ALEMITE®

Service Guide

8422

Smart Start

Computerized Control and Protection System for Electronic DEF Pumps

Description

General

Read this documentation carefully before installation. Installation must comply with the safety regulations of the country in which the product is installed. Failure to comply with the safety regulations can cause risk to personal safety, damage to the equipment, and void the warranty.

Conformity with local and State electric codes is mandatory. The National Electric Code requires that a ground fault circuit interrupter (GFCI) be used in the branch circuit supplying pumps. Consult a licensed electrician or your power company if in doubt.

The **SMART START** converts an electric pump into an automatically operating triggered booster set for DEF use. The device performs three functions;

- It allows automatic pump operation: it starts the pumping when the nozzle is triggered and stops it about 15 seconds after the nozzle has been released.
- It protects the pump from dry operation. The specially designed safety device automatically stops the pump when DEF is no longer drawn, thus preventing possible damage. The stopping action is indicated by the lighting of the red LED (5) on the display. This informs the user of the absence of DEF.
- It ensures constant delivery and pressure.

Specifications

Operating range
ON: pressure = 1.8 bar (25 P.S.I)
OFF: max. Pump pressure

Figure 1 *Diesel Exhaust Fluid Pump Model 8422*

Power source (Pump max. power absorption):
220+240 Volt 50/60 Hz (10A)
115V- 60Hz (15A)
Max. Delivery: 120 liters/minute (32 gpm.)
Min. delivery from pressure side: 1- 1.5 liters/min. (.26-.39 gpm)
Max. DEF temperature: 35 °C (95 °F)
Max. Operating pressure: 4.5 bar (65 P.S.I.)
Degree of protection: IP 44

Installation

1. Connect the **SMART START** socket (Fig. 2 - point 18) to the pump power plug and the **SMART START** power plug (Fig. 2 - point 17) to a current out-let.

The **SMART START** must be installed on the delivery side of the pump.

2. Screw the inlet 1inch male connection (E) onto the pump outlet female thread, if the pump does not have a 1 inch female outlet, an adapter will have to be used.

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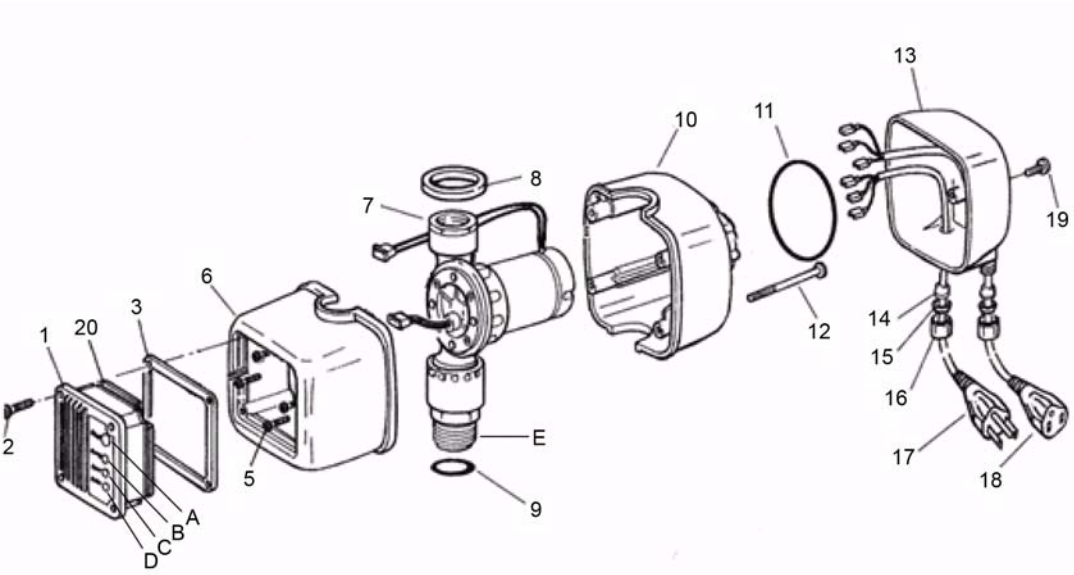

Figure 2 *Smart Start Functional Parts*

A. RESET button.
B. Line voltage indicator.
C. Pump in operation.
D. DEF absence alarm.
E. Inlet with 1-inch male threaded connection with O-ring.
7. Outlet with 1-inch female threaded connection.
18. Pump connecting cable with socket.
17. Power cord with plug.

