OQ - LockSupport

Electronic control and monitoring system with active scanning of the lock for safe use of work tool attachments on excavators.
Problem background

- Today’s excavators are versatile and can be used with various attachments.
- Tools are often changed several times a day.
- Quick coupler operation is not however standardised:
  - Switches and levers vary in design and function.
  - The controls may be located in different places, depending on the machine.
  - Hydraulic systems frequently control several functions using switch-lever combinations and are not always easy to understand.
- It is difficult for the operator to be sure of attaching the work tool properly:
  - Unsure whether the coupler is positioned correctly on the tool.
  - Unsure regarding the position of the locking bolts.
- Tool changes are and remain a potential hazard when operating excavators with various attachments.

The OilQuick solution is OQ-LockSupport (OQLS)

- Electronic control and monitoring system with active scanning of the lock for safe use of work tool attachments on excavators.
- Information and operation using the control panel in the cab.

Wiring with CAN bus

Secondary unit

Rear coupler unit with sensors on coupler body

Front coupler unit with sensor on coupler body

OQ-LockSupport control panel

OQ-LockSupport main unit, with 12-24V power supply

Option: pressure relief for tool’s hydraulic system

Block with locking valve and load sensing
Information for the operator

Power LED. Indicates that the system is on.

Rear pin symbol. Blue light is on when the rear pin is in position on the coupler.

Locking bolt symbol. Blue light is on when the bolt is in the rear position and the coupler is locked.

Buttons for opening the coupler lock. Press them at the same time for 3 seconds to unlock the coupler.

Warning symbol to draw the operator’s attention. Lights up and buzzer sounds at the same time.

Symbol tells the operator to read the manual before using the system.

Front pin symbol. Blue light is on when the front pin is in position on the coupler.

Button for activating the quick coupler lock (press for 1 second).

Steps for attaching tools

1. Tool is not attached.
2. No symbol lights on, coupler is unlocked.
4. Move coupler to adapter and engage front pin.
6. Position rear pin on coupler. Both pin symbol lights on.
8. Locking bolts attach coupler and secure tool in position.
10. Press tool onto ground.
11. Done. The tool is securely engaged and ready to use.
Safe tool change with the OQ-LockSupport

- Conscious, controlled coupling procedure.
  - The operator is guided through all the steps on the control panel.
  - Intuitive, clear and user friendly.
  - Audio and visual warnings in hazardous situations.
- Sensor scans the adapter pin and position of the locking cylinder.
  - Different symbols for adapter pin and locking bolts.
- Machine’s hydraulic system activated automatically.
  - The locking function is activated automatically without another hydraulic function having to be used.
- All system events are logged, the last 32 events are listed chronologically.
- Self-diagnosis function warns in the event of a system error.

“With the OQLS I can now change buckets and other work tool attachments quickly and safely!”

Dealer:
OilQuick AB
Box 1055, 824 12 Hudiksvall, Sweden
www.oilquick.com