FORM NO. 3313-454 Rev. A

TORO®

INSTALLATION INSTRUCTIONS

TWO LEVER WING LIFT VALVE KIT

(USE ON GROUNDSMASTER® 300'S WITH TRIFLEX 88 DECK)

The Two Lever Valve Kit includes the following parts:

PART	QTY.	PART	QTY.
Valve Assembly	1	Straight Fitting (9/16 SAE to 1/4 hose barb)	1
Cap Screw	7	90° Fitting (1/8 NPTF to 1/4 hose barb)	2
Lock Nut	7	(only one needed with nonpower steering units)	
Valve Mounting Plate	1	Coupling (1/8 NPTF to 1/8 NPTF)	1
Hose Assembly	6	Tie Back	5
Hose Bracket	1	Wing Lift Lever	2
Hose Clamp	4	Lever Knob	2
Female Quick Disconnect	2	Cotter Pin	4
Dust Plug	2	Clevis Pin	2
Male Quick Disconnect Nipple	1	"C" Hook	2
Dust Cap	1	Adapter (9/16 SAE to 11/16 ORFS)	1
Retaining Ring	3	Union (13/16 to 13/16 ORFS)	1
Cross Fitting	1	(for power steering units only)	

Certain information in this instruction sheet is emphasized. DANGER, WARNING and CAUTION identify personal safety-related information. IMPORTANT identifies mechanical information demanding special attention. Be sure to read this directive because it deals with the possibility of damaging a part or parts of the machine. NOTE identifies general information worthy of special attention.

INSTALLATION

INSTALLATION

The first step in properly installing the Two Lever Valve Kit is to determine if the traction unit is equipped with power steering (traction units with Model No's 30787 or 30788 on the Serial Number Tag have power steering). To do this, look for multiple hydraulic hoses leading up to the bottom of the steering tower (Fig. 1) and a hydraulic cylinder attached to the rear steering linkage (Fig. 2). If the cylinder and hoses are found the unit is equipped with power steering, go directly to the power steering section on page 5.

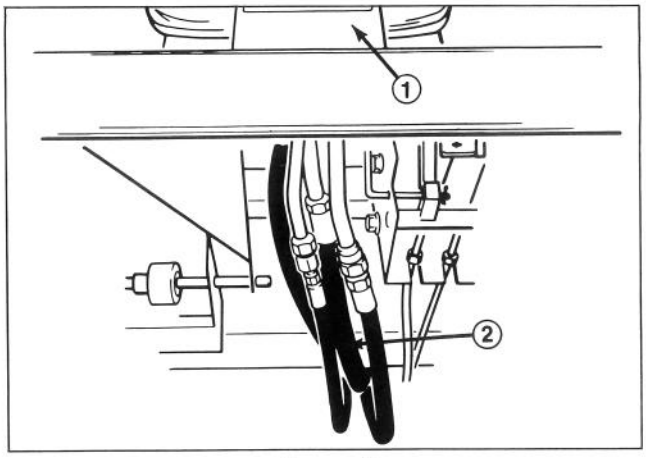


Figure 1

1. Steering tower 2. Power steering hydraulic hoses

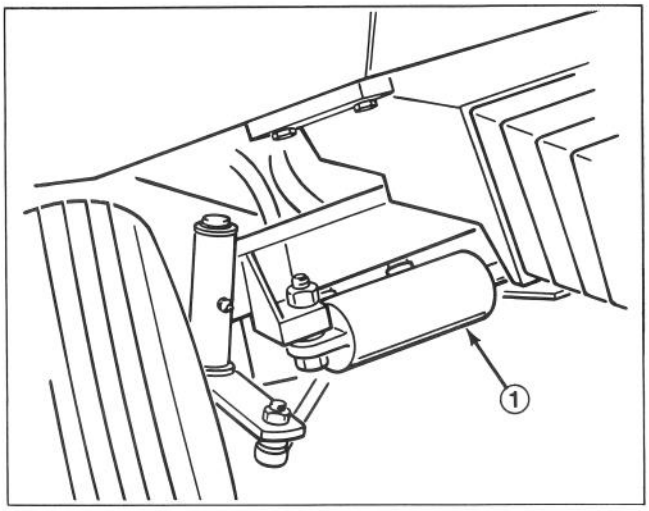


Figure 2

1. Power steering cylinder

If no hoses or steering linkage cylinder are evident, the unit does not have power steering and you must replace the main lift cylinder and lift arm (Install Retrofit Kit #66-1230) before installing the Two Lever Valve Kit.

Note: If your Groundsmaster does not have power steering, installation of the Two Lever Valve Kit also requires installation of the Retrofit Kit #66-1230.

Note: "Left" and "Right" refer to the left or right side of the unit as the operator would see it while sitting in the seat.

INSTALLATION ON GROUNDSMASTER WITHOUT POWER STEERING

Note: Installation is made easier by installing the hydraulic valve and hoses on the traction unit before the deck is attached.

