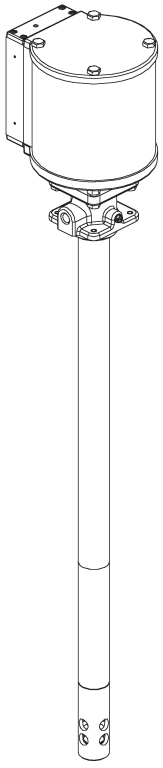
LINCOLN

PMV grease pump

Models V450120000 and V450400000, series “A”, 50:1 ratio, (4.25 in. airmotor)



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⚠ DANGER

Read manual prior to installation or use of this product. Keep manual nearby for future reference. Failure to follow instructions and safety precautions may result in death or serious injury.

SKF

Contents

Safety

Read and carefully observe these instructions before installing, operating or troubleshooting this equipment.

The equipment must be installed, maintained and repaired exclusively by persons familiar with the instructions.

Install and/or operate the equipment only after safety instructions and this guide have been read and are completely understood.

Adequate personal protection must be used to prevent splashing of material on the skin or in the eyes.

Always disconnect power source (electricity, air or hydraulic) from the equipment when it is not being used.

Any other use not in accordance with instructions will result in loss of claim for warranty or liability.

- Do not misuse, over-pressurize, modify parts, use incompatible chemicals, fluids, or use worn and/or damaged parts.
- Always read and follow the fluid manufacturer's recommendations regarding fluid compatibility, and the use of protective clothing and equipment.
- Failure to comply may result in death or serious injury.
- Adequate personal protection is recommended to prevent splashing of material on the skin or in the eyes.
- Always disconnect air coupler from pump when the pump is not being used.
- Always wear eye protection.

Explanation of signal words for safety

⚠

This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ SAFETY INSTRUCTION

Safety instruction signs indicate specific safety-related instructions or procedures.

⚠ DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation which, if not avoided will result in death or serious injury.

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Owner/operator responsibility

It is the owner/operator responsibility to properly use and maintain this equipment.

The instructions and warnings contained in this manual shall be read and understood by the owner/operator prior to operating this equipment.

It is the owner/operator responsibility to maintain the legibility of all warning and instruction labels.

The owner/operator shall retain this manual for future reference to important warnings, operating and maintenance instructions.

⚠ WARNING

If any fluid appears to penetrate the skin, get emergency medical attention immediately. Do not treat injury as a simple cut. Tell attending physician exactly what fluid was injected.

Description

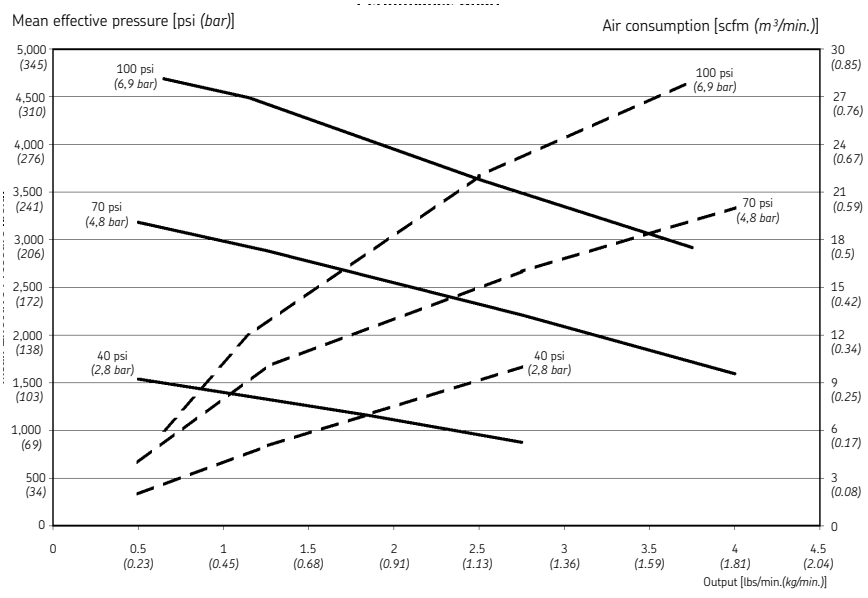
Models V450120000 and V450400000 are air operated double acting grease pumps for dispensing automotive greases.

Models V450120000 and V450400000 are stub pumps with a 1 1/2 NPT threaded inlet. It may be mounted in the bung opening of a grease drum by using an optional bung bushing and suction tube (→ **fig. 1**, **page 5**).

