MTD ENGINES (Cub Cadet)

Models Affected:	**9Q78HU, 9Q78HUA, 9Q78HUB, 9Q78XU, 9Q78XUA** Cub Cadet EFI 679cc Twin Cylinder Engines
Serial Number Range Affected:	All Production Engines
Date:	October 31, 2018 **Revised April 30, 2019 (Please Destroy All Previous Copies)**
Subject:	**Engine Surge When Deck/PTO Is Engaged** **FIX-AS-FAIL**

NOTE: *These materials are prepared for use by trained technicians who are experienced in the service and repair of equipment of the kind described in this publication, and are not intended for use by untrained or inexperienced individuals. Such individuals should seek the assistance of an authorized service technician or dealer.*

NOTE: *Always wear eye protection while servicing equipment. Wear hearing protection when appropriate. Always work in a well ventilated area and follow all safety precautions when dealing with combustible materials.*

NOTE: *Left (LH) and Right (RH) sides are determined from the operator's position and facing in the forward direction.*

PURPOSE:

This Advisory is to inform the dealers of a service map available for download and instructions for addressing symptoms of an engine surge that occurs every minute or so when the Deck/PTO is engaged.

If you have a customer experiencing a surge situation every minute or so when the Deck/PTO is engaged as shown in the graph in Figure 1. **NOTE:** *Reviewing the data records is the best way to diagnose the issue.*

Notice that at the 2nd closed point the O2 voltage swings from ~0.8V to ~0.1V and the engine rpm speed has sharp changes of ~300rpm or more.
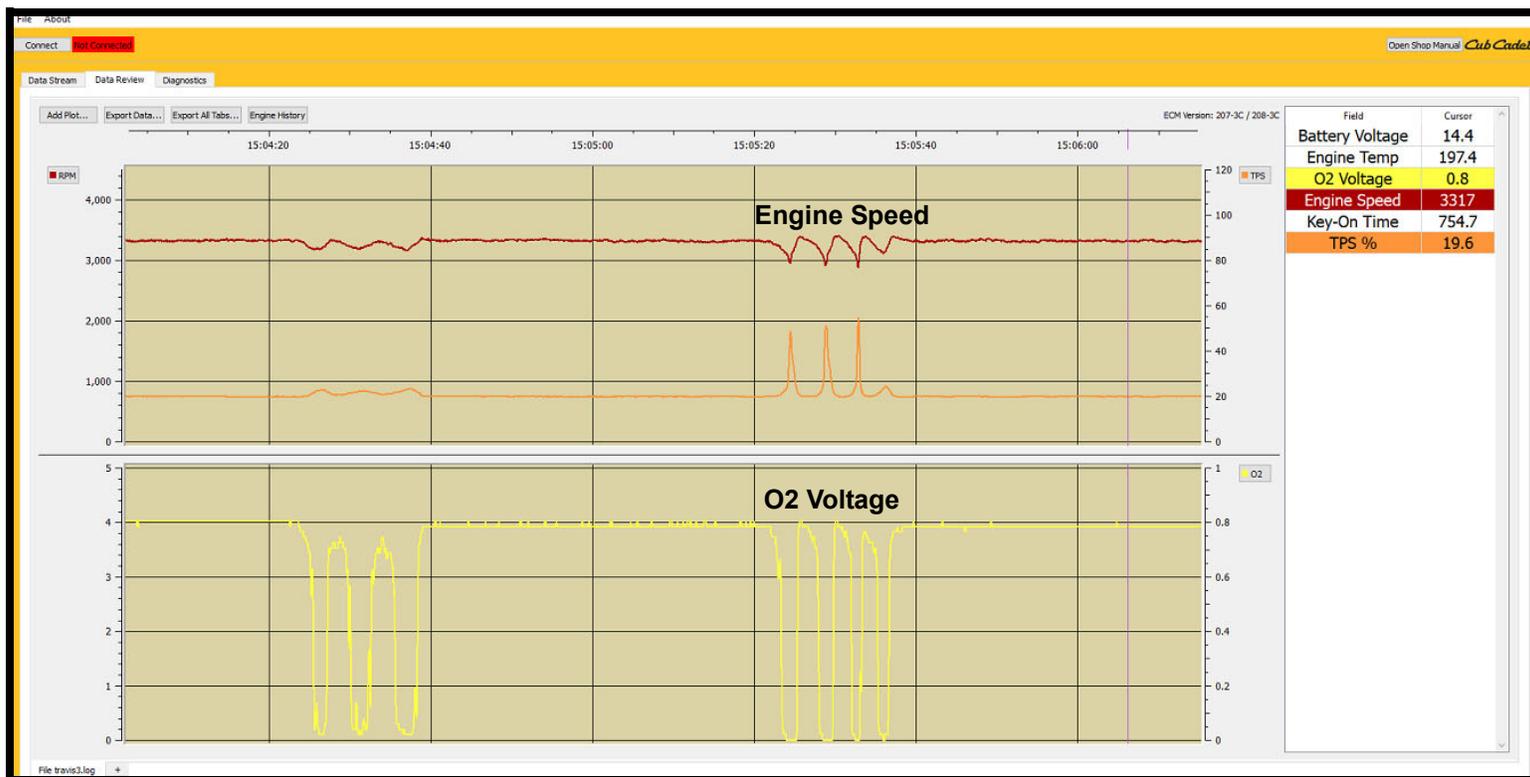

