



INSTRUCTION BULLETIN

No. 340368
Machine: ATLV 4300
Published: 11-99/00
System: CHASSIS

NOTE: DO NOT DISCARD the Parts List from the Instruction Bulletin. Place the Parts List in the appropriate place in your machine manual for future reference. Retaining the Parts List will make it easier to reorder individual parts and will save you the cost of ordering an entire kit.

NOTE: Numbers in parenthesis () are reference numbers for parts listed in Bill of Materials.

Installation instructions for kit number 368422

SYNOPSIS / PROBLEM:

This kit contains the parts needed to replace the steering cylinder and linkage group kit on the model ATLV 4300 Litter Vacuum.

Please follow step-by-step instructions.

SPECIAL TOOLS / CONSIDERATIONS: NONE

(Estimated time to complete: 2 hours)

HYDRAULIC PRINCIPLES:

1. Cleanliness is extremely important when working with hydraulic components. Work in a clean, dust-free area. Dirt or foreign material in hydraulic systems can impair operation and damage equipment.
2. Before disconnecting hydraulic hoses or fittings, thoroughly clean outside of hydraulic component to prevent dirt from entering system.
3. Mark hydraulic hoses and record locations for proper installation.
4. Cap disconnected hoses or open ports to keep dirt out of system.
5. Discard any hydraulic fluid drained from system. Use only new, approved hydraulic fluid to replenish hydraulic reservoir.
6. Flush hose and fittings at pressure port of hydraulic component with air, solvent or hydraulic fluid to help avoid contamination.

PREPARATION:

(Refer to FIG. 1 and 2 on p. 8 and 9)

FOR SAFETY: Before leaving or servicing machine, stop on level surface and set parking brake. Then turn off machine and remove key.

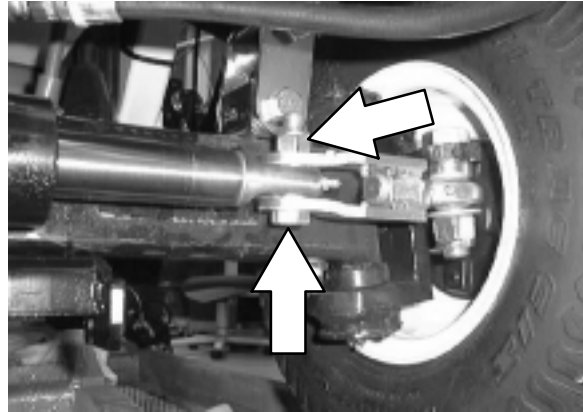
1. Jack up the front of the machine at the indicated jack points. Install jack stands under the machine frame.

FOR SAFETY: When servicing machine, jack machine up at designated locations only. Block machine up with jack stands.

INSTALLATION OF CYLINDER #373401

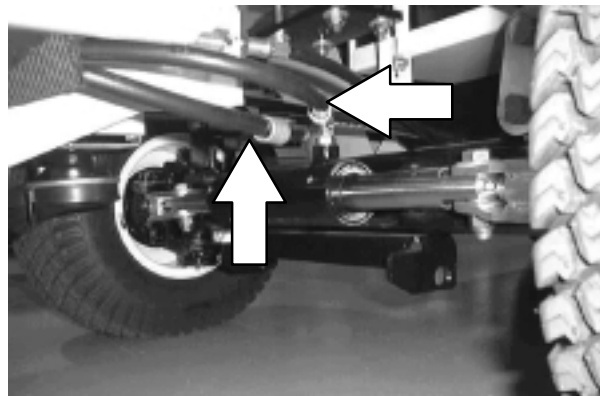
(Refer to FIG. 1 and 2 on p. 8 and 9)

1. Remove and discard the .50" hex screws and nyloc nuts from the clevises and cylinder ends. Pull the clevis off the cylinder. **Make sure to retain the steel spacers (2 per end) in the end of the cylinder.**

