

Parts List, Assembly, and Operating Instructions

Power Train Lift

Max. Capacity: 1,250 lbs.

ASME PASE Compliant

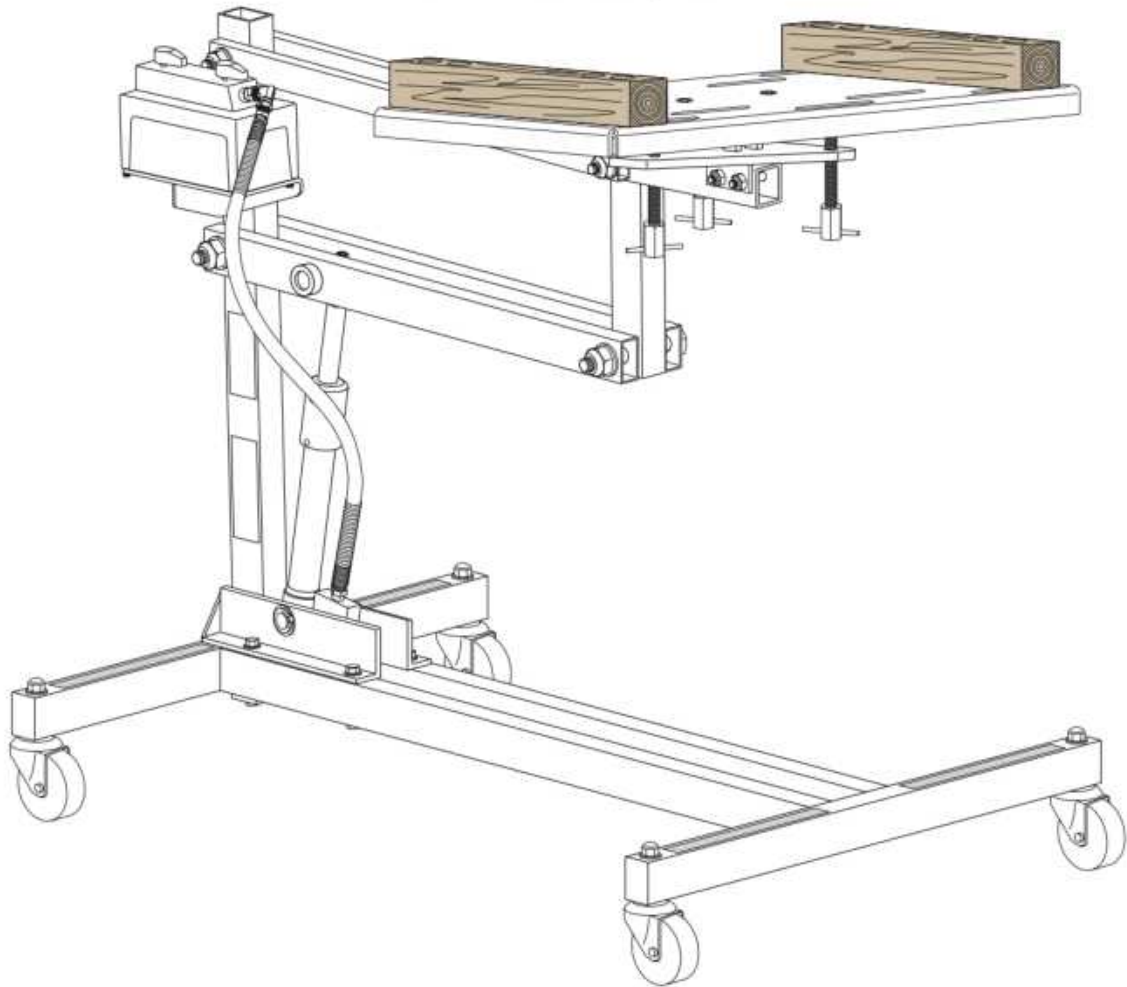


Figure 1

Description: The Power Train Lift is used for engine and transaxle service. This lift supports up to 1,250 lbs. This model features swivel casters for easy maneuverability.

Product Information:


- Includes tilting plate and strap assembly
- Height range is 29-1/2" to 68-1/2"


Optional Products used with the Power Train Lift:


- Universal Transmission Adapter Assembly
- Fuel Tank Handler

Explanation of Safety Signal Words

The safety signal word designates the degree or level of hazard seriousness.


 **DANGER:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION: Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Safety Precautions

 **WARNING:** To prevent personal injury or equipment damage,



- Read and understand the assembly and operating instructions before using the Power Train Lift. If the operator cannot read these instructions, safety precautions and instructions must be read and discussed in the operator's native language.

- All parts must be assembled exactly as specified by these illustrated instructions. If incorrectly assembled, it could result in a malfunction of the lift and/or personal injury. It is important that ALL washers are correctly installed and that arm pivots are snug but loose enough to pivot freely according to the instructions. If arm pivots are too tight, it could result in tool malfunction and possible damage to equipment.



- Wear eye protection that meets the requirements of OSHA and ANSI Z87.1.
- Do not modify the Power Train Lift or use attachments unless supplied by OTC.
- Before using the lift, inspect the unit for leaks, or damaged, loose, or missing parts. Immediately replace cut, frayed or damaged hoses.



- Do not use the Power Train Lift for removal of fuel tanks without using the approved OTC Fuel Tank Handler, and then only according to the instructions included with the handler. Explosion, death, serious injury or property damage can result from incorrect tank removal.

- Securely tighten the strap assembly (included) around the component being lifted.
- Never attempt to lift a load heavier than the rated capacity of the lift.



- Do not lift or move a load that has a center of gravity extending beyond the legs or wheels. Tipping can result in personal injury.
- Do not move the lift while the load is raised. Lower the load completely before moving or storing the load.

- Slowly and carefully move a load on an incline or around a corner. Tipping can result in personal injury.

- Use the lift on hard, level surfaces only.

- Do not stand under a load that is supported by the lift.

- The component must be securely held in place before it is removed from the lift.

- Disconnect the air supply if the Power Train Lift will not be used for several hours.

