FORM NO. 3314–712

TORO

MODEL NO. 04422

INSTALLATION INSTRUCTIONS

VARIABLE TRACTION SPEED KIT

NOTE: These installation instructions cover the mounting procedures for both the Greensmaster 3100 and Greensmaster 3000 D. Different parts are required for each application. Refer to loose parts chart and installation instructions to identify different parts when installing kit. Retain unused parts for future applications.

LOOSE PARTS CHART

Note: Use this chart as a checklist to assure all parts necessary for assembly have been received. Without these parts, installation cannot be completed.

DESCRIPTION	QTY. GR3000D	QTY. GR3100	USE
Flow Control Valve	1	1	Install on left valve cover.
Capscrew 1/4–20 x 2–1/4” Locknut 1/4–20	2 2	2 2	Secure flow control valve to cover.
45° Adjustable Elbow	2	0	Install in ”IN” valve port and in pump.
Straight Fitting	0	1	Install in ”CF” valve port.
90° Adjustable Elbow	2	2	Install in ”EX” & ”CF” valve ports on GR 3000D. Install in ”EX” & “IN” valve ports on GR 3100.
Swivel Run Tee	1	1	Install in return manifold.
Hydraulic Hose–Return (#68–5790)	1	1	Connect to “EX” valve port & tee fitting in return manifold.
Hydraulic Hose–Flow Control (#68–5820)	1	1	Connect to “CF” valve port & main valve.
Hydraulic Hose–Pressure (#68–5800)	1	0	Connect to “IN” valve port & pump outlet port.
Hydraulic Hose–Pressure (#83–2270)	0	1	Connect to “IN” valve port & pump outlet port
Cable Tie	3	3	Tie hoses together.
Traction Control Decal (#74–3490)	1	0	Install on left valve cover.
Traction Control Decal (#83–2270)	0	1	Install on left valve cover.
Installation Instructions	1	1	
Parts Catalog	1	1	

REMOVE VALVE COVERS

Greensmaster 3000 D

1. To prevent electrical damage, disconnect battery ground cable from battery.

2. Remove screws securing left valve cover to frame.

3. Remove (4) bolts, washers and strap spacer securing hydraulic filter to valve cover and lift off cover. Discard the strap spacer.

4. To expose mounting holes in left cover, remove TORO decal.

5. Remove screws securing right valve cover to frame.

6. Remove knob from shift selector and lift right valve cover off. Tip seat up and secure it to steering column to prevent it from falling.

Greensmaster 3100

1. To prevent electrical damage, disconnect battery ground cable from battery.

2. Remove screws securing left valve cover to frame.

3. To expose mounting holes in left cover, remove (2) screws and nuts securing TORO logo plate and remove plate.

4. Remove screws securing right valve cover to frame. Lift right valve cover off.

5. Tip seat up and secure it to steering column to prevent it from falling.

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INSTALL VARIABLE TRACTION SPEED VALVE

Note: Oil O−rings before assembly. Be careful not to displace O−rings when connecting and tightening connections. Do not overtighten.

WARNING

Keep body and hands away from pin hole leaks or nozzles that eject high pressure hydraulic fluid. Use cardboard or paper to find hydraulic leaks. Hydraulic fluid escaping under pressure can penetrate skin and cause injury. Fluid accidentally injected into the skin must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

