



# AUTOCAL V3



### Table of Contents

<b>TOPIC</b>	<b>PAGE</b>
Cummins Tune Loading	<b>3</b>
Duramax Tune Loading	<b>4</b>
2001-2010 Duramax DSP5 Switch Installation	<b>5-7</b>
DSP5 Switch Trouble Shooting	<b>7</b>
2.8L Duramax Tune Loading	<b>8</b>
Cummins or Duramax Pass Through Tune Flashing	<b>9</b>
Cummins or Duramax Reading and Clearing Codes	<b>9</b>
EFILive Error Code Descriptions and Fixes	<b>10-11</b>
Contact Information	<b>12</b>

## Cummins Tune Loading Instructions

AUTOCAL tune installation requires the ability to follow instructions, and is a beginner level installation. Installation videos can be viewed on our website under the Product Installation section. In order to install your tune you will need the following items: AUTOCAL, and OBD2 cable.

**WARNING: DO NOT SELECT FORMAT FILE SYSTEM.** If you do it will result in you deleting your tune files. Please **remove your boost fooler, pressure boxes, and any other aftermarket electronics** that are installed on your truck. It will negatively affect your trucks performance with our product.

**To put your truck back to stock simply flash your stock tune into your truck.**

<u>5.9L/6.7L 2006-2009</u>	<u>6.7L 2010 to 2012</u>	<u>6.7L 2013 to 2020</u>
<p><b>Installation:</b></p> <ol style="list-style-type: none"> <li>1. Turn the key to the run position (truck not running)</li> <li>2. Plug the AUTOCAL into your truck using the OBD cable</li> <li>3. Toggle to <b>Tuning Tool</b>, press <b>OK</b></li> <li>4. Toggle to <b>Program Full</b>, press <b>OK</b></li> <li>5. Toggle through the tune files to select your CSP tune or single tune, press <b>OK</b></li> <li>6. Follow the licensing and flash instructions from there. You will select OK for remainder of the questions.</li> <li>7. Once the tune has completed flashing the AUTOCAL will read Turn Ignition Off Now.</li> <li>8. Turn your ignition off and press the OK button</li> <li>9. Wait for the countdown to end, and unplug your AUTOCAL unit.</li> <li>10. Plug CSP switch into OBDII Port to select your tune (if provided).</li> </ol>	<p><b>Installation:</b></p> <ol style="list-style-type: none"> <li>1. Turn the key to the run position (truck not running)</li> <li>2. Plug the AUTOCAL into your truck using the OBD cable.</li> <li>3. Toggle to <b>Tuning Tool</b>, press OK.</li> <li>4. Toggle to <b>Program Full</b>, press OK.</li> <li>5. Toggle to the Unlock file (RSA Patch file) and press <b>OK</b>.</li> <li>6. The Auto Cal will ask you if you would like to License ECU now. Press <b>OK</b> and allow the truck to be programmed.</li> <li>7. When the AUTOCAL has finished programming it will tell you to turn ignition off now, do so and press <b>OK</b>. Once the countdown completes you will see <b>Program Full</b>.</li> <li>8. Turn Ignition back to run position (engine not running).</li> <li>9. Press <b>OK</b> on <b>Program Full</b> and select the tune that you would like to load into the truck.</li> <li>10. When the AUTOCAL finishes the programming it will tell you to turn ignition off now; do so and press <b>OK</b>. Once the countdown completes you can disconnect the AUTOCAL.</li> <li>11. Plug CSP switch into OBDII Port to select your tune (if provided).</li> </ol>	<p><b>Installation:</b></p> <ol style="list-style-type: none"> <li>1. Turn the Key to the run position (truck not running)</li> <li>2. Plug the AUTOCAL into your truck using the OBD cable</li> <li>3. Toggle to <b>Tuning Tool</b>, press OK.</li> <li>4. Toggle to <b>Program Full</b>, Press OK.</li> </ol> <p>Toggle to the desired tune that you would like to load, press OK.</p> <ol style="list-style-type: none"> <li>5. The Auto Cal will go through a quick checking process and then ask you if you would like to License ECU now, Press <b>OK</b>.</li> <li>6. When the AUTOCAL finishes the programming it will tell you to turn ignition off now; do so and press <b>OK</b>. Once the countdown completes you can disconnect the AUTOCAL.</li> <li>7. Plug CSP switch into OBDII Port to select your tune (if provided).</li> </ol> <p><b>Note: 2018+ trucks will require the installation of the by-pass cable before flashing</b></p>