Assembly Instructions

Note: Item numbers used throughout these instructions are defined in the Parts List. For user convenience, the Parts List is separated by topic as follows:

- Parts List—Basic Unit (Sheet 4 of 7)
- Parts List—Hydraulics (Sheet 5 of 7)
- Parts List—Tilt Table (Sheet 6 of 7)

Base and Mast Assembly

Setup: On a level surface, position the base (Item No. 22) on two wood blocks (40) with the non-skid adhesive strips (23) facing upwards. **See Figure 2.**

1. Mount four casters (17) to the base (22) using washers (21) and acorn nuts (20) as shown in the diagram. Do not over-tighten. **See Figure 2.**

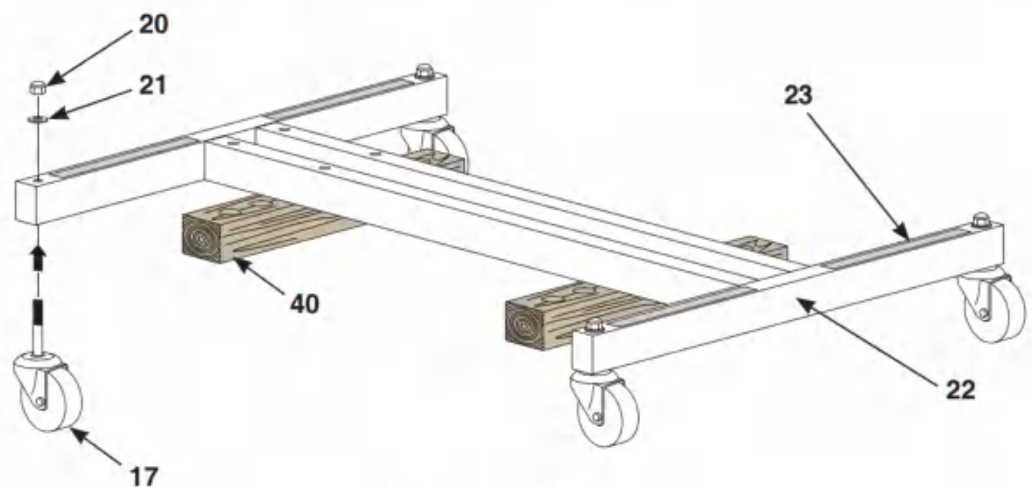


Figure 2

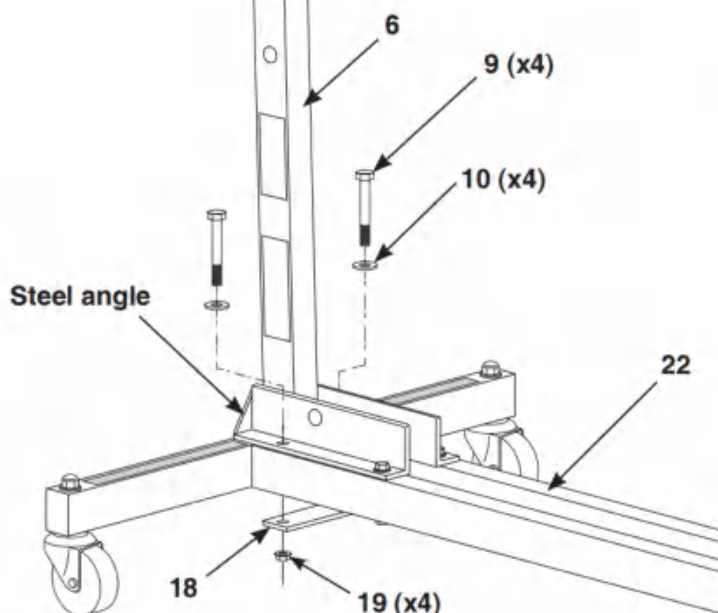


Figure 3

2. Mount mast (6) to the base (22) using four 4-1/2" cap screws (9) and four 7/16" washers (10) installed through steel angle of the mast. **See Figure 3.**
3. Install load plate (18) under the base using the two rear cap screws (9). (**Note:** In Figure 3, rear cap screws are raised showing center lines, and front cap screws are shown installed with nuts.) Secure mast to base with four 7/16-14 locking flange nuts (19). **See Figure 3.**

Connecting the Cylinder Assembly

4. Mount the cylinder swivel block (5) to the end of the cylinder using 1-1/2" long, socket head cap screw (26) and torque to 300 - 350 in. lbs. See Figure 4.

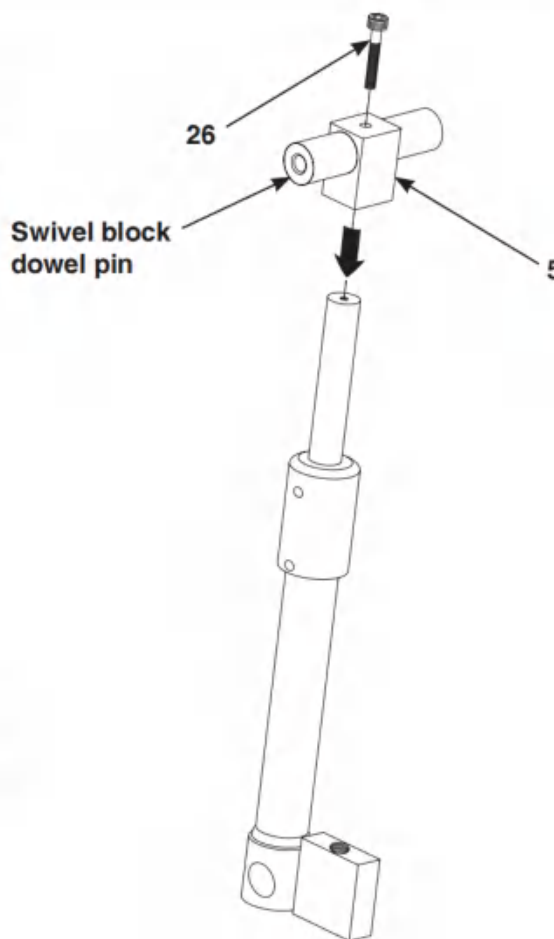


Figure 4

5. Apply grease to the swivel block (5) dowel pin and to pivot pin (16) as shown. See Figure 5.
6. Mount the cylinder to the mast using the pivot pin (16), two 5/8" washers (3), and two 5/8" retaining rings (15). Assemble washers and retaining rings on the outside of the steel angle on both sides of the mast (6). See Figure 5.

