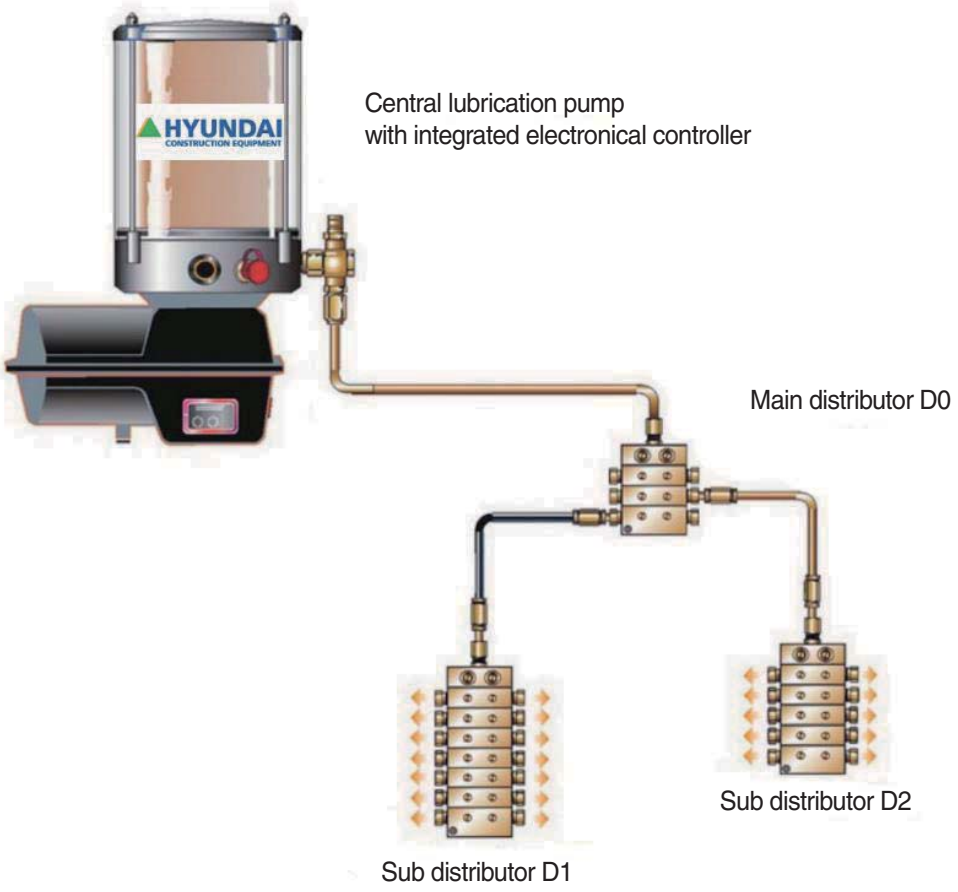
