

SPADE

Standalone Programming And Diagnostic Equipment



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Please see the Product Installation section of our website for full installation videos

www.duramaxtuner.com/installation.html

www.cummins-tuner.com/installation

Calibrated Power Solutions

About Us: Calibrated Power Solutions Inc. is a data driven, market leading tuning business. We are dedicated to providing high-quality engine calibrations that represent the best mix of drivability, reliability, and power available within the performance automotive aftermarket. We keep our edge by encouraging innovation. We drive and verify

results by employing expert staff, who are equipped with the best tools in the business. We view ourselves as prompt, reliable professionals who deliver. CPS aims to establish a nationally recognized standard in our market for product quality and service delivery.

About our Tuning: Balancing power, heat, drivability and efficiency is something that takes time and a solid understanding of engine dynamics. Those who plan on running their trucks loaded for an extended period of time should take care to match their tuning and parts closely to the application. Calibrated Power Solutions understands your need for reliable, powerful, and consistent power delivery. We've designed our business and facilities around making it a reality. Contact us for custom tuning and parts combinations geared to your needs and thank you for your purchase.

Calibrated Power Solutions Staff

Cummins Tune Loading Instructions

SPADE 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: SPADE, 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, and pressure boxes if you have one installed on your truck. It will negatively affect your trucks performance with our product. Also **turn off or remove any aftermarket electronics. These can interrupt the flash process and cause tune loading issues.**

Modified Tune Installation

<u>2006-2009 Cummins</u>	<u>2010-2012 Cummins</u>	<u>2013-Present Cummins</u>
<p>Installation:</p> <ol style="list-style-type: none"> 1. Turn the key to the run position, truck not running. 2. Plug the SPADE into your truck using the OBD cable 3. Toggle down to Tuning Tool, press ok 4. Toggle to Program Full, press ok 5. Toggle down through the tune files to your CSP Tune, press okay 6. If you receive a code, please refer to the Cummins or Duramax Trouble Code Descriptions and Fixes section located in this manual. 7. Follow the licensing and flash instructions from there. 	<p>Installation:</p> <ol style="list-style-type: none"> 1. Turn the key to the run position, truck not running. (For push button start, put the truck into ACC ON mode) 2. Plug the SPADE into your truck using the OBD cable 3. Toggle down to Tuning Tool, press ok 4. Toggle to Program Full, press ok 5. Toggle down through the tune files to the RSA Patch Tune, and press okay 6. If you receive a code, please refer to the Cummins or Duramax Trouble Code Descriptions and Fixes section located in this manual. 7. Follow the licensing and flash 	<p>Installation:</p> <p>CAUTION: ECM must be unlocked for tune to be loaded. If you were unaware of this please contact us for more information.</p> <ol style="list-style-type: none"> 1. Put the truck into ACC ON mode, truck not running. (Foot off the break and press the start button.) 2. Plug the SPADE into your truck using the OBD cable 3. Toggle down to Tuning Tool, press ok 4. Toggle to Program Full, press ok 5. Toggle down through the tune files to your CSP Tune, press okay

<p>You will select OK for remainder of the questions. 8. Once the tune has completed flashing the SPADE will read Turn Ignition Off Now. 9. Turn your ignition off and press the OK button 10. Wait for the countdown to end, and unplug your SPADE unit.</p> <p>Tune Switching with SPADE: 1. Install your CSP tune 2. Plug the SPADE into your truck using the OBD cable 3. Toggle down to Scan Tool, press ok 4. Press OK on Select PIDs 5. Toggle to CMB and press OK 6. Press the Prev button until you are back to the Tuning tool and press OK 7. Toggle down to Switch Tunes 8. Toggle to your desired tune and press OK 9. If you get a Tune Switched Failed message reselect your tune</p>	<p>instructions from there. You will select OK for remainder of the questions. 8. Once the tune has completed flashing the SPADE will read Turn Ignition Off Now. 9. Turn your ignition off and press the OK button 10. Wait for the countdown to end, you will see a program full message 11. Press OK again on Program Full 12. Toggle down to your CSP tune file and press OK 13. If you receive a code, please refer to the Cummins or Duramax Trouble Code Descriptions and Fixes section located in this manual. 14. Your tune will begin to load on the truck 15. Once the tune has completed flashing the SPADE will read Turn Ignition Off Now. 16. Turn your ignition off, and press the OK button 17. Wait for the countdown to end. Once it is finished you can unplug the SPADE from the OBD2 port.</p> <p>Tune Switching with SPADE: 1. Install your CSP tune 2. Plug the SPADE into your truck using the OBD cable 3. Toggle down to Scan Tool, press ok 4. Press OK on Select PIDs 5. Toggle to CMB and press OK 6. Press the Prev. button until you are back to the Tuning tool and press OK 7. Toggle down to Switch Tunes 8. Toggle to your desired tune and press OK 9. If you get a Tune Switched Failed message reselect your tune</p>	<p>6. If you receive a code, please refer to the Cummins or Duramax Trouble Code Descriptions and Fixes section located in this manual. 7. Follow the licensing and flash instructions from there. You will select OK for remainder of the questions. 8. Once the tune has completed flashing the SPADE will read Turn Ignition Off Now. 9. Turn your ignition off and press the OK button 10. Wait for the countdown to end, and unplug your SPADE unit.</p> <p>Tune Switching with SPADE: 1. Install your CSP tune 2. Plug the SPADE into your truck using the OBD cable 3. Toggle down to Scan Tool, press ok 4. Press OK on Select PIDs 5. Toggle to CMB and press OK 6. Press the Prev. button until you are back to the Tuning tool and press OK 7. Toggle down to Switch Tunes 8. Toggle to your desired tune and press OK 9. If you get a Tune Switched Failed message reselect your tune</p>
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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

2006-2009 Cummins CSP Switch Installation

CSP 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. CSP In order to install your CSP switch you will need the following items: drill, 25/64 drill bit, ½ socket, and a screwdriver.

