

## LSJ Stage 3 Kit Features and Instructions

**Fits:** 2004.5 through 07 Ion Redlines  
2005 through 07 Cobalt SS Supercharged Vehicles

The Stage III kit consists of:

- 76 mm pulley PN 88958720
- 2 pass intercooler end plate PN 88958721
- PCM
  - 04 Saturn Ion Redline PN 12610641
  - 05 Saturn Ion Redline PN 12610642
  - 06/07 Saturn Ion Redline PN 12610643
  - 05 Chevy Cobalt SS PN 12610644
  - 06/07 Chevy Cobalt SS PN 12610645
- Jumper wires for adding a nitrous system

NOTE: This kit is an upgrade to Stage 2. It requires the following parts from the Stage 2 kit: high-flow fuel injectors, pulley adapter hub, and serpentine belt. The Stage 3 upgrades are meant for offroad use only and are not certified to be emissions legal.

The features provided in this kit increase the potential horsepower up to 260hp and provide a greater level of adjustability for offroad use. A low restriction, high flow exhaust system is also suggested to maximize your vehicles performance. GMPP offers an extrude honed exhaust manifold PN 19131972 that would be a good start to a low restriction exhaust system.

Because Stage 3 is for off-road use only, the Stage 3 PCM will disable your vehicle's air-conditioning. For on-road use, we suggest using the production PCM with Stage 2 reflash, which will retain the operation of the air conditioning.

## **Stage 3 PCM Features and Instructions for Part Numbers: 12610641, 12610642, 12610643, 12610644 and 12610645**

**Rev Limit Adjustability**– This PCM is equipped with a user adjustable rev limit from 6750 to 8000 RPM. Note: For rpm operation in excess of 7000rpm, it is recommended that you use neutral balance shafts (PN 88958615) and high-speed valve springs such as those available from Bates Engineering.

To set the rev limiter, with the engine off, turn the key to the accessory position.

Press the throttle part way down and, at approximately 50% throttle, the tachometer needle will show the current rev limit. Press down further and the mode changes to setting mode. The tachometer will display the rev limit in 250 RPM increments up to 8000 RPM. When the tachometer is displaying the desired rev limit, hold the throttle steady and switch the key off.

**Octane Switch** – This PCM is equipped with a user selectable spark curve to take advantage of the characteristics of 100 Octane racing fuel.

To select 100 Octane mode: With the engine off and the key in the accessory position, turn on the cruise control and depress the cruise set button for approximately 10 seconds. The shift light will illuminate indicating 100 Octane spark mode. Repeat this procedure to return to 93 octane fuel mode. The shift light will turn off when 93 octane fuel mode is active.

The PCM will return to the 93 octane mode each time the ignition is switched off. Therefore, the procedure for activating 100 Octane mode will need to be repeated if the key has been switched off.

It is important to note that when not in 100 Octane spark mode the default curve in this PCM requires 93 Octane premium fuel. The software is also equipped with a function that will disable 100 Octane mode if excessive knock is detected. The shift light will turn off, indicating that this has happened.

### **Nitrous control algorithm**

This PCM is also equipped with a control scheme for the equivalent of a 50 shot of nitrous. The PCM will automatically provide the proper spark and fuel for nitrous up to 500 rpm below the current selected rev limit when the trigger is activated. Attached is the wiring diagram to the PCM and vehicle required to take advantage of this feature. It is important to remember that when used with the adjustable rev limit, the upper limit of the "nitrous shot" will also move. With the Stage II injectors the safe operation of nitrous stops at the 7000 RPM rev limit setting.

Enabling conditions:

TPS > 90%

RPM > 3500

Clutch at top of travel = True

Trigger input = True

RPM < Rev. Limit -500 RPM (ie RPM<6500rpm w/7000rpm limit set)

No Faults detected for: TPS, Clutch Switch, Fuel delivery, Ignition, MAF

Provided with the Stage 3 kit are 2 wire leads with the correct GM pin end crimped on for installation in the wiring harness connector as shown in the wiring diagram.

### **Powertrain Control Module Replacement**

Turn the ignition OFF when installing or removing the control module connectors and disconnecting or reconnecting the power to the control module (battery cable, powertrain control module (PCM)/engine control module (ECM)/transaxle control module (TCM) pigtail, control module fuse, jumper cables, etc.) in order to prevent internal control module damage.

Control module damage may result when the metal case contacts battery voltage. DO NOT contact the control module metal case with battery voltage when servicing a control module, using battery booster cables, or when charging the vehicle battery.