Pump specifications

Pumping ration	50:1
Air pressure	40 to 150 psi *(2,7 to 10,3 bar)*
Maximum operating pressure	7,500 psi *(517 bar)*
Operating temperature	–40 to 150 °F *(–40 to 65 °C)*
Air inlet	3/8 in. NPFT
Material outlet	1/4 in NPTF
Airmotor bore diameter	4.25 in. *(108 mm)*
Stroke	3.25 in. *(82,5 mm)*
Output per cycle	1.47 in.^{3} *(24,1 cm^3)*
Wetted parts	Carbon steel, brass, zinc, polyurethane, nitrile

Performance chart



Appropriate use

The pump is designed to dispense automotive greases directly from the refinery container. It can be used in a system with mutiple hose reels and control valves.

⚠ WARNING

Do not use this equipment to pump any fluids other than the fluids for which it is designed. Types of fluids not to be pumped with this equipment include:

- gasoline
- fuel oil
- diesel fuel
- windshield washer solvent
- antifreeze
- brake fluid
- water

Failure to comply may result in serious personal injury, significant damage to equipment, and fire or other types of property damage.

Failure to comply will also result in loss of claim for warranty or liability.

⚠ WARNING

Pumps are to be operated with compressed air only. Operation with combustible gasses is prohibited.
Maximum air pressures should not be exceeded. Failure to heed this warning may result in serious personal injury, property damage, and failure of the pump.

⚠ WARNING

Failure to comply with the warnings listed below may result in serious personal injury, significant damage to equipment, and fire or other types of property damage.

Failure to comply will also result in loss of claim for warranty or liability.

- Do not alter or modify any part of the equipment.

Before each use:

- Read and follow fluid manufacturer's recommendations regarding fluid compatibility and use of protective clothing/equipment.
- Confirm equipment and safety devices are in place and operating properly.
- Immediately repair or replace any parts that are found to be worn or damaged.
- Confirm all grease connections are tightened securely.

Once system is pressurized:

- Do not attempt to repair, disassemble, or replace any part of the equipment without de-pressurizing system first.
- Do not exceed the stated maximum working pressure of pump or the lowest pressure-rated component of the system.
- Do not point dispensing valve at any part of the body or at another person.
- Do not attempt to block fluid coming out of dispensing valve, leading connection, or other component with any part of the body.

Initial pump priming

When the pump is operated for the first time, the pump will have to be primed.
To prime the pump, remove the grease hose from the pump lube outlet and set aside. Connect the airline to the air inlet of the pump with an air pressure of less than 40 psi *(2,76 bar)*. Slowly increase the air pressure to the pump until the pump begins to operate very slowly. Allow the pump to operate at the slow speed until lubricant begins to flow out of the pump lube outlet.

⚠ WARNING

Failure to heed the following warnings may result in personal injury and/or property damage.

- **Always** determine the correct air pressure to operate the lubrication pump. This pump can develop over 7,500 psi *(517 bar)*. To determine the air pressure to operate the lubrication pump, simply divide the rated pressure of the lowest rated component on the down stream side of the pump by the lubricant to air pressure ratio of the pump. **Example**: The lowest rated component has a rating of 4,000 psi *(276 bar)*. If the lubrication pump is a 50:1 pump, divide 4,000 psi *(276 bar)* by 50 to determine the correct air pressure setting, (4,000 psi *(276 bar)*/50 = 80 psi *(5,5 bar)*).
  Set the air regulator that controls the air to the pump to 80 psi *(5,5 bar)* or less.
- **Never** point the control valve at any part of the body or at another person.
- **Never** try to stop or deflect material from the dispensing valve, leaking connection or component with your hand.
- **Always** relieve pressure from the system before servicing.
- **Avoid** contact with the nozzle.

After lubricant, free of air begins to flow from outlet, stop the pump. Attach the high pressure hose and control valve to the pump lubricant outlet. Restart the pump and hold the control valve nozzle in a suitable container while holding the control valve open to prime the hose and control valve.
Increase the air pressure to the pump as required, keeping it operating.

Installation

Pumps are tested in light oil before shipment. To avoid system contamination, flush the pump with the lubricant to be dispensed before installing the pump.

Flush all supply lines, hoses, reels and fittings used in the dispensing system with mineral spirits or other petroleum based solvent to remove dirt, chips and other foreign matter that may damage the pump or other system components. The components should be blown dry with air after flushing.

Placement of a low restriction shut-off valve (such as a ball or gate valve) into the system between the pump outlet and overhead delivery system is recommended. This will allow the pump to be isolated from the system and be removed for service.

Lincoln recommends using a filter/regulator (3/8 in. NPT port size) such as a Lincoln #602136 in the air supply line to the pump to regulate the air pressure to the pump.

