

# CLEGHORN WARING

Installation, Operating, Maintenance and Safety  
Instructions *for*

## CW446 DIESEL FUEL PUMP



### PLEASE READ THESE INSTRUCTIONS CAREFULLY

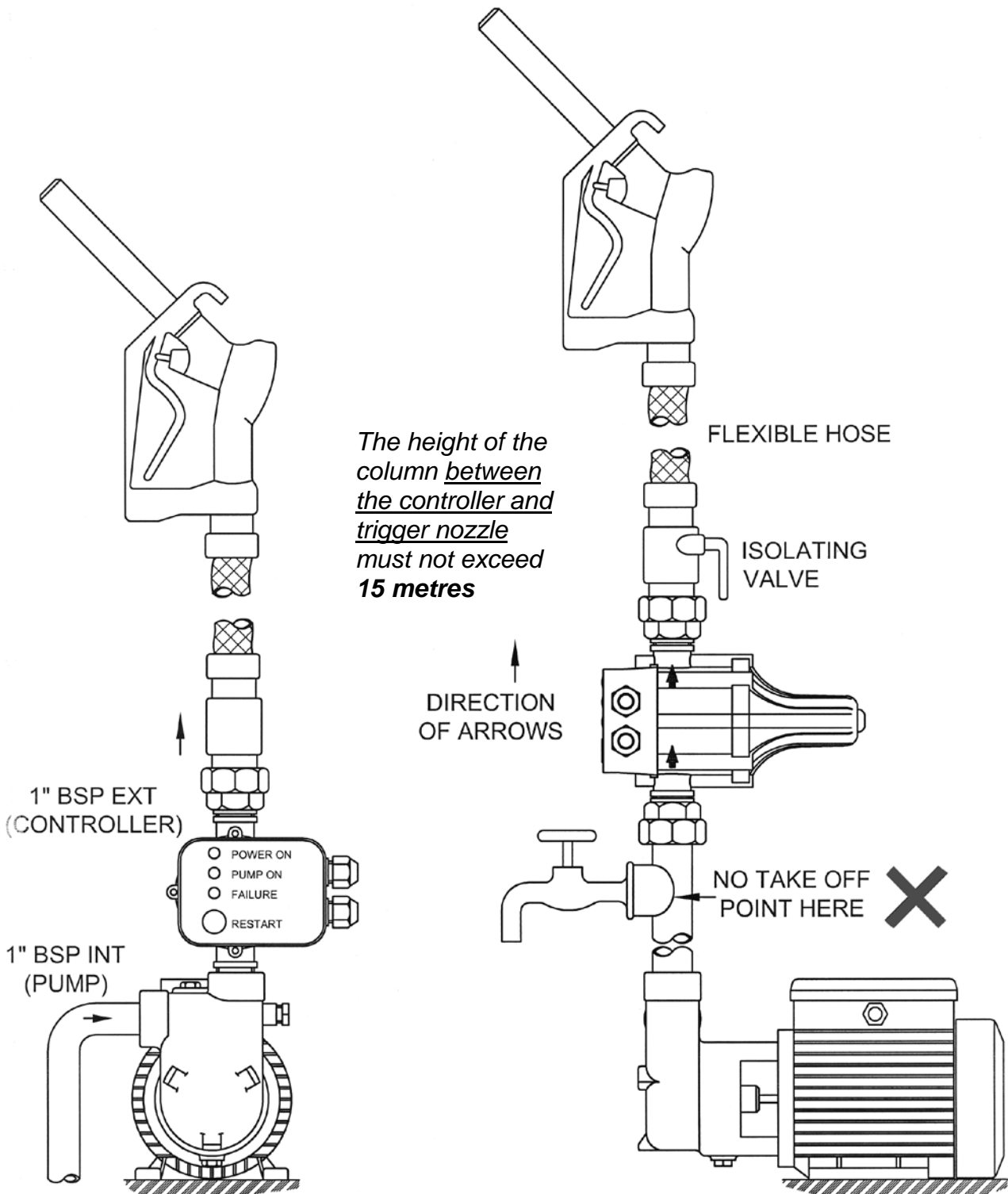
Failure to observe the recommended procedures may result in damage to equipment and personal injury, and may invalidate the supplier's warranty

Controller for the automatic control of electric pumps installed in diesel fuel systems, which:

- ✦ *Replaces the expansion vessel in the system.*
- ✦ *Starts and stops the pump in accordance with the opening and closing of the trigger nozzle.*
- ✦ *Maintains a constant pressure during delivery.*
- ✦ *Provides dry running protection - automatically stops the pump if the liquid supply fails.*
- ✦ *Smooths liquid hammer effects.*
- ✦ *Does not require regular maintenance.*

# INSTALLATION

1. Before installation, check that the components are compatible with the system.
2. The controller may be installed directly onto the pump or between the pump and the service point
3. Use PTFE tape to seal the threads on the inlet and discharge
4. No service point may be installed between the pump and the device.
5. It is important to install the controller with the flow direction arrows pointing upwards.
6. Install a ball valve at the output of the controller to isolate the system if necessary.
7. Connect the output of the controller to the system by means of a flexible tube.



*The controller is influenced by the height of the column of liquid in the system and this must be checked in relation to the restart pressure:*

**Restart pressure 1.5 bar** : The height of the column between the controller and the service point must not exceed **15 metres**

If the height of the liquid column exceeds 15 metres, the pump will be enabled but will not start.

