

24 April 2017

**\* IMMEDIATE ATTENTION REQUIRED \***

Dear Customer,

This notice is to inform AKD owners about a bug in the **Backup FPGA firmware**.

This notice will help you understand:

- 1) What is the bug?
- 2) What is the Backup FPGA firmware?
- 3) What are the effects of the bug?
- 4) Am I affected?
- 5) How do I fix it?

***What is the bug?***

During recent internal development activities, it was discovered that a specific sequence of events could lead to an unintentional motor holding brake release due to corrupted firmware.

The condition may occur from the following sequence of events:

1. Initiate a user firmware file download (via Workbench or Fieldbus)
2. Interrupt the download process (for example by disconnecting the Ethernet cable)
3. The firmware may be corrupted due to the interruption
4. Power cycle the AKD (remove power, re-apply power)
5. If the firmware was corrupted, the AKD will power up using the Backup FPGA firmware

If items 1-5 occur, the Motor Brake will unexpectedly disengage. The reason for this behavior is an issue in the Backup FPGA firmware.

***What is the "Backup FPGA firmware"?***

The Backup FPGA is programmed at factory and is not a part of the user firmware file. The Backup FPGA image is not normally loaded or used. Updating the user firmware does not touch the Backup FPGA firmware and vice versa. The Backup FPGA's purpose is to provide a fallback mechanism to download firmware when the user firmware is corrupted. This Backup FPGA firmware supports only the minimal functionality necessary for the FPGA (field-programmable gate array) to communicate so the user can flash the AKD with a new user firmware.

***What are the effects of the bug?***

If the AKD must boot up with the Backup FPGA firmware due to corrupted user firmware, it is possible the AKD will energize the holding brake with 24 Volts, causing the brake to disengage (if there are no additional switches such as a safe brake relay).

If you have a gravity-sensitive load that is not properly secured, the load could begin to move uncontrollably, simply due to the kinetic energy of the load.

***Is my AKD affected by the bug?*****The following model numbers are affected by the bug:**

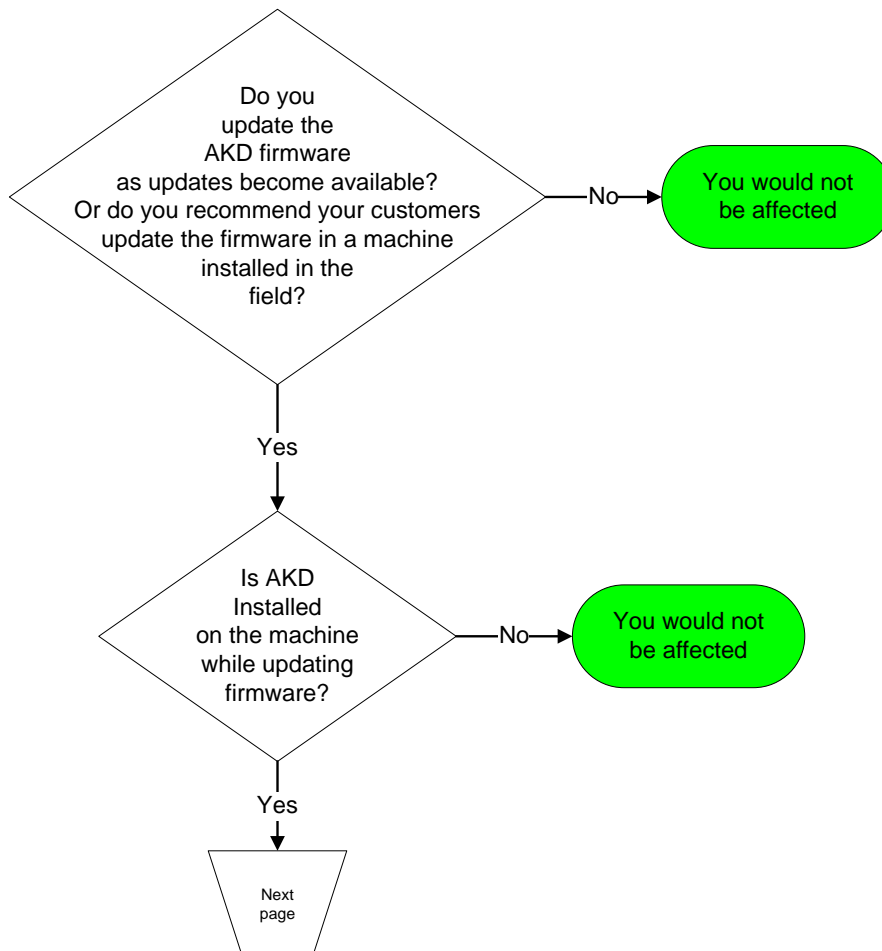
- AKD-P; AKD-B; AKD-T; AKD-M
  - KC1-B; KC1-M
- ✓ NOT affected are models beginning with AKD-N, AKD-C