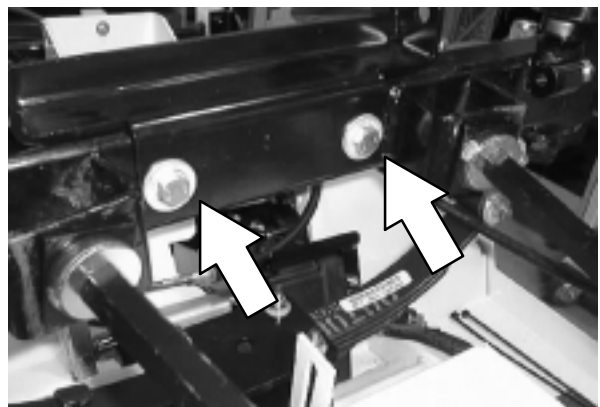


2. Mark, disconnect, and plug the two hydraulic hoses leading to the steering cylinder.

NOTE: Observe hydraulic cleanliness requirements when opening hydraulic lines.

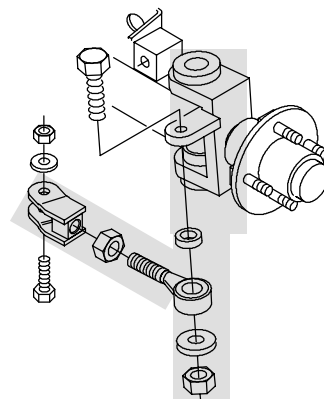


3. Remove the two M12 hex screws holding the steering cylinder to the front axle. **Make sure to retain the two tube spacers inside the axle and vacuum head mount plate (if equipped).**
(Refer to FIG. 1, p. 8)

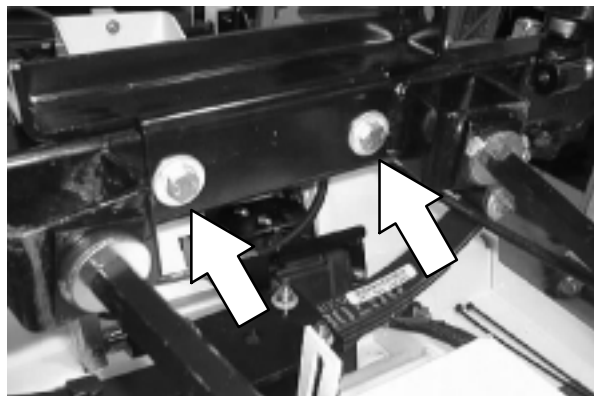


4. Remove the sleeves from the old steering cylinder and install in the new cylinder in the same orientation.
(Refer to FIG. 1, p. 8)

5. **Check the rod ends. If the new Rod End Kit #368359 has not been installed on the machine, install the new rod end kit.**

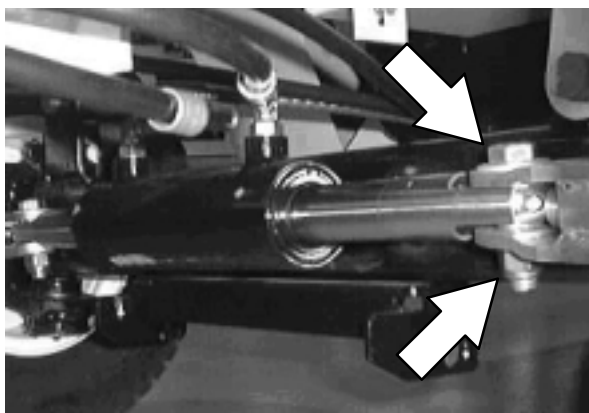


6. Position the new steering cylinder (1) onto the front of the front axle. Reinstall the two tube spacers, vacuum head mount plate (if equipped), and two hex screws. Tighten to 64-83 Nm (47-61 ft. lb.) (Refer to FIG. 1, p. 8)