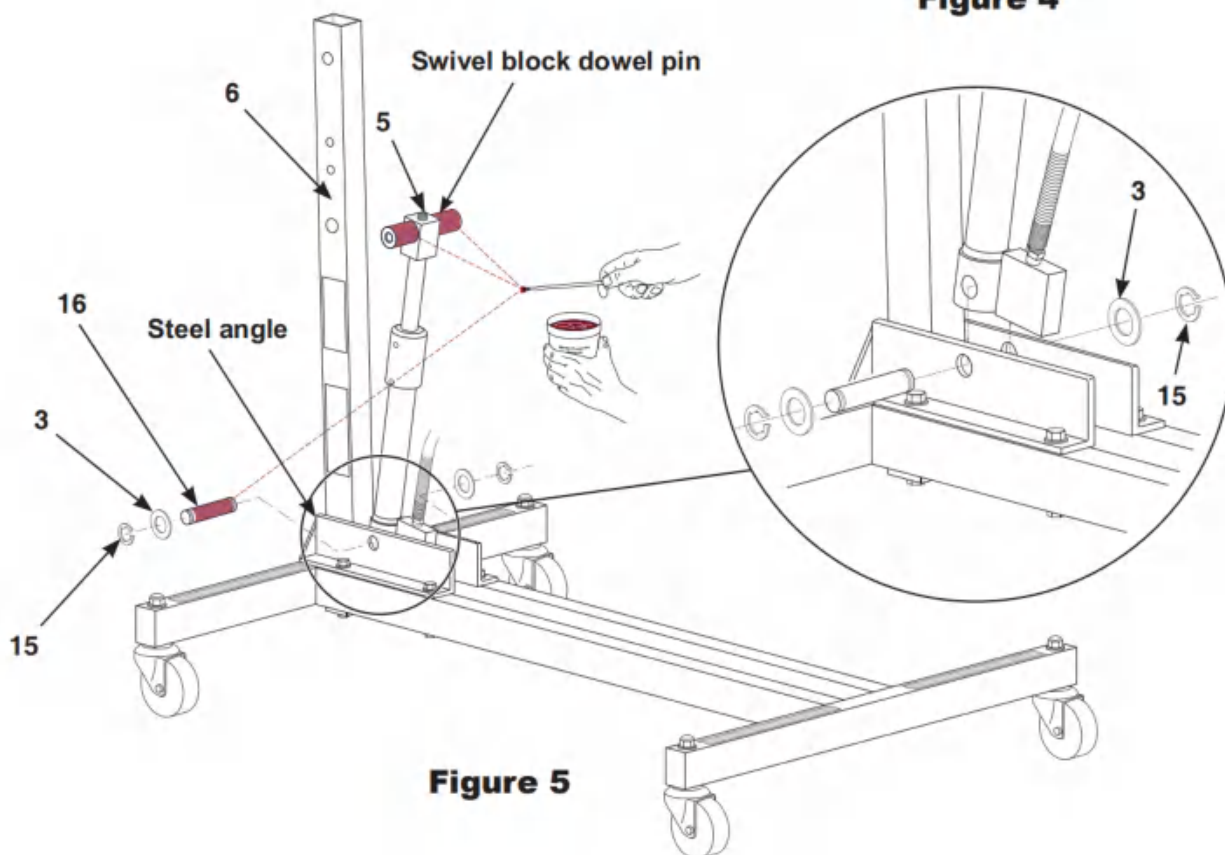


Figure 5

Assembly Instructions

Lower Lift Arm Assembly

IMPORTANT: This assembly requires washers to be installed on both sides of all pivot points before final tightening with locknuts. Do not tighten assembly before ensuring all washers have been correctly installed.

Note: The lower lift arm assembly involves connections in the following two areas:

- Mast pivot hole
- Swivel block

These two areas are circled in **Figure 6**.

7. At the swivel block area, grease pivot holes and swivel dowel pin.
8. Each lower lift arm features a pivot hole with a raised collar on one side and a thin collar on the other side. Position one lower lift arm (14) with the raised collar of the pivot hole facing away from the mast, and the thin collar of the pivot hole towards the mast. **See Figure 6.**
9. Insert cylinder swivel dowel pin through boom tube pivot holes. **See Figure 6.**

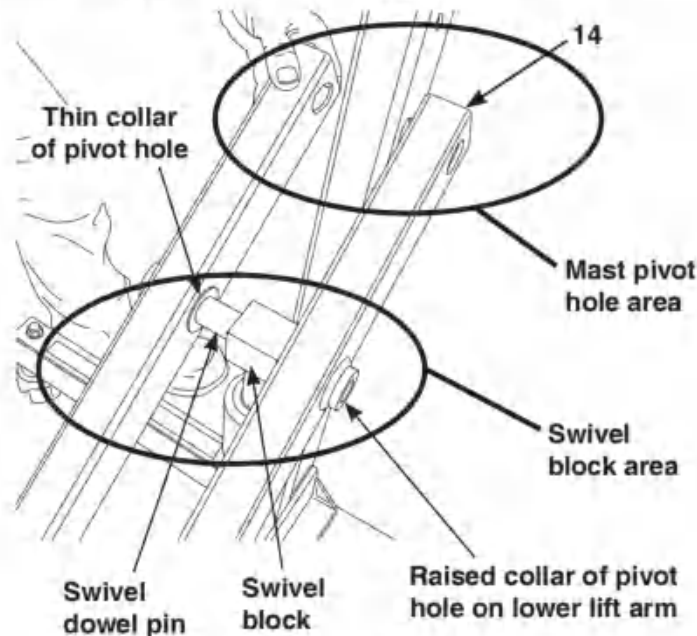


Figure 6

10. Grease mast pivot hole area and 6-1/2" cap screw (25). Assemble 7/8" washer (12) on cap screw and install into pivot holes of lower lift arms (14) and mast (6). **See Figure 7.**

Note: Grease around edges of all pivot holes wherever two boom tubes touch each other.

11. At the opposite side, install a 7/8" washer (12) and hand-tighten locknut (13) onto the cap screw (25) as shown. **See Figure 7.**

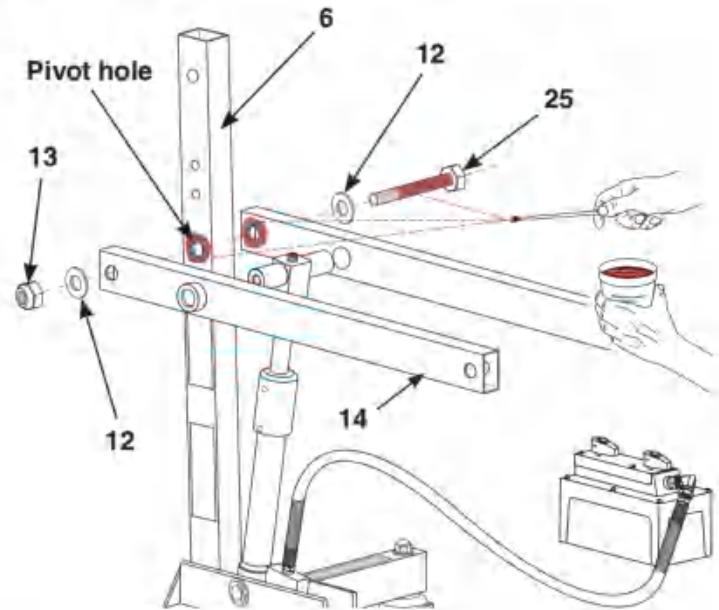


Figure 7

Upper Lift Arm Assembly

IMPORTANT: It is critical to ensure all washers are correctly installed at all pivot points.

