LOCH Troubleshooting in more detail for BCXD or BCXE

1. Why you get this message on the ECM board?

Because the motor is commanded on and it is not running.

2. How to ID the problem?

Voltage measurements at the motor plug or drive plug

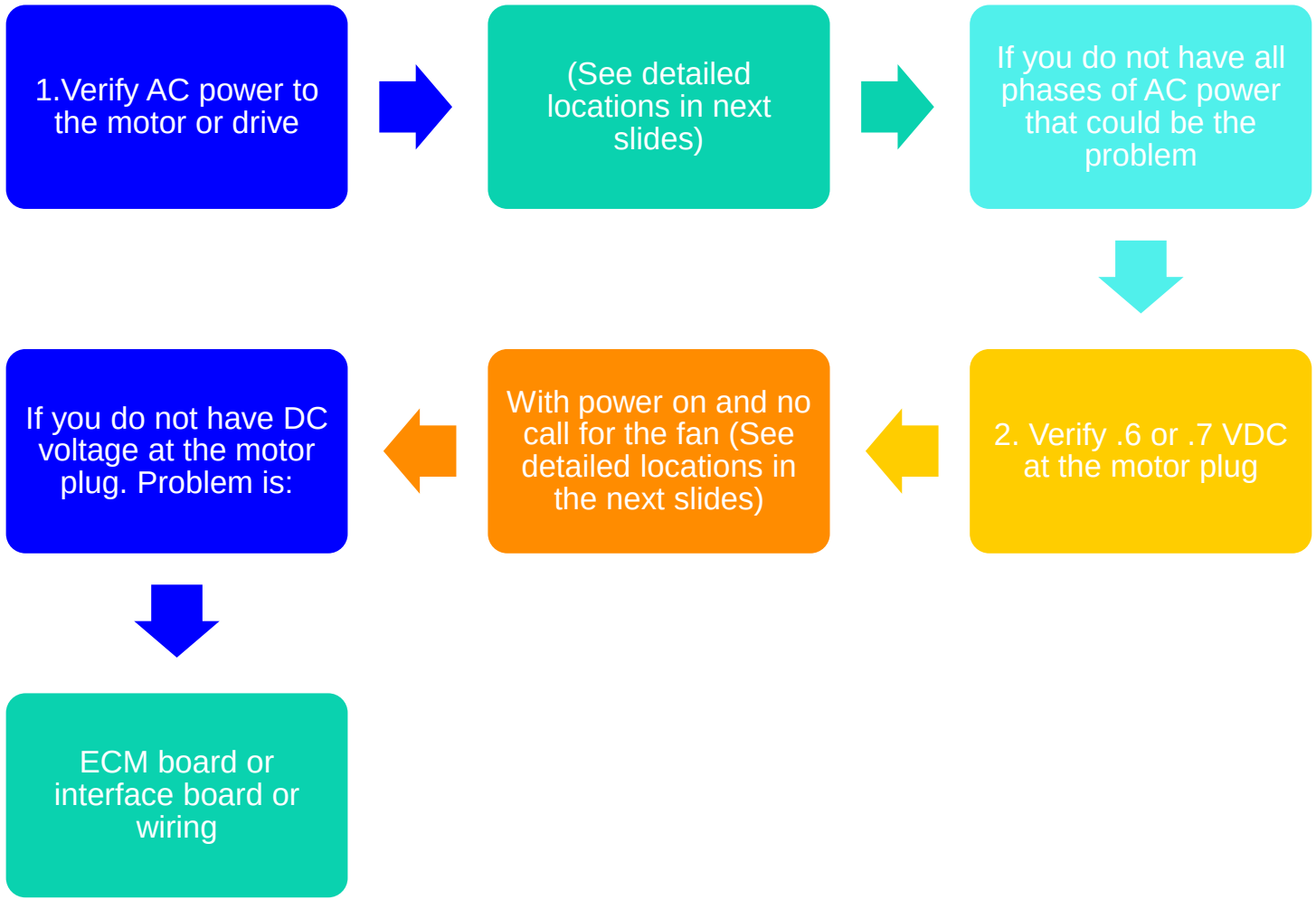
3. Not a controller issue

The ECM board is getting a signal from a controller or TSTAT to run the motor and is trying to send a DC output to the motor plug. (.6 to maximum of 5 VDC)