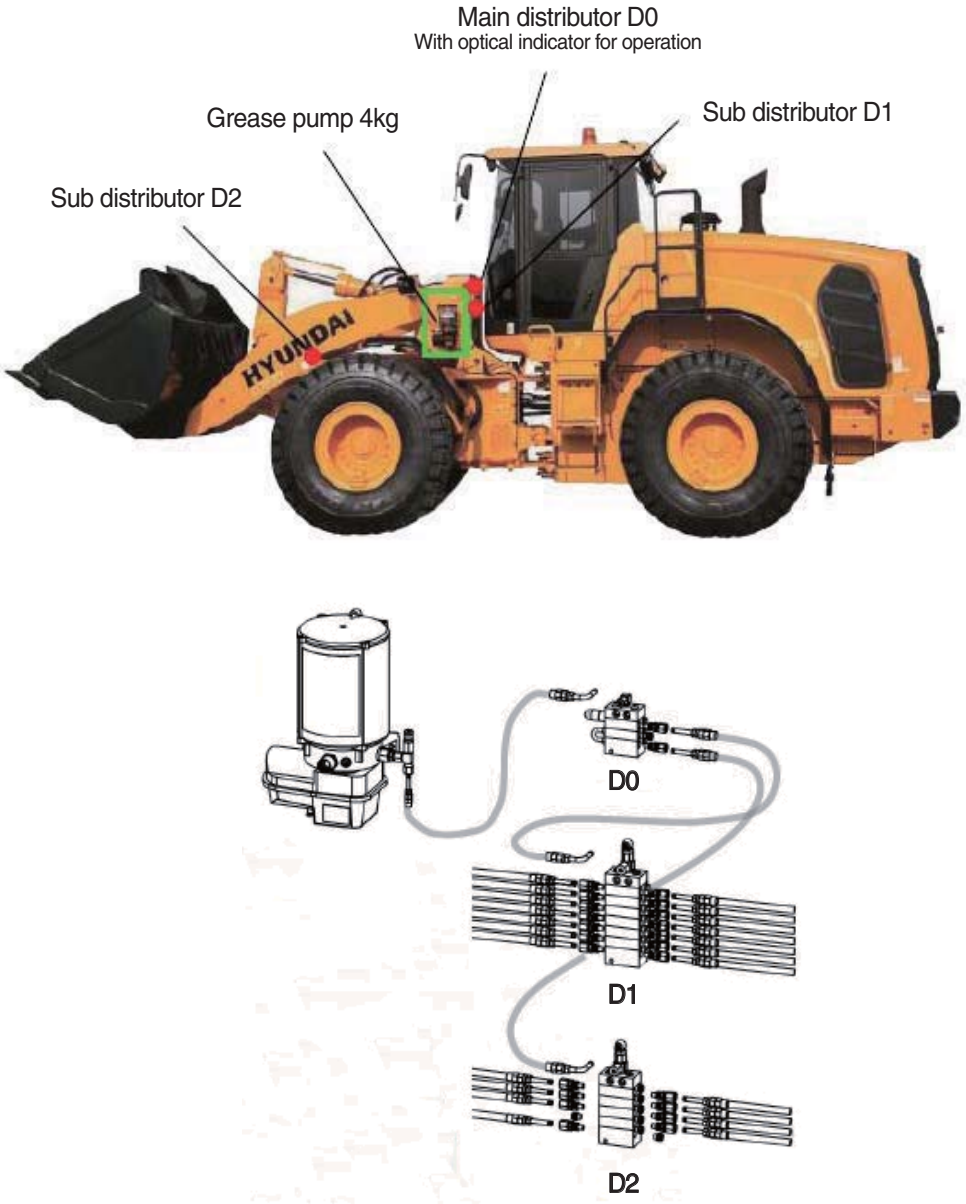
# 1. CENTRAL GREASE LUBRICATION SYSTEM

