Manzel® Model 100V Pump High Pressure Lubricators

DESCRIPTION

Manzel Model 100V Pump is a single piston, reciprocating type design. It provides positive lubrication to cylinder walls, bearings and moving parts of large engines, compressors, pumps and other similar equipment. The sight glass aids in observing the output of lubricant to individual points of lubrication being discharged from a drip tube.

Higher pressures, high efficiency and greater capacity permits this pump to have a wide band of adjustment which provides for a less expensive drive arrangement.

SPECIFICATIONS	
Material	Steel and Meehanite
Piston Diameter	3/16 in and 1/4 in (6.35 mm)
Max Operating System Pressure	
Model 94 Lubricator	3000 psi (207 bar)
Model 82 Lubricator	6000 psi (414 bar)
Output Range	1 drop/stroke to 10 drops/stroke
Stroke/Minute	3 to 60
Max Operating Temperature	90ºF (33ºC)
Lubricant	Oils 80 to 5000 SUS @ 100ºF (38ºC)
Net Weight	1 lb, 8 oz (0.68 kg)

INSTALLATION (see figures 1 & 2)

When installing the pump in a box lubricator make sure that the proper length (intake tube assembly 8, figure 2) is used before securing it to the chassis. Remove sight glass vent plug (1, figure 2) before initially filling the box lubricator with lubricant. This allows the lubricant to rise in the intake tube assembly, up to the reservoir level and reduces the priming required on start up. Also, add lubricant through the sight vent hole to 1/4 inch above the hold down ring. Replace the sight glass vent plug.

OPERATION

Down Stroke

On the down stroke of the piston, a partial vacuum is formed causing the inlet check valve to open, thus allowing oil to flow around the inlet check valve ball and enter into the cylinder forward of the piston. The lowering of the oil level in the sight feed chamber also creates a partial vacuum. This induces the oil to flow from the main reservoir, up the suction tube and to drip out into the sight feed chamber until the pressure is stabilized once again. During this action the outlet check valve remains tightly sealed due to the differential pressure.

Upward Stroke

On the upward stroke of the piston the inlet check valve closes and seals off the inlet. As the piston rises, the pressure increases, the outlet check valve opens and discharges the volume of oil drawn into the cylinder on the down stroke. During the upward movement of the piston, any oil seepage between the cylinder and piston is trapped in a relief section of the piston and directed up into the sight feed chamber; as a result of this feature no piston seepage is directed back to the main reservoir. In this manner, the sight glass oil level is also regulated by any piston leakage (due to piston wear) and the amount of oil level drop in turn regulates the number of drops falling from the drip tube. Therefore the amount of drops displaced through the drip tube is the amount of oil being discharged.

Adjustments

Adjustment of the pump feed is regulated for a required delivery rate by a feed regulator device on the box lubricator. To decrease the feed, loosen the lock nut of the feed regulator and turn the feed regulator slowly clockwise, to increase the feed turn counter-clockwise. For reliable operation, the vacuum pump must not be adjusted for less than 1/2 drop per stroke. The strokes of the pump can be determined by checking the rotation of the hand crank shaft of the box lubricator (one revolution equals one pump stroke with single throw cams). If equipped with hand pump, each stroke can be felt by placing a finger on top of the knob.

Sight Glass Lubricant Level (See Figure 2)

The lubricant level in the sigh glass (2) must be kept within the range of approximately 3/8-inch below the discharge of the drip (3) and approximately 1/4-inch above the hold down ring (4). If the level rises above the upper range, remove the sight glass vent plug (1) and allow the lubricant to pump down to within the required level. If the level falls below the lower range, remove the vent plug and fill to within proper level. If the lubricant level continues to increase or decrease appreciably, the cause should be determined (see Troubleshooting Chart). As long as the oil remains in the sight glass well, it will be pumped to the point of lubrication even though sight glass may be temporarily opened to atmosphere and no drops are falling from the drip tube.

Note: Always install sight glass on pump with vent plug removed. This helps to assure bottoming against the O-ring and a tight seal.

SERVICE AND MAINTENANCE

An inspection at periodical intervals, dependent on usage, is recommended for verification of normal operation. Inspect condition of all external components. Limit repairs to the replacement of worn or damaged parts. For all other repairs return the product to the factory.

Cleaning

Keep pump clean by using only new or filtered lubricants. Periodic cleaning is recommended, since lubricant is subject to fouling from atmospheric dusts and additives. To do this clean the entire pump by dipping and brushing in a suitable cleaning solvent.