FIGURE 1

ACTION REQUIRED:

To alleviate the troublesome surge complaint from your customers follow the steps outlined in this Service Advisory.

1. Follow the instructions attached with this Service Advisory "**Flashing and UPDATE to current Map Instructions**" for downloading the new engine configuration file within the Cub Cadet Service Tool folder on the C: drive of your computer.
NOTE: *The new engine configuration file* (207-3C_208-6e_C.XML) *is available within Salesforce Knowledge Article #000011028 / CC-1009A under the "Information Tab", File2.*

NOTE: If needed see Article #000009052 "Cub Cadet EFI Engine Diagnostic Information" for helpful documents.

2. After completing Step 15, test run the tractor.

3. Submit a Warranty Claim for 0.7 Hrs. labor only. This includes diagnostic time.

4. Use part number **951-05310A** as the failed part. Check the box for "repaired"

Warranty: Normal warranty terms apply. Indicate Service Advisory **CC-1009A** and **951-05310A** as the original failed part on the claim. Repair time allowance is **0.7** Hrs.

Mandatory>>>When completing the warranty claim, select the drop down text shown below for the following claim fields:

GROUP CODE: New Service Parts   **FAIL CODE:** Adjustment

WORK PERFORMED: (Type-In) Install New Engine Configuration File

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| SERVICE MANAGER	PARTS MANAGER	SALES MANAGER	SERVICE TECH.	SERVICE TECH.

Circulate and Initial

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# Flashing an UPDATE to current Map Instructions