Lincoln does not recommend using Teflon tape pipe sealant when making connections to this pump.

Notice

Lincoln recommends using a filter/regulator (3/8 in. NPT port size) such as a Lincoln #602136 in the air supply line to regulate the air pressure to the pump.

⚠ WARNING

Do not use Teflon tape as sealant for pump connections.

Bung bushing installation

Thread bung bushing into 2 in. NPT bung on top of reservoir drum or tank. (→ **fig. 1**) Tighten bung bushing securely into bung thread. (**fig. 1** illustrates a 55-gallon drum; other containers will be installed in a similar manner.)

System start-up

When operating the pump in a system for the first time, purge all air from the system in order for the pump to prime and operate reliably. Before connecting the pump to a system, make sure the pump is placed into a container of the grease that is to be dispensed. Connect a short length of hose to the pump outlet and direct the open end of the hose into a container to catch the grease. Operate the pump at low air pressure, 40 psi *(2,7 bar)*, until the pump primes, and grease flows smoothly from the end of the hose.

The system can now be connected to the pump outlet. Purge the entire system in a similar manner, slowly pumping grease through all reels and control valves until grease, free of air, flows smoothly from each outlet.

Pressure relief procedure

The following procedure should be followed when it becomes necessary to shut the system down for service or container changes.

1. Disconnect the air supply from the inlet of the pump.
2. Bleed the lubricant pressure off the system by opening a dispensing valve into a container. Hold the valve open until all flow from the system stops.
3. Close the shut-off valve between the pump and reservoir on standpipe installations (if present).
4. Close the shut-off valve between the pump outlet and supply lines (if present).
5. Slowly loosen the lubricant supply line at the pump outlet. A very small volume of grease will leak from the threads. If pressure is present, stop the loosening procedure and repeat steps 1 through 4.

Pump repair

Repair is limited to the service parts listed on following pages. In most cases, service is going to be the replacement of soft seals in the pump (→ **fig. 5** and **6** for internal components of the pump, and **fig. 7** for internal components if its an air valve

Contact your nearest authorized Lincoln service dealer or Lincoln technical services for assistance.

When ordering replacement parts, order by part number and description. The model number and series letter may also be required.

Notice

New outlet body and gasket

New outlet body is designed for a copper gasket. This gasket replaced the o-ring that was installed on PMV pumps manufactured prior to December 2013.

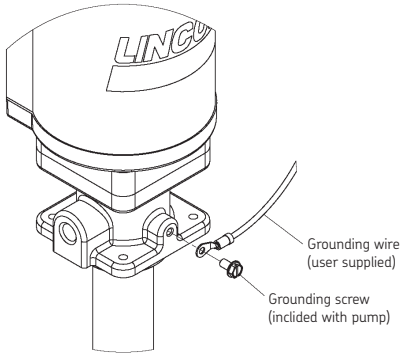
Replace o-ring with copper gasket.

Notice
After the pump and hose have been primed and are free of air, the air pressure may be increased to the desired operating pressure. Check for leaks at all connections.

Pump grounding

The pump should be grounded to reduce static discharge. To ground the pump, remove the grounding screw from the pump outlet body and insert the screw through a ring terminal that has been attached to a grounding wire.

Securely tighten the screw into the outlet body. The other end of the ground wire should be securely connected to a true earth ground.



Sealant application instructions

1 Clean and dry all surfaces where sealant will be applied.
2 Apply small bead of Dow Corning 1437 RTV sealant (or an equivalent sealant) around end of exhaust cavities where part (**6**) is displayed in Figure 4.
3 Reassemble pump.

Notice
Allow sealant to dry for 1-2 hours before applying any air pressure to the pump.

