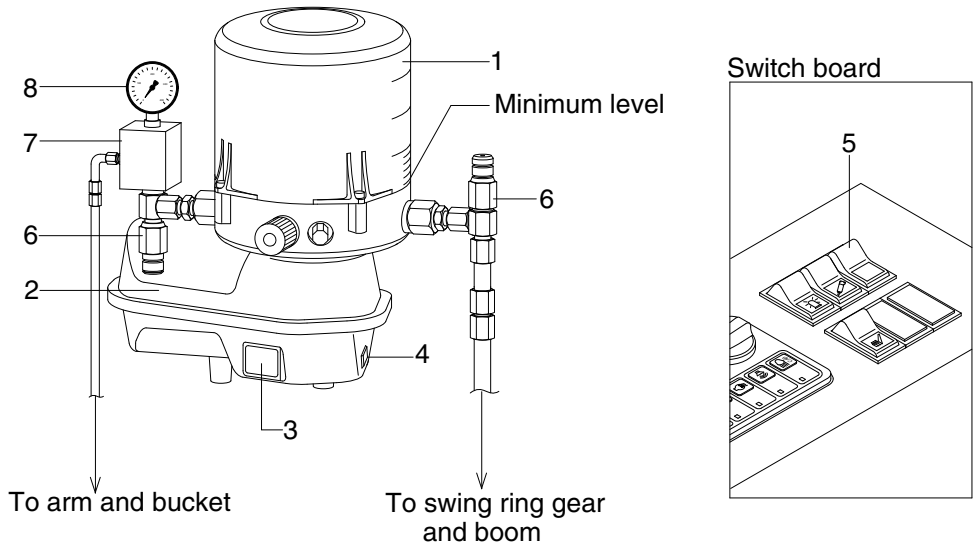
6. CENTRAL GREASE LUBRICATION SYSTEM (-#0105)

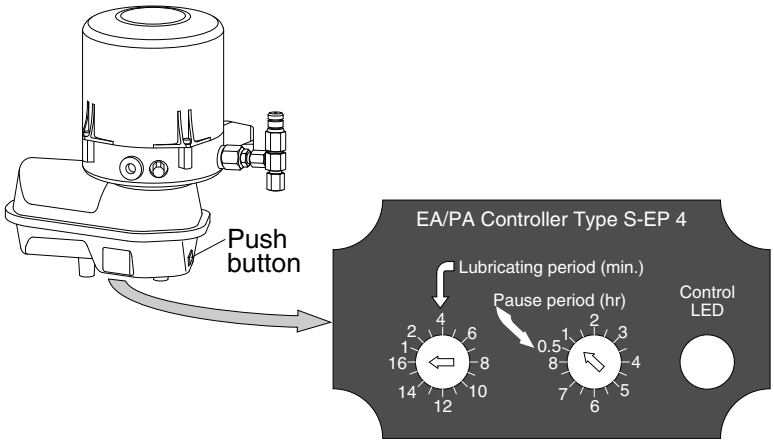
1) MAJOR COMPONENT



8007A8CG13

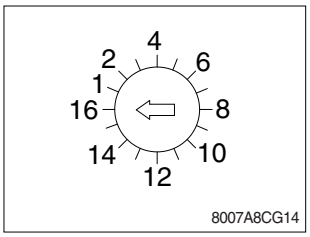
1 Grease tank
2 Grease pump
3 Control unit
4 Push button
5 Central grease lubrication switch
(Refer to the page 3-15)
6 Pump element
7 Relief valve
8 Pressure indicator

2) ELECTRONIC CONTROL UNIT



8007A8CG18

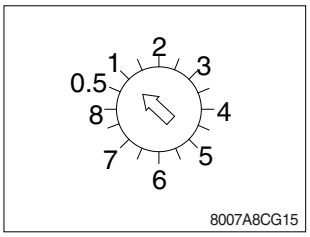
(1) Lubricating period setting dial



8007A8CG14

① This dial use to set the greasing period from 1 to 16 minutes.
② Default period is 16 minutes.
※ **Use a minus(-) screw driver to change settings.**

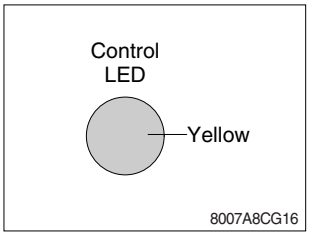
(2) Pause period setting dial



8007A8CG15

① This dial is use to set the pause period from 0.5 to 8 hours.
② Default period is one hour.