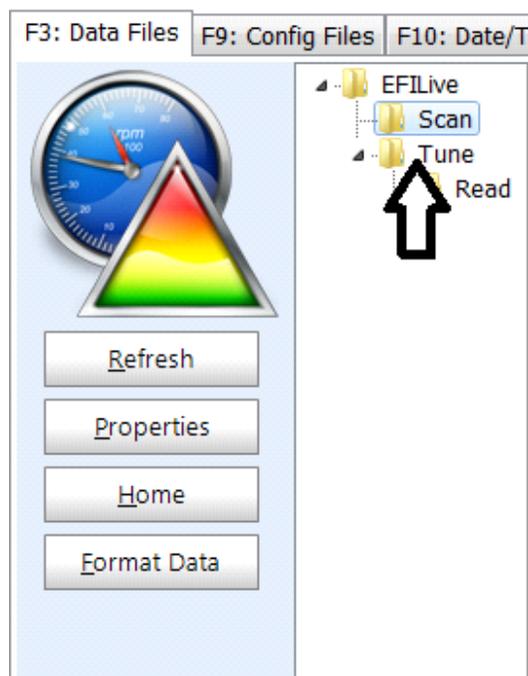
- Find the spot that you want to mount your switch.
 - We suggest the small removable plastic piece located just above your parking break release handle.
- If you need to remove your dashboard, do so by removing the small screw located at the lower lip of your dashboard.
- Reach into the space between the base of your steering column and dashboard.
- Confidently pull your dashboard until it releases from the truck.
- Dry fit the switch to make sure you are drilling in a spot the switch will fit.
- Drill your hole.
- Remove the nut from the switch.
 - 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.
- Push the switch post into the drilled hole.
- Place the tune indicator sticker around the switch post.
 - Be sure the indicator onto the switch knob matches to the indicator numbers.
- Install the nut back on the switch.
- Place the switch knob on the post and use the Allen key to secure.
- Plug the switch OBD2 cable in place and run it to the switches location.
- Plug the switch into the OBD2 cable.
- With the key in the run position turn the switch and look for a blue indicator light on the back of the switch.
- The amount of flashes represents the tune you are on. Please verify this is correct.
 - If the light does not flash, please unplug the switch and repeat steps 12 through 14. If this does not resolve the issue contact us.
- Reinstall the plastic piece or dashboard.

Cummins Datalogging Using Your SPADE

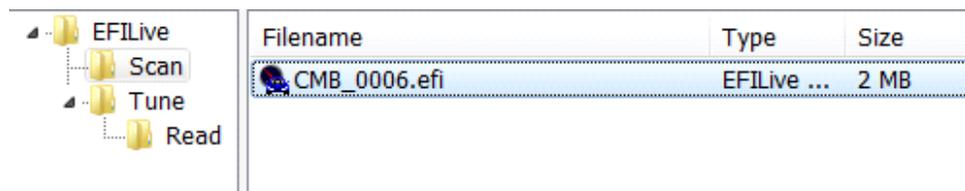
Datalogging records readings from your trucks factory sensors so tuners can see what is going on under the hood. Datalogging with your SPADE is a beginner level task. You will need to be moderately comfortable with a computer, and be able to download items from email and the internet. Items required: SPADE, OBD2 cable, USB cable, Efilive software (free download at efilive.com) and a windows based laptop computer.

- Plug your SPADE into your trucks OBD2 port.
- Start Truck
- Press OK on Scan Tool
- Press OK on Select PIDs
- Press OK on your proper RPO code
- Your PIDs will load and you will be brought to the Record Data screen
- Press OK

- Your SPADE is now recording your trucks sensor readings. Please drive your truck as needed.
- Once you have the data you require press the Prev button
- Select Exit to exit and save your data file.
- Turn truck off
- Take your SPADE to your computer and plug it in using the USB cable.
- Open the EFILive program called EFILive Explorer. (You will have to download EFILive V8 from efilive.com to have this program)
- Select the Scan folder.



- When your log is visible, left click, drag and drop your log onto your desktop



- Once your scan has been saved onto your desktop you can either email it to our staff, or view it on your own via EFILive Scan and Tune.
- If you are emailing your tunes for review stop here. If you are viewing your datalog please continue to read.

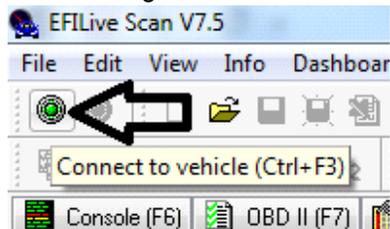
- To view your data log open the EFILive Scan and Tune program.
- Once open select the F2 Scan button or press the F2 key on your keyboard
- In the new window select the Open button with the picture of the folder, located in the bottom left hand side of the window
- Find and select the datalog file you wish to view
- A Select Controllers window will open up. Right click on the engine control button and select your truck models ECM.
- Select OK
- Select the F4 Charts button or press the F4 key on your keyboard

Cummins Datalogging using EFILive V7.5

This datalogging method shows your engine readings in real time on your laptop. This datalogging method is meant for customers who have an advanced knowledge of EFILive, and are very comfortable with computers. In order to data log your truck you will need the following items: Windows Laptop computer, EFI Live Version 8 or Version 7.5 software downloaded for free from efilive.com, your SPADE, and your USB and OBD2 cables

Instructions using EFI Live Version 7.5 scan tool:

- Go to cummins-tuner.com and download the free datalogging product from the customer service section. Installation instructions come with product
- Connect the USB cord into the port on bottom of your SPADE
- Connect the USB end of the cord into your laptop
- Connect the OBD 2 cable into your SPADE
- Connect the OBD 2 cable into the OBD2 port in your truck
- Open EFI Live V7.5 Scan Tool on your laptop
- Click on File and then click "Open", and then click on "Open PID Selection"
- Select the file titled "CMC2100.pid (6.7L), or CMB849 (5.9L)" and click Open. This gives you a generic layout of PIDs
- Turn your truck on or at least to the running position
- Click the "Connect to vehicle" button (or hold down the ctrl key and press the F3 key). This button is located right below "File". It is a gray circle with a green dot in the middle of it.