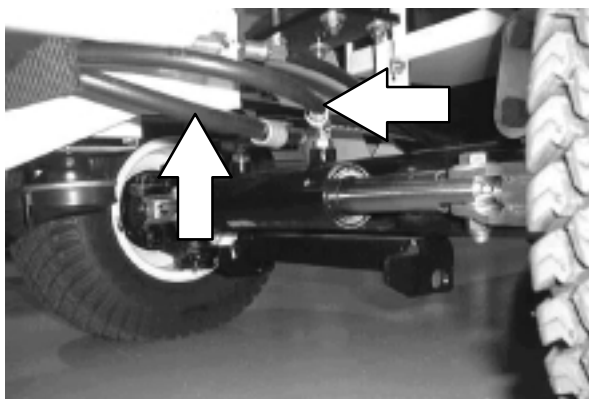


7. Grab the front tires and move inward until the ball end clevis mount hole lines up with the end of the new steering cylinder. Make sure the steel spacers are in place at the end of the cylinder.

8. Connect the ends of the new cylinder (1) to the clevis with new screws (2), washers (3), and lock nuts (4). Tighten to 90-120 Nm (65-85 ft. lbs.) (Refer to FIG. 1, p. 8)



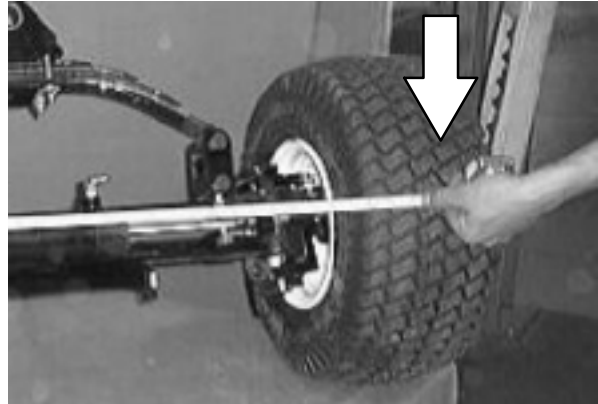
9. Reconnect the hydraulic hoses to the new steering cylinder.



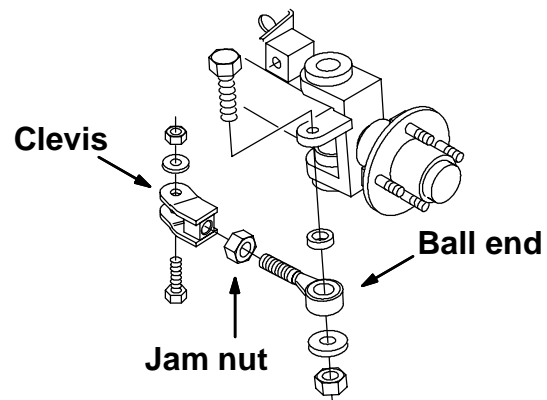
TO ALIGN FRONT TIRES

FOR SAFETY: Before Leaving Or Servicing Machine;
Stop On Level Surface, Set Parking Brake, turn off
machine, and remove key.

1. Use a tape measure to check the alignment of the front tires. The rear of the front tires should be 1/16" to 3/16" farther apart than the front of the front tires ("toe-in" condition).
2. If an adjustment is needed--go under the machine on either side and locate the clevis at each end of the steering cylinder.