1. Remove main deck lift valve knob and side cover (Fig. 3).

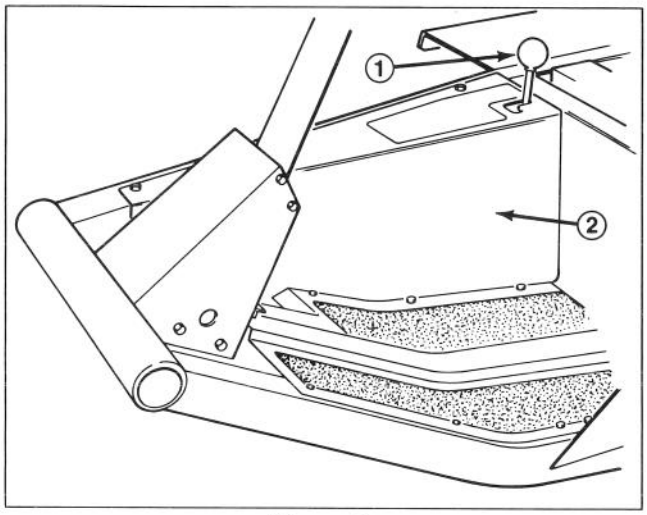


Figure 3

1. Main deck lift valve knob 2. Side cover

2. Cut out a 4-1/4 inch high by 1-1/2 inch wide section, from the back edge of the side cover to the lip of the flange, to provide an opening for the hydraulic hoses to pass through (Fig. 4). Debur this opening to remove sharp edges.

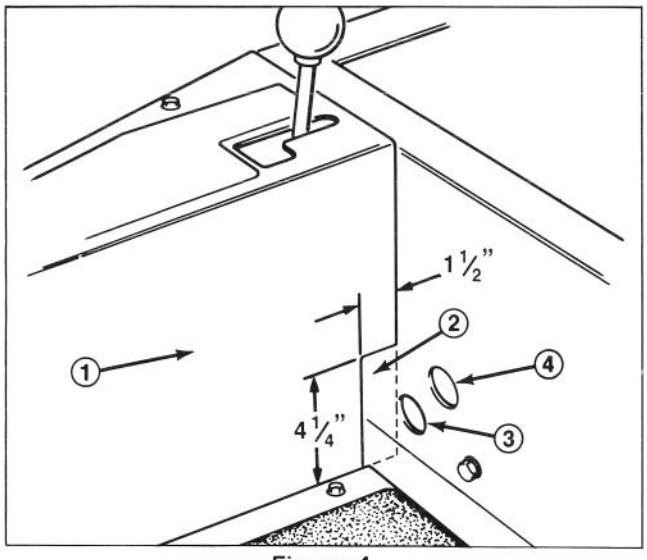


Figure 4

1. Side cover 2. Cut out section 3. Lower right hole 4. Upper left hole

3. Remove and discard the steel line running from the transmission to the main lift valve (Fig. 5).

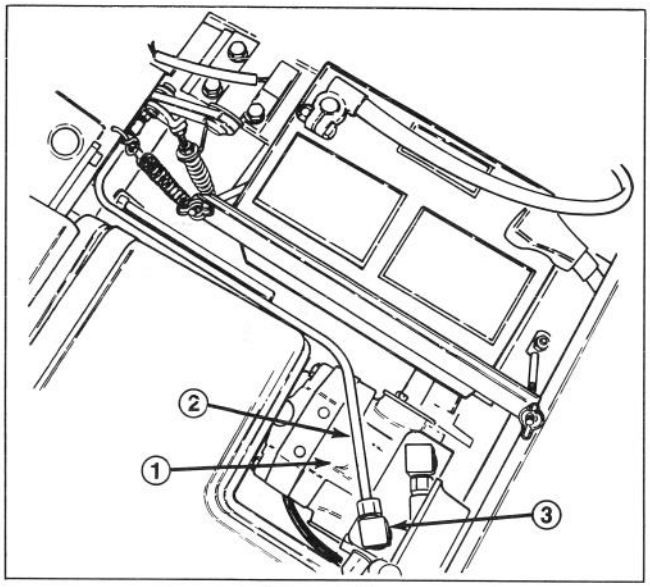


Figure 5

1. Transmission
2. Steel hydraulic line
3. 90° fitting

IMPORTANT: Check to see that the O-rings are in place just before installing O-Ring Face Seal (ORFS) fittings.

4. Replace the exposed fitting on the transmission with a 90° ORFS elbow (Fig. 6) (supplied in the Part No. 66-1230 Retrofit Kit). Do not tighten the fitting at this time. (Original fitting can be discarded.)

