

Subject 335K

May 26, 2017

SUMMARY OF TOPICS

The following topics for the Standard for Household and Similar Electrical Appliances – Safety – Part 2-72: Particular Requirements for Floor Treatment Machines With or Without Traction Drive, for Commercial Use, UL 60335-2-72, are being recirculated:

1. Proposed First Edition for the Standard for Household and Similar Electrical Appliances – Safety – Part 2-72: Particular Requirements for Floor Treatment Machines With or Without Traction Drive, for Commercial Use

COMMENTS DUE: July 10, 2017

For your convenience in review, proposed additions to the previously proposed requirements dated (2016-12-30) are shown underlined and proposed deletions are shown ~~lined-out~~.

1. Proposed First Edition for the Standard for Household and Similar Electrical Appliances – Safety – Part 2-72: Particular Requirements for Floor Treatment Machines With or Without Traction Drive, for Commercial Use

RATIONALE

Responses to comments have been posted within the 335K Proposal Review Work Area dated (2016-12-30).

The proposed first edition of the Standard for Household and similar electrical appliances – Safety – Part 2-72: Particular requirements for floor treatment machines with or without traction drive, for commercial use, has been developed based on the parallel IEC document, IEC 60335-2-72.

The National Difference Page and IEC Foreword have been provided for reference during review of the document. However, they are not considered to be part of the proposal under review. The National Difference Page and IEC Foreword have been provided for your reference in reviewing this document. However, they are not considered to be part of the ANSI balloted material.

PROPOSAL

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NATIONAL DIFFERENCES

GENERAL

National Differences from the text of International Electrotechnical Commission (IEC) Publication 60335-2-72, Safety of Household and Similar Appliances, ~~part 1: General Requirements~~ Part 2: Particular Requirements for Floor Treatment Machines with or without Traction Drive, for Commercial Use copyright 2006 are indicated by notations (differences) and are presented in bold text.

There are five types of National Differences as noted below. The difference type is noted on the first line of the National Difference in the standard. The standard may not include all types of these National Differences.

DR – These are National Differences based on the **national regulatory requirements**.

D1 – These are National Differences which are based on **basic safety principles and requirements**, elimination of which would compromise safety for consumers and users of products.

D2 – These are National Differences from IEC requirements based on existing **safety practices**. These requirements reflect national safety practices, where empirical substantiation (for the IEC or national requirement) is not available or the text has not been included in the IEC standard.

DC – These are National Differences based on the **component standards** and will not be deleted until a particular component standard is harmonized with the IEC component standard.

DE – These are National Differences based on **editorial comments or corrections**.

Each national difference contains a description of what the national difference entails. Typically one of the following words is used to explain how the text of the national difference is to be applied to the base IEC text:

Addition / Add - An addition entails adding a complete new numbered clause, subclause, table, figure, or annex. Addition is not meant to include adding select words to the base IEC text.

Modification / Modify - A modification is an altering of the existing base IEC text such as the addition, replacement or deletion of certain words or the replacement of an entire clause, subclause, table, figure, or annex of the base IEC text.

Deletion / Delete - A deletion entails complete deletion of an entire numbered clause, subclause, table, figure, or annex without any replacement text.

2 Normative references

2DV.1 DC Modify by adding the following reference publications:

CSA Group

~~C22.1-12, Canadian electrical code, part 1 (22nd edition), safety standard for electrical installations~~

~~C22.2 No. 0-15-15, Adhesive labels~~

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~~CAN/CSA-C22.2 No. 0.17-00 (R2013), Evaluation of properties of polymeric materials~~

~~C22.2 No. 10-1965 (R2013), Electric floor surfacing and cleaning machines~~

~~C22.2 No. 49-14, Flexible cords and cables~~

~~C22.2 No. 77-14, Motors with inherent overheating protection~~

~~C22.2 No. 96-13, Portable power cables~~

~~C22.2 No. 100-14, Motors and generators~~

~~C22.2 No. 243-15, Vacuum cleaners, blower cleaners, and household floor finishing machines~~