## 1) MAJOR COMPONENT




The progressive system supplies the lubrication points in a fixed order.
The progressive distributor works consecutively (progressive). Only after the first lube point has received the right lubricant quantity, the distributor continues running and delivers the next one.
The progressive system can be monitored easily and offers various extension possibilities.
The distributors distinguish themselves by modular flexibility instead of rigid block design.

## 2) LAYOUT




※ **Refer to the CENTRAL GREASE LUB SYSTEM of parts manual for detail.**

## 3) SWITCH

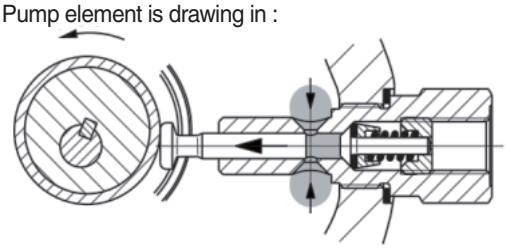

(1) The switch is integrated in monitor.
In the cab, a operator can reset and check the lubrication system.

※ **Refer to page 3-40.**

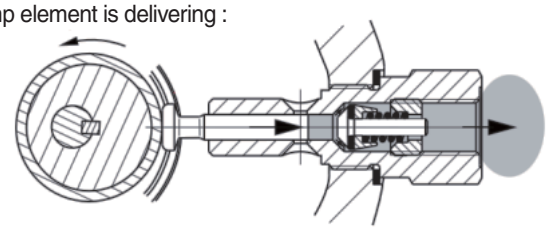
## 4) GREASE PUMP


| | |
|---|---|
| Operating voltage | 24 V/DC |
| Maximum operating pressure | 280 bar |
| Permissible operating temperature (depending on the grease type) | -35˚C to +70˚C |
| Reservoir size | 4 kg |

Pump element is drawing in :



Pump element is delivering :



### (1) Desmodromic actuation of the pumping elements

The pumping elements are not driven by a simple return spring but have a desmodromic push-pull actuation. This guarantees are reliable functioning of the pump even by the use of rigid grease(up to NLGI 2) and very low ambient temperatures.

## 5) INTEGRATED ELECTRONICAL CONTROLLER

When the central lubrication processor is time controlled, the cycle duration and the lubrication time can be adjusted. Cycle duration means the period form the beginning of one lubrication process to the beginning of another lubrication process.

### Diagram of cycle sequence :

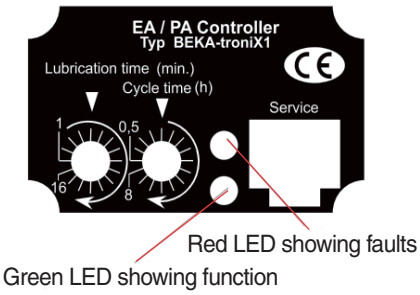
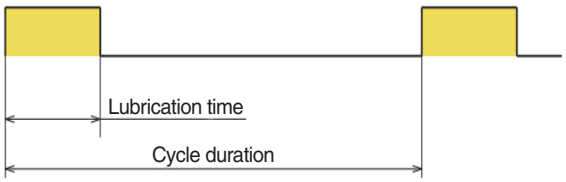



Diagram of cycle sequence :




### (1) Adjusting the parameters

The lubrication time can be set by means of graduating switches in the controller's sight glass.

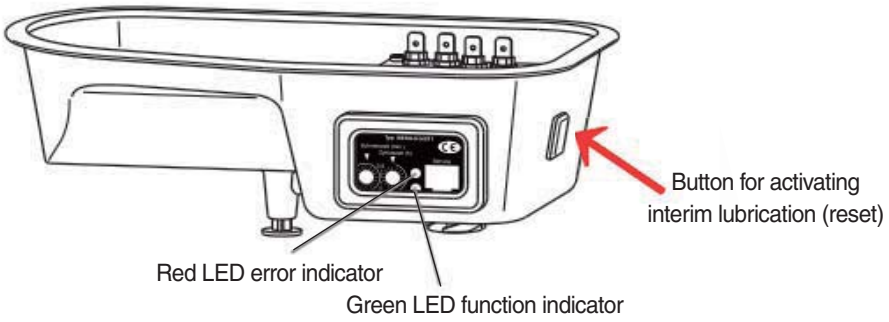
To adjust the time setting, remove the red frame on the pump's motor housing using a flat screw-driver, loosen the four screws and remove the transparent protective cover.

The lubrication time can be adjusted using a flat screw driver. If the cover plate is not replaced properly, water may enter the controller and damage it. In this case, the guarantee is no longer valid.

| Lubrication times | Cycle duration |
|---|---|
| 1 to 16 minutes (16 grades every 1 minute) | 0.5 to 8 hours (16 grades every 0.5 hours) |

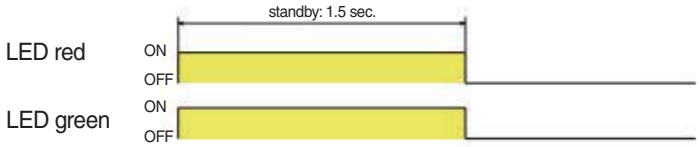
## (2) Summary of signal Indicators

The pump's function are indicated via two control LEDs (green/red) in the display on the pump's motor casing, where the red LED always indicates an error in the program sequence. These control LED functions may be indicated in the cab via monitor.



