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June 29, 1995

Revision pages for

Standard for

Diesel Engines for Driving Centrifugal Fire Pumps

UL 1247, Third Edition

Attached to this transmittal notice is a revision of the Third edition of UL 1247.

A CHANGE ON A PAGE DATED JUNE 29, 1995 IS INDICATED BY A SMALL PRINT NOTE FOLLOWING THE AFFECTED ITEM, PRECEDED AND FOLLOWED BY AN ASTERISK.

THESE REVISED REQUIREMENTS IN PARAGRAPH 8.2.1 BECOME EFFECTIVE JUNE 30, 1997 AS INDICATED IN THE SMALL PRINT NOTE FOLLOWING THE AFFECTED ITEM. TO RETAIN THE REQUIREMENTS IN EFFECT UNTIL JUNE 30, 1997, DO NOT DISCARD THE PREVIOUS PAGES CONTAINING THE REQUIREMENTS SPECIFIED ABOVE UNTIL THIS FUTURE EFFECTIVE DATE.

New product submittals made prior to a specified future effective date will be judged under all of the requirements in this standard unless the applicant specifically requests that the product be judged under the current requirements. However, should the applicant elect this option, it should be noted that compliance with all the requirements in this standard will be required as a condition of continued Listing and Follow-Up Services after the effective date and understanding of this should be signified in writing.

The revised requirements are substantially in accordance with UL's bulletin on this subject dated November 23, 1994. The bulletin is now obsolete and may be discarded.

Revised and/or additional pages may be issued from time to time.

With the inclusion of the accompanying material, the standard consists of pages dated as shown in the following checklist:

Page	Date
1	May 5, 1995
2	—
3 – 6	May 5, 1995
7	June 29, 1995
8 – 14	May 5, 1995



Documents

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6.4 An engine equipped with pneumatic starting components shall be capable of providing 180 seconds of continuous engine cranking.

6.5 A pneumatic starting system intended for connection to an automatic controller shall include all necessary components such as solenoid valves and other interfacing devices for connection to the automatic controller.

6.6 An engine equipped with hydraulic starting components shall be capable of at least six cranking cycles. Each cranking cycle is to be conducted with the intake air temperature, ambient temperature, and the hydraulic cranking system at the minimum temperature specified in the manufacturer's installation, operation, and maintenance instructions, and shall cause the engine to achieve rated speed within 20 seconds after cranking is initiated.

7 Automatic Heater

7.1 An automatic heater shall be installed on the engine to maintain the coolant at a minimum of 120°F (48.9°C) in the water jacket of the engine block when the ambient temperature (still air) is $40 \pm 2^\circ\text{F}$ ($4.4 \pm 1.1^\circ\text{C}$). The outlet side of the automatic heater shall be provided with piping, a hose with a braided stainless steel jacket, or other hose acceptable for use in such application.

8 Engine Cooling System

8.1 General

8.1.1 The cooling system shall automatically maintain the engine within the intended operating temperatures. The cooling system shall be included as part of the engine assembly and shall be of the following closed-circuit types:

- a) A heat exchanger type that includes a circulating pump driven by the engine, a heat exchanger and an engine jacket temperature regulating device; or
- b) A radiator type that includes a circulating pump driven by the engine, a radiator, an engine jacket temperature regulating device, and an engine driven fan for providing positive movement of air through the radiator.

8.1.2 The cooling system shall be provided with at least one opening in the primary loop for replenishing the coolant and checking the liquid level. An expansion reservoir shall also be provided to minimize loss of coolant due to thermal expansion and contraction.

8.2 Heat exchanger type

8.2.1 The heat from the closed primary loop shall be dissipated to a secondary, open, raw water cooling circuit. The heat exchanger shall be provided with a tapped or flanged inlet to accommodate piping supplying coolant from the fire pump discharge and with a tapped or flanged outlet to accommodate drain piping. The tapped or flanged outlet shall be one size larger than the tapped or flanged inlet. The heat exchanger shall have a minimum rated pressure of 60 psig (414 kPa).

Revised 8.2.1 effective June 30, 1997

8.3 Radiator type

8.3.1 The heat from the primary loop of a radiator shall be dissipated by a fan included with, and driven by, the engine. The radiator heat exchanger shall be designed to maintain normal engine operating temperatures with an inlet air temperature of 120°F (48.9°C). A duct connection shall be provided to allow for conveyance of the coolant air exhaust outside the pump room.

9 Wiring

9.1 All wiring used with the engine shall be used within its rated current and voltage, and shall be mechanically secured in place. Wiring susceptible to mechanical damage shall be protected; conduit is acceptable for this purpose.

9.2 All connecting wires for controllers shall be:

- a) Harnessed or flexibly enclosed to reduce the risk of mechanical, thermal, or chemical damage to the insulation;
- b) Mounted on the engine; and
- c) Connected in an engine junction box to terminals numbered to correspond with numbered terminals in the controller, for ready wiring in the field between the two sets of terminals.

10 Lubrication System

10.1 An engine shall be equipped with a pressure type lubrication system. The system shall consist of a direct engine driven pump, a filter, and distribution system. It shall have the capacity necessary to maintain lubricant temperature and pressure within the range recommended for the engine.

10.2 The lubrication system shall be free of visible leakage. The lubricant filter media shall be replaceable or the filter shall be of a type that can be cleaned and reused.

10.3 Means for checking, draining, and replenishing the lubricant supply shall be provided.

11 Air Induction System

11.1 The air induction system shall be equipped with a filter having a filter media that is replaceable or a filter of the type that can be cleaned and reused.

12 Exhaust System

12.1 The exhaust system shall be gas-tight throughout the operating range of exhaust temperatures and pressures. It shall be constructed with an outlet connection to allow for ducting exhaust gases outside the pump room.

12.2 The exhaust manifold shall be liquid cooled or insulated to reduce the risk of injury such as burns to operating personnel. When insulation is provided, the exposed surface shall be nonporous.

13 Fuel System

13.1 The fuel system shall include at least one fuel filter with a replaceable medium. The fuel system shall be leak free throughout all conditions of engine operation, and the inlet to the fuel system shall be capable of being connected to a fuel supply line.

13.2 When an electric solenoid valve is used to control the engine fuel supply, it shall be capable of mechanical operation or of being manually bypassed in the event of a control circuit failure.

UL 1247

ISBN 1-55989-715-5

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May 5, 1995

Standard for

Diesel Engines for Driving Centrifugal Fire Pumps

UL 1247, Third Edition

Accompanying this transmittal notice is a copy of the Third edition of UL 1247.

THIS EDITION OF THE STANDARD IS NOW IN EFFECT.

Revised and/or additional pages may be issued from time to time.