INSTALLATION INSTRUCTIONS FOR PART #30020 SAFEINJECTION® SYSTEMS

Contents:

CAUTION

You must completely read though these instructions before installing and operating this product. Failure to do so can result in damage to this product and the vehicle.

Introduction

The SafeInjection® system by Snow Performance is designed to ensure reliability for highly modified performance vehicles using the Boost Cooler Water/Methanol Injection Systems. The unit can detect low flow situations and will output a 12 volt trigger signal in the event a fault occurs.

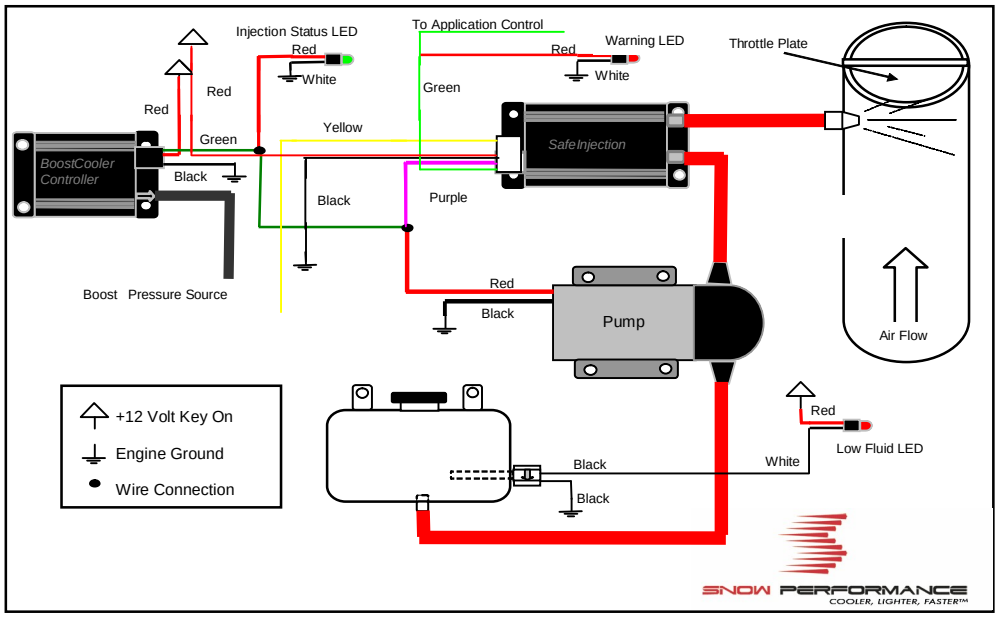
Note – This system is not intended for Stage One Snow Performance systems.

Installation: Mechanical

The SafeInjection® unit can be installed in the engine bay of the vehicle. Do not mount the unit directly on the engine block or damage to the product may result.

- Insert the high pressure line from the output of the pump into the quick connect fitting labeled PUMP on the front of the SafeInjection® unit. Pull on the hose after inserting to insure a tight connection. A clean, straight hose end is needed to ensure a tight seal. A razor blade can make for a good hose end.
- Insert a second high pressure hose into the quick connect fitting labeled NOZZLE on the front panel. The other end of this hose is to be connected to the nozzle holder included in the Boost Cooler kit. If you have a Solenoid upgrade, it can be installed on the hose between the output of the SafeInjection® unit labeled NOZZLE and the injection nozzle.

IMPORTANT: NEVER OPERATE SAFEINJECTION® WITHOUT ALL NOZZLES IN PLACE AND CONNECTED TO THE TUBING. DOING SO WILL DAMAGE THE FLOW METERING SYSTEM.



Installation: Electrical

- Connect the Green wire from pin 1 to the device that will receive the 12 volt Trigger signal. (See application guide for details.)
- Connect the Red wire from pin 2 to a 12V key-on power source.
- Connect the Black wire from pin 3 to a secure ground or battery negative terminal.
- Connect the Purple wire from pin 4 to the pump power wire or output wire from the controll unit. **Do not** connect the Purple wire in such a way that it receives direct 12V power. It must get it's signal from the output of a Stage Two or Stage Three control unit.
- Connect the Yellow wire from pin 5 to the Blue Wire on the optional Flow Guage (P/N 30510 or 30520). The gauge's Puprle Wire is for a factory dimmer switch, Red is to power, and Black is to ground.

