



FORD POWER PROCESSOR Installation and Instruction Manual

For Accel DFI part number:



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Introduction

Congratulations On the purchase of your new Accel/DFI Power Processor. With over 20 years in designing and producing state of the art EFI & Ignition systems, we are confident that this Power Processor will be a great addition to your vehicle. It is designed with you, the end user, in mind to make it easy for you to use.

Clear Migration: It can support more than one vehicle. You can use it on your friend's vehicles to show them how it works. You can do that a total of 5 times. On the fifth event, it has to be used in the primary vehicle it was purchased for. Failure to do so will lock the VIN# of the 5th vehicle and that will be the vehicle it will stay with. **(Do not attempt to program the computer in another vehicle without first programming the original vehicle back to stock).**

Continuous Updates: This Processor has built in self programming capabilities, so it can be updated to the latest software available, VIA the internet. All you need is a USB to USB2 Cable adapter and an internet connection. (For updating info, go to www.accel-dfi.com. Or call Tech Support: 248-380-2780

Multi-Use Technology: The Accel/DFI Power Processor covers both Gasoline & Diesel applications.

How it works: The Processor uploads your OEM program, copies it and locks it VIA VIN #, It then lets you make the program changes to a copy of the OEM program, when done; it downloads the modified data back into the PCM.

The Power Processor offers the latest available technology for unparalleled high-performance tuning.

Now you can optimize your engine's and transmission's tuning, as well as adjust other vehicle parameters (see Processor Flow Chart), all at the touch of a button. Your vehicle has an onboard computer (PCM) that controls the engine and transmission functions. Inside your vehicle's computer is a FLASH memory chip which contains the vehicle's programming. The Processor reprograms this chip, according to your specifications. This is the only way an individual can reprogram newer vehicles built in the United States.

To Start using your Power Processor, simply plug the cable into the vehicle's (ALDL) diagnostic connector located under the dash panel on the driver's side (in most cases). Set the parking brake. The Processor will prompt you to turn the ignition key ON so it can check vehicle ID, but do not start the engine. It will then identify your vehicle and display a series of vehicle options on its screen. It will guide you through a number of programs and options for you to choose from. When completed, it will instruct you to turn the key to OFF. Now you're ready to feel the additional power of the Accel/DFI Power Processor!

The Power Processor program can only be used with one (1) vehicle at a time. It can be reconnected to return the Stock programming at any time. You may also reconnect your Processor at any time to change the programming.

For example; if you have replaced your factory tires with different diameter tires, you will want to correct your speedometer, odometer, and automatic transmission shift points.

Simply reconnect your Processor, Change the necessary option(s), and reprogram your vehicle. You do not have to return to stock first.

Important Tips

- The Accel/DFI Power Processor is not legal for use on pollution controlled motor vehicles. Although it is possible to pass emission tests with the Power Program installed, we recommend you download the stock program back in before you get back on the road.

- Feel free to experiment with all 3 programs. There is no way to accidentally program the wrong information into your vehicle's computer. You can make changes that you want, change it again and again, without programming your vehicle's PCM until you are absolutely ready.

- Once the Processor starts programming the PCM:

DO NOT leave the vehicle unattended while programming the PCM.

DO NOT program your vehicle with a weak or low battery.

DO NOT disturb the cable while programming.

DO NOT turn the key off UNLESS instructed by the Processor.

DO NOT start the engine.

DO NOT unplug the programmer cable AFTER you pressed, Start Program.

Any of these actions will interrupt the programming process.

The programmer is designed to recover from these actions, but they should be avoided.

- **DO NOT** attempt to program the computer in another vehicle without first programming the original vehicle back to stock.

- **What To Do Before Taking Your Vehicle In For Service.**

If you take your vehicle to a dealer or mechanic for service, **you must first remove the Processors Power Program and install the stock programming. (See page 11 to Return to Stock)** Most diagnostic equipment looks for stock calibrations and will often overwrite the program if the latest calibration is not found in the PCM memory. This will result in the loss of your Power Program Tuning data.

