



U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

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Subj: CPSC staff comments on UL's draft Outline of Investigation, 2201 *Portable Engine-Generator Assemblies*

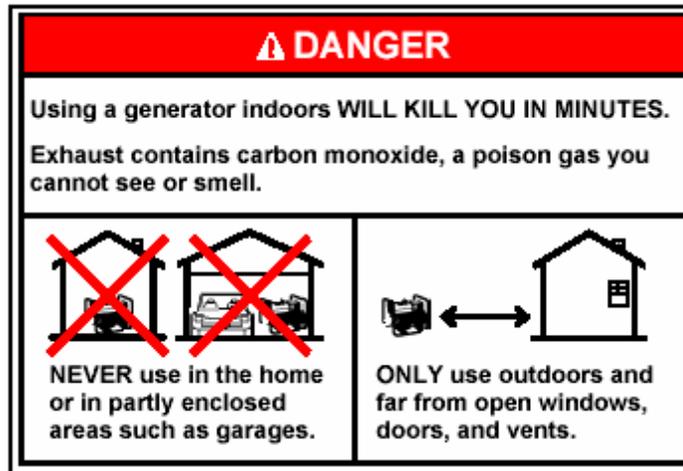
Ref: (a) Draft 2201 *Portable Engine-Generator Assemblies*, Issue number 1
(b) UL's minutes of the STP meeting held on May 4, 2005 at UL's Northbrook Office, CSDS document 2201_1_20050527.pdf

The items below represent the U.S. Consumer Product Safety Commission (CPSC) staff's comments regarding UL's Outline of Investigation, ref (a). Please note that these comments were prepared by the CPSC staff, have not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

CPSC staff continues to advocate the development of performance provisions in a UL portable generator standard that would prevent dangerous levels of CO exposure to consumers under foreseeable conditions. Staff will continue to explore methods by which this could be practically and effectively accomplished. In the short term, the staff supports the UL 2201 Outline of Investigation and has prepared the following recommended revisions to the draft:

- In section 1.1, the carbon monoxide (CO) poisoning hazard should be included in the list of hazards.
- The terminology "OUTDOOR-USE UNITS," which appears in section 6.1.2.3 and elsewhere throughout the Outline of Investigation (OOI), is misleading since there are currently no portable generators that are safe for indoor use. Staff suggests replacing "OUTDOOR-USE UNITS" throughout the OOI to "RAINPROOF UNITS OR RAIN-TIGHT UNITS"
- Replace the existing section 18.4.1 with the following:
18.4.1 This test only applies to tanks exposed to sunlight while mounted in the normal configuration inside the product. It also applies to non-metallic enclosures of raintight units and rainproof units, per section 42.6.
- Replace sections 39.3.1 through 39.3.4 and 39.3.6 with the following:
39.3.1 The CO poisoning hazard label illustrated in Figure 39.4 shall be used on the product.

Figure 39.4 On-product carbon monoxide poisoning hazard label



A different representation of the generator may be substituted for accuracy if consumers are likely to recognize it as the generator to which this label is affixed.

a.) The signal word “DANGER” shall be in letters not less than 0.15 inch (3.8 mm) high. The remaining text shall be in type whose uppercase letters are not less than 0.1 inch (2.5 mm) high.

b.) The signal word “DANGER” shall appear in white letters on a safety red background.

The safety alert symbol  shall appear immediately before and next to the signal word and be no smaller than the height of the signal word with the base of the triangle on the same horizontal line as the base of the signal word. The solid portion of the triangle (within the lines of the triangle, around the exclamation mark) shall be white and the exclamation mark shall be safety red. The prohibition “X”s shall be safety red.

c.) The on-product hazard label shown in Figure 39.4 shall be located:

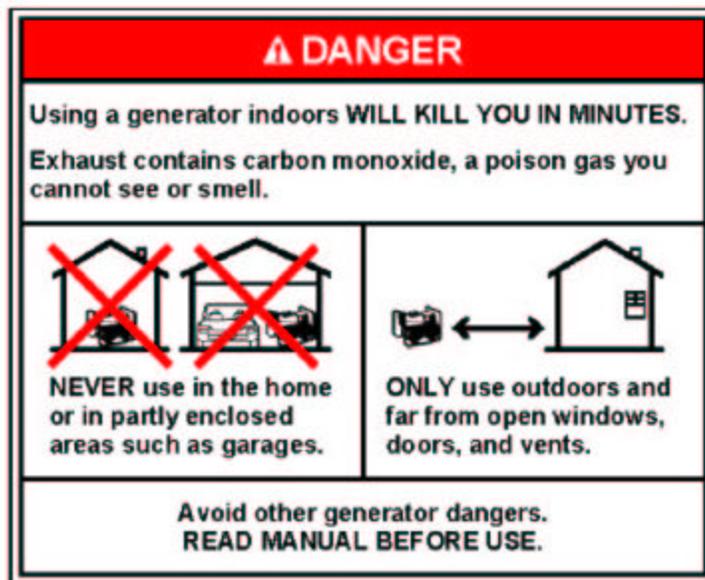
- 1) On a part of the portable generator that, if removed, would impair the operation of the generator assembly, and
- 2) On a location that is prominent and conspicuous to an operator while performing at least two of the following actions:
 - Filling the fuel tank
 - Accessing the receptacle panel
 - Starting the engine

d.) The on-product hazard label shown in Figure 39.4 shall be designed to remain permanently affixed, intact, legible, and largely unfaded in the environment in which the product is expected to be operated and stored over the life of the product.

e.) For hazard labels other than the hazard label shown in Figure 39.4 that are used on the product,

- 1) Each shall be on one or more labels that are physically separate from that shown in Figure 39.4.
 - 2) For those hazard labels using the signal word “WARNING” or “CAUTION”, the signal word shall be in letters not less than 0.12 inch (3.0 mm) high and not greater than that used for “DANGER.” The remaining text shall be in type whose uppercase letters are not less than 0.08 inch (2.0 mm) high and not greater than that used in the hazard label shown in Figure 39.4.
- 39.3.2 The CO poisoning hazard label shown in Figure 39.5 shall be affixed to the principal display panel(s) of the package, as well as the surface containing the top flaps of the package. The principal display panel(s) of the package is the portion(s) of the outer packaging that is designed to be most prominently displayed, shown, presented, or examined under conditions of retail sale. Any panel of the package that includes text in a language other than English shall also include a CO poisoning hazard label in that language. Alternate-language versions of this label may also appear on the top flaps of the package as long as they are physically separate from one another.

Figure 39.5. Carbon monoxide poisoning hazard label for package



A different representation of the generator may be substituted for accuracy if consumers are likely to recognize it as the generator contained within the packaging.

- a.) The signal word “DANGER” shall be in letters not less than 0.15 inch (3.8 mm) high. The remaining text shall be in type whose uppercase letters are not less than 0.1 inch (2.5 mm) high.
- b.) The signal word “DANGER” shall appear in white letters on a safety red background.

The safety alert symbol  shall appear immediately before and next to the signal word and be no smaller than the height of the signal word with the base of the triangle on the same horizontal line as the base of the signal word. The solid portion of the triangle (within the lines of the triangle, around the exclamation mark) shall be white

and the exclamation mark shall be safety red. The prohibition “X”s shall be safety red.

- c.) If one or more hazard labels other than the hazard label shown in Figure 39.5 is used on the package,
- 1) Each shall be on one or more labels that are physically separate from that shown in Figure 39.5.
 - 2) None shall appear on the top flaps of the packaging.
 - 3) For those hazard labels using the signal word “WARNING” or “CAUTION”, the signal word shall be in letters not less than 0.12 inch (3.0 mm) high and not greater than that used for “DANGER.” The remaining text shall be in type whose uppercase letters are not less than 0.08 inch (2.0 mm) high and not greater than that used in the hazard label shown in Figure 39.5.
- Staff recommends that subsections be added under 39.3. with specific on-product hazard label requirements for the electrocution hazard, burn hazard for hot surfaces, and fire hazard. Staff further recommends that these on-product hazard labels shall be on one or more labels that are separate from (not a part of) that specified in 39.3.2. For units that do not meet section 41 (RAINPROOF UNITS OR RAIN TIGHT UNITS), the on-product electrocution hazard label shall include the following or equivalent text: “Do not use this product when it is wet outside.”
 - Staff needs clarification on section 39.3.5. The current wording in this section implies that conditions exist under which GFCI protection would not be required; however, section 16.1.1 requires GFCIs on all output circuits without exception.
 - Replace sections 40.1.1 through 40.1.4 with the following sections:
 - 40.1.1 The headings for the instruction manual shall be entirely in upper case letters not less than 3/16 inch (4.8 mm) high or emphasized to distinguish them from the rest of the text. The signal words for any cautionary text in the instructions shall be in letters not less than 0.12 inch (3.1 mm) high. The safety alert symbol ▲ shall appear immediately before and next to the signal word and be no smaller than the height of the signal word with the base of the triangle on the same horizontal line as the base of the signal word. The remaining text of the instructions shall be in type whose uppercase letters are not less than 0.08 inch (2.0 mm) high.
 - 40.1.2 The instruction manual shall include step-by-step operating instructions. The first step in these operating instructions shall describe where to operate the generator and how to select an appropriate site. The first step in the operating instructions shall also include the following text, at a minimum:

▲ DANGER
CARBON MONOXIDE

Using a generator indoors WILL KILL YOU IN MINUTES.

Generator exhaust contains high levels of carbon monoxide (CO), a poisonous gas you cannot see or smell. If you can smell the generator exhaust, you are breathing CO. But even if you cannot smell the exhaust, you could be breathing CO.

- NEVER use a generator inside homes, garages, crawlspaces, or other partly enclosed areas. Deadly levels of carbon monoxide can build up in these areas. Using a fan or opening windows and doors does NOT supply enough fresh air.
- ONLY use a generator outdoors and far away from open windows, doors, and vents. These openings can pull in generator exhaust.

When you use a generator, always use a carbon monoxide alarm that is battery-powered or has an emergency battery backup.

If you start to feel sick, dizzy, or weak while using this generator, move to fresh air RIGHT AWAY. See a doctor. You could have carbon monoxide poisoning.

40.1.3 Unless the product meets the requirements in section 41 (RAINPROOF UNITS OR RAIN TIGHT UNITS), the operating instructions shall, as a minimum, include a warning about the potential electrocution hazard associated with use of the product in wet conditions and shall state the following or equivalent: “Do not use this product when it is wet outside.”

- Delete the existing section 40.1.4
- Replace the existing section 40.1.9.i) with the following text:
40.1.9.i) When GFCIs are provided, the following text shall be provided:

⚠ WARNING

GFCI cannot prevent electrocution unless generator is grounded.
Connect neutral supply of generator to an approved grounding electrode.
SPEAK TO AN ELECTRICIAN unless you are sure about approved grounding procedures.

- Add the following subsection to section 40.1:
40.1.10 The instruction manual shall contain the following text or equivalent:

If you must connect the generator to the house wiring to power appliances, have a qualified electrician install the appropriate equipment in accordance with local electrical codes. Or, check with your utility company to see if it can install an appropriate power transfer switch.

For power outages, permanently installed stationary generators are better suited for providing backup power to the home. Even a properly connected portable generator can become overloaded. This may result in overheating or stressing the generator components, possibly leading to a generator failure.

- Before section 41, replace “OUTDOOR-USE UNITS” with “RAINPROOF UNITS OR RAIN TIGHT UNITS”
- Replace the words “an outdoor unit” in section 42.1 with the words “a rainproof unit or raintight unit”.
- Replace the words “An outdoor-use” in section 43.1.1 with the words “A rainproof or raintight”.
- Replace the words “an outdoor-use” in section 43.1.2 with the words “a rainproof or raintight”.
- Replace the existing section 44.1 with the following sections 44.1 through 44.3:
44.1 For units that meet section 43.1.1 a), the primary display panel on the packaging of the generator shall include a label with letters not less than 0.1 inch (2.5 mm) high that states, “This product has a rainproof enclosure.”

- 44.2 For units that meet section 43.1.1 b), the primary display panel on the packaging of the generator shall include a label with letters not less than 0.1 inch (2.5 mm) high that states, “This product has a raintight enclosure.”
- 44.3 For units that do not meet section 43.1, the primary display panel on the packaging of the generator shall include a label with letters not less than 0.1 inch (2.5 mm) high that states “This product does not have a rainproof or raintight enclosure. Do not use this product when it is wet outside.”
- The OOI currently does not have any requirements for cold impact tests for rainproof and raintight enclosures. On page 3 of UL’s minutes of the STP meeting held on May 4, 2005 at UL’s Northbrook Office, ref (b), it is stated that typical tests for outdoor requirements include cold impact tests, among other tests for which their requirements have been added to the OOI (i.e., tests for corrosion protection, rain for rainproof and raintight enclosures, UV or Xenon, accelerated aging, metallic coating thickness, and markings).