INSTRUCTION MANUAL
OF
AIR ELEVATOR GREASE PUMP UNIT

AELBP

DAIKIN LUBRICATION PRODUCTS & ENGINEERING CO., LTD.

Contents

1. Safety precautions (Please follow mentioned below for security by all means.)

To use this unit safely, contents needing attention are mentioned.
These are intended to prevent injury or damage to customer.

◇Any possible harm or damage caused by misusing are classified and described as follows.

⚠ WARNING	Failure to observe the instructions indicated by this symbol may result in death or serious injury.
⚠ CAUTION	Failure to observe the instructions indicated by this symbol may result in personal injury or property damage.

⚠ WARNING

① Do not step on Lifter unit or do not go up and down with getting on.
・Otherwise, fall accident or trouble of unit may be caused.

② Do not touch Lifting guide.
・Otherwise, it may cause injury with pinching your fingers in.

③ Do not insert your hands between dram-can and Lifter unit.
・Otherwise, it may cause injury with pinching your hands in.

④ Do not dash water on electric equipment product or do not thoughtlessly take off a cover.
・Otherwise, a fire or the electric shock may be caused.

⑤ Do not put your foot or step on lubrication devices, pipes and so on as a substitute for a footstool. And do not pull it as a substitute for a handrail.
・Otherwise, trouble of unit or injury may be caused.

⑥ In case of maintenance of equipment, be sure to turn off main power source of distributing panel on primary side at first.
Next, confirm to turn off all the power source into equipment.
・Otherwise, the electric shock may be caused.

⑦ Be sure to stop Motor driven drum-can pump and discharge pressurized grease within pipes to avoid danger before maintenance of equipment.
・Otherwise, it may cause eye or skin trouble by scattering lubricant.

⚠ CAUTION

① Do not hang down from Lifter unit or get on or lean on or add impossible power on lifter unit when it is going up and down.
・Otherwise, fall accident may be caused.

② Do not hold except handle when Lifter unit is going up and down.
・Otherwise, it may cause injury with pinching your hands in.

③ Safety stopper must be moved with holding handle of safety stopper by all means.
・Otherwise, it may cause injury with pinching your hands in.

④ Absolutely do not remove pipes or plugs when Motor driven drum-can pump is running.
・Otherwise, it may cause eye or skin trouble by scattering lubricant.

2. General description

This AIR ELEVATOR GREASE PUMP UNIT can conveniently change 200ℓ drum-can of Motor driven drum-can pump using with Lifter unit that is goes up and down by air operation of reversing valve only.

3. Explanation of model code

AE LBP ＊＊ ＊ ＊＊ ＊−11− ＊ ＊ ＊ ＊ ＊
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫
Optional parts (None : No optional setting)

① Basic mode
AE : Air elevator

② LBP drum-can pump model

③ Discharge type
08 : 75/90cm³/min (50/60Hz)
10 : 100/120cm³/min (50/60Hz)
20 : 158/190cm³/min (50/60Hz)
40 : 316/380cm³/min (50/60Hz)

④ System classification
− : Basic system
K : Single line, progressive operating system (with Pressure switch)
L : Dual line, parallel operating system, loop type
(with loop type Reversing valve)
N : Dual line, parallel operating system, lance type
(with lance type Reversing valve)

⑤ Motor voltage
20 : AC200/220V (50/60Hz)
40 : AC400/440V (50/60Hz)

⑥ Control device
None : No control device
1 : Single line system, with 1 pressure switch for alarm (for general)
3 : Single line system, with 2 pressure switches for alarm and control
(for Multi-zone)
A : Dual line system, with Solenoid valve of AC100V (50/60Hz) for Reversing valve
B : Dual line system, with Solenoid valve of AC200V (50/60Hz) for Reversing valve

⑦ Design No.

⑧ Control panel
0 : None
1 : With Control panel

⑨ Air compressor
0 : None
1 : With Air compressor

⑩ Temporary dust protective cover
0 : None
1 : With Temporary dust protective cover

⑪ Turning pump unit
0 : None
1 : With Turning pump unit

⑫ Replacing of Hydraulic reversing valve
0 : No replacing
1 : Replacing to LRV-42
2 : Replacing to LRV-43

4. Specifications of lifter unit
   - Supply air pressure : 0.4 to 0.5MPa (Max. 0.7MPa)
   - Max. lift up stoke : 950mm
   - Possible lift up mass : 80kg
   - Installation dimension : 700×1000×1697H (Max. height of lifter : 2632mm)
   - Mass of AIR ELEVATOR GREASE PUMP UNIT : 190kg

5. Constructions
   - P-LBP type pump
   - M-LBP type motor
   - Lifter unit (includes bed and column)
   - Relief valve
   - Terminal box
   - HV03 type Reversing valve (for dual line system)
   - EK-5(T)-LBP type Control panel (as optional setting for single line system, taking place of Terminal box)
   - EA-5(T)-LBP type Control panel (as optional setting for dual line system, taking place of Terminal box)

6. Installation
   - In case of installation, enough space should be secured.
   - Install AIR ELEVATOR GREASE PUMP UNIT on flat and surfaced place.
   - Fig. 1 shows standard dual line unit.