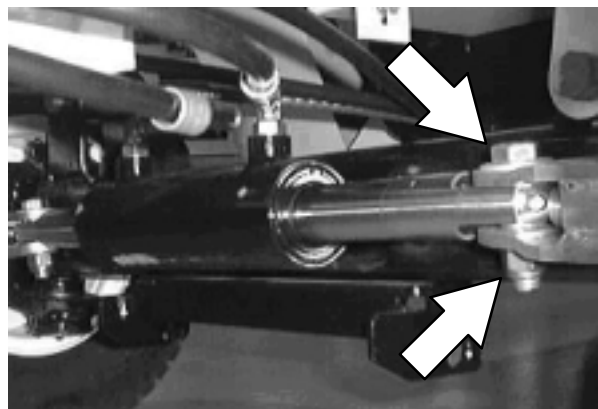


3. Loosen the jam nut where the ball end is attached to the cylinder clevis.
4. Remove the .50" hex screw and nyloc nut from the clevis and cylinder end. Pull the clevis off the cylinder. **Make sure to retain the steel spacers (2 per end) in the end of the cylinder.**
5. Three full turns of the clevis on the rod end equals 1/2" travel. Make adjustments to both sides equally (*this will keep piston travel of the steering cylinder centered on the axle*).



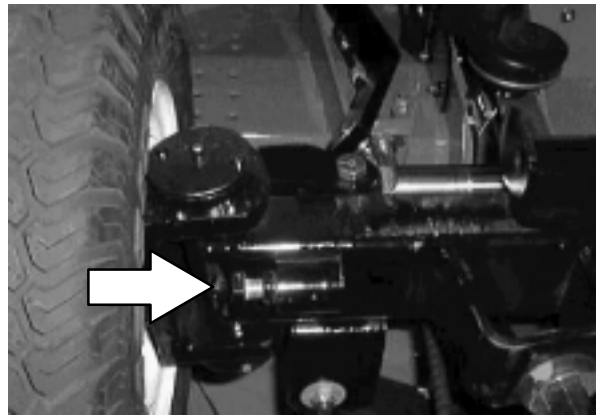
NOTE: There should be approximately 3/8" of thread sticking through the block on the clevis.

6. Reinstall the clevis onto the end of the cylinder. Reinstall the hardware and tighten to 90 - 117 Nm (65 - 85 ft. lb).
7. Tighten the jam nut where the ball joint is attached to the clevis.
8. Drive the machine forward with the steering wheel pointed straight ahead.
9. Re-check the tire alignment. Re-adjust if necessary.

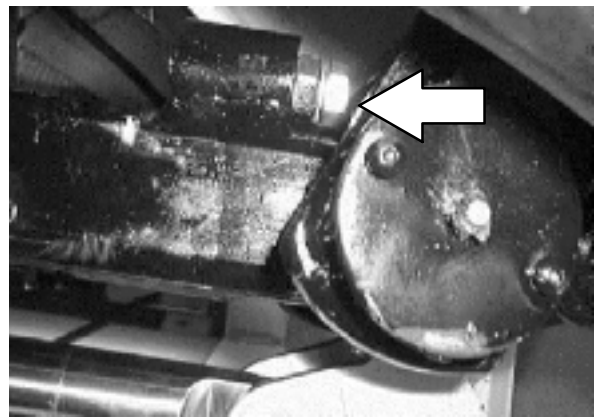


TO SET TURNING RADIUS STOPS

1. While the machine is still raised on jack stands, turn the steering wheel all the way in one direction.
2. Go under the machine and locate the steering stop bolts on each end of the axle assembly on the back side.



3. The wheel axle casting should NOT BE touching the stop bolt. There should be .030" clearance between the head of the stop bolt and the edge of the wheel axle casting.



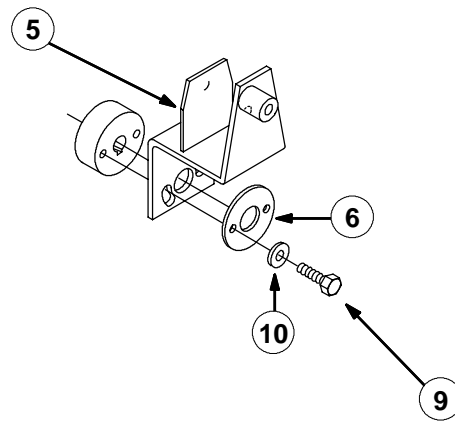
4. If an adjustment needs to be made, loosen the jam nut on the stop bolt and turn in or out. Hold the bolt from turning and re-tighten the jam nut.
5. Turn the steering wheel all the way the other direction and repeat steps 12 and 13.
6. Remove the jack stands and lower the machine.