Contact Us:

Phone

Office	(719) 633-3811
Fax	(719) 633-3496
Tech Support Line (Toll Free)	(866) 365-2762

Web
http://www.snowperformance.net

Email
sales@snowperformance.net
customerservice@snowperformance.net
tech@snowperformance.net

Mail
Snow Performance, Inc
213 Aspen Garden Way
Bldg. #1
Woodland Park, CO 80863

Notes

The names, addresses and telephone numbers mentioned are current as of February 2, 2009. Note that this information is subject to change. Please refer to www.snowperformance.net for current information.

Disclaimer

Do not use this product until you have carefully read the following agreement.
This sets forth the terms and conditions for the use of this product.
The installation of this product indicates that the BUYER has read and understands this agreement and accepts its terms and conditions.
Performance products by their nature are designed to increase horsepower and performance not engineered in the original vehicle and the increased stress could result in damage to related systems.
This is a high performance product – use at your own risk.
Snow Performance Inc., Its agents, employees or owners shall not be under any liability whether in contract or otherwise whether or not resulting from our negligence or contents of information supplied for any damage or loss resulting from such information.
The **BUYER** is responsible to fully understand the capability and limitations of his/her vehicle according to manufacturer specifications and agrees to hold the **SELLER** harmless from any damage resulting from failure to adhere to such specifications.
The **SELLER** disclaims any warranty and expressly disclaims any liability for personal injury or damages. The **BUYER** acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this agreement and the **BUYER** agrees to indemnify the **SELLER** and to hold the **SELLER** harmless from any claim related to the item of the equipment purchased. Under no circumstances will the **SELLER** be liable for any damages or expenses by reason of use or sale of any such equipment.
The **BUYER** is responsible to obey all applicable federal, state, and local laws, statutes, and ordinances when operating his/her vehicle, and the **BUYER** agrees to hold **SELLER** harmless from any violation thereof.
The **SELLER** assumes no liability regarding the improper installation or misapplication of its products.
It is the installer's responsibility to check for proper installation and if in doubt, contact the manufacturer.

Output Options

The SafeInjection® unit monitors the flow of Water/Methanol in the system. When flow drops below the unit's set point for a specified period of time, the fault trigger will go to a high state of 12 volts. In addition to the supplied red LED, this trigger can be used to signal the following:

- To reduce timing with an ignition/timing controller such as an MSD or other after market ignition enhancer (see applications below).
- Aftermarket engine computer. See ECU instructions to trigger a less aggressive "tune".
- Part #30100 provides a solenoid to be used with the SafeInjection® system for turbo vehicles equipped with an after market boost control devise. In the event the SafeInjection® activates, the solenoid will open, allowing full boost pressure to the turbo waste gates. This will limit the maximum boost pressure of the engine to that set by the waste gate springs.
- Part #30200 provides a relay to be used with the SafeInjection® system for turbo vehicles equipped with a stock boost control bleeder valve or electronic boost controller. In the event the SafeInjection® activates, the relay will open to cut power to the bleeder valve or EBC, allowing full boost pressure to the turbo waste gate(s). This will limit the maximum boost pressure of the engine to that set by the waste gate springs.
- Part #30300 provides a solenoid to be used with a BOV or diverter valve with the SafeInjection® system for supercharged vehicles. In the event the SafeInjection® activates, the solenoid will close and divert boost from the valve. This will cause the valve to open and limit max boost.

The trigger signal can deliver up to 1.5 amps to drive a solenoid or relay.

Operational Settings

Adjustable low flow limit

The left dial on the SafeInjection® unit controls the lowest allowed flow. It is adjustable from 100ML/MN to 600ML/MN. The dial is set to 100ML/MN when it is turned fully counter-clockwise. It is set to 600ML/MN when it is turned fully clockwise. Be very gentle when adjusting the dials, as they are very precise and do not require excessive force. Many systems function below 600ML/MN. A 175 nozzle will flow 250 ML/MN at nominal pump pressure for example.

Adjustable Delay

The SafeInjection® unit has a user adjustable delay that can be used to control the speed at which the trigger signal is activated. The delay is adjustable from 0.1 seconds (full counter clockwise) to 1.5 seconds (full clockwise). This delay prevents a 12V signal from being sent during a slow ramp up of injection or when injection is gradually being reduced.