- Select the vehicle that you are monitoring
- Once you have successfully connected to the vehicle you can click the record button. This button is located in the lower portion of the screen in the middle. It is a solid red circle.
- Now take your truck out on a drive. Exercise caution and keep an eye on the road.

- Once you have completed data logging press the Stop button (Save as the record button)
- Be sure to save the file in a location you will be able to find it.
- Once you have saved the file you can open it up and review the data or send it to Calibrate Power for analysis.

6.6L Duramax Tune Loading Instructions

SPADE 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: SPADE, and OBD2 cable.

DO NOT SELECT FORMAT FILE SYSTEM. If you do it will result in you deleting your tune files. Please remove your electronic boost fooler, and pressure box if you have one installed on your truck. It will negatively affect your trucks performance with our product. Also **turn off or remove any aftermarket electronics. These can interrupt the flash process and cause tune loading issues.**

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

<u>2001-2010 Duramax</u>	<u>2011-Present Duramax</u>
<p>Installation:</p> <ol style="list-style-type: none"> 1. Turn the key to the run position (truck not running) 2. Plug the SPADE into your truck using the OBD cable 3. Toggle down to Tuning Tool, press ok 4. Toggle to Program Full, press ok 5. Toggle down through the tune files to the tune you'd like to load, press okay 6. The SPADE will check to make sure the ECM is available for flashing. 7. If you receive a code, please refer to the Cummins or Duramax Trouble Code Descriptions and Fixes section located in this manual. 8. The first time you load the tune your SPADE will ask you "License ECU?". Press OK, and when you are asked "Are you sure?" Press OK again. 9. The SPADE will now start to flash the tune on your truck. You will see various messages such as "checking, erasing, and flashing" This is normal. 10. Once the flash is complete the SPADE will display "Turn ignition off now". Turn the key into the off position, and press OK. 11. You will see a count down. Once the countdown is complete you can unplug the SPADE and start your vehicle. <p>The DSP5 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. If your tunes are loaded before you install your switch the truck default to the Optimized Stock tune. Your tunes are in the following positions: 1: Optimized Stock, 2: Heavy Tow, 3: Light Tow, 4: Sport Econ, 5: Race or Max Effort. For custom tune selection orders, please see your order confirmation for tune position.</p> <p>The tune been calibrated for tire size and the speed limiter has been removed.</p>	<p>Stock file Installation (You must flash the provided stock file before you can load your tunes. Once the stock file is flashed you do not have to flash it again, unless you are putting the truck back to stock):</p> <ol style="list-style-type: none"> 1. Turn the key to the run position (truck not running) 2. Plug the SPADE into your truck using the OBD cable 3. Toggle down to Tuning Tool 4. Toggle to Program Full 5. Toggle to the 'Stock' File and press okay 6. The SPADE will check to make sure the ECM is available for flashing. 7. If you receive a code, please refer to the Cummins or Duramax Trouble Code Descriptions and Fixes section located in this manual. 8. The first time you load the tune your SPADE will ask you "License ECU?". Press OK, and when you are asked "Are you sure?" Press OK again. 9. The SPADE will now start to flash the tune on your truck. You will see various messages such as "checking, erasing, and flashing" This is normal. 10. Once the flash is complete the SPADE will display "Turn ignition off now". Turn the key into the off position, and press OK. 11. You will see a count down. Once the countdown is complete you can unplug the SPADE and start your vehicle. <p>After the stock file from the SPADE has been programmed into the truck, you can load any of the tunes on your SPADE.</p> <p>To load your switchable LML tunes:</p> <ol style="list-style-type: none"> 1. Turn the key to the run position (truck not running) 2. Plug SPADE into your truck using the OBD cable 3. Toggle down to Tuning Tool, press OK

	<p>4. Toggle to Program Cal, select either your DFOff LSP5 or DFOOn LSP5 tune (DF = Defuel on/off), Press OK</p> <p>5. The Spade will check to make sure the ECM is available for flashing.</p> <p>6. The SPADE will now start to flash the tune on your truck. You will see various messages such as “checking, erasing, and flashing” This is normal.</p> <p>7. Once the flash is complete the SPADE will display “Turn ignition off now”. Turn the key into the off position, and press OK.</p> <p>8. You will see a count down. Once the countdown is complete you can unplug the SPADE and start your vehicle.</p> <p>To load your individual tunes:</p> <p>1. Turn the key to the run position (truck not running)</p> <p>2. Plug the SPADE into your truck using the OBD cable</p> <p>3. Toggle down to Tuning Tool</p> <p>4. Toggle to Program Cal, select by toggling which tune (Optimized stock, Heavy Tow, Light Tow, Sport Econ, Hot Street, or Race) you would like to run, press OK</p> <p>5. The SPADE will check to make sure the ECM is available for flashing.</p> <p>6. The SPADE will now start to flash the tune on your truck. You will see various messages such as “checking, erasing, and flashing” This is normal.</p> <p>7. Once the flash is complete the SPADE will display “Turn ignition off now”. Turn the key into the off position, and press OK.</p> <p>8. You will see a count down. Once the countdown is complete you can unplug the SPADE and start your vehicle.</p>
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2.8L Duramax Tune Loading Instructions

SPADE 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: SPADE, and OBD2 cable.