HYDRAULIC LINKAGE INSTALLATION:

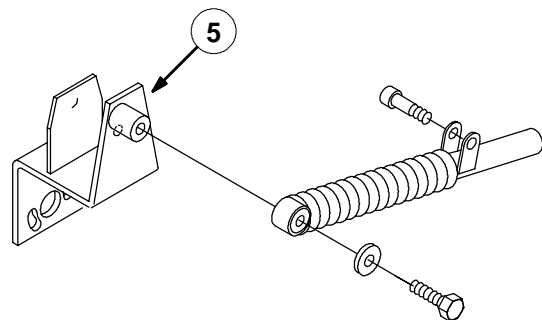
1. Jack up the rear of the machine at the indicated jack points until the rear tires are off the ground.
Install jack stands under the machine frame.

**FOR SAFETY: When servicing machine, jack machine up at designated locations only.
Block machine up with jack stands.**

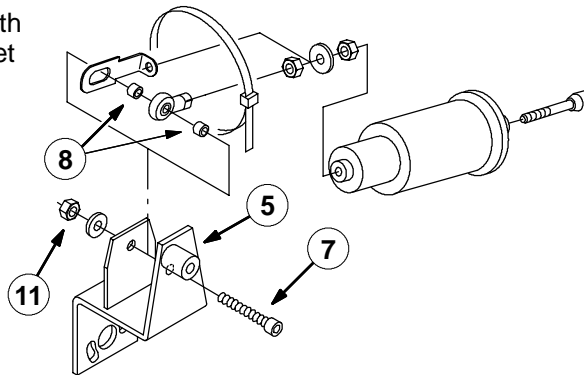
2. Remove and set aside the left side louver panel to access the hydraulic pump.
3. Disconnect the rod end and bracket from the inside of the propel lever plate. Discard the mounting hardware.
4. Disconnect the shock absorber from the outside of the propel lever plate. Set the mounting hardware aside.
5. Remove the propel lever plate from the hydraulic pump. Discard the mounting hardware.
6. Mount the new propel lever plate (5) to the hydraulic pump with new spacer washer (6), hex screws (9), and belleville washers (10). Screws (9) will be torqued after adjusting to remove creep. (Refer to FIG. 2, p.9)



7. Mount the shock absorber to the new propel lever plate (5) with set aside hardware.
(Refer to FIG. 2, p.9)



8. Mount the rod end and bracket assembly with new spacers (8), inside the new propel lever plate (5), with new socket screw (7) and nut (11). Torque the socket screw (7) to 19–25 ft lbs. (Refer to FIG. 2, p.9)



9. Replace the left side louver panel with set aside hardware.
10. Start the machine engine and check for creep.
Adjust the propel lever plate until creep is removed.
Torque hex screws (9) to 19.6–25.2 Nm
(14–18 ft. lbs.) (Refer to FIG. 2, p.9)
11. Turn off machine, and remove the machine from the jack stands.

