CSA STANDARDS

C22.2 No. 3-M1988
(reaffirmed 2014)

Electrical features of fuel-burning equipment

General Instruction No. 2

C22.2 No. 3-M1988

February 1990

CSA Standard C22.2 No. 3-M1988, *Electrical Features of Fuel-Burning Equipment*, was published in September 1988; it consisted of 59 pages, each of which was dated September 1988.

Errata to Clause 5.1.1 and Table 5 are incorporated in the attached replacement pages.

C22.2 No. 3-M1988 now consists of the following pages:

3-38, 41-54, and **57-59** dated **September 1988;**

39, 40, 55, and **56** dated **February 1990.**

These replacement pages are to be inserted into your copy of the Standard; the pages replaced should be kept for reference.

4.23.2
A switch shall be provided for the control of each lampholder or group of lampholders and each heater element or group of heater elements.

4.23.3
Switches, including switches of auxiliary controls (eg, thermostats and timers) that can be automatically or manually turned to a marked, or otherwise indicated, "OFF" position shall disconnect all ungrounded conductors of the circuit controlled unless there are no live parts exposed to accidental contact during operation or normal cleaning.

4.23.4
Switches and controls shall be suitable for their particular application and shall have current and voltage ratings not less than those of the circuits which they control when the range is operated at rated voltage.

4.23.5
If a switch, or an automatic control which can be turned manually or automatically to the "OFF" position is used to control one or more heats of a heater element or a lampholder, its "OFF" position, at least, shall be indicated on, or adjacent to, the switch. Instead of the foregoing method, keys or legends may be used for showing the operating positions of switches; they shall indicate at least the "OFF" position and shall appear in a conspicuous, permanent location. No additional marking need appear if the handle is of such shape or design that the "OFF" position of the switch is thereby clearly indicated.

4.23.6
Switches and controls shall be located or protected so that they are not subjected to mechanical injury, spillage from cooking, or the collection of grease.

4.23.7
Single-pole switches shall not be connected in the circuit of an identified conductor unless it is incorporated in a heater element switch and used only to control an indicator lamp.

4.23.8
The operating mechanism of switches or controls shall not subject electrical parts to undue strain.

4.24 Lampholders and Lamps for Fuel-Burning Ranges

4.24.1
Lampholders used with fuel-burning ranges shall comply insofar as applicable with the requirements of CSA Standard C22.2 No. 43.

4.24.2
Lampholders shall be prevented from turning by means other than friction.

4.24.3
Lampholders and lamps shall be protected from mechanical injury.

4.24.4
Screwshells of lampholders shall be connected to the identified conductors.

4.24.5
Lampholders shall be constructed and located so that no bare live parts other than the screwshell will be exposed to contact by persons removing or replacing lamps unless the lamps are not readily accessible, ie, a tool is required for removing a cover. (See Clause 5.4.)

4.24.6
Lampholders having an aluminum screwshell or a paper liner shall not be exposed to excessive moisture as in an oven or an open backguard.

4.25 Adhesives
Adhesives used to secure parts or materials supporting live parts shall be subjected to the adhesives test described in Clause 6.7.

5. Marking

5.1 Details Required

5.1.1
Electrically-operated or electrically-controlled fuel-burning equipment shall be plainly marked, in a permanent manner, in a place where the details will be readily seen after installation, without the use of tools, with the following:
(a) manufacturer's name, trademark, or other recognized symbol of identification;
(b) catologue, style, model, or other type designation;
(c) rated voltage;
(d) if not suitable for use on dc, the letters "AC" after the voltage or the words "AC ONLY" if elsewhere in the marking; or the frequency in hertz, if necessary; and
(e) total input in amperes or watts.
Note: *Where the total full-load current consumption does not exceed 12 A, and the equipment will operate from a circuit fused at 15 A, the following or equivalent marking may be used:*
12 AMPERES OR LESS.

5.1.2
Markings shall comply with the requirements of CSA Standard C22.2 No. 0.

5.1.3
The month and year of manufacture, at least, shall be marked on the equipment in a location accessible without the use of tools. Date-coding, serial numbers, or equivalent means may be used.

