



# Three-Wheel Drive Kit

Greensmaster® 3150

Model No. 04474

Form No. 3366-823 Rev A

## Installation Instructions

### Removing the Existing Wheel

1. Park the tractor on a level surface and set the parking brake. Turn the ignition key to Off to stop the engine. Remove the key.

#### **⚠ WARNING**

Accidental starting of the engine could seriously injure you or other bystanders.

Remove the key from the ignition switch before you do any maintenance.

2. Lift the rear of the traction unit and remove the tire assembly from the castor fork.
3. Remove the wheel hub assembly from the tire assembly. Retain the lug nuts.

### Modify the Castor Fork

**Note:** If the traction unit has a serial number prior to 269999999, the castor wheel fork must be modified. If the modification is required, a Drill Guide, Toro Part No. 112-0256-01 must be obtained from your local authorized Toro Distributor. If a modification is not required, proceed to Install Motor and Hub Assembly.

1. Mount the drill guide to the left side of the castor fork with (2) 5/16 x 3 in. bolts, (4) 3/8 x 7/8 washers and nuts. Position the components as shown in Figure 1.

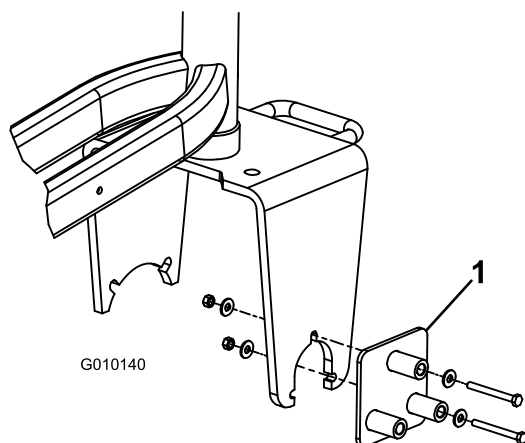


Figure 1

1. Drill guide

2. Using remaining hole in drill guide, enlarge hole in castor fork to 9/16 inch.

**Important:** It is highly recommended that a new or recently sharpened 9/16 inch drill bit be used. Proceed slowly when drilling. Do not use excessive force when drilling as jamming may occur.

3. Move the fasteners to the other holes in the drill guide and repeat the process until all (3) holes are enlarged.

### Installing the Motor and Hub Assembly

1. Remove the grease fitting from the new motor and hub assembly (Figure 2).
2. Mount the tire assembly to the motor and hub assembly with 4 lug nuts. Torque lug nuts to 70 to 90 ft-lb (95 to 122 N-m).
3. Re-install the grease fitting to the hub assembly, pointing it away from tire.
4. Insert flangettes and bearing onto end of motor shaft as shown in Figure 2.

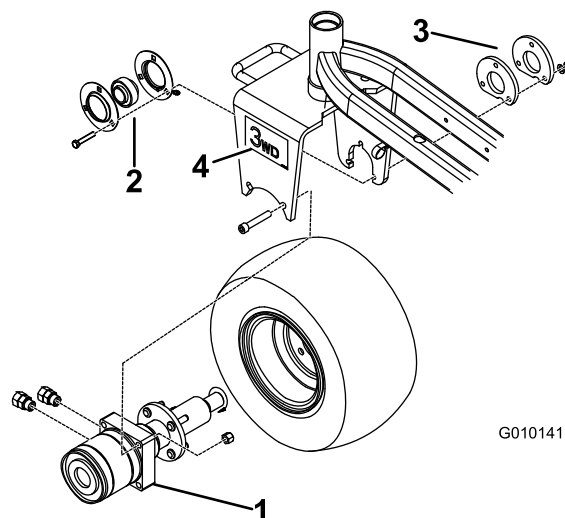


Figure 2

- |                           |                     |
|---------------------------|---------------------|
| 1. Motor and hub assembly | 3. Spacer mount (2) |
| 2. Flangettes w/bearing   | 4. Decal (2)        |