OUTLINE & MOUNTING DIMENSIONS

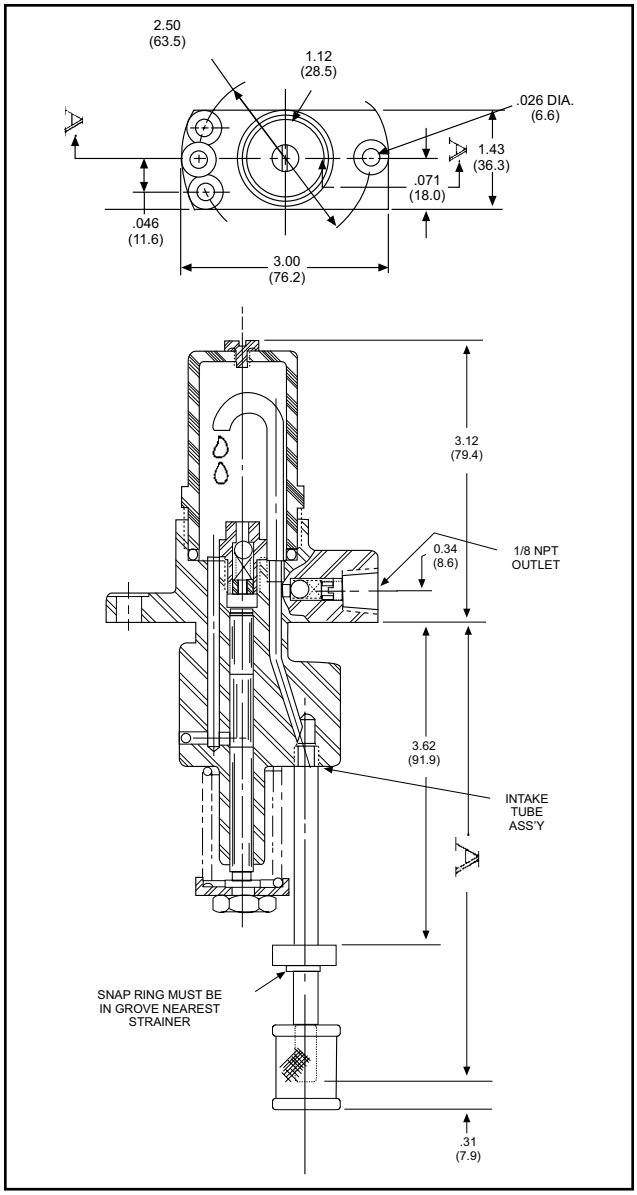


Figure 1.

Note: Millimeter dimension appears in parentheses below the decimal figure in inches.

Part No.	Old Part No.	Dim. A	Dim. B	Reservoir Depth	Plunger Size
562974	382-320-026	5.59 (142.0)	8.59 (218.1)	6 inch	1/4 inch
562975	382-320-027	7.53 (191.2)	10.53 (267.4)	8 inch	1/4 inch
562972	382-220-016	5.09 (129.3)	8.59 (218.1)	6 inch	3/16 inch
562973	382-220-017	7.03 (178.6)	10.53 (267.4)	8 inch	3/16 inch

Note: Millimeter dimension appears in parentheses by the decimal figure in inches