5.1.4
A complete wiring diagram shall be provided with all field-wired and factory-wired equipment.

Table 5
Maximum Allowable Temperatures for Electrical Wiring Materials
(See Clauses 6.2.1, 6.2.2, and 6.2.4.)

Type designation	Conductor insulation	Maximum allowable temperature	
		Operating condition A*	Operating condition B†
		°C	°C
T	Thermoplastic	60	85
TW	Moisture-Resistant Thermoplastic		
S, SJ	Flexible Cords-Thermoset		
SO, SJO	Flexible Cords-Thermoset-Oil-Resistant		
ST, SJT, POT-32, SPT-3	Flexible Cords-(Thermoplastic)		
LVT	Extra-low Voltage Wiring Materials		
TWH	Heat-Resistant Thermoplastic	75	100
V	Varnished-Cloth	85	110
CTF	Thermoplastic and Lacquered Cotton Braid	90	115
TR-32	Thermoplastic		
A-18, A-19	Asbestos and Thermoplastic		
HPN	Flexible Cords-Thermoset-Oil-Resistant		
HSJO	Flexible Cords-Thermoset-Oil		
R 90 (X-Link)	Cross-Linked Polyethylene		
R 90	Heat-Resistant Rubber		
R 90 EP	Ethylene-Propylene Rubber		
R 90 Silicone	Silicone Rubber		
RW 90 (X-Link)	Moisture-Resistant Cross-Linked Polyethene		
RW 90 EP	Moisture-Resistant Ethylene Propylene Rubber		
TEW	Thermoplastic	105	120
A-21, A-22	Asbestos (Stove-Wire)	110	125
GTF	Thermoplastic with Glass-Braid	125	135
A-16(b)	Asbestos (Lead-Wire)	125	140
A-16(a)	Asbestos (Lead-Wire)	200	225
SEWF1 and 2	Silicone with Overall Glass-Braid	150	175
SEW1 and 2	Silicone with Overall Glass-Braid	200	225
--	200°C Wiring Materials-	200	225
--	250°C Wiring Materials-	250	280

*Operating Condition A means the conditions encountered during "normal" conditions of equipment operation, such as during the "normal unit tests" outlined in the various Standards in the B140 Series and the CGA Series (see Appendix A).
†Operating Condition B means the conditions encountered during "abnormal" conditions of equipment operation, such as during the "abnormal unit tests" outlined in the various Standards in the B140 Series and the CGA Series (see Appendix A). These limits should be considered as the maximum permissible "peak" temperatures that may be attained during the specified "abnormal" conditions of equipment operation. The limits specified in this classification are not applicable for certain abnormal unit tests, such as the flooded-pot burn-off and power-failure tests for equipment incorporating vaporizing-type oil burners.

Table 6
Maximum Allowable Temperatures for Electrical Components and Electrical Insulations
(See Clauses 6.1.3.11, 6.2.1, 6.2.2, 6.2.4, and 6.2.6.)

	Component or insulation	Maximum allowable temperature	
		Operating condition A*	Operating condition B*
		°C	°C
1	Class A Motors		
	Totally enclosed nonventilated and those having a marked service factor 1.15 or larger	110	125
	All others	100	125
	Class B Motors		
	Totally enclosed nonventilated and those having a marked service factor 1.15 or larger	130	150
	All others	120	150
	Class F Motors		
	Totally enclosed nonventilated and those having a marked service factor 1.15 or larger	155	170
	All others	145	170
	Class H Motors		
	Totally enclosed nonventilated and those having a marked service factor 1.15 or larger	180	190
	All others	165	190
2	Class 2 Transformer Enclosure	85	110
3	Ignition Transformer Enclosure	90	115
4	Ignition Transformer Windings (Industrial Equipment only)	85	110
5	Ignition Cable Jacket (Type GTO)	60	85
6	Surface of a Coil Winding (Solenoid Valves, Clock Motors, Etc)	105	125
7	Automatic Control Devices:		
	Wiring, Etc.	90	115
	Coil Windings	105	125
8†	Terminal or Connection Box Enclosure (For Field Supply-Connections)	60	85
9	Switches, Plugs, Etc	60	95

(Continued)

General Instruction No. 1

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