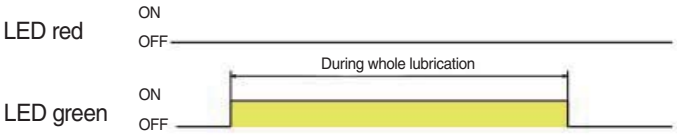

### ① Standby

Standby indicator :



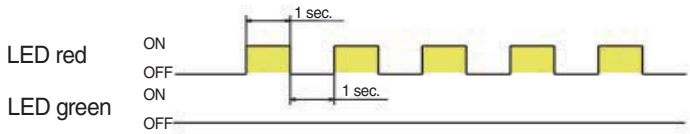

### ② Lubrication activated

Lubrication sequence :



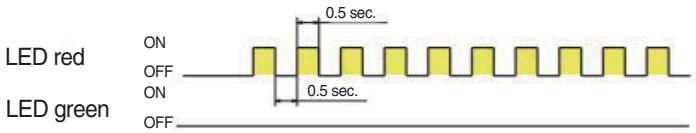

### ③ Revolution and engine driver error

Revolution error in pump engine

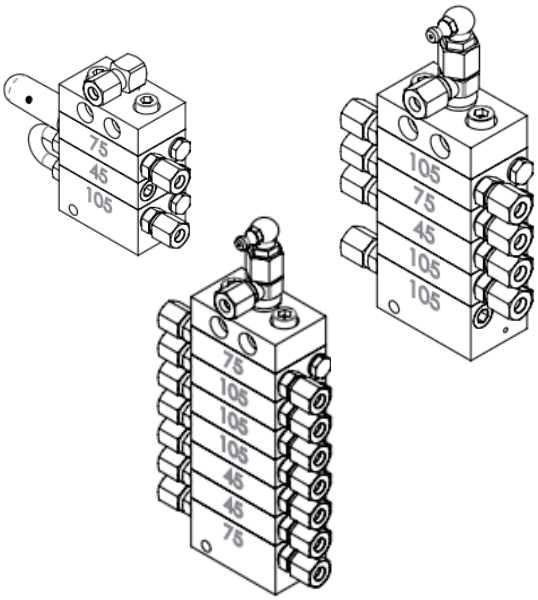



### ④ Memory error

Memory error :

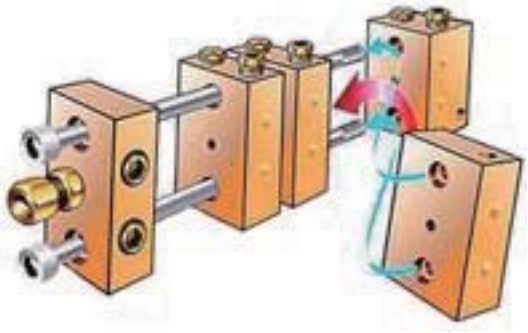


## 6) DISTRIBUTOR




| Operating pressure-Inlet | Temperature range |
|---|---|
| maximum 300 bar | -35˚C to +80˚C |

- Modular designed distributor system for optimum lubricant feed rates
- Flexible extension possibilities
- Highest precision
- Comprehensive program of distributor types
- Optionally with monitoring and blockade control
  Optimized distributor combination through field test at HCE durability test site



