

OCCUPATIONAL SAFETY AND HEALTH
STANDARD BOARD

PETITION FILE NO. 580

BOARD STAFF EVALUATION

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INTRODUCTION

Petition File No. 580 (Petition) was submitted by Scott Swaaley, CEO, MAKESafe Tools, Inc. (Petitioner) on March 17, 2020. The Petition seeks amendments to Cal/OSHA requirements for anti-restart (AR) devices.

REQUESTED ACTION

The Petitioner requests the Board take one or more of the following courses of action to resolve his concern:

- Work with Nationally Recognized Testing Laboratories (NRTLs) to withdraw Underwriters Laboratory (UL) Listings for AR devices currently listed under UL244A (Appliance Controls) and work with manufacturers to transition these products into UL508 compliance.
- Publish a general notice to businesses that such products present a safety hazard and clarify other options for mitigating against unintentional restarts (UL508 listed products, UL508A control panels, etc.).
- Require manufacturers of AR devices that are not NRTL listed for safe use with motors and machinery to explicitly state such on their literature and labeling.
- Clarify the existing Cal/OSHA AR standard (Title 8, Section 2530.43) and better align with the federal OSHA requirement (29 Code of Federal Regulations (CFR) Section 1910.213(b)(3)) by adding current federal OSHA language to Title 8 Section 4001 - Machine Power Control: "On applications where injury to the operator might result if motors were to restart after power failures, provision shall be made to prevent machines from automatically restarting upon restoration of power."

PETITIONER'S ASSERTIONS

The Petitioner asserts:

- "California businesses are required by standard...to prevent the unintentional restart of motors and motor operated machinery."
- AR devices are required to be listed by Nationally Recognized Testing Laboratories (NRTL). The proper NRTL standard for industrial motor controls is UL508 "Industrial Control Equipment."
- A client experienced a high failure rate of AR devices on machines. Upon further investigation, the devices were listed as "Appliance Controls" (UL 244A), which are not appropriate for motor-operated machines.

- The “miscategorization of AR motor controls as ‘Appliance Controls’ is prevalent throughout the industry and represents a significant hazard to machine operators.”

STAFF EVALUATION

Staff spoke with the Petitioner on May 15, 2020, to discuss the Petition. The Petitioner explained that if a piece of machinery, such as a grinder, were in use when the power was disconnected, it could pose a hazard if it automatically restarted when the power was restored. He described several pieces of machinery that could present a hazard if they activated when power was restored.

Referring to one of his clients, he said that an employer purchased several AR devices for use in a facility. The employer said while performing monthly testing of the devices, one to three of the devices failed each month. Upon further investigation, the Petitioner concluded that the AR devices were built to a UL standard for appliances, instead of the more-appropriate UL standard for industrial equipment.

In a related concern, the Petitioner said that existing requirements for AR devices may be difficult to find in Cal/OSHA regulations due to their being located in the Low-Voltage Electrical Safety Orders (LVESO). He suggested that because AR devices provide employee protections similar to machine guarding and lock-out/tag-out regulations, perhaps a reference to the LVESO requirements nearer to those sections would make it easier for employers to find the requirements.

He also said that referring to machinery or equipment in the LVESO requirements as is done in the federal requirement for woodworking machinery could make it easier for employers to understand their responsibilities to provide AR protection to employees. Existing LVESO requirements mention motors, but not machinery. He opined that if an employer did not equate a motor to other machinery or equipment, the employer could erroneously conclude that the requirement did not apply to his/her operation.

Finally, he said that unscrupulous manufacturers may be marketing the cheaper devices designed for appliances to employers looking for devices for industrial applications. He said that requiring manufacturers to market their products more clearly could help to address his concerns.

In summary, staff understands the Petitioner’s primary concerns to be as follows:

- 1) Some AR devices are being built to a UL standard for appliances, yet marketed for use in industrial applications. Devices intended for use with appliances are more likely to fail during industrial use, increasing the potential for employee injury.
- 2) Cal/OSHA requirements for AR devices are found in the LVESO (as opposed to the General Industry Safety Orders (GISO)), which may be difficult to find for some employers. Furthermore, because the Cal/OSHA regulations lack the word “machines,” adding the word, as is done in a federal OSHA AR requirements for woodworking equipment, may alert additional employers to the need for such protections in their workplace.

