

# TB257 (Rev1) - Fix for Intermittent Spindle Errors on Delta VFD-VE Inverters

**Purpose:** This document was created after finding the source of intermittent spindle or orient faults on a machine with a Delta VFD-VE inverter with an orient card. If you are randomly getting Y contactor switching errors, PFG1 errors, or orient errors, follow the instructions below to fix your problem.

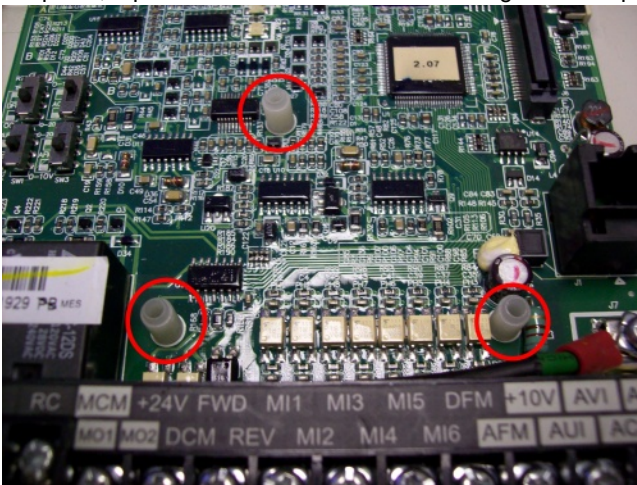
## Required Tools & Materials:

- Philips No.1 & 2 screw drivers
- pair of pliers
- 3x 4-40 x 3/8 screws or equivalent
- 3x nylon washers
- cable ties

**Source of the Problem:** The screws used to secure the Delta orient card (PG01L/PG02L) to the main board of the inverter are the wrong size (too small). This results in the orient card not being securely held in place which leads to a poor connection between the orient card and the main board and then causes the random spindle and orient errors. The solution is to mount the card securely with larger screws so it makes good contact with the main inverter board permanently.

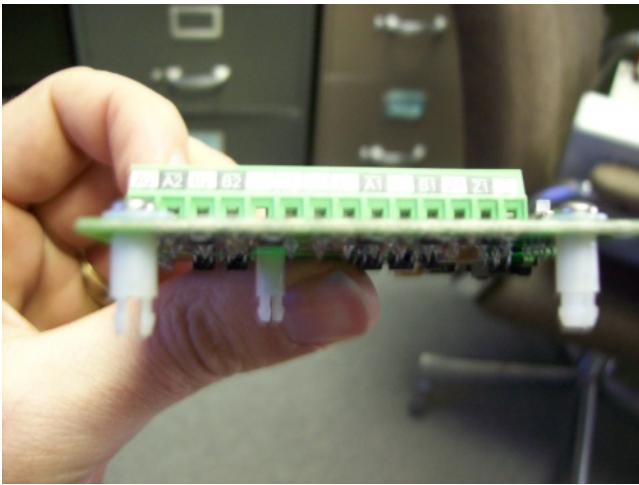
## Instructions

1. Remove the main inverter cover to gain access to the inverter main board and orient card.
2. Remove the 3 small philips screws that are supposed to secure the orient card to the main board.
3. Remove the 3 plastic standoffs from the main board. To do this, remove the 4 philips screws at the 4 corners of the main board. With the pliers, squeeze the tabs on the standoffs together and push them back through the main board.



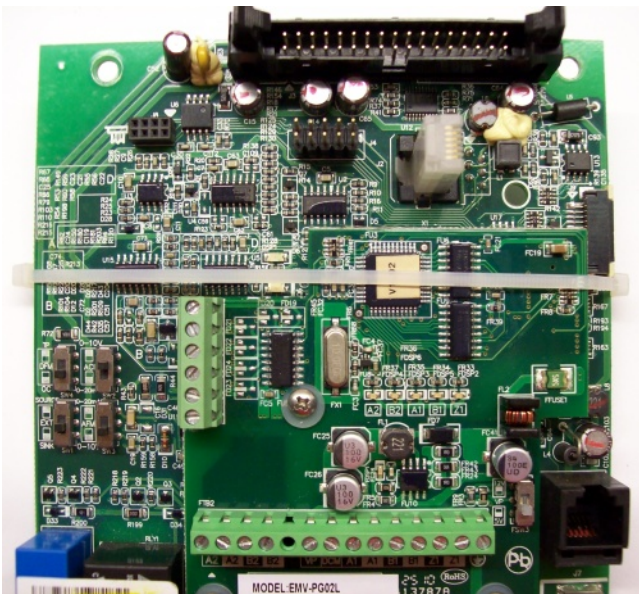
Picture 1: Plastic Standoffs for Orient card

4. With the standoffs removed, re-install the main board.
5. Now with your 4-40x3/8 screws (or whatever you have that threads into the standoffs properly) place a nylon washer against the head of the screw and thread the screw into the standoff. Repeat this step for the other standoffs.



Picture 2: Sideview of standoffs mounted to Orient card

6. Once all 3 standoffs are mounted to the Orient card, re-install the card onto the main inverter board.
7. We have found in some cases even remounting the standoffs is not sufficient to secure the orient card due to the locations of the standoffs in relation to the connector that plugs into the inverter main board being so far apart.
8. In order to make sure the orient card connection doesn't come loose slide one cable tie under the main board, then connect a second one to the ends of the first one under the inverter main board. Pull both ends until the cable tie is firmly pressing down on the orient card above the connector. See picture below.



Picture 3: PG-02L Orient card with cable ties installed to hold connector firmly against inverter main board.

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## Document History

Rev1 Created on **2012-08-09** by **#240**