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LPE Handheld Programmer

Operating Instructions

LPE PROGRAMMER OVERVIEW

Congratulations! You are the owner of an LPE Programmer, the latest in high-performance technology. Now you can optimize your engine's tuning using the professional tuning of Lingenfelter Performance Engineering's skilled calibration engineers.

Your vehicle has an onboard computer that controls the engine and transmission. Inside your vehicle's computer is a FLASH memory chip that contains the vehicle's programming data. The Programmer actually uploads this FLASH memory chip with new computer data.

To reprogram your vehicle's computer, simply plug the Programmer cable into the vehicle's diagnostic connector located under the dash panel on the driver's side. Set the parking brake. Next, turn the ignition key to RUN but do not start the engine. Press the up "START" arrow button on the programmer. It will then identify your vehicle and ask a series of questions on its screen.

When completed, turn the key to OFF and disconnect the cable from the diagnostic connector.

LPE's tuning can only be stored in the vehicle that the programmer was tuned for. This calibration is unique to the vehicle.

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WARNINGS

IMPORTANT, WHILE THE PROGRAMMER IS PROGRAMMING:

- DO NOT LEAVE THE VEHICLE WHILE PROGRAMMING IS IN PROCESS.
- DO NOT PROGRAM YOUR VEHICLE WITHOUT A FULLY CHARGED BATTERY. IF, AFTER YOU HAVE PROGRAMMED YOUR VEHICLE'S COMPUTER WITH THE LPE PROGRAMMER, YOU NEED TO RELOAD THE TUNING, IT IS RECOMMENDED THAT YOU RECHARGE YOUR VEHICLE'S BATTERY. YOU MAY EITHER DRIVE THE VEHICLE TO CHARGE THE BATTERY OR USE A BATTERY CHARGER. BUT EITHER WAY, MAKE SURE THAT THE BATTERY HOLDS A FULL CHARGE.
- DO NOT ATTEMPT PROGRAMMING WHILE THE VEHICLE IS CONNECTED TO A BATTERY CHARGER.
- DO NOT OPERATE ELECTRICAL ACCESSORIES (AC, LIGHTS, RADIO, WINDOWS, WIPERS, ETC.)
- DO NOT DISTURB THE CABLE WHILE PROGRAMMING.
- THE ONLY TIME YOU MAY REMOVE THE PROGRAMMER CABLE FROM THE DLC SAFELY IS PRIOR TO PRESSING 'Y' TO PROGRAM YOUR ENTRIES. NOTE: IT IS NOT SAFE TO UNPLUG THE PROGRAMMER CABLE ANY TIME AFTER YOU HAVE PRESSED 'Y' TO PROGRAM.
- THE KEY MUST REMAIN IN THE RUN POSITION WITHOUT THE ENGINE RUNNING, DURING THE ENTIRE PROGRAMMING PROCESS.
- DO NOT TURN THE KEY OFF UNLESS INSTRUCTED BY THE PROGRAMMER.
- DO NOT START THE ENGINE.

Any of these actions will interrupt the programming process and could cause PCM failure.

INSTALLATION INSTRUCTIONS

Note: Your vehicle's computer will not be programmed at the end of the programming menus until you answer the question "PRESS 'Y' TO PROGRAM".

Connect one end of the provided cable to the Programmer as in the picture below and tighten the two thumbscrews.



The other end of the cable connects to the Data Link Connector (DLC) that is located in the driver's footwell. Refer to the DLC location pages in this instruction manual to help locate the DLC on your vehicle.

Set the parking brake and turn the ignition key to the RUN position but do not start the engine.

Press the up arrow 'START' button on the programmer. The following displays should appear immediately on the LCD screen.

SYSTEM TEST
WAIT

LINGENFELTER
POWER PROGRAMMER

VERSION
XX.X.XXX.XX

FOR 199X & 200X
GM CARS AND TRUCKS

TUNING FILE
LOADED FOR
XXXXXXX

If these screens do not appear, make sure that both ends of the cable are securely attached and press the up arrow again.

Next, the programmer will show applications and copyright information. Then, a screen similar to this should appear with a description of your vehicle:

VEHICLE VIN:
XXXXXXXXXXXXXXXXXXXX

TURN KEY TO
RUN POSITION
YOUR VEHICLE IS:

VERIFYING DATA

PREPARING DATA

Y TO INSTALL LINGENFELTER TUNING
N TO EXIT AND POWER OFF PROGRAMMER

Follow the directions and press Y to begin programming. The following messages will come up onto the screen:

READING COMPUTER
XX%

WRITING COMPUTER
XX%

PROGRAMMER STARTED
DO NOT DISTURB PROGRAMMER

If this screen does not appear, make sure that the key is in the RUN position with the engine not running.