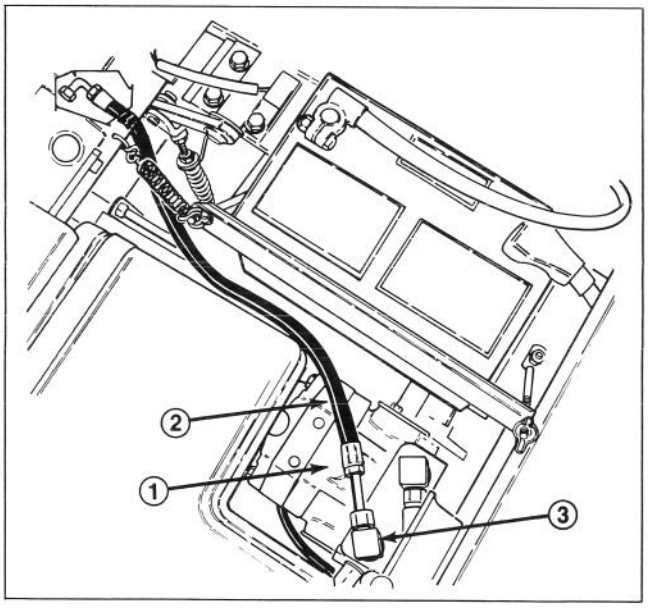


Figure 6

1. Transmission
2. New long 3/8" flexible line
3. 90° ORFS elbow

5. Replace the 90° elbow on the main deck lift valve with (9/16 SAE to 11/16 ORFS) adapter (Fig. 7). Tighten adapter and discard the old elbow.

Note: It may be necessary to loosen or remove the main deck lift valve in order to install the 90° elbow. When reinstalling the main deck lift valve, do not overtighten the fasteners.

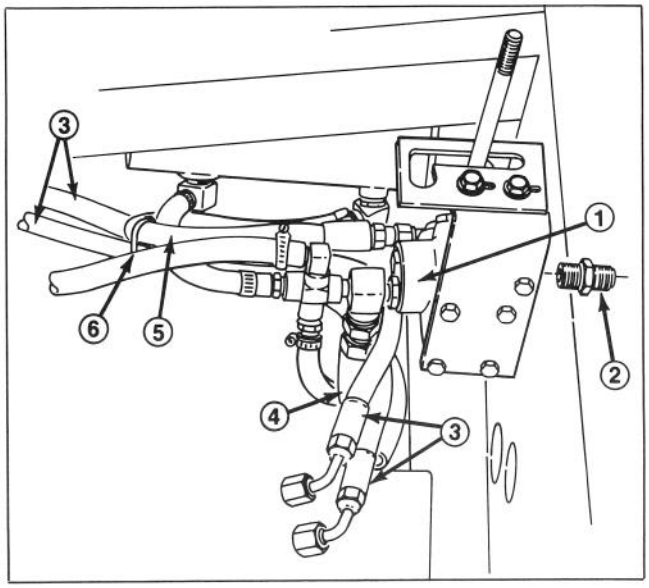


Figure 7

1. *Main deck lift valve*
2. *Replace 90° elbow with new 9/16 SAE to 11/16 ORFS adapter*
3. *New 1/4" flexible wing pressure lines (2)*
4. *Main return line*
5. *Main cylinder pressure line*
6. *Plastic tie*

6. Connect the straight fitting end of the new long 3/8" ID flexible hydraulic line to the newly installed ORFS fitting on the transmission (Fig. 6) (see step 4) and route it through the lower right hand hole in vertical frame plate (Fig. 4). (Wait to tighten fittings until hoses are connected.)

Note: Leave protective caps on loose ends of replacement hydraulic hoses until hoses are ready for installation.

Note: Install a knob on each wing lift lever, then install the two levers on the wing lift valve as shown in Fig. 8. Be sure that the "C hooks", cotter pin and clevis pin are installed in the proper direction (Fig. 8).

7. Connect the other end of the new long 3/8" ID flexible line from Step 6 to the bottom right fitting (port labeled "in") on the new two lever wing lift valve (Fig. 8). Do not tighten the fitting at this time.

Note: Orient the two lever valve in the approximate installed position to determine the proper orientation of the fittings.

8. Route the new short 3/8" ID flexible hydraulic line through the upper left hole in the vertical frame plate (Fig. 4). Connect either end of this line to the new ORFS adapter (see step 5) on the main deck lift valve (Fig. 7). Do not tighten the hose at this time.

9. Connect the other end of the new short hydraulic line from step 8 to the left side elbow (port labeled "PB") on the two lever wing lift valve (Fig. 8). Leave fittings loose on the valve.

10. Route the two new 1/4" flexible hydraulic lines behind the return line in Fig. 7.

11. Connect two hydraulic lines from step 10 to the two fittings (ports labeled "B" and "D") on the bottom rear of the two lever wing lift valve (Fig. 8). Do not tighten the fittings at this time.

