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March 5, 1996

Revision pages for

Standard for

Engine Generator Assemblies for Use in Recreational Vehicles

UL 1248, Second Edition

Attached to this transmittal notice is a revision of the Second edition of UL 1248.

A CHANGE ON A PAGE DATED MARCH 5, 1996 IS INDICATED BY A SMALL PRINT NOTE FOLLOWING THE AFFECTED ITEM, PRECEDED AND FOLLOWED BY AN ASTERISK.

THESE NEW AND REVISED REQUIREMENTS ARE NOW IN EFFECT.

The new requirements are substantially in accordance with UL's bulletin on this subject dated November 27, 1995. 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	August 30, 1993(Title Page Reprinted: March 5, 1996)
2	March 5, 1996
3 – 12	August 30, 1993
13	March 5, 1996
14 – 17	August 30, 1993
18	March 5, 1996
19 – 41	August 30, 1993
42, 42A	March 5, 1996
43 – 52	August 30, 1993

AUGUST 30, 1993

(Title Page Reprinted: March 5, 1996)

1

UL 1248

Standard for

**Engine-Generator Assemblies for Use in
Recreational Vehicles**

First Edition – July, 1978

Second Edition

August 30, 1993

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest published set of revision pages.

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6.3.2 A change in volume of not more than 25 percent swelling or 5 percent shrinkage, and a weight loss (extraction) of not more than 10 percent is considered as indicating compliance with 6.3.1.

6.3.3 A part made of synthetic rubber which may be affected by aging shall not crack or show visible evidence of deterioration following exposure for 96 hours to oxygen at a pressure of 300 psi (2.07 MPa) and a temperature of 70°C (158°F).

6.4 Corrosion resistance

6.4.1 If corrosion of a ferrous part will interfere with the proper functioning of a part, the part shall be provided with a corrosion-resistant protective coating.

6.4.2 A part made of drawn brass or machined from brass rod shall be capable of withstanding, without cracking, the 10-Day Moist Ammonia-Air Stress Cracking Test, Section 23A.

6.4.2 revised March 5, 1996

6.5 Carburetors

6.5.1 Where a side or updraft carburetor is used, it shall be located so that overflow of gasoline due to excess choking will flow to ground and not contact electrical parts and exhaust system, or collect in an engine compartment. Nonmetallic drain hose, if used, shall comply with the fuel resistance, oil resistance, and dry-heat resistance tests of the Standard for Fuel and Oil Hose, ANSI/SAE J30-1987.

6.5.2 A downdraft carburetor, if mounted over an engine and having an external float bowl vent opening, shall have a vent overflow tube to direct fuel away from the engine in case of fuel overflow.

6.5.3 A backfire deflector shall be provided on each combustion air intake and, whether separate or a part of an air cleaner, shall conform with the requirements of Backfire-Deflector Test, Section 22.

7 Fuel Systems – Liquefied Petroleum Gas

7.1 General

7.1.1 Where an LP-Gas fuel system is provided as part of the generator system it shall include the complete fuel system installed at the factory, except as indicated in 7.1.2 and 7.1.3.

7.1.2 Products equipped to use a removable fuel container may be shipped without the fuel container if a metal nameplate that identifies the correct fuel-container assembly to be used is attached adjacent to the container-mounting hardware.

7.1.3 A generator unit may be arranged for LP-Gas fuel but intended for use with a remotely mounted tank not provided or part of the generator. Paragraphs concerning fuel containers do not apply to generator units of this type.

7.1.4 Nonductile (regular gray iron) cast iron shall not be used for LP-Gas confining parts.

7.1.5 A body or fitting provided with tapered threads shall be threaded in accordance with the Standard for General Purpose Pipe Threads (Inch), ANSI/ASME B1.20.1-1983.

7.1.6 Vaporizers, regulators, valves, filters, and other fuel-system components subject to container pressure shall be of a type designed for use with LP-Gas at a working pressure not less than 250 psi (1.75 MPa).

7.1.7 Valves and connections on containers shall be protected to minimize the possibility of damage due to accidental contact with stationary objects or from loose objects thrown up from the road. Valves shall be protected to minimize the possibility of damage due to collision, overturning, or other accidents. Parts of the vehicle may be used to provide such protection to valves and fittings.

7.1.8 All fuel-system components shall be fastened to the vehicle to minimize the possibility of loosening due to vibration.

7.2 Containers

7.2.1 A fuel container shall be a pressure vessel constructed, tested, and marked in accordance with:

- a) The ASME Unfired Pressure Vessel Code or
- b) The Specifications of the Department of Transportation (DOT) for LP-Gas Containers.

7.2.2 A fuel container may be fixed to or removable from the generator unit.

7.2.3 An ASME fuel container shall have a designed working pressure of 312, 343, or 375 psi (2.15, 2.36 or 2.60 MPa). It shall be marked with the ASME "U" symbol and the design working pressure.

