

Instructions for Disassembling and Assembling ANVER[®] Vacuum Lifters: Multi-Pad Lifters Type M150M

Part 1 - Disassembling

- Step A.** Put lifter on a workbench, or any other level support, at an easy working height underneath a small overhead crane, and hoist.
- Step B.** Remove valve guards situated on housing lid and remove air inlet valve. (This step required only for inspection and/or replacement of valve.)
- Step C.** Remove **outer** circle of hold down bolts situated on top of the housing lid until entire cover is loose. Mark position of the lid on cylinder housing with appropriate punch marks as the cover must be put back in this same position.
- Step D.** Use the hoist hook and master ring of lifter suspension to raise hook until lid is raised approximately one inch above the rim of the cylinder housing. Stop further raising and inspect the position of the diaphragm. The diaphragm "bead" should still lay inside its groove in the cylinder housing rim.
- Step E.** If no abnormal diaphragm deformation or folds are observed, raise entire piston assembly slowly out of housing. Lift piston as high as possible to permit visible inspection of underside of piston. Check piston valve (in bottom of piston) for free movement. Push valve sealing disk up through the hole with your finger to determine if valve moves alternately from high and low position. Check piston bottom valve seat for dirt or other obstructions. Now lower piston assembly and put down on clean area.

Step F. Check empty cylinder housing walls and cylinder bottom for rust, dirt, debris or other damage. Clean walls and bottom, scrape deposits off with paint scraper or wire brush. Where needed, repaint cylinder walls and bottom with zinc chromate metal primer.

Step G. TO INSPECT THE RUBBER DIAPHRAGM WITHOUT FURTHER DISASSEMBLING OF THE PISTON:

1. Undo the suspension chains from the chain sling suspension studs. Now slip chains out of the chain pulley blocks and fasten the chains again in the chain sling suspension studs. (This disconnects the piston rod.)
2. Slowly raise the chains until the inner wall of the diaphragm appears. Slowly raise chains until the diaphragm is stretched but do not lift piston off its support.
3. Clean off all dirt and foreign matter from diaphragm with a rag dampened with a mild solvent-cleaning fluid. Inspect diaphragm for abrasion, wear, cracks, blisters and other possible damage. If diaphragm appears in good order, lubricate all visible parts of diaphragm with fine talcum powder and rub into rubber surface until rubber feels slippery.
4. Slowly lower chains and assist inner wall of diaphragm by hand to take its place between the inside of the piston and diaphragm guide. When folds develop or when diaphragm bulges, repeat operation until diaphragm is neatly folded in place.
5. Now repeat Step 1 in reverse by engaging the suspension chains through the chain pulley blocks.

Step H. When both the cylinder housing and the piston assembly have been cleaned and are in good condition, lower piston assembly in the cylinder housing by reversing Step F. Make sure diaphragm is correctly lubricated and does not "bind" and make sure that diaphragm "bead" rests in its groove before bolting down cylinder cover, Inspect and, if needed, disassemble and clean air inlet valve and put valve back in original position. Make sure that the valve is correctly sealed at base with Permatex[®] or other thread sealer.

Note: DO NOT USE ANY SHARP TOOLS TO PUT DIAPHRAGM IN POSITION AS THESE MAY PIERCE THE RUBBER WALLS.

Step I. TO FURTHER DISASSEMBLE AND REPLACE THE DIAPHRAGM:

1. Disassemble the double chain suspension pulley assembly.
2. Remove internal ring of bolts on housing lid. When removing the last bolt, the internal piston guide will drop down inside the piston. This is normal.
3. Now, lift housing lid from the piston and put aside.
4. Unbolt the clamping ring for sealing diaphragm and put aside.
5. Pull diaphragm out of the piston, clean with mild solvent or cleaning fluid, inspect, lubricate with a fine talcum powder, and put aside. Replace if damaged.
6. Lift out diaphragm guide from the inside of the piston, clean, and put aside.
7. Clean the outside and bottom of piston plus piston rod guide but **do not disassemble piston further** unless you want to inspect or replace the mechanical valve assembly.
8. To inspect piston valve, suspend the piston from piston rod and test valve by reaching inside valve opening underneath the piston bottom. Push rubber valve disc upward with your finger. It should freely catch in alternate high and low position. When valve does not correctly cycle or when valve movement is erratic or sluggish. This is an indication that the valve is not operating properly and should be replaced.
9. If valve functions normally, clean valve seat and blow out foreign matter with compressed air but do not further disassemble unit.
10. If valve does not function correctly, remove the piston guide and one section of the piston rod hold down ring, so that piston rod can be lifted out. If rubber valve disc (P/N: 150-27B) is damaged or loose, replace. If entire valve is inoperative, Replace Mechanical Valve Assembly (P/N: 150-MVA).

Part 2 - Reassembling

Step A. To reassemble the lifter, reverse all preceding steps but use the following precautions:

1. If any bolts are damaged, replace. If bolts are in good condition, you can reuse them but their threads must be completely cleaned.

Step B. WHEN REPLACING THE DIAPHRAGM, THE REASSEMBLING SEQUENCE IS DIFFERENT FROM DISASSEMBLING SEQUENCE.
THE BEST PROCEDURE IS THE FOLLOWING:

1. Lubricate diaphragm thoroughly as previously described.
2. Place the diaphragm over the diaphragm guide and correctly line up holes.
3. Now place housing lid on top of diaphragm and line up inner bolt circle with bolts in diaphragm. Make sure all bolts are engaged properly before bolting down.
4. Fasten suspension chain to the chain sling suspension studs and raise this subassembly in the air, drape down the outer fold of the diaphragm and put clamping ring in its proper position.
5. Put the cap screws in their correct position and push them through the corresponding hole in the diaphragm until all the bolts are visible from underneath the diaphragm.
6. Now suspend this entire subassembly above the piston, complete with piston rod and piston guide, lower the assembly until the cap screws are correctly positioned above their respective holes in the piston. Now lower assembly and bolt the clamping ring down on the piston. Tighten all bolts correctly but do not overtighten. Over-tightening will damage diaphragm.
7. Now test the free up and down movement of the piston inside the cylinder. If this movement is correct, replace the air inlet valve.
8. Check compression chamber for air tightness. Suspend lifter, put a mild liquid soap solution around chamber and check for bubbles. Correct every air leakage.
9. Check vacuum chamber for single pad lifters, lift a clean test load and check vacuum gauge for a constant vacuum. For multi-pad cylinders, close off the vacuum inlet ports with plugs, lift cylinder and check vacuum gauge for a stable vacuum.
10. Inspect all vacuum lines and hand valves, inspect vacuum seals and replace if damaged.