DO NOT SELECT FORMAT FILE SYSTEM. If you do it will result in you deleting your tune files. Please remove your electronic boost fooler, and pressure box if you have one installed on your truck. It will negatively affect your trucks performance with our product. Also **turn off or remove any aftermarket electronics. These can interrupt the flash process and cause tune loading issues.**

****** FOR 2016 2.8Ls PLEASE SKIP UNLOCK CODE RETRIEVAL AND GO TO READING YOUR STOCK FILE******

<p>Retrieving 2017 unlock authorization code</p> <ol style="list-style-type: none"> 1. Attempt to read your ECM (E98). You will have a \$0552 error code pop up. This is normal. 2. Plug Spade into computer and open EFILive Scan and Tune (found on EFILive.com) 3. Select F3: Tune 4. In new window, select F8: Authorization 5. Highlight the line containing your VIN, serial number, and authorization code. 6. Press copy code on the bottom of the window. 7. Paste info into email body. Please send info to stockfile@duramaxtuner.com and include name on the order, VIN, and unlock code in the subject line of the email.
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Unlocking ECM once code is sent back

1. Copy code shown in email. (highlight code, right click, copy)
2. Open EFILive Scan and Tune
3. Click F3: Tune
4. In new window, click F8: Authorization
5. Click paste button to update
6. Click synchronize button to update your Spade.

Reading your stock file(s)

1. Turn the key to the ON position (truck not running)
2. Plug your Spade into the OBD2 port
3. On your Spade, toggle down to Tuning Tool and press OK
4. Select Read Tune by pressing OK
5. Select your vehicle (E98 for Engine / T43 for Transmission = 2.8L Duramax), press OK
6. Your stock files will take roughly 4-5 minutes to read out.
7. Once completed, you will be prompted to turn the key to the off position, do so and press OK
8. Allow countdown to finish.

Retrieving and Sending stock files to be modified:

1. Download and install the most recent version of EFILive at www.efilive.com
2. Plug your Spade unit into your PC
3. Open EFILive Explorer
3. You will notice a green checkmark on the bottom right of the program indicating that your Spade is connected.
4. On the middle left of the program you will see a row of tabs, if it is not on F3: Data Files, click that tab
5. Beneath the tabs, you will see 4 file folders, click on the folder labeled Read
6. You will see your E98 and T43 files in this folder, go ahead and put each file onto your desktop. After you have moved these files to your desktop, please remove them from the Explorer program
7. Attach the files into an email and send to stockfile@duramaxtuner.com with your name and VIN in the subject line

Loading modified tunes onto your Spade:

1. Plug Spade into your PC
2. Open EFILive Explorer
3. Select the F3: Data Files tab
4. Click the Tune folder located beneath the tabs
5. Copy and paste your emailed modified tune into the white field to the right of the Tune folder.
6. Once the progress bar disappears, your tunes will appear. You may now unplug your Spade unit.

Installation:

1. Turn the key to the run position (truck not running)
2. Plug the SPADE into your truck using the OBD cable
3. Toggle down to **Tuning Tool**, press ok
4. Toggle to **Program Full**, press ok
5. Toggle down through the tune files to the tune you'd like to load, press okay
6. The SPADE will check to make sure the ECM is available for flashing.
7. Your SPADE will ask you "License ECU?". Press OK, and when you are asked "Are you sure?" Press OK again.
9. The SPADE will begin flashing. You will see messages such as "checking, erasing, and flashing" This is normal.
10. Once the flash is complete the SPADE will display "Turn ignition off now". Turn the key into the off position, and press OK.
11. You will see a count down. Once the countdown is complete you can unplug the SPADE and start your vehicle.

Tune Switching with SPADE:

1. Install your DSP tune
2. Plug the SPADE into your truck using the OBD cable
3. Toggle down to **Scan Tool**, press ok
4. Press OK on Select PIDs
5. Toggle to E98 and press OK
6. Press the Prev button until you are back to the Tuning tool and press OK
7. Toggle down to Switch Tunes

8. Toggle to your desired tune and press OK
9. If you get a Tune Switched Failed message reselect your tune

The DSP 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. If your tunes are loaded before you install your switch the truck default to the Optimized Stock tune. Your tunes are in the following positions: 1: Optimized Stock, 2: Tow Tune, 3: Sport Econ, 4: Performance Tune. For custom tune selection orders, please see your order confirmation for tune position.

2006-2008 Duramax TCM Tune Reading and Loading

A40 TCM tunes must be written from the stock TCM tune loaded in your truck. In order to do so, you must read the stock file out and email it to Durmaxtuner. A moderate level of computer competency is required to perform this task. We do have video tutorials on our website under the customer service section if you require additional help. Items required: Truck, SPADE or V2, OBD2 cable, USB cable, EFILive software (free download at efilive.com) and a windows based laptop computer.

- Download the most recent version of EFILive from www.efilive.com
- Once downloaded open EFILive Scan and Tune
- Plug Your SPADE into your laptop and connect the SPADE into the OBDII Port
- In the EFI Live Scan and Tune window select the "F3: Tune" button
- Another window will open. On this window make sure the "F2: Read" tab is selected
- Locate the section that says "Right Click to Select Trans-Controller".
- Right click in that location and for 2001-2005 select AL5 Allison 5 Speed TCM, 2006-2008 select A40 Allison 6 Speed TCM
- In your truck turn the key to the "ON" position (NOT RUNNING) and click the "READ" button
- Once the reading process has completed the screen will instruct you to turn the truck off for 30 seconds. Do so and save the TCM calibration. Then please send the TCM calibration via email to stockfile@duramaxtuner.com.

Once you receive your TCM tune, please follow the instructions below to get them loaded on your truck.