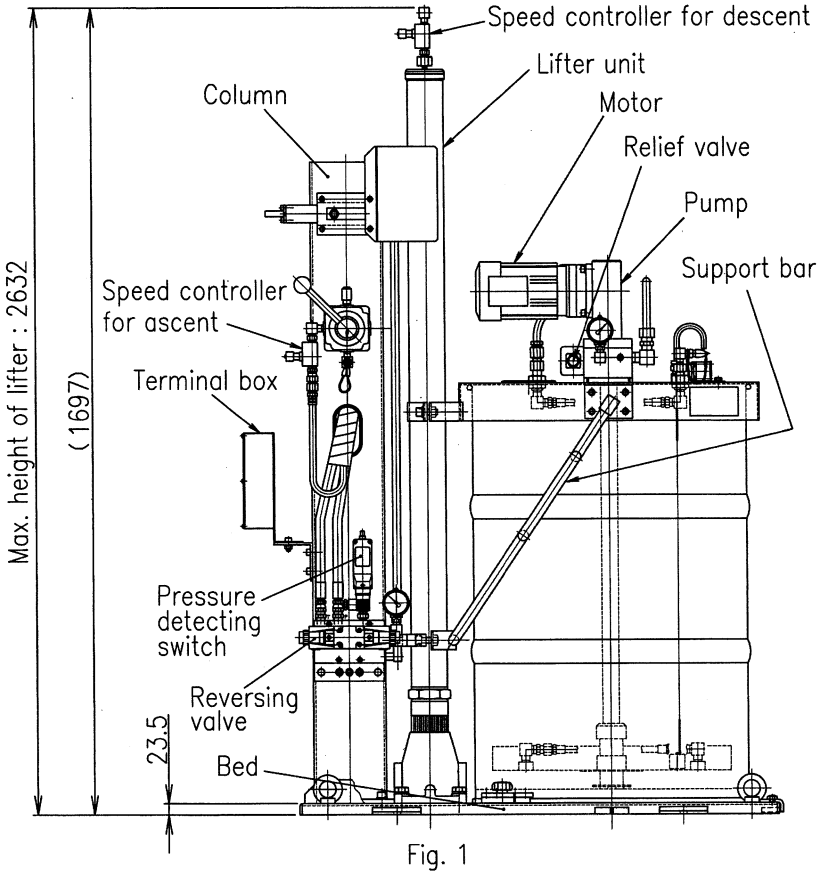


Fig. 1

7. Operation manual of Elevator unit

7.1 Setting of drum-can

Remove Removable chime stopper from Bed, fit Chime stopper fitting boards on drum-can chime, insert body of new drum-can to Fixed chime stoppers (two points) and set drum-can so as not to move with inserting Removable chime stopper which has been removed.
At the time of factory shipment, chime stoppers are set to ϕ585 (standard size of chime diameter). (Fig. 2)
In case of using a drum-can of ϕ593 (largest size of chime diameter), chime stoppers need to be adjusted. (Fig. 3) Remove two Fixed chime stopper fitting boards and fit them with turning 180° each.

If insertion of Removable chime stopper to drum-can was not deep enough, at the time of changing new drum-can, old drum-can may run off from Removable chime stopper and may go up together with Lifter. It will be so dangerous.

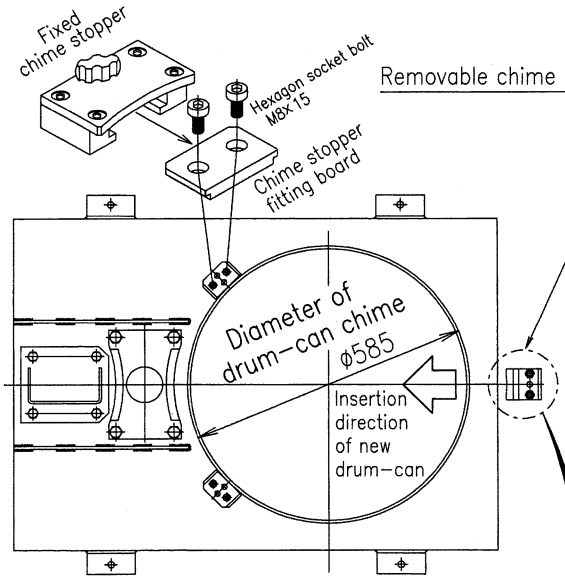


Fig. 2

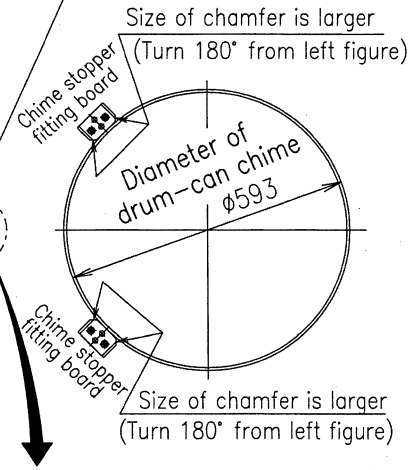
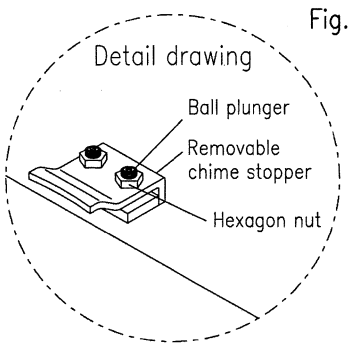


