

# MILLER PERFORMANCE



## M20 ProStreet Induction Kit Instruction Manual

Tel (604) 755 7692  
2009 Abbotsford Way, Abbotsford BC, V2S 6Y5  
[Millerperformancecars.com](http://Millerperformancecars.com)

## Table of Contents:

Limited Lifetime Warranty .....	3
1. General Information.....	4
1.1 Introduction.....	4
1.2 ProStreet Induction Kit Description.....	4
1.3 Parts Included (Standard System Contents).....	4
1.4 Tools Required.....	5
1.5 Safety and Precautions.....	5
2. System Installation.....	6
2.1 Introduction.....	6
2.2 Battery Disconnect.....	6
2.3 ECU and Chip Modifications.....	7
2. 4 ECU Retrofit (Acquiring 12v Signal).....	9
2.5 Chip Removal/installation .....	10
2.6 Stock Intake Tract Removal.....	11
2.7 Installing PSIK.....	12
2.8 Final Check .....	15
3. Drive your Vehicle.....	16
3.1 Initial Start up .....	16
3.2 Troubleshooting .....	16

# Limited Lifetime Warranty

**Miller Performance Ltd. warrants that products manufactured by Miller Performance Ltd will be free from defects in materials and workmanship for the life that you own your vehicle this excludes electronic products.** If any such product proves defective during the applicable warranty period, Miller Performance Ltd., at its option, either will repair the defective product with charge for parts and labor or will provide a replacement in exchange for the defective product. **Items not manufactured by Miller Performance Ltd. Have a limited warranty of one year past the date of purchase. Electronic items not manufactured by Miller Performance are excluded from any warranty. Electronic Items manufactured by Miller Performance have a limited 30 day warranty.**

In order to obtain service under this warranty, the customer must notify Miller Performance Ltd. of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. In all cases the customer will be responsible for packaging and shipping the defective product back to the service center specified by Miller Performance Ltd., with shipping charges prepaid. Miller Performance Ltd. shall pay for the return of the product to the customer if the shipment is within North America, otherwise the customer shall be responsible for all shipping charges, insurance, duties and taxes, if the product is returned to any other location.

This warranty shall not apply to any defect, failure or damage caused by improper use or failure to observe proper operating procedures per the product specification or operators manual or improper or inadequate maintenance and care. Miller Performance Ltd. shall not be obligated to furnish service under this warranty 1) to repair damage resulting from attempts by personnel other than Miller Performance Ltd's. representatives to repair or service the product; 2) to repair damage resulting from improper use or connection to incompatible equipment; 3) to repair damage resulting from operation outside of the operating or environmental specifications of the product.

MILLER PERFORMANCE LTD. LIABILITY FOR THE MERCHANTABILITY AND USE OF THE PRODUCT IS EXPRESSLY LIMITED TO ITS WARRANTY SET OUT ABOVE. THIS DISCLAIMER AND LIMITED WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL REPRESENTATIONS AND WARRANTIES EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR PARTICULAR PURPOSE, WHETHER ARISING FROM STATUTE, COMMON LAW, CUSTOM OR OTHERWISE. THE REMEDY SET FORTH IN THIS DISCLAIMER AND LIMITED WARRANTY SHALL BE THE EXCLUSIVE REMEDIES AVAILABLE TO ANY PERSON. MILLER PERFORMANCE LTD. SHALL NOT BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT OR CAUSED BY THE DEFECT, FAILURE OR MALFUNCTION OF THIS PRODUCT, NOR ANY OTHER LOSSES OR INJURIES, WHETHER A CLAIM FOR SUCH DAMAGES, LOSSES OR INJURIES IS BASED UPON WARRANTY, CONTRACT, NEGLIGENCE, OR OTHERWISE. BY ACCEPTING DELIVERY OF THIS PRODUCT, THE PURCHASER EXPRESSLY WAIVES ALL OTHER SUCH POSSIBLE WARRANTIES, LIABILITIES AND REMEDIES. MILLER PERFORMANCE LTD. AND PURCHASER EXPRESSLY AGREE THAT THE SALE HEREUNDER IS FOR COMMERCIAL OR INDUSTRIAL USE ONLY AND NOT FOR CONSUMER USES AS DEFINED BY THE MAGNUSON-MOSS WARRANTY ACT OR SIMILAR STATE CONSUMER WARRANTY STATUTE

# 1. General Information

## 1.1 Introduction

The Miller Performance PSIK™ has been carefully developed to provide optimum performance without compromising dependability. We have always used a factory correct formula in the development of Miller Performance products.