- Make sure your SPADE/V2 is updated with the latest software from efilive.com.
- Save your TCM tune file from your email, in an easy to find place, such as the desktop.
- Connect the SPADE/V2 to your truck and your laptop using the cables that were supplied with your SPADE/V2
- Open the Scan and Tune Tool
- Press the F3 key on your keyboard
- Turn the key to the run position
- Locate the section that says "Right Click to Select Trans-Controller".
- Right click in that location and select A40 Allison 6 Speed TCM
- Select the Open button located near the bottom of the screen
- Find the tune that you saved earlier and select it
- Once the tune is selected press F6
- Press license controller
- Select OK for everything
- Next select Program Cal
- Select OK for everything and this will load your tune

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 CSP 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.

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

LB7	LLY	LBZ and LMM
<ul style="list-style-type: none"> • 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. • 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. • Now remove the blue covers on the wire pin side. Do so by using a small flat head screw driver to push the tabs in on both sides of each 	<ul style="list-style-type: none"> • Now locate the gray connector on the ECM harness and make sure it is in the open position. • Using a small flat head screw driver remove the top black cover by wedging the two tabs out of their place. • Now remove the black cover. • Locate the Pin holes that the switch pins will go into purple wire hole #32, black hole #50. • Remove the teal colored slide that locks the pins in place. After this is removed be very careful not to pull on the connector and 	<ul style="list-style-type: none"> • 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. • Remove the purple slide that is holding the existing pins into the ECM harness. • Locate the Pin holes that the switch pins will go into purple wire hole #46 ,Black wire hole #54 • 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.

<p>blue cover as shown in the picture.</p> <ul style="list-style-type: none"> • Locate the Pin holes that the switch pins will go into blue wire hole #49, black hole #69 and install wires. • Make sure that they push all the way through and lock into position so they appear just as all the others do. • Put the blue covers back onto the ECM harness. • Reconnect the gray cover on the top of the ECM harness. • Reconnect the ECM harness to the ECM. Be sure to put the blue connector on first and then put the clear connector on after. • To test the switch turn your key to the Run position. • Press the button located on the back of your DSP5 switch. • If the indicator light appears on the back of your switch it is installed correctly. • If you do not see a light please repeat steps 2-10 double checking the installation. • If you are still having issues go to the DSP5 Switch Trouble Shooting section. 	<p>disconnect and existing wires.</p> <ul style="list-style-type: none"> • Remove the light blue pin hole covers that are currently in the pin holes that your switch pins will go into. • 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. • Reinsert the teal pin lock. • Reconnect the black cover to the ECM harness. • 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. • To test the switch turn your key to the Run position. • Press the button located on the back of your DSP5 switch. • If the indicator light appears on the back of your switch it is installed correctly. • If you do not see a light please repeat steps 2-12 double checking the installation. • If you are still having issues go to the DSP5 Switch Trouble Shooting section. 	<ul style="list-style-type: none"> • Reinsert the purple slide into the ECM harness. • Reconnect the cover of the ECM harness. • Reconnect the ECM harness to the ECM. Make sure you attach the larger connector to the ECM first followed by the smaller connector. • To test the switch turn your key to the Run position. • Press the button located on the back of your DSP5 switch. • If the indicator light appears on the back of your switch it is installed correctly. • If you do not see a light please repeat steps 2-9 double checking the installation. • If you are still having issues go to the DSP5 Switch Trouble Shooting section.
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- Find the spot that you want to mount your switch.
- If you need to remove your dashboard do so by removing the small screw located at the lower lip of your dashboard.
- Reach into the space between the base of your steering column and dashboard.
- Confidently pull your dashboard until it releases from the truck.
- Dry fit the switch to make sure you are drilling in a spot the switch will fit.
- Drill your hole.
- Remove the nut from the switch.

- 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.
- Push the switch post into the drilled hole.
- For DSP5 switches, place the tune indicator sticker around the switch post.
 - Be sure the indicator on the switch knob matches to the indicator numbers.
- Install the nut back on the switch.
- Place the switch knob on the post and use the Allen key to secure.
- Reinstall the plastic piece or dashboard.

DSP5 Switch Trouble Shooting

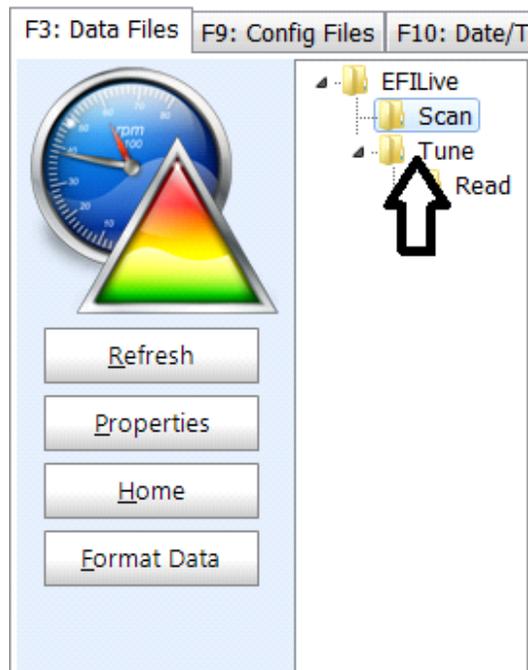
There is a noticeable difference between tune 1 and tune 5. If you do not notice a difference it could be due to the pins not being seated all the way in the harness, pins are in the wrong hole, or the switch is faulty. Here are the trouble shooting steps. Trouble shooting videos can be found on our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

- To verify that your DSP5 switch is working turn your key to the run position (truck can be running).
- Plug the SPADE into your truck using the OBD cable.
- Select Scan Tool and hit OK.
- Choose select PIDs and hit OK.
- Toggle down to your trucks model (CMB= 06-07 5.9L, CMC=07.5-09 6.7L, LB7-AL5, LLY-AL5, LBZ-AL6, LMM-AL6, E86=LML) and hit OK.
- Toggle down to Display Data and hit OK.
- Toggle down through the PID's to find the DSP5 tune display.
- Make sure the DSP# switches when you move your rotary selector.
- If the DSP# does not switch, check your connections in the ECM harness.
- If the DSP5 switch is hooked up properly and you are still getting no switching perform an ohms test on the switch.
- Hold or tape each end of your ohms tester to the pins located at the end of each of the DSP5 wires
- Place your ohms meter to any of the resistance settings under the Ω section.
- Turn your DSP5 switch through the five positions and you should see a change in resistance
- If you do not, please contact us so we can resolve your issue.