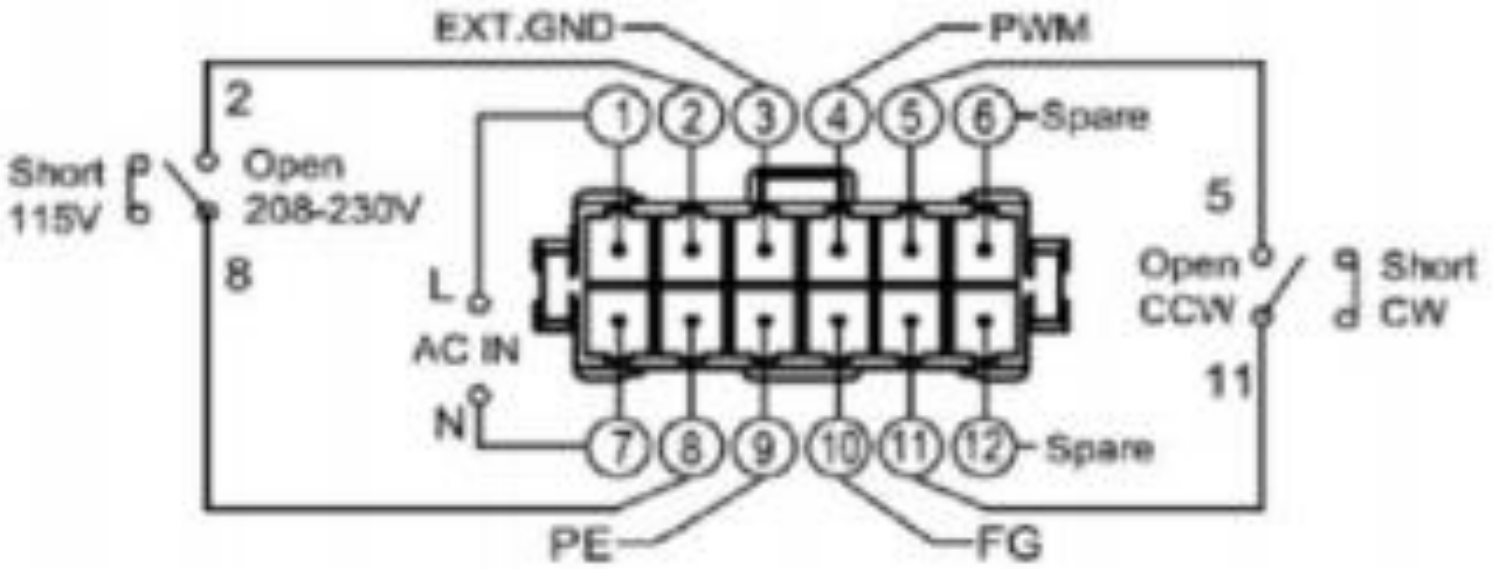
How to ID the problem?

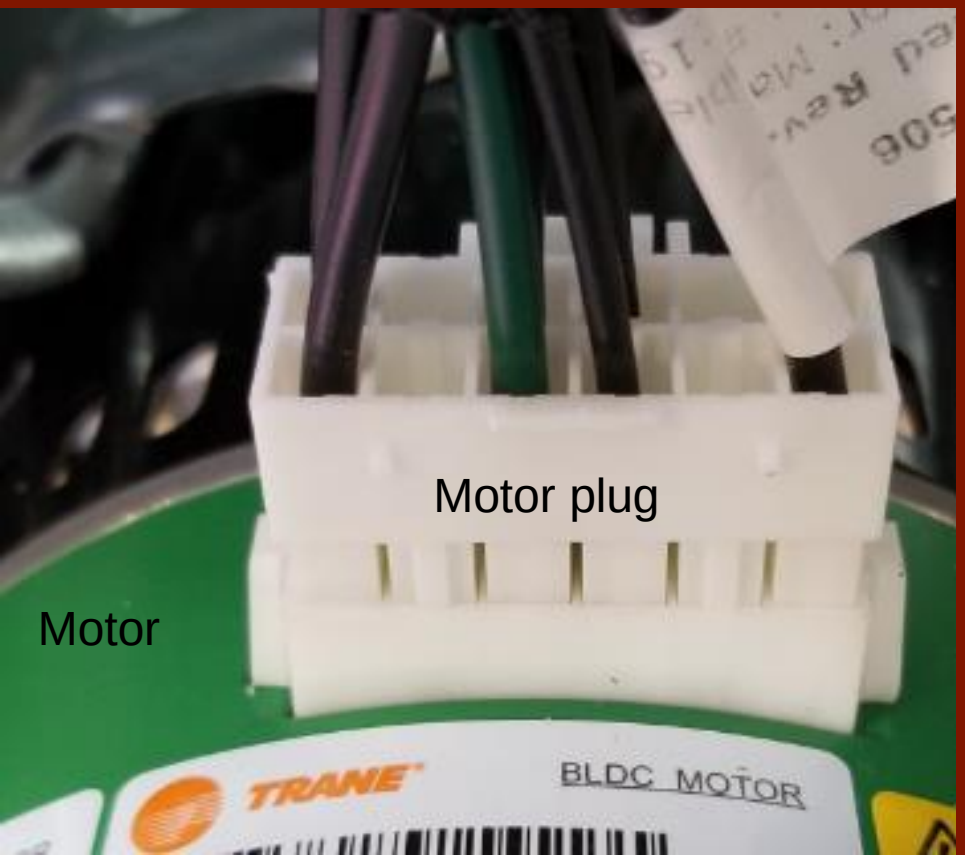
Turn off	• Turn off command for fan to run.
Cycle	• Cycle power.
Turn off	• Turn off LRPT on the blue board. (IOM)
Turn on	• Turn command for fan to run back on.
Verify	• Verify AC and DC power at the motor plug.