7.2.4 A DOT fuel container shall be constructed, tested, and marked for a minimum service pressure of 240 psi (1.65 MPa). It shall bear the marking DOT-4B240, DOT-4BA240, DOT-4BW240, or DOT-4E240.

7.2.5 A fuel container shall be so located as to minimize the possibility of damage to the container or its fittings. The fittings of a removable container shall be protected to minimize the possibility of damage during removal, filling, and replacement.

7.2.6 Instructions for installation shall indicate that a fuel container shall be installed with as much ground clearance as practical, but never less than the minimum road clearance of the vehicle in the area of the fuel container. This minimum clearance shall be measured to the bottom of the container or to the lowest fitting.

7.2.7 A fuel container shall be secured in place so as to meet the requirements of the LP-Gas Container Load Tests, Section 25.

7.2.8 A removable fuel container shall be designed to engage a substantial positioning pin or an equivalent means for proper positioning of the container when reinstalled.

7.2.9 If a removable fuel container is used, means shall be provided in the fuel system to minimize the escape of fuel when the container is changed.

7.2.10 The use of a quick-closing coupling (a type closing in both directions when uncoupled) in the fuel line shall be considered as complying with the requirements of 7.2.9.

7.2.11 Welding, if necessary, shall be made only on saddle plates, lugs, or brackets originally attached to the container by the manufacturer.

7.4.8 Flexible hose passing through sheet metal shall be installed to minimize hose abrasion, such as by use of clamps and grommets.

7.4.9 All pipe threaded fuel system fittings, including container fittings, shall be assembled using a pipe joint sealing compound designed for use with LP-Gas. All fuel-system connections, including the container with associated valves and fittings, shall be tested for leaks with a soap and water solution or equivalent while the system is under LP-Gas pressure of not less than 90 psi (621 kPa).

7.4.10 The fuel container and associated valves and fittings may be tested separately using air pressure of not less than 90 psi (621 kPa).

7.5 Vaporizers

7.5.1 Each vaporizer shall have a valve or plug located at or near the lowest portion of the section occupied by the water or other heating medium which will permit substantially complete draining of the vaporizer. The vehicle cooling system drain may serve this purpose if effective.

7.5.2 Each vaporizer shall be marked with the design working pressure in pounds per square inch gauge (kPa) and with the water capacity of the fuel-containing portion in pounds (kg).

7.5.3 Engine exhaust gases shall not be used as a direct means of heat supply for the vaporization of fuel unless the materials used for parts of the vaporizer in contact with the exhaust gases are resistant to the corrosive action of exhaust gases and the vaporizer system is designed to prevent excessive pressure.

7.5.4 Vaporizers shall not be equipped with fusible plugs.

7.6 Safety control and relief devices

7.6.1 A spring loaded internal-type safety relief valve with proper start-to-discharge setting and flow capacity, as detailed in 7.6.2 – 7.6.7, shall be provided on the fuel container.

7.6.2 A safety relief valve to be used on an ASME container shall be set, sealed, and marked with a start-to-discharge pressure not higher than the marked design working pressure of the container, and not less than 88 percent of the marked design working pressure of the container.

7.6.3 A safety relief valve on an ASME container shall be marked with its discharge capacity in cubic feet (cubic meters) per minute of air in accordance with Table 7.1 which relates the minimum required flow capacity to the outside surface area of the container.

Table 7.1
Safety relief valve capacity

Container surface area,		Minimum flow rate of air	
Square feet	Square meters	CFM	M ³ /m
20 or less	1.86	626	17.73
25	2.32	751	21.27
30	2.79	872	24.69
35	3.25	990	28.03
40	3.72	1100	31.15

7.6.4 A safety relief valve on a DOT container shall be set for a start-to-discharge pressure of 375 psi (2.60 MPa) and shall comply with the DOT regulations.

7.6.5 A safety relief valve shall have direct communication with the vapor space of the container.

7.6.6 The outlet from a container safety relief device shall discharge to the outside of enclosed spaces and as far as practicable from possible sources of ignition. A loose-fitting rain cap shall be provided on the end of discharge outlet piping. The cap shall be attached to prevent its being lost.

7.6.7 If a discharge line from the container safety relief device is used, it shall be of metal (other than aluminum), sized and located so as not to restrict the required flow of gas from the safety relief device. Such a discharge line shall be so constructed and installed as to minimize the possibility of its being dislodged by the discharge from the safety relief device and shall be directed upward within 45 degrees of the vertical.

7.6.8 An automatic shutoff valve shall be provided in the fuel system at some point ahead of the inlet of the first-stage regulator, designed to prevent flow of fuel when the ignition is off and the engine not running or if the engine should stop. This device shall permit the back flow of fuel from the vaporizer in the event of a pressure build-up in the vaporizer. The device shall be of a type designed for use with LP-Gas at a working pressure of not less than 250 psig (1.72 MPa).