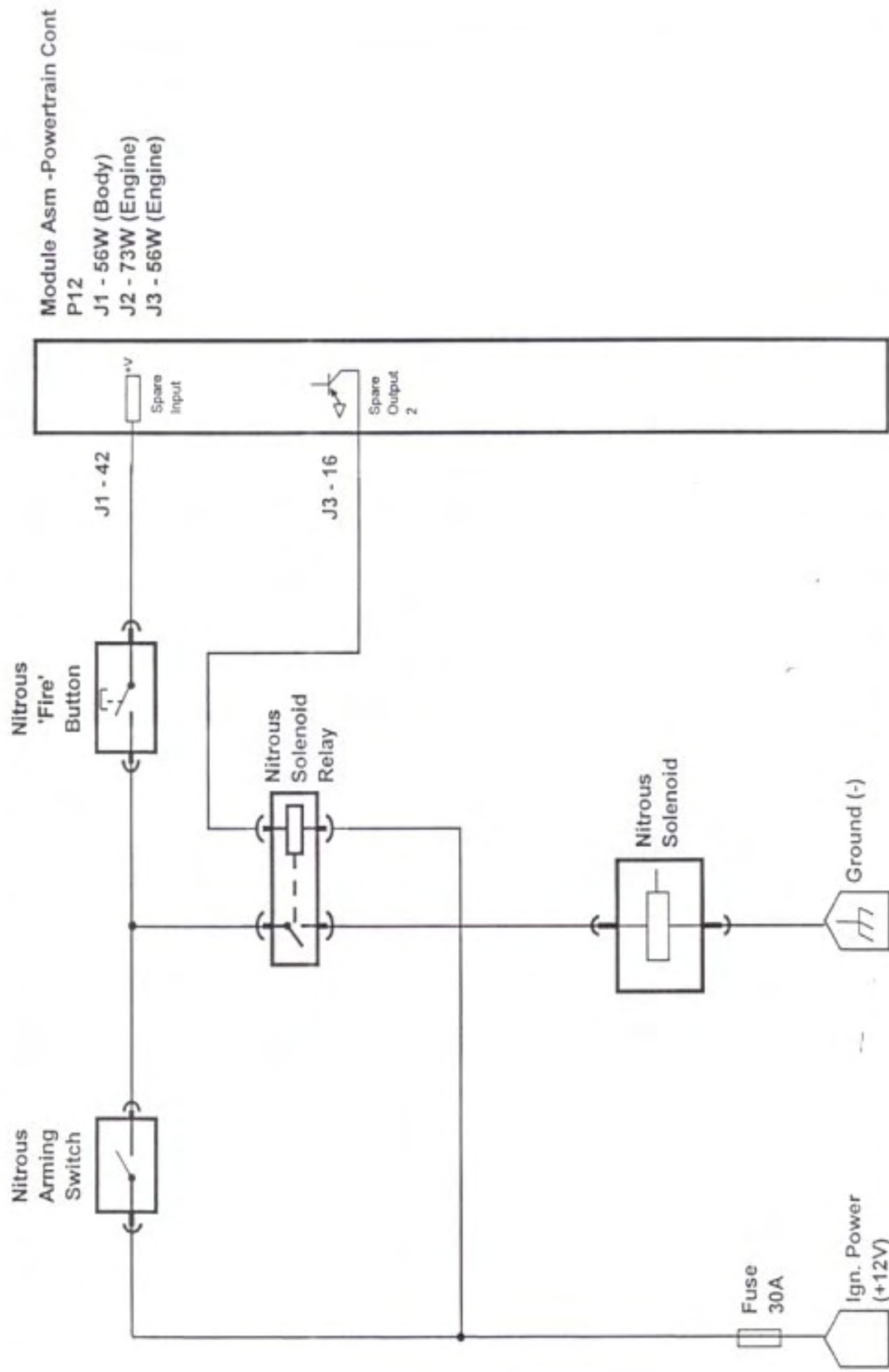
In order to prevent any possible electrostatic discharge damage to the control module, do not touch the connector pins or the soldered components on the circuit board.

Remove any debris from around the control module connector surfaces before servicing the control module. Inspect the control module connector gaskets when diagnosing or replacing the control module. Ensure that the gaskets are installed correctly. The gaskets prevent contaminant intrusion into the control module.

Take note of the wire harness connections to the production PCM. Carefully unplug and remove the production PCM. Install the Stage 3 PCM by duplicating the wire harness connections.

**Important:** It is necessary to record the remaining engine oil life. Because the replacement module is not programmed with the remaining engine oil life, the engine oil life will default to 100 percent. Note that the engine oil will need to be changed at 3000 miles (5,000 km) from the last engine oil change.

# NITROUS SOLENOID CONTROL



Module Asm -Powertrain Cont  
P12  
J1 - 56W (Body)  
J2 - 73W (Engine)  
J3 - 56W (Engine)