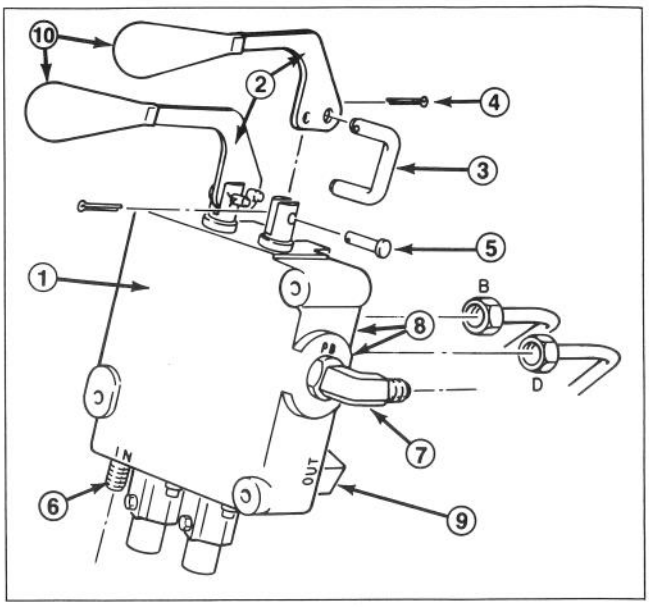


Figure 8

1. *Wing lift valve*
2. *Wing lift levers (2)*
3. *"C" hooks (2)*
4. *Cotter pins (4)*
5. *Clevis pins (2)*
6. *"IN" port*
7. *"PB" port*
8. *"B" and "D" ports*
9. *"OUT" ports*
10. *Knobs*

12. Remove bolts attaching right hand traction pedal bracket (Fig. 9). Position hydraulic line support plate under bracket. Replace and tighten bolts.

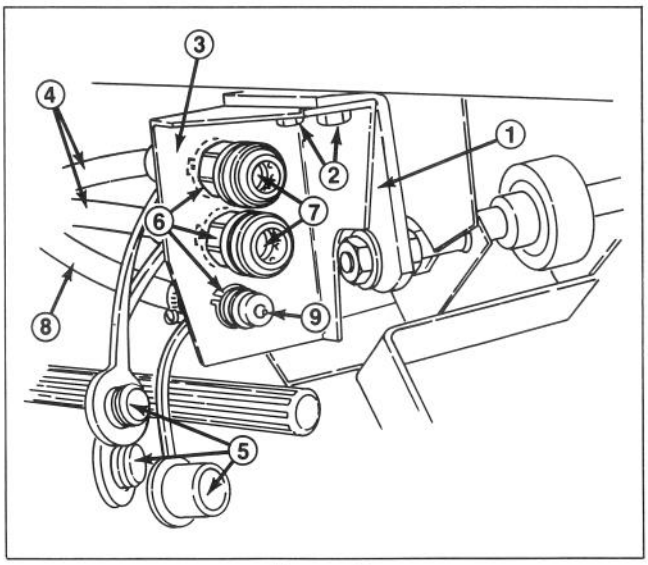


Figure 9

1. *Traction pedal bracket*
2. *Bolts (2)*
3. *Hydraulic line support plate*
4. *1/4" hydraulic press lines (2)*
5. *Dust covers (3)*
6. *Snap rings (3)*
7. *Female quick disconnects (2)*
8. *1/4" flexible hose*
9. *Male quick disconnect*

13. Route two 1/4" ID flexible hydraulic lines from step 11 up to the support plate and slide one end of a dust plug onto each line (Fig. 9).

14. Use a snap ring to secure one of the two female quick disconnects into the top hole on the hydraulic line support plate (Fig. 9).

15. Thread and tighten the 1/4" line from the right hand port "B" (see step 11) on the two lever valve into the top quick disconnect on the support plate by holding the line and turning disconnect.

16. Install the second female quick disconnect, snap ring and 1/4" line from port "B" (see Step 11) into the middle hole in the support plate. See steps 14 & 15 for procedure.

17. Install the longer (12 inch) new 1/4" ID flexible hose and male quick disconnect in the bottom hole of the mounting plate (Fig. 9) using the following procedure:

A. Slide dust cap over one end of hose.

B. Insert straight barbed hose stem into end of hose and secure with hose clamp.

C. Put quick disconnect nipple on threaded side of barbed hose stem and insert nipple through bottom hole on support plate (Fig. 9). Secure with snap ring. The other end will be connected later.

IMPORTANT: Male and female plugs, secured to the hydraulic hoses, should be connected together for storage during normal operation. Install the dust covers on both the male and female connectors whenever the deck is removed and/or hydraulic lines disconnected. Make sure the dust covers do not contact the P.T.O. shaft.

18. Wrap one of the plastic ties around the two wing pressure lines and the main cylinder pressure line (Fig. 7). Position the tie to keep the hydraulic lines from contacting the P.T.O. shaft.