If you encounter any error messages or incomplete flashes, do not panic. Dodge ECM's are incredibly difficult to kill. Shut the key off for 15 seconds and then start back at step 1. If you have more than 3 incomplete flashes in a row, please contact us at the number listed at the back of this manual.

Any tune can be loaded on top of any other tune. There's no need to unload, read, etc

## Duramax Tune Loading Instructions

AUTOCAL tune installation requires the ability to follow instructions, and is a beginner's level installation. Installation videos can be viewed on our website under the Product Installation section. In order to install your tune you will need the following items: AUTOCAL, and OBD2 cable.

**WARNING: DO NOT SELECT FORMAT FILE SYSTEM.** If you do it will result in you deleting your tune files. Please **remove your boost fooler, pressure boxes, and any other aftermarket electronics** that are installed on your truck. It will negatively affect your trucks performance with our product.

**To put your truck back to stock simply flash your stock tune into your truck.**

### 2001-2016 Duramax 6.6L and 2016-2020 2.8L

#### **Installation:**

1. Turn the key to the run position (truck not running)
2. Plug the AUTOCAL into your truck using the OBD cable
3. Toggle to **Tuning Tool**, press **OK**
4. Toggle to **Program Full**, press **OK**
5. Toggle through the tune files to the tune you would like to load, press **OK**
6. AUTOCAL will ask you if you would like to license ECU now, press **OK**
7. Once the programming completes the Auto Cal will tell you to turn ignition off now; do so and press **OK**.
8. Once the countdown completes you can disconnect your AUTOCAL.

The **DSP5** or **LPS** switch can be installed before or after the tune is flashed.

It is important to test that the truck runs prior to loading the tunes once your switch is installed.

If your truck does not run, please check your ECM connections.

Your tunes are in the following positions (6.6L):

- 1: Optimized Stock
- 2: Heavy Tow
- 3: Light Tow
- 4: Sport Economy
- 5: Race or Max Effort.

Your tunes are in the following positions (2016-2018 2.8L):

- 1: Optimized Stock
- 2: Heavy Tow
- 3: Sport Economy
- 4: Race

The tune been calibrated for tire size as well as any other modifications to your vehicle.

## 2001-2010 Duramax DSP5 Switch installation Instructions

DSP5 installation requires a general knowledge of tools, and is a beginner's level installation. Installation videos can be viewed on our website under the Product Installation section. In order to install your DSP5 switch you will need the following items: Drill, 25/64 drill bit, ½ socket, 3 foot guide wire for pulling wire through the firewall, electrical tape, and a screwdriver. LB7 only: 7mm socket and wrench.

1. Open your hood and locate your ECM.
  - a. ECM can be found near the battery located at the front driver side of the engine compartment.
  - b. **Warning: Make sure you do not remove the TCM unit marked Allison.**
2. Disconnect the ECM harness from the ECM and remove your stock ECM.
  - a. LB7 will need a 7mm socket to remove ECM harness.
3. Place your ECM in a safe spot.
4. Locate the hood release grommet found on the driver side fire wall.
  - a. It is a small rubber grommet located roughly 6 inches down from the hood at the firewall and 4 inches to the left of the driver side fender.
5. Pull the grommet out.
6. Run your guide wire through hole into cab.
7. Locate guide wire under dashboard.
8. Use electrical tape to secure the DSP5 wires to the guide wires.
9. Carefully pull the guide wire through the hood latch hole into the engine compartment.
10. Make sure that you have enough wire on the engine compartment side to run the wires into the ECM harness.
11. Use the conduit provided with your DSP5 switch to protect the switch wires from heat.
12. Carefully put the hood latch grommet back in place around the DSP wires.
  - a. It helps to make a small cut in the grommet for the wires to run through.
13. Place the pins into the harnesses as so:

LB7	LLY	LBZ and LMM
<ol style="list-style-type: none"> <li>1. Now locate the blue connector on the ECM harness. Use a small flat head screw driver to remove the top gray cover. Be gentle with this piece it is prone to breaking and can be difficult to remove at first.</li> <li>2. Once the gray protector is removed find pin hole #49 and pin hole # 69. If you look closely you will see the numbers printed on the ECM connector.</li> <li>3. Now remove the blue covers on the wire pin</li> </ol>	<ol style="list-style-type: none"> <li>1. Now locate the gray connector on the ECM harness and make sure it is in the open position.</li> <li>2. Using a small flat head screw driver remove the top black cover by wedging the two tabs out of their place.</li> <li>3. Now remove the black cover.</li> <li>4. Locate the Pin holes that the switch pins will go into purple wire hole #32, black hole #50.</li> <li>5. Remove the teal colored slide that locks the pins in place. After this is</li> </ol>	<ol style="list-style-type: none"> <li>1. Now locate the larger connector on the ECM harness and make sure that it is in the closed position. With a small screwdriver remove the cover on the ECM harness.</li> <li>2. Remove the purple slide that is holding the existing pins into the ECM harness.</li> <li>3. Locate the Pin holes that the switch pins will go into purple wire hole #46 ,Black wire hole #54</li> <li>4. Push the DSP5 switch pins into the correct</li> </ol>

<p>side. Do so by using a small flat head screw driver to push the tabs in on both sides of each blue cover as shown in the picture.</p> <ol style="list-style-type: none"> <li>4. Locate the Pin holes that the switch pins will go into blue wire hole #49, black hole #69 and install wires.</li> <li>5. Make sure that they push all the way through and lock into position so they appear just as all the others do.</li> <li>6. Put the blue covers back onto the ECM harness.</li> <li>7. Reconnect the gray cover on the top of the ECM harness.</li> <li>8. Reconnect the ECM harness to the ECM. Be sure to put the blue connector on first and then put the clear connector on after.</li> <li>9. To test the switch turn your key to the Run position.</li> <li>10. Press the button located on the back of your DSP5 switch.</li> <li>11. If the indicator light appears on the back of your switch it is installed correctly.</li> <li>12. If you do not see a light please repeat steps 2-10 double checking the installation.</li> <li>13. If you are still having issues go to the DSP5 Switch Trouble Shooting section.</li> </ol>	<p>removed be very careful not to pull on the connector and disconnect and existing wires.</p> <ol style="list-style-type: none"> <li>6. Remove the light blue pin hole covers that are currently in the pin holes that your switch pins will go into.</li> <li>7. Push the DSP5 switch pins into the correct holes. Be sure that you push them in all the way to the bottom of the ECM harness.</li> <li>8. Reinsert the teal pin lock.</li> <li>9. Reconnect the black cover to the ECM harness.</li> <li>10. Reconnect the ECM harness to the ECM. Make sure that you start with the gray connector, then the black connector and then the blue connector last.</li> <li>11. To test the switch turn your key to the Run position.</li> <li>12. Press the button located on the back of your DSP5 switch.</li> <li>13. If the indicator light appears on the back of your switch it is installed correctly.</li> <li>14. If you do not see a light please repeat steps 2-12 double checking the installation.</li> <li>15. If you are still having issues go to the DSP5 Switch Trouble Shooting section.</li> </ol>	<p>holes. Be sure that you push them in all the way to the bottom of the ECM harness.</p> <ol style="list-style-type: none"> <li>5. Reinsert the purple slide into the ECM harness.</li> <li>6. Reconnect the cover of the ECM harness.</li> <li>7. Reconnect the ECM harness to the ECM. Make sure you attach the larger connector to the ECM first followed by the smaller connector.</li> <li>8. To test the switch turn your key to the Run position.</li> <li>9. Press the button located on the back of your DSP5 switch.</li> <li>10. If the indicator light appears on the back of your switch it is installed correctly.</li> <li>11. If you do not see a light please repeat steps 2-9 double checking the installation.</li> <li>12. If you are still having issues go to the DSP5 Switch Trouble Shooting section.</li> </ol>
--	---	---