Greensmaster 3000D

1. Install a 45° fitting into "IN" port of valve. Point exposed end down and away from control spool at 45° (Fig. 1).

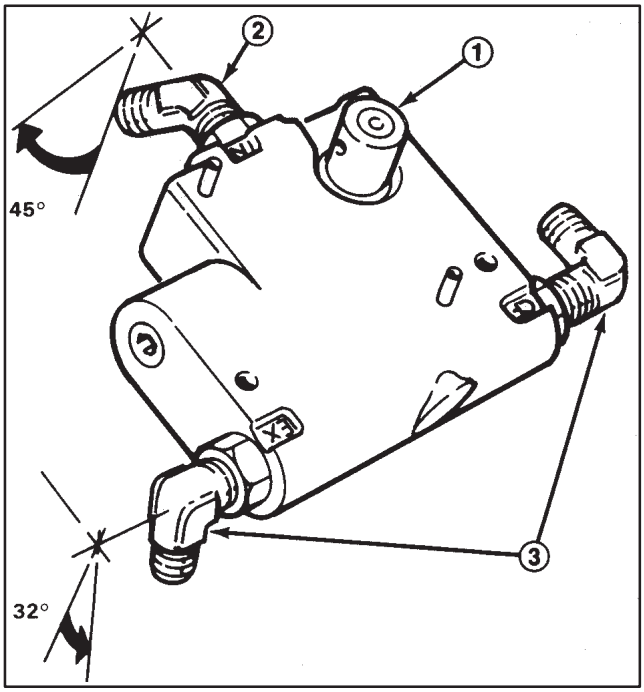


Figure 1

1. Control spool
2. 45° fitting
3. 90° fitting

2. Locate "CF" port and install a 90° fitting. Point fitting horizontal toward control spool (Fig. 1).

3. Locate "EX" port and install a 90° fitting. Point fitting downward away from control spool and approximately 32° off vertical axis of valve body (Fig. 1).

4. To ease access and keep oil spills off reel, detach center cutting unit ball joints and slide cutting unit, with motor and hoses installed, from under machine (do not bend or kink the hoses). Refer to Operator's Manual for removal instructions.

Note: Place a drain pan under unit. To avoid system contamination, clean hydraulic connections prior to disassembly. To avoid excess leakage during disassembly, use caplugs on hose ends and fittings.

5. Disconnect traction pressure hose between pump and main control valve at both ends and discard hose. Remove the straight hose adapter from pump and install a 45° adapter (Fig. 2).

6. Connect 45° end of hydraulic hose (Pressure) (#68−5800) to "IN" port of flow control valve and the opposite end to the pump outlet port (Fig. 2).

7. Connect hydraulic hose (#68−5820) (Flow Control) to "CF" port of flow control valve and the opposite end to the traction inlet fitting in the main control valve (Fig. 2).

8. On right end of main control valve, disconnect return hose for the No. 1 (center) cutting unit. Install tee fitting into return manifold and connect No. 1 cutting unit return hose to tee fitting (Fig. 2).

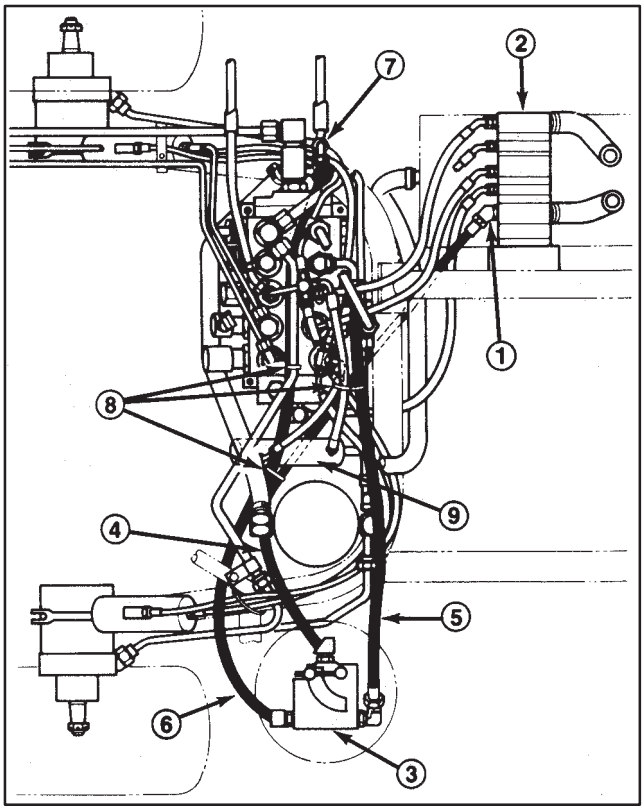


Figure 2

1. 45°adapter
2. Hydraulic pump
3. Control valve
4. Hydraulic pressure hose
5. Flow control hose
6. Hydraulic return hose
7. Tee fitting
8. Cable ties
9. No. 1 lift cylinder

9. Connect hydraulic hose (#68−5790) (Return) to "EX" port on flow control valve and opposite end to tee fitting in the return manifold (Fig. 2).

10. Insure all hoses are free of kinks and routed to avoid interference with seat and other components (Fig. 2).

11. Secure hydraulic hoses with a cable tie where they join together near the No. 1 cutting unit lift cylinder

(Fig. 2). At the left end of the main valve bank, use a cable tie to secure hydraulic hose to the hydraulic tube for the left hand traction motor (Fig. 2). At the left rear of the main valve bank, secure flow control hose to cylinder hose with a cable tie (Fig. 2).