12. Grease mast pivot hole and the 5-1/2" cap screw (2). **See Figure 8.**
13. Assemble 5/8" washer (3) on the 5-1/2" cap screw (2); then install into upper lift arm (4) and mast (6) pivot holes as shown. **See Figure 8.**
14. At the opposite side, install a 5/8" washer (3) and locknut (11) onto the inserted cap screw. **See Figure 8.**

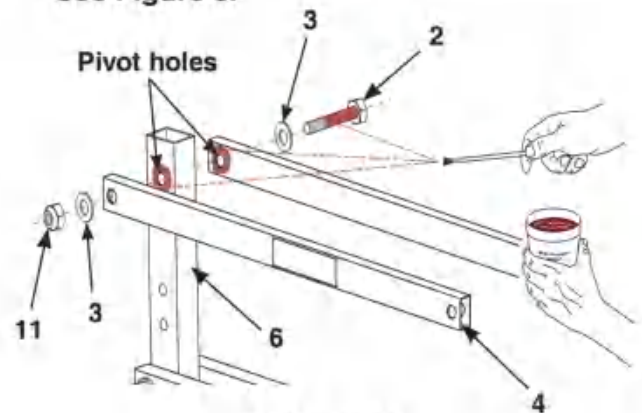


Figure 8

Upper Lift Arm Assembly (Continued)

15. Install the tee (24) at the end of the lower (14) and upper (4) lift arms as follows:

a) For the lower lift arms: Grease 6-1/2" cap screw (25) and pivot holes of arms (14) and tee (24). Install 7/8" washer (12) onto the cap screw and insert through boom tubes. At the opposite side, install a washer (12) and locknut (13) on inserted cap screw. **See Figure 9.**

b) For the upper lift arms: Grease 5-1/2" cap screw (2) and pivot holes of arms (4) and tee (24). install 5/8" washer (3) on the cap screw and insert through boom tubes. At the opposite side, install another washer (3) and locknut (11) on the inserted cap screw. **See Figure 9.**

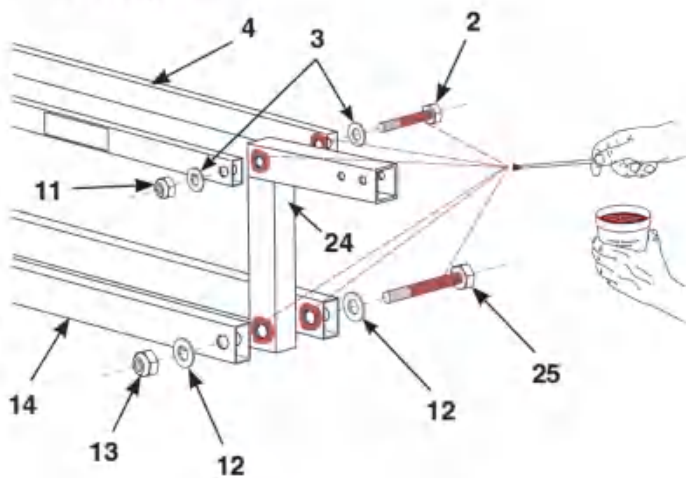


Figure 9

16. For both upper and lower arms, tighten all locknuts at the mast and tee pivot areas up to end of threads. Then back off (loosen) the locknuts 1/8 turn. **See Figure 10.**

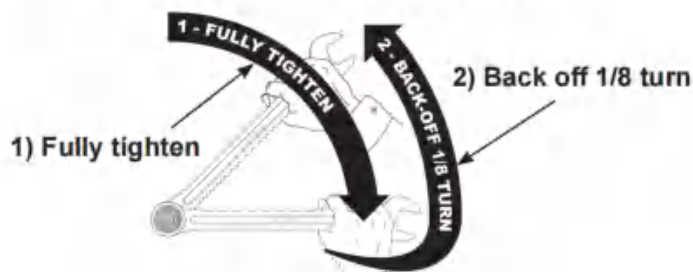


Figure 10

IMPORTANT: Arm pivots should be snug with no visible side play, but loose enough to pivot freely. Otherwise, it could cause a tool malfunction or equipment damage.

17. Mount the pump bracket (28) to either side of the mast using 2-3/4" cap screws (1), two 3/8" lock washers (7) and two 3/8" nuts (8). **See Figure 11.**

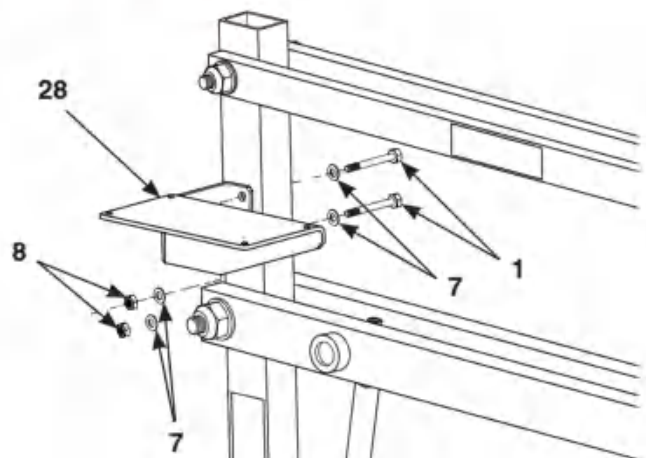


Figure 11

18. Mount the hydraulic pump (29) to bracket (28) using four socket head cap screws (27). **See Figure 12.**

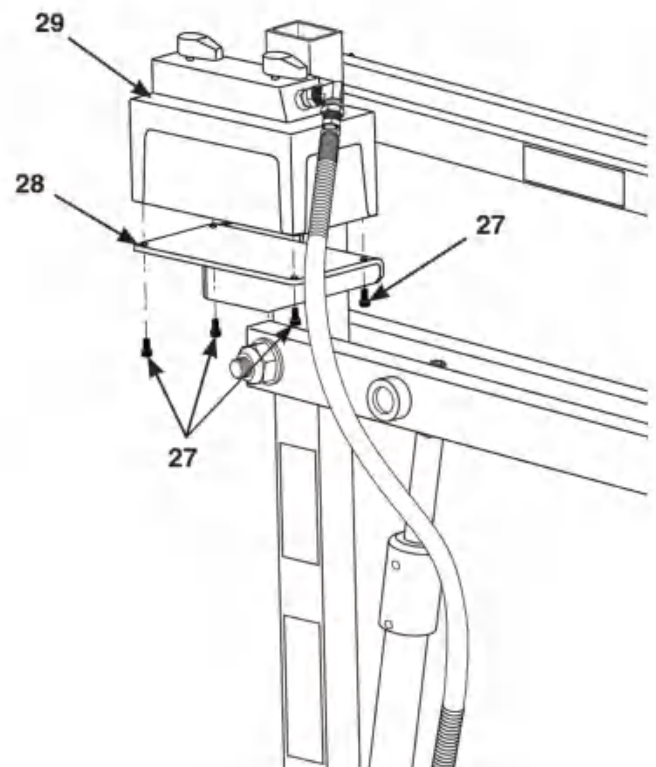


Figure 12

Assembly Instructions

Tilt Table Assembly

CAUTION: For safety, retain cardboard packing material in the bracket assembly while installing.