Fig. 3



Fix tight Ball plunger and Hexagon nut of Removable chime stopper.
If they are loosened, drum-can chime is in danger of running off from Removable chime stopper.

7.2 Insertion of drum-can

New drum-can can be easily inserted from front or right side.
At the time of factory shipment, its setting is inserted from right side. (Fig. 4)
In case of inserting from front, remove Fixed chime stoppers on this side front and fit them on right side at the back.
And, fitting point of Removable chime stopper will come in front. (Fig. 5, 6)

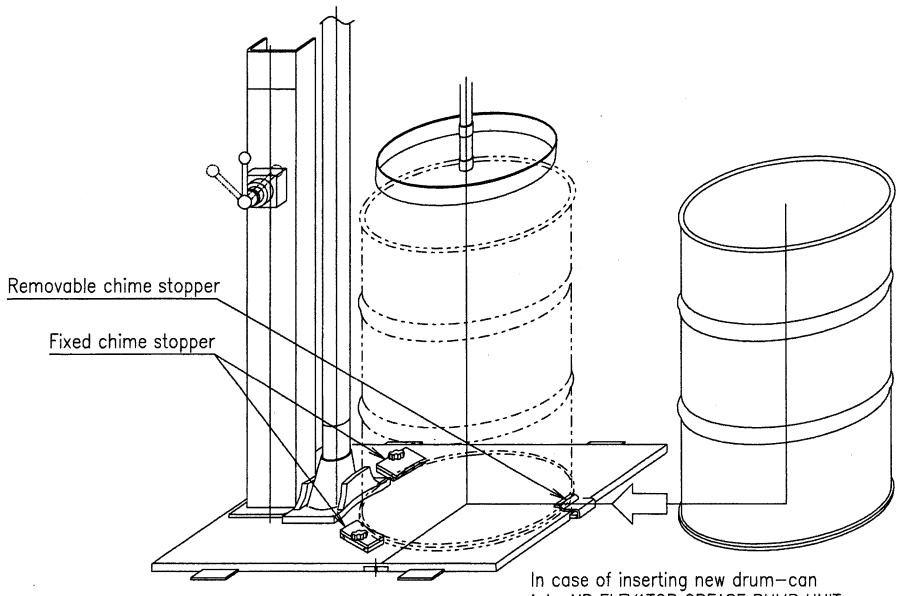
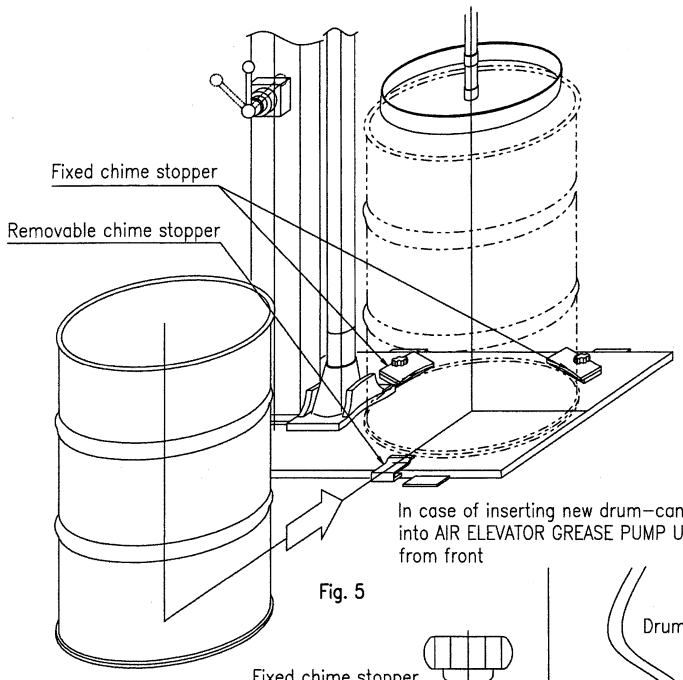
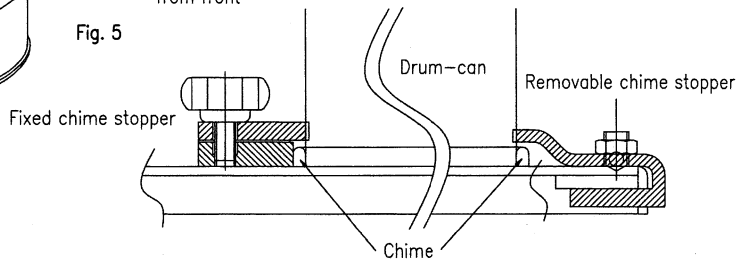