Note: Two hydraulic pressure lines provide pressure to two single acting hydraulic cylinders to lift the wing sections on the deck. A single low pressure line provides a return for oil from the cylinders.

19. Disconnect the main deck lift cylinder return line from the lift valve barbed fitting (it may have to be cut to remove). Do not disconnect it from the lift cylinder. Remove and save the barbed fitting from the end of the main deck lift valve 90° elbow.

IMPORTANT: Toro recommends the use of a liquid or brush on type pipe thread sealant on all pipe thread fittings to prevent leakage.

20. Thread the original main lift valve barbed fitting into the end of the cross fitting (Fig. 10) and thread the male to male adapter plus cross fitting into the end of the main deck lift valve 90° fitting (Fig. 10).

Install a new 90° barbed fitting into the top port on the cross and a new straight barbed fitting (supplied with the Retrofit Kit) into the bottom port on the cross (Fig. 10). Tighten all these fittings.

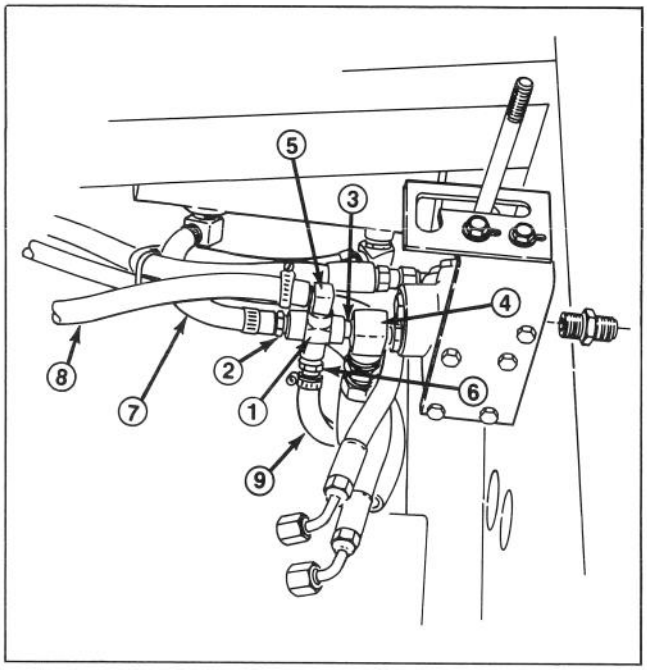


Figure 10

1. *Cross fitting*
2. *Original main cylinder barbed fitting*
3. *Male to male adapter*
4. *Main deck lift valve 90° fitting*
5. *New 90° barbed fitting*
6. *New straight barbed fitting*
7. *Main cylinder return line*
8. *Wing cylinders return line*
9. *10 1/2" x 1/4" hydraulic hose*

21. Connect the return line from the main lift cylinder to the center barbed fitting of the assembled cross (Fig. 10). Connect the return line from the wing cylinders to the top 90° barbed fitting on the cross.

Note: Secure all return lines to barbed fittings with the hose clamps supplied.

22. Connect the shorter (10.5 inch) 1/4 inch ID hydraulic hose to bottom of two lever wing lift valve port labled "out" (Fig. 8). Route and connect the other end to the straight barbed fitting on the bottom of the cross (Fig. 10).

23. Hold the two lever wing lift valve in the approximate installed position and tighten the hydraulic fittings at the two lever valve, main lift valve and transmission.

24. Use the two lock nuts and capscrews to secure the new two lever wing lift valve to the mounting plate (Fig. 11).

25. Reinstall the cover plate and lift knob on the traction unit.

26. Use the two lever valve mounting bracket as a template to drill five 9/32 inch holes in traction unit (Fig. 11).

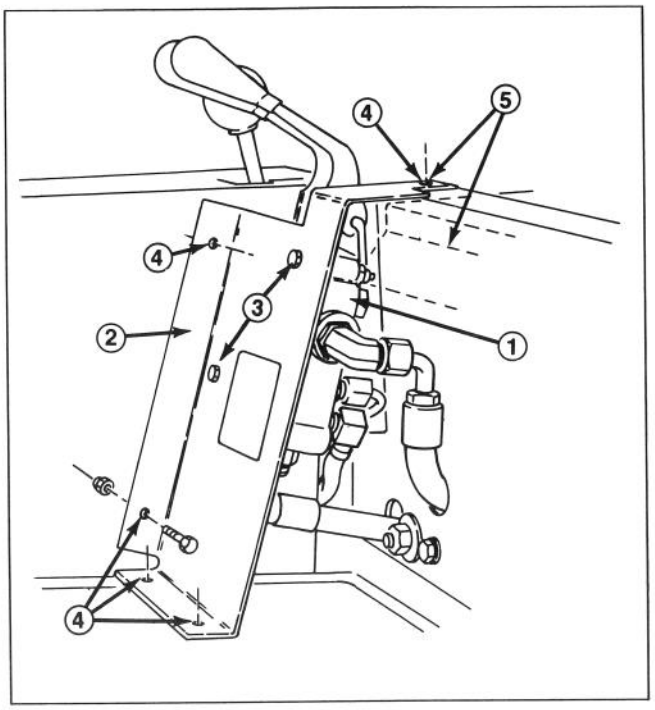


Figure 11

1. *Wing lift valve*
2. *Mounting plate*
3. *Cap screws & locknuts (2)*
4. *9/32 mounting holes (5)*
5. *Danger when drilling top hole — hidden fuel tank*

