SPECIFICATION

PORTABLE FIRE FIGHTING PUMP

1. SCOPE

This specification covers the requirements for a twin discharge, electric start, fire-fighting specific portable pump with exhaust gas primer. The overall design shall be a lightweight self-contained diesel engine powered unit capable of being carried by two men. The unit is to be designed to be as light as possible but without sacrificing reliability, robustness and safety.

2. GENERAL

2.1 The unit should be capable of fulfilling the minimum output performance listed below, with all internal and external filters fitted -

Output 2000 liters per minute
Pressure 7 bar
Condition 3m suction lift.

2.3 The pump should be capable of flows more than 1400 l/min with a 100mm suction hose fitted.

2.4 The complete unit should be designed for continuous operation at maximum rated output and for running under full load immediately after starting from cold condition.

3. ENGINE

3.1 The engine should be of spark ignition type and as follows -

a. Four (4) stroke air cooled diesel engine
b. Two (2) cylinders V-twin OHV
c. Engine develops power of 48Kw.

3.2 The engine should be capable of driving the pump continuously at a rated output of 7 bar when operating on a 3m static suction lift with 5m of suction hose.

3.3 The unit should be operated at an angle of 15 degrees to the horizontal, when measured in all directions.

3.4 A maintenance free electronic ignition system should be provided as standard. An ignition switch plus full electric starting by push button is provided. A compact 12v battery should also be fitted.

3.5 The unit should be fitted with a well-designed recoil hand start allowing easy starting by one man. The unit is capable of high speed running immediately after starting, even in cold conditions.

3.6 A fully enclosed waterproof alternator should be fitted which produces sufficient current to operate the ignition system during hand start with the recoil starter.

3.7 The pump unit should be fitted with a 3-pin plug which can be used either to power auxiliary equipment, e.g., floodlights, or for charging the battery from an external charger.

3.8 The air-cooling system should be of sufficient capacity for the engine to run without overheating in high ambient temperatures.

3.9 There should be no bolts, external belts, or pulleys to adjust or replace.

4. FUEL & EXHAUST SYSTEM

4.1 The fuel tank has a capacity of 20 liters which is adequate to allow pumping at full rating for at least 2.5 hours duration.

4.2 The pump should be fitted with a standard exhaust silencer.

5. PUMP

5.1 The water pump should be a single stage centrifugal pump that is directly mounted to the engine.

5.2 The pump body with volute and impeller is made of light alloy.

5.3 A self-adjusting mechanical seal is fitted which consists of a carbon ring running on a ceramic face.

5.4 The pump must be provided as standard with a 100mm BS round thread suction inlet and blank cap to BS336.

5.5 The pump should be fitted with twin delivery outlets, side facing, to facilitate easy hose laying especially when used on a pickup type truck.

5.6 The delivery valve is of screw down type for ease in controlling pump performance.

5.7 The delivery valve should be fitted with a BS336 female instantaneous coupling. The valve has a pressure relief facility which can enable the operator to release delivery hose pressure.

5.8 The delivery valve also has an integral check capability to aid priming.

6. PRIMER

6.1 Priming should be effected by means of a proprietary exhaust gas ejector priming system. Both exhaust and primer discharge to a common outlet. The exhaust has provision to fit a flexible exhaust extension in accordance with EN14466

6.2 The pump will prime from a depth of 3m in less than 30 seconds with a 100mm suction hose.

6.3 The pump should be also capable of priming to 3m in less than 22 seconds with a 76mm suction hose.

6.4 The pump should be capable of priming down to 9m.

7. CONTROLS AND INSTRUMENTS

The pump should be fitted with the following controls and instruments that are conveniently grouped –

a. Push button start or key
b. Throttle control
c. Cold start choke control
d. On/Off ignition switch
e. Primer control lever
f. Pump compound pressure gauge
g. Pump pressure gauge (include visual indication of overpressure conditions.)