Greensmaster 3100

1. Install a 90° fitting into "IN" port of valve. Fitting to be orientated parallel to side of valve body (Fig. 3).

2. Locate "CF" port and install a straight fitting (Fig. 3).

3. Locate "EX" port and install a 90° fitting.(Fig. 3). Fitting to be orientated parallel to side of valve body.

4. To ease access and keep oil spills off reel, detach center cutting unit ball joints and slide cutting unit, with motor and hoses installed, from under machine (do not bend or kink the hoses). Refer to Operator's Manual for removal instructions.

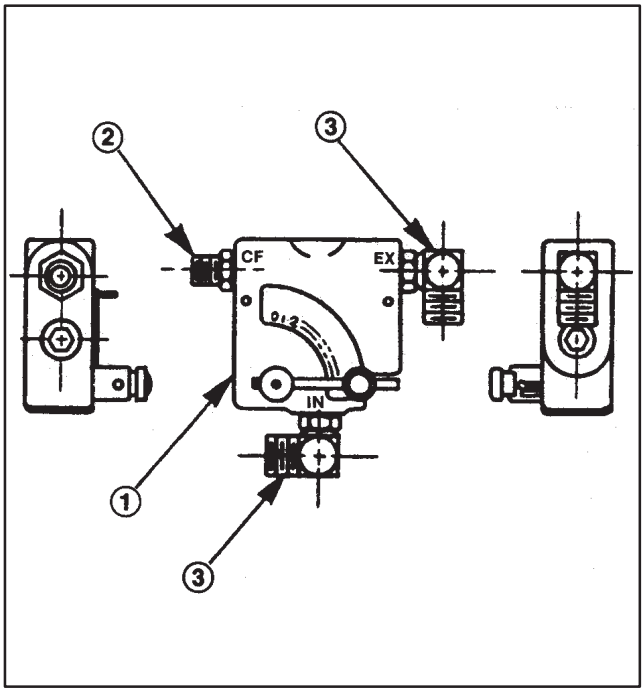


Figure 3

1. Control spool
2. Straight fitting
3. 90° fitting

IMPORTANT: Drain oil from hydraulic reservoir. Refer to Traction Unit Operator's Manual for draining instructions.

To avoid system contamination, clean hydraulic connections prior to disassembly. Place a drain pan under unit to catch any remaining oil in lines and install caplugs on hose ends and fittings when disassembling.

5. Disconnect traction pressure hose between pump and main control valve at both ends and discard hose. Rotate 45° fitting, on main control valve, 90°clockwise (Fig. 4).

6. Connect 90° end of hydraulic hose (#83−2270) (Pressure) to "IN" port of flow control valve and the opposite end to the pump outlet port (Fig. 4).

7. Connect hydraulic hose (#68−5820) (Flow Control) to "CF" port of flow control valve and the opposite end to the 45° fitting in the main control valve (Fig. 4).

8. On right end of main control valve, disconnect return hose for the No. 1 (center) cutting unit. Install tee fitting into return manifold and connect No. 1 cutting unit return hose to tee fitting (Fig. 4).

9. Connect hydraulic hose (#68−5790) (Return) to "EX" port on flow control valve and opposite end to tee fitting in the return manifold (Fig. 4).

10. Insure all hoses are free of kinks and routed to avoid interference with seat and other components (Fig. 4).

11. Secure hydraulic hoses with a cable tie where they join together near the No. 1 cutting unit lift cylinder (Fig. 4). At the left end of the main valve bank, use a cable tie to secure hydraulic hose to the hydraulic tube for the left hand traction motor (Fig. 4). At the left rear of the main valve bank, secure flow control hose to cylinder hose with a cable tie (Fig. 4).

