



INSTRUCTION MANUAL
LM-type MANUALLY OPERATED PUMP

LM05F-10


LM04C-11


Attention for Safety Use

Before operation, read carefully the instructions below for the safety use.

These safety-use instructions, composed of “ Warning” and “ Caution”, are designed to protect customers from any possible harm and damage caused by misusing this system.

Read and follow these instructions carefully to prevent misuse-driven this system troubles and protect yourself from danger.

 **Warning** If ignoring instructions with this sign and operating wrong way, death or serious injury will happen.

 **Caution** If ignoring instructions with this sign and operating wrong way, injury and equipment damage will happen.

WARNING

1. Turn off the control board's power switch before installing, removing or maintaining the product; otherwise, electric shock will happen. Or the pump will operate automatically, eventually causing leakage or diffusion and tainting the surroundings.
2. Do not step on or pull the lubricator and pipe-related section as foothold or hand rail; you will slip and fall or it will damage the lubrication system.
3. Do not remodel or disassemble the equipment. If necessary, contact us beforehand. And if on-site maintenance job is needed, professional staff familiar with the mechanism must to work on it.
4. When using the equipment, put some protectors on, in response to a situation, to avoid a wound.

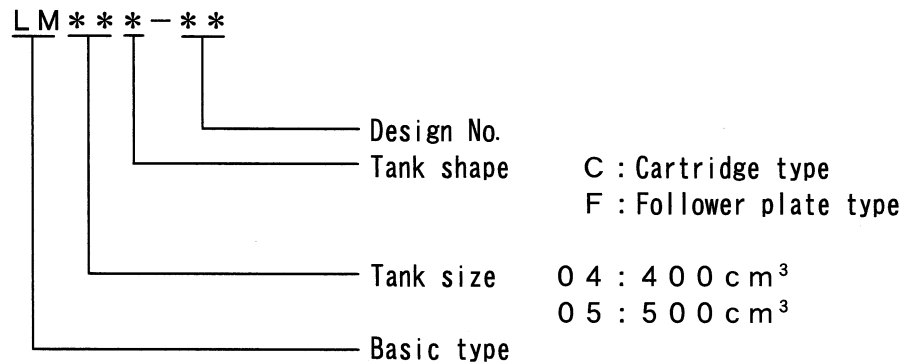
CAUTION

1. In case of air venting, protect the pump beforehand with vinyl case or other alternatives; otherwise, grease-contained air will diffuse and damage your eyes and other objects.
2. Use protectors whenever handling grease; otherwise eye damage or skin inflammation will happen when grease contacts your eyes or skin.
3. Do periodical inspection, such as checking grease amount and operation, to maintain the lubrication system. If do not, machine trouble driven by bearing injuring will happen.
4. Use the system within the rated capacity and under the adequate operational environment. If ignoring them and using it beyond the capacity or under the dangerous environment, including its installment nearby fire and explosives, the system will have mechanical problems or cause fire.

1. General Description

LM-type manually operated pump is used for easy handle operation type pump as supply source of centralized lubricating system which optionally and centralizing supplies the best suited volume of grease.

2. Key to Type Code



3. Pump Type and Specifications

Model	LM05F-10	LM04C-11
Max. working pressure MPa	24	
Discharge volume cm ³ /st	0.6	
Discharge port size	Rc3/8	
Consistency of applicable grease	For centralized lubricating No. 0 to No. 2	
Tank capacity cm ³	500	400
Tank type	Follower plate	Cartridge grease
Method of replenishment	Supply from feed port	Change cartridge
Working temperature range °C	-20 to +60	No. 0, 1 : -5 to +50 No. 2 : 0 to +50
Vibration resistance (Max.) G (JISD1601 3-class)	8.9	3.0
Protection class	Drip-proof fully guarded	
Weight kg	1.2	1.1
Handle operating force N	177	

4. Construction and Principle of Operation

See figure 1. This figure is LM04C-11, the same operation as LM05F-10.

This pump discharge grease by operating handle in front and behind within about 25°. This handle is link construction, so pump piston operates to follow the handle.

- 1) Turn right the Pressure releasing handle to the position where it will stop, shut off the connecting hole between supplying main pipe and tank by Pressure releasing valve.
- 2) When moving the Handle to front side (left side in Figure 1), Pump piston moves to left and suction hole "A" is opened.
- 3) Grease in the cartridge or the tank flows into pump chamber from this hole.
- 4) As the Pump piston moves to the right side by operating handle, suction hole "A" is closed, the pressurized grease by moreover moving pushes open the Check packing and is sent from Discharge port.
- 5) Moreover, operate the Handle, strokes of Pump piston send the grease out to supplying main pipe. When the distributing valve operates and lubrication is finished, pressure in supplying main pipe is increased and the Indicator jumps out about 3 mm.
- 6) When the Indicator jumps out, loosen Pressure releasing handle (left turn) . Supplying main pipe is joined to the tank, the grease within supplying main pipe is opened into tank and pressure-released.
- 7) Keep loosen the Pressure releasing handle until the next lubrication.