After stock program is downloaded, start engine and let run for 1 minute, then shut engine off, disconnect battery for 15 seconds, reconnect battery, now, you are ready to go to the Dealer/Repair Shop.

The Repair Facility has no way to find out if you have used a Power Programmer once you download your stock program back in. It does not leave a Foot Print. A P1000 code will set after uploading a program from the Power Processor which is the same as disconnecting the battery.

- **Multiple Programs or Stackers. IT WILL BE A PROBLEM** if you attempt to use this Processor's tuning on top of an existing aftermarket program, that is called stacking and will cause programming problems. If you purchased a vehicle that already has a custom program, you must first reflash the PCM to stock before using the Accel/DFI Power Processor.

- **Computer Chips.** Some aftermarket performance companies, offer a performance chip that can be installed on the PCM, or in line with the com cable. These chips will have to be removed prior to plugging the Power Processor, failure to do so will cause the Processor not to recognize your vehicle application. A (Error in opening file) will appear on the screen.

Safety Tips, Please read

- It is the responsibility of the purchaser to follow all guidelines and safety procedures supplied with this product and any other manufactures product used with this product.

Follow all recommended safety guidelines from this and other manufacturer's installation guides.

It is also the responsibility of the purchaser to determine compatibility of this device with the vehicle and other components.

- Accel DFI Corporation assumes no responsibility for damages resulting from accident, improper installation, misuse, abuse, improper operation, lack of reasonable care, or all previously stated reasons due to incompatibility with other manufacturer's products.
- Accel DFI Corporation assumes no responsibility or liability for damages incurred from the use of products manufactured or sold by Accel DFI Corporation on vehicles used for competition racing.
- Accel DFI Corporation neither recommends nor approves the use of its products on vehicles which may be driven on public highways or roads, and assumes no responsibility for damages incurred from such use.
- It is the purchaser's responsibility to check the state and local laws pertaining to the use of this Power Processor. Accel DFI Corporation does not recommend nor condone the use of its products for illegal street racing.

- **Installation of this product signifies that you have read this document and agree to the terms stated within.**

Tech Support/Trouble Shooting

- Due to the technical nature of ACCEL DFI products, we are unable to answer technical questions via the Internet. If you have any questions, Please call the ACCEL DFI Technical Support hotline. **Tech Line: 1-248-380-2780** from 8:30 am – 6 pm, Monday-Friday, Eastern Standard Time.
- Please fill out and mail your warranty card.
- If you get an **Unsupported Vehicle** message, write down the number that appears in the middle of the screen and contact tech support for details.
- A loaner Power Processor will be available through one of our dealers if your vehicle's PCM needs to be reprogrammed to stock, do to a stacker issue or a bad flash. A Deposit will be required until the unit is returned. Call Tech support for details.