The Miller PSIK is engineered to upgrade a stock M20 intake tract from 2.5” to 3.0” in diameter the entire way! Even more, the PSIK integrates a MAF sensor which is a modern form of metering air. The performance of this application may be altered if you have done or will do other modifications to your car. You can contact our technical department if you have any questions regarding other modifications before installing this kit.

## 1.2 ProStreet Induction Kit Description

The Miller PSIK™ features the following:

- 3.0” 6061 Aluminum Intake
- Integrated Miller GENiii RACE MAF
- Stock Mountable Design
- Excellent flow rating
- Fast install time

## 1.3 Parts Included (Standard System Contents)






Part Number	Description	Quantity
MP-MAF-2222	Miller PSIK Intake Tube	1
RU-5111	K&N Air Filter	1
MP-HTR-E390	Rubber Elbow with ICV port	1
	Hose Clamps	2
MP-SG-2222	Aluminum Splash guard	1
MP-SFT-2222	PSIK Software	1

## 1.4 Tools Required

The Following tools and supplies (not included) or similar tools and supplies are required for fast and proper installation of this Miller Performance MAF System™:

- Flathead Screwdriver
- Philips Screwdriver
- 10mm socket wrench
- Wire strippers
- Solder
- Soldering iron
- Electrical tape

## 1.5 Safety and Precautions

	<b>Warning:</b> Ensure vehicle cannot roll when working on the vehicle
	<b>Warning:</b> Disconnect the ground strap (negative) whenever doing work on electrical or fuel systems.
	<b>Warning:</b> Never run the engine unless the work area is well ventilated. Carbon monoxide kills!
	<b>Caution:</b> Before starting each procedure, ensure that you have all the necessary tools and parts on hand. Read all instructions thoroughly; do not attempt shortcuts use only parts and materials that are included in this kit or approved by Miller Performance.
	<b>Caution:</b> Be careful when using soldering iron. Temperatures can be in excess of 400 degrees and burns can be serious.

## 2. System Installation

### 2.1 Introduction

The following section provides information that **MUST** be read and understood before proceeding with the installation of your Miller Performance PSIK™. The information included in this section is considered basic essential information and may not include any or all possible complications you may experience during the installation of this system.

Limit the number of distractions while installing this kit. Pay close and careful attention to the instructions and information provided in this manual during the installation. Damage to your vehicle and/or personal injury may result due to lack of attention.

### 2.2 Battery Disconnect



**Figure 1**  
**Disconnect the Negative terminal on the battery.**

## 2.3 ECU and Chip Modifications

This section will guide you through the process of accessing your ECU to change the Chip and modify some ECU wires.

1. Open the glove box and remove the plastic cover to expose the ECU located on the top of the glove box compartment.
2. Now the ECU will be exposed. Using a 10mm socket wrench, undo the two 10mm nuts.
3. Unplug the ECU from its connector harness.

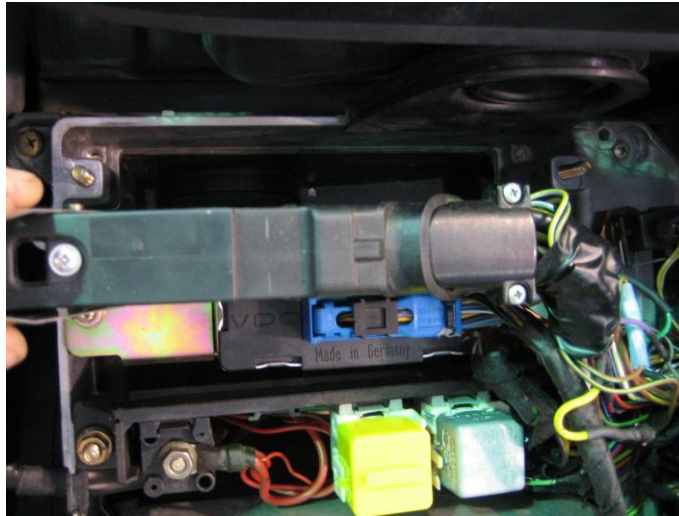
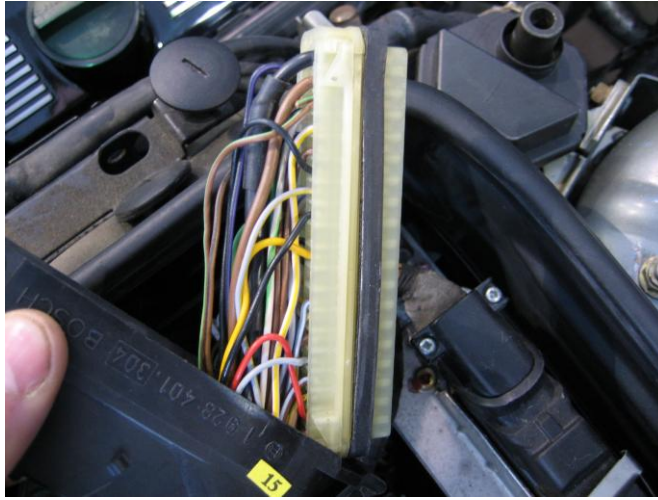


