



MMP Port Injection Install Document

Rev: March 21, 2017

***Disclaimer:** This product is intended for off road use only. This product has a 90 day limited warranty against manufacture defect. If you have any problem with this item during the warranty period or after the warranty period, please email me at sales@mmp-e.com and I will work with you to resolve the issue to provide the best customer service possible. Please don't post issues on the forum without giving me a chance first to resolve the issue and then if you still want to post your experience you can post what the issue was and how I resolved for you to provide the best service possible. I pride myself greatly in providing one of the best customer services in the N54 community as I believe it sells the next product for me and help in spreading the word about MMP. Thanks.*

Kit includes:

- (6) tested and flow matched within 1% 57lb (600cc) bosch injectors good for additional fuel injection to over 900whp on E85
- (1) Aluminum 6061T6 port injection plate
- (1) Aluminum 6061T6 0.5in ID fuel rail
- (2) stainless steel tie plates
- (1) E85 compatible fuel hose
- (2) Aluminum 6061T6 6AN ORB plugs for fuel rail
- (1) 6AN ORB x barb fuel line adapter
- (1) Fuel line Tee with OEM quick connect female x male x barb
- (2) Fuel line clamps
- (8) Stainless steel ¼" bolts for tie plates
- (7) M7 bolts for intake manifold installation
- (6) Silicone High temp head port gaskets for port injection plate

Installation instructions

Do these steps first to have access. You can find several DIYs for these removals on the forums like e90post.com or N54tech.com

- Use the steps outlined in the DIY to remove the intake manifold



- <http://www.1addicts.com/forums/showthread.php?t=655062>
- Do not remove the HPFP or hard fuel line in the guide above, only follow the steps for removing the intake manifold

Now proceed to install the MMP Port Injection kit

VERY IMPORTANT:

Make sure the car is fully off, key removed, and battery disconnected as you will be working with fuel around the starter motor and risk for fire and bodily harm is present. I take no responsibility for any damages from improper safety handling when installing a fuel system component. If you don't know what you are doing here, don't do it.

Start with assembling the port injection assembly

Step 1:

Inspect the kit to make sure it arrived in good condition from shipping. Check to make sure there are no scratches on seal surfaces and that there are no burrs on the machined parts. Make sure the port injection gaskets are not nicked or damaged. Check to make sure the orings on the fuel injectors are not damaged. Check to make sure the Orings on the AN6 plugs and fittings are not damaged. If you find anything, please send me an email immediately to sales@mmp-e.com and I will resolve the issue for you.

Step 2:

Start with installing the 1/8" npt plugs (6) in each port. These are optional future expansion plugs that can be used for nitrous injection or meth injection if desired. If not using that please install the plugs. It is recommended to use Teflon tape reverse wrapped on the threads for a tighter leak proof seal. Reverse wrapping should be used so that when you tighten the plug it only tightens the Teflon tape tighter.



Step 3:

Install the injectors (6) into the port injection plate. Use a little bit of clean oil to lubricate the oring to ensure it slides in easily and the oring is not damaged from installation. Careful with the tip of the injector when pushing in as the hole it comes out of is pretty precise to the diameter of the injector

head so in needs to go in pretty square. Make sure to orient the injectors plugs on the opposite side of the port seal orings as shown in the picture.



Step 4:

Install the fuel rail 6AN plugs and barb adapter as shown in the picture. Make sure the plugs fully bottom out but don't over tighten as the orings on the plugs do the sealing.



Step 5:

Install the rail onto the injectors. Use clean oil to lubricate the orings. Start from one corner and careful push them in. Be very careful not to damage an injector or oring during this step.



Step 6:

Install the brackets that tie the fuel rail to the PI plate. Start all bolts first and then tighten one by one. DO NOT install one bolt to tight and then install the second bolt to tight as that can lead to cross threading and if you damage the threads you are responsible for that.



Step 7:

Install the port seals. If you are having difficulty with them staying in place when installing the kit onto the head you can use a little permatex gasket sealant or high temp silicone to hold in place.