PRODUCT WARRANTY

Factory Direct Limited Lifetime Warranty

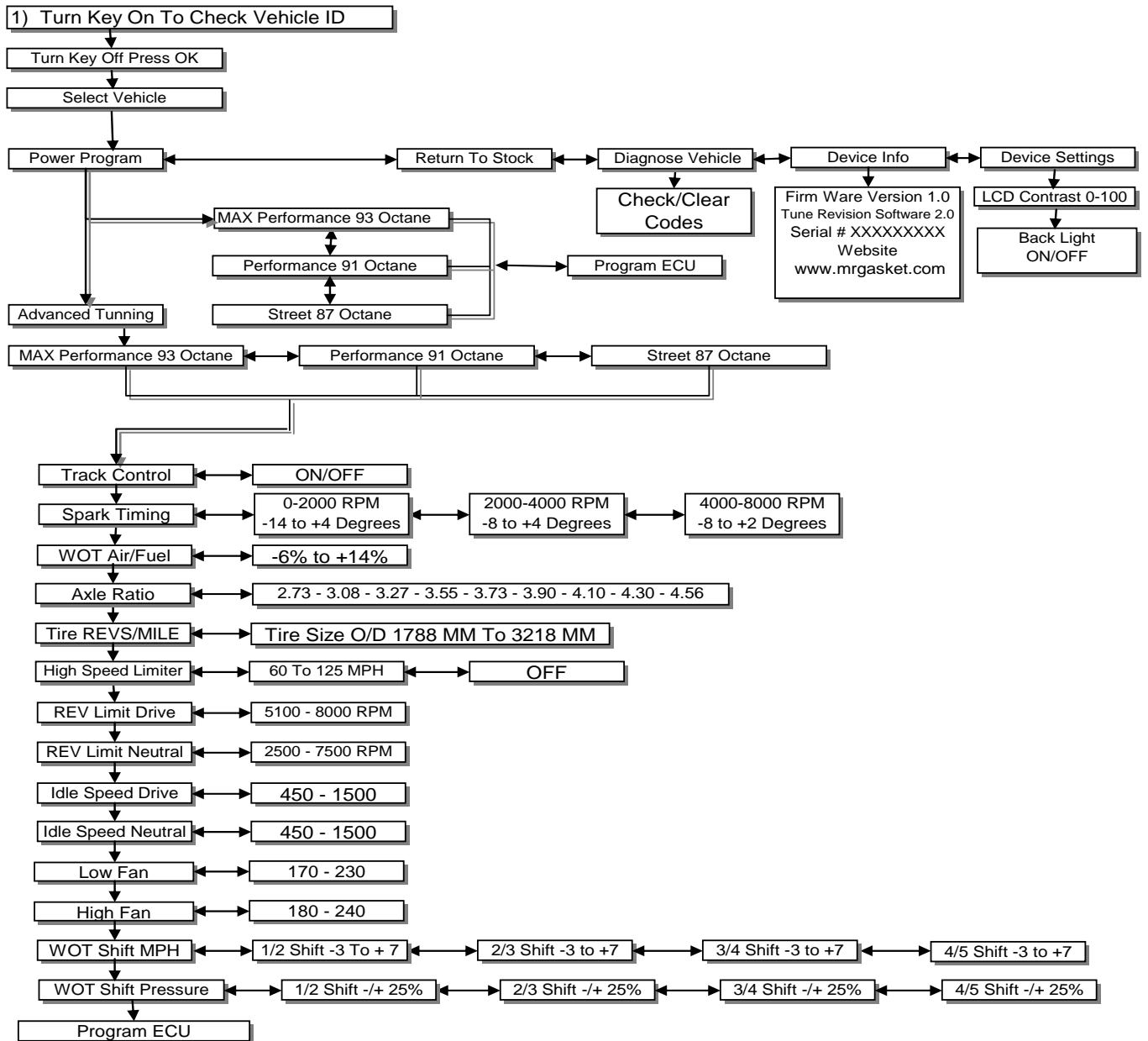
All Accel/DFI Products* are warranted against defects in materials or workmanship. Accel/DFI liability under this warranty shall be limited to the prompt Repair, correction, or replacement of any defective part of the product which Accel/DFI determines to be necessary. This Limited Lifetime Warranty is to the original purchaser for as long as he or she owns the vehicle on which the product is originally installed, providing all the information requested is furnished.

You must retain a copy of your original sales invoice or receipt.

Without proper documentation, This warranty is void.

Resold units are NOT covered under this warranty.