DANGER

Put metal plate under future position of top hole, while drilling, to prevent drill bit from accidentally puncturing fuel tank. Refer to Fig. 11.

IMPORTANT: Do not overtighten bolts securing two lever valve to mounting plate or valve body could be distorted.

27. Secure the new valve and mounting plate to the machine.

28. Once the deck is attached to the lift arms, connect the hydraulic lines on the deck using the quick disconnects. Attach pressure lines so that the right handle on the hydraulic valve assembly lifts the right hand wing section and the left handle lifts the left wing section.

WARNING

With the engine running hydraulic fluid is under pressure. Connect or disconnect hydraulic lines only with the engine turned off and the wing units down.

IMPORTANT: Raise and lower the wing sections several times and check for leaks. Do not use your hands to check for leaks. With wings lowered, check reservoir level at the differential.

INSTALLATION ON GROUNDSMASTERS WITH POWER STEERING

Note: Installation is made easier by installing the hydraulic valve and hoses on the traction unit before the deck is attached.

Retrofit Kit — Part No. 66-1230 is not needed in order to install the 88 inch Tri Flex Deck on traction units equipped with power steering. (Model No's 30787 and 30788).

1. Remove main deck lift valve knob and side cover (Fig. 3).

2. Cut out a 4 1/4 by 1 1/2 inch high section, from the back edge of the cover plate to the lip of the flange, to provide an opening for the hydraulic hoses to pass through (Fig. 4). Debur this opening to remove sharp edges.

3. Disconnect the flexible 1/2" ID hydraulic line that runs from the power steering tower to the main deck lift valve at the 90° lift valve elbow (do not disconnect the line at the power steering tower). Reroute this line alongside of the high pressure line that runs from the transmission to the power steering tower.

4. Using the male to male ORFS coupler, connect the straight fitting end of the new long 3/8" ID flexible line to the end of the line that was disconnected in step 3 (Fig. 12). Route this line through the lower right hand hole in the vertical frame plate (Fig. 4). Do not tighten the coupler fittings at this time.

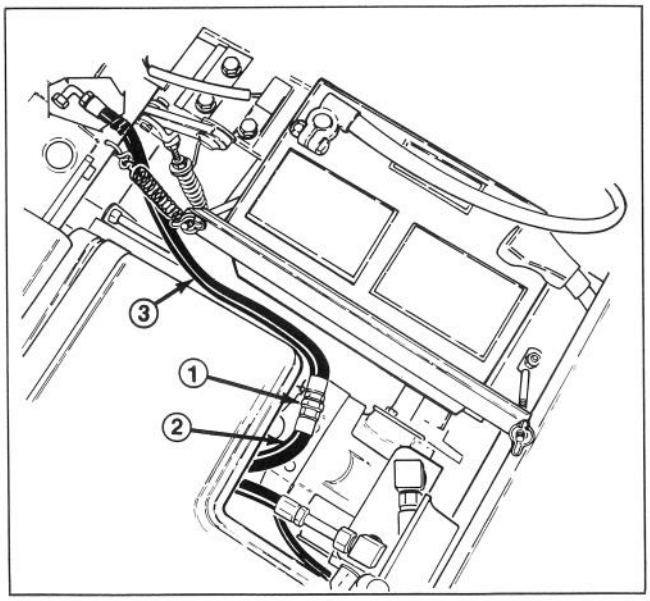


Figure 12

1. *Male to male ORFS coupler*
2. *New long 3/8" flexible line*
3. *1/2" flexible line from power steering tower*

Note: Leave protective caps on loose ends of hydraulic hoses until hoses are ready for installation.

Note: Install the two levers on the wing lift valve (supplied with the Triflex deck) as shown in Fig. 8. Be sure that the "C hooks", cotter pin and clevis pin are installed in the proper direction (Fig. 8).

5. Connect the other end of the new long 3/8" ID flexible line from step 4 to the bottom right fitting (labeled "in") on the new two lever wing lift valve. Do not tighten the fitting at this time.

Note: Orient the two lever valve in the approximate installed position to determine the proper orientation of the fittings.

6. Replace the 90° elbow on the main deck lift valve with the new 9/16 SAE to 11/16 ORFS adapter (Fig. 13). Tighten this new adapter and discard the old elbow.