Item No.	Part No.	Description	Qty	Notes	
1	393802-20	Electronic Card			
2	393802-21	Screw			
3	393802-22	Gasket			
4					
5	393802-23	Screw			
6	393802-24	Anterior Grey			
7	393802-25	Device stabil w/valve NPT (40PSI)			
8	393802-26	Joint			
9	393802-27	Joint O. Ring			
10	393802-28	Posterior Grey			
11	393802-29	Joint O. Ring			
12	393802-30	Screw			
13	393802-31	Posterior Grey			
14	393802-32	Joint d9			
15	393802-33	Cable Fastener			
16	393802-34	Nut			
17	393802-35	Cable and Plug			
18	393802-36	Cable with socket			
19	393802-37	Screw			
20	393802-38	Insulation case			

Legend:
Part numbers left blank (or in *italics*) are not available separately
● designates a repair kit item

3. Proper DEF compatible thread sealant must be used to ensure no leaks. Contact Alemite for specification on thread sealant.

4. After connecting the **SMART START**, attach the connecting cable (18) to the pump.

5. Before putting the system into operation, fill up the pump with DEF so as to allow priming.

6. With larger tanks, and whenever DEF is on a lower level than the pump, a suction line equipped with an antibackflow foot valve is required. This is necessary to allow the line to be filled when it is first used and to prevent it from being emptied when the pump stops automatically, thus avoiding restarting troubles.

7. Start the pump by connecting the power cord **(17)** to a current outlet.

Operation

LED Display

The **SMART START** is equipped with a 3-LED display indicating the operating condition of the pump:

GREEN LED (B): It lights when the **SMART START** is connected to the mains. YELLOW LED (C): It lights when the pump starts and goes off when it stops.

RED LED (D): It lights when operation is inhibited due to the absence of **DEF** (See also point 8).

RESET BUTTON: it is used to restart the pump after restoring a normal **DEF** flow.

The **SMART START** is also equipped with an automatic reset system which attempts to restart the pump three times.

If all attempts are unsuccessful, the **SMART START** will go into a permanent lockup condition, in whichcase resetting can only be obtained by disconnecting the power plug (18) and then connecting it again.

However, manual reset is always possible before the three automatic attempts are over.

In case of failed restart, always check if the suction line is filled with **DEF**.

> **Note:** If the suction phase does not begin within 120 seconds, the pump will stop automatically, and then will make two further attempts for another 120 seconds. If the pump still will not start, it will be necessary to troubleshoot the cause of the failure.

Trouble Shooting

Among the possible causes are: the suction line does not draw well due to an air leak in the line, coupler connection, or down tube.; the priming opening is not closed properly; the suction height is excessive; air cannot come out because the delivery tube is blocked; the suction line is not equipped with an Antibackflow foot valve or the pump body and the suction line were not completely filled with **DEF** when the system was first put into operation.

Pump Indications	Possible Problems	Solution
Red LED (B) blinks.	No DEF	Normal DEF flow must be restored.
Red LED (B) stays on continuously.	No automatic reset attempts left.	Disconnect the power plug and then reconnect it.
Pump keeps starting and stopping.	The system is leaky (unsealed).	Check the system and the connection with the pump.
Pump does not work.	The pump may be defective.	Disconnect the **SMART START** from the pump, both hydraulically and electrically. Try starting the pump alone after connecting it to the mains. If the pump operates properly, inspect the **SMART START** from outlet hole (7), checking if the inner impeller rotates freely. If friction is encountered, wash the SMART START by filling it with De-Ionized water (7). It the impeller turns freely contact the after-sales service team.

Caution

Warranty may be void if pump is not **fully primed** prior to initial startup, and all suction lines with Quick Coupler fitting are not tightened properly.
Seal damage will occur if pump is run without **full prime** and warranty may be Void.

See Instruction manual for proper pump priming procedures

Model 8422 (DEF) Pump

Startup Instructions

NOTE: *Do not start the* ***Alemite Pump*** *unless it has been completely filled with DEF Fluid*

Before starting up, check that the pump is properly primed: Fill it completely with DEFfluid by means of the Screw hole provided, on the top of the Stainless steel pump housing.

This will ensure that the internal Mechanical seals are well lubricated and that the pump immediately starts to pump.

Dry operation will cause irreparable damage to the Mechanical seals and may void manufacture warranty.

Upon completion of the set up instructions posted above, your Smart Start Pump will be ready for operation.