



In May 2012, FM Global published a new 'Approval Standard For Diesel Fire Pump Drivers' Class 1333.

In order to comply with the new FM1333 standard, Clarke implemented the following 5 key changes to our UL-FM drivers as of 30th November 2013.

1

FM Re-Examination

All Clarke FM Approved engines were re-examined to confirm their compliance to the latest FM Approvals Standard Class 1333.

2

FM Standard-3.6.1 H

We replaced required raw water hoses to meet ISO 15540.

3

FM Standard-3.3.17

We developed a manual start override procedure in the event of a microprocessor not functioning.

4

FM Standard-3.15.2

We developed an automatic ECM switch for all of our electronic engines.

5

FM Standard-3.6.1 A

We gained FM Approval for our full cooling loop range.

In addition to the previously implemented 5 changes, the revised FM 1333 standard also outlined new requirements for both the functionality and sizing of raw water cooling loops for the control of raw water flow to liquid cooled (heat exchanger) diesel fire pump drivers.

Due to the complexity and compatibility challenges of these revised requirements, the compliance date set by FM Global was April 1st 2015.

How will our engines be changing?

New Cooling Loop Alarm Sensors

FM Standard 3.6.1 F (Low Raw Water Flow Alarm)

UL-FM engines shipping from Clarke after April 1, 2015 will have two pressure sensors installed. The first sensor will be installed after the pressure regulator, before the solenoid valve, on the automatic cooling loop line. The second sensor will be installed after the heat exchanger on the outlet pipe work.

The low raw water flow sensor will be set to alarm at 90% of the minimum flow value required at 100°F (37°C) for each specific Clarke engine model.

FM Standard 3.6.1 G (High Raw Water Temp Alarm)

UL-FM engines shipping from Clarke after April 1, 2015 will have a temperature switch fitted on the pipe work between the cooling loop and the engine heat exchanger. The high raw water temperature switch is set to alarm at 105°F (40°C)

New changes to UL-FM Engine Instrument Panel Terminals

With the addition of the new Low Raw Water Flow and High Raw Water Temperature alarms, Clarke will be installing an additional wiring loom which will connect these new alarms to the engine instrument panel via our Low Flow Alarm Board (LFAB).

The LFAB will be mounted on the engine and will monitor the feedback signals from both pressure sensors, as well as the temperature switch. If an alarm condition should occur, the LFAB will provide an alarm signal to the engine instrument panel, which will then activate an alarm on the fire pump controller.

As these alarms are new, we have revised the design of all UL-FM Engine Instrument Panel Wiring Terminals, with the addition of the following two new alarms: **#310 - High Raw Water Temperature Alarm and #311 - Low Raw Water Flow Alarm.**

OEM/Dealer Responsibility & Standard Cooling Loop Sizing Conditions

Effective immediately, pump manufacturers are responsible for ensuring site specific installation conditions do not exceed the below standard cooling loop sizing assumptions; or for verifying that the cooling loop is properly sized based on the known installation conditions; or for providing site specific conditions to Clarke at the time of placing an order.

As of January 1st 2015, Clarke cooling loops are sized for each engine model based on the following standard conditions:

- 100°F (38°C) Raw Water Temperature
- 80 psi (5.5 bar) Inlet Pressure
- 60 psi (4.1 bar) Pressure Regulator Setting
- 10 psi (0.7 bar) Residual Pressure at the outlet of the heat exchanger

Verify Cooling Loop Sizing online at www.clarkefire.com

C136379