



## DLCM Controller “Tach Failure” Diagnosis

DLCM controls utilize a proximity type sensor at the back of the gearbox to monitor motor rotation and regulate speed. If the DLCM does not get a valid signal from this sensor, “Tach Error” or “Tach Failure” will be displayed. This failure routine may also ask for a PIN number, although the root cause of failure is still the tach sensor.

The following troubleshooting steps are recommended:

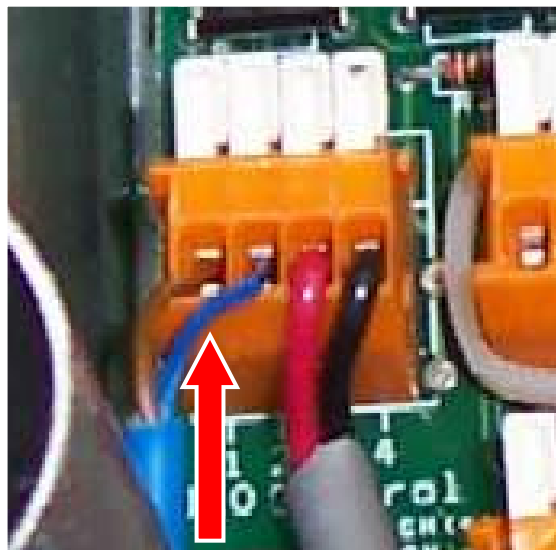
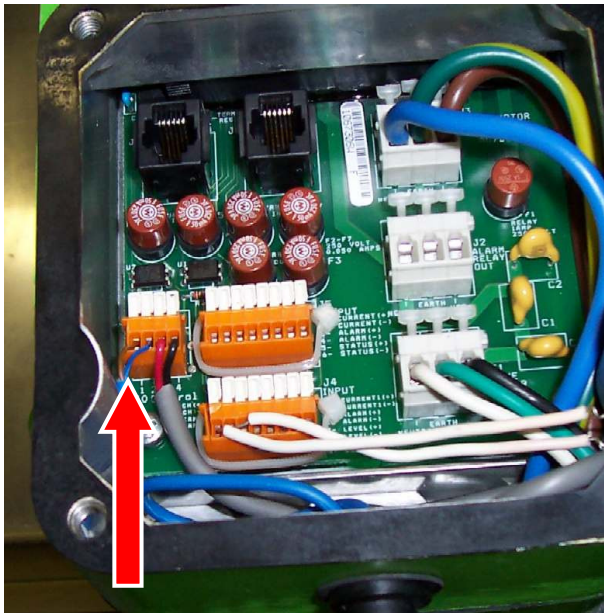
### 1 – Motor Rotation

If the drive motor is not rotating, a tach failure is displayed. Potential issues are as follows:

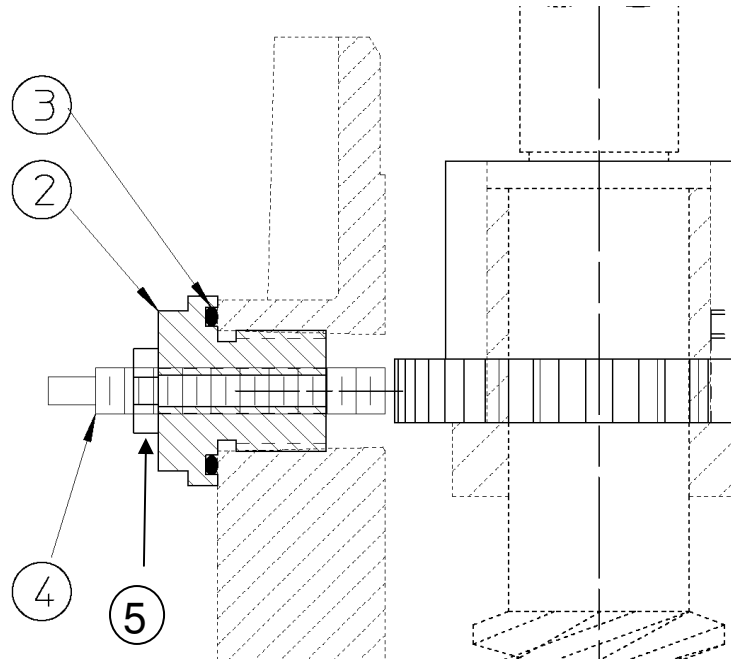
1. Drive motor brushes dirty – clean out brush area
2. Drive motor brushes not contacting commutator – clean area, check springs
3. Drive motor brushes worn – replace (brush part number is on the motor nameplate and these can be sourced from your local Baldor motor shop).
4. Motor coupling loose or damaged – repair or replace
5. Motor failed – replace

### 2 – Tach Wiring

If any recent work has been done within the DLCM control, the wiring from the tach sensor may have been damaged or come loose from the terminals. The tach sensor wires enter the junction box at the back of the controller through a small diameter black conduit on the back surface. Check that the blue and black leads are secure in their terminals as per the following photo. Make sure the terminals are making good contact with the stripped portion of each wire.



### 3 – Tach Sensor Adjustment and Testing



Tach Sensor at rear of gearbox part identification:  
2 – mounting bushing      3 – sealing o-ring  
4 – tach sensor          5 – locking nut

#### Basic tach sensor adjustment procedure:

1. Unscrew and gently pull back the black plastic conduit connector (not shown on the diagram above), this will reveal the threaded tach body (#4) surrounded by a locking jam nut (#5)
2. Loosen the jam nut, this will allow the tachometer sensor itself to be rotated, which moves it in and out of the gearbox
3. Turn the body of the tachometer sensor clockwise until it goes all the way inwards and (gently) bottoms in the fitting, this means it has contacted the gear teeth as illustrated above.
4. Retract the sensor approximately  $\frac{1}{2}$  to  $\frac{3}{4}$  of a turn counter-clockwise (outwards), and then hold it in place and re-tighten the jam nut (#5)
5. Replace the plastic conduit connector and re-wire the tach.

#### To electrically test and adjust the tach sensor:

1. Apply power to the DLCM.
2. Note the following terminals:
  - J 5-8** signal ground (VDC -)
  - J10-1** voltage output (12 VDC +)
  - J10-2** tachometer signal (VDC variable +)

3. Measure voltage between J5-8 and J10-1, it should read 12VDC (\* note below).
4. Remove the top cover of your drive motor so that you can access the shaft.
5. Measure the voltage between terminals **J5-8** and **J10-2**, and rotate the motor shaft until you have the **lowest** voltage reading.
6. Loosen the locknut on the tachometer body, and adjust the position of the tachometer sensor until the voltage reads 1.0 VDC.
7. Rotate the motor shaft again, and observe the voltage, the highest voltage observed should be 5.5 – 6.0 VDC.
8. As the motor shaft is rotated, the voltage should vary between 1.0 and 5.5 to 6.0 VDC.
9. Make necessary adjustments to achieve this range, and then tighten the locknut on the tachometer body.
10. Secure all wiring, replace all covers, and prepare the pump for operation as per normal procedures.

**NOTE** – some older controllers utilized a 5 volt control system. If you read 5 volts during step # 3 above, you have an older system. Older systems should be factory upgraded to the new 12 volt design for more reliable tachometer operation. Consider contacting your local Pulsafeeder Representative about arranging for a factory update on your controller. For some older models, depending on age and condition, replacement of the complete controller is a more cost effective solution.

#### **4 – Tach Sensor Replacement**

If none of the above restores proper operation, and the electrical tests do not result in the proper voltage readings, then the tach sensor may be bad. The Pulsafeeder part number for a replacement sensor is:

NP530052-000                      Inductive Sensor, DLCM

Contact your local Pulsafeeder Representative for price and delivery information.