~~CAN/CSA-E60335-2-10:15, Household and similar electrical appliances — Safety — Part 2-10: Particular requirements for floor treatment machines and wet scrubbing machines~~

~~CAN/CSA-E60335-2-69-01 (R2015), Safety of household and similar electrical appliances - Part 2: Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use~~

~~CAN/CSA-E60335-2-69-01 (R2015), Safety of household and similar electrical appliances - Part 2: Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use~~

~~CAN/CSA-E730-2-2-94 (R2013), Automatic electrical controls for household and similar use - Part 2: Particular requirements for thermal motor protectors~~

7 Marking and instructions

7.1.101 MOTORIZED CLEANING HEADS shall be marked with

- RATED VOLTAGE OR RATED VOLTAGE RANGE in volts;
- RATED POWER INPUT in watts ;
- name, trade mark or identification mark of the manufacturer or responsible vendor;
- model or type reference;
- mass of the most usual configuration in kg.

MOTORIZED CLEANING HEADS for water-suction cleaning appliances, except those of CLASS III construction having a WORKING VOLTAGE up to 24 V shall be marked with symbol IEC 60417-5935 (2002-10).

NOTE This symbol is an information sign and, except for the colours, the rules of ISO 3864-1 apply.

Compliance is checked by inspection.

7.1.101DV D2 Modify the text in Clause 7.1 of the Part 2: Replace the second dashed item with the following:

– RATED POWER INPUT in watts or RATED CURRENT in amps;

7.1.102 Socket-outlets for accessories shall be marked with the maximum load in watts or amps on the socket-outlet or close to it.

Compliance is checked by inspection.

7.1.102DV D2 Modify the text in Clause 7.1 of the Part 2: Replace the first sentence with the following:

Socket-outlets for accessories shall be marked with the maximum load in watts or current in amps on the socket-outlet or close to it.

7.12.104.DV DR Add Clauses 7.12.104.DV.1 and 7.12.104.DV.2 to Clause 7.12 of the Part 2:

7.12.104.DV.1 The instructions for earthed Class I, mains supplied machines shall include the text or the equivalent in (a) plus the information in (b) or (c), as appropriate. The instructions for Class II mains supplied machines shall include the text or the equivalent in (d):

a) For all Class I appliances:

This floor-finishing machine shall be grounded while in use to protect the operator from electric shock. The machine is provided with a three-contact grounding-type attachment plug to fit the proper grounding type receptacle.

b) For a Class I machine rated less than 15 A and intended for use on a nominal 120-V supply circuit, the instructions shall include the statements in either (1) or (2):

1) This appliance is for use on a nominal 120-V circuit, and has a grounded plug that looks like the plug illustrated in sketch A in Figure 107.DV. A temporary adaptor that looks like the adaptor illustrated in sketches B and C may be used to connect this plug to a 2-pole receptacle as shown in sketch B if a properly grounded outlet is not available. The temporary adaptor should be used only until a properly grounded outlet (sketch A) can be installed by a qualified electrician. The green-colored rigid ear, lug, or the like extending from the adaptor must be connected to a permanent ground such as a properly grounded outlet. Whenever the adaptor is used, it must be held in place by a metal screw.

Exception: In Canada, the use of a temporary adaptor is not permitted by the Canadian Electrical Code, C22.1.

2) This appliance is for use on a nominal 120-V circuit and has a grounding attachment plug that looks like the plug illustrated in sketch A in Figure 107.DV. Make sure that the appliance is connected to an outlet having the same configuration as the plug. No adaptor should be used with this appliance.

c) For floor-finishing Class I machines rated 150 – 250 volts:

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No adapter is available for this plug.

d) For all Class II appliances~~double-insulated products~~:

In a double-insulated product, two systems of insulation are provided instead of grounding. No grounding means is provided on a double-insulated machine, nor should a means for grounding be added to the machine. Servicing a double-insulated machine requires extreme care and knowledge of the system, and should be performed only by qualified service personnel. Replacement parts for a double-insulated machine must be identical to the parts they replace. Always replace a damaged cord. A double-insulated product is marked with the words "DOUBLE INSULATION" or "DOUBLE INSULATED." The symbol: □ (square within a square) may also be marked on the machine.

