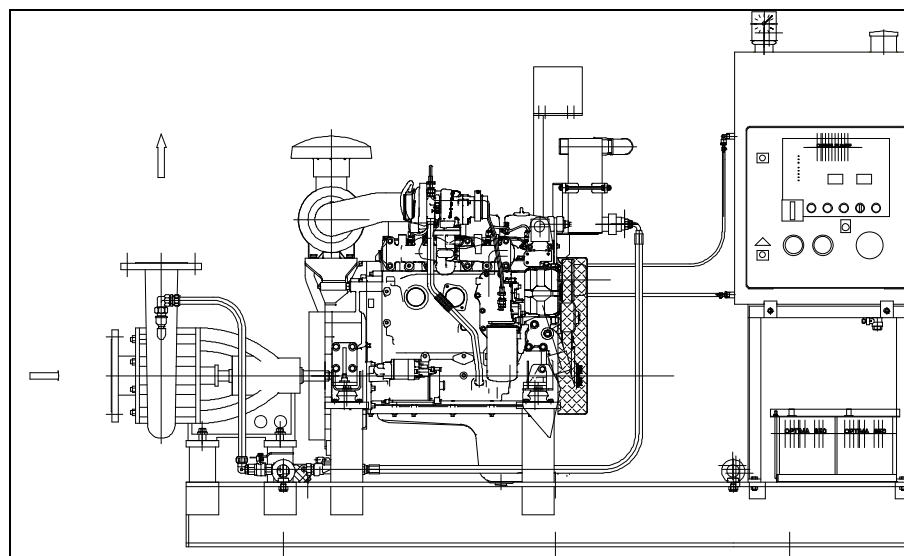


Diesel driven sprinkler system

MEC-AZRBH2-125 with IVECO IVN45MN



DESMI A/S

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Manual: T1487	Sprog: UK	Revision: A (06/06)
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1. NAME PLATE

TYPE: Pump type
CODE NO.: Parts list number
PUMP NO.: Pump serial number
M³/HOUR: m³/hour
IMP.: Impeller diameter
TOTAL HEAD M: Total delivery head M
R.P.M.: Number of rotations
KW: Motor size
WEEK: Manufacturing week
YEAR: Manufacturing year

A/S DE SMITHSKE		DESMI	
TYPE:			
CODE NO.:			
PUMP NO.:			
M ³ /HOUR:		IMP.:	
TOTAL HEAD M.:			
RPM:		KW:	
WEEK: 34		YEAR: 1999	
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WARNING!

A sprinkler system will start without warning in case of pressure drop in the system. Should this happen whilst service is being performed on the system this could lead to serious personal injury.

Therefore it is **IMPORTANT** to prevent the system from starting unintentionally. For diesel pumps the change-over switch S2 has to be set in the position "START DISABLED" and both cables to the positive poles of the batteries must be disconnected.

ANY operation/service repair etc. must be followed by a standard test simulating pressure drop in order to secure that the complete system functions correctly.

NOTE !

For further details see separate manuals for pump, diesel engine and switchboard

2. GENERAL INFORMATION

A complete sprinkler system is supplied on a base plate built together with electric motor or diesel engine. Pump and motor/engine are built together on the base plate via a flexible coupling. The base plate is well dimensioned, precisely levelled and ready for simple and quick mounting on site. Diesel sprinkler systems also include fuel tank and start batteries.

The complete unit comprises an electronic switchboard. The switchboard has to be connected to the pressure drop sensor in the piping system and it then automatically starts up the sprinkler system when a pressure drop signal is received. Further the switchboard includes all functions for manual start-up and for the periodical control starts that have to be carried out. The switchboard can be connected to two or more pumping systems including jockey pump, compressor etc.

3. TRANSPORTATION

Total weight of the diesel sprinkler system is 1850 kg (dry weight) and 2000kg (full tank).



Figure 1: Transportation of sprinkler system, 1) Lifting eyes

For transportation of the sprinkler system use fork-lift truck or crane.

NOTE!

When lifting the sprinkler system ONLY USE LIFTING EYES. Do not lift in other parts of the system.