Step 8:

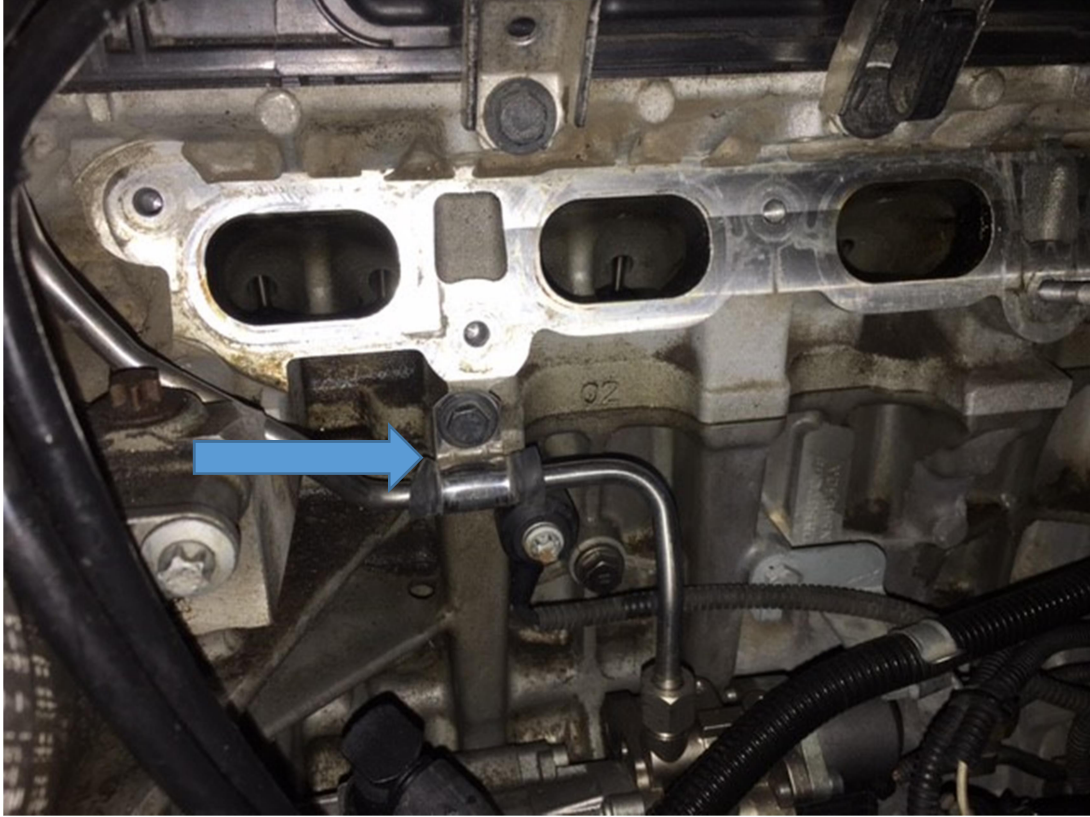
With the intake manifold removed (as noted in pre-installation step above), you have access to the fuel line. You will see a line with a blue clip that plugs into the hardline of the HPFP. Push this blue clip in and hold and pull out to remove the quick connect fuel line.

Then install the fuel line Tee from the kit quick connect into the fuel line (fully push in until it locks) and then install the quick connect clip side onto the hard line going to the HPFP. On the barb side install the short fuel line that came in the kit, along with the spring clamp to hold it in place.



Step 9:

Locate the small fuel line brackets shown in the picture. Remove the bracket or flip it out of the way as shown in the picture as this can interfere with the port injection kit and the plate sealing correctly to the head. When installing the kit make sure this is not interfering with it sitting flush onto the head and sealing.



Step 10:

Remove ALL the studs from the stock intake manifold

IF INSTALLING ON AN N55: disconnect the vacuum pump line and remove the vacuum line bracket that holds the line to the head (not needed) as this interferes with the install. The line can be reconnected once the PI plate assembly is installed

Install only two stock studs lightly for guidance with only two threads or so engaged (not tight). These will be used as holders and guides and removed later and replaced with the bolts from the kit.