Figure 2

4. Use a small Philips to remove the three small screws on the back to the ECU plug connector.
5. After the removal of the three screws, carefully pry, with a flat screw driver, the black backing, back and off the ECU plug. Don't lose the rubber ring around the ECU plug.

6. Once you have successfully removed the harness from its black casing you should end up with something like this



**Figure 3**

7. Once you have the cover pulled back you are now ready to re-route a few wires.

## 2. 4 ECU Retrofit (Acquiring 12v Signal)

Don't be intimidated by this procedure. It involves two wires and a small bit of soldering. Be sure to read and completely understand this section. It is very important to find the correct wires and pin locations. Otherwise your vehicle could run poorly or not at all.

### READ THIS SECTION SLOWLY AND CAREFULLY!

1. Locate the following pins (make note of which color each pin is):
  - a. Pin 37 (Red/Blue)
  - b. Pin 12 (Grey/White)
2. Take the **Grey/White** wire and cut near the connector. Take the **Grey/White** wire and create a 'T' soldering it into the wire coming out of pin 37. The below picture illustrates this step. *Note, your Tee'ing the portion of pin 12 that leads to the engine bay.*



Figure 4

3. After the solder is cool lightly pull on the connection to ensure it is going to hold up. Using some electrical tape or shrink tube, cover the new connection tightly.
4. You can now put the ECU plug back together. Remember to screw the three small Philips screws back in.

## 2.5 Chip Removal/installation

The Chip contains the software required for your vehicle to operate. Avoid high static areas. Also avoid dropping the chip and spilling liquids on it.

You need to take the metal case off of the ECU. There are tabs all the way around the bottom side. Using a small flat screwdriver gently lift up the tabs to release the ECU. Be careful not to bend the tabs too far as they may break.

Once you have the ECU open and the chip side exposed you are ready to replace your current chip.

Carefully pry evenly on each side of the chip back and forth until it is free from its holder.

Take the chip that came with your PSIK and install it in place of the original one. Make sure that you align the small notch (half circle) on the chip, to the small notch on the ECU, this will insure your chip is installed properly. Make sure the chip provided is matched to the last three numbers of your ECU, ending in 153, 173, 380 or 525.



Figure 5

You have successfully completed all steps required for the ECU. You can now reassemble the ECU and glove box or E-box

## 2.6 Stock Intake Tract Removal

In this section you will be working in the engine bay. You will be removing the entire intake tract.

1. Undo the hose clamp attached to the AFM and unplug the AFM connector.
2. Loosen the two 10mm nuts on the driver's side of the air box and remove as a whole unit.
3. Undo the hose clamp that secures the rubber intake elbow to the throttle body. Remove ICV as well and set it aside. **Make sure you have the right angle style ICV.**
4. You may have two coolant lines running to the front side of the throttle body. Believe it or not, this will hinder performance as the cooler air will be heated by the coolant in the throttle body. This configuration is not necessary.



5. Take the two coolant lines off, and connect them together with a brass or plastic connector like so.



6. The coolant input on the throttle body may be removed completely to allow for more room as you will no longer be using this.

## 2.7 Installing PSIK

This section will detail how to easily install the PSIK once everything has been removed.

1. Take the PSIK rubber elbow with integrated ICV port and install the ICV. The integrated port will clamp down on the ICV as you tighten the collar. At this point, install the ICV so it is snug, but can still move if needed.