Power Processor Quick Menu Flow Chart Gasoline View



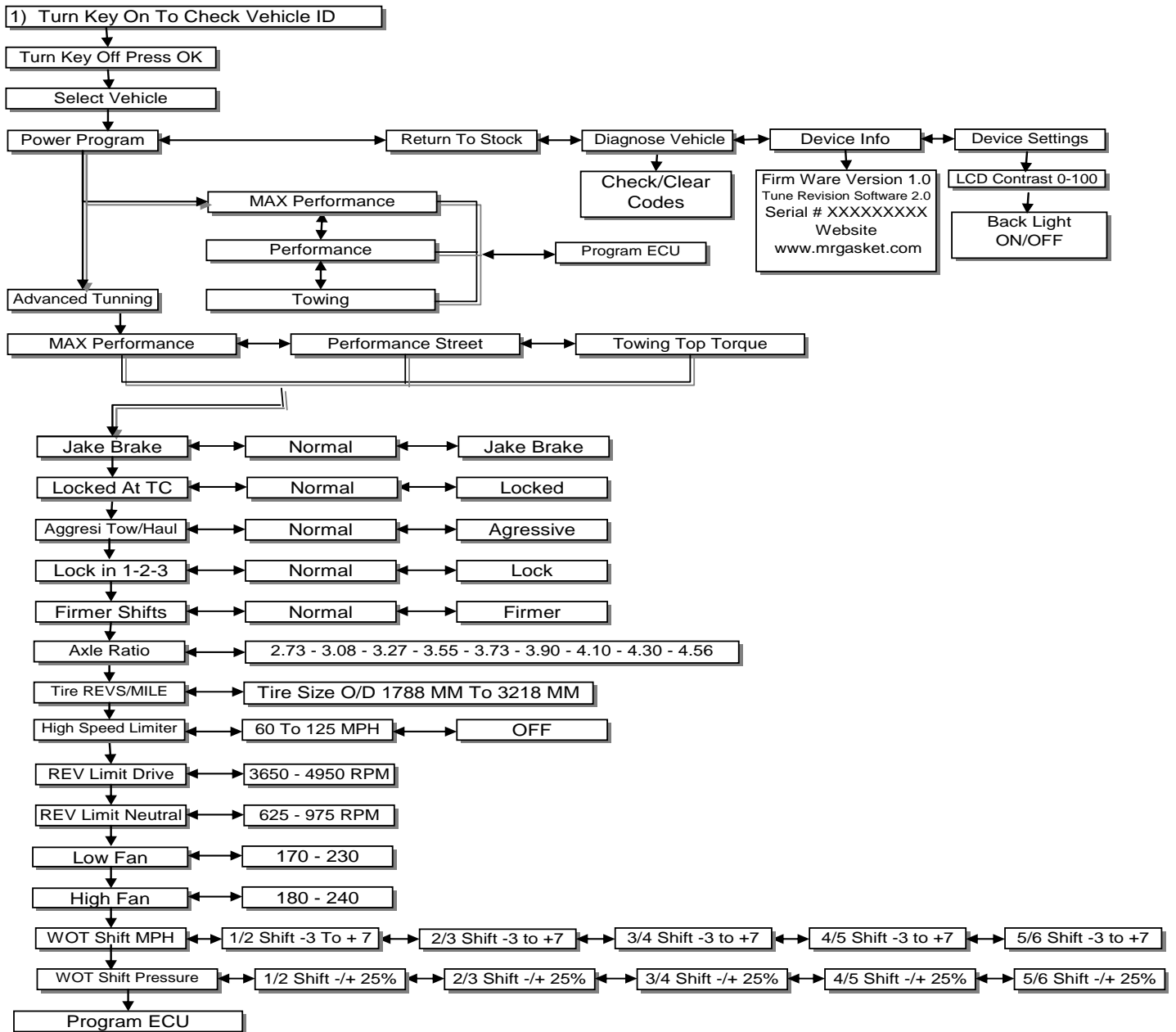
Programin ECU

Once you are done selecting the options, press cancel, then select program ECU. Follow directions and do not disturb the Processor or turn key off.

Some vehicle are not equipped with certain functions or parameters that the PCM controls, they will not come up on the Processors screen)

RPM limits vary form vehicle to vehicle.

Power Processor Quick Menu Flow Chart Diesel view



Installing program in ECU.

Once you are done selecting the options, press cancel, then select program ECU. Follow directions and do not disturb the Processor or turn key off.