7.6.9 An automatic switch, such as an oil-pressure switch or vacuum switch, provided to control the automatic shutoff valve shall be rated for the load controlled and shall be of a type which is designed for the intended use.

7.6.10 A hydrostatic relief valve shall be installed between the container shutoff valve and the automatic shutoff valve of a liquid withdrawal system. The relief valve shall be set to discharge at not higher than 500 psig (3.45 MPa) nor lower than 400 psig (2.76 MPa). The valve discharge shall be arranged to vent outside of the system enclosure.

7.6.11 Automatic pressure-reducing equipment incorporating an automatic shutoff means to prevent the passage of fuel when the engine is not running shall be employed.

7.7 Nonmetallic parts

7.7.1 A synthetic-rubber part in contact with LP-Gas shall not show excessive volume change or loss of weight, when considered on the basis of its intended function, following immersion for 70 hours in hexane.

7.7.2 A change in volume of not more than 25 percent swelling or 1 percent shrinkage, and a weight loss (extraction) of not more than 10 percent is considered as indicating compliance with 7.7.1.

7.7.3 A part made of synthetic rubber which may be affected by aging shall not crack or show visible evidence of deterioration following exposure for 96 hours to oxygen at a pressure of 300 psig (2.07 MPa) and a temperature of 70°C (158°F).

7.8 Corrosion resistance

7.8.1 If corrosion of a ferrous part will interfere with the proper function of a part, the part shall be provided with a corrosion-resistant protective coating.

7.8.2 A part made of drawn brass or machined from brass rod shall be capable of withstanding, without cracking, 10-Day Moist Ammonia-Air Stress Cracking Test, Section 23A.

7.8.2 revised March 5, 1996

20.3 Ordinarily, coil or winding temperatures are to be measured by thermocouples unless the coil is inaccessible for mounting of these devices (for example, a coil immersed in sealing compound) or unless the coil wrap includes thermal insulation – such as asbestos – or more than two layers [1/32 inch (0.8 mm) maximum] of cotton, paper, rayon, or the like. For a thermocouple-measured temperature of a coil of a generator Table 20.1(A)(4)(a) and (A)(4)(b), the thermocouple is to be mounted on the integrally applied insulation on the conductor. At a point on the surface of a coil where the temperature is affected by an external source of heat, the temperature rise measured by a thermocouple may be 15°C (27°F) Table 20.1(A)(7), 5°C (9°F) Table 20.1(A)(4)(a), and 10°C (18°F) Table 20.1(A)(4)(b), more than the indicated maximum, provided that the temperature rise of the coil, as measured by the resistance method, is no more than that specified in Table 20.1.

20.4 All values for temperature rises in Table 20.1 are based on an assumed ambient temperature of 25°C (77°F). Tests may be conducted at any ambient temperature within the range of 10–40°C (50–104°F).

20.5 A short length of rubber- or thermoplastic-insulated flexible cord exposed to a temperature of more than 60°C (140°F), such as at terminals, is acceptable if supplementary heat-resistant insulation of adequate dielectric voltage withstand properties is employed on the individual conductors of the cord to safeguard the generator against deterioration of the conductor insulation.

20.6 If the generator is provided with a battery charging circuit, the test is to be conducted with a suitable battery connected to the battery charging circuit. The battery is to be sufficiently discharged to allow the charging circuit to deliver maximum rated output current.

MECHANICAL SYSTEMS

21 Blocked Inlet Test

21.1 The product shall be arranged for test as described for the Temperature Test, Section 20, and when operating at maximum rated capacity the circulatory air flow is to be gradually restricted. This is to be accomplished by gradually blocking the circulating air inlet openings; first to one half of their open area, and then to complete blockage of the inlet grille area. The test is to be continued, under each of the restrictions, until equilibrium conditions are attained or the product shuts down. There shall be no burning, charring, smoke or other evidence of damage to the product or enclosure which would create a risk of fire or personal injury with continued use. The product need not be operable following the test.

22 Backfire-Deflector Test

22.1 A backfire deflector under backfire conditions shall contain a visible flame front within its confines and shall not be displaced, physically damaged or distorted or show evidence of burning or smoldering of internal parts; and, if of the oil-bath type, shall be free of any overflow or discharge permitting accumulation of oil on electrical, hot-engine, or exhaust-system parts.

22.2 A complete engine generator unit is to be used for this test. The backfire deflector (air cleaner, oil-bath or dry-element type) and connecting hose are to be removed from the engine. The spark timing and other ignition adjustments are to be made as needed to obtain sharp backfires under the following conditions. The engine is to be alternately raced and idled, and the ignition switch is to be operated to alternately energize and de-energize the ignition system. During this test, the intensity of the backfire and the issuance and extent of the accompanying flame are to be noted.

22.3 The backfire deflector (air cleaner) is then to be installed on the engine in the intended location. An oil-bath type deflector (air cleaner) is to be filled to the marked "full-level line" of the bowl. Paper is to be placed beneath the intake orifices of an oil-bath type and over adjacent surfaces of parts likely to be affected by accumulations of oil.