Exception No. 1: Machines intended for rental use may be provided with legible and permanent safety instruction markings instead of an instruction manual. The markings shall include all of the applicable safety instructions required in 7.12 and its subclauses. The marking's letter height shall be not less than 2.4 mm (3/32 inch) and any caution or warning signal word shall be more prominent than any other required marking on the unit.

Exception No. 2: Machines intended for rental use, and provided with a specialty connector or assembly for connection of the power supply cord to the machine, may be provided with the markings described in Exception No. 1 in the form of a cord tag; see 7.101DV.1 - 7.101DV.6. The statement, "Do Not Remove This Tag", or equivalent wording, shall be included on the cord tag.

7.12.104.DV.2 A double-insulated Class II mains supplied machine provided with a two-blade, polarized attachment plug shall be provided with the following instructions or the equivalent: ~~To reduce the risk of electric shock, this appliance has a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not change the plug in any way~~

– To reduce the risk of electric shock, this appliance has a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1 Addition:

Water and water-borne cleaning agents are considered conductive.

~~8.1.4DV D2 Modification by replacing the second bullet item of the first dashed item of Clause 8.1.4 of the Part 1 with the following:~~Add a dash item to 8.1.4 of the Part 1:

~~• for d.c., the voltage does not exceed 60 V, the part is supplied by a battery, and the voltage does not exceed 60 V d.c.~~

22 Construction

This clause of Part 1 is applicable except as follows.

22.3DV.1 D2 Modification to add the following to (after) 22.3DV of the Part 1:

AFCIs and LCDIs shall be installed as an integral part of the attachment plug or located in the supply cord within 102 mm of the attachment plug.

22.6 Addition:

Machines shall be so constructed that neither water nor foam from detergents can penetrate into the motor or come in contact with live parts.

22.6DV D2 Modification to add the following to Clause 22.6 of the Part 1:

22.6DV.1 ~~If deterioration of Leakage from a polymeric liquid reservoir is not considered likely to occur, if the reservoir is subjected to Clause 22.6DV.2 and 22.6DV.3 without any cracking, breaking, shrinking, warping, or distortion that allows liquid to leak from the reservoir, provided as part of a self-contained carpet/rug cleaning machine that has no accessories or instructions to clean hard floors would result in a risk of fire, electric shock, or injury to persons, the container shall be subjected to either of the tests of Clause 22.6DV.2 or 22.6DV.3.~~

22.6DV.2 Oven Conditioning tTest

The reservoir shall be subjected to the test of Clause 7.1 and 7.3 of IEC 60695-10-3, except that the oven shall be maintained for a duration of 7 h at a temperature of 10 K higher than the maximum operating temperature of the reservoir measured at the hottest spot on the inside of the reservoir under normal operating conditions, but not less than 70 °C. The product shall not be operated during the test. After conditioning the reservoir shall be allowed to cool to room temperature and shall show no signs of shrinking, warping, or distortion that allows liquid to leak from the reservoir.

22.6DV.3 Alternative Impact test

If deterioration or breakage of a liquid reservoir provided as part of a machine would result in a risk of fire, electric shock, or injury to persons, the container shall be subjected to the impact test for polymeric reservoirs described in Clause 21.101 without distortion of the reservoir, including attached tubing, that results in one or both of the following conditions:

- a) interference with the operation or user servicing of the product, or
- b) openings that allow liquid to leak from the tank.

22.118DV D2 Add Clause 22.118.DV to the Part 1:

22.118.DV Electrical accessories for field installation by qualified personnel

22.118.DV.1 An electrical accessory intended for field installation by qualified personnel shall be provided with all necessary wiring and hardware such that the installation can be made by qualified personnel without major disturbance of factory-installed wiring, the accessory assembly, or the machine.