Tuning Tip:

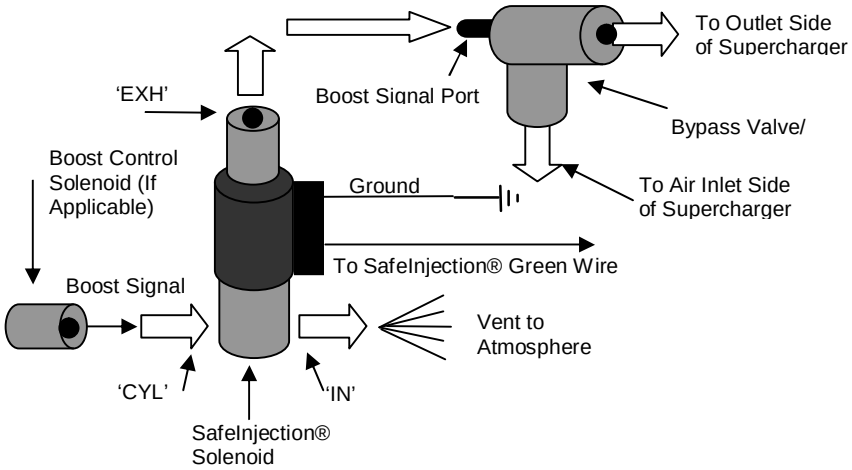
If the min flow is set at a high value and the time delay is set at a low value, the system may send out a 12V output as injection gradually ramps up, due to the system not yet passing the selected low flow value at low boost/airflow levels. Adjust the time delay upward to compensate for this.

⚠CAUTION:

NEVER RUN SAFEINJECTION® WITHOUT A NOZZLE. DOING SO WILL DESTROY THE FLOW METERING CAPABILITY OF THE UNIT.

Optional: #30300 Supercharger Bypass Solenoid

This solenoid allows the SafeInjection® system to decrease the boost pressure of a supercharged vehicle in the event of a low flow situation. When the SafeInjection® module detects a low flow situation, a 12V signal is sent on the green wire to one of the black wires of the solenoid, redirecting boost pressure. This prevents boost pressure from reaching the bypass, causing it to open and reduce boost pressure to the engine. Please refer to the diagram below for installation.



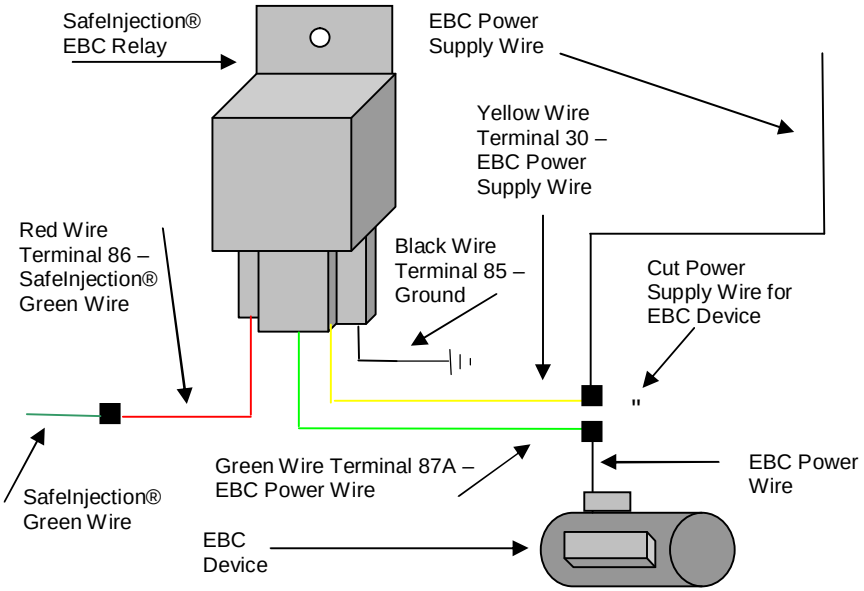
Under normal conditions the solenoid allows pressure and airflow to pass through from the CYL port to the EXH port. In the event that a 12V signal from the SafeInjection® module reaches the solenoid, it will redirect pressure and flow to the IN port. This keeps boost pressure from reaching the bypass and in turn allows the bypass to open, reducing boost pressure to the engine.

Mechanical Installation:
Use the included hose barbs in the ports of the solenoid. It is not necessary to install a hose barb on the 'IN' port of the solenoid, as it will vent pressure to atmosphere in the event of a low flow situation. Use a small amount of E6000 GOOP® (available at any parts or crafts store) sealant on the threads to prevent pressure leaks. The boost signal goes to the CYL port. Connect the EXH port to the bypass valve pressure sensor port. If the vehicle is equipped with a boost control solenoid as well as a bypass, connect the outlet of that solenoid to the 'CYL' port. Connect the 'EXH' port to the bypass valve as show above.