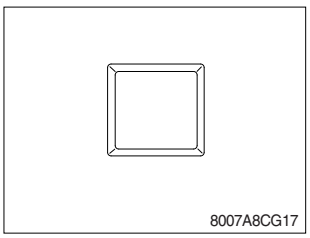
(3) Control LED



8007A8CG16

① This LED indicates operating status of the central grease lubrication system.
② Turn the starting switch ON, the LED will light up for 1.5 seconds.
③ During the central grease lubrication system is operated, it will blink at 0.5 second intervals.
④ When the lubrication system is failed, the LED is light up continuously.

3) Push button



8007A8CG17

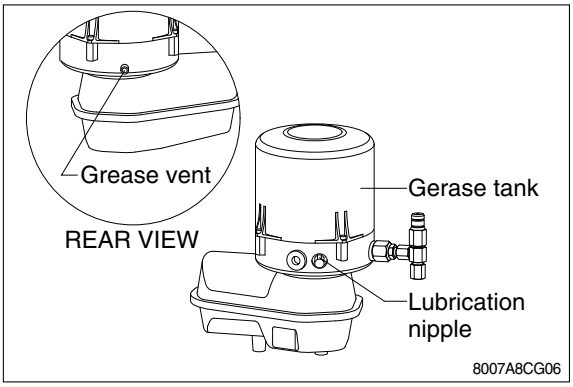
① This button use to operate the central grease lubrication system.
② Pushing the button, the central grease lubrication system is operated for 16 minutes once.

4) FILLING THE GREASE TANK

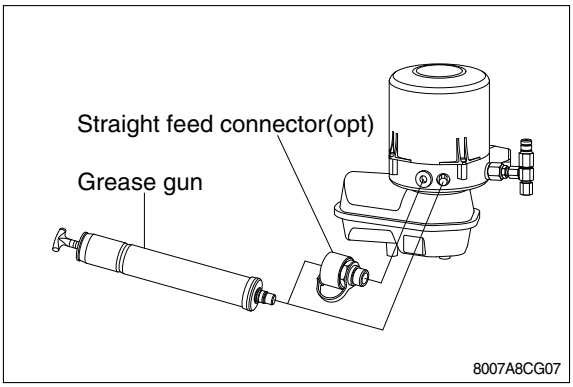
(1) Standard filling via lubrication nipple with manual or pneumatic grease gun.

※ **Lubricate the grease until it flows out to the grease vent.**

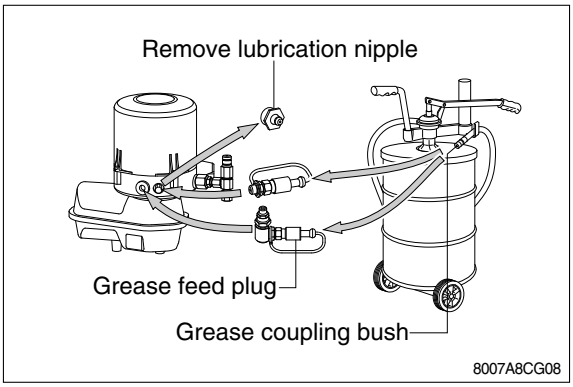
· Capacity : 8kg (18.6lb)



(2) Manual hand grease gun.



(3) Pneumatic grease pump (option).



5) REPAIR INSTRUCTIONS

(1) Case of system blockage

① A creased or clogged lubricant pipe
② Grease points overfilled or clogged by lubricant
③ Lubricant not suitable for central lubrication system
④ Distributor outlet closed
⑤ Blocked distributor

(2) Message signalling a blockage

The system pressure is exceeded (265kgf/cm²), a blockage may exist in the system and will be signalled by one of the followings.

① The pressure indicator at grease pump.
② The pressure indicator at secondary distributor.