Basic pump operation

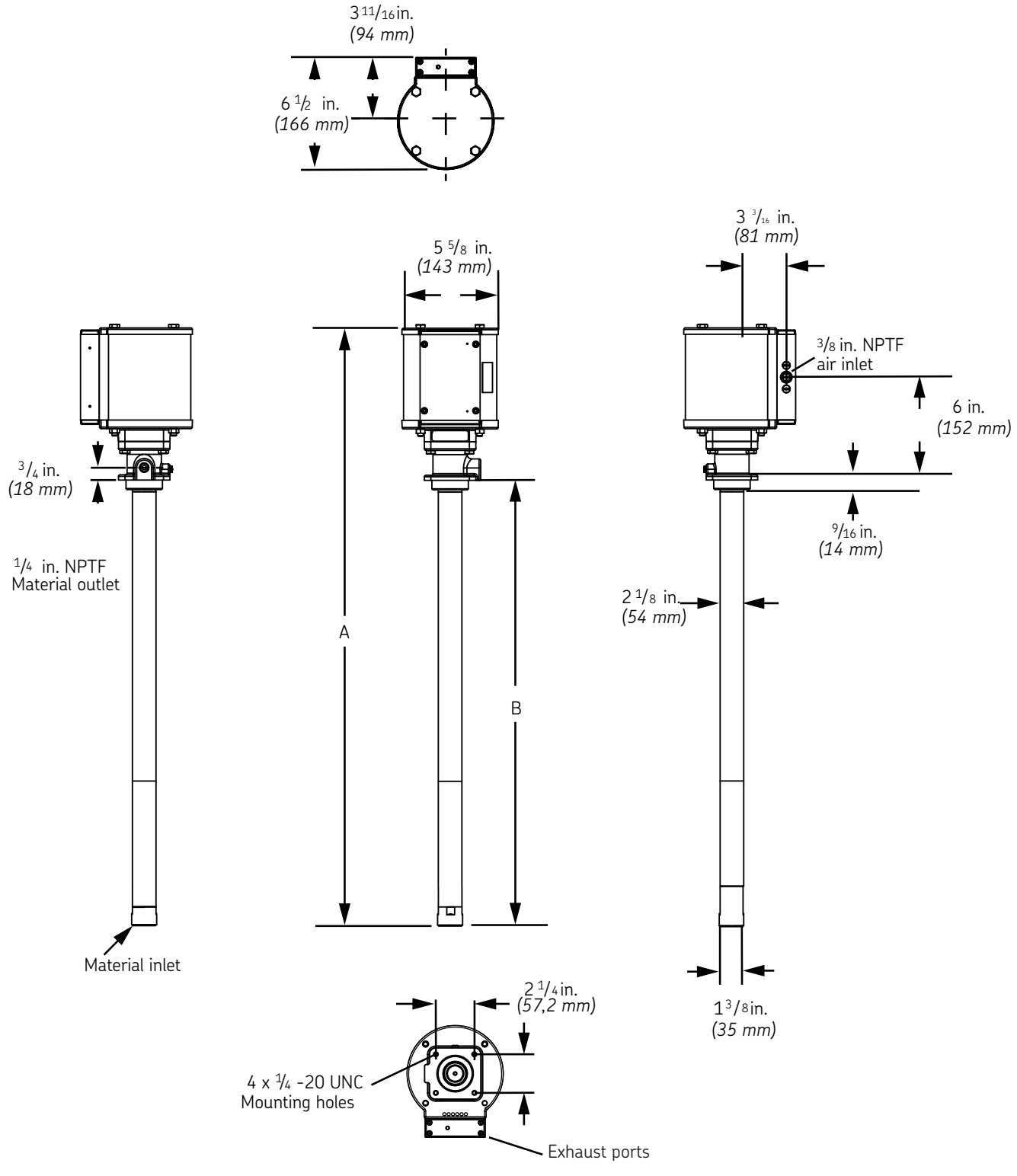
The air pressure should be adjusted so that the pump can overcome the back pressure in the lube system. Too much air pressure can cause the pump to deliver grease very rapidly, which can damage the equipment being lubricated.

When the pump is not in operation, disconnect the air supply to the pump and relieve all pressure on the control valve and grease hose (→ **Pressure relief procedure**, below).