Using the Cub Cadet Service Tool with Same Firmware

1. **Save the NEW Engine Config File within the Cub Cadet Service Tool folder on the C: drive.**
   a. First copy and paste the New Config File onto your desktop (either received via Email or Dealer Network).
   b. Now, open File Explorer and left click over to open C: drive, then Program Files, then Cub Cadet Service Tool, then Config Files. (C:\Program Files\Cub Cadet Service Tool\Config Files).
   c. Copy the new config file from your desktop to this Config Files folder.
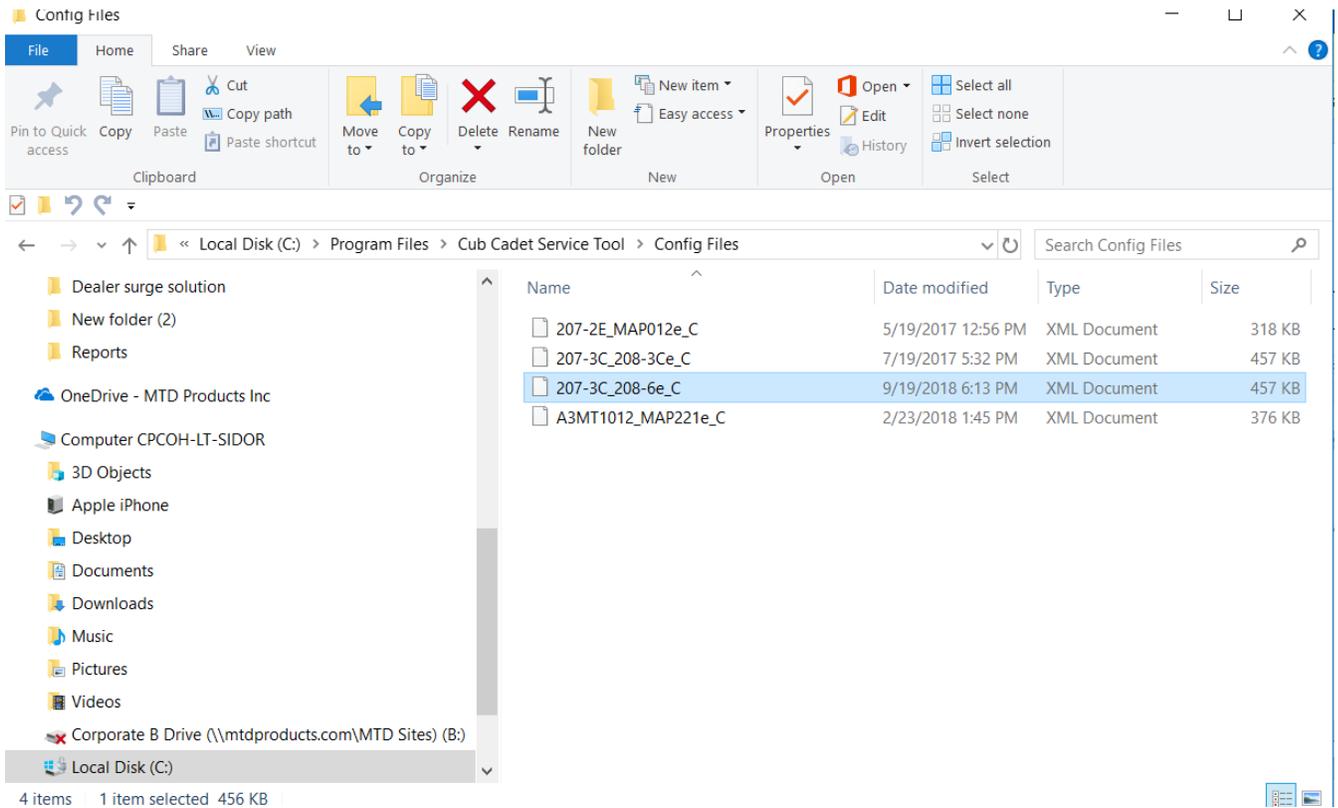