Electrical Installation:
The SafeInjection® solenoid has two black wires. One goes to ground, and the other connects to the green wire from the SafeInjection® harness. DO NOT connect the solenoid to the green wire from the control unit harness. Either black wire can go to ground or the green SafeInjection® wire.

Optional: #30200 EBC Relay

This relay harness allows the SafeInjection® system to cut the power supply to an electronic boost control device (referred to in the diagram and instructions as an 'EBC Device'). This can be an aftermarket boost controller or a stock boost control solenoid or bleeder valve.



Electrical Installation:

- The Green wire from the SafeInjection® harness connects to the Red wire on the relay. This wire is on the opposite side of the relay from the Black ground wire.
- Cut the power supply wire for the EBC device. Connect the EBC device side of the cut wire to the Green wire from the relay.
- Connect the Yellow wire from the relay to the power supply side of the cut wire.
- Connect the Black wire to a solid ground point.

APPLICATION INDEX

Turbo	Part #	Description	Function	SI Connection	Notes
	SNOW - 30100	Aftermarket Boost Regulator	Lowers Max Boost psi	NC Solenoid	SI opens solenoid to limit boost to max wastegate psi.
	SNOW - 30200	Stock boost bleeder solenoid	Lowers Max Boost psi	Normally Closed Relay	NC relay opens electrical connection of stock solenoid to limit boost to max wastegate psi.

Aftermarket ECU		Description	Function	SI Connection	Notes
		AEM	Retard timing or lower boost	NOS Solenoid Input trigger.	SI sends signal to input of aftermarket ECU. User defined safety settings.

SuperCharger	Part #	Description	Function	SI Connection	Notes
	SNOW - 30300	Centrifugal	Lowers Max Boost psi	Solenoid	SI enables solenoid that allows boost to open Bosch BOV which limits max boost psi.
	SNOW - 30100	03-'04 SVT Cobra Mustang, Ford Lightning Truck	Lowers Max Boost psi	NC Solenoid	SI enables solenoid to allow vacuum to stock boost by-pass actuator.

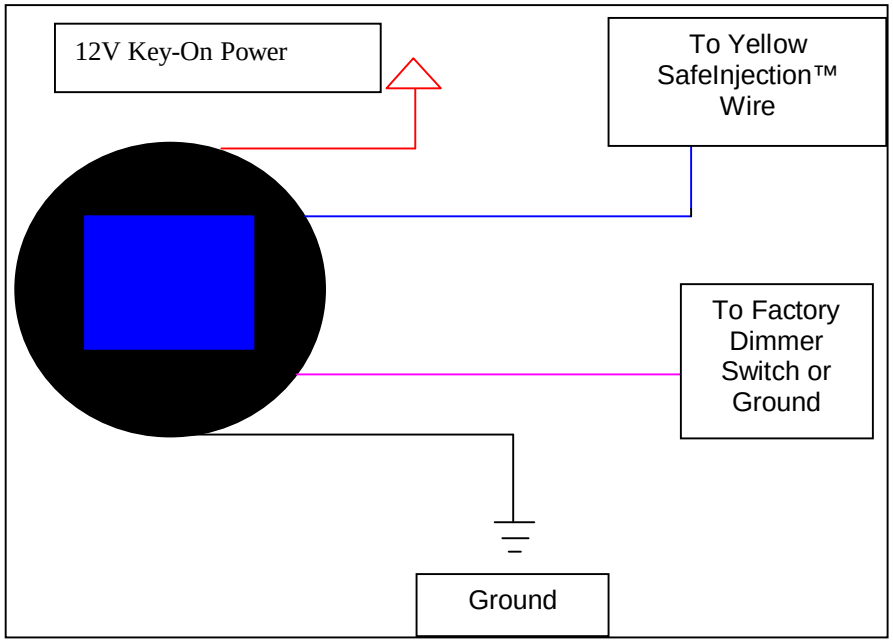
MSD	Part #	Description	Retard Function	SI Connection	Notes
	MSD-6520	Digital-6 Plus Ignition	Single Stage Retard	Pink Wire	0.1 - 9.9 Deg retard adjustable
	MSD-8982	Start/Retard Control		Violet Wire	10deg (factory) or 25deg
	MSD-8975	Digital Retard Control	Multi Stage Retard	4 wire	Relay and remove from ground to enable retard
	MSD-8970	3-Stage Retard	3 Stage Retard	3 wire	Relay and remove from ground to enable retard
	MSD-6200	6A	Requires 8980		
	MSD-6420	6AL	Requires 8980		
	MSD-6462	6BTM	Manual Nob / Boost psi		
	MSD-8980	Timing Controller	Single Stage Retard	Gray & Black	SI drives NC relay, Open circuit activates retard