22.118.DV.2 Removal of a cover plate or the like is acceptable, but rearrangement of wiring or components, cutting or splicing of existing wiring, and soldering of connections are not acceptable.

22.118.DV.3 After field installation of an electrical accessory by qualified personnel, a machine shall comply with the applicable requirements in this Standard. (In particular, see Clauses 8 and 15.)

22.119.DV DR Add the following Clause:

Machines designated Type EE shall also comply with Annex 101.DVE and machines designated Type S shall also comply with Annex 101.DVD.

23 Internal wiring

This clause of Part 1 is applicable.

23.103DV D2 Add Clauses 23.103DV.1 to 23.103DV.3 to the Part 1:

23.103DV.1 Wiring connections to a continuously moving part, or a part for which the degree of movement is appreciable, shall be a type such as S, SJ, SJE, SJO, SEO, SJT, SJTO, SJEO, SO, ST, SE, or STO flexible cord, or the cord shall be of a type at least equally as serviceable for the intended use.

23.103DV.2 Individual conductors having flexible stranding and enclosed in flexible tubing such as flexible nonmetallic conduit, nonmetallic insulated tubing, or other suitable method in which the wiring is protected sufficiently against mechanical damage, may be used in place of flexible cord. For other than mains supplied machines, the tubing is not required on exposed moving conductors that are readily visible to the OPERATOR and are therefore subject to replacement when damaged.

23.103DV.3 Cords determined to be equivalent to those within UL 62 / CSA C22.2 No. 49 or; CSA C22.2 No. 96, but with an increased number of conductors, may be acceptable.

24 Components

This clause of Part 1 is applicable, except as follows.

24.1DV D2 Modification by adding the following text to Clause 24.1 of the Part 1:

A tab used in an electrical quick-connect terminal shall comply with the standard specified in Annex DVA or the requirements of Annex 101.DVC.

24.1.3 Addition:

Switches for frequent operation, mains isolating switches and switches for machines that are supplied by safety-extra-low voltage or by batteries shall be tested for 50 000 cycles of operations.

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24.1.3.ADV D2 Add Clauses 24.1.3.ADV.1 and 24.1.3.ADV.2 to Clause 24.1 of the Part 1:

24.1.3.ADV.1 A switch or relay located in other than an LVLE CIRCUIT that has not been evaluated for controlling an inductive (motor) load or for controlling a d. c. load shall comply with the overload test of Clause 24.1.3.ADV.2.

Compliance is checked by inspection and test.

24.1.3.ADV.2 Overload test

24.1.3.ADV.2.1 A switch or other device that controls a motor of a product shall perform acceptably when subjected to an overload test consisting of 50 cycles of operation as described in Clauses 24.1.3.ADV.2.2 – 24.1.3.ADV.2.5 as applicable. Results are acceptable if there is no electrical or mechanical malfunction or breakdown of the device or undue burning or pitting of the contacts, and the fuse in the grounding connection does not open.

Exception No. 1: A device interlocked so that it will never break the locked-rotor motor current need not be tested for overload.

Exception No. 2: For battery connected machines, temperature-limiting devices and current-limiting devices (such as electronic monitoring circuits) of a power controller shall be allowed in the power circuit to limit the current or open the circuit under the test conditions. When one of those devices causes an interruption of the power, the test shall be discontinued.

24.1.3.ADV.2.5 The connection shall be such that any single-pole, current-interrupting device will be located in the ungrounded conductor of the supply circuit.

~~Compliance is checked by inspection and test.~~

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.1 Addition:

Machines classified as IPX7 shall not be provided with an appliance inlet.

Machines classified as IPX4, IPX5 or IPX6 shall not be provided with an appliance inlet, unless both inlet and connector have the same classification as the machine when coupled or separated, or unless inlet and connector can only be separated by the use of a tool and have the same classification as the machine when coupled.

Machines provided with an appliance inlet shall also be provided with an appropriate cord set.

25.1DV D2 Modification by adding the following to Clause 25.1 of the Part 1:

25.1.DV.1 The length of the detachable or nondetachable supply cord shall be at least 4,6 m, including fittings.