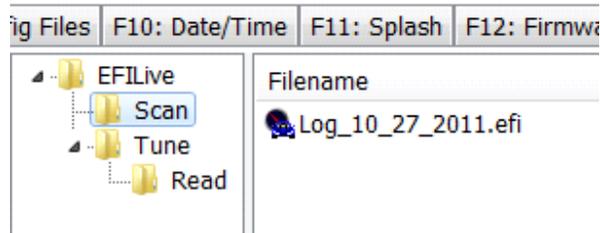
Duramax Datalogging using your SPADE

Datalogging records readings from your trucks factory sensors so tuners can see what is going on under the hood. Datalogging with your SPADE is a beginner level task. You will need to be moderately comfortable with a computer, and be able to download items from email, and the internet. Items required: SPADE, OBD2 cable, USB cable, EFILive software (free download at efilive.com) and a windows based laptop computer.

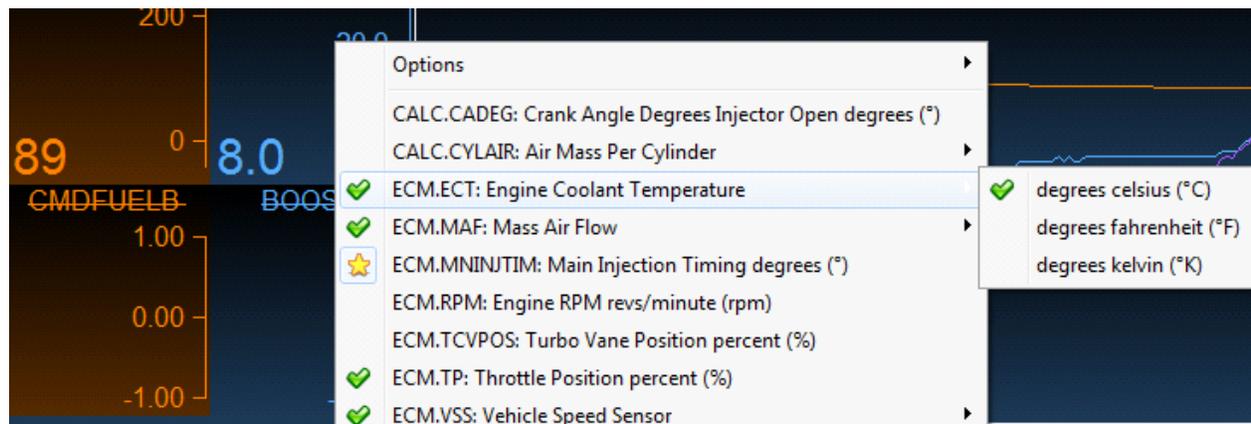
- Plug your SPADE into your trucks OBD2 port.
- Start your Truck.
- On your SPADE select the Scan Tool option by pressing OK.
- Press OK on Select PIDs.
- Select your trucks PID (LB7 AL5, LLY AL5, LBZ AL6, LMM AL6, E86=LML).
- Your PIDs will load and you will be brought to the Record Data screen.
- Press OK.
- Your SPADE is now recording your trucks sensor readings. Please drive your truck as needed.
- Once you have the data you require press the Prev button.
- Select Exit to exit and save your data file.
- Take your SPADE to your computer and plug it in using the USB cable.
- Open the EFILive program called EFILive Explorer. (You will have to download EFILive V8 from efilive.com to have this program).
- Select the Scan folder.



- When your log is visible, left click, drag and drop your log onto your desktop.



- Once your scan file has been saved onto your desktop you can either email it to our staff, or view it on your own via EFILive Scan and Tune.
- If you are emailing your tunes for review stop here. If you are viewing your datalog please continue to read.
- To view your data log open the EFILive Scan and Tune program.
- Once open select the F2 Scan button or press the F2 key on your keyboard.
- In the new window select the Open button with the picture of the folder, located in the bottom left hand side of the window.
- Find and select the datalog file you wish to view.
- A Select Controllers window will open up. Right click on the engine control button and select your trucks ECM (LB7 AL5, LLY AL5, LBZ AL6, LMM AL6, E86=LML).
- Select OK.
- Select the F4 Charts button or press the F4 key on your keyboard.
- You can select your desired PIDs to view by right clicking in the data value fields located to the left and right of the chart.



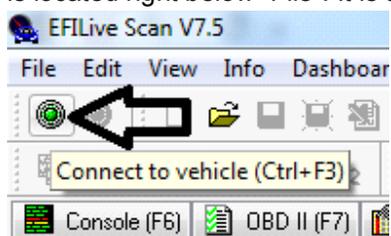
- To access chart options such as Auto Scale All PID's you can right click on the chart, or select the options button at the top of the PID's list.