This display will show percentage completion while the programming is taking place. While the unit is programming, the following is EXTREMELY IMPORTANT:

DO NOT LEAVE THE VEHICLE WHILE PROGRAMMING IS IN PROCESS.
DO NOT DISTURB THE CABLE.
DO NOT TURN THE KEY OFF.
DO NOT START THE ENGINE.
IF THE UNIT STOPS PROGRAMMING OR IS INTERRUPTED, PLEASE MAKE A NOTE OF THE MESSAGE(S) THAT APPEAR ON THE PROGRAMMER SCREEN. THIS WILL BE HELPFUL TO OUR TECHNICAL DEPARTMENT.

Any one of these actions will disturb the programming process and can render the PCM inoperable. The programmer is designed to recover from these conditions, but they should be avoided.

Programming is complete when the unit reaches 100%. (Programming takes approximately 5 minutes). The following screens will appear.

TESTING COMPUTER
WAIT

TURN KEY OFF
FOR 30 SECONDS

TO END, PRESS Y
AND UNPLUG CABLE

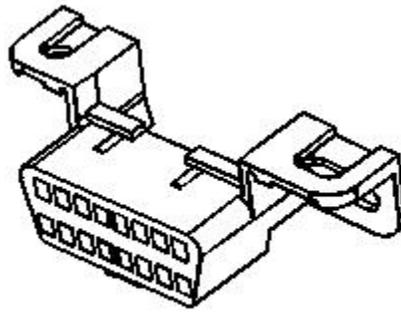
Turn the ignition key to OFF for at least thirty (30) seconds. Press the 'Y' button and remove the programmer cable from the DLC under the dash panel.

Start and warm up the engine to make sure everything is running smoothly.

Tuning is complete. For any questions, call LPE at (260) 724-2552

Data Link Connector (DLC) Locations

DLC



Corvette



Escalade, Hummer, Denali & other GM CK trucks



GTO



SSR



F-Body (Firebird and Camaro)



Common Errors

1. Loss of Communication

COMMUNICATION LOST:
RETRYING

This screen will appear if the programmer is unable to communicate with your vehicle's computer. If the problem is not corrected, the programmer will automatically restart the programming process. Take these steps to correct the problem:

1. Make sure that the ignition key is in the RUN position and that the engine is not running.
2. Make sure that both ends of the cable are securely attached.
3. Wait at least five (5) minutes for the programmer to re-establish communications and program the vehicle.
4. If the three (3) steps above do not correct the problem, call LPE at (260) 724-2552

2. Blank Screen

If the programmer does not turn on when the up arrow is pressed, make sure that both ends of the cable are fully inserted. Press the up arrow again. If the programmer still does not turn on, check for a blown fuse in the vehicle fuse panel for either the cigarette lighter or the accessory circuit. Replace with the proper amperage fuse. Call LPE at (260) 724-2552 if this does not solve the problem.

3. Vehicle Does Not Start

If the vehicle will not start after programming and the THEFT (or SECURITY) light is on the dash, your vehicle may have set a theft deterrent code and will need to have theft codes relearned. Follow the steps on page 11 to perform the theft learn.

4. Instrument Panel/Dash Does Not Function After Programming

In some cases, the instrument panel will not come back "online" after programming and will not function. If this is the case, simply disconnect the battery cable (make sure the key is in the off position!) for approximately 30 seconds and then reconnect it. This will reset the dash and allow it to resume functioning properly.