(3) Repair of a distributor when blocked:

① Remove the main distributor from the system, nothing the sequence of removal.
② Remove the plugscrews from the piston holes and move the pistons to and fro (don't expel them); re-insert the plug-screws.
③ If the main distributor is not blocked, do the secondary distributor as above mentioned.
④ Push the piston of the blocked distributor outside and check the drilling and the piston surface for scratches and deficiencies.
⑤ Renew the distributor affected by serious deficiencies.

※ **Pistons are not interchangeables for main and secondary distributor.**

※ **Deposits of hardened grease detected at pistons and drillings of distributor must be eliminated by washing and blowing. The drillings in distributor must be free of residues of grease. This should be checked by use of some thin wire.**

※ **Hardening of grease indicates that the lubricant being used is not suitable for the central grease lubrication system. Ask for advice by the supplier of the lubricant. After having checked both distributor, re-assemble the distributor complying with the sequence noted down previously. In order to preclude jamming of pistons, tighten the plug-screws to the specified tightening torque.**

· Tightening torque : 1.2kgf · m(8.7lbf · ft)

① Check the distributor for correct operation, using oil or grease.
② Install the distributor in the system.
③ Start the machine and check it for correct operating pressure (150kgf/cm²).

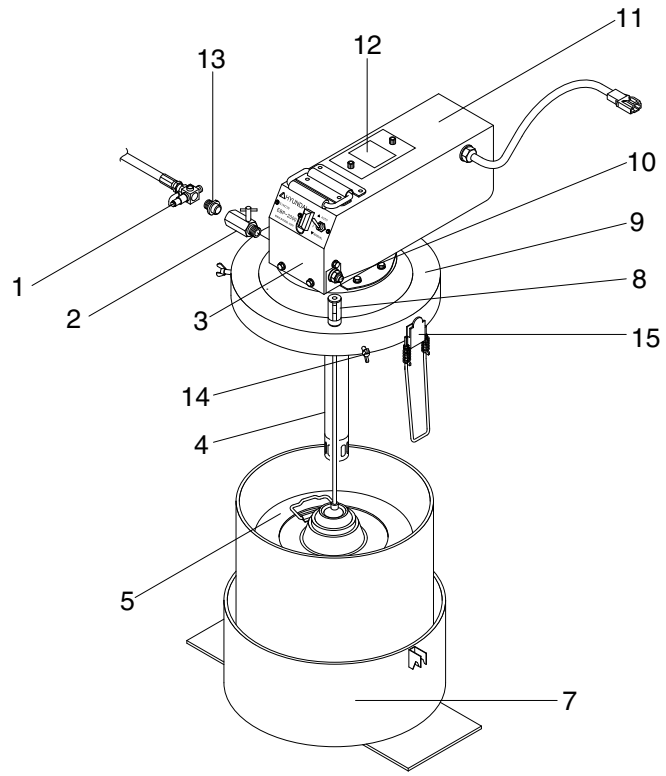
※ **The repair work has to be done under maximum cleanliness.**

6) TROUBLESHOOTING

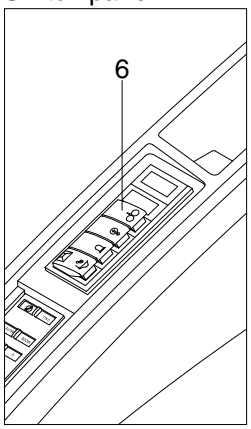
Trouble	Cause	Service
Pump does not work.	Defective electronic control unit. Electric cable is broken. Pump is defective.	Replace the control unit. Renew the electric cable. Replace the pump.
Pump is working, but does not supply of lubrication.	Air in the feed piston filling. Grease level dropped below minimum level. Defective pump element.	Bleed the pump. Refill the grease tank. Replace the pump element.
No grease at all points of lubrication.	Pump does not work. Inoperative time is too long or period of lubrication is too short. System is blocked.	Refer to "Pump does not work". Reduce the inoperative time or increase the period of lubrication. Refer to "Excessive pressure (above 265kgf/cm^2) of the pressure indicator".
No grease at some points of lubrication.	Some pipes are burst or leakage. Leakage at screwed unions.	Renew the pipes. Retighten or renew the screwed union.
No grease at one point of lubrication.	The lubrication pipe is burst or leakage. Leakage at screwed unions.	Renew the pipe. Retighten or renew the screwed union.
Reduced pump speed.	High pressure in the system. Low ambient temperature.	Check the system / bearing points. Not a defective (1 or 2 intermediate lubrication cycles may be useful).
Excessive pressure (above 265kgf/cm^2) of the pressure indicator.	Excessive pressure in the system. Progressive distributor is blocked. System is blocked. Defective valve spring.	Check the system. Replace the distributor. Repair clogged / seized greasing points. Replace the pressure relief valve.
Signal of the LED.	The LED of control unit is light up continuously.	Check electrical system and control unit.

