



## Drive Troubleshooting Form

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This is only a guide. Please observe all safety pre-cautions and LOTO procedures, look for physical damage as you proceed and stop if it looks or feels unsafe.

**Date:**

**Jobsite:**

**Job Number:**

**Contact:**

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**VFD Make:**

**VFD Model:**

**VFD S/N:**

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### **POWER OFF CHECKS**

#### **Power down and wait (15 minutes)**

**Test for short circuits with ohmmeter: L1, L2, L3 to DC Bus +,- and U, V, W to DC Bus +,-  
Disconnect Incoming power and output cables to motor.**

### **DIODE & IGBT CHECK (Multimeter set to diode ->+ )**

METER PROBE - to DC BUS –

METER PROBE + to:

**L1=**

**U=**

**L2=**

**V=**

**L3=**

**W=**

The meter may begin at a low VDC reading and then climb in value. Once the voltage has climbed to a certain value the open OL will display

METER PROBE + to DC BUS +

METER PROBE – to:

**L1=** **U=**

**L2=** **V=**

**L3=** **W=**

The meter may begin at a low VDC reading and then climb in value. Once the voltage has climbed to a certain value the open OL will display

METER PROBE - to DC BUS +

METER PROBE + to:

**L1=** **U=**

**L2=** **V=**

**L3=** **W=**

Readings should be .3 to .7 volts and match.

METER PROBE + to DC BUS -

METER PROBE - to:

**L1=** **U=**

**L2=** **V=**

**L3=** **W=**

Readings should be .3 to .7 volts and match.

## IGBT GATE TEST

With meter set to Ohm measure between the gate leads, there are two pairs for each IGBT. Readings should be between 2k and 8k. Readings should be consistent. A detailed guide for your specific drive can help to ID the IGBT leads. These components are related to the power output side of the VFD.

**IGBT 1**

**1<sup>st</sup> Pair** \_\_\_\_

**2<sup>nd</sup> Pair** \_\_\_\_

**IGBT2**

**1<sup>st</sup> Pair** \_\_\_\_

**2<sup>nd</sup> Pair** \_\_\_\_

**IGBT3**

**1<sup>st</sup> Pair** \_\_\_\_

**2<sup>nd</sup> Pair** \_\_\_\_

**If any of these tests fail: STOP!** The drive needs to either be repaired or replaced. **Do not re-energize** at this point dangerous.

**If these tests pass:**

Disconnect the motor cable from the VFD. Make sure the cables ends are not touching anything.

**- Safely re-energize the drive.**

- Check for any live alarms and investigate.
- Check the alarm log and investigate the alarm code/s

**DC BUS VOLTAGE TEST:**

After 10-15 minutes of being on, measure DC voltage at DC- and DC+. It should be at least 1.35 X the AC input voltage. VFD should have a parameter to check this as well. \_\_\_\_\_

(If this test fails then the VFD is not charging correctly and needs to be replaced or repaired.)

- If the keypad display did not come on check for DC power at the drive terminals.

**CONTROL CARD Check With Power On :**

Measure DC voltage at terminals for 24VDC+ and Common \_\_\_\_\_

Measure DC voltage at terminal for 10V+ and Common if available \_\_\_\_\_

If all testing has passed up to this point, **SAFELY** attempt to run the motor (in Manual or Hand mode) even though it is disconnected. If it tried to run with no faults describing internal failure the drive should be okay. The blown fuse/s may have been caused by a incoming power issue. Investigate the motor for internal shorts or shorts to ground as well check if the shaft spins freely.

Assessment Notes:

Tech Name: \_\_\_\_\_ Company Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_