Some vehicle are not equipped with certain functions or parameters that the PCM controls, they will not come up on the Proccesors screen)

RPM Limits vary from vehicle to vehicle

**Please read these instructions carefully before using your
Accel/DFI Power Processor.**

Installation - Cautions and Warnings

- 1 – Always follow safety & installation guideline and precautions when installing this or any other performance related component.
- 2 – Test system for proper operation after completing installation.
- 3 – Always apply emergency brakes when working on vehicle.

PROGRAMMING INSTRUCTIONS

To select your options and parameters

Use **Up** – ▲ ▼ **Down** Arrow keys to change options

Use **Left** – ◀ ▶ **Right** Arrow Keys to pick selections

1. Set the parking brake. Locate the Data Link Connector (ALDL) under the driver's side of the dash panel near the right knee position. (In most cases)
2. Plug the Processor cable into the ALDL Port. Make sure the cable is plugged in completely to ensure a good connection.
The Processor will prompt you to turn the ignition key ON and press OK so it can check vehicle ID, but do not start the engine. It will then identify your vehicle and ask you to turn the ignition OFF and press OK.
3. A display of vehicle options will appear on its screen. Select the vehicle you have. Press OK (**If an Unsupported Vehicle message appears, see page 5, Trouble Shooting Section**).
4. Next, select Power Program, press ok, and choose from the 3 Levels of Power Tunes that are supplied or select the Advanced Tuning option to input your own parameters with the available power tunes. (Use the Flow Chart on page 6 -7 as a guide).
If you have selected a supplied Power Tune (Max Performance 93 Octane – Performance 91 Octane – Street 87 Octane.
5. Then press ok and follow the instructions on screen.
6. **If you selected Advanced tuning:** Select one of the three Power Tune Options.



(Max Performance 93 Octane – Performance 91 Octane – Street 87 Octane). Please select the correct Power Program for the grade of gasoline you are using. Selecting the wrong Program can cause severe engine damage. (If you select default option, the processor will use the stock OEM settings for your options).

7. Traction Control: If you vehicle has a Traction Control option, you can select **On** to keep using your manual Off/ON button on your dash to disable the system , or Select **Off** to disable the traction control at all times.

8. Spark Timing: (Gasoline Only) Advance or Retard you ignition timing to enhance acceleration and Horse Power. At 3 separate parameters, 0-2000 RPM, 2000-4000 RPM, 4000-8000 RPM, You can Retard or Advance the timing -14 up to +4 degrees.

- If you are using a power adder like Nitrous Oxide, Turbo Charger or Super Charger, than you would need to retard the timing to avoid detonation. **(Refer to power adder supplier instructions as to how much timing to pull out).** If your engine is naturally aspirated, than you can add timing, (2 Degrees at a time) to see if the horsepower picks up. Remember that not all engines like extra timing.

(Be careful when advancing your ignition timing, if you hear engine knock or detonation, pull vehicle over immediately and retard the timing back to OEM specs to avoid engine damage).

9. WOT Air/Fuel: Lean out or richen the **Wide Open Throttle** air/fuel Ratio - 6% to +14% to get optimum horsepower from your engine. **(We recommend the use, of an Air/Fuel Meter, like the Accel/DFI 77062 when tuning you're A/F ratio to avoid engine damage).**

10. Axle Ratio: If rear axle gear has been changed from original, use the option to select the correct gear ratio. **Available Gear Ratio selection:**

- If rear axle ratio has not been changed, go to next step.

2.73
3.08
3.55
3.27
3.73
3.90
4.10
4.30
4.56



11. Tire REVS/Mile: If you have installed tires with a larger Outer Diameter that is different than the original factory tires. This feature will allow you to adjust your speedometer and part-throttle shifting (for automatic transmissions) for the new tire O/D Size. **Measure the Outer Diameter/Circumference of your tire, then input the size, 1788MM to 3218MM (Note: to convert inches to MM, Multiply inches by 25.4. Example: 88 inches OD X 25.4 = 2235 MM).**

12. High Speed Limiter: If you have installed factory-approved high-Speed rated performance tires, you can change your vehicle's top-speed limiter to match the speed rating of those tires. **MPH Limit selections are 60 to 125 or select OFF to Disable Limiter.**

• The speed rating or speed symbol will be found on the sidewall of your tires. **Here are the corresponding symbols and maximum top speed limits depending on model:**

S – 110 MPH
T – 116 MPH
H – 128 MPH
V – 147 MPH
Z – 255 MPH

(Remember that tire speed rating is not the only factor you should consider when changing your factory speed limit setting, you also need to consider how stable your vehicle is at the speed you choose).