1. CENTRAL GREASE LUBRICATION SYSTEM (#0106-)

1) MAJOR COMPONENT



Switch panel



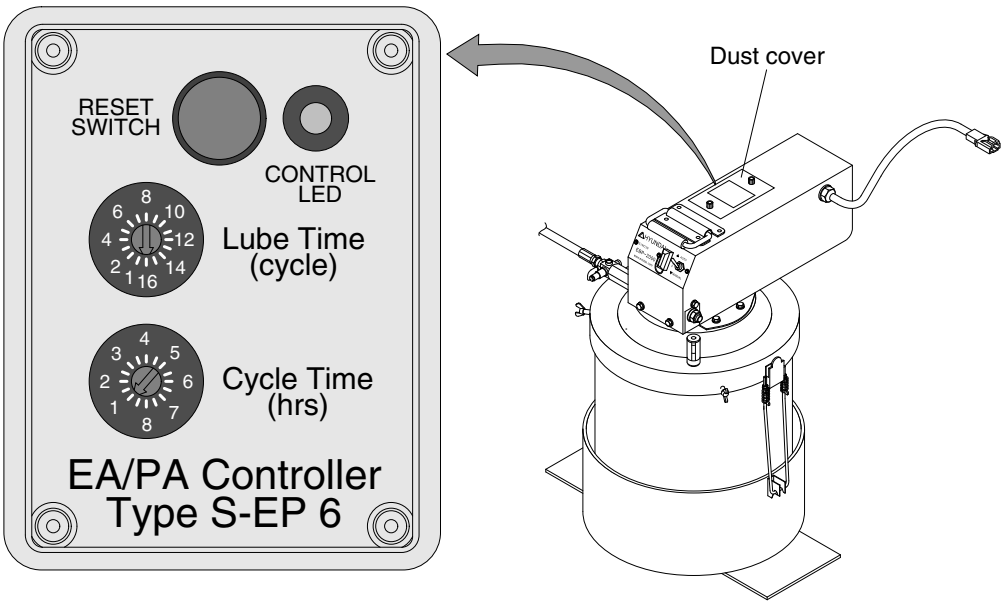
80098AG01

1 3 way valve
2 Inline check & airvent
3 Distributor
4 Piston & cylinder
5 Follower plate
6 Central grease lubrication switch
(Refer to the page 3-27)
7 Grease can holder
8 Level gauge & sensor
9 Main plate
10 Over pressure control valve
11 Grease pump
12 Electronic controller
13 Grease filter
14 Wing bolt
15 Grease can clamp

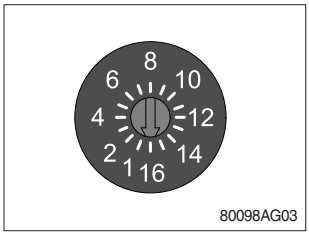
· Specifications

Item	Specification
Input power	24VDC
RPM	25
Current	15 amp
Output volume	50.0 cc/min ± 20%
Pressure	Max. 280 bar ± 20%
Operating temperature	-35˚C to 70˚C (depending on the grease type)
Weight	17 kg
Filter	1st filter ; 1.0 mm, 2nd filter ; 0.2 mm
Grease can	20 liter