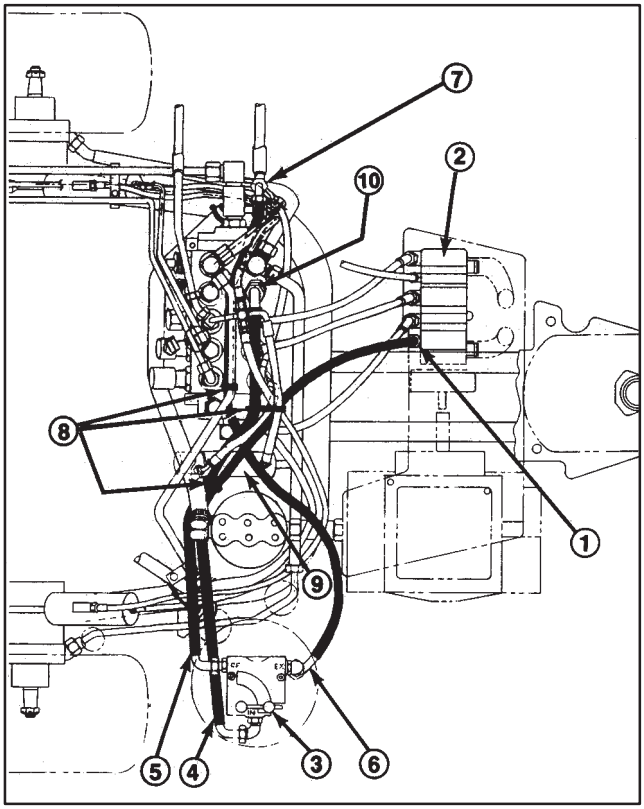


Figure 4

1. 90°fitting
2. Hydraulic pump
3. Control valve
4. Hydraulic pressure hose
5. Flow control hose
6. Hydraulic return hose
7. Tee fitting
8. Cable ties
9. No. 1 lift cylinder
10. 45°fitting

REASSEMBLE VALVE COVERS

Greensmaster 3000D

1. Re−install right valve cover and install shift lever knob.

2. Re−install hydraulic filter to left valve cover.

3. Using (2) capscrews and locknuts, attach variable traction speed valve to left valve cover and secure valve cover to frame (Fig. 5).

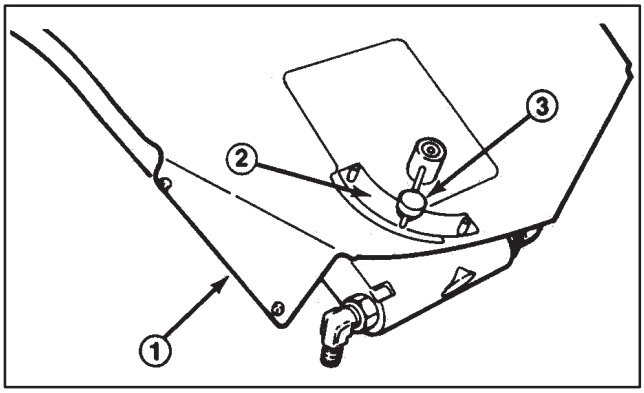


Figure 5

1. Left fender (Gr 3000 D)
2. Selection plate
3. Variable traction valve handle

4. Assemble selection plate decal to valve and cover and install handle on valve (Fig. 5). Lower the seat.

5. Re−install center cutting unit and check hydraulic oil level. Add oil, as necessary.

6. Re−connect battery cable, start engine, check for leaks and repair as necessary.

7. Check operation of variable traction speed kit. Determine desired ground speed. After desired ground speed has been determined, lock handle by rotating knob clockwise.

REASSEMBLE VALVE COVERS

Greensmaster 3100

1. Re−install right valve cover.

2. Using (2) capscrews and locknuts, attach variable traction speed valve to left valve cover and secure valve cover to frame (Fig. 6).

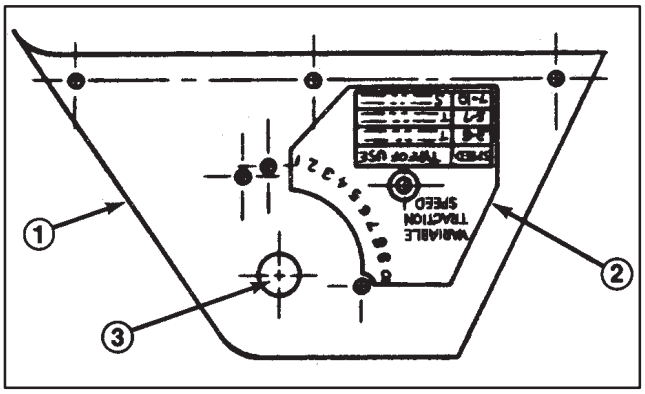


Figure 6

1. Left fender (Gr 3100)
2. Selection plate
3. Variable traction valve handle mounting hole

3. Assemble selection plate decal to valve and cover and install handle on valve (Fig. 6). Lower the seat.

4. Re−install center cutting unit and refill hydraulic reservoir and check operation of alarm system. Refer to Traction Unit Operator's Manual for Hydraulic oil specifications, filling procedure and alarm system checks.

5. Re−connect battery cable, start engine, check for leaks and repair as necessary.

6. Check operation of variable traction speed kit. Determine desired ground speed. After desired ground speed has been determined, lock handle by rotating knob clockwise.