

Subject 1247

October 17, 2018

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Safety for Diesel Engines for Driving Stationary Fire Pumps, UL 1247, are being proposed for preliminary review and comment only:

- 1. For Preliminary Review Only: Generator or Alternator Output Current***
- 2. For Preliminary Review Only: Revisions to Clarify Requirements and Update Test Details***
- 3. For Preliminary Review Only: Revision to Over-current Protection Criteria***
- 4. For Preliminary Review Only: Revision to ECM and Switching Equipment Criteria***
- 5. For Preliminary Review Only: High Engine Temperature Alarm Delay on Engine Restarts***

COMMENTS DUE: October 31, 2018

This proposal is for review and comment only (no ballot at this time). Please note that comments on a preliminary review document will not receive a response from the proposal author through CSDS. Instead, the proposal author will be asked to review the comments and adjust the proposals and/or supporting rationale as the author determines to be appropriate. The preliminary review process is an informal mechanism that provides authors with the opportunity to refine their proposals before they advance to the next stage in UL's standards development process.

In some cases, the author of the proposals may choose to discontinue them. In this case, the author need not do anything after preliminary review has ended. Normally, the next step in the process is the more formal STP ballot and stakeholder review process. Only comments posted during the STP ballot and stakeholder review process will be provided with a response in CSDS.

If you are interested in applying for STP 448 membership or are aware of potential candidates for this STP, please contact the STP Project Manager, griff.edwards@ul.com.

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

1. For Preliminary Review Only: Generator or Alternator Output Current

RATIONALE

Proposal submitted by: Kerry Bell, UL LLC

Paragraph 23.7 includes a warning statement regarding the potential for a generator or alternator to deliver excessive current to a fire pump controller. To prevent this potential incompatibility concern, UL proposes to require that a generator or alternator be designed to deliver its output current to the batteries and not deliver output current directly to the fire pump controller. The new requirement described in 17.2 eliminates the need for the warning statement currently referenced in 23.7.

PROPOSAL

17.2 A generator or alternator shall deliver the output current to the batteries and not deliver output current directly to the fire pump controller.

~~23.7 A generator or alternator capable of delivering an output current of more than 20 amperes to an engine controller shall be visibly marked with "WARNING," and the following or equivalent wording, "High current, _____ amperes, use only engine controller of proper rating."~~

2. For Preliminary Review Only: Revisions to Clarify Requirements and Update Test Details

RATIONALE

Proposal submitted by: Kerry Bell, UL LLC

UL proposes to revise and update text throughout the standard to clarify requirements, update test details. See proposed revisions to 6.12, 11.2 d), 14.2, 19.2, 20.1.1, 20.1.1.1, 20.1.1.2, 20.1.2.1, 21.2, 21.3 and 23.2 g).

PROPOSAL

~~6.12 P~~The enclosures and polymeric materials used to construct instrumentation enclosures, or used to construct opening covers or components projecting through metal enclosures that form part of the enclosure shall comply with the applicable requirements of the Standard for Enclosures for Electrical Equipment, Non-Environmental Considerations, ANSI/UL 50 and the Standard for Enclosures for Electrical Equipment, Environmental Considerations, ANSI/UL 50E with a minimum Type 2 rating.

11.2 All connecting wires from the engine to the terminal block referenced in 11.8 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.
- d) Sized to accommodate the maximum ampacity specified in ~~Figure~~Table 11.1.

14.2 The exhaust manifold shall be liquid cooled, ~~or insulated~~ or otherwise shielded to reduce the risk of burn injury to operating personnel. When insulation is provided, the exposed surface shall be nonporous.

19.2 For the performance tests, an engine shall be supplied with a grade of diesel fuel specified by the engine manufacturer as not capable of providing power output greater than No. 2-D diesel fuel as described in complying with the Standard Specification for Diesel Fuel Oils, ANSI/ASTM D 975.

20.1.1 ~~Inactive~~Gold starting for all starting systems

20.1.1.1 ~~For each trial specified in~~ When tested in accordance with 20.1.1.2, an engine shall start and accelerate from cranking speed to the maximum sustainable power output at the highest rated speed within 20 seconds. If the maximum sustainable power output at a lower speed is more than 10 percent higher than the maximum sustainable power output at the highest rated speed, the engine shall also be subjected to the cold start test at the maximum sustainable power output associated with the lower rated speed.

20.1.1.2 With the automatic heater in 9.1 disconnected and after a minimum of 8 hours of non-operation, the engine is to be started, accelerated as quickly as possible to rated speed (± 20 rpm) and maximum sustainable power output, operated at that speed and power output for not more than 30 seconds; ~~stopped, and then started again immediately for a total of a minimum of three trials.~~ For hydraulic starting systems, the engine air intake, room ambient temperatures and starting equipment shall be conditioned at 32°F (0°C) prior to the first engine start.

20.1.2.1 For each trial specified in 20.1.2.2 and 20.1.2.3, an engine shall start ~~within 1 minute and shall~~ accelerate from cranking speed to the maximum sustainable power output associated with the lowest and highest rated speeds within 20 seconds.

21.2 A heat exchanger shall not leak or rupture when subjected for 1 minute to a hydrostatic pressure of 150 percent of the ~~maximum working rated~~ pressure specified by the manufacturer, but in no case shall the test pressure be less than 90 psig (620 kPa).

21.3 With the engine not operating and conditioned to 40°F (4.4°C), the automatic heater shall maintain the coolant temperature to an average temperature of at least 120°F (49°C), but in no case is the temperature as measurement to be less than 110° F (49.43° C) – as measured at either the coolant fill opening or by a thermocouple inserted into the coolant passages into the engine near the top of the cylinders or into the combustion chamber. The average temperature is to be calculated based upon the highest and lowest temperatures measured during the on-off cycles created by the automatic heater hysteresis. The test is to be conducted for not less than 4 hours.

23.2 The nameplate shall include the following information:

- a) Manufacturer's or private labeler's name or identifying symbol;
- b) Model designation;
- c) Rated speed and horsepower output. For engines rated for a speed range, the minimum speed rating with corresponding horsepower rating and maximum speed rating with corresponding horsepower rating are to be specified;
- d) Year of manufacture;
- e) Serial number; and
- f) An engine rated for a speed range shall have the following statement or equivalent:
"Horsepower ratings within the specified speed range are to be determined by the use of linear interpolation between the horsepower developed at minimum and maximum speeds."

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