14. Find the spot that you want to mount your switch.
15. If you need to remove your dashboard do so by removing the small screw located at the lower lip of your dashboard.
16. Reach into the space between the base of your steering column and dashboard.
17. Confidently pull your dashboard until it releases from the truck.
18. Dry fit the switch to make sure you are drilling in a spot the switch will fit.
19. Drill your hole.
20. Remove the nut from the switch.

- a. Be sure the washers don't fall out. If they do place the washer with the tab on the bottom with the tab located in between the 5 and 6 location.
21. Push the switch post into the drilled hole.
22. For DSP5 switches, place the tune indicator sticker around the switch post.
  - a. Be sure the indicator on the switch knob matches to the indicator numbers.
23. Install the nut back on the switch.
24. Place the switch knob on the post and use the Allen key to secure.
25. Reinstall the plastic piece or dashboard.

### **DSP5 Switch Trouble Shooting**

There is a noticeable difference between tune 1 and tune 5. If you do not notice a difference it could be due to the pins not being seated all the way in the harness, pins are in the wrong hole, or the switch is faulty. Here are the trouble shooting steps. Trouble shooting videos can be found on our website at: [www.durma.com](http://www.durma.com) Items required are: DSP5 switch, AUTOCAL or V2, and Ohms meter.

1. To verify that your DSP5 switch is working turn your key to the run position (truck can be running).
2. Plug the AUTOCAL into your truck using the OBD cable.
3. Select Scan Tool and hit **OK**.
4. Choose select PIDs and hit **OK**.
5. Toggle down to your trucks model (LB7-AL5, LLY-AL5, LBZ-AL6, LMM-AL6) and hit **OK**.
6. Toggle down to Display Data and hit **OK**.
7. Toggle down through the PID's to find the DSP5 tune display.
8. Make sure the DSP# switches when you move your rotary selector.
9. If the DSP# does not switch, check your connections in the ECM harness.
10. If the DSP5 switch is hooked up properly and you are still getting no switching perform an ohms test on the switch.
11. Hold or tape each end of your ohms tester to the pins located at the end of each of the DSP5 wires
12. Place your ohms meter to any of the resistance settings under the  $\Omega$  section.
13. Turn your DSP5 switch through the five positions and you should see a change in resistance
14. If you do not, please contact us so we can resolve your issue.

## **Cummins or Duramax Pass-Through Tune Flashing**

Pass through tune flashing is only needed if you are unable to flash a tune on with the AUTOCAL hardware, and have performed all required trouble shooting and updates. A moderate level of computer competency is required to perform this task.

Items required: Truck, AUTOCAL or Flash Scan V2, OBD2 cable, USB cable, Efilive software (free download at [efilive.com](http://efilive.com)) and a windows based laptop computer.