Duramax Datalogging Instructions Using V7.5

This datalogging method shows you engine readings in real time on your laptop. This is meant for experienced tuners who have an advanced knowledge of EFI Live, and are very comfortable with computers. In order to data log your truck you will need the following items: Windows Laptop computer, EFI Live Version 8 or Version 7.5 software downloaded for free from efilive.com, your SPADE, and your USB and OBD2 cables

Instructions using EFI Live Version 7.5 scan tool:

- Connect the USB cord into the port on bottom of your SPADE.
- Connect the USB end of the cord into your laptop.
- Connect the OBD 2 cable into your SPADE.
- Connect the OBD 2 cable into the OBD2 port in your truck.
- Open EFI Live V7.5 Scan Tool on your laptop.
- Click on File and then click "Open", and then click on "Open PID Selection".
- Select the file titled "Duramax Imperial.pid" and click Open.
- This gives you a generic layout of PIDs.
 - If you wish to monitor other PIDs click on "PIDs (F8)".
 - Double click on your desired PID; Example: DSP5 Tune.
 - Click the Save PID selection file with new name (this button is located right below the "OBD 2 (F7)" button).
 - Now go to the file menu and hover over open, click on Open PID selection file and select the file that you have just renamed.
 - Once this file opens click "Dashboard (F10)".
 - Now right click on any of the PIDs that are undesirable and scroll down to "Other PIDs" and select the PIDs that you would like to monitor.
- Turn your truck on or at least to the running position.
- Click the Connect to vehicle button (or hold down the ctrl key and press the F3 key). This button is located right below "File". It is a gray circle with a green dot in the middle of it.



- Select the vehicle that you are monitoring.
- Once you have successfully connected to the vehicle you can click the record button. This button is located in the lower portion of the screen in the middle. It is a solid red circle.
- Now take your truck out on a drive and watch exactly what is going on in your vehicle.
- Once you have completed data logging press the record button again to stop datalogging.
- You will be asked to save your datalog file. Save it to an easy to find location.
- Once you have saved the file you can open it up and review the data or send it to DuramaxTuner for analysis.

Pass-Through Tune Flashing

Pass through tune flashing is only needed if you are unable to flash a tune on with the SPADE hardware, and have performed all required trouble shooting and updates. A moderate level of computer competency is required to perform this task. We do have video tutorials on our website under the customer service section if you require additional help. Items required: Truck, SPADE, OBD2 cable, USB cable, EFILive software (free download at efilive.com) and a windows based laptop computer.

- Make sure your V2 is updated with the latest software from efilive.com.
- Connect the V2 to your truck and your laptop using the cables that were supplied with your V2
- Open the Scan and Tune Tool
- Press the F3 key
- Turn the key to the run position
- Press auto detect on the Scan and Tune Tool
- Once the computer has recognized your truck press the open button in the bottom left hand side of the screen
- Find the tune that you want to run and select it.
- Press F7
- Press license controller
- Select OK for everything
- Next select full flash
- Select OK for everything and this will load your tune

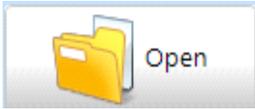
Update SPADE Firmware and Settings

This is necessary if you are loading new tunes on your SPADE, or you receive a \$050B, or \$0502 trouble code. . A moderate level of computer competency is required to perform this task. We do have video tutorials on our website under the customer service section if you require additional help. Items required are: Windows based computer, SPADE, USB cord, Free EFILive software from efilive.com.

- Plug in SPADE to computer
- Open EFILive Scan and Tune V8
- Click on bottom right corner connect to AutoCal
- Select Update Firmware located at the top of your screen
- If your firmware or boot blocker requires an update it will be displayed in red. Simply select the Update button.
- Once updated close window
- Go to F5: BBX in EFILive Scan and Tune
- Select the button that has a small triangle pointing down located on the right hand side of the Program button.



- A drop down menu will appear, Select Format Config File System
- Select OK
- Select the Open button located at the bottom right hand side of your window



- Select GoodBBX file
- Select the Program button



- Select OK when alerted that "This operation will take a few minutes".
- Once this is done your SPADE is ready for tuning files. Please see tune email that has been sent to you.

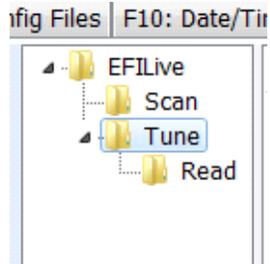
Loading Tunes on Your SPADE

This is necessary if you have to load new tunes on your SPADE due to upgrades or revisions. . A moderate level of computer competency is required to perform this task. We do have video tutorials on our website under the customer service section if you require additional help. Items required are: Windows based laptop computer, SPADE, USB cord, Free EFILive software from efilive.com.

- Make sure your SPADE firmware and settings are up to date. (See the Update SPADE Firmware and Settings section)
- Save your emailed tune files to your desktop.
- Next connect your SPADE unit to your computer and then open up EFILive Explorer.
- You should be asked which devise to connect to, select the autocal. If you are not asked please click on the autocal picture at the bottom right hand side of the EFILive Explorer window



- Click on the folder labeled Tune.



- We will be loading the tunes into the data field to the right of the folders. (If you already have tunes loaded on your Autocal/SPADE you will see them here. Also if you are loading new tunes on because of an issue with an existing tune, please click on the tune you are having issues with, and press delete.)



- Highlight the tunes on your desktop and drag and drop them into the large data files field in the mid and lower right hand side of the window.

It will take a few minutes to load. There is no notice that it is done loading, however the loading bar goes away. Once that is done you can unplug your autocal (Now a SPADE) and it's ready to go.

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: SPADE or Flashscan, and OBD2 cable

- Plug your SPADE into your OBD2 port
- Scroll down to the Trouble Code option and press OK
- Scroll down to Display All DTC's and press OK
- Press next to toggle through your DTC's
 - 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.