Note: It may be necessary to loosen or remove the main deck lift valve in order to install the 90° elbow. When reinstalling the main deck lift valve, do not overtighten the fasteners.

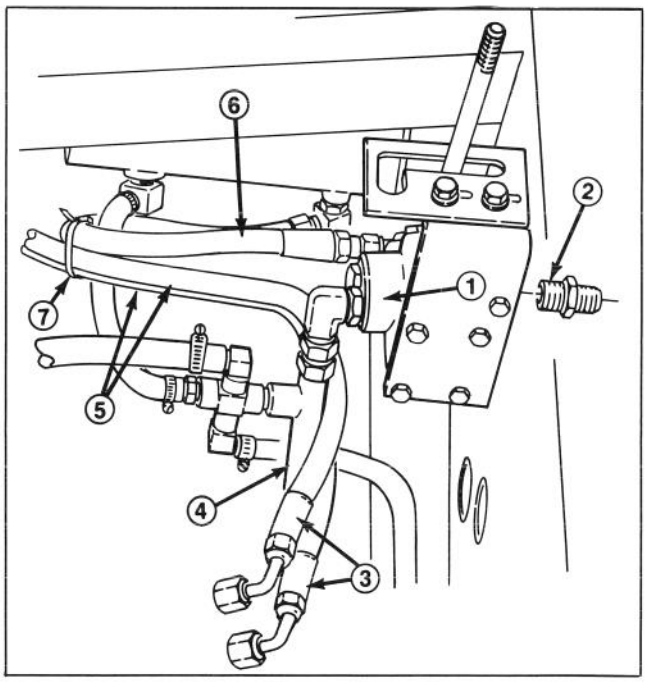


Figure 13

1. *Main deck lift valve*
2. *Replace 90° elbow with new 9/16 SAE to 11/16 ORFS adapter*
3. *New 1/4" flexible lines (2)*
4. *Main hydraulic return steel manifold*
5. *Wing pressure lines (2)*
6. *Main deck cylinder pressure line*
7. *Plastic tie*

7. Route the new short 3/8" ID hydraulic line through the upper left hole in the vertical frame plate (Fig. 4). Connect either end of this line to the new ORFS adapter (see step 6) on the main deck lift valve (Fig. 13). Do not tighten the hose at this time.

8. Connect the other end of the new short 3/8" hydraulic line from step 7 to the left side elbow (labeled "PB") on the two lever wing lift valve (Fig. 8). Do not tighten the fitting at this time.

9. Route the two new 1/4" flexible hydraulic lines behind the main return steel manifold in Fig. 13.

10. Connect two hydraulic lines from step 9 to the two fittings (ports labeled "B" and "D") on the bottom rear of the two lever wing lift valve (Fig. 8). Do not tighten the fittings at this time.

11. Remove bolts attaching right hand traction pedal bracket (Fig. 9). Position hydraulic line support plate under bracket. Replace and tighten bolts.

12. Route two 1/4" ID flexible hydraulic lines from step 10 up to the support plate and slide one end of a dust plug onto each line (Fig. 9).

13. Use a snap ring to secure one of the two female quick disconnects into the top hole on the hydraulic line support plate (Fig. 9).

14. Thread and tighten the 1/4" line from the right hand port "B" on the two lever valve into the top female quick disconnect on the support plate by holding the line and turning the disconnect (Fig. 9).

15. Install the second female quick disconnect, snap ring and 1/4" line from port "B" (see Step 10) into the middle hole in the support plate. See steps 13 & 14 for procedure.

16. Install the longer (12 inch) new 1/4" ID flexible hose and male quick disconnect in the bottom hole of the mounting plate using the following procedure:

A. Slide dust cap over one end of hose.

B. Insert straight barbed hose stem into end of hose and secure with hose clamp.

C. Put quick disconnect nipple on threaded side of barbed hose stem and insert nipple through bottom hole on support plate (Fig. 9). Secure with snap ring. The other end will be connected later.

IMPORTANT: Male and female plugs, secured to the hydraulic hoses, should be connected together for storage during normal operation. Install the plugs on both the male and female connectors whenever the deck is removed and/or hydraulic lines disconnected. Make sure the dust covers do not contact the PTO shaft.

17. Wrap one of the plastic ties around the two wing pressure lines and the cylinder pressure line (Fig. 13). Position the tie to keep the hydraulic lines from contacting the P.T.O. shaft.

Note: Two hydraulic pressure lines provide pressure to two single acting hydraulic cylinders to lift the wing sections on the deck. A single low pressure line provides a return for oil from the cylinders.

18. Disconnect the main deck lift cylinder return line

from the main deck lift valve manifold stub barbed fitting. Remove and save the barbed fitting.

IMPORTANT: Toro recommends the use of a liquid or brush on type pipe thread sealant on all pipe thread fittings to prevent leakage.