22.4 The engine is then to be operated in the several manners determined in the preliminary test to provide for the most severe backfire conditions. At least ten and not more than twenty severe backfires are to be produced.

22.5 Observations for containment of flame are to be made under semidarkened conditions by at least two observers. No visible flame is to be in evidence at any time during the tests. In the tests of an oil-bath type, paper is not to show evidence of oil deposits in the form of droplets.

22.6 A dry-type filter element is to be tested in the above manner and a separate sample is to be subjected to a flame source of sufficient intensity to cause the media to burn or glow. When the flame source is removed, an acceptable filter media shall not continue to burn or smolder.

23 Mercurous-Nitrate Immersion Test

Section 23 deleted March 5, 1996

23A 10-Day Moist Ammonia-Air Stress Cracking Test

Section 23A added March 5, 1996

23A.1 After being subjected to the conditions described in 23A.2 – 23A.4, a brass part containing more than 15 percent zinc shall show no evidence of cracking when examined using 25X magnification.

23A.2 Each test sample is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Such stresses are to be applied to the sample prior to and maintained during the test. Samples with threads, intended to be used for installing the product in the field, are to have the threads engaged and tightened to the torque specified in Table 23A.1. Teflon tape or pipe compound are not to be used on the threads.

Table 23A.1
Torque requirements for threaded connections

Nominal thread size, inches	Torque pound-inches (N · m)	
1	1200	(135.6)
1-1/4	1450	(163.8)
1-1/2	1550	(175.1)
2	1650	(186.4)
2-1/2	1750	(197.7)
3	1800	(203.4)

23A.3 Three samples are to be degreased and then continuously exposed in a set position for ten days to a moist ammonia-air mixture maintained in a glass chamber approximately 12 by 12 by 12 inch (305 by 305 by 305 mm) having a glass cover.

23A.4 Approximately 18 oz. (600 ml) of aqueous ammonia having a specific gravity of 0.94 is to be maintained at the bottom of the glass chamber below the samples. The samples are to be positioned 1-1/2 in. (38.1 mm) above the aqueous ammonia solution and supported by an inert tray. The moist ammonia-air mixture in the chamber is to be maintained at atmospheric pressure and at a temperature of $61 \pm 3.6^{\circ}\text{F}$ ($34 \pm 2^{\circ}\text{C}$).

24 Overspeed Test

24.1 The product, as arranged for operation in its intended manner, shall be subjected to an overspeed condition conducted at no-lead open throttle speed of the engine with no overspeed protection. If overspeed protection, e.g., an electrical or mechanical cut off switch (other than a governor) is provided, the test shall be run at the maximum speed allowed by the overspeed device. The test is to be conducted for a period of 1 minute. There shall be no evidence of fire or risk of personal injury as a result of this test.

25 LP-Gas Container Load Tests

25.1 An LP-Gas fuel container shall be secured in place on the product in a manner capable of withstanding loadings in any direction equal to four times the filled weight of the container.

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Subjects 943 (67, 231, 308, 891, 1248)
(In reply, refer to Subject 943)

1285 Walt Whitman Road
Melville, NY 11747
November 9, 1995

TO: Consumer Advisory Council of Underwriters Laboratories Inc.,
Electrical Council of Underwriters Laboratories Inc.,
Subscribers to UL's Standards Services for
Ground-Fault Circuit-Interrupters,
Panelboards,
Power Outlets,
Dead-Front Switchboards,
Engine-Generator Assemblies for Use in Recreational Vehicles
Subscribers to UL's Listing Service for
Power Distribution Units

SUBJECT: Request for Comments on Proposed Requirements for the Third Edition of the Standard
for Ground-Fault Circuit-Interrupters, UL 943; **PROPOSED EFFECTIVE DATE**

SUMMARY OF TOPICS

This bulletin proposes the following changes in requirements:

Addition of an Optional 10,000 Ampere Short Circuit Current Test for Outlet-Box Type Ground-Fault
Circuit Interrupters

COMMENTS DUE: NOVEMBER 30, 1995

Attached as Appendix A for your review and comment are proposed requirements for UL 943.
Questions regarding interpretation of requirements should be directed to the responsible UL Staff.
Please see Appendix B of this bulletin regarding designated responsibility for the subject product
categories.

Please note that proposed requirements are of a tentative and early nature and are for review and
comment only. Current requirements are to be used to judge a product until these requirements are
published in final form.

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PROPOSED EFFECTIVE DATE

These proposed requirements will not necessitate a review or additional testing of currently Listed products. Therefore, UL proposes that the new requirements become effective upon publication.

REQUEST FOR COMMENTS ON PROPOSALS

Please provide the following:

1. Your comments concerning the proposed requirements; and
2. Your comments concerning the proposed effective date, should the proposals be adopted.