5. Mount the (2) straight fittings to the side of the motor assembly (Figure 2).

**Note:** Make sure all O-rings are lubricated and in position before installing fittings.

6. Position the motor hub, flanges with bearing, adapter plate and tire assembly into castor fork. Ensure that ports on motor face rearward (Figure 2).
7. Loosely secure motor to the inside of castor fork with (2) socket-head screws and (2) nuts (Figure 2).
8. Tighten motor screws to 100 ft-lbs (135 N-m).
9. Loosely assemble flanges with bearing to inside of castor fork with (3) new 3/8 x 2 inch screws, adapter plate, spacer mount, (3) 13/32 x 13/16 hardened washers and (3) 3/8 inch locknuts.

**Important:** Make sure no radial load is put on the motor shaft.

**Note:** The grease fitting must be in the downward position on the flange (Figure 2).

10. Tighten the flange screws to 40 ft-lbs (55 N-m).

**Note:** Failure to carefully follow the above assembly sequence may result in premature motor seal and bearing failure.

11. Apply a thread-locking adhesive (such as Loctite®) to bearing setscrews and torque to 80 to 100 in-lb (9 to 11 N-m).
12. Verify overrunning bearing operation: The tire should roll freely forward, but engage wheel motor when rolled backward.
13. Lower rear of traction unit to ground.
14. Grease all fittings with No. 2 general purpose lithium-based grease.
15. Apply a decal to each side of castor fork (Figure 2).

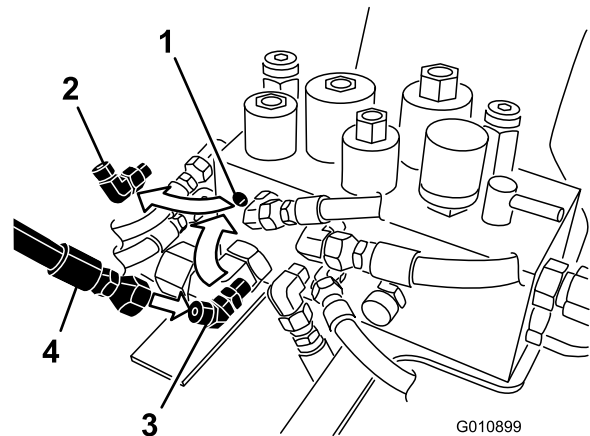
## Installing Hydraulic Components

1. Disconnect the negative cable and then positive cable from battery.
2. Drain all hydraulic oil from reservoir by removing the upper hose from pump (Figure 4). Re-connect hose after installing hydraulic hard line.

**Note:** The hydraulic system capacity is approximately 8.5 gallons (33 liters).

**Important:** Take care not to contaminate oil if you are going to reuse it. A very small amount of dirt or debris can severely damage hydraulic system.

3. Disconnect the hose from the 90 degree fitting at the L1B port on the hydraulic manifold (Figure 3). Note angle at which fitting is directed.



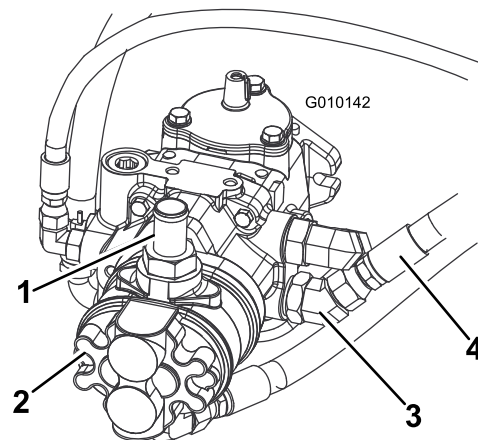
**Figure 3**

- |                                  |                      |
|----------------------------------|----------------------|
| 1. Hydraulic manifold (L1B port) | 3. 45 degree fitting |
| 2. 90 degree fitting             | 4. Hose              |

4. Remove the 90 degree fitting from the hydraulic manifold and replace it with the 45 degree fitting (Figure 3). Position the fitting at the approximate angle the previous fitting was installed.