Note: It is important to keep the 2 rolls of cardboard packing material intact between the mounting plate (47) and the cradle support adapter (48) until parts are assembled (step 23) to prevent minor injury such as pinched fingers.

19. The bracket assembly is comprised of a mounting plate and a cradle support adapter. Place the bracket assembly with the cradle support adapter (48) touching the connection point of the tee and the mounting plate (47) facing upwards. **See Figure 13.**
20. Connect bracket assembly to the tee (24) using two cap screws (49) and two nuts (38). Torque to 400 - 500 in. lbs. **See Figure 13.**
21. Place the tilt table on the mounting plate (47) as shown below. **See Figure 14.**
22. Connect tilt table to mounting plate using two socket head (flathead) screws (42), two washers (43) and two nuts (44). Torque to 450 - 550 in. lbs. **See Figure 14.**
23. Fasten assembly with three adjustment screws (46) from underneath the cradle support adapter (48) to have the tilt table level, and then remove the two rolls of packing material. **See Figure 15.**
24. Install the two wooden blocks (40) to tilt table using four each—carriage bolts (36), washers (37) and nuts (38). **See Figure 15.**

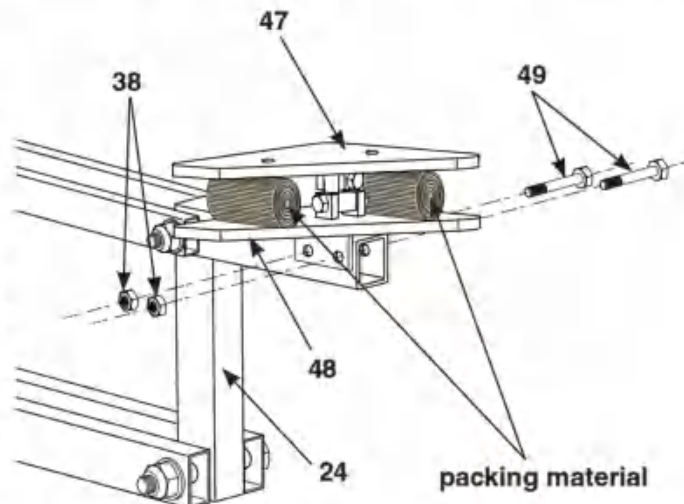


Figure 13

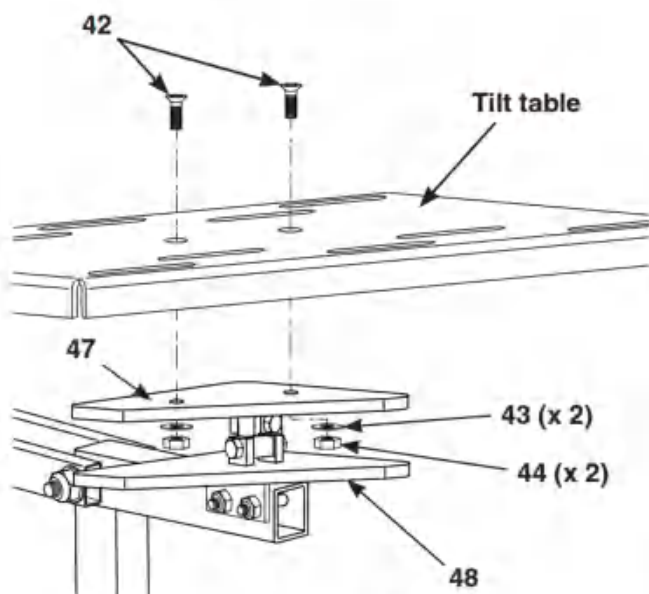


Figure 14

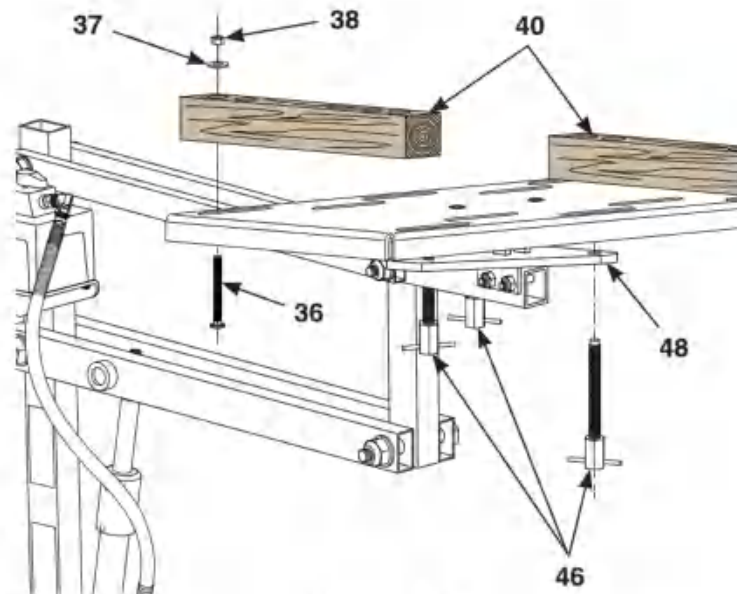


Figure 15

IMPORTANT: This product also includes a ratchet strap assembly to secure components on the tilt table during lift operations. It is important to secure all components on the tilt table, aligned with center of gravity, before moving it with the lift.