13. REV Limit in Drive: To keep the stock engine rev limit, go to next step. To adjust the engine rev limit to a value other than stock. **Select from 5100 to 8000 RPM.** The stock rev limit may vary depending on year and engine size of the vehicle. The Stock REV limit will always be the one seen in the screen first; you can either raise it or lower it.

• If your vehicle has an automatic transmission and you are changing your RPM "rev" limiter, you must also adjust your shift points accordingly **(See shift point chart section #19)** Failure to do so may result in damage to your engine or powertrain. **(Note: remember not to exceed engine valve train capabilities).**

14. REV Limit in Neutral: To keep the stock engine neutral rev limit, go to next step. To adjust the engine neutral rev limit to a value other than stock. **Select from 2500 to 7500 RPM.** The stock rev limit may vary depending on year and engine size of the vehicle. The Stock REV limit will always be the one seen in the screen first; you can either raise it or lower it. This feature is used to prevent engine damage mainly in situations, were you accidentally step on the accelerator pedal while the vehicle is in park or neutral, or if you accidentally to go from drive to neutral (Miss shift) while accelerating.

15. Idle Speed in Drive: This option is mainly used when a cam or cylinder head modification has been done. Parameters are 450 To 1500 RPM.

(Drive/In Gear RPM limit may vary depending on year and engine size of the vehicle).

16. Idle Speed in Neutral: Same as above, only the transmission is not in gear. **(Neutral RPM limit may vary depending on year and engine size of the vehicle).**

17. Low Fan: If you do not wish to change the temperature at which the electric cooling Low Speed Fan turns ON and turns OFF, go to next step.

If you do wish to change the temperature at which the electric cooling Low Speed Fan turns ON or turns OFF. **You can select from 170 to 230 Degrees settings.**

18. High Fan: If you do not wish to change the temperature at which the electric cooling High Speed Fan turns ON and turns OFF, go to next step.

If you do wish to change the temperature at which the electric cooling High Speed Fan turns ON or turns OFF. **You can select from 180 to 240 Degrees settings.**

Section 17 and 18. Note: Even with the stock thermostat. A cooler combustion chamber will produce more power. Just remember not to set the fan-On temperature below your thermostat rated temp.

Example: 180 Degrees temp thermostat. Set the fan-On temp no lower than 185 degrees.

19. WOT Shift MPH: (Auto Trans Only) If you wish to keep the factory shift points, go to next set. If you wish to raise, or lower them. The shift point option allows you to change the MPH/RPM at which your transmission shifts at wide-open throttle.

**Select to Raise or Lower the MPH shift points -3 to +7 MPH from the following gear selections: 1 – 2 shift point 2 – 3 shift point
3 – 4 shift point 4 – 5 shift point**

To find out the optimum shift points for your vehicle's maximum acceleration, you must test for this at the track with timing slips to compare the end results. If wheel-spin is present, this will cause your test results to vary and be inconsistent. You need to implement a starting-line strategy that gives you the best repeatable elapsed times. For street driven vehicles, we recommend D.O.T. approved street slicks. Disregard any run with excessive wheel-spin, and try to get at least three 3 runs that repeat within 4 or 5 hundredths of a second. Then average them and use the average value (not just your best run) for comparison.

Note: Test only one variable/Change at a time until it is optimized. Test Only one 1 shift point at a time until the best result is found, leaving all other shift points alone. Once the best 1-2 shift point is found, test 2-3 shift point and so on.