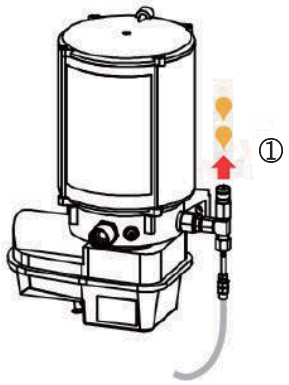
## 7) INSTRUCTIONS FOR REPAIR IN CASE OF BLOCKAGE OF A PROGRESSIVE LUBRICATION SYSTEM

### (1) Reason of system blockage

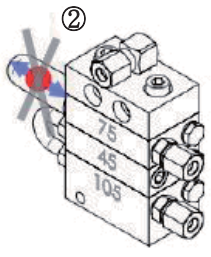
- A creased or clogged lubrication pipe
- A bearing overfilled or clogged by lubricant
- Lubricant not suitable for central lubrication system
- Distributor outlet closed
- Blocked distributor

### (2) Message signaling a blockade

If the system pressure should exceed the rated service pressure, a blockage many exist in the system and will be signaled by ① grease exhaustion at pressure relief valve and ② D0 optical display pin doesn't move.




Grease exhaustion at pressure relief valve

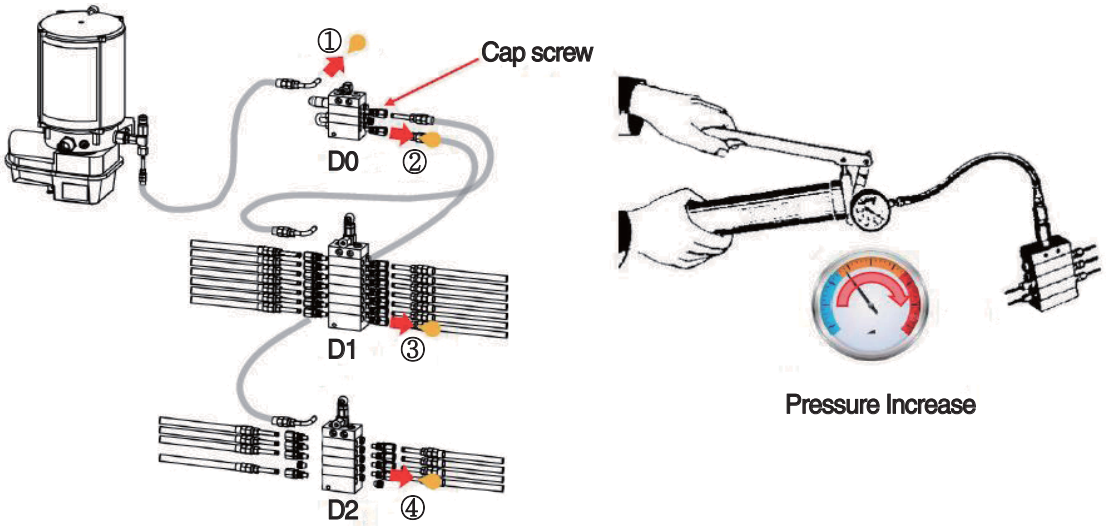



D0 optical display pin

## 8) IDENTIFICATION OF A POINT OF BLOCKAGE

(1) Disconnect the main grease hose line from D0 (master) distributor. Actuate the pump and check ① if lubricant supply is effected in correct manner.

(2) Re-connect the main grease hose line to the D0 distributor. ② Remove the cap screws of the D0 distributor outlet one after another and actuate the pump at each of those steps. The grease lines, pipe or point of lubrication being blocked is in that pipe where pressure is increasing or the optical manual leveling grease gun (XKCE-01419) can't be actuated. After the D0 distributor has been checked and the point of blockage has been detected, the pertaining D1, D2 (secondary) distributor has to be checked up to the point of lubrication, by the same principle of work ③, ④.