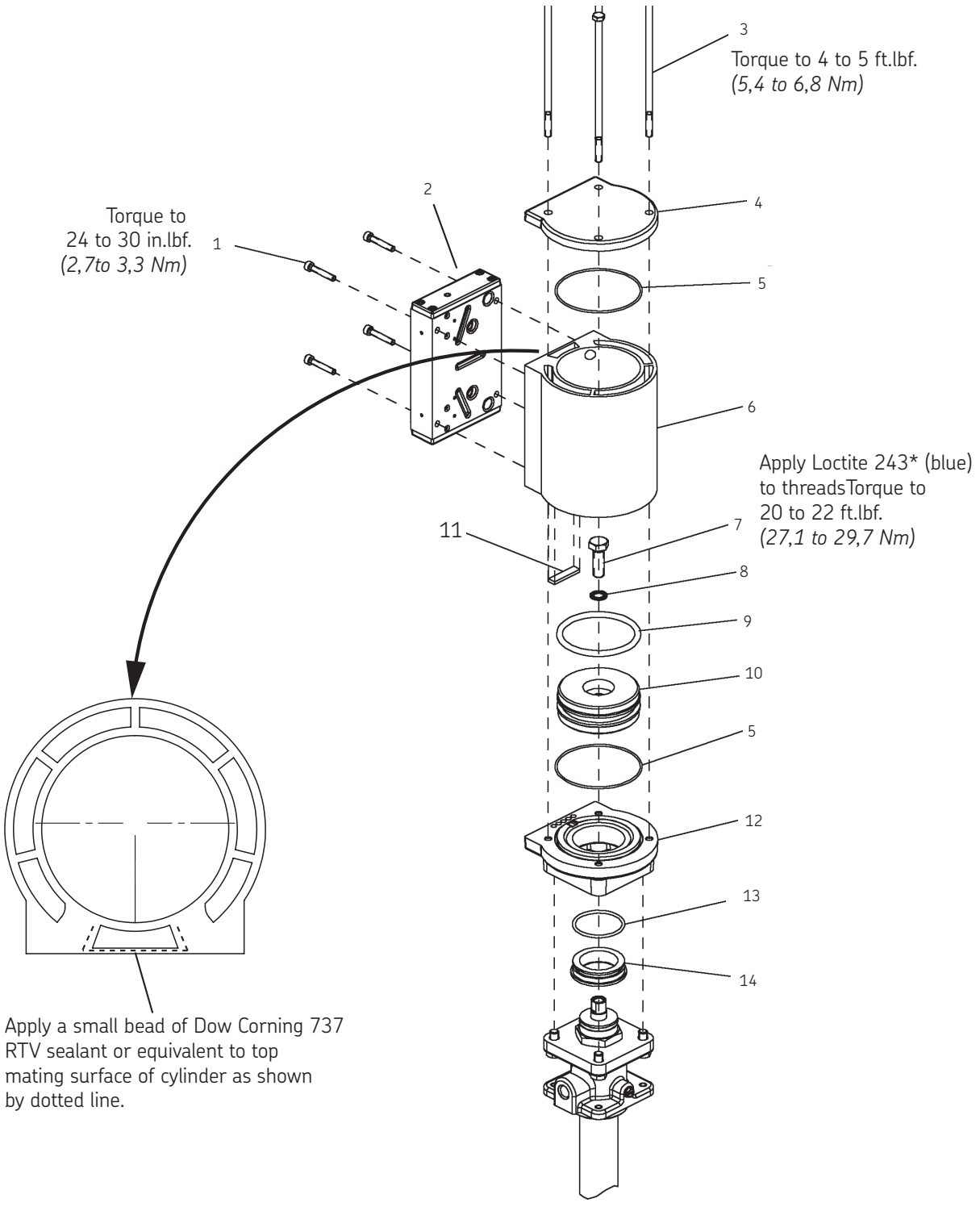
Followers are recommended with lubricants that do not readily seek their own level, or in cold temperature conditions. They help by keeping the grease on an even level and reduce the air pockets that can form in the grease by the removal of grease by the pump from the bottom of the container.