2. **Load the NEW Engine Config File in the Cub Service Tool**
   a. Open the Cub Cadet Service Tool and left click on File, then Manage Engine Configs….
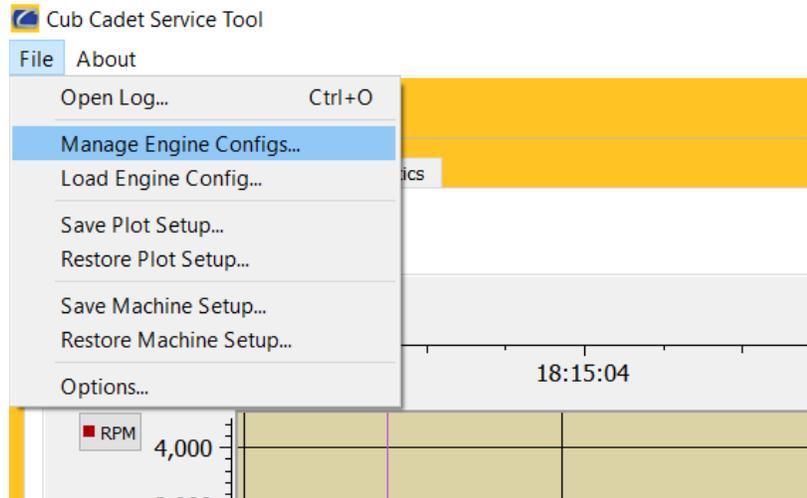
   b. This will open the pop-up window for the Configuration File Manager. Showing should be any MTD single & twin Firmware/Map than had been previously loaded
      i. Example: 207-3C / 208-3C (Firmware / Map).
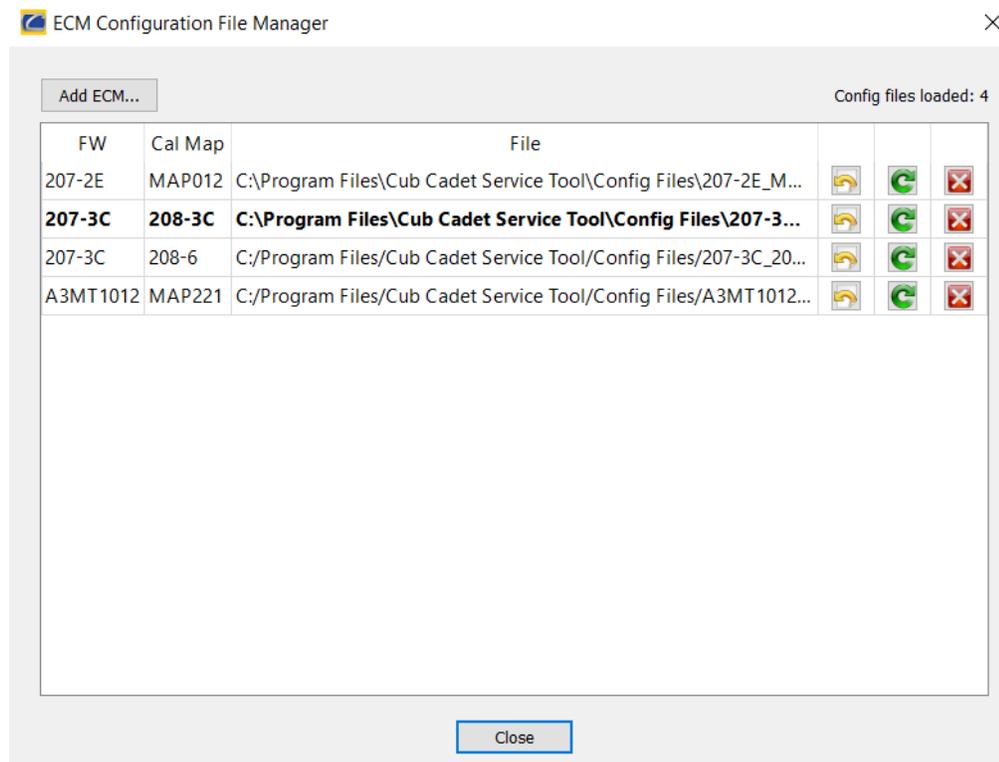
c. Left click the "Add ECM…" button and select the new file that was saved to the "Config" folder in step #1 and select Open.
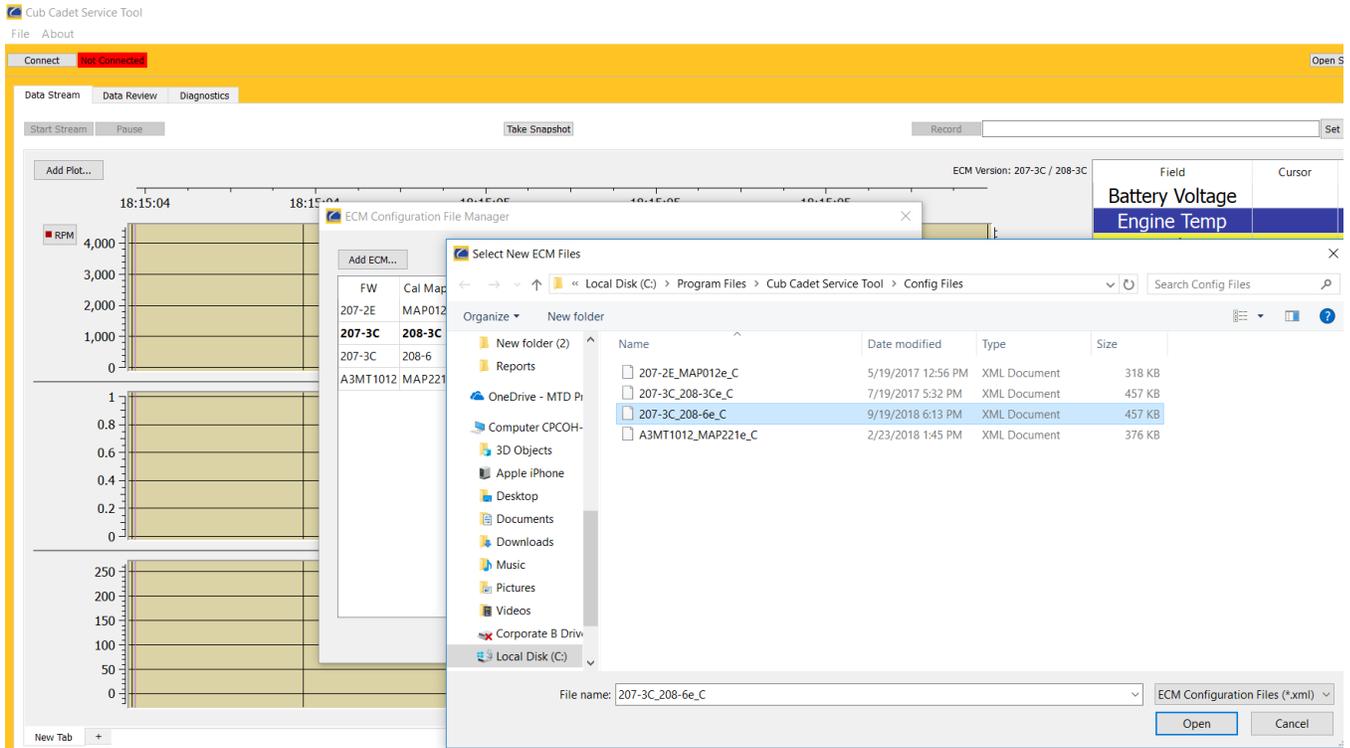