Fig. 4 In case of inserting new drum-can into AIR ELEVATOR GREASE PUMP UNIT from right side



In case of inserting new drum-can into AIR ELEVATOR GREASE PUMP UNIT from front

Fig. 5



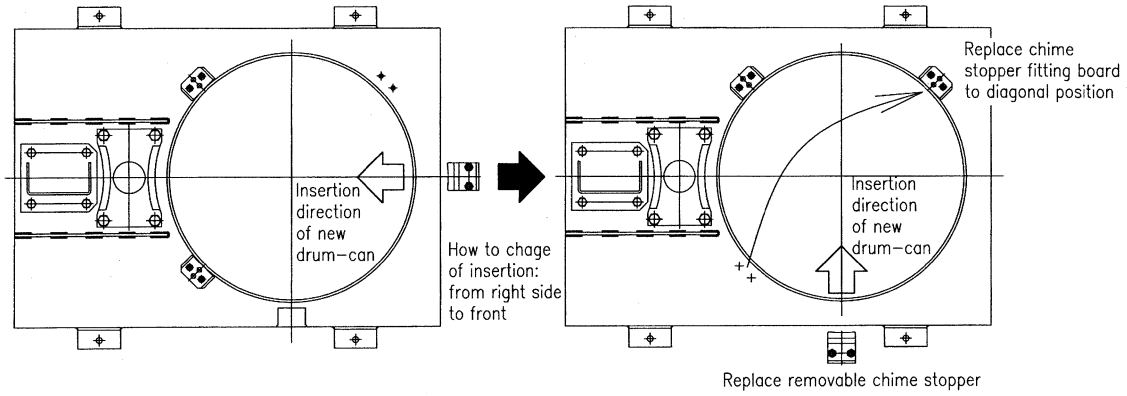


Fig. 6

7.3 Changing of drum-can

On changing of drum-can, there is a case that the Lifter is hard to go up because of Follower plate sticks to remained grease.
In this case, it is possible to separate Follower plate from remained grease in following way.

Confirm air is supplied and adjusted within the range of 0.4 to 0.5MPa by Regulator.
Connect Air hose (is not accessory) to 30 type FILLSTUD (with Check valve) that is connected with drum-can cover.
After connection, pour with air for about 1 minute at 10 to 20 degrees of temperature, with using grease NLGI No.1 of viscosity and lithium group.
On the other condition of grease or temperature, be careful to be needed to extend slightly the time of pouring with air.
After pouring with air, remove Air hose, fit up DUSTCAP (protective cover) to 30 type FILLSTUD (with Check valve) to avoid the mixture of dust or alien materials. (Fig. 7)

⚠

Using with maximum supplying air pressure of over 0.7MPa, personal injury or property damage by breakage of equipment may be caused.
Be sure to adjust within the range of 0.4 to 0.5MPa by Regulator.

⚠

30 type FILLSTUD (with Check valve) attached to drum-can cover must be connected only at the time to separate Follower plate from remained grease changing of drum-can.
Do not be connected at the time of going up and down of Lifter, running of Motor driven drum-can pump, and so on. Misusing may cause personal injury or property damage.

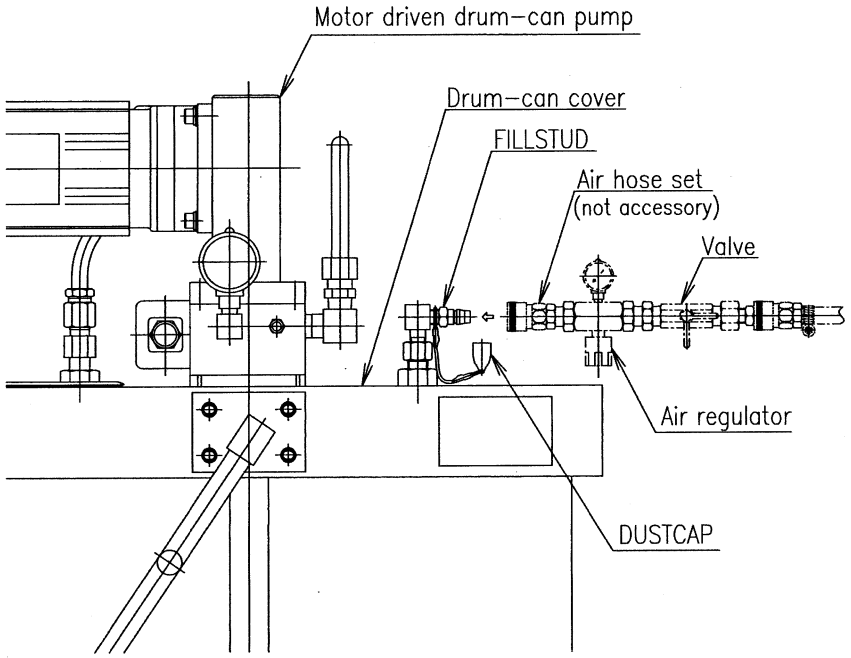


Fig. 7

7.4 Up and down of Lifter

To supply air to Lifter, connect Air hose with 30 type plug which is connected to bottom port of Manual valve. (Fig. 8)

⚠ Do not handle separation work of Follower plate from remained grease during the Lifter is going up or down. Otherwise, trouble of unit or injury may be caused.