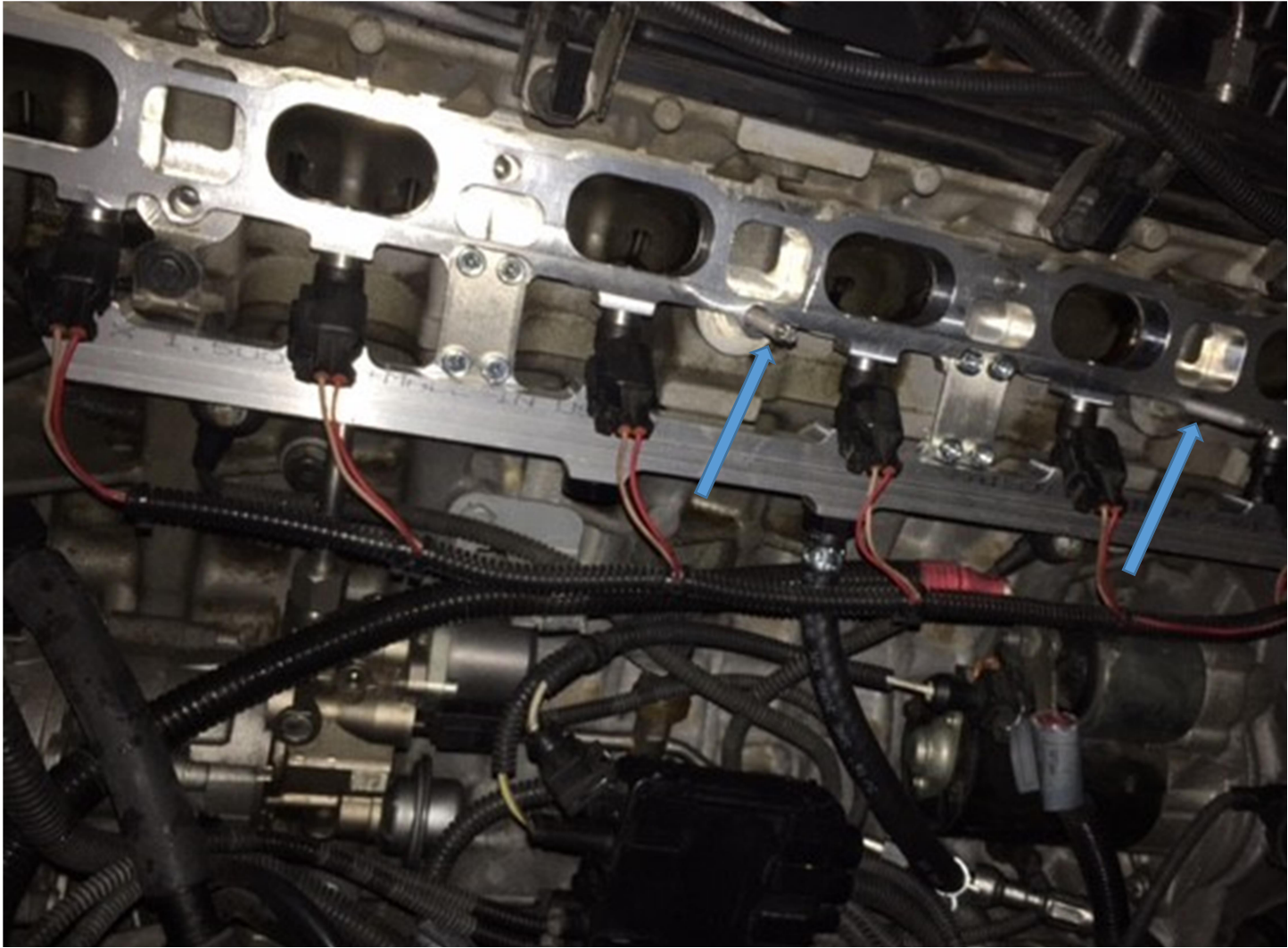
Carefully install the port injection assembly onto the head taking care that the orings don't fall out. Once installed don't pull off or if you do make sure the orings don't fall out when you pulled it off.

Install the fuel line onto the fuel rail bar adapter with the hose clamp.

Install the harness connectors from the controller onto the injectors. They can only be connected one way as shown in the picture.

Successful completion of this step should look like the picture below.

At this point you can connect your battery and turn on the ignition (DON'T TURN ON THE CAR). When you turn on the ignition you should hear the fuel pump cycle on and pressurize to full system pressure (about 70-80 psi). Now you can check for any fuel leaks to make sure the fuel installation is good. Check the Tee connection, check the fuel rail fittings, check the fuel line in the kit, check the OEM fuel line. If no leaks this is good to go.