4. OPERATION OF SPRINKLER SYSTEM (SEE FIGURE 2)

4.1 ALARM LAMPS

No.	Name	Lights up when:
H1	MAN. START	The start motor is activated and the switch S2 is in MAN position.
H2	AUT. START	The start motor is activated and the switch S2 is in AUT position.
H3	PRESSURE SWITCH FAILURE	The connection to the start pressure switch is disconnected or the pressure switch is defect.
H4	START DISABLED	Change over switch S2 is in centre position
H5	AC POWER FAILURE	-Q1 is in "0"(OFF) position or the 220 V supply to the switch board is missing. Further the AC fuse could be defect.
H6	DC POWER FAILURE	There is no connection to accumulator for automatic start or the DC fuse is defect.
H7	DC ALARM POWER FAILURE	24 VDC alarm power from ext. accumulator is missing or the appurtenant fuse is defect.
H8	ALARM	The switchboard is not ready. Check the remaining lamps to detect the reason. However, this lamp only lights if the switch S2 is in "MAN" position.
H9	START FAILURE	The diesel engine does not start after three attempts and the attempts are stopped.
H10	RUNNING	Indicates that the diesel engine is running or has been running. Reset by switching S2 to centre position. As long as this lamp lights or the engine is rotating, cooling water is being supplied.
H11	TEMPERATURE	Too high cooling water temperature
H12	OIL PRESSURE	Too low oil pressure during operation or when the engine is stopped as long as lamp H10 is on.

CONCLUSION: Switchboard and diesel engine are ready for operation when no lamps are on.

4.2 BEFORE START UP AND WEEKLY CHECK

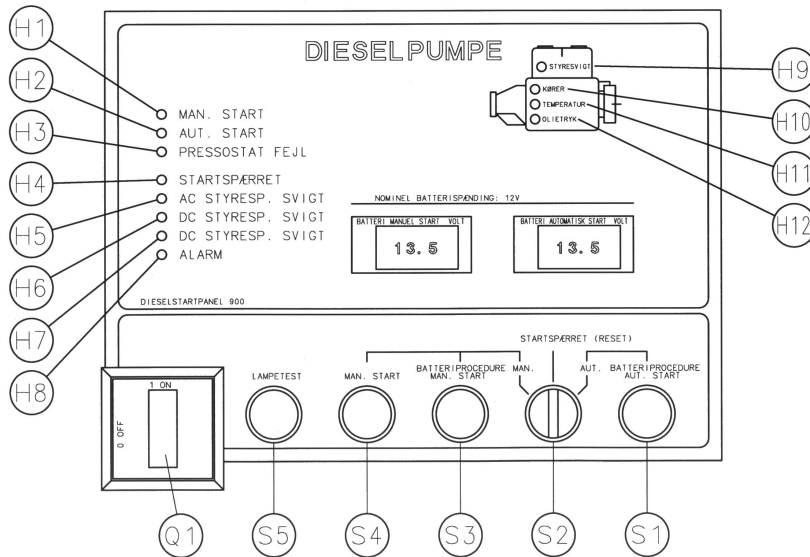


Figure 2: Lamps, indications and switches

NOTE!

When servicing diesel engine or pump the positive poles to the batteries should be dismantled, as S2 does not function as a safety switch.

Weekly check (see figure 3)

1. Check lube oil level, should be to the **FULL** mark on the dipstick.
2. Check the battery charging voltage, should be approx. 25 Volt.
3. Check that the fuel tank is completely full.

Weekly routine check

1. Lube oil level (U7) should be between 3 and 5 bar.
2. Temperature (U6) should stabilize between 80 and 90°C. Can only be observed when the pump is operating in its operating point.
3. Number of rotation (U5) should be as specified for the actual installation.
4. Check that the cooling water drain works correctly.
5. Check all joints at cooling water pipes and fuel connections for leaks.
6. Run the system and check for abnormal vibrations, smoke generation etc.
7. Check if cooling water is coming into the heat exchanger.

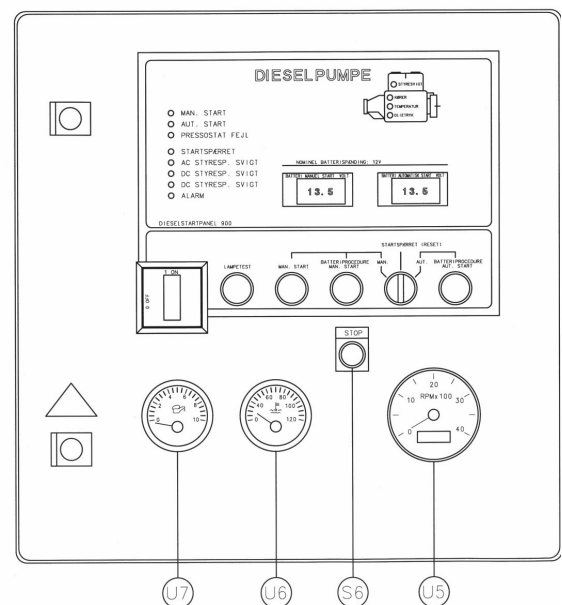


Figure 3: Switchboard (diesel)

8. Check the Y-pattern valve.

4.3 START-UP

NOTE!