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: SPADE or Flashscan, and OBD2 cable

- Turn your key in the "On" position (Not Running)
- Plug your SPADE into your OBD2 port
- Scroll down to the Trouble Code option and press OK
- Scroll down to Clear DTC's and press OK
- Press OK when you are asked if you are sure

Cummins or Duramax Trouble Code Descriptions and Fixes

Code	Reason	Cause	Action
\$0281	No data received or key is not in the run position	FlashScan or SPADE 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.
\$0333	Security Access Denied	The controller has either not been successfully unlocked or has re-armed itself prior to FlashScan or AutoCal making a secure request.	When using V8 pass-thru reading and/or flashing, try selecting "Assume Lock may be Faulty" and "Try Alt Keys" and retry the operation. Contact EFILive if this error persists.
\$0340	Download Not Accepted	For Cummins controllers: Controller contains security to prevent modified tunes being programmed. For other controllers, Internal.	For Cummins controllers: Re-flash ECM with a stock file to make ECM operational again. For other controllers, contact EFILive if this error persists.
\$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 SPADE 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 SPADE.	Update your Firmware and BBX settings. See Update SPADE 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 Duramaxtuner or Cumminstuner. 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 SPADE

			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.
\$0539	Tune file does not allow full flashing.	The selected file does not support full flashing. If the file is a .coz it must be Cal flashed	Review procedure for Cal flashing .coz files. This process is mainly for flashing LML tunes
\$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.

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

SPADE Function Overview

The Standalone Programming And Diagnostic Equipment or SPADE has the capabilities to load tunes, read tunes, log truck system performance based off factory sensors, read trouble codes, and clear trouble codes. Listed below is an overview of the SPADE's menu. Commonly used selections are listed in bold. Some functions may not be available for your truck model and will be listed as such.

- **Scan Tool**
 - **Select PIDs**
 - CMB= 06-07 5.9L, CMC=07.5-09 6.7L, LB7 AL5, LLY AL5, LBZ AL6, LMM AL6, E86=LML Record Data (Must select PID's first, Used for Datalogging.)
 - Display Data (Must select PID's first, Displays PID's but does not record)
 - Display VIN
 - Display OS (Operating System for ECM's tune file)
 - Save Trace
 - Show Modules
- **Tuning Tool**
 - Read Tune

- Entries from the *TUNE_SELECTION section in file Options.txt are listed here.
- **Program Cal (LML 2011-2014 Duramax Tune Files Only. LML stock tune load under Program Full)**
 - A list of files will be displayed from which you may select the file to be programmed.
- **Program Full (06-09 Cummins tunes, 01-2010 Duramax tunes, and LML Stock tunes)**
 - A list of files will be displayed from which you may select the file to be programmed.
- Read GPM Injector (For LBZ and LMM Duramax Trucks)
- Prog GPM Injector (For LBZ and LMM Duramax Trucks)
- Read ECM Injector (For LBZ and LMM Duramax Trucks)
- Prog ECM Injector (For LBZ and LMM Duramax Trucks)
- **Switchable Tunes (Used to switch tunes on 06-07 5.9L without CSP switch)**
 - Entries from the *SW_DSP5 or *SW_E38 sections in file Options.txt are listed here.
- Tune Options (not available yet)
- **Trouble Codes**
 - Display SRT Stat
 - Display Cur DTCs
 - Display Pnd DTCs
 - Display Set DTCs
 - **Display All DTCs**
 - Display FrzFrame
 - Record Diags
 - Clear Codes
- AutoCal Options
 - Edit Settings
 - **Pro Menu Set the Advanced or Simple Menu structure.**
 - File #: Set the unique counter for file names.
 - Locale: Select US or Australian format dates.
 - Units: Select Metric or Custom display units.
 - MRU PIDs: Auto select most recently used PID selection.
 - ScanRate: Select BBL frame rate.
 - Note 30: Inset note 30 when user pauses data logging.
 - Fast CAN: Enable fast CAN message processing.
 - Skip Vfy: Skip PID validation prior to BBL.
 - Vfy BBR: Extended BBR verification.
 - BBXStats: Display statistics at end of BBR/BBF operation.
 - COM Port: Select type of data on serial port.
 - WO2 Type: Select wide band controller type.
 - WO2 fmt: Select wide band display format.
 - WO2 Data: Select wide band display contents.
 - WO2-1 ID: Select ID code of WO2 #1
 - WO2-2 ID: Select ID code of WO2 #2
 - Stoich: Set the AFR stoichiometric point.
 - Lo Power: Set low power timeout.
 - Splash: Set splash screen timeout.
 - Alert: Set alert message timeout.
 - Error: Set error message timeout.
 - AR Delay: Set keypad auto-repeat delay.
 - AR Speed: Set keypad auto repeat speed.
 - Restore Settings
 - Set Date and Time
 - Browse Files (View files saved on SPADE)
 - Delete File
 - Free Space
 - Format File Sys (Do not Select. This will reformat and erase all data on your SPADE)
- Display Licenses
 - SN: xxxxxxxxxxxx
 - LIC: xxxxxxxxxxxx
 - Firmware 2.05.xx
 - BootBlk 2.05.xx
- Low Pwr Mode
- Self Tests
 - Run All Tests

- Test LCD
- Test KEY
- Test ROM
- Test ROM FULL
- Test 12V
- Test ALD
- Test ALD RPT
- Test VPW
- Test VPW RPT
- Test CAN
- Test CAN RPT

Frequently Asked Questions

- **Will a Mac computer work with EFILive?**
 - Only if you have a windows emulator installed on your computer. EFILive only works with windows based computers.
- **Can I use the Edge Insight CTS to switch tunes**
 - You can if you have a LB7 (2001-2004) or an LLY (2004.5-2005). All other years require a DSP5 to switch tune. DSP5 tune switching is not available for 2011-Present LML trucks. EFILive is hoping to add all year models, but has not been able to reach an agreement with Edge to do so.
- **How do I know my CSP switch is working**
 - On the back of each switch there is a small blue light that flashes when you turn the knob. The key must be in the run position in order for the switch to operate. The light will flash the same number as the tune it is set to. For example three flashes means the truck is set to tune three. If you experience no flashes, or the light stays on, unplug the switch, check all the connections and plug it back in.
- **Does CPS support DPF delete tunes?**
 - We do not support any emissions defeating tunes or products.

Contact Information

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