1. Make sure your V2 is updated with the latest software from [efilive.com](http://efilive.com).
2. Connect the V2 to your truck and your laptop using the cables that were supplied with your V2
3. Open the Scan and Tune Tool
4. Press the F3 key
5. Turn the key to the run position
6. Press auto detect on the Scan and Tune Tool
7. Once the computer has recognized your truck press the open button in the bottom left hand side of the screen
8. Find the tune that you want to run and select it.
9. Press F7
10. Press license controller
11. Select OK for everything
12. Next select full flash
13. Select OK for everything and this will load your tune

## **Cummins or Duramax Reading Trouble Codes**

Used if your check engine, or other dashboard light comes on. This is a very basic task and can be done by anyone. Items needed: AUTOCAL or Flashscan, and OBD2 cable

1. Plug your AUTOCAL into your OBD2 port
2. Scroll down to the Trouble Code option and press OK
3. Scroll down to Display All DTC's and press OK
4. Press next to toggle through your DTC's
  - a. Please note, due to modifications on the truck trouble codes may be present even though you do not have a check engine light on. This is by design. The only codes that could be harmful, and we are concerned about are the ones that cause the check engine light to go on. If your truck shows codes, but is running acceptably, and does not have a check engine light, there is no cause for concern.

## **Cummins or Duramax Clearing Trouble Codes**

Used to clear check engine, or other dashboard lights. This is a very basic task and can be done by anyone. Items needed: AUTOCAL or Flashscan, and OBD2 cable

1. Plug your AUTOCAL into your OBD2 port
2. Scroll down to the Trouble Code option and press OK
3. Scroll down and select Display Cur DTCs or Clear DTC's and press OK
4. Press OK when you are asked if you are sure



## EFI Live Trouble Code Descriptions and Fixes

Code	Reason	Cause	Action
\$0281	No data received or key is not in the run position	FlashScan or AUTOCAL did not receive valid data from the connected vehicle.	Check all cables and connections. Make sure ignition is turned on to the run position. Make sure the vehicle is supported by EFILive. Remove all aftermarket electronics.
\$050B	Script file not supported by current firmware version	The script file uses features not available in the current firmware.	Update your Firmware and BBX settings. See Update AUTOCAL firmware and settings section in manual.
\$0502	BBX settings have been corrupted	The script (*.obj) file does not exist on the device. You will need to load new BBX settings on your AUTOCAL.	Update your Firmware and BBX settings. See Update AUTOCAL firmware and settings section in manual.
\$0533	No VIN-license slots available.	An attempt was made to license a controller when no free VIN licenses slots were available.	Additional VIN license slots can be purchased for FlashScan devices from MotorOps or MotorOps. See our license ordering and loading video in the customer service section of our websites.
\$0535	AutoCal is not yet linked to a FlashScan. See also error \$010D	An attempt was made to program a controller using an AutoCal device that has not yet been linked to its parent FlashScan device.	All AutoCal devices must be linked to a parent FlashScan device before they can be used to re-flash any controller. Please contact customer support

\$0536	Tune file is not registered to this AutoCal device.	An attempt was made to program a controller with a tune file that is not linked to this AutoCal device.	AutoCal devices may only be used to flash tune files that have been specifically created for that AUTOCAL device. Please contact customer service to resolve this issue.
\$0537	Controller is locked with a custom key.	An attempt was made to read or program a controller that cannot be unlocked using the standard GM keys.	If you know the truck has been tuned before contact the tuning company to have your ECM unlocked. A locked ECM will not accept a tune from anyone until it has been unlocked. If you can't get your ECM unlocked you will need to purchase another ECM.
\$0548	Flash checksum failed.	The data programmed into the controller has been corrupted.	Retry the flash procedure.
\$0549	Ignition is switched off.	Ignition switch must be in the on position.	Switch on the ignition and retry the operation.
P0633	SKIM Key Code	Result of tuning. Non-harmful and will not cause the check engine light to turn on.	This is found on all 5.9L Cummins trucks that are tuned with our calibration. It is not harmful and to be expected.

If you cannot find your trouble code listed here, please contact customer service for help.



## **Contact Information**

Motor Ops  
35 Rue Adrian-Robert  
Gatineau, Quebec J8Y 3S3 Canada  
(866) 867-1593  
[info@motorops.ca](mailto:info@motorops.ca)