First Steps AFTER turning off LRPT



Motor/ Plug detail
277v example





Example: Blower Coil single phase 277 vac

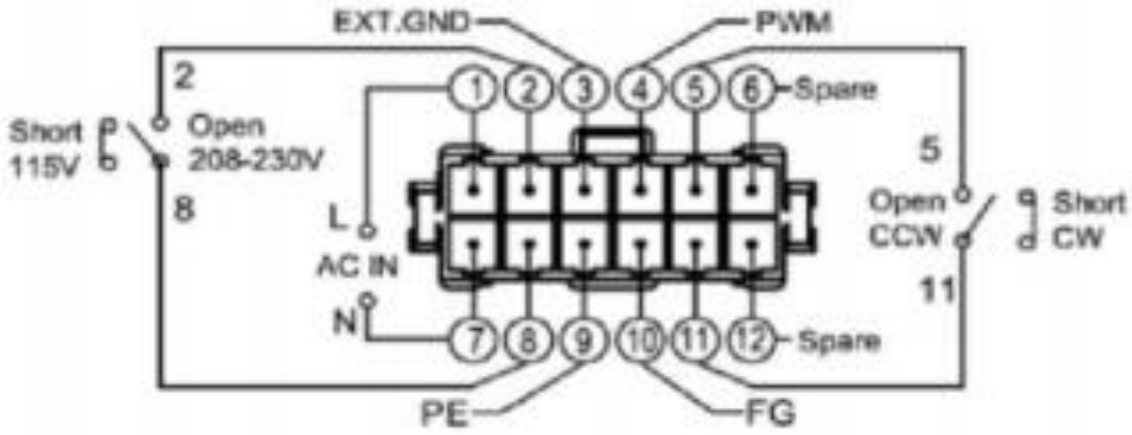
1 and 7 are Line voltage (115vac to 277vac)

3 = DC Common

4 = DC Signal voltage Should be .6 VDC to 4.5 VDC

- With AC power on 1 and 7 and over 1 VDC on 3 and 4 the motor should run, if it does not – BAD motor.
- If you are not getting voltage at the motor. Could be power, wiring, connectors or interface boards.

Motor harness Detail



- ***Power (High voltage)***
- **P1 = L1**
- **P7 = N or L2 (If 3 phase)**
- **P12 = L3 (if 3 phase)**
- **P9 = Ground**

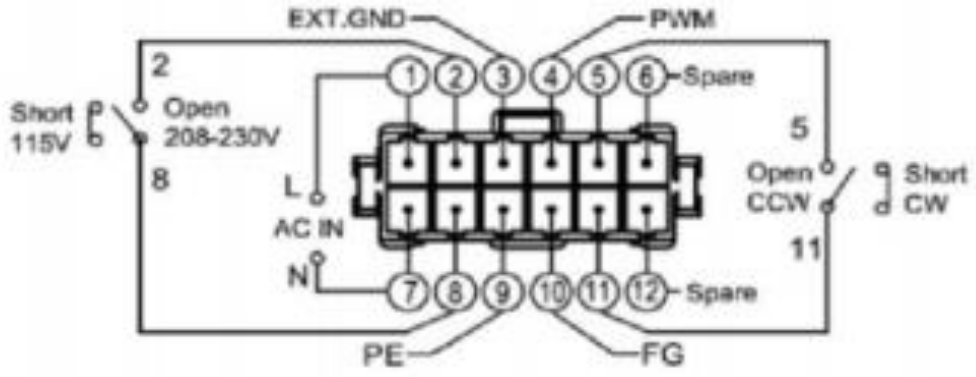
- ***Note***
- **P2 and P8 Plug Jumper if 115 vac unit**
- **P5 and P11 Rotation Jumper**

- ***ECM Control***
- **P3 = DC Common**
- **P4 = DC Signal**

Voltage measurements

- Example 277V BCXD unit

LOCH- WHEN MOTOR LOCKED, DRIVER WILL SHUT DOWN SPEED COMMAND AFTER 10 SEC.	Pins 3 and 4 are control signals.	Not in loch mode: Voltage readings with power on, no call for fan = .6 or .7 VDC	Not in loch mode: Voltage readings with power on, call for fan= 1 to 4.5 VDC