Power Train Lift

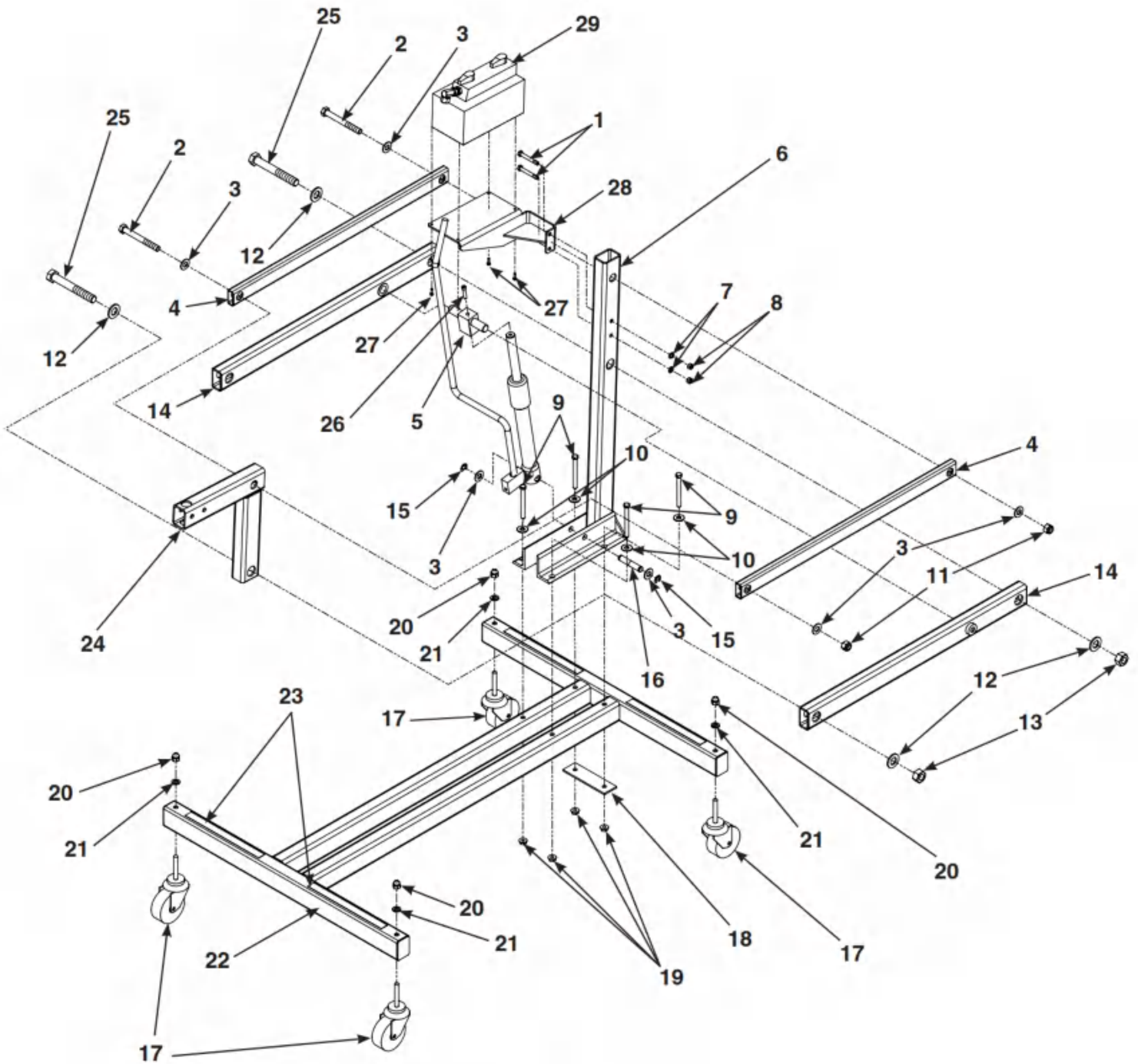


Figure 16

Parts List—Basic Unit

PARTS LIST (Power Train Lift)

Item No.	No. Req.	Description
1	2	Cap Screw (3/8-16 x 2-3/4" lg.)
2	2	Cap Screw (5/8-11 x 5-1/2" lg.; Grade 8)
3	6	Washer (for 5/8" bolt)
4	2	Upper Lift Arm
5	1	Swivel Block
6	1	Mast
7	2	Lockwasher (for 3/8" bolt)
8	2	Nut (3/8-16)
9	4	Cap Screw (7/16-14 x 4-1/2" lg.)
10	4	Washer (for 7/16" bolt)
11	2	Locknut (5/8-11)
12	4	Washer (for 7/8" bolt)
13	2	Locknut (7/8-9)
14	2	Lower Lift Arm (weldment)
15	2	Retaining Ring (for 5/8" shaft)
16	1	Pivot Pin
17	4	Caster
18	1	Load Plate
19	4	Flange Nut (7/16-14)
20	4	Acorn Nut (1/2-20)
21	4	Washer
22	1	Base
23	4 ft.	Non-skid Adhesive Strip (pre-installed)
24	1	Tee
25	2	Cap Screw (7/8-9 x 6-1/2" lg.; Grade 8)
26	1	Cap Screw (5/16-18 x 1-1/2" lg.; Torque to 300 - 350 in. lbs.)
27	4	Socket Hd.Cap Screw
28	1	Pump Bracket
29	1	Hydraulic Assembly

Refer to any operating instructions included with the product for detailed information about operation, testing, disassembly, reassembly, and preventive maintenance.

Items found in this parts list have been carefully tested and selected by OTC. **Therefore: Use only genuine OTC replacement parts.**

Additional questions can be directed to our Technical Service Dept.

Pump and Ram Assembly

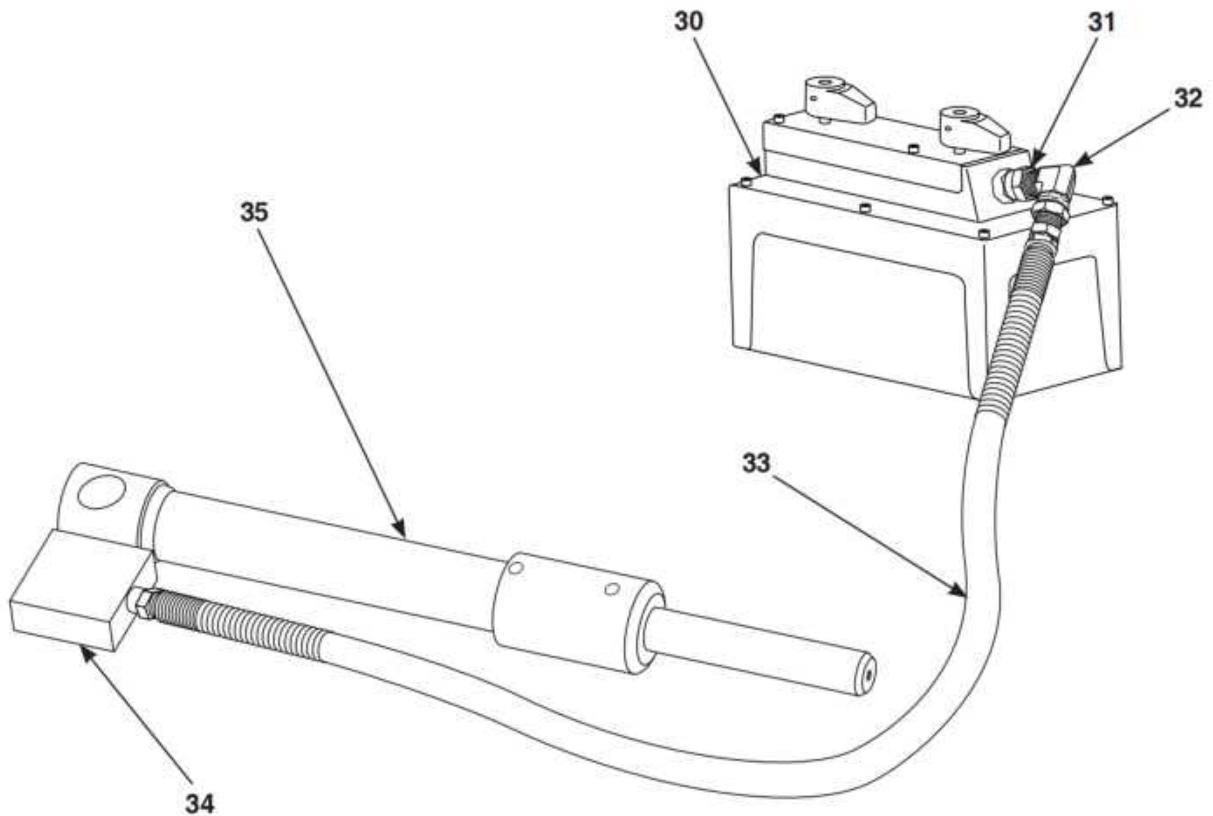


Figure 17

PARTS LIST

Item No.	No. Req'd	Description
30	1	Pump
31	1	Straight Fitting
32	1	90° Elbow Fitting
33	1	Hose
34	1	Flow Control Valve
35	1	Cylinder Assembly

