in an abusive, negligent, or reckless manner.
- Parts consumed through use that are not defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, brake pads and linings, clutch linings, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, flow meters, and check valves.
- Failures caused by outside influence, including, but not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.
- Normal noise, vibration, wear and tear, and deterioration. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows.

Countries Other than the United States or Canada

Customers who have purchased Toro products exported from the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact your Authorized Toro Service Center.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part. Parts replaced under this warranty are covered for the duration of the original product warranty and become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use remanufactured parts for warranty repairs.

Deep Cycle and Lithium-Ion Battery Warranty

Deep cycle and Lithium-Ion batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Note: (Lithium-Ion battery only): Refer to the battery warranty for additional information.

Lifetime Crankshaft Warranty (ProStripe 02657 Model Only)

The ProStripe which is fitted with a genuine Toro Friction Disc and Crank-Safe Blade Brake Clutch (integrated Blade Brake Clutch (BBC) + Friction Disc assembly) as original equipment and used by the original purchaser in accordance with recommended operating and maintenance procedures, are covered by a Lifetime Warranty against engine crankshaft bending. Machines fitted with friction washers, Blade Brake Clutch (BBC) units and other such devices are not covered by the Lifetime Crankshaft Warranty.

Maintenance is at Owner's Expense

Engine tune-up, lubrication, cleaning and polishing, replacement of filters, coolant, and completing recommended maintenance are some of the normal services Toro products require that are at the owner's expense.

General Conditions

Repair by an Authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below, if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Note Regarding Emissions Warranty

The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the Engine Emission Control Warranty Statement supplied with your product or contained in the engine manufacturer's documentation.



Count on it.