## **PUMP INLET PIPEWORK.**

The pump inlet pipework must not be smaller than 25mm and, if the pump has to self-prime, the pipework should slope upwards towards the pump at all points so that air is not trapped in the pipework. The pipework must be of a non-collapsing type.

## **ELECTRICAL CONNECTION.**

Wiring diagrams for both units are moulded into the connection lids. It is essential that both units are fully earthed.

Suitable for only 230v±10% single phase 50Hz supply.

Make sure the electric supply is turned off before any work is carried out. The wiring and electrical connections must be carried out by a qualified electrician in compliance with the local regulations.

We recommend the use of a starter on the supply to give motor protection and stop unwanted starting of the unit after the supply has been restored following loss of electrics.

The supply cable should be first connected to the controller and a second cable from the controller to the pump.

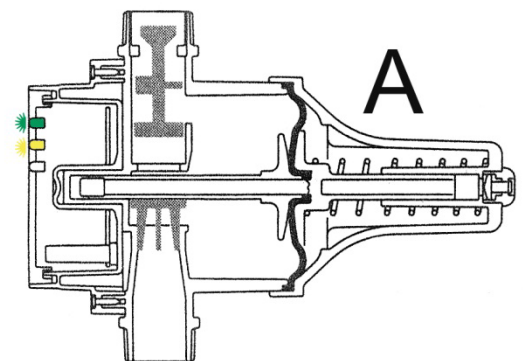
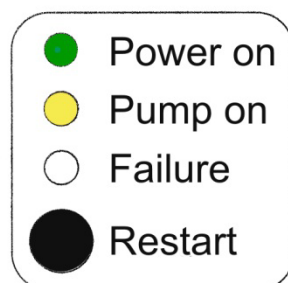
## **PUMP PRIMING**

The pump must be filled with diesel fuel, using the priming plug on the top of the pump body, before use. Replace the plug after priming, before starting the unit.

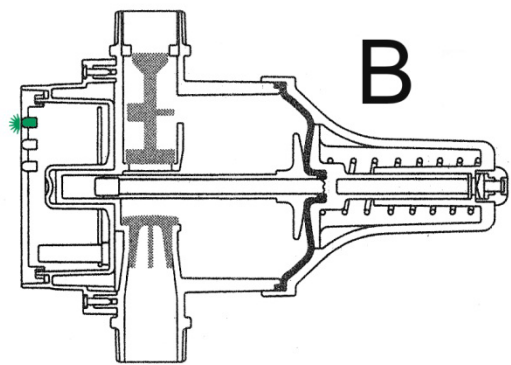
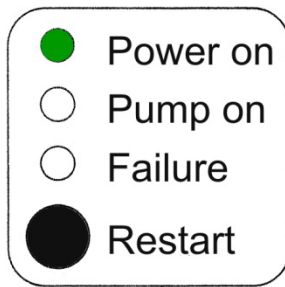
## **START-UP & OPERATION**

A panel is mounted on the front of the device which displays all the operating phases of the system by means of pilot lights; green pilot light - **POWER ON**, yellow pilot light - **PUMP ON**, red pilot light - **FAILURE**.

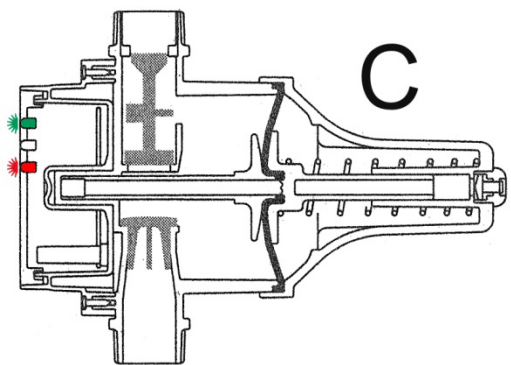
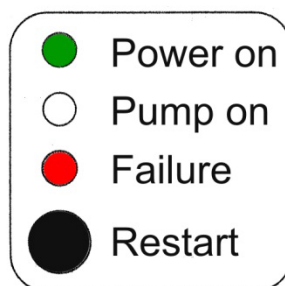
On start-up, the green and yellow lights turn on together, the green light indicating 'power on' and the yellow 'pump on' (A). The pump remains in operation for a few seconds in order to build up pressure in the system. If this time is not sufficient, the red failure light will turn on (C); in this case press and hold the **Restart** button, and wait, with the trigger nozzle open for the red pilot light to turn off.



After the nozzle is closed, the device stops the pump and goes into standby mode, the green pilot light lit, ready to carry out all subsequent control operations (B). On opening the trigger nozzle, the device starts the pump which remains in operation for as long as the nozzle itself is open (A). After the nozzle has been closed, the device restores maximum pressure to the system, stops the pump, and returns to the standby mode (B).



In the event of fuel shortage during use, the device recognises the failure, signals it with the red **Failure** light and stops the pump (C), protecting it from dry running. Once the problem has been found and corrected, press the red **Restart** button to restore normal operation.



In the case of a temporary power loss, the device will automatically restart as soon as the electricity supply returns, unless a starter is fitted to the electrical supply.

## TROUBLE SHOOTING

### PROBLEM

*The pump fails to start*

*The pump starts but fails to stop*

*The pump works intermittently*

*The pump fails to stop*

*The pump jams*

### MAIN CAUSES

Check the electrical connections.

Fuel column too high.

Leak in system lower than minimum flow.

Leak in system higher than minimum flow.

Lack of fuel or inlet/discharge blockage.