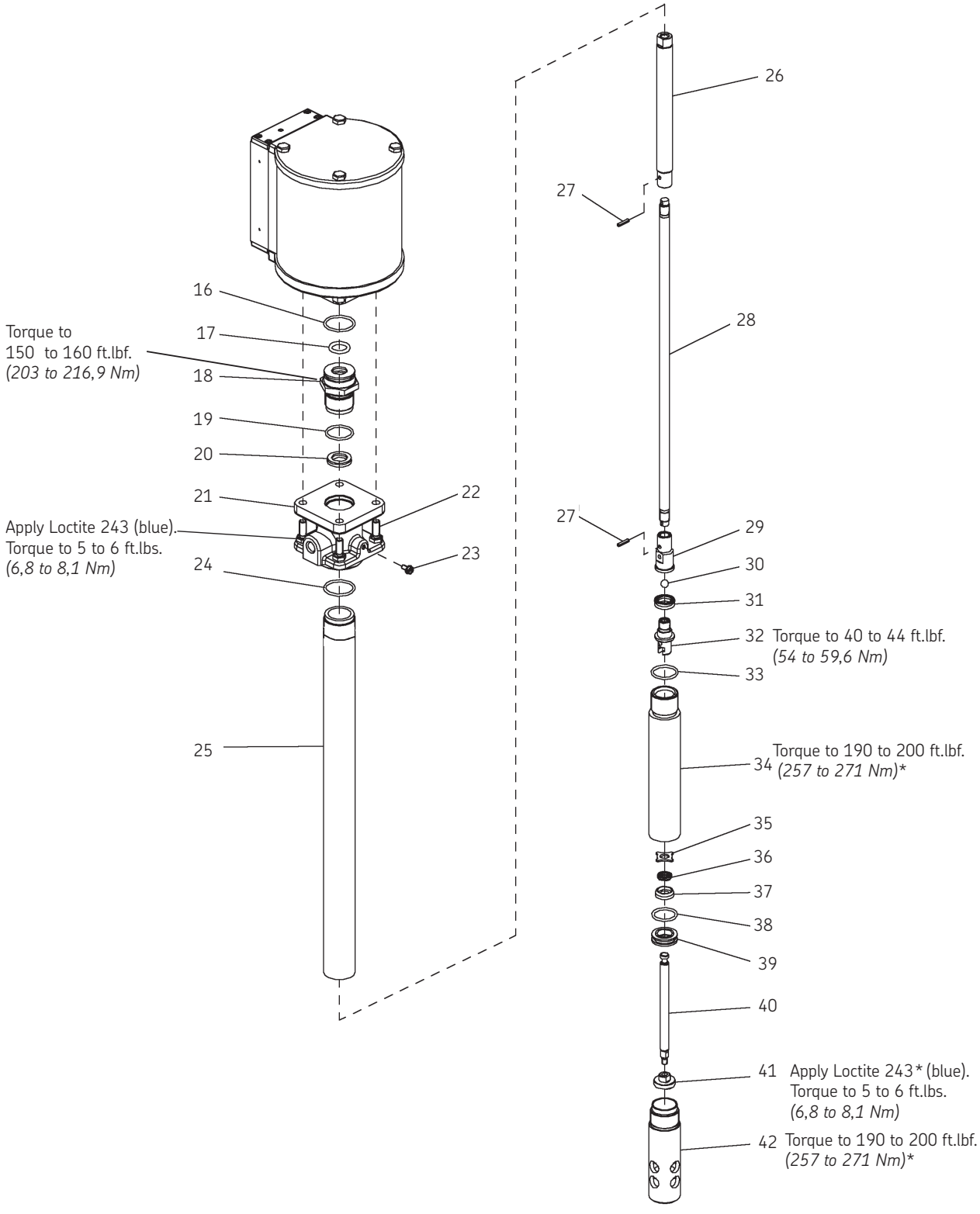
Notice
After the pump and hose have been primed and are free of are, the air pressure may be increased to the desired operating pressure. Check for leaks at all connections.

Pump dimensions



Model numbers	Drum size	Dimensions A	Dimension B
V450120000	120 lbs. *(54 kg)*	36 7/16 in. *(926 mm)*	27 3/8 in. *(695 mm)*
V450400000	400 lbs. *(181 kg)*	42 15/16 in. *(1 091 mm)*	33 7/8 in. *(860 mm)*


3
Torque to 4 to 5 ft.lbf.
(5,4 to 6,8 Nm)
2
Torque to
24 to 30 in.lbf.
(2,7to 3,3 Nm)
1
4
5
6
Apply Loctite 243* (blue)
to threadsTorque to
20 to 22 ft.lbf.
(27,1 to 29,7 Nm)
11
7
8
9
10
5
12
13
14
Apply a small bead of Dow Corning 737
RTV sealant or equivalent to top
mating surface of cylinder as shown
by dotted line.


16
Torque to
150 to 160 ft.lbf.
(203 to 216,9 Nm)
17
18
19
20
21
22
Apply Loctite 243 (blue).
Torque to 5 to 6 ft.lbs.
(6,8 to 8,1 Nm)
23
24
25
26
27
28
27
29
30
31
32 Torque to 40 to 44 ft.lbf.
(54 to 59,6 Nm)
33
34 Torque to 190 to 200 ft.lbf.
(257 to 271 Nm)*
35
36
37
38
39
40
41 Apply Loctite 243* (blue).
Torque to 5 to 6 ft.lbs.
(6,8 to 8,1 Nm)
42 Torque to 190 to 200 ft.lbf.
(257 to 271 Nm)*

