Calibration of the Current Mode Drive

LCAM 5/15

The Drive in this configuration receives an analog, bi-polar input command, which is proportional to the required motor current (motor torque). The following potentiometers (pots) will be set during calibration: (Note: RV7 is a single turn pot and RV1-RV5 are 20-turn pots.)

Pots	**Name of Pot**	Notes
RV1	Signal Gain, **SIG**	Sets the input voltage to current ratio.
RV2	Balance, **BAL**	Used to null any offset in the system.
RV3	Compensation, **COMP**	Used in conjunction with Tach. Gain to set the system bandwidth.
RV4	Tach. Gain, **TACH**	Sets the DC tachometer gain.
RV5	Current Limit, **I LIMIT**	Sets the maximum motor current. Shipped set CW (max).
RV7	Loop Gain, **LOOP GAIN**	Used to shut off uncalibrated Drives. When the loop gain is fully CCW, no current is delivered to the motor.

PROCEDURE:

1. Apply main power and fan power. Visually confirm a green LED. Depending on the configuration of the Inhibit, Reset and +/-Limits, it may be necessary to make appropriate connections to those terminals before the Drive will be enabled and energize the motor.
2. Slowly turn the Loop Gain (RV7) pot CW fully. The Motor should be stopped or turning slowly. Set the Balance (RV2) for 0V across DC Input/Motor Output pin 4 to DC Input/Motor Output pin 5.
3. Connect oscilloscope probe to Controller I/O pin 7 (CURRENT SENSE) and oscilloscope ground to Controller I/O pin 13, 14 or 15 (SIGNAL GND). Connect battery box to Controller I/O pin 1 (SIGNAL+) and Controller I/O pin 2 (SIGNAL-). The voltage on Controller I/O pin 7 is a function of motor current: 1V = 2.0A.
4. To set the current limit at some value less than the maximum, apply a large step command and observe peak above desired peak current. Turn current limit pot CCW until peak current is reduced to desired value.
5. Apply a step command of 3-4 volts. Observe commanded motor (scale is 10A/V) and set the desired signal to current ratio. For example, 3A/V.
6. If the motor is rotating in the wrong direction for a given input polarity, power down and reverse the motor leads.
7. Calibration complete.