Comments should be made in writing and may be sent by fax (516-271-6221) or by mail to the attention of Mr. Paul A. Orr at UL's Melville office, 1285 Walt Whitman Road, Melville, New York 11747-3081. Please reference all correspondence to Subject 943.

All comments should be sent by November 30, 1995.

Unless specifically requested to do so, UL will not acknowledge comments indicating concurrence with these proposals.

UNDERWRITERS LABORATORIES INC.

Paul A. Orr (cit)

PAUL A. ORR (Ext. 22596)
Project Engineer
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0943BUL.P05;PAO;cit

REVIEWED BY:

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JOHN KONZ (Ext. 22250)
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PROPOSED REQUIREMENTS
ARE OF A TENTATIVE AND
EARLY NATURE AND ARE FOR
REVIEW AND COMMENT ONLY.
CURRENT REQUIREMENTS ARE
TO BE USED TO JUDGE A
PRODUCT UNTIL THESE
REQUIREMENTS ARE
PUBLISHED IN FINAL FORM.

A P P E N D I X A

PROPOSED REQUIREMENTS AND PROPOSED EFFECTIVE DATE FOR THE THIRD EDITION OF THE STANDARD FOR GROUND-FAULT CIRCUIT-INTERRUPTERS, UL 943

For your convenience in review, proposed new requirements are identified by (NEW).

Addition of an Optional 10,000 Ampere Short Circuit Current Test for Outlet-Box Type Ground-Fault Circuit-Interrupters

RATIONALE

A ground-fault circuit-interrupter (GFCI) is required to comply with the Extra- Low-Resistance Ground Fault and Short Circuit Tests as described in Sections 34 and 35 of the Standard for Ground-Fault Circuit-Interrupters, UL 943.

A circuit-breaker type ground-fault circuit-interrupter, one generally installed in a service panel, is subjected to these tests using a minimum value of 5000 A as the test current. An outlet-box type ground-fault circuit-interrupter, a GFCI designed to be installed in an outlet box along the branch circuit, is currently subjected to these tests, but the test current is 2000 A in view of its location some distance away from the service panel.

Outlet-box type GFCIs have been used in products such as power outlets, power distribution units, dead front switchboards, panelboards and engine generators, which generally require short circuit withstand values greater than 2000 A. In many cases the Standards for these products do not require withstand tests for a rating of 10,000 A provided all components used within the product have a 10,000 A rating. In an effort to offer manufacturers of these types of products the option of having their GFCIs evaluated for a 10,000 A rating, UL is proposing the optional 10 kA short circuit current test program. The GFCI report would be modified accordingly.

IMPACT

As the proposed new and revised requirements are intended only to expand the available short circuit current test of ground-fault circuit-interrupters, adoption of these proposals would not require a review or retest of presently Listed and Recognized GFCIs.

PROPOSALS

(NEW)

2.21 OUTLET-BOX TYPE GROUND-FAULT CIRCUIT-INTERRUPTER – A permanently connected ground-fault circuit interrupter provided with a mounting yoke for mounting in an outlet box; may or may not be provided with receptacle outlets. May be referred to as a receptacle-type GFCI.

2.21 added (date of publication)

(NEW)

SUPPLEMENT SA – OPTIONAL 10 KA SHORT CIRCUIT CURRENT TEST FOR OUTLET-BOX TYPE GFCI'S.

INTRODUCTION

SA1 Scope

Section SA1 added (date of publication)

SA1.1 These requirements in this supplement cover an optional test procedure for a ground-fault circuit-interrupter.

SA1.2 These requirements are intended to verify the optional 10kA short circuit current capabilities for a ground-fault circuit-interrupter employed in applications such as power outlets, where higher currents are available.

SA1.3 The ground fault circuit interrupter mentioned in SA1.2 shall comply with the applicable requirements of this standard, UL 943, except as modified by the requirements contained in this supplement.

SA1.4 The requirements of this supplement do not apply to a portable ground-fault circuit-interrupter.

PERFORMANCE

SA2 General

Section SA2 added (date of publication)

SA2.1 Representative outlet-box type ground-fault circuit-interrupters shall be subjected to the Extra-Low- Resistance Ground Fault Test in Section 34 and the Short Circuit Test in Section 35 except the prospective current is to be 10,000 rms Symmetrical Amperes and the power factor in the range of .45 to .50.

SA2.2 In the tests mentioned in SA2.1 each representative device tested shall be operational after each test. Operation shall be verified by the supervisory circuit remaining operable upon completion of each test. The representative devices tested shall also comply with Dielectric Voltage-Withstand Test, Section 29.

MARKINGS

SA3 General

Section SA3 added (date of publication)

SA3.1 A ground-fault circuit-interrupter that complies with SA2.1 and SA2.2 shall not be marked to indicate the ability to withstand a 10kA short circuit current as a result of these tests.