2) ELECTRONIC CONTROLLER

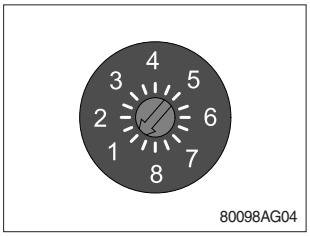


(1) Lube time setting dial



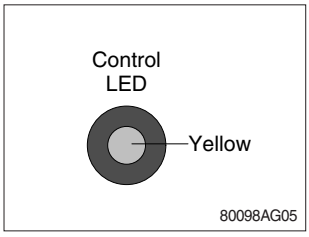
① This dial use to set the greasing time from 1 to 16 minutes.
② Default timt is 16 minutes.
※ **Open dust cover and use a minus(-) screw driver to change settings.**

(2) Cycle time setting dial



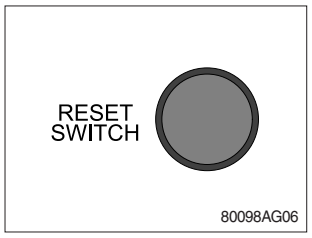
① This dial is use to set the pause period from 0.5 to 8 hours.
② Default period is one hour.
※ **Open dust cover and use a minus(-) screw driver to change settings.**

(3) Control LED



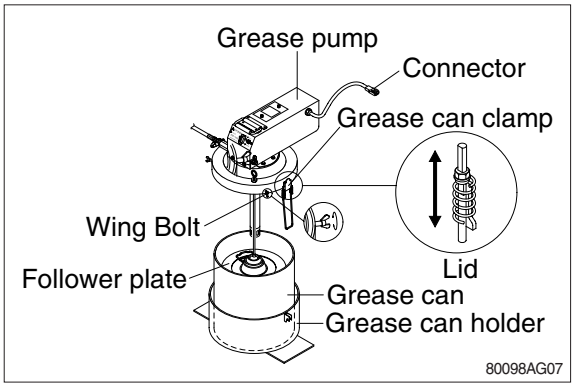
① This LED indicates operating status of the central grease lubrication system.
② Turn the starting switch ON, the LED will light up for 1.5 seconds.
③ During the central grease lubrication system is operated, it will blink at 0.5 second intervals.
④ When the lubrication system is failed, the LED is light up continuously.

(4) RESET SWITCH



① This switch use to operate the central grease lubrication system.
② Pushing the switch, the central grease lubrication system is operated for 16 minutes once.

3) PREPARATION FOR OPERATION



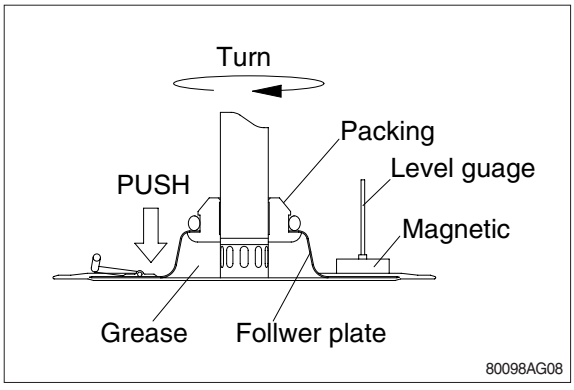
(1) Instruction

※ **Place the unit on flat and stable place.**
※ **After you use the grease, please make sure to change it into new grease can. Never use it by filling the grease, for it becomes the cause of system failure.**

① Loosen the wing bolts, clamp and remove the grease pump from the grease can.
② Remove the follower plate and level gauge.
③ Change a new grease can.
④ Place the follower plate on the grease can horizontally and push it down by rubbing it to left and right with hand until the grease comes out from the packing in the middle of the follower plate.

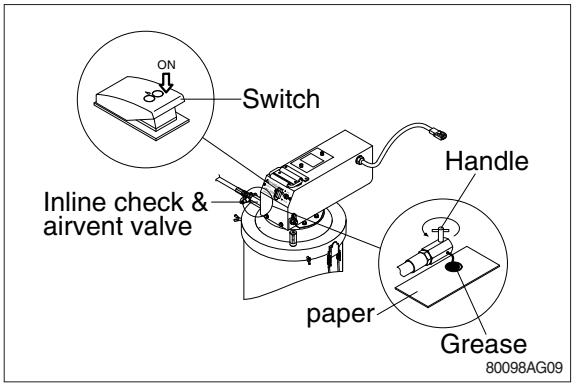
※ **Take care not to allow sand and dust to adhere on the suction tube and follower plate of the pump.**

⑤ Place the magnetic of level gauge on the follower plate.
⑥ Insert the grease pump into the center of grease follower plate.
⑦ Install the clamp tight (2EA) according the height of can and tighen the wing bolt (3EA).
⑧ Check the power connector.