d. This will open a pop-up window confirming that loading the file was successful. Hit "OK" to close the pop up, and "Close" to get back out of the Configuration File Manager window.
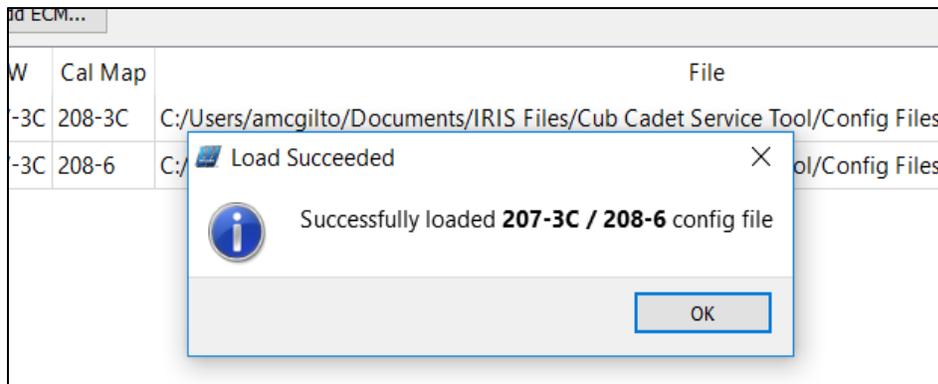
3. **Connect data cables to tractor (For Programming ECM ONLY – Use all 3 connectors).**
   a. Make sure to connect the small and large six pin connectors. The large six pin installs in line with tractor harness.
   b. The cable module has 4 LEDs. The white LED will be on once the harness is plugged into the tractor side.
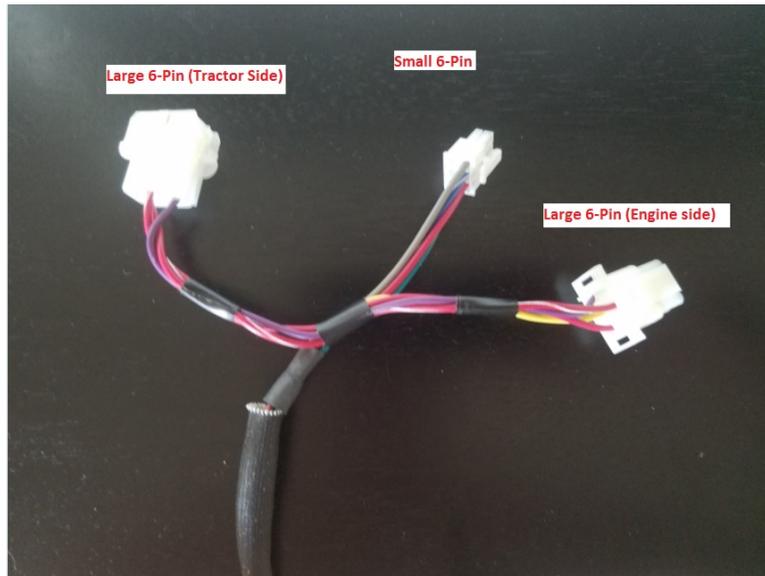
4. **Connect USB to computer**
   a. The Green LED on the module will now be on.