Note: Refer to Maintenance (Sheet 7 of 7) for information on bleeding the hydraulic system.

Parts List—Tilt Table

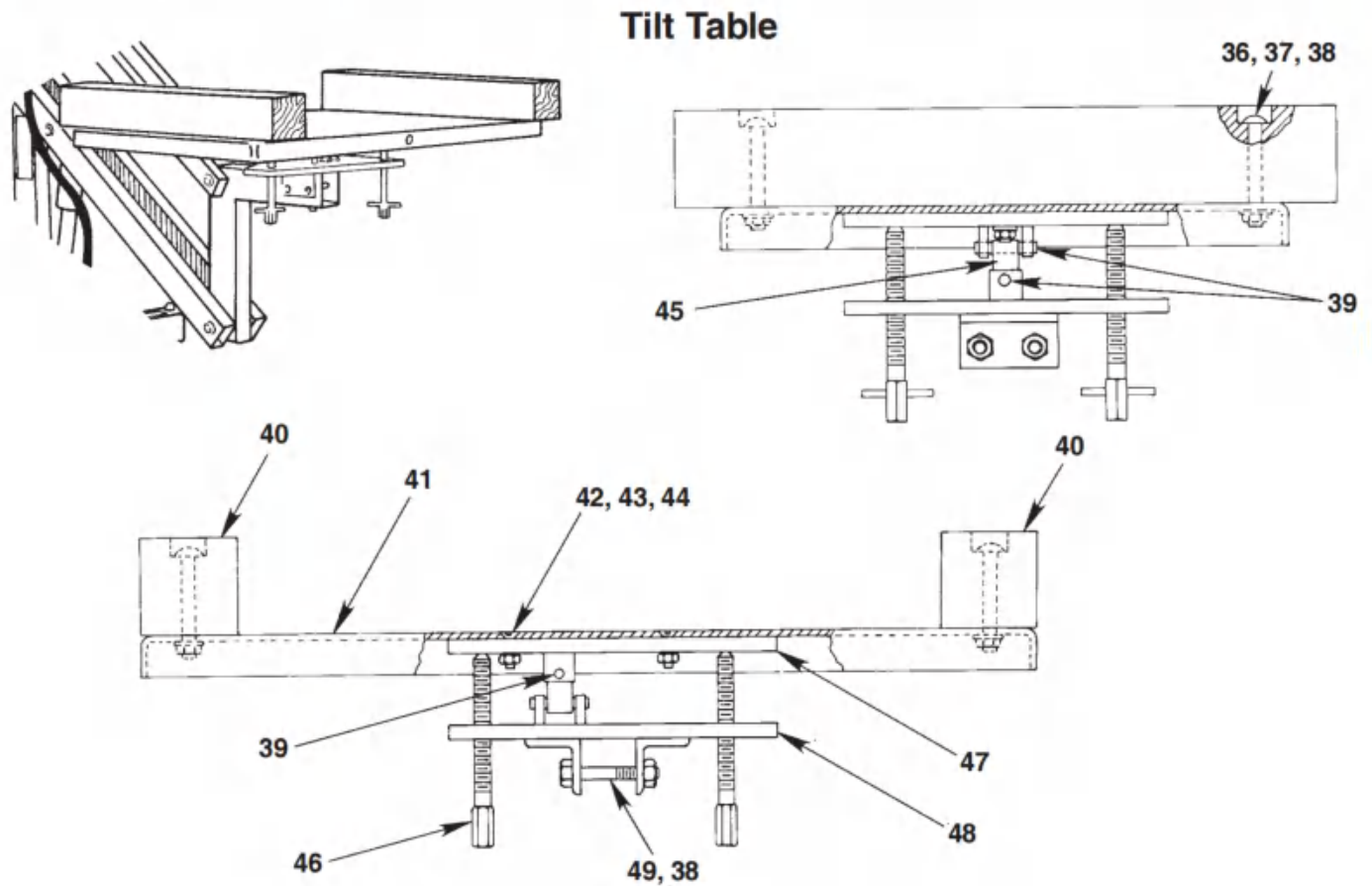


Figure 18

PARTS LIST

Item No.	No. Req'd	Description
36	4	Carriage Bolt (7/16-14 x 3-1/2" lg.)
37	4	Washer (for 7/16" bolt)
38	6	Nut (7/16-14)
39	2	Nut and Bolt (M10 x 1-1/2" lg.)
40	2	Block
41	1	Mounting Plate (Tilt Table)
42	2	Flat Head Screw (3/8-16 x 1-1/4" lg.; Torque to 450 - 550 in. lbs.)
43	2	Washer (for 3/8" bolt)
44	2	Nut (3/8-16)
45	1	Block
46	3	Adjusting Screw
47	1	Mounting Plate
48	1	Cradle Support Adapter
49	2	Cap Screw (7/16-14 x 3" lg.; Torque to 400 - 500 in. lbs.)

Operating Instructions

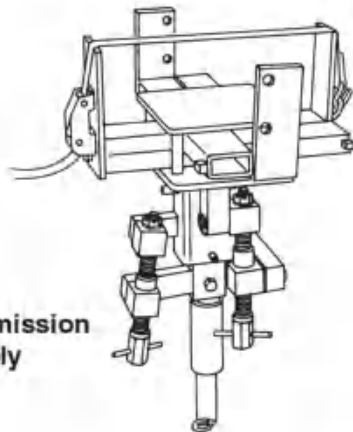
Note: These operating instructions apply to the following:

- Basic Power Train Lift used with the Tilt Table
- Optional Universal Transmission Adapter (540233)
- Optional Fuel Tank Handler (62339)

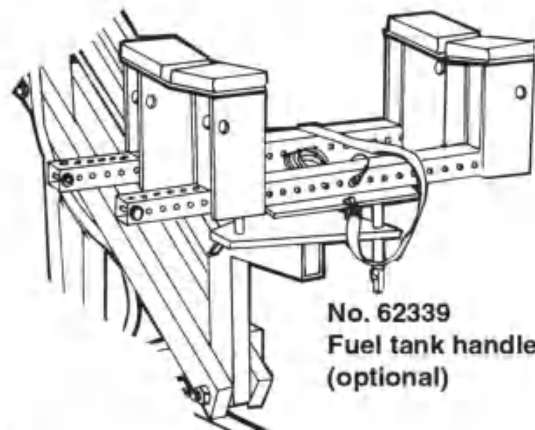
⚠ WARNING: To prevent personal injury or equipment damage, do not lift or move a load that has a center of gravity extending beyond the legs or wheels. Tipping can result in personal injury or property damage.