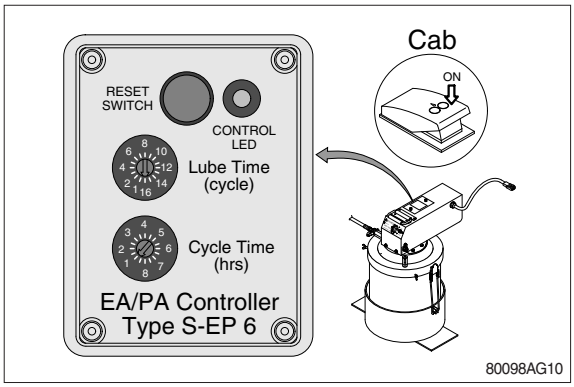
(2) Grease operation

① The pump will be operating by the switch ON.
② Open the inline & airvent valve and operate the pump until grease will be discharged from a small hole under check valve.
③ After grease is discharged fully, close the valve handle.



④ Check the lube time and cycle time at controller.
⑤ Check the program data whether it is working as programmed correctly or not.

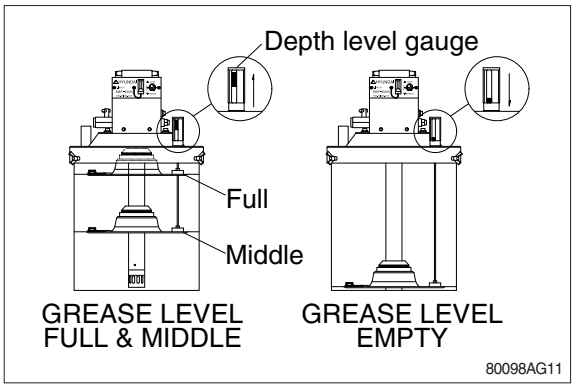
※ **When you need the extra lubricating one time more, you get one more lube time if you push reset switch of either on the pump or cab.**
※ **It could be reducing a grease output volume after 30 minute running.**
※ **When you use pump lower than -10°C continuously, you should use a low temperature grease and check air bubble periodically.**
※ **The grease mixed air is cloudy in white replace the new grease.**



(3) Grease level check

① Please check depth level gage which is visitable.
② Pump will be operating for 3 minutes after low grease level indicated.

※ **Only a visible indicator can indicate low level and full level.**
※ **Please read a middle level between low level and full level.**
There is no middle level of the depth level gauge.



4) MAINTENANCE AND REPAIR INSTRUCTIONS

(1) Safety instruction

① Do not use silicon grease.
② After the end of using pump, please be sure to shut off the machine to release the internal pressure.
③ When replacing any port as maintenance, please be sure to stop the power to the machine.

(2) Maintenance

① If any leakage is found, replace seals leaked and also it is required to replace them once a year.
② Check whether the pump could pump a grease with switch or not.
③ Check whether the pump could pump the accurate grease volume or not periodically.
④ Check whether the pump could pump the maximum output pressure or not periodically.
⑤ Check grease filter and clean periodically.
⑥ Please filling a grease to grease nipple installed at cam ring yearly.
⑦ Please clean grease filter if output volume is less then 25% of stroke volume. (50 cc/min)
⑧ Please remove air pocket if air pocket is occurred at the inside of grease can.

(3) Reason of system blockage :

① Acreased or clogged lubrication pipe.
② Grease points overfilled or clogged by lubricant.
③ Lubricant not suitable for central lubrication system.
④ Distributor outlet closed.
⑤ Blocked distributor.