Parts list

Item no.	Description	Qty.	Part no.
1	Socket head screw (M5 x 0.8 x 30 mm)	4	275045
2	Valve bar assembly	1	275408
3	Hex head screw (M8 x 1.25 x 160 mm)	4	275040
4	Cylinder head	1	275050
5	O-ring (nitrile)	2	275038[1)]
6	Air cylinder	1	275049
7	Hex head screw (M10 x 1.5 x 30 mm)	1	275035
8	Seal (nitrile)	1	275036[1)]
9	O-ring (nitrile)	1	34657[1)]
10	Piston	1	275055
11	Muffler element	1	275180[1)]
12	Cylinder base	1	275052
13	Hex nut (M8 x 1.25)	4	275032
14	O-ring (nitrile)	1	34309[1)]
15	Adapter	1	275127
16	O-ring (nitrile)	1	34314[1)]
17	O-ring (nitrile)	1	275096[1)]
18	Gland nut	1	275074
19	O-ring (polyurethane)	1	275095[1)]
20	U-cup (polyurethane/nitrile)	1	275098[1)]
*21	Outlet body and gasket kit	1	278902
22	Hex head screw (M8 x 1.25 x 20 mm)	4	275066
23	Grounding screw (#10-32 x 3/8 in.)	1	275129
24	Gasket, copper	1	278701[1)*]
25	Pump tube	1	See tube/rod list
26	Plunger rod	1	275070
27	Spring pin	2	275126[1)]
28	Connecting rod	1	See tube/rod list
29	Piston adapter	1	275117
30	Check ball	1	275125
31	U-cup (polyurethane/nitrile)	1	275102[1)]
32	Piston body	1	275116
33	O-ring (polyurethane)	1	275122[1)]
34	Bushing tube	1	275100
35	Check stop	1	275113
36	U-cup (polyurethane/nitrile)	1	275104[1)*]
37	Check	1	275111
38	O-ring (polyurethane)	1	275121[1)]
39	Check seat	1	275110
40	Priming plunger	1	275105
41	Priming shovel	1	275106
42	Priming tube	1	275112

[1)] Denotes parts supplied in 275403 seal kit
* Indicates change

Tube/rod list

Model number	Drum Size	Item 24	Item 27
V450120000	120 lbs. *(54 kg)*	275108	275119
V450400000	400 lbs. *(181 kg)*	275107	275118

Troubleshooting

Condition	Possible cause	Corrective action
Pump does not operate.	No air or low air to pump.	Make sure air pressure to pump is adequate to operate pump.
	Muffler element (**11**) clogged.	Remove muffler element and clean or replace.
	Damaged air valve bar assembly (**2**).	Replace air valve bar assembly.
Erratic operation or short stroking.	Pump is not primed.	Prime pump (→ **Initial pump priming**, **page 5**.
	Insufficient material supply.	Refill material supply.
	Damaged air valve bar assembly (**2**).	Replace air valve bar assembly.
Pump operates but dispenses material on only one stroke.	Worn or damaged piston u-cup (**31**) or piston check (**30** and **32**).	Inspect and replace if needed.
	Worn or damaged inlet check (**37** and **39**).	Inspect and replace if needed.
	Insufficient material supply. Pump is not intaking enough material to dispense on both strokes.	Check inlet for restrictions. Decrease air pressure to reduce pump speed.
Pump is operating but not dispensing material.	Inlet check (**37** and **39**) is not seating or is damaged.	Inspect and replace if needed.

Declaration of conformity as defined by Machinery Directive 98/37/EG Annex II A

This is to declare that the design of the PMV 50:1 grease pumps (models V450120000 and V450400000) complies with the provisions of Directive 98/37/EG

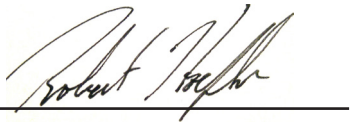
Applied Standards:

EN 292-1 Safety of Machinery - Basic Concepts, General Principles and Design - Part 1: Basic Terminology, Methodology

EN 292-2 Safety of Machinery - Basic Concepts, General Principles and Design - Part 2: Technical Principles and Specifications - Incorporates amendments 1 (1995) and 2 (1997)

EN 809 Pumps and Pump Units for Liquids - Common Safety Requirements

EN 349 Safety of Machinery - Minimum Gaps to Avoid Crushing of Parts of the Human Body



St. Louis, MO 08/14,
Bob Hoefler, Director Product Development and Product Engineering

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Lincoln industrial standard warranty

Standard limited warranty

Lincoln warrants the equipment manufactured and supplied by Lincoln to be free from defects in material and workmanship for a period of one (1) year following the date of purchase, excluding there from any special, extended, or limited warranty published by Lincoln. If equipment is determined to be defective during this warranty period, it will be repaired or replaced, within Lincoln's sole discretion, without charge.

This warranty is conditioned upon the determination of a Lincoln authorized representative that the equipment is defective. To obtain repair or replacement, you must ship the equipment, transportation charges prepaid, with proof of purchase to a Lincoln Authorized Warranty and Service Center within the warranty period.