Component / Load Removal

1. Follow the vehicle manufacturer's recommended service procedure for removal of the component.
2. Position the Power Train Lift under the vehicle.
3. Connect shop air supply to the pump. (90 PSI is needed to raise 1,250 lbs.) Turn the PUMP lever on the pump to raise the lift so it just touches the component. Opening the lever all the way quickly raises the lift; jogging or opening the lever raises the lift slowly (slight movements).
4. Adjust the wood blocks on the tilt table to fit the component to be removed. Secure the blocks to mounting plate by tightening the nuts.
 - If using the Universal Transmission Adapter Assembly, adjust the support arms to fit the pan flange.
 - If using the Fuel Tank Handler, adjust the pads to support the tank.



No. 540233
Universal transmission
adapter assembly
(optional)



No. 62339
Fuel tank handler
(optional)

Figure 19

5. Turn the adjusting screws to align the lift with the component. Raise the lift to the correct position.
6. Place the strap assembly around the component. Securely tighten the strap to the hook holes.
7. Remove any remaining bolts in the component.
8. Lower the Power Train Lift by opening and closing the RELEASE lever once; then holding the lever open.

Note: A flow control valve controls the rate of descent. If a hose is cut or the pump malfunctions, the load will not drop suddenly.

9. Move the lift out from under the vehicle.

Component / Load Installation

1. Position the Power Train Lift under the chassis.
2. Raise the lift and turn the adjusting screws (48) to align the correctly-positioned component.
3. Follow the vehicle manufacturer's recommended service procedure for installing the component.

Pump Maintenance

Note: Callout numbers on this page refer only to **Figure 20**.

Refer to Parts List—Hydraulics (Sheet 5 of 7, Back) for itemized list of hydraulic components.

Basic Unit Maintenance

Use a good grade lubricant to lube the pivot points, adjusting screws and swivel casters.

Hydraulic Pump Adjustment

CAUTION: To prevent the risk of personal injury, remove any load from the lift before adjusting levers.

PUMP Lever Adjustment

Note: Do not start the pump until the PUMP lever has been moved 1/8 turn.

1. Loosen the set screw (3) on PUMP lever (4). Using a screwdriver, turn adjusting screw (1) clockwise until the pump begins to run.
2. Slowly turn the adjusting screw counterclockwise until the pump stops running. Loosen the screw another 1/8 of a turn.

Note: To keep the return spring in place, keep the lever at a height of 9/32". See Figure 20.

3. Tighten the set screw to hold the adjustment.

RELEASE Lever Adjustment

Note: Do not lower the lift until the RELEASE lever has been moved 1/8 turn.

1. Loosen set screw (5) on RELEASE lever (6).
2. Start the pump and raise the lift to its highest position to build hydraulic pressure.
3. Use a screwdriver to turn the adjusting screw (2) counterclockwise until pressure is released. Loosen the screw another 1/8 turn. To keep the return spring in place, keep the lever at a height of 9/32".
4. Tighten the set screw to hold the adjustment. See Figure 20.

Note: If the lift does not hold pressure after you have adjusted levers, flush the pump before making any further adjustments. Hold the RELEASE lever open and start the pump several times.

Bleeding the Hydraulic System

Air can accumulate in the hydraulic system, causing the cylinder to respond slowly or in an unstable manner. To remove the air:

1. Fully retract the piston rod.
2. Remove the bleed plug. See Figure 20.
3. Run the pump to slowly extend the piston rod until oil starts to flow out the bleed hole.
4. Install the bleed plug again.
5. Check the oil level in the reservoir, and add oil if needed.

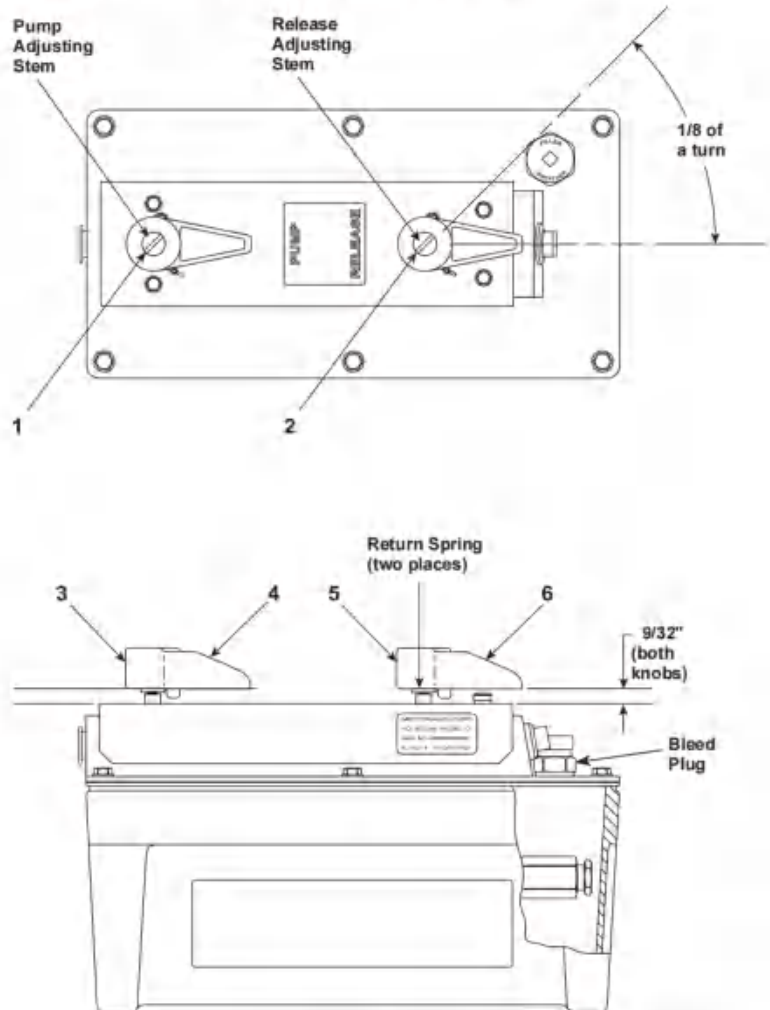


Figure 20

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