Crosspoint
Kinetics
Cummins Crosspoint Company

REVISION RECORD						
REV	DCN	DESCRIPTION	BY	CHECKED	APPROVED	DATE
00		Draft	FJ			8/04/11
01	CN 0027	Initial Release & Update	FJ		WAB	03/08/13
02	CN 0093	Revise to doc #, weblinks	WB		WAB	9/04/15

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The intent of this document is just to get a tech started on the Calibrator program and component change calibration. For more details on troubleshooting, access our technical website for downloads. You can find latest version of Calibrator, wiring diagrams, flow charts for troubleshooting, electrical checks, etc. at: http://crosspointkinetics.com/.

Start Calibrator after Laptop Connect Instructions and data is showing in blocks in lower half of window as shown below. This is the opening page of Calbrator.

Each page of most screens has instructions (upper half) that can help guide you through that menu function. Use the scroll bar on the right to see more text.

Note: A 'Parameter 12 Read Failure' window or data that comes and goes showing up in the lower half of the window may indicate low bus voltage. Either connect a battery charger or start the bus.

Drop down Menu

In the upper right corner of the screen below the 'X', there is a drop-down menu that can help you navigate to different areas of the program.

Some of the important items and reason are:

VTM Hybrid Final Calibration Revision 2   -   Inserting the four motor numbers after component change

Error Codes   -   If a solid red light comes on, check for codes here.

Position, Speed and Volts   -   Checking for actuator movement and controller 'State'

General Feedback   -   Checking two throttle parameters and reservoir float switch

Ground Fault Circuit   -   GFI troubleshooting and changing 'Hi' and 'Lo' thresholds

Set Constant Angle Offset   -   Inserting the two parameters for 'Boost' feature
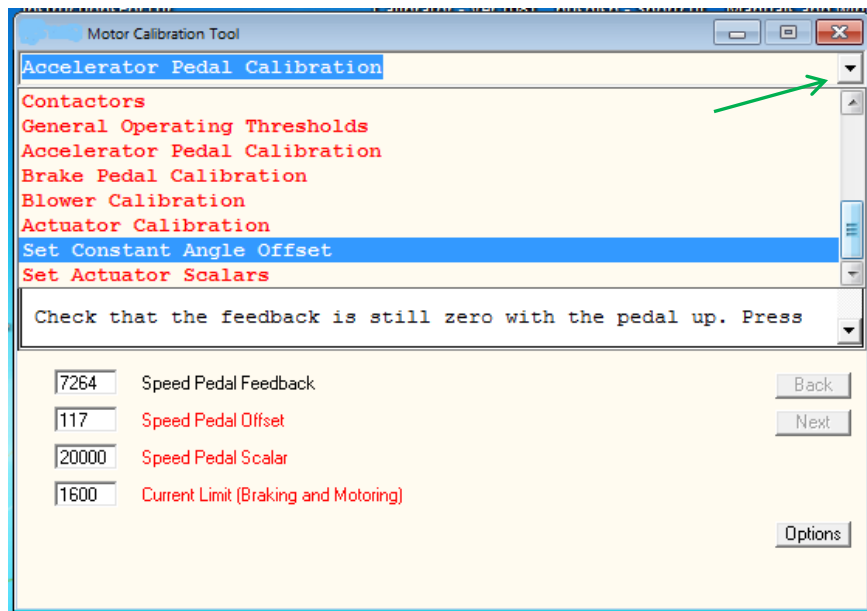

Note: Shortcut is press 'D' on the keyboard to scroll down the menu and 'U' to scroll up the menu. No need to press the down icon to do this. Each line item may also have several pages. There may or may not be a 'Next' box in lower right portion of window but may have a next page anyway. Press 'N' on keyboard to advance to next page(s).

Component Change

If a component was changed (motor or controller), click the 'Next' button or 'N' on the keyboard at the opening screen. The screen below will be seen.

Start at the opening page of Calibrator which is the top line of the dropdown menu.