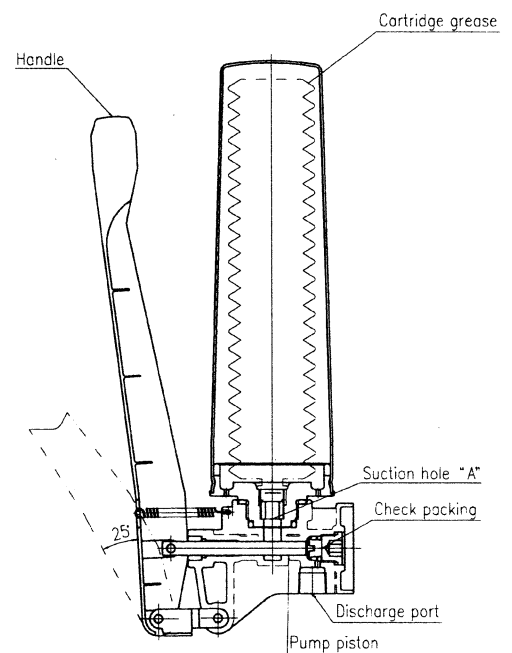
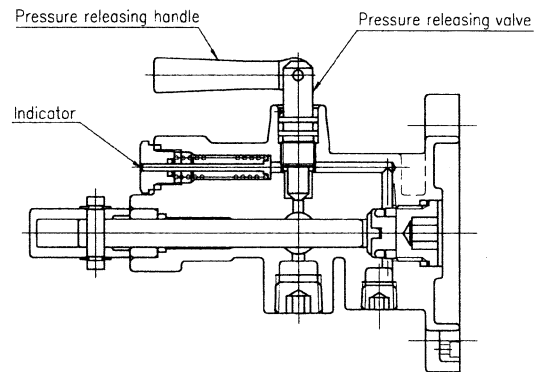


Figure 1

5. Replenishment of Grease

1) LM05F-10 (Figure 2)

When the first filling up, release air in the tank from air vent of the tank high level mark and keep the tank no air.

After the second time fill up to the high level.

In addition, supply grease by filling pump with pipe fitting is suited to the feed port. Our standard pump pipe fitting's dimension is G3/8. We prepare exclusive filling pump to accept your order.

We also prepare filling pump with grease nipple. Inquire us or our agency to order.

2) LM04C-11 (Figure 3)

Install general goods on the market for cartridge grease 400cm³.

Install following method.

- Loosen hexagon socket screw (size of square is 7mm) of fixing band.
(Using a spanner or a screwdriver)
- Remove cartridge cover of the pump pull up (to be felled down) by hand.
- Screw the top of cartridge on the part of center screw of the pump body.
- When put the cartridge cover as it was, and tighten the screw of fixing band, installation is completed.

<The first filling up>

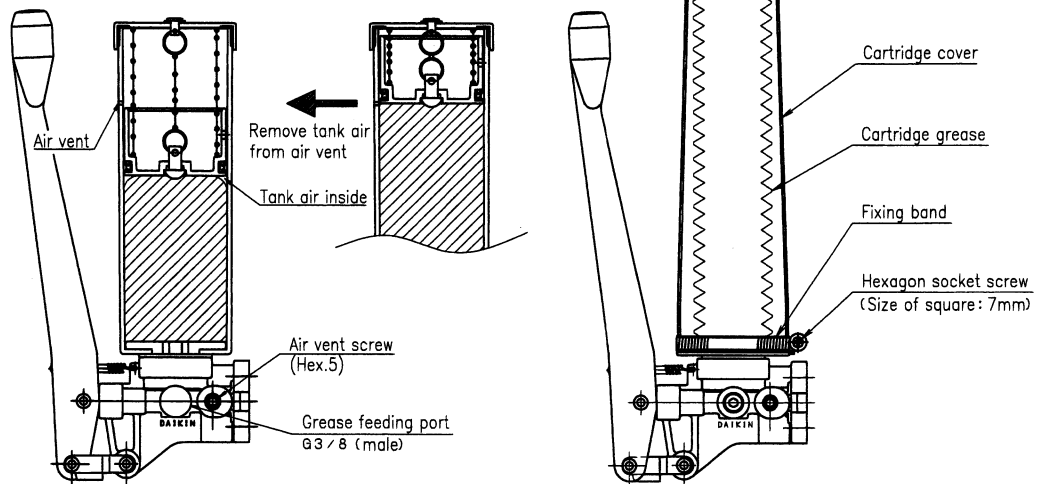


Figure 3

<From the second time>

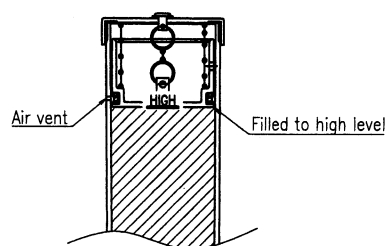


Figure 2

6. Handling Precaution

- 1) Be sure to use the type of grease consistency of centralized lubrication grease NLGI No. 0 to No. 1 and No. 2. Refer to specifications to know working temperature range.
- 2) In case of first filling of the pipe with grease or oil, prepare another pump (Ex. Air operated pump) and fill with actually using grease to take away air and dust from end of the pipe entirely.
- 3) Handle operating force at maximum working pressure is 177N.
Be careful if operate with excessively great force, it may be damaged.
- 4) When starting operation and making cartridge or tank empty, it may be include air in the pump. In case light handle operation and no response, carry out air venting.

Before starting operation, confirm that the power source to lubricating system is turned off, the electric power source is completely stopped and the pressure in lubricating circuit is released.

Method of air venting is as follow :

After removing air vent screw (hexagon socket headless plug Rc1/8) of the pump side, operate the handle. Then grease include bubble is pushed out entirely, and continue until fresh grease comes out continuously. (Figure 2)

When grease flowing out is not enough about LM04C-11, operate the handle as pressing the cartridge.

7. Maintenance and Regulation

- 1) In normal operation, record the number of handle operating times which needs complete the working of distributing valve's motion indicator.
When the number of handle operating times till jumping out of indicator is remarkably differ from normal operation, it is possible some trouble may be caused in lubricating system.
- 2) When the handle excessively heavy and difficult to operate, it may cause over resistance of bearing side or malfunction of distributing valve.
- 3) When the handle operation is excessively light and no response, it may cause so much air inclusion in the pipe or air in the pump. Carry out air venting entirely.