The highest shift point RPM you can use must always be less than the rev limit RPM. If you do hit the rev limit, the PCM will shut the fuel off until the RPM's drop sufficiently. You will have to abort that test run. The rev limiter is there to protect your valve-train and the engine from damage. Even if you went quicker every time you raised the shift point RPM, stop at 100 RPM below the rev limit. That's the most RPM you can use safely for that shift point. If 2 different shift points run the same average E.T, select the one with lower MPH to save wear and tear on the Powertrain.

Example of REV limit settings, versus shift point selection.

REV Limit Selected	Use these shift points
-400 RPM	-7 MPH or lower
-200 RPM	-6 MPH or lower
-300 RPM	-4 MPH or lower
-100 RPM	-2 MPH or lower
Stock RPM	Stock MPH or lower
+100 RPM	+2 MPH or lower
+200 RPM	+4 MPH or lower
+300 RPM	+6 MPH or lower
+400 RPM	+7 MPH or lower

20. WOT Shift Pressure: Using this option will determine how much firmer your transmission shifts are. (AUTOMATICS ONLY)
 If you have installed an aftermarket shift kit into your automatic transmission, skip this option. The shift kit has already firmed up your shifts. **You DO NOT want the Processor to make them even firmer because transmission damage may occur.**
 If you **HAVE NOT** installed an aftermarket shift kit, into your automatic transmission, and would like to firm up your shift points, than this option will help you do that. You can select firmness percentage per shift at +/-25% for the 1-2 2-3 3-4 5-6 shift points.
Note: if you feel that your shift points have become to harsh after you test drive the vehicle, go back and reprogram just the shift firmness to a lower percentage. This will avoid any powertrain breakage.

Diesel Only

Jake Brake. The Jake Brake function is used to increase exhaust backpressure when lifting of the throttle by using the Variable Gate Turbo control. This function increases the engine braking, and is useful when towing. The driver feel of this function will not be the same as an aftermarket exhaust brake, as it is only a limited amount of back pressure that can be created in this method.

Locked At CT (Closed Throttle). This function locks the Torque converter on deceleration when the throttle is closed. This, combined with the Jake Brake, can help increase engine braking when towing heavy loads.

Aggressive Tow/Haul. By selecting the tow/haul button on the shift selection level. This function will allow the transmission to downshift more often when towing a load. It applies a more aggressive downshift/upshift when towing to help with vehicle acceleration and braking.

Locked in 1-2-3. This function allows the PCM to lock the torque converter in 1st, 2nd and 3rd gears. This is something that should only be used on a drag strip application, and if used on the street, There will be drivability problems when the engine RPM's are too low.

Firmer Shifts. This option is a global shift modifier, and will cause more aggressive shifting on all shift types, part throttle and WOT shifting will be altered with this option. **NOTE.** Some customers will not like the super hard shifting, where others do.

21. Installing program in ECU. Once you are done selecting the options, select cancel, select program ECU. Follow directions and do not disturb the Processor or turn the key off.

PROGRAMMING BACK TO STOCK OR CHANGING OPTIONS:

You may return your vehicle's PCM to the stock programming or change tuning options at anytime. Follow these steps to go back to stock tuning or change your option settings.

- **Return to stock:** Reconnect the Processor to the ALDL connector. Use the right side arrow to select return to stock, and then follow the direction on the screen.
- **Change Options:** Reconnect the Processor to the ALDL connector. Use the right side arrow to select Power Program, and then follow the direction on the screen.

Diagnose Vehicle
Check DTC's – Clear Codes – Read Strategy

- Connect the Processor to the ALDL connector. Use the right side arrow to select Diagnose Vehicle, and then follow the direction on the screen.
- The Processor can still be used to Check & Clear codes on any vehicle even after it locks in your VIN #.

Device Info

- By selecting Device Info and pressing OK, you will be able to see what Firmware Version you have, Processors Serial #, our Web Site Address, and the last screen shows if the Processor is **Locked** or **Unlocked** to a particular vehicles Vin #.

Device Settings

- By selecting Device Settings and pressing OK, You can Change the LCD Contrast and Back Light control.