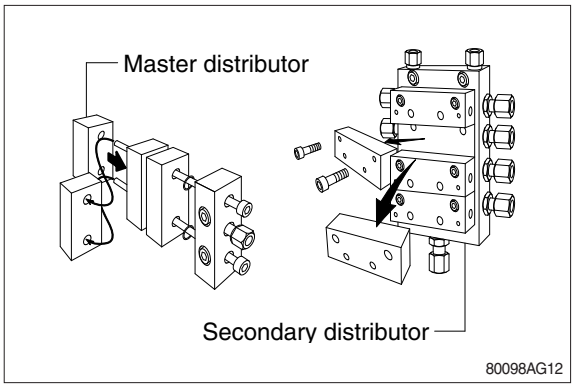
(4) Message signalling a blockage :

The system pressure should exceed the rated service pressure, a blockage may exist in the system and will be signalled by one of the followings :

① Grease exhaustion at pressure relief valve
② By the "excessive pressure" gauge or by the pressure relief valve with micro-switch of the pump (optional)
③ By the "excessive pressure" gauge fitted to the distributor (optional)

(5) Identification of a lube point of blockage :

Where over pressure indicators are fitted to the distributors, it will be easy to detect the point of blockage. Where over pressure indicators are not provided, proceed by the following :



① Disconnect the main pipe from the master distributor.
Actuate the pump and check if lubricant supply is effected in correct manner.
② Reconnect the main pipe to the master distributor.
Remove the cap screw of the distributor one after another and actuate the pump at each of those steps.
③ The pipe or point of lubrication being blocked is in that pipe (scarecrow) where pressure is decreasing or the manual pump can't be actuated.

※ After the master distributor has been checked and the point of blockage has been defected, the pertaining secondary distributor has to be checked up to the point of lubrication, by the same principles of work above.

※ When you have a blocked distributor found, you can change that distributor element modular to prevent any other troubles easily.

(6) Repair of distributor where blocked :

① Remove the distributor from the system, noting the sequence of section units.

② Remove the plug screws from the piston holes and move the piston and (dont expel them) reinsert the plug screws.

③ Check the next distributor section until piston being blocked is identified.

※ When you have a blocked distributor found, you can change that distributor element to prevent any other troubles easily.

※ Pistons are not interchangeables for main and secondary distributor.

※ Deposits of hardened grease detected at pistons and drillings of distributor must be eliminated by washing and blowing. The drillings in distributor must be free of residues of grease. This should be checked by use of some thin wire.

※ Hardening of grease indicates that the lubricant being used is not suitable for the central grease lubrication system. Ask for advice by the supplier of lubricant.

Check the distributor for correct operation, using oil or grease.

Install the distributor in the system.

Start operating the system and check it for correct operating pressure. (280 bar)

(7) Troubleshooting

Category	Applications	Service
Pump does not operated	Defective electronic control unit Pump is defective	Check fuse and switch Replace the pump
Pump is working but does not supply of lubrication	Grease low level Air pocket in the grease can Air pocket in the lube line Defective pump element Defective cam and piston Defective lube line Defective over pressure valve	Grease can change Remove air pocket using with follower plate Remove air pocket using inline air vent handle Replace the pump element Replace the pump piston Refit lube line Replace the over pressure valve
Could not either pump high pressure or accurate grease volume	Defective over pressure valve Defective seal in side of pump Defective pump parts	Replace the over pressure valve Replace the pump seal Replace the pump body assembled completely parts
No grease collar at some lube points	Feed pipes for auxiliary Distributor are burst, or there are leakages.	Renew the pipes Retighten or renew the screwed union
No grease collar at one point of lubrication	The pertaining lubricating pipe is brust or there is a leakage Leakage at screwed union	Replace the pipes Retighten or replace the screwed union
Reduced pump speed	High pressure in the system Low ambient temperature	Check the system/lube points Not a defectives
Leakage of grease at the pressure relief valve	Excessive pressure in the system Progressive distributor is blocked System is blocked Defective valve spring	Check the system Replace the distributor Repair clogged / seized grease points Replace the pressure relief valve
When pumping pressure will be gone up too higher	Blocked grease filter Blocked lube line	Clean grease filter blocked Repair lube line blocked