⚠ Do not repeat to make the Lifter go up or down needlessly. Otherwise, it may cause air mixed.

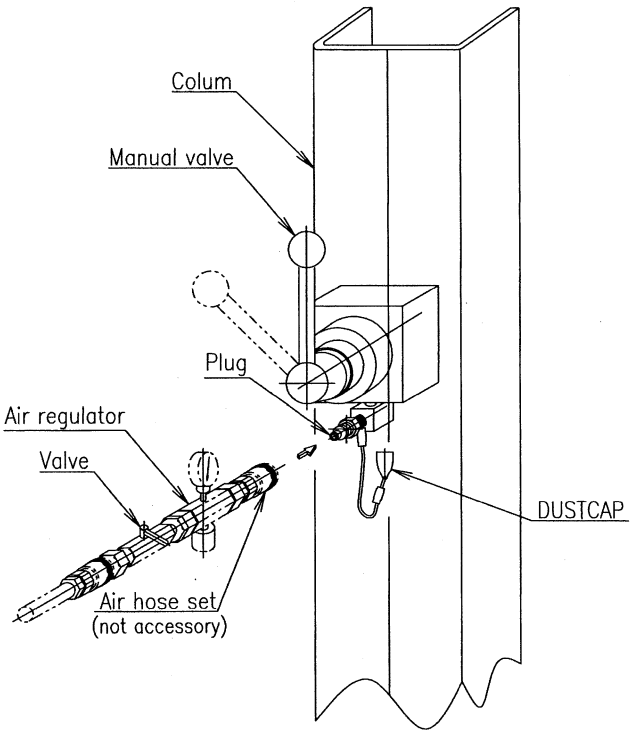


Fig. 8

Before raising Lifter, be sure to pull Safety stopper to this side completely with holding handle of Safety stopper. (Fig. 9)
At this time, be careful of Safety stopper will not to touch with Clamp of drum-can cover that is coming up.
Next, raise Lifter with pulling lever of Manual valve down from "STOP" to "UP". (Fig. 10)

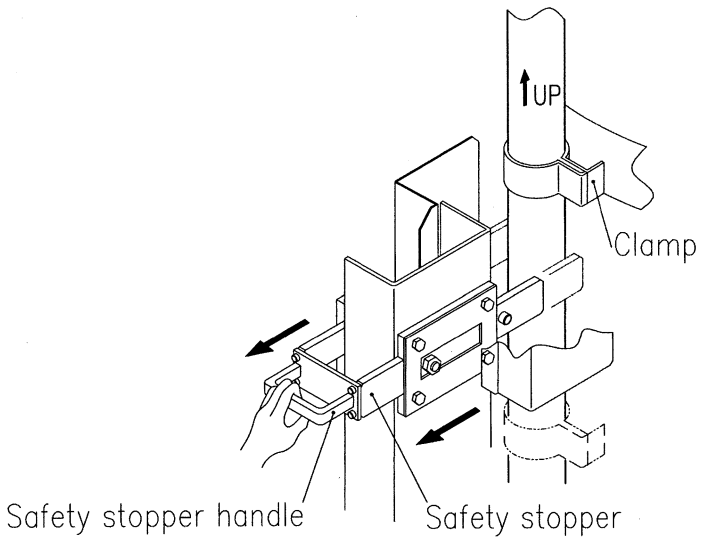


Fig. 9

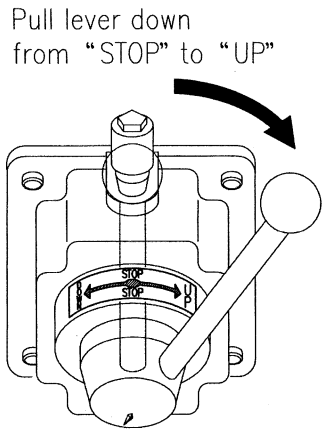


Fig. 10

⚠

When Lifter goes up, do not lean your body or touch Lifting guide, to avoid injury with pinching your body or hands in.