This screen is where to input the four sine/cosine numbers from the label on the side of the motor conduit box or with later motors, the Model/Serial number label on the motor.
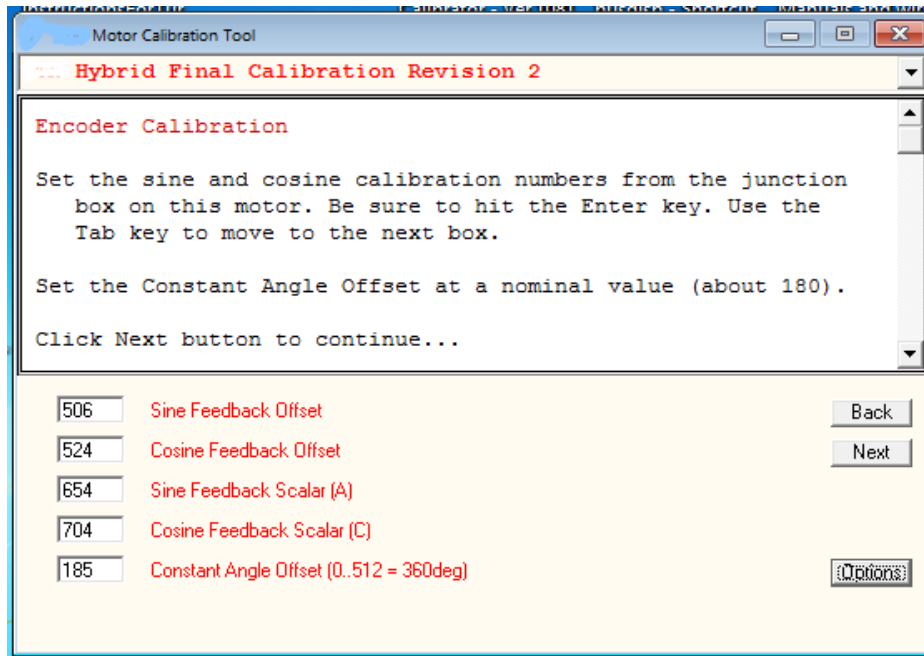
Highlight each block and enter the appropriate number. The numbers will be red. Press 'Enter' after filling each block. 'Tab' to the next block and do the same. Fill in all 4 numbers.

Note: the top block is Parameter 23, 2nd is 24, 3rd is 31, 4th is 32.

Press 'Options' button and press 'EEprom Write' to save data.

Note: Hybrid switch must be 'Off' to save the data.

Generally, the bottom line, 'Constant Angle Offset', is left at 185.

No more inputs are required to drive the bus. Go to the 'Position, Speed and Volts' page with the dropdown menu.

Position, Speed & Volts

The Position, Speed & Volts page is very helpful to determine the hybrid functionality. This screen shows the system turned on.

'State' 9 means the hybrid is ready to drive. The 'Actuator' is retracted (rotor is in the stator). This number is approximate and can be anywhere from 10-30. The 'MPH' will show approximate bus speed. 'Volts' is Ultracapacitor voltage. 55 volts is normal minimum, 92 is maximum.

Note: When hybrid is disabled, the state will be 3. The actuator will be approximately 390.

Note: Ver 4 controllers will show '0' Volts in State 3.
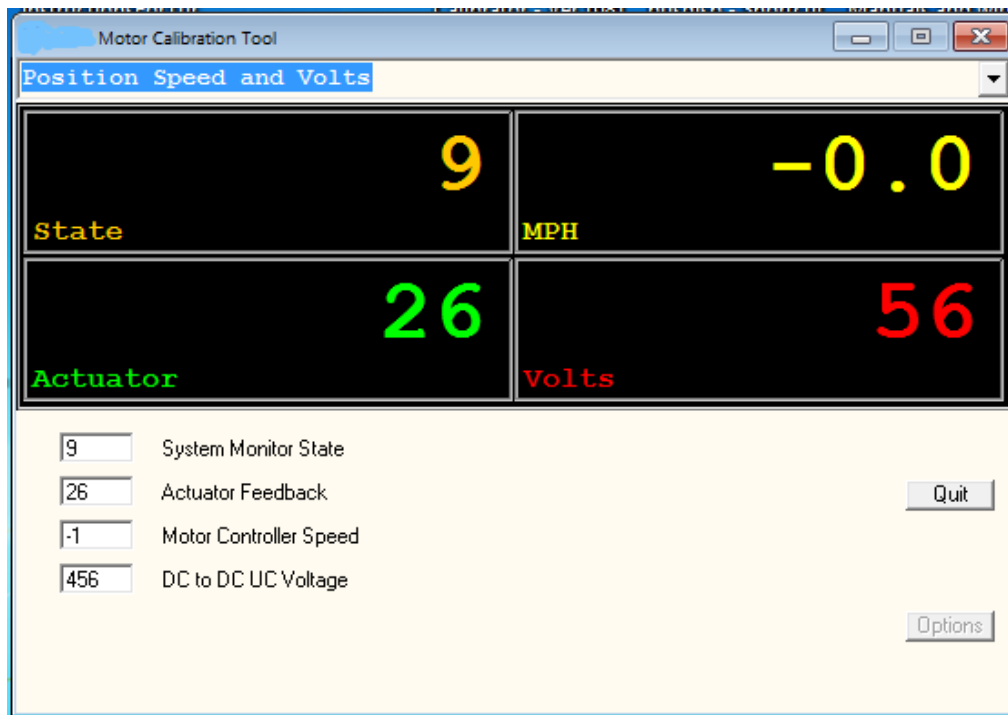
By cycling the driver switch on and off, the state and actuator movement can be determined for proper operation.