Addendum for 2004 Corvette Programmers

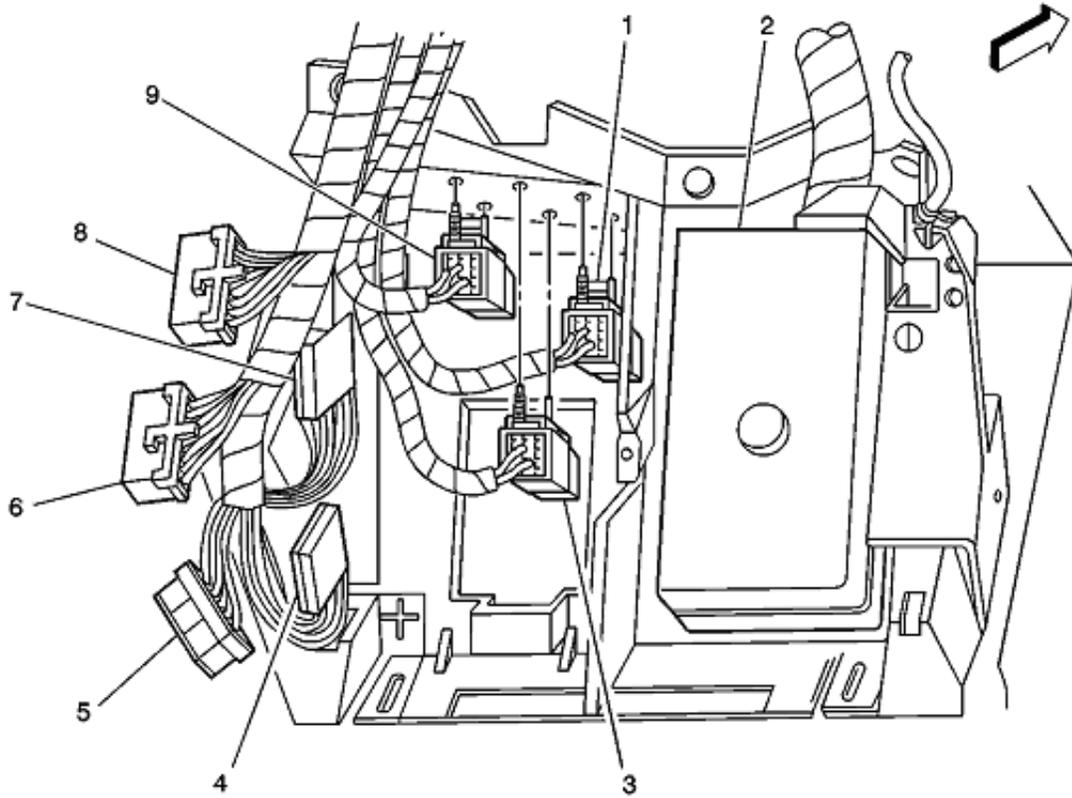
The Body Control Module (BCM) in the 2004 Corvette has been known to interrupt communication with the Powertrain Control Module (PCM) during programming. To help eliminate the likeliness of this happening, LPE has developed a quick and easy way to isolate the PCM from the BCM. The BCM Bypass Connector is designed to prevent communication from the BCM to the PCM during programming. This connector simulates GM Special Tool J 42236-A, Serial Data Link Tester that is used by your local dealer. To do this, the BCM Bypass Connector must be plugged into Star Connector #1 located under the forward kick panel in the passenger side footwell.

To access this connector you must;

1. Remove the passenger side floor mat
2. Remove the front floor kick up panel near the firewall.
 - a. Disengage the kick-up panel upper latches.
 - b. Open the kick-up panel.
 - c. Lift the kick-up panel's lower edge up out of the slots in the multi-use relay bracket.
 - d. Remove the kick-up panel.
3. Using Figure 1 (on page 10), locate the Star Connector #1. (Note: there are 2 Star Connectors located in this area. They can be distinguished by the number of wires entering into the connector. The connector with the most wires is Star Connector #1, the connector with the fewer wires, is Star Connector #2)
4. Remove the grey cover from the end of Star Connector #1 and replace it with the supplied BCM Bypass Connector
5. You are now ready to program your vehicle.

Note: The DIC may show a message of "reduced engine power" and perform some alert chimes, this is normal. You will need to clear the DIC messages and then begin programming. If you do not clear the DTC before programming, your dash may not function after programming is completed. If, AFTER programming, you notice your dash is not functioning, simply disconnect the battery cable (make sure the key is in the off position!) for approximately 30 seconds and then reconnect it. This will reset the dash and allow it to resume functioning properly.