Confirming strokes of Lifter, that is, Clamp of drum-can cover reaches Shock absorbing part, push Safety stopper forward to the end from this side. (Fig. 11)
After confirming Safety stopper is in state of fall-protection, be sure to put the lever of Manual valve back to "STOP" from "UP". (Fig. 12)

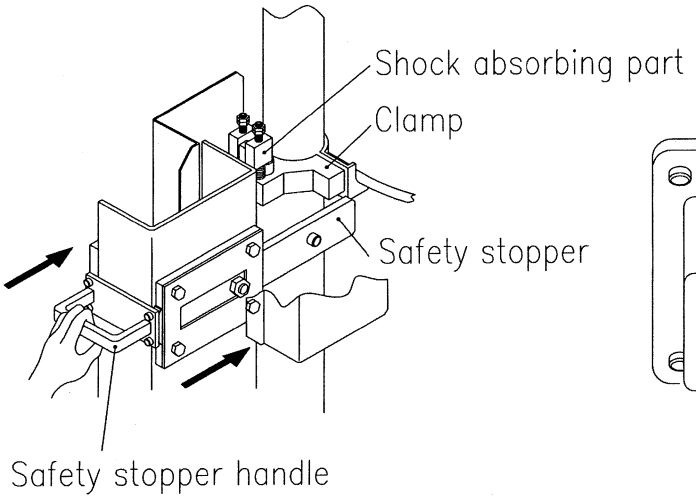


Fig. 11

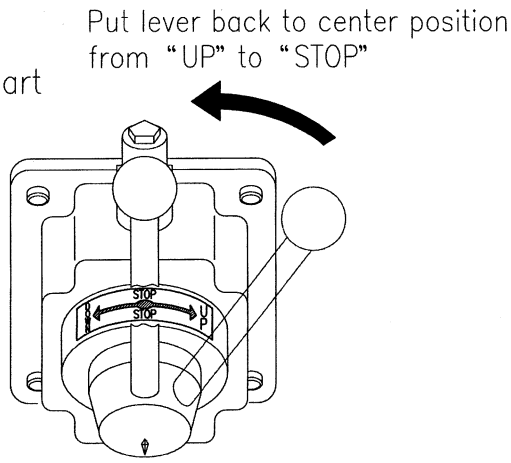


Fig. 12

Next, remove Removable chime stopper is fitted to Bed.
Change the drum-can whose remaining grease quantity is decreased for new one.

⚠

Do not get your head under the rising pump to avoid injury with hitting your head against drum-can cover or lubricant dripping into your eyes from pump.

After finishing to change drum-can, be sure to pull Safety stopper to this side completely with holding handle of Safety stopper. (Fig. 13)
Next, take Lifter down with pulling lever of Manual valve down from "STOP" to "DOWN". (Fig. 14)
Descending of Lifter and insertion of drum-can can be supported by holding handle of Support bar. (Fig. 13')

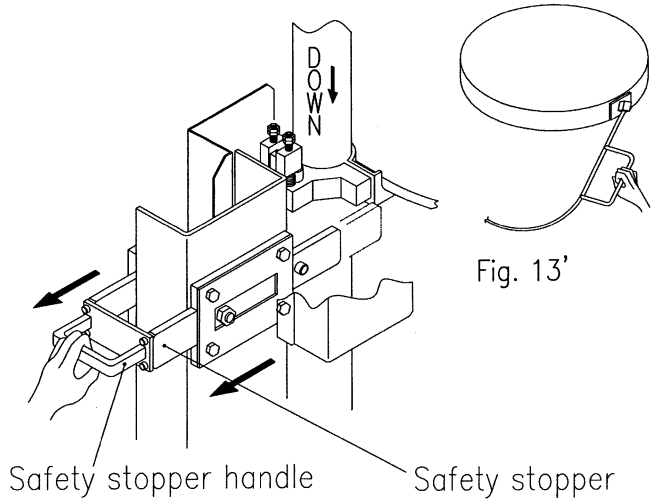


Fig. 13

Fig. 13'

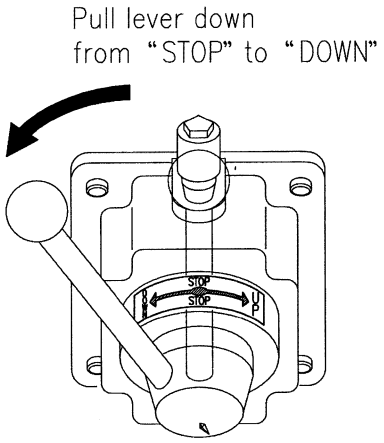


Fig. 14

⚠

Be careful of Safety stopper will not to touch with Clamp that is coming down by weight of pump. When Safety stopper can not be moved with weight of pump, try to pull Safety stopper as lifting with handle of Support bar. (Fig. 16')

After finishing of descending of Lifter, be sure to push Safety stopper forward to the end (Fig. 18), put the lever of Manual valve back to "STOP" from "DOWN". (Fig. 19)