A P P E N D I X B

DESIGNATED RESPONSIBILITY FOR UL
PRODUCT CATEGORIES
KCXS, GROUND FAULT CIRCUIT INTERRUPTERS
QEUY, PANELBOARDS
QPYV, POWER OUTLETS & POWER OUTLET FITTINGS
QPRW, POWER DISTRIBUTION UNITS
WEVZ, SWITCHBOARDS, DEAD FRONT TYPE
FTSR, AUTOMOTIVE EQUIPMENT, RV AND PORTABLE ENGINE GENERATORS

The individuals shown on the back side of this sheet are involved with the investigation of products covered under the subject categories. The Primary Designated Engineer (**shown in UPPERCASE letters**) coordinates the establishment and uniform interpretation of UL requirements applicable to the product categories. The Designated Engineers (**shown in lowercase letters**) work with the Primary Designated Engineer to interpret requirements and maintain standards.

Should you have questions regarding the interpretation of the requirements proposed in this bulletin or any adopted requirements that affect your product, you are encouraged to contact the individual at the office to which you normally submit your products.

The Industry Advisory Conference (IAC) Chairman for the subject category is Don Talka at UL's Melville office. The IAC Chairman oversees the significant interpretations made by the Primary Designated Engineer and arbitrates any differences regarding interpretation of UL requirements.

CCN	Office/Subsidiary	Responsible Engineer	Extension
KCXS	Melville	JOHN KONZ	22250

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	Northbrook	J. KILLINGER	42018
	RTP	E. Schreiner	1769
	Santa Clara	L. Martinez	32539

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	Northbrook	W. Colavecchio	43896
	RTP	D. Hayes	1416
	Santa Clara	C. NELSON	32625

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	Northbrook	W. Colavecchio	43896
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Subjects 2200 (1248, 2201)
 (In reply, refer to Subject 2200)

333 Pfingsten Road
 Northbrook, IL 60062
 March 13, 1995

TO: Casualty Council of Underwriters Laboratories Inc.,
 Electrical Council of Underwriters Laboratories Inc.,
 Fire Council of Underwriters Laboratories Inc.,
 Subscribers to UL's Standards Service for Engine Generator Assemblies for Use in
 Recreational Vehicles, UL 1248

SUBJECT: Listing Service for Portable and Stationary-Engine Generator Assemblies.

SUMMARY OF TOPICS

This bulletin announces that UL will investigate and List portable and stationary engine generator assemblies.

COMMENTS DUE: April 24, 1995

A program to investigate and List portable and stationary engine-generator assemblies for other than recreational vehicle use has been established by UL. UL had originally announced this program to List these assemblies in the Subject 1248 Bulletin dated July 19, 1990.

DISCUSSION

UL is developing the drafts of the Standards for Safety for Portable Engine-Generator Assemblies, UL 2200, and Stationary Engine-Generator Assemblies, UL 2201. In the interim, UL is accepting submittals of portable and stationary generators and investigating them for compliance to applicable UL and national safety requirements. UL presently has Listings for stationary type engine-powered cogeneration units.

The scope of the standard for portable engine-generator assemblies will cover portable generators used at construction sites, welding applications, for camping, and other locations where temporary electrical power is needed.

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The scope of the standard for stationary engine-generator assemblies will cover generators intended for permanent installation and connection to a building's wiring system to provide electrical power for standby and emergency use, and possibly as part of a co-generation system.

UL has received input from governmental authorities expressing concern with reliability of emergency generators since several have failed the full power interruption tests even though regular preventive maintenance had been performed. With the need for reliability and in order to reduce the risk of fire, electric shock, and injury to persons, there is a need for UL's and the industry representatives' participation in the development of these Standards. UL plans to form a working group of industry representatives known as an Industry Advisory Group (IAG). This group will work closely with experienced UL engineers during the Standard development phase. Anyone interested in participating on the IAG should write to John Hawley, Managing Engineer, Engineering Services 416, at 333 Pfingsten Road, Northbrook, IL 60062-2096.

Manufacturers interested in submitting engine-generator assemblies for investigation and Listing should contact one of the following UL Engineers for further information:

- 1) Tom Hillenbrand at 333 Pfingsten Road, Northbrook, IL 60062-2096, (708) 272-8800, Ext. 42603,
- 2) G. Okada at 1655 Scott Boulevard, Santa Clara, CA 95050-4196, (408) 985-2400, Ext. 2444,
- 3) K. Landreth at 12 Laboratory Drive, P.O. Box 13995, Research Triangle Park, NC 27709-3995, (919) 549-1400, Ext. 1506, or
- 4) R. Riegel at 1285 Walt Whitman Road, Melville, L.I., NY 11747-3081, (516) 271-6200, Ext. 22421.

UNDERWRITERS LABORATORIES INC.