5. **Turn tractor on to diagnostic mode**
   a. Press and hold the start and "mow-in-reverse" button on the push button start module for 30 seconds. The display will show 4 numbers and reverse mow light come on followed quickly by a series of zeros and ones (0100 for example). Release buttons.
   b. The Yellow LED should be on at the diagnostic cable module (signals ignition is on).

Example of LED lights on module

6. Open Cub Cadet service tool software

7. Press connect (top left of screen) to start communicating with ECM
   a. The box next to the button should turn green and say "Connected" after a successful connection is made.
   b. If connection is unsuccessful, try the following
      i. Close and Reopen the Cub Cadet diagnostic program and retry.
      ii. Next try; Click File, Options, serial port, and try from the dropdown menu a port that has FTDI.
   iii. Call the service desk.
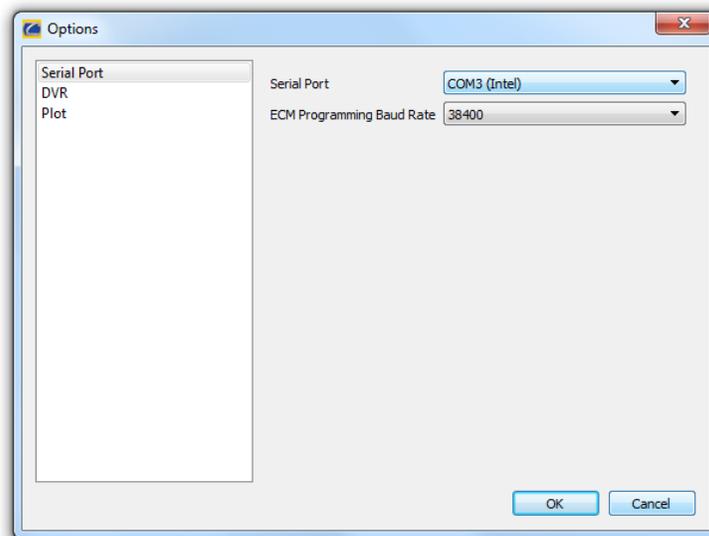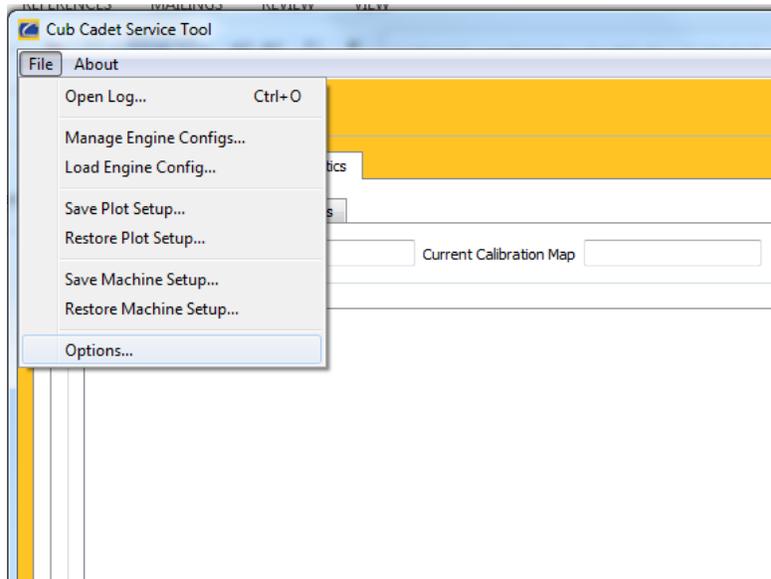
8. Click on the "Diagnostics" tab

9. Highlight the desired map to install – in this case select the newly added software (one example would be the 679cc Vtwin EFI dealer update 207-3C/208-6)