Relevant Standards

Federal Standards

Federal OSHA regulations do not include a general requirement for AR devices in motors or machines in all equipment where an automatic restart could pose a hazard. The standard mentioned by the Petitioner, 29 CFR Section 1910.213 “Woodworking Machinery Requirements”, is only applicable to woodworking machinery. Federal OSHA standard Section 1910.213(b)(3) reads:

On applications where injury to the operator might result if motors were to restart after power failures, provision shall be made to prevent machines from automatically restarting upon restoration of power.

Another federal regulation found in 29 CFR Section 1910.217 “Mechanical Power Presses” applies only to power presses. Section 1910.217(b)(8)(iii) reads:

“All mechanical power press controls shall incorporate a type of drive motor starter that will disconnect the drive motor from the power source in event of control voltage or power source failure, and require operation of the motor start button to restart the motor when voltage conditions are restored to normal.”

A federal letter of interpretation discussing AR devices¹ explains “all electric equipment used in the workplace [is] generally required to be listed and labeled by a [NRTL].” The letter further explains that certain equipment-specific ANSI standards may require AR devices to be installed during manufacture. OSHA provision 29 CFR Section 1910.303(b)(2) requires that “listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling,” which would require AR devices to be present when called for by the NRTL or ANSI standard.

California Standards

As pointed out by the Petitioner, California requirements for AR devices are found in LVESO Section 2530.43(b) “Automatic Restarting,” which reads: “A motor that can restart automatically after shutdown shall not be installed if its automatic restarting can result in injury to persons.” The LVESO “apply to all electrical installations and electrical equipment operating or intended to operate on systems of 600 volts, nominal, or less.” (Title 8, Section 2305.2 [Scope and Application].)

California also has a regulation specific to woodworking machinery. Section 4296(q) provides:

On machinery and equipment where injury might result if motors were to automatically restart after power failures, provision shall be made to prevent machines and equipment from automatically starting upon restoration of power.

¹ “Requirements for protecting against the automatic restart of low-voltage light-duty woodworking and metalworking equipment following an unscheduled electrical outage.” Standard Interpretation, dated January 31, 2005. <https://www.osha.gov/laws-regs/standardinterpretations/2005-01-31>. Accessed 6/8/20.

Exception: Portable power tools intended to be handheld during use.

Note: For the purpose of subsection (q), the term "provision" means electrical or mechanical device, or administrative procedures.

Finally, Section 3203 "Injury and Illness Prevention Program" (IIPP) requires employers to address hazards and potential hazards in the workplace. The IIPP could be generally applied to require employers to use AR devices in addition to Section 2530.43(b).

Consensus Standards

As mentioned in the federal standard interpretation letter, a variety of consensus standards exist for specific types of machinery that require AR devices to be installed. Additionally, some NRTL requirements for labeling and listing of machinery dictate the design and manufacture of such devices.

National Fire Protection Association (NFPA) 79, Electrical Standard for Industrial Machinery, 2018 Ed., in subsection 7.5.3 "Restarting" reads: "*Upon restoration of the voltage or upon switching on the machine supply circuit, automatic or unintentional restarting of the machine shall be prevented when such a restart causes a hazardous condition.*"

National Electric Code (NEC), NFPA 70, 2020 Ed., in subsection 430.43 "Automatic Restarting" reads:

A motor overload device that can restart a motor automatically after overload tripping shall not be installed unless approved for use with the motor it protects. A motor overload device that can restart a motor automatically after overload tripping shall not be installed if automatic restarting of the motor can result in injury to persons.

The American National Standards Institute (ANSI) publishes several equipment specific standards which require installation of AR devices. Examples include ANSI B11.8-2001 American National Standard — "Safety Requirements for Manual Milling, Drilling, and Boring Machines with or without Automatic Control" and ANSI B11.10-2003 American National Standard for Machine Tools — "Safety Requirements for Metal Sawing Machines with or without Automatic Control."

NRTLs are regulated by federal OSHA. According to OSHA²:

OSHA's Nationally Recognized Testing Laboratory (NRTL) Program recognizes private sector organizations to perform certification for certain products to ensure that they meet the requirements of both the construction and general industry OSHA electrical standards. Each NRTL has a scope of test standards that they are recognized for, and each NRTL uses its own unique registered certification mark(s) to designate product conformance to the applicable product safety test standards. After certifying a product, the NRTL authorizes the manufacturer to apply a registered certification mark to the product. If the certification is done under the NRTL program, this mark signifies that the

² OSHA's Nationally Recognized Testing Laboratory (NRTL) Program. <https://www.osha.gov/dts/otpca/nrtl/>. Accessed 6/23/20.

NRTL tested and certified the product, and that the product complies with the requirements of one or more appropriate product safety test standards.

Underwriters Laboratories is a NRTL founded in 1894 with world-wide facilities “for the testing, certification, and quality assessment of products, systems, and services.” UL publishes a handbook entitled “Guide Information for Electrical Equipment – The White Book,” which provides general information “for UL’s Electrical Construction Equipment and Hazardous Locations Equipment product categories.” According to the handbook, appliance control standards, including UL 244A, cover “household-type appliances, such as portable luminaires, audio/video equipment, etc....These controls are intended only for nonindustrial appliances.”³

Position of Division

The Division report dated November 20, 2020, recommends denying the Petition, though it supports the convening of “an advisory committee to determine if employee safety could be enhanced by the requirement for anti-restart devices on other machinery not currently addressed by Title 8 regulations.”

Analysis

The Petitioner has a valid concern regarding inappropriate UL listing and labeling in regard to employee safety and health. Machines that are not built to the correct specifications can pose serious hazards in a workplace, including death and fire. Foreseeably, employers seeking to comply with Cal/OSHA’s AR device requirements can be misled by mismatched UL markings.

Although, federal OSHA, not Cal/OSHA, has authority over NRTLs, it is unlikely that federal OSHA would be able to regulate manufacturers from selling products built to inappropriate UL standards, especially when many manufacturers are located in foreign countries. The Petitioner’s concern, though valid, is unlikely to be resolved by any Board regulatory action.

The Petitioner’s second concern, regarding the location of the AR device requirement in the LVESO, may also be valid, but could apply to any Cal/OSHA requirement located outside of the GISO. Additionally, the Petitioner’s suggestion that the LVESO requirement include the word “machines,” similar to the federal OSHA woodworking requirement may not be a necessary amendment.

As shown previously, the language used in the NEC regarding AR devices is similar to the existing Cal/OSHA language with neither using the word “machines.” For comparison, the requirements are listed below with added emphasis:

National Electric Code (NEC), NFPA 70, 2020 Ed.:

A motor overload device that can restart a motor automatically after overload tripping shall not be installed unless approved for use with the motor it protects. A motor

³ Guide Information for Electrical Equipment – The White Book 2015-2016. <https://legacy-uploads.ul.com/wp-content/uploads/2014/09/UL-White-Book.pdf>. Title page, pp. 73-74. Accessed 6/23/20.

overload device that can restart a motor automatically after overload tripping shall not be installed if automatic restarting of the motor can result in injury to persons.

LVESO Section 2530.43(b):

A motor that can restart automatically after shutdown shall not be installed if its automatic restarting can result in injury to persons.

Board staff was informed by a DOSH representative that Section 2530.43(b) has been cited one time since 2014. The minimal citation history could indicate general compliance with the performance standard requirement, countering the Petitioner's concern that employers may not be aware of their responsibilities with respect to AR devices. Furthermore, because the regulatory language used closely resembles the dominant consensus standard on the topic (i.e. the NEC), staff is hesitant to recommend amending the language without substantive evidence of a deficiency in the status quo.

STAFF RECOMMENDATION

Consistent with the foregoing discussion, Board staff does not believe that the Petitioner's request is necessary and recommends that Petition File No. 580 be DENIED.