**Note:** Make sure all O-rings are lubricated and in position before installing fitting.

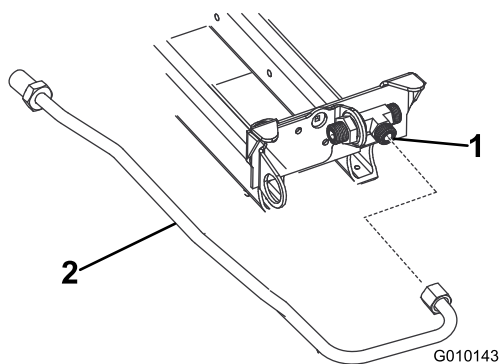
5. Connect the hose to the 45 degree fitting (Figure 3).
6. Remove and discard hose secured to 45 degree fitting on lower pump port and to tee fitting under seat base (Figure 4 and Figure 5).



**Figure 4**

- |               |                      |
|---------------|----------------------|
| 1. Upper hose | 3. 45 degree fitting |
| 2. Pump       | 4. Lower hose        |

7. Install hydraulic hard line to tee fitting under seat base. Position line as shown in Figure 5.

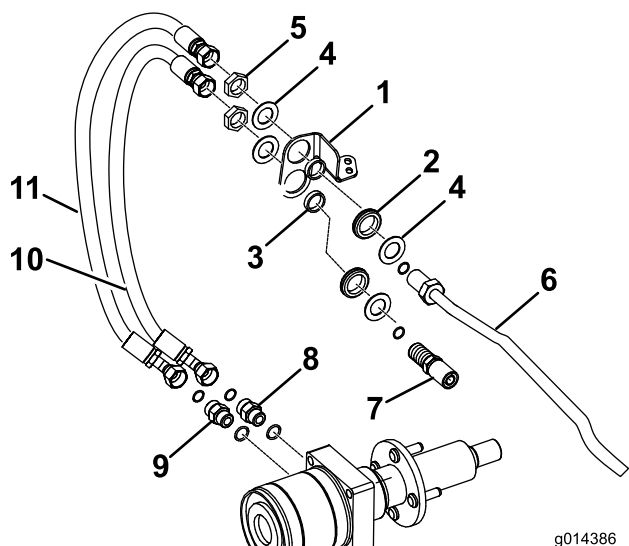


**Figure 5**

1. Tee fitting
2. Hydraulic hard line

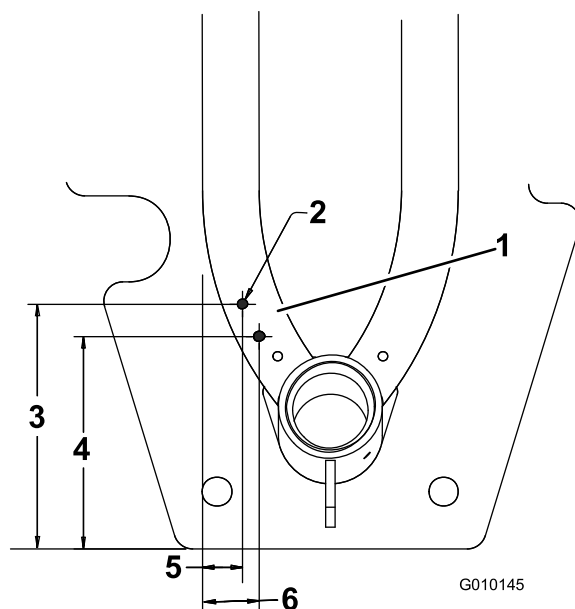
**Note:** Make sure all O-rings are lubricated and in position before installing fittings.

8. Install grommets and spacers to bulkhead bracket as shown in Figure 6.
9. Assemble bulkhead bracket to hydraulic hard line with nuts and washers, supplied in kit, as shown in Figure 6.