3 Phase power with Driver Box

- 12 pin plug going to the drive box has the same pin locations as the standard motor plug

- ***ON THE DRIVE SIDE***

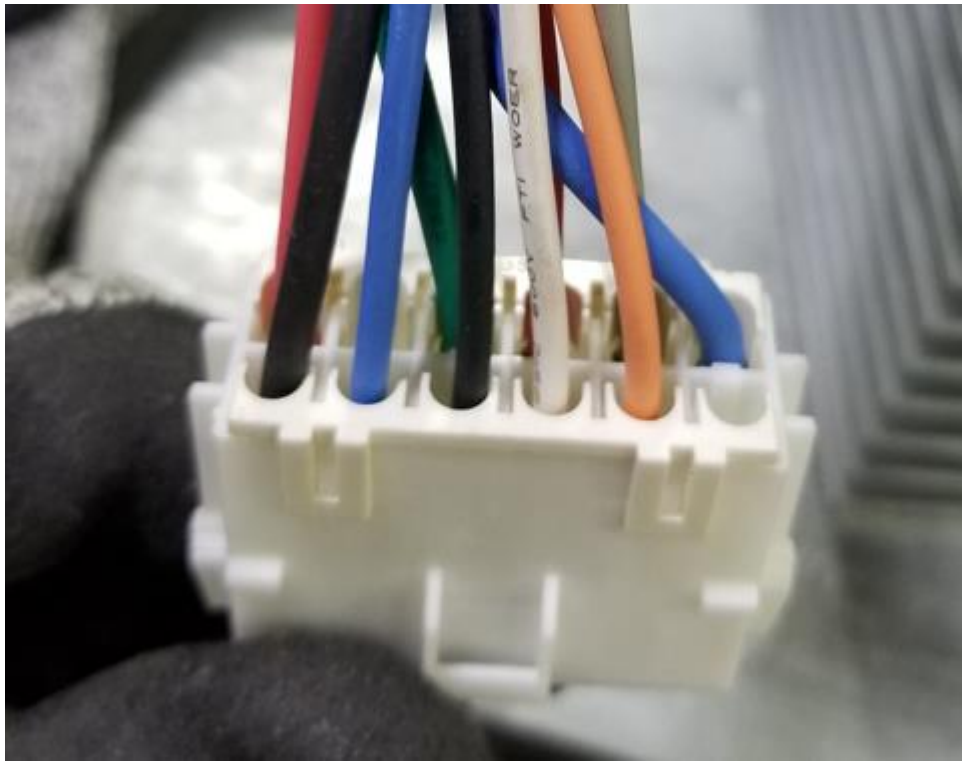
Black = DC Common

White = DC signal

Red = L1

Black = L2

Blue = L3

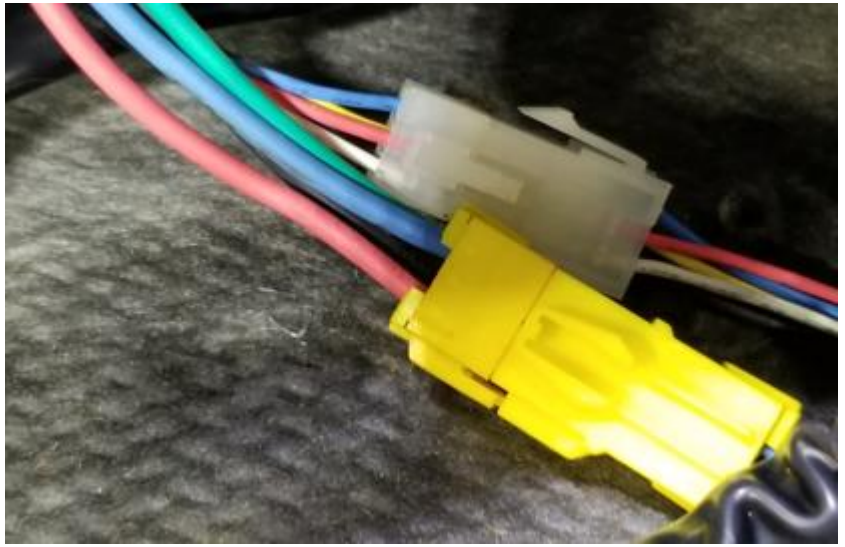


Drive is provided with 3 phase units with 1.5 HP motors or larger

The drive converts the DC control voltage to AC output power to the motor (150vac TO 250vac)

Assumptions:

1. ***Have all 3 legs of power***
2. ***Have DC control voltage***



Power to the motor

(Yellow plug in this Example)

- Green = ground
- Red/ Blue/ Black = L1/L2/L3

Measure each leg to the ground wire

- Is there enough voltage to run the motor?
- Yes, replace motor.
- No, replace drive.

TRANE