19. Thread the original main lift valve barbed fitting into the end of the cross fitting (Fig. 14) and thread the male to male adapter plus cross into the end of the main deck lift valve manifold stub (Fig. 14).

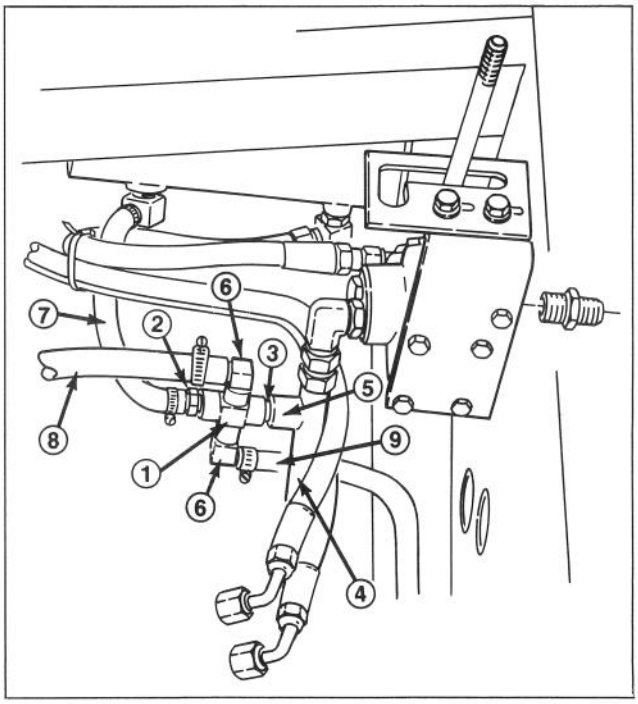


Figure 14

1. *Cross fitting*
2. *Original main cylinder barbed fitting*
3. *Male to male adapter*
4. *Main hydraulic return steel manifold*
5. *Manifold stub*
6. *New 90° barbed fittings (2)*
7. *Main cylinder return line*
8. *Wing cylinders return line*
9. *10 1/2" x 1/4 hydraulic hose*

Install a new 90° barbed fitting into the top port on the cross and a new 90° barbed fitting into the bottom port on the cross (Fig. 14). Tighten all these fittings.

20. Connect the return line from the main deck lift cylinder to the center barbed fitting of the assembled cross (Fig. 14). Connect the return line from the wing cylinders to the top 90° barbed fitting on the cross (Fig. 14).

Note: Secure all return lines to barbed fillings with the hose clamps supplied.

Note: The main deck lift cylinder return line will need to be shortened before it is connected to the center barbed fitting.

21. Connect the shorter (10.5 inch) 1/4 inch ID hydraulic hose to bottom of two lever wing lift valve (port labeled "out") (Fig. 8). Route and connect the other end to the 90° elbow barbed fitting on the bottom of the cross (Fig. 14).

22. Hold the two lever wing lift valve in the approximate installed position and tighten the hydraulic fittings at the two lever valve the main deck lift valve and the coupler in the power steering line.

23. Use the two lock nuts and capscrews to secure the new "two lever" wing lift valve to the mounting plate (Fig. 11).

24. Use the two lever valve mounting bracket as a template to drill five 9/32 inch holes in traction unit (Fig. 11).

DANGER

Put metal plate under future position of top hole, while drilling, to prevent drill bit from accidentally puncturing fuel tank. Refer to Fig. 11.

IMPORTANT: Do not overtighten bolts securing two lever valve to mounting plate or valve body could be distorted.

25. Reinstall the cover plate and lift knob on the traction unit.

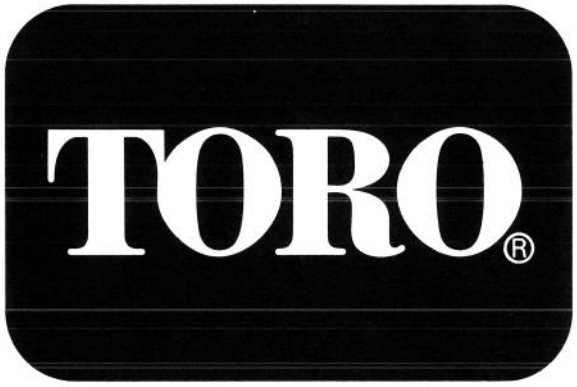
26. Secure the new valve and mounting plate to the machine.

27. Once the deck is attached to the lift arms, connect the hydraulic lines on the deck using the quick disconnects. Attach pressure lines so that the right handle on the hydraulic valve assembly lifts the right hand wing section and the left handle lifts the left wing section.

WARNING

With the engine running hydraulic fluid is under pressure. Connect or disconnect hydraulic lines only with the engine turned off and the wing units down.

IMPORTANT: Raise and lower the wing sections several times and check for leaks. Do not use your hands to check for leaks. With wings lowered, check reservoir level at differential.


TORO®