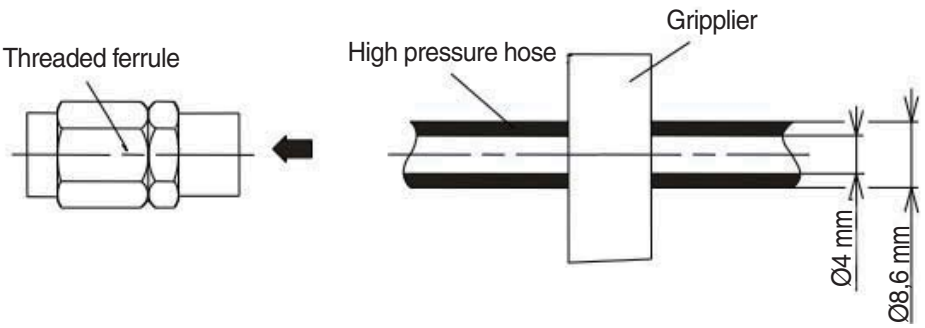

## 9) HIGH PRESSURE HOSE

| Burstingpressure (EN ISO 1402, pressurization : 60s) | | Allowed bending radius at 20 °C | Operating pressure reference | |
|---|---|---|---|---|
| 20 °C | 60 °C | | Statistically | Dynamically |
| >840 bar | >450 bar | >20 mm | Maximum 280 bar | Maximum 210 bar |

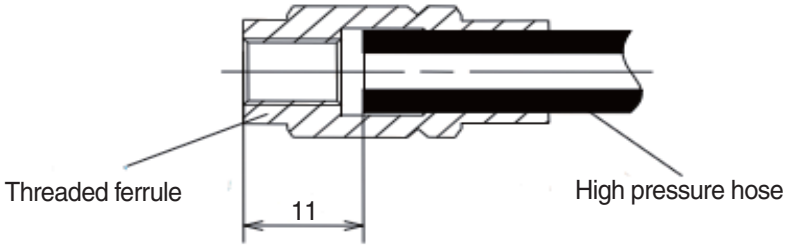
### (1) Assembly of the high pressure hose

For connecting the high pressure hose with the distributor, you need a threaded ferrule and a ferrule insert on each side of the high pressure hose.

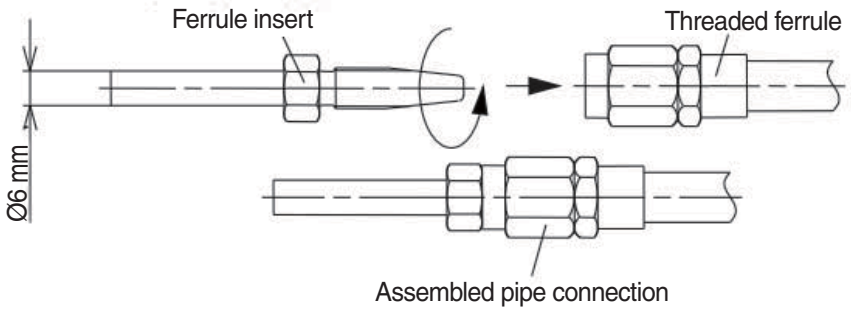
① Assembly the high pressure hose with the threaded ferrule



② Stick on the high pressure hose with a gripplier and grease or oil the end of this very good.
The threaded ferrule turn on the hose left-turning up to the dimension in the sketch (11 ㎜).




③ Assembly the ferrule insert with the threaded ferrule and the high pressur hose :
Grease or oil on thread of the ferrule and the conical end of the ferrule insert good and screw the ferrule insert in the assembled ferrule.