Mallory	Part #	Description	Function	SI Connection	Notes
	MAA-685	HyFire VI-A ignition	Single Stage Retard	Yellow Wire	0.1 - 15 deg retard adjustable
	MAA-678	HyFire 7C	Four Stage Retard	RET1 to RET4	0.1 - 15 deg retard adjustable

Accel	Part #	Description	Function	SI Connection	Notes
	ACC-49500	500+	4 stage Retard		0.1 - 20 deg retard adjustable
	ACC-49375	375+	Single Stage	Yellow wire	0.1 - 15 deg retard adjustable
	ACC-49355	Timing Retard Module		Gray wire	SI drives relay to ground gray wire

Crane	Part #	Description	Function	SI Connection	Notes
	CRN-6000-6446	TRC-2	Single Stage		0 - 20 deg retard adjustable

Optional: SafeInjection™ Flow Gauge

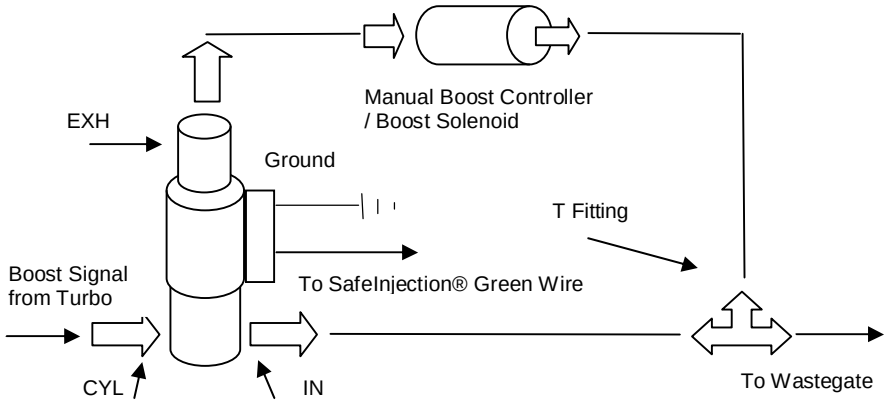


The SafeInjection™ flow gauge displays your water/methanol flow rate in ML/MN X10. So if the display shows '50', then the system is flowing approximately 500ML of fluid per minute.

- The gauge's Blue wire uses the Yellow output wire from the SafeInjection™ wire harness.
- The Red wire connects to 12V key-on power.
- The Black Wire connects to ground.
- The Purple wire allows the gauge brightness to be controlled by a factory dimmer switch. If full brightness is desired, then connect the Purple wire to ground.

Optional: #30100 Wastegate Solenoid

This solenoid allows the SafeInjection® system to decrease the boost pressure of a turbocharged vehicle in the event of a low flow situation. When the SafeInjection® module detects a low flow situation, a 12V signal is sent on the green wire to one of the black wires of the solenoid, redirecting boost pressure. This can be used to bypass a manual boost controller or a boost control solenoid. By allowing direct pressure to reach the wastegate, the vehicle will run the lowest boost pressure possible. Please refer to the diagram below for installation.



Under normal conditions the solenoid allows pressure and airflow to pass through from the CYL port to the EXH port. In the event that a 12V signal from the SafeInjection® module reaches the solenoid, it will redirect pressure and flow to the IN port. This bypasses the standard boost control system and allows full pressure to reach the wastegate, opening it and reducing boost pressure.

Mechanical Installation:
Use a small amount of E6000 GOOP® (available at any parts or crafts store) sealant on the threads to prevent leaks when installing the included hose barbs. The boost signal from the turbo goes to the CYL port. Connect the EXH port to the inlet of the manual boost controller or boost control solenoid. The outlet of the manual boost controller or boost control solenoid connects to the 'T' fitting. The IN port of the SafeInjection® solenoid connects to another port on the 'T' fitting. The third port on the 'T' fitting connects to the wastegate.

Electrical Installation:
Connect one black wire to ground, and the other to the green wire from the SafeInjection® harness.