Figure1



- (1) Theft Deterrent Relay
- (2) Fuse Block-IP
- (3) Blower Motor Relay
- (4) Star Connector #2
- (5) Body Control Module (BCM) C3
- (6) Body Control Module (BCM) C1
- (7) Star Connector #1
- (8) Body Control Module (BCM) C2
- (9) Steering Column Lock Relay

30 Minute Theft Learn Procedure

1. Turn ON the ignition, with the engine OFF.
2. Attempt to start the engine, then release the key to ON, vehicle will not start.
3. Observe the SECURITY telltale [in the dash], after approximately 10 minutes the telltale will turn OFF.
4. Turn OFF the ignition, and wait 5 seconds.
5. Turn ON the ignition leaving the engine OFF for 10 minutes.
6. Turn OFF the ignition, and wait 5 seconds.
7. Turn ON the ignition leaving the engine OFF for 10 minutes.
8. You should have now gone through a total of 3 cycles/30 minutes, the vehicles is now ready to relearn the Passlock™ Sensor Data Code and/or passwords on the next ignition switch transition from OFF to CRANK.

IMPORTANT

The vehicle learns the Passlock™ Sensor Data Code and/or password on the next ignition switch transition from OFF to CRANK. You must turn the ignition OFF before attempting to start the vehicle.

9. Start the engine. The vehicle has now learned the Passlock™ Sensor Data Code and/or password.
10. With a scan tool, clear any DTCs if needed. History DTCs will self clear after 100 ignition cycles. You can also clear the codes from the instrument cluster on the 1997-2004 Corvettes.

Checking Diagnostic Codes On 1997-2004 Corvettes Using the Driver Information Display/Instrument Panel

1. The ignition switch must be in the 'RUN' position. The engine does not need to be running.
2. Clear the display on the instrument panel using the 'RESET' button (display should be blank).
3. Push and hold the 'OPTIONS' button.
4. Push the 'FUEL' button rapidly 4 times. This will put the system into diagnostics mode.
5. Release all buttons and push 'OPTIONS' again to put the system into manual diagnostics mode.
6. The first system to appear in the display will be 'PCM' (Powertrain Control Module). This is where engine and transmission related codes are listed. The display will also indicate the quantity of codes existing for that particular system; for example '4 CODES'.
7. To clear the codes, push and hold 'RESET'. In a few seconds, the codes will clear and the display will read 'NO CODES' unless the problem still exists.
8. To check the next system, push 'OPTIONS'. You can either clear the codes or go to the next system by repeating steps 7-8.
9. Once the end of the list has been reached, either turn the ignition off or push the 'E/M' button to terminate diagnostics.

Notes:

1. Clearing the codes also clears the data stored in the vehicle about when that code was set so do not clear codes without talking to your dealer or service facility if you want them to be able to use that data to help find the cause of the problem.
2. Codes with a 'c' after them are current codes.
3. Codes with an 'h' after them are history codes.

LPE Calreader

The LPE Calreader allows you to upload the calibration files already stored in your vehicle's PCM. LPE can then use these files to program an LPE Programmer with these files as a way to back-up your calibration files. LPE can also use this data to create updated versions of your calibration.

Directions:

1. Connect the Programmer to the DLC port in the driver footwell as described in pages 2-4 of this manual.
2. Turn the ignition to the "run" position.
3. Press up arrow "START" button on the programmer.
4. Follow on screen prompts to upload/copy the calibration to the Programmer.
5. Turn the ignition key to OFF for at least thirty (30) seconds. Press the 'Y' button and remove the programmer cable from the DLC under the dash panel.
6. Return the Calreader to LPE.

WHILE THE PROGRAMMER IS UPLOADING THE CALIBRATION:

- DO NOT LEAVE THE VEHICLE WHILE UPLOADING IS IN PROCESS.
- DO NOT UPLOAD FROM YOUR VEHICLE WITHOUT A FULLY CHARGED BATTERY.
- MAKE SURE THE AC, HEATER, STEREO, HEADLIGHTS, AND OTHER ELECTRICAL LOADS ARE TURNED OFF DURING THE PROCESS.
- DO NOT DISTURB THE CABLE.
- THE ONLY TIME YOU MAY REMOVE THE PROGRAMMER CABLE FROM THE DLC SAFELY IS PRIOR TO PRESSING 'Y' TO UPLOAD THE DATA. NOTE: IT IS NOT SAFE TO UNPLUG THE PROGRAMMER CABLE ANY TIME AFTER YOU HAVE PRESSED 'Y' TO UPLOAD UNTIL THE PROCESS IS COMPLETE.
- DO NOT TURN THE KEY OFF UNLESS INSTRUCTED BY THE PROGRAMMER.
- DO NOT START THE ENGINE.