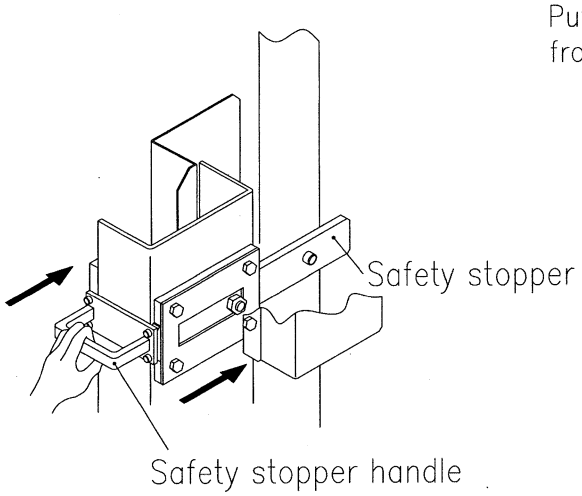


Fig. 15

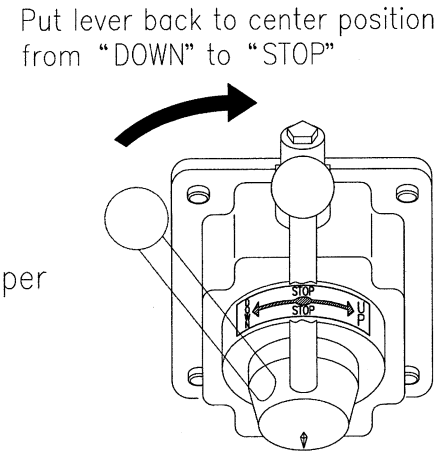


Fig. 16

⚠

When Lifter goes down, do not lean your body or touch Lifting guide, to avoid injury with pinching your body or hands in.

7.5 Handling of Manual valve and connecting of Air hose

Due to a compressibility of air or characteristics of Manual valve, the Lifter has some possibility to move unexpectedly by mishandling.
Be careful of following point.

Do not turn the lever of Manual valve to "DOWN" during going up of Lifter or do not back the lever to "STOP" during going down of Lifter, to avoid sudden falling of Lifter and injury with pinching your hands between Follower plate and drum-can.
Once the Lifter reaches the top, then turn the lever to "DOWN".
And once the Lifter reaches the bottom, then back the lever to "STOP".

Do not stop the lever halfway between "UP", "STOP" and "STOP". If the lever is stopped halfway between these three points, the Lifter may move unexpectedly by internal leakage of air.

Remove the Air hose or stop supplying of air, and turn the lever of Manual valve to "STOP" when the Lifter is not in use (except changing of drum-can).
Even if the lever of Manual valve is kept on "STOP", in case of air is continued to supply, the Lifter may move up slightly by very small amount of air leakage within Manual valve.
When the air supply can not be stopped unavoidably, turn the lever of Manual valve to "DOWN" except when the Lifter is in use. In this case, continuous air pressure may shorten the life span of packing sort of Manual valve or Cylinder.

7.6 Prevention of air mixed

① Adjust the pump position as the space between drum-can and Follower plate to be nearly even.
To prevent the air mixed, make the grease to be mountain-shaped in center of drum-can, because the grease spreads out to the edge with being pressed down by bottom of Follower plate, and the surface of grease becomes horizontally. (Fig. 17)

② If the grease in center of drum-can forms a hollow, Air pocket appears and may cause air mixed. (Fig. 18)

③ Remaining grease on Follower plate makes contact face between bottom of Follower plate and grease to be uneven, may cause air mixed. So, after making Lifter go up, clean bottom and side of Follower plate. (Fig. 19)