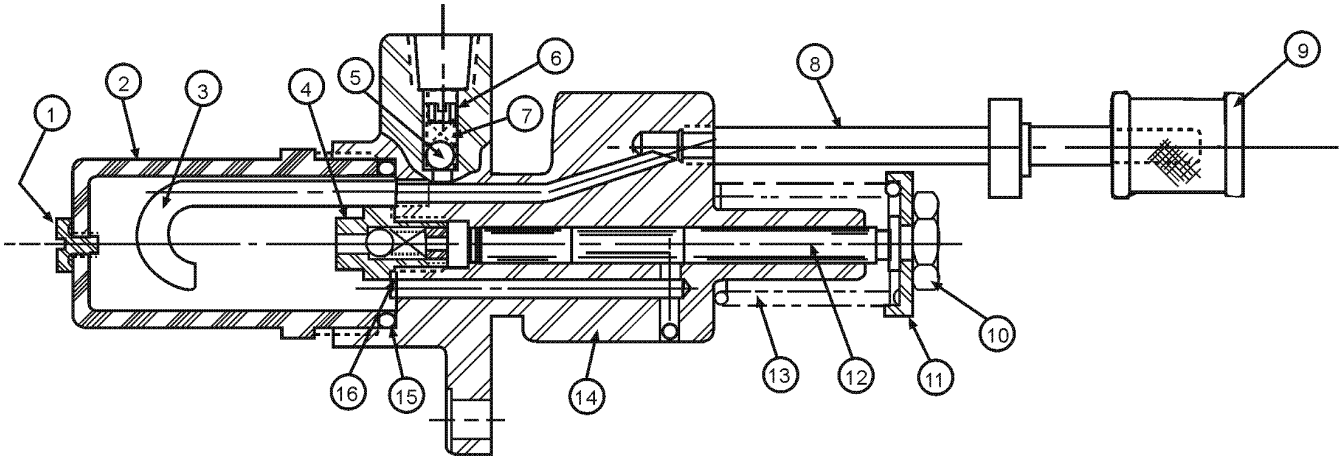
TROUBLESHOOTING CHART		
Trouble	**Probable Cause**	**Remedy**
Sight glass well pumps dry and continues, no lubricant falls from the drip tube.	a. Air leak in the supply chamber.	a. Check sight glass vent plug, sight glass and O-Ring for obvious damage. Replace damage parts.
	b. Restriction in drip tube or intake tube assembly.	b. Remove sight glass and drip tube. Blow out drip tube and down through drip tube threaded hole in pump body to remove any impurities and check for free passage.
Sight glass fill with lubricants.	a. Discharge valve clogged.	a. Remove vent plug and allow lubricant to pump down to proper level and replace vent plug. If condition still exists, make certain that discharge check valve is clean and functioning properly. Rapid hand priming may flush any impurities from the valve seats. If this does not correct the condition, disassemble and clean in a suitable solvent.
	b. Temperature variation	b. When unit is not operating, remove vent plug and allow lubricant to pump down to proper level. Replace the event plug. Pump will now function properly. This filling up causes no harm until the drip tube opening is submerged so the rate of pumping cannot be determined. When the unit is operating, the sight level will fluctuate depending upon the temperature variations. As long as the level remains approximately 1/4 inch above the hold down ring, the pump will function properly. If the level drops below the hold down ring, add lubricant through the vent hold until the proper level is obtained. If the level rises above the 1/4 inch recommended height, remove vent plug and allow lubricant to pump down.
Sight glass lubricant level remain constant and no lubricant falls from the drip tube	a. Pump regulation set too low	a. Turn the feed regulator on the box lubricator to its maximum delivery. Hand prime and let pump reestablish operating vacuum and drop rate. Readjust to proper rate for box lubricator operation. See adjustment section in this sheet.
	b. Pump is air bound	b. Rapid hand priming may purge air from the cylinder. Pump will stream for a short period after rapid priming and then reestablish a drop rate for that setting. If pump continues to malfunction, remove sight glass and inlet check valve assembly to eliminate air pocket. Replace inlet check valve ball on seat only and keep sight well filled. Hand prime slowly to vent all air. Make sure ball is on seat when priming. Reassemble inlet check valve assembly and secure in place with gasket. With the vent plug removed, replace the sight glass and fill to proper level. Replace vent plug. Unit should pump down to proper level and reestablish operating vacuum and proper drop rate. If pump still does not work properly, return it to the factory.

ORDERING INFORMATION

Ref. No.	Part No.	Old Part No.	Description	Quantity Required
	562974	382-320-026	Model 100 Vacuum Pump Ass'y, (For 6-Inch Reservoir) (1/4 in Dia. Plunger)	
	562975	382-320-027	Model 100 Vacuum Pump Ass'y, (For 8-Inch Reservoir) (1/4 in Dia. Plunger)	1
	562972	382-220-016	Model 100 Vacuum Pump Ass'y (For 6-Inch Reservoir) (3/16 in Dia. Plunger)	1
	562973	382-220-017	Model 100 Vacuum Pump Ass'y (For 8-Inch Reservoir) (3/16 in Dia. Plunger)	1
1	*	*	Plug, Sight Glass Vent	1
2	*	*	Glass, Sight	1
3	560239	433-700-330	Tube, Drip	1
4	563045	463-001-499	Inlet Check Valve Ass'y	1
5	555366	401-010-030	Ball, 3/16 Diameter	1
6	560258	437-700-110	Plug, Discharge Check Valve	1
7	–	485-005-100	Spring, Discharge Check Valve	1
8	562990	433-700-821	Intake Tube Ass'y, (For 6-Inch Reservoir)	1
8	562991	433-700-831	Intake Tube Ass'y, (For 8-Inch Reservoir)	1
9	563101	473-020-091	Strainer, Intake	1
10	560158	410-700-510	Nut, Piston	1
11	560464	484-030-030	Cup, Piston	1
12	**	**	Piston	1
13	556943	458-005-360	Spring, Piston	1
14	**	**	Cylinder	1
15	*	*	O-Ring, Sight Glass	1
16	556749	439-077-223	Gasket	1

* Sold as an assembly, Part No. 563967 (562-000-200)

**Not available as a replacement part. Replace entire pump.



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