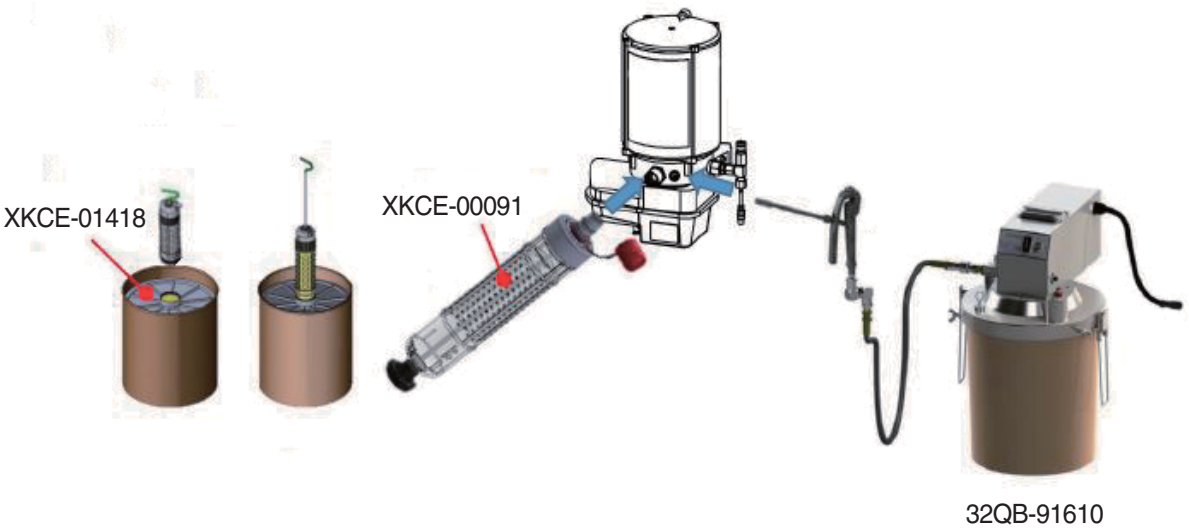

**※ The dimensions of the hoses are able to differ in a slight range. If the diameter are smaller as standard, the ferrule can be push on the hose without power and without rotary motion.**
**Remedy :**
Press the ferrule on the end for put in the hose in aoval form, about 1 up to 2 ㎜, with that the hose by screw in the pipe connector not be push out of the ferrule.

## 10) TROUBLESHOOTING

| Category | Applications | Service |
|---|---|---|
| Pump does not work | Defective electronic control unit<br>Electric cable is broken<br>Pump is defective | Replace the control unit<br>Renew the electric cable<br>Replace the pump |
| Pump is working, but does not supply of lubrication | Air in the feed piston filling<br>Grease level dropped below minimum level<br>Defective pump element | Bleed the pump<br>Refill the grease tank<br><br>Replace the pump element |
| No grease at all points of lubrication | Pump does not work.<br>Inoperative time is too long or period of lubrication is too short.<br>System is blocked. | Refer to "Pump does not work".<br>Reduce the inoperative time or increase the period of lubrication.<br>Refer to "Excessive pressure (above 265 kgf/cm²) of the pressure indicator". |
| No grease at some points of lubrication | Some pipes are burst or leakage<br>Leakage at screwed unions | Renew the pipes<br>Retighten or renew the screwed union |
| No grease at one point of lubrication | The lubrication pipe is burst or leakage<br>Leakage at screwed unions | Renew the pipe<br>Retighten or renew the screwed union |
| Reduced pump speed | High pressure in the system<br>Low ambient temperature | Check the system / bearing points<br>Not a defective (1 or 2 intermediate lubrication cycles may be useful) |
| Excessive pressure (above 265 kgf/cm²) of the pressure indicator | Excessive pressure in the system<br>Progressive distributor is blocked<br>System is blocked<br>Defective valve spring | Check the system<br>Replace the distributor<br>Repair clogged / seized greasing points<br>Replace the pressure relief valve |
| Signal of the LED | The LED of control unit is light up continuously | Check electrical system and control unit |

## 11) REFILL GREASE

Use transparent filling press or external grease filling pump

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## 2. QUICK COUPLER

⚠ Always check that the attachment is properly secured to the quick coupler by pressing the front part of the attachment against the ground.

⚠ Never use an attachment before you have checked its mounting.

※ If you are uncertain if the attachment is securely locked, you must visually check that the lock pins of the quick coupler are in the lock position.