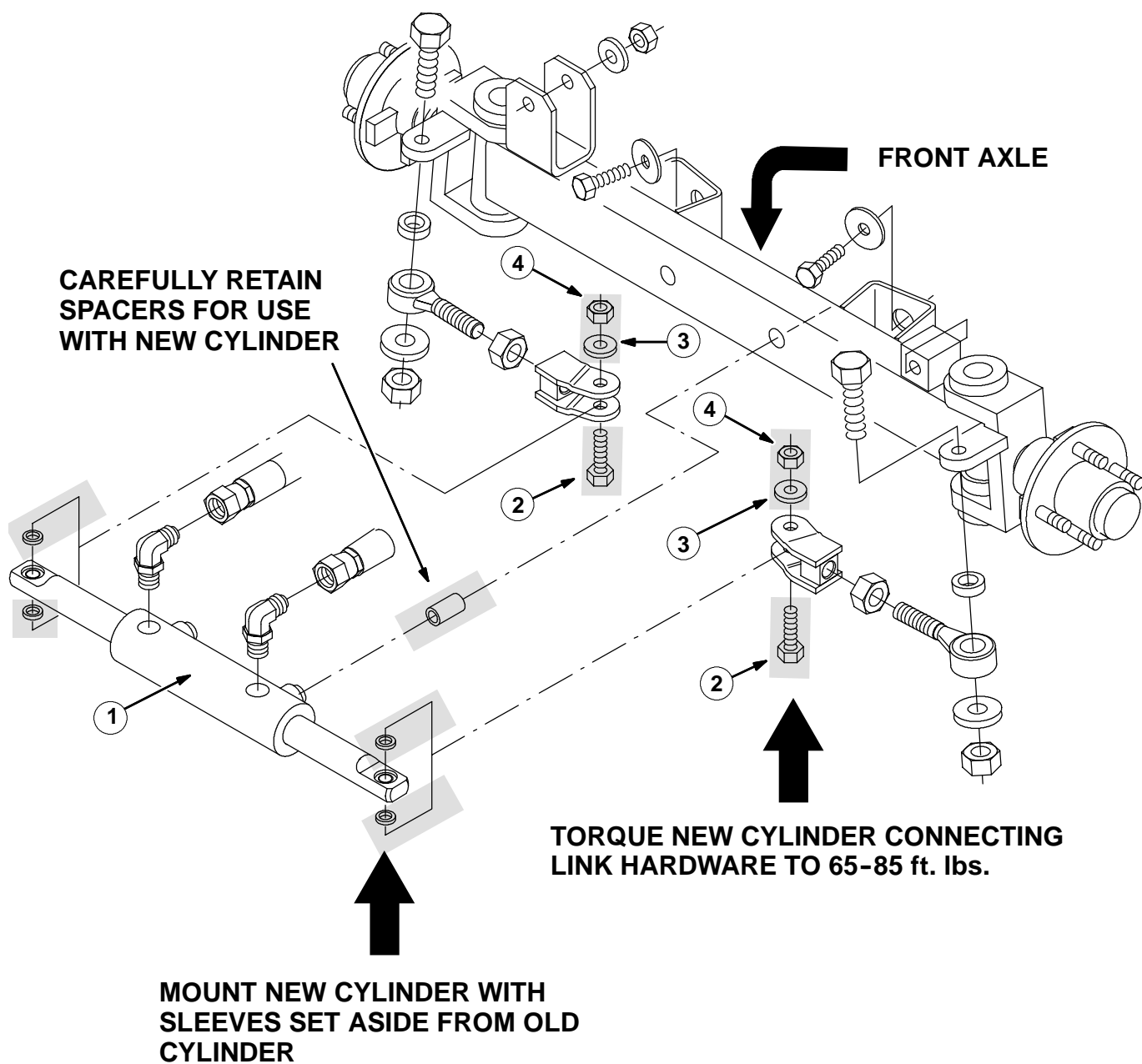


FIG. 1 - NEW HYDRAULIC CYLINDER INSTALLATION

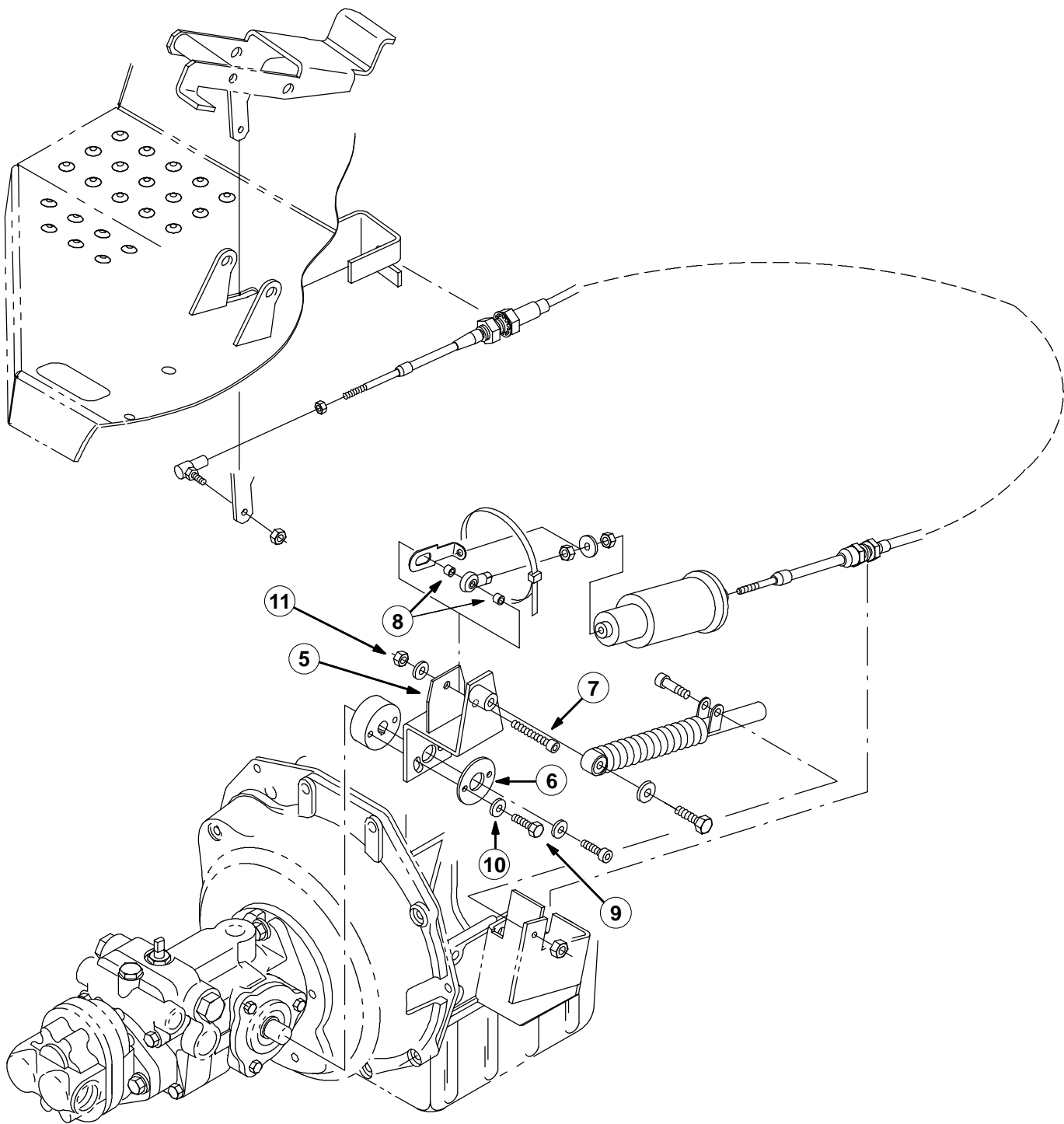


FIG. 2 - HYDRAULIC PUMP LINKAGE GROUP BREAKDOWN

BILL OF MATERIALS FOR HYDRAULIC CYLINDER KIT 368422

Ref.	TENNANT Part No.	Description	Qty.
1	373401	Cylinder, Hyd	1
2	27984	Screw, Hex, .50-13 X 2.25, G5	2
3	32493	Washer, flat, .50 Hrd	2
4	02931	Nut, Hex, Lock, .50-13	2
5	368421	Plate, Propel	1
6	368410	Washer, spacer	1
7	07255	Screw, Soc, M06-1.0 X 45	1
8	65441	Spacer,	2
9	368412	Screw, Hex, M8 X 1.25	2
10	41186	Washer, Belleville, .31	2
11	08708	Nut, Hex, Lock, M06-1.0	1

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