Do not activate start button S4 for more than 15 sec. a time

Use switch S2 to select the following options:

MAN: In manual position start-up is carried out when pressing **MAN.START** (S4). In this position **ALARM** (H8) lights up to indicate that the switchboard is not in automatic mode. Press (S3) to carry out battery test of manual accumulator. **See 4.5.**

AUT: In this position the switchboard has to be ready for operation. The system starts up automatically in case of pressure drop in the system or when activating (S1) which is also used for battery test.

STARTSPÆRRET (start disabled)

RESET: In this position a possible run signal is deactivated.

4.4 LAMP TEST

The button **S5** (lamp test) is intended for test of the lamps. Further this button interrupts the AC-power to the battery chargers. While **S5** is activated the panel voltmeters should indicate a battery voltage equal to the voltage indicated before the test, possibly slightly dropping..

4.5 ACCUMULATOR TEST

Batteries are tested according to the following procedure:

1. Activate the fuel stop lever in order to cut off fuel supply to the diesel engine. Keep it closed during the whole test.
2. Close the fuel cock on the diesel tank.
3. Carry through three start attempts (activate either **S3** or **S1 (short-time)**).
4. When the AC/DC power failure lamps light up, check battery voltage on the digital voltmeter that corresponds to the selected start accumulator. The start voltage has to be 24V or higher.

4.6 STOP

Activate the stop lever until the engine stops or press stop button (S6) on the switchboard.

5. MAINTENANCE

NOTE:
For further details see manuals for pump, diesel engine, and switchboard

Carry out the following check-up **once a year**:

1. Initially follow the above procedure for weekly check.
2. Change lube oil. Oil type: 15W/40. Quality: API-CD
3. Replace lube oil filter
4. Replace fuel filter
5. Check V-belts and hose connections thoroughly. Replace in case of wear and damage.
6. Clean air filter
7. Tighten engine mounting bolts, bolts at exhaust system, screws at valve cover, and all clamps.
8. Tighten bolts at coupling between engine and pump. Check alignment.
9. Clean and tighten battery connecting cables. Grease pole shoes with acid-free grease (Vaseline).
10. Empty fuel tank of condensation water
11. Refill fuel tank to full
12. Conclude the maintenance check-up by carrying out a normal operating test

6. TECHNICAL INFORMATION

Sizes: Length: 2475 mm
Width: 870 mm
Height: 1655 mm

Weight: Approx. 1850 kg (dry)
Approx. 2000 kg (full tank)

Engine: Water-cooled 4-cyl. diesel engine
Type: N45MNSE 24V
Manufacture: IVECO
Effect: 108 kW at 2860 rpm.

Hearing protectors are mandatory during operation of diesel driven pumps.

Pump: Centrifugal pump
Type: MEC-AZRBH 2-125
Manufacture: DESMI/Caprari

Voltage requirements: The switchboard needs the following:
1: 220 V-O and ground from distribution board for electric pump.
2: 24V DC alarm voltage from alarm accumulator in distribution board.
3: 24V DC starting voltage from accumulator for manual start
4: 24V DC start and control voltage. From accumulator for automatic start.

220 V for the diesel panel is cut in by means of the circuit switch **Q1** and the digital voltmeters will light up when the voltage is correct. The above supplies should be constantly connected and in case of errors the respective alarm lamps will light up.

Indications for: Oil pressure
Temperature
Operating hours
Revolutions

Alarm lamps for: Manual start
Automatic start
Pressure switch failure
Start disabled
Failure AC control voltage
Failure DC control voltage
Failure DC alarm voltage
Alarm
Engine temperature
Engine oil pressure

7. EU DECLARATION OF CONFORMITY

DESMI A/S, hereby declare that our diesel driven sprinkler systems type MEC-AZRBH 2-125 with IVECO N45MNSE 24V are manufactured in conformity with Directive 98/37/EC of the European Parliament and of the Council of 22 June 1998 on the approximation of the laws of the Member States relating to machinery, with special reference to Annex I of the Directive on essential safety and health requirements in relation to the construction and manufacture of machines.

Further the pumps are manufactured in conformity with the provisions of the COUNCIL DIRECTIVE of February 19, 1973, on mutual approximation of the laws of the member states on electrical material destined for use within certain voltages, 73/23/EØF, with subsequent amendments.

Relevant harmonized industrial standards:

EN 12100
EN 294

Nørresundby, June 2006



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