(1) Operate the quick coupler switch on the monitor.

(2) Switch to the quick coupler function screen and touch the 'Disengage Quick Coupler' button on the screen to release the quick coupler.


960A8QC10

※ A warning pop-up message appears on the monitor screen, "Disengaging Quick Coupler" and the warning buzzer rings.

※ The buzzer warning rings until the quick coupler release and lock are complete.

※ During release, the red lamp of the quick coupler switch turns ON.


960A8QC11

(3) Loosen the coupling between the hook of the bucket and quick coupler through the bucket dump action.

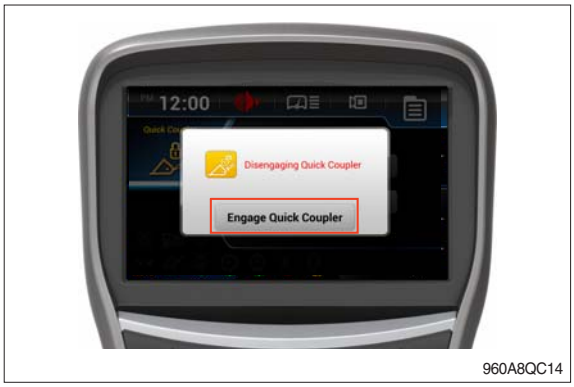
(4) Move the machine backward to separate the quick coupler and the bucket.

960A8QC12

(5) Tilt quick coupler forward and align the upper attaching points of the quick coupler with upper attaching points on the bucket.

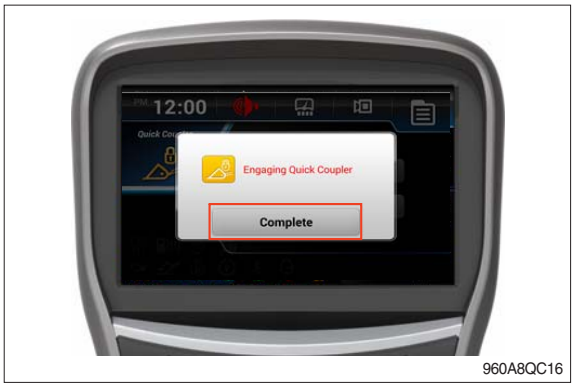
(6) Raise the boom until the bucket rests in the quick coupler and tilt the quick coupler rearward until the bucket is level.


(7) Touch the 'Engage Quick Coupler' button on the monitor screen to lock the quick coupler.




※ A warning pop-up message of "Engaging Quick Coupler" appears on the monitor screen and the warning buzzer rings.
※ During locking, the green lamp of the quick coupler switch turns ON.


(8) Check whether the quick coupler is locked and touch the 'Complete' button on the monitor screen.

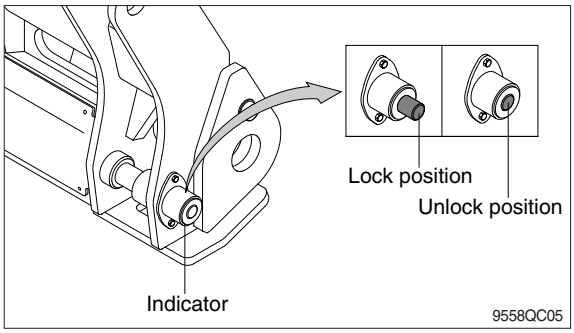


※ **Check for engagement as followings.**

a. Put down pressure on the attachment.

b. Back up the machine and make sure that there is no movement between the quick coupler and attachment.

※ **Check that the indicator is lock position.**




## (9) PRECAUTION OF USING QUICK COUPLER

⚠ **When operating the machine with quick coupler, confirm that the quick coupler switch is lock position.**
**Operating the machine with quick coupler switch unlock position can cause the bucket to drop off and bring about the accident.**

⚠ **Serious injury or death can result from this accident.**