**Figure 6**

1. Bulkhead bracket
2. Grommet
3. Spacer
4. Washer
5. Nut
6. Hydraulic hard line
7. Hose
8. Upper motor fitting
9. Lower motor fitting
10. Hydraulic hose, short
11. Hydraulic hose, long



**Figure 7**

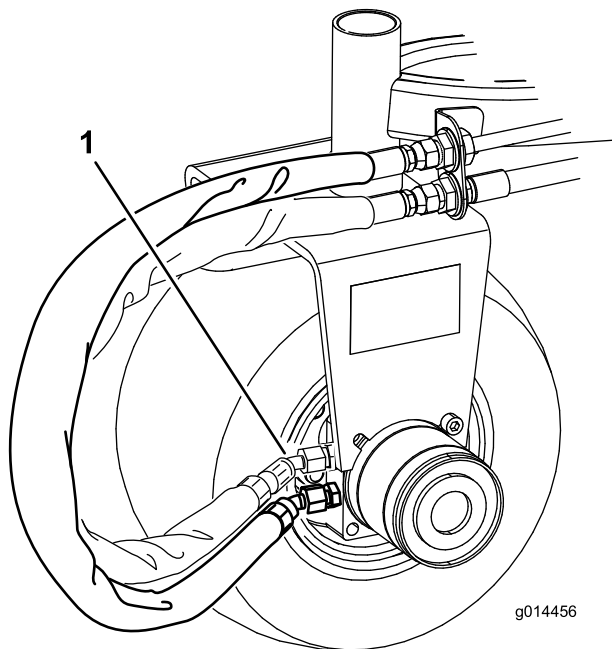
1. Bulkhead bracket holes
2. 0.281 diameter hole
3. 6.44 inch
4. 5.59 inch
5. 1.06 inch
6. 1.50 inch

**Note:** Figure 7 is shown as viewed from under machine.

11. Mount bulkhead bracket to frame with (2) hex-head thread-forming screws.
12. Loosely install the pump hose assembly with the 45 degree end to the fitting on the pump and to the lower hole in bulkhead bracket with a washer and a nut (Figure 6 & Figure 9).

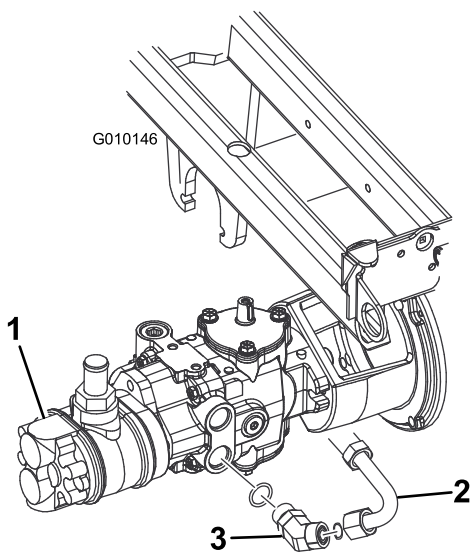
10. Using bulkhead bracket as a template and dimensions shown in Figure 7, locate, mark and drill (2) .281 inch diameter holes into frame tube. Dimensions shown in Figure 7 are for location reference of bracket.

**Note:** The bottom hose ends need to be mounted horizontally. Refer to Figure 8.



**Figure 8**

1. Bottom hose ends



**Figure 9**

1. Pump  
2. Pump hose assembly  
3. 45 degree fitting

13. Loosely install the long hydraulic hose to the pump hose assembly (lower bulkhead) and to upper wheel motor fitting (Figure 6).

14. Loosely install the short hydraulic hose to hydraulic hard line (upper bulkhead) and to bottom wheel motor fitting.

**Note:** The hoses must not contact tire or rim.

15. Tighten fittings. Use a backing wrench to ensure the hose does not twist.

16. Turn steering fork fully side to side to check for proper hose flex and position. With steering wheel in full right turn, it may be necessary to rotate rear hydrostat hose fitting slightly downward to gain clearance with rear wheel motor.

**Note:** The hoses should not rub on tire, rim, tanks, steering fork, or steering hoses. It may be necessary to rotate fuel shut off fitting (under fuel tank) slightly to avoid fuel filter touching three wheel drive hoses.