Figure 6

2. Take the Rubber elbow and one of the provided hose clamps and install it to the throttle body. Don't secure it completely tight just yet.
3. To install the PSIK intake tube, it is best done from the underside of the car. Remove the under pan for better access.
4. Attach the PSIK filter to the bottom of the intake tube. Leave the plastic on the filter to keep it clean during installation.
5. Push the intake tube up along the side rail, making sure to go behind the alternator and up between the two power steering lines (A & B). Also make sure the intake tube is behind the coolant line(C). *See Figure 7*

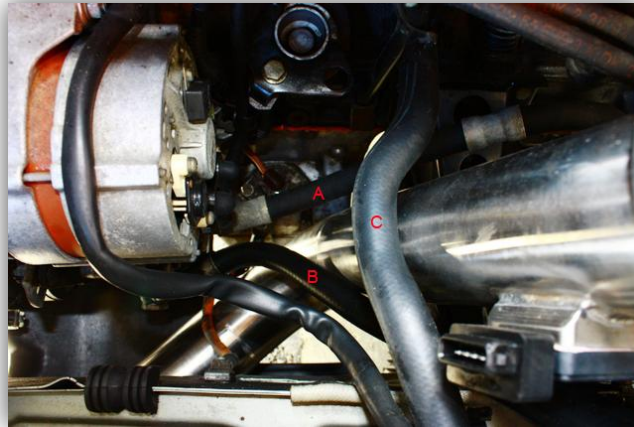


Figure 7

6. You may need to remove or relocate your driver's side horn. Check this before you secure the PSIK tube into the rubber boot.

**\*Note: You may have to remove your engine ground strap temporarily. If you do, make sure you reinstall it before you finish.**

7. Take the second hose clamp and slide it onto the rubber boot, insert the PSIK intake tube into the bottom of the rubber boot, if you are having difficulty, try and reduce the tension on the throttle body hose clamp. Secure both hose clamps tightly.



Figure 8

8. Go back under the car and secure the mounting bracket of the PSIK . There is an unused bolt hole in the frame rail that the mounting bracket will line up with. While you are under there, you can now remove the plastic bag from the filter.

9. You can modify your factory brake ducting to fit around the intake tube if you like.



**Figure 9**

10. Take the factory under pan and reinstall it. After it has been installed take the PSIK splash guard and install it as well. You will see the splash guard clips in to the bumper, and is fastened to the factory under pan and fender lining.

Some modification may be needed for earlier bumpers.



**Figure 10**

## **2.8 Final Check**

Now that you have the PSIK hardware installed run through this check list to make sure it is complete and that nothing was forgotten.

- Plug MAF sensor in. Make sure you do not plug it in backwards. Doing so will ruin the sensor
- Make sure the plastic wrap was removed from filter.
- Make sure ICV is plugged back in properly and securely
- Hose clamps are tight
- Chip is installed as well as the wiring modification listed in section 2.3
- Make sure if your car has the vacuum line provision for the stock intake boot that the line is capped off.
- Make sure ground strap is installed if you removed it
- Make sure coolant lines are securely connected

## 3. Drive your Vehicle

### 3.1 Initial Start up

Remember to connect you battery before you start your vehicle. Once you have connected the battery you will be ready to test your newly installed PSIK.

**\*\*Note: When you unplug your ECU it loses its “memory” and the car may drive rough for the first few minutes. Drive the car around for ten minutes and the car should be running smoothly again in this time.**

Your car should feel more responsive now! You should also be experiencing more power and smoother acceleration. We hope you are satisfied with our product. Thank you for choosing Miller Performance for you BMW performance needs.

### 3.2 Troubleshooting

If your car hasn't smoothed out after a half hour of driving you may need to check some things.

1. Ensure all your wiring was done correctly.
2. Ensure MAF is plugged in properly
3. Ensure Air Filter is clean or free of obstructions.
4. Ensure that your ICV was installed and plugged in.
5. Check your Throttle Position Switch, this is a very common problem and you will not be able to access your “Full Throttle Maps” causing a loss in performance and drivability.
6. Ensure the Chip that was sent was for your ECU number and installed the right way.

If you cannot resolve the problem please phone us and we will help walk you through a solution. You can reach us at our normal number, (604) 755 7692. We will not let you go unsatisfied.