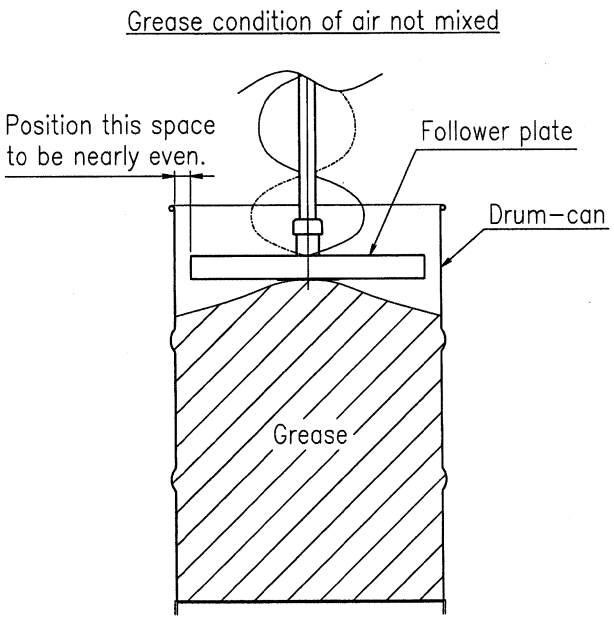


Fig. 17

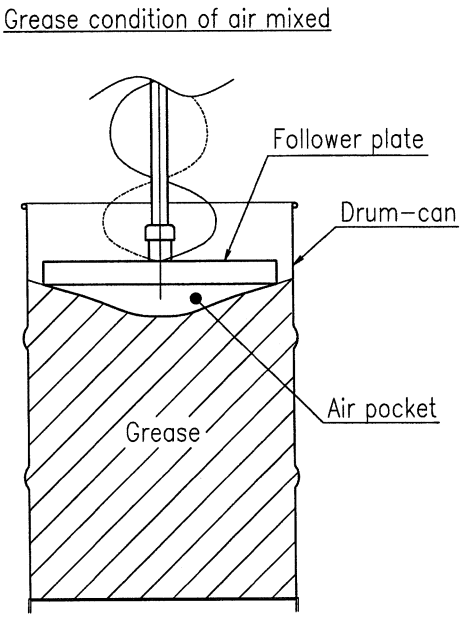


Fig. 18

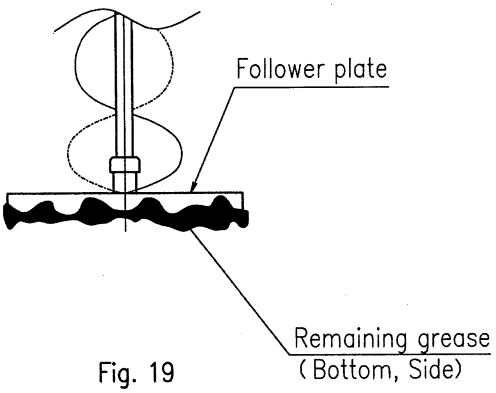


Fig. 19

7.7 Adjustment by Speed controller

At the time of factory shipment, Speed controllers are set in air pressure of 0.4MPa. In order to change the setting of supplying air, Speed controller for ascent must be adjusted, and to change the setting of discharging air, Speed controller for descent must be adjusted.
The valve closes by turning the knob of Speed controller to right, and the valve opens by turning it to left. So that, ascent and descend speed of Lifter becomes slower by turning the knob of Speed controller to right, and becomes faster by turning it to left.

⚠

Be careful not to turn the knob of Speed controller at large to avoid the sudden ascent or the sudden descent of Lifter.

7.8 Operation of low level switch

Low level switch is equipped with this Lifter unit and is adjusted to work when the remaining grease decreases to level of 40mm from bottom of drum-can.

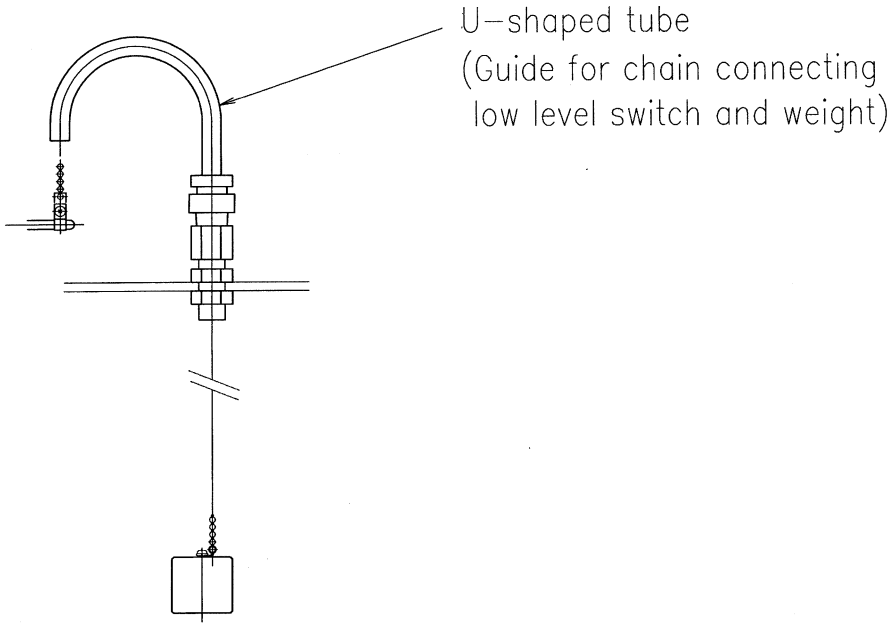


Fig. 20

8. Maintenance check

In order to keep Air cylinder moving smoothly, pour the grease into Grease nipple at the lower part of Air cylinder periodically.

9. Storage

On stopping this unit for a long term, be sure to shut air supply off.

10. Trouble shooting

Problem	Possible cause	Solution
Lifter unit does not work	・Supply air pressure may be low ・Knob of Speed controller may be closed	・Supply air pressure must be adjusted within the range of 0.4 to 0.5MPa by Air regulator ・Open and adjust Knob of Speed controller
Lifter unit does not certainly go up and down	・Supply air pressure may be low ・Grease for Air cylinder may be not enough	・Supply air pressure must be adjusted within the range of 0.4 to 0.5MPa by Air regulator ・Pour the grease into Grease nipple of Air cylinder

11. Other notes

① Use compressed air that is cleaned and dried by Air filter (below 5μm).

② Air filter must be cleaned or changed periodically.

③ To keep supplying clean air, maintenance and inspection of Compressor oil and Compressor are necessary.