**Note:** The hydraulic lines must not be twisted, kinked, have sharp bends, or touch sharp edges, moving parts, or engine exhaust parts.

17. Tighten all fittings.

18. Fill and check hydraulic oil reservoir level.

19. Connect positive then negative battery cables to battery.

**Note:** Connect negative cable last.

20. Start engine and cycle the traction and lift cylinders to purge the air.

21. Check hydraulic oil level.

## Installing the Seat Belts

Install each end of seat belt (Figure 10) to holes in back of seat with screws (7/16–20 x 1 in.) and lock washers (7/16 inch). Tighten securely.

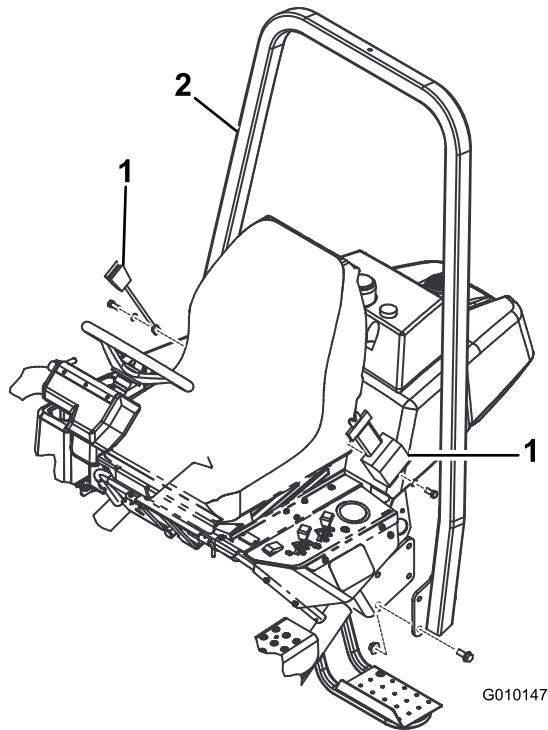
**Note:** Mount retractable side of belt to left side of seat.

**Note:** When operating machine, always use seat belt and ROPS together.

# Installing the Roll Over Protection System (ROPS)

1. Lower ROPS frame (Figure 10) onto mounting brackets, aligning mounting holes.
2. Secure each side of roll bar to mounting brackets with 8 screws (1/2-13 x 1.75 inch) and locknuts. Torque fasteners to 67 to 85 ft-lb (91 to 115 N-m).

**Note:** When operating the machine with the ROPS installed, always use seat belt. Do not wear the seat belt if the ROPS is not installed.

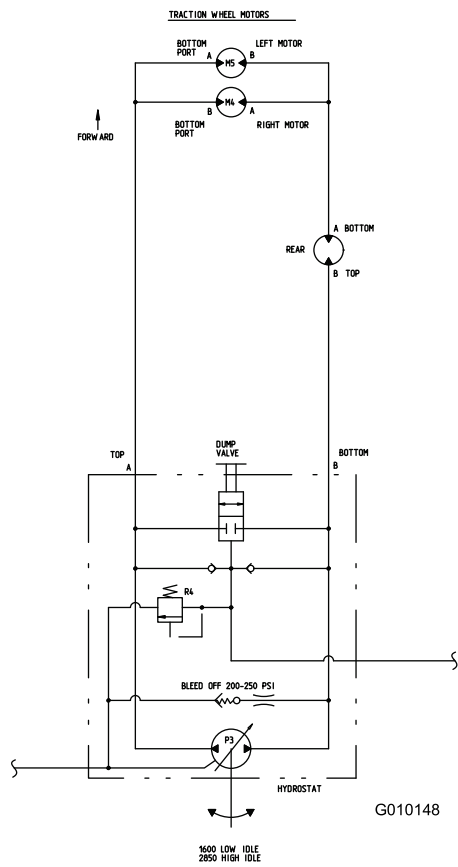


**Figure 10**

1. Seat belt

2. ROPS

# Schematics



Hydraulic Schematic (Rev. B)

**Notes:**



**Count on it.**