This warranty is extended to the original retail purchaser only. This warranty does not apply to equipment damaged from accident, overload, abuse, misuse, negligence, faulty installation or abrasive or corrosive material, equipment that has been altered, or equipment repaired by anyone not authorized by Lincoln. This warranty applies only to equipment installed, operated and maintained in strict accordance with the written specifications and recommendations provided by Lincoln or its authorized field personnel.

This warranty is exclusive and is in lieu of any other warranties, express or implied, including, but not limited to, the warranty of merchantability or warranty of fitness for a particular purpose. Warranty on items sold by Lincoln, but not manufactured by Lincoln are subject to the warranty consideration, if any, of their manufacturer (such as hoses, hydraulic and electric motors, electrical controllers, etc.) Assistance in making such warranty claims can be offered as required.

In no event shall Lincoln be liable for incidental or consequential damages. Lincoln's liability for any claim for loss or damages arising out of the sale, resale or use of any Lincoln equipment shall in no event exceed the purchase price. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, therefore the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights. You may also have other rights that vary by jurisdiction.

Customers not located in the Western Hemisphere or East Asia: Please contact Lincoln GmbH and Co. Kg, Walldorf, Germany, for your warranty rights.

Special limited warranties

Special limited 2 year warranty SL-V series, single injectors – 85772, 85782, and replacement injectors – 85771, 85781

Lincoln warrants the SL-V Injector series to be free from defects in material and workmanship for two (2) years following the date of purchase. If an injector model (single or replacement) is determined to be defective by Lincoln, in its sole discretion, during this warranty period, it will be repaired or replaced, at Lincoln's discretion, without charge.

Special limited 5 year warranty series 20, 25, 40 bare pumps, pmv bare pumps, heavy duty and 94000 series bare reels

Lincoln warrants series 20, 25, 40 bare pumps, PMV bare pumps, heavy duty (82206), mini bench (81133, 81323), and all 94000 LFR series (single arm and dual arm) bare reels to be free from defects in material and workmanship for five (5) years following the date of purchase. If equipment is determined by Lincoln, in its sole discretion, to be defective during the first year of the warranty period, it will be repaired or replaced at Lincoln's discretion, without charge. In years two (2) and three (3), the warranty on this equipment is limited to repair with Lincoln paying parts and labor only. In years four (4) and five (5), the warranty on this equipment is limited to repair with Lincoln paying for parts only.

Special limited 5 year warranty limited oil meters, limited fluid control valves, aod (air-operated diaphragm pumps)

Lincoln warrants the 712 series control valves, 912 series lube meters, electronic lube meters (980, 981, 982 series), our universal inline digital meters (812/813 series), and our AOD pump offering to be free from defects in material and workmanship for five (5) years following the date of purchase. If either is determined to be defective by Lincoln, in its sole discretion, during the warranty period, they will be repaired or replaced, at Lincoln's discretion, without charge.

Special DEF (diesel exhaust fluid) limited warranty

DEF products are warranted to be free from defects in material and workmanship for a period of one (1) year following the date of purchase. The following exceptions to the standard warranty period are in effect:

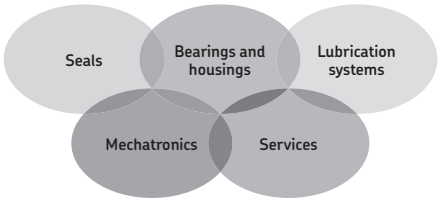
- **85700-30/85700-50 DEF hose reels (bare reel only),**
  277251/277252 AC DEF pumps, and 277256 and 277257 DEF meters are warranted for two (2) years from date of purchase.

- **85623 DEF AOD**
  (air operated diaphragm) pumps
  are covered under the standard five (5) year AOD pump warranty.

If either is determined to be defective by Lincoln, in its sole discretion, during the warranty period, they will be repaired or replaced, at Lincoln's discretion, without charge.

Lincoln Industrial contact information

To find Lincoln Industrial's nearest service center call the following number; customer service 314-679-4200 (international number 01-314-679-4200) or you may also use our website www.lincolnindustrial.com



The Power of Knowledge Engineering
Combining products, people, and application-specific knowledge, SKF delivers innovative solutions to equipment manufacturers and production facilities in every major industry worldwide. Having expertise in multiple competence areas supports SKF Life Cycle Management, a proven approach to improving equipment reliability, optimizing operational and energy efficiency and reducing total cost of ownership.

These competence areas include bearings and units, seals, lubrication systems, mechatronics, and a wide range of services, from 3-D computer modelling to cloud-based condition monitoring and asset management services.

SKF's global footprint provides SKF customers with uniform quality standards and worldwide product availability. Our local presence provides direct access to the experience, knowledge and ingenuity of SKF people.

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