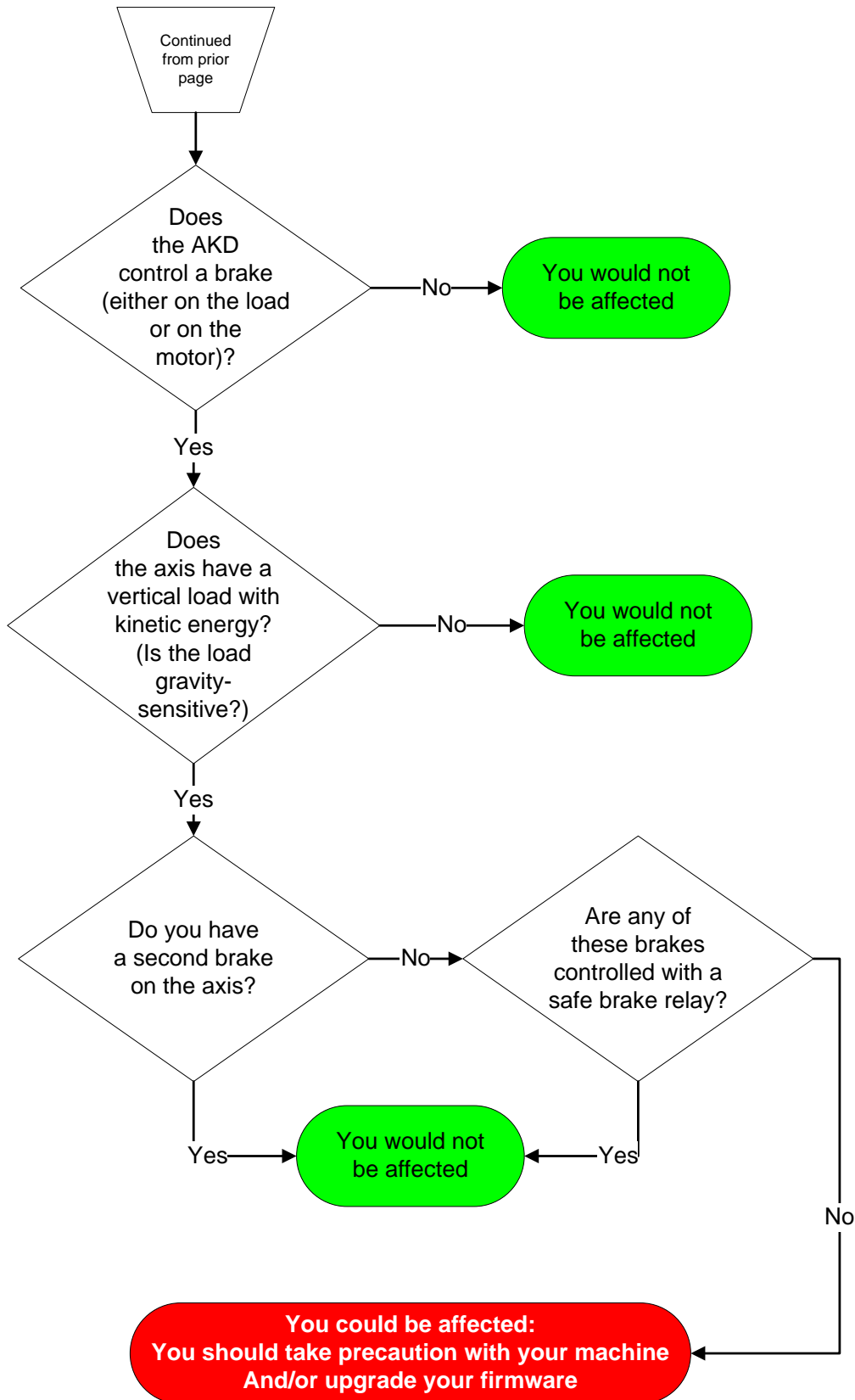
**The following serial numbers are affected by the bug:**

- B-0901-00001 – B-1714-00255 ("*-00256*" and higher have the updated firmware included)
- P-0901-00001 – P-1715-00004 ("*-00004*" and higher have the updated firmware included)
- R-0901-00001 – R-1714-00221 ("*-00222*" and higher have the updated firmware included)
- T-0901-00001 – T-1715-00000 ("*-00001*" and higher have the updated firmware included)

***Is my application affected by the bug?***

If you are using the affected AKDs listed above, your *application* may or may not be affected by this bug. Please follow this flowchart to check if this bug affects your application:





***How do I fix it?***

If your application is affected, there are several ways to mitigate risk *without* upgrading your firmware. Each countermeasure alone should eliminate the risk:

1. ***Secure the load or move to a safe position before updating the standard AKD firmware.***  
By securing the load or moving to a safe position, disengaging the brake after a failed firmware update attempt will have no effect. This is actually required by regulatory agencies, so you are likely doing this.
2. ***Unplug the motor when updating the standard AKD firmware.***  
By unplugging the motor from the AKD the brake is also disconnected. Hence it will always stay engaged  
**(Remember to remove power to the AKD before disconnecting the motor cables!)**
3. ***Update the Backup FPGA firmware.***  
*We recommend that you update the Backup FPGA firmware if you cannot apply either of the above-recommended countermeasures.*  
*Please visit the [Kollmorgen Developers Network \(KDN\)](#) or specific update instructions.*  
KDN provides downloadable files, along with directions on how to update to Backup FPGA firmware FPB0xx\_0602\_00\_01.

Please contact your Kollmorgen Application Engineer if you have any questions this notice or KDN does not answer.

Sincerely,

Scott Evans  
Director, Product Marketing

***Telephone contact numbers for application-engineering assistance:***

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Rest of Europe: +49 (0) 2102 9394 0

India: +91 22 6188 0200

Japan: +86 - 400 661 2802

Mainland China: +86 - 400 661 2802

Hong Kong, Taiwan R.O.C. and Southeast Asia: +852 2503 6565

Link to KDN (to download this FAQ, the Backup FPGA firmware files, and implementation directions):

<http://kdn.kollmorgen.com/akd-notice>