10. Press update
   a. A window will pop up asking to confirm the red LED is lit on the diagnostic module and to cycle the power to the ECM. **DO NOT PRESS OKAY.** Perform next step prior to pressing okay
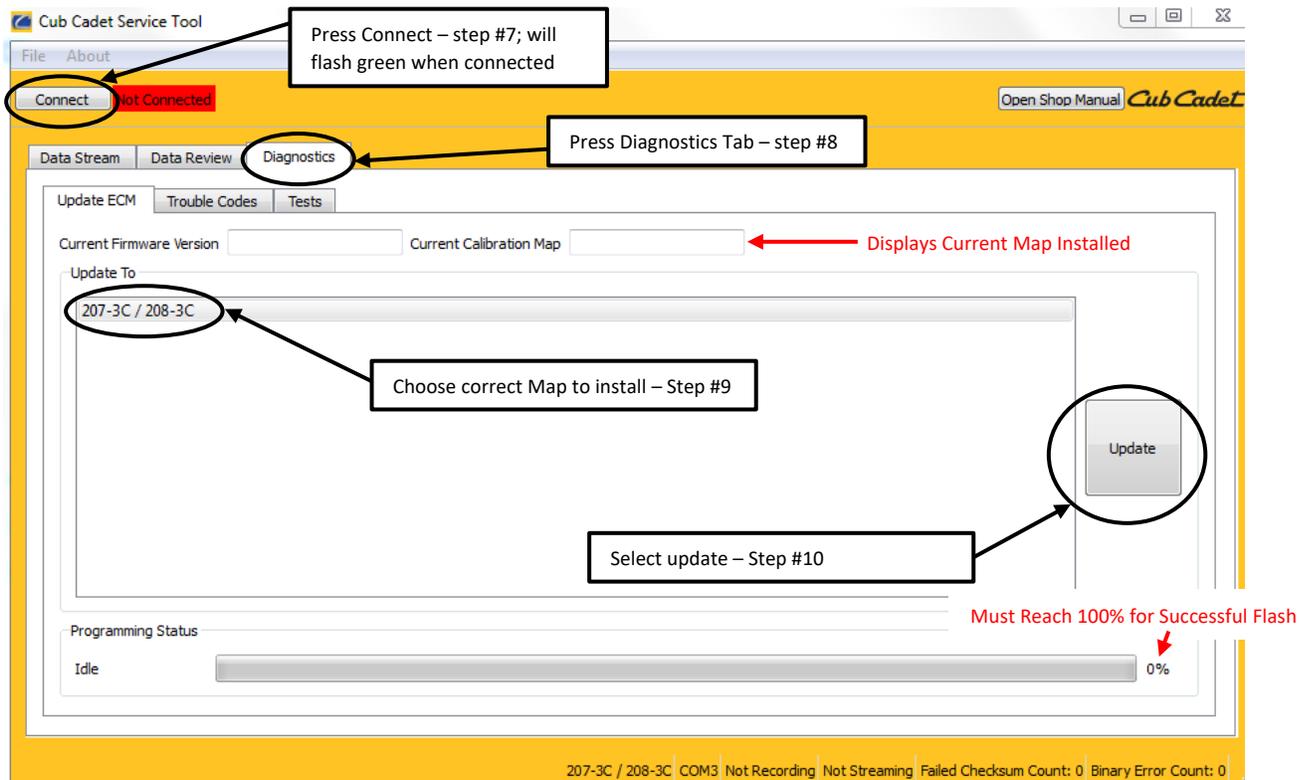
11. Cycle power to ECM
   a. To cycle the power simply pull the push button start key out and repeat step 5 (Turn tractor on to diagnostic mode).

12. Press "Okay" in the window that appeared in step 10
   a. At this point the status bar at the bottom of the Cub Cadet Service Tool window will begin to show progress of the update. DO NOT TOUCH ANYTHING UNTIL COMPLETE.
      i. Accidental destruction of ECM could occur if power is removed at this time.
      ii. Also the ECM will show Not Connected while programming, which is OK.

13. **Once new Map is successfully installed, it will ask to Power Cycle the ECM (repeat step 11)**
    a. **Reconnect to ECM (step 7)**

14. **Confirm map was updated by viewing the "Current Calibration Map" window on the diagnostic tab**
    a. See picture from Step 11.

15. **To START the engine, remember to unplug the Large 6 pin wires from the diagnostic cable and only use the small 6 pin connector.**
    a. Review this in Cub EFI Service Tool Record Data Instructions.
    b. Live stream and monitor engine RPM
    c. Allow engine to warm-up and check Low Idle setting on Throttle Body Itself.
        i. Set dash throttle to Turtle position.
        ii. Hold Throttle Body throttle lever closed (per picture below, so touches stop screw) and rotate screw to set Low idle speed between 1600 RPM and 1700 RPM. Idle may increase when releasing finger due to governed idle setting at control panel and is acceptable. Total range is 1600 to 1900 rpm by design.