

MCE iCONTROL AND MOTION 4000 DRIVE FAILURES
No: SO-ED 2023-02
Date of Issue: December 11, 2023

This safety order is issued pursuant to section 31 of the Safety Standards Act. A person affected by this safety order may appeal this order in writing to the Safety Standards Appeal Board within 30 days. The appeal process is set out on the Safety Standards Appeal Board's website at www.gov.bc.ca/safetystandardsappealboard.

Failure to comply with a safety order is an offence under section 72 of the Safety Standards Act.

Part 1: Details of Regulated Work or Regulated Product

This safety order is being issued in relation to:

	Regulated Work – General		Regulated Product – General
	Regulated Work – Specific Class		Regulated Product – Specific Class
	Specific Regulated Work	X	Specific Regulated Product

The safety order is being issued in relation to specific regulated products:

- A. All iControl and Motion 4000 Series Controllers identified in Motion Control Engineering (MCE) [technical bulletin #157 \(Rev 2\)](#) issued March 1, 2023 (“Bulletin 157”).

iControl and Motion 4000 AC Controllers equipped with KEB F5 480V size 16 and 17 G-Housing Variable Frequency Drives (“VFDs”) with the following model numbers are affected according to technical bulletin #157 (Rev 2):

16F5A1G-RPxx
17F5A1G-RPxx
 (“Affected Controllers”)

- B. All AC-Drive controllers with Dynamic Braking Resistors (“DBR”) identified in MCE technical bulletin #161 issued on March 1, 2023 (“Bulletin 161”).

Part 2: Requirement(s) of this Safety Order

Technical Safety BC has investigated multiple incidents where the premature failure of an Insulated-Gate Bipolar Transistor (“IGBT”) in the power module of an Affected Controller caused regenerative power to feedback in an uncontrolled manner to the DBR. This caused the resistors to overheat and resulted in controller fires – see link in reference section below for applicable incident summary report.

This Safety Order provides actions to:

- a) prevent the premature failure of IGBT’s in Affected Controllers; and
- b) monitor the DBR circuits to ensure continuous power flowing to the DBR can be detected and power removed.

Required actions relating to Technical Bulletin 157 (Rev 2):

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All elevating devices contractors currently responsible for maintenance of elevator units affected by Bulletin 157 are required to confirm that all requirements identified in Bulletin 157 have been addressed within the timelines identified by Technical Safety BC. The technical requirements are identified below:

1. **Reporting criteria:** by February 1, 2024 all licensed elevating devices contractors must:
 - a. Perform a full survey of their maintenance portfolio and identify all units affected by this order.
 - b. Report the results of that survey to Technical Safety BC at: MCESafetyOrder@technicalsaftybc.ca by submitting the attached Schedule A spreadsheet identifying **all** units affected by this order or by confirming in writing that the contractor does not have any units in its maintenance portfolio affected by this order.
 - c. Once all affected units have been identified, non-compliances for identified units will be automatically assigned to the associated operating permit.
2. By August 31, 2024, licenced elevating device contractors must take the following actions for all affected units in their maintenance portfolio:
 - a. All VFDs referenced in Bulletin 157 shall be replaced in accordance with the technical bulletin, regardless of the warranty status.
 - b. Testing of the elevators' operating and leveling speeds shall be performed.
3. Once the repair process and associated testing has been completed, the licensed elevating device contractor completing the repairs shall submit a report in the form of the non-compliance completion declaration form (FRM-1073). All repairs, testing and associated non-compliance completion declarations shall be submitted by August 31, 2024.

Actions Relating to Technical Bulletin 161:

All elevating devices contractors currently responsible for maintenance of elevator units affected by Bulletin 161 are required to follow the procedures outlined in Bulletin 161. Once MCE has recommended a retrofit kit, the maintenance contractor is required to provide the owner of affected elevators with a recommendation for corrective action.

Note: Corrective actions outlined in Bulletin 161 are considered an alteration and will require a minor alteration permit with no required inspection. See [Directive: Major and minor alterations](#) for reporting requirements.

Part 3: Details of Ordering Safety Manager or Safety Officer – Please read following page

I certify that I am authorized to issue this safety order in accordance with section 15 (d) of the Safety Standards Act or that I have been delegated this power under section 15 (g) of the Safety Standards Act.

Nav Chahal,
Provincial Safety Manager – Transportation

Date: December 11, 2023

References:

Safety Standards Act
Elevating Devices Safety Regulation
Safety Standards General Regulation
Schedule A Spreadsheet
[Incident Summary Report](#)

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Safety Standards Act:

Safety Orders

- 31
- (1) To prevent, avoid or reduce risk of personal injury or damage to property, a provincial safety manager may, in writing, issue a safety order.
 - (2) A safety order may be issued to any person in relation to any of the following:
 - (a) regulated work or regulated products generally;
 - (b) a specific class of regulated product or regulated work;
 - (c) a specific regulated product or regulated work.
 - (3) For certainty, a safety order issued under this section may apply to
 - (a) regulated work that meets the requirements under this Act,
 - (b) regulated work that previously met the requirements under this Act or a former Act but does not meet the current requirements under this Act,
 - (c) regulated products that meet the requirements under this Act, or
 - (d) regulated products that previously met the requirements under this Act or a former Act but do not meet the current requirements under this Act, including a regulated product that bears a certification mark.
 - (4) A safety order may specify any requirement that is intended to prevent, avoid or reduce the risk of personal injury or damage to property and may include any of the following orders:
 - (a) that an existing regulated work or regulated product must be made safe in compliance with the safety order;
 - (b) that a regulated product must be
 - (i) disconnected from a power source,
 - (ii) uninstalled, or
 - (iii) modified before continued use;
 - (c) that a regulated product must be operated, installed, manufactured or disposed of only as specified or that a regulated product must not be moved;
 - (d) that current or future regulated work or a regulated product must conform to the terms or conditions of the order;
 - (e) that a person take or refrain from taking any action that a safety manager considers necessary to prevent, avoid or reduce a risk of personal injury to persons or damage to property;
 - (f) that the manufacturer make reasonable efforts to recall the regulated product.
 - (5) The provincial safety manager must give written notice of the safety order to the following persons:
 - (a) the manufacturer of the regulated product;
 - (b) an owner of the regulated product if the identity of the owner is known to the provincial safety manager;
 - (c) the person in charge of the regulated work.
 - (6) The notice must state the reasons for the decision and that the person has the right to appeal the decision to the appeal board.
 - (7) Despite section 54, a safety order may not be stayed during an appeal.

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