Hetal Patel/am

HETAL PATEL (Ext. 43697)
Associate Project Engineer
Standards Department

SR:AM

2200BUL.A01

REVIEWED BY:

Tom Hillenbrand

TOM HILLENBRAND (Ext. 42603)
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Subjects 943 (67, 231, 308, 891, 1248)
 (In reply, refer to Subject 943)

1285 Walt Whitman Road
 Melville, NY 11747
 May 27, 1994

TO: Consumer Advisory Council of Underwriters Laboratories Inc.,
 Electrical Council of Underwriters Laboratories Inc.,
 Subscribers to UL's Standards Services for
 Ground-Fault Circuit-Interrupters,
 Panelboards,
 Power Outlets,
 Power Distribution Units,
 Dead-Front Switchboards,
 Engine-Generator Assemblies for Use in Recreational Vehicles

SUBJECT: Request for Comments on Proposed Requirements for the Third Edition of the Standard
 for Ground-Fault Circuit-Interrupters, UL 943; PROPOSED EFFECTIVE DATE

SUMMARY OF TOPICS

This bulletin proposes the following changes in requirements:

Addition of an Optional 10,000 Ampere Short Circuit Withstand Rating for Outlet Box Type Ground-Fault Circuit-Interrupters

COMMENTS DUE: JULY 8, 1994

Attached as Appendix A for your review and comment are proposed requirements for UL 943. Questions regarding interpretation of requirements should be directed to the responsible UL Staff. Please see Appendix B of this bulletin regarding designated responsibility for the subject product categories.

Please note that proposed requirements are of a tentative and early nature and are for review and comment only. Current requirements are to be used to judge a product until these requirements are published in final form.

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PROPOSED EFFECTIVE DATE

These proposed requirements will not necessitate a review or additional testing of currently Listed or Recognized products. Therefore, UL proposes that the new requirements become effective upon publication.

The proposed new and revised requirements may affect Listed or Recognized end-use products in which this component is used. It is suggested that you call these proposals to the attention of the end-use product manufacturers to whom you supply components.

REQUESTS FOR COMMENTS ON PROPOSALS

Please provide the following:

1. Your comments concerning the proposed requirements; and
2. Your comments concerning the proposed effective date, should the proposals be adopted.

Written comments should be sent by fax (516-271-6221) or by mail to the attention of Paul A. Orr at UL's Melville office, 1285 Walt Whitman Road, Melville, NY 11747-3081. Please reference all correspondence to Subject 943.

All comments should be sent by July 8, 1994.

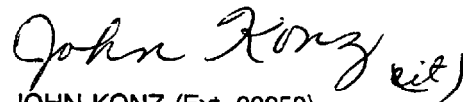
Unless specifically requested to do otherwise, UL will not acknowledge comments indicating concurrence with these proposals.

UNDERWRITERS LABORATORIES INC.



PAUL A. ORR (Ext. 22596)
Associate Project Engineer
Standards Department

REVIEWED BY:



JOHN KONZ (Ext. 22250)
Staff Engineer
Engineering Services 215L

SR:CAS

0943CON.P02;PAO;cit

PROPOSED REQUIREMENTS
ARE OF A TENTATIVE AND
EARLY NATURE AND ARE FOR
REVIEW AND COMMENT ONLY.
CURRENT REQUIREMENTS ARE
TO BE USED TO JUDGE A
PRODUCT UNTIL THESE
REQUIREMENTS ARE
PUBLISHED IN FINAL FORM.

A P P E N D I X A

PROPOSED REQUIREMENTS AND PROPOSED EFFECTIVE DATE FOR THE THIRD EDITION OF THE STANDARD FOR GROUND FAULT CIRCUIT INTERRUPTERS, UL 943

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined out~~. Proposed new requirements are identified by (NEW).

Addition of an Optional 10,000 Ampere Short Circuit Withstand Rating for Outlet Box Type Ground-Fault Circuit-Interruption

RATIONALE

A ground-fault circuit-interrupter is required to comply with the Extra- Low-Resistance Ground Fault and Short Circuit Tests as described in Sections 34 and 35 of the Standard for Ground-Fault Circuit Interrupters, UL 943.

A circuit-breaker type ground-fault circuit-interrupter, one generally installed in a service panel, is subjected to these tests using a minimum value of 5000 amperes as the test current.

An outlet-box type ground-fault circuit-interrupter, a GFCI designed to be installed in an outlet box along the branch circuit, is currently subjected to these tests, but the test current value used is 2000 amperes in view of its location some distance away from the service panel.

Outlet-box type GFCIs have been used in products such as power outlets, power distribution units, dead front switchboards, panelboards and engine generators, which generally require short circuit withstand values greater than 2000 amperes. In many cases the Standards for these products do not require withstand tests for a rating of 10,000 amperes provided all components used within the product have a 10,000 ampere rating. In an effort to offer manufacturers of these types of products the option of having their GFCIs evaluated and marked for a 10,000 ampere rating, UL is proposing the optional 10,000 ampere short circuit withstand rating test program.

To accommodate the end-use need, UL will accept submittals of an outlet-box type GFCI for the optional short circuit withstand rating of 10,000 A. A GFCI which complies with the optional higher short circuit withstand current rating will be required to be so marked.

IMPACT

As the proposed new and revised requirements are intended only to expand the available short circuit withstand ratings of ground-fault circuit-interrupters, adoption of these proposals would not require a review or retest of presently Listed and Recognized GFCIs.

PROPOSALS

(NEW)

2.21 OUTLET-BOX TYPE GROUND-FAULT CIRCUIT-INTERRUPTER – A permanently connected ground-fault circuit interrupter provided with a mounting yoke for mounting in an outlet box; may or may not be provided with receptacle outlets. May be referred to as a receptacle type GFCI.

2.21 added (date of publication)

34.3 In testing a permanently connected ground-fault circuit-interrupter other than the outlet-box type, the prospective current is to be 5000 A and the power factor is to be within the range of 0.45 – 0.50.

~~Exception: In testing a receptacle type ground-fault circuit-interrupter, the prospective current is to be 2000 A and the power factor is to be within the range of 0.90 – 1.0.~~

34.3 revised (date of publication)

34.4 In testing a cord-connected or an outlet-box type ground-fault circuit-interrupter, the prospective current is to be 2000 A and the power factor is to be within the range of 0.9 – 1.0. Optionally, an outlet-box type ground-fault circuit-interrupter may instead be subjected to the extra-low-resistance ground fault test in this section and the Short Circuit Test, Section 35, at 10,000 A, and a power factor of 0.45–0.50. If the test results obtained from testing the outlet-box type GFCI using the optional 10,000 A, 0.45–0.50 power factor, are satisfactory in accordance with 34.6 and 35.3, the outlet-box GFCI shall be marked in accordance with 38.19

34.4 revised (date of publication)

(NEW)

38.19 An outlet-box type ground-fault circuit-interrupter which complies with the optional tests outlined in 34.4 shall be marked "10,000 ampere short circuit withstand rating", or equivalent wording. The device may be marked with an abbreviated marking such as, "10KA Withstand Rating – See Instructions" or an equivalent wording if the full statement is included in an instruction sheet.

38.19 added (date of publication)

APPENDIX B

DESIGNATED RESPONSIBILITY FOR UL
PRODUCT CATEGORIES
KCXS, GROUND FAULT CIRCUIT INTERRUPTERS
QEUY, PANELBOARDS
QPYV, POWER OUTLETS & POWER OUTLET FITTINGS
QPRW, POWER DISTRIBUTION UNITS
WEVZ, SWITCHBOARDS, DEAD FRONT TYPE
FTSR, AUTOMOTIVE EQUIPMENT, RV AND PORTABLE ENGINE GENERATORS

The individuals shown on the back side of this sheet are involved with the investigation of products covered under the subject categories. The Primary Designated Engineer (**shown in UPPERCASE letters**) coordinates the establishment and uniform interpretation of UL requirements applicable to the product categories. The Designated Engineers (**shown in lowercase letters**) work with the Primary Designated Engineer to interpret requirements and maintain standards.

Should you have questions regarding the interpretation of the requirements proposed in this bulletin or any adopted requirements that affect your product, you are encouraged to contact the individual at the office to which you normally submit your products.

The Industry Advisory Conference (IAC) Chairman for the subject category is Don Talka at UL's Melville office. The IAC Chairman oversees the significant interpretations made by the Primary Designated Engineer and arbitrates any differences regarding interpretation of UL requirements.

CCN	Office/Subsidiary	Responsible Engineer	Extension
KCXS	Melville	J. KONZ	22250

CCN	Office/Subsidiary	Responsible Engineer	Extension
QEUU	Melville	A. Schaeffer	22225
	Northbrook	J. KILLINGER	42018
	RTP	W. Collavecchio	1526
	Santa Clara	L. Martinez	2539

CCN	Office/Subsidiary	Responsible Engineer	Extension
QPYV	Melville	D. Porteus	22258
	Northbrook	R. Gorsche	43609
	RTP	W. Colavecchio	1526
	Santa Clara	C. NELSON	2625

CCN	Office/Subsidiary	Responsible Engineer	Extension
QPRW	Melville	A. Schaeffer	22225
	Northbrook	J. Killinger	42018
	RTP	W. Colavecchio	1526
	Santa Clara	L. MARTINEZ	2539

CCN	Office/Subsidiary	Responsible Engineer	Extension
WEVZ	Melville	A. SCHAEFFER	22225
	Northbrook	J. Hidaka	42963
	RTP	W. Colavecchio	1526
	Santa Clara	M. Shulman	2770

CCN	Office/Subsidiary	Responsible Engineer	Extension
FTSR	Melville	R. RIEGEL	22421
	Northbrook	T. HILLENBRAND	42603
	RTP	K. Landreth	1506
	Santa Clara	G. Okada	2444