Note: In 'State 9', the Driver Switch will indicate a solid Green light. 'State 3' will indicate a flashing Red light.

Note: For proper hybrid operation while driving, the Green light will flash below 30 mph during acceleration or deceleration. The States for accel/decel are:

Boost: State 6   Regen: State 7

Error Codes

The 'Error Codes' page is read after a red light fault to read codes. Generally, the second block provides the most valuable information. The upper half window shows typical codes. Scroll down to see more codes.

Note: the controller will not store codes. Turning bus key off erases a code. They need to be read 'live'.
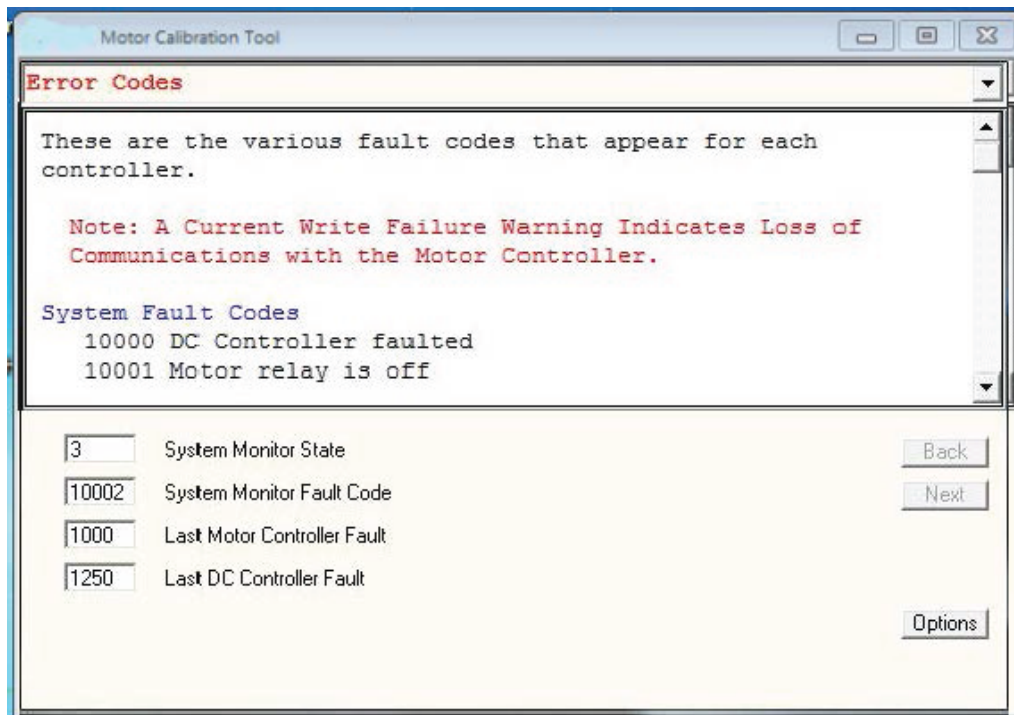
Important codes:

10002   - Normal code when hybrid is disabled.

10006   - Ground Fault has occurred.

10007   - DC Controller faulted. Likely bad controller.

10050   - Actuator power is absent.

10051   - Actuator timeout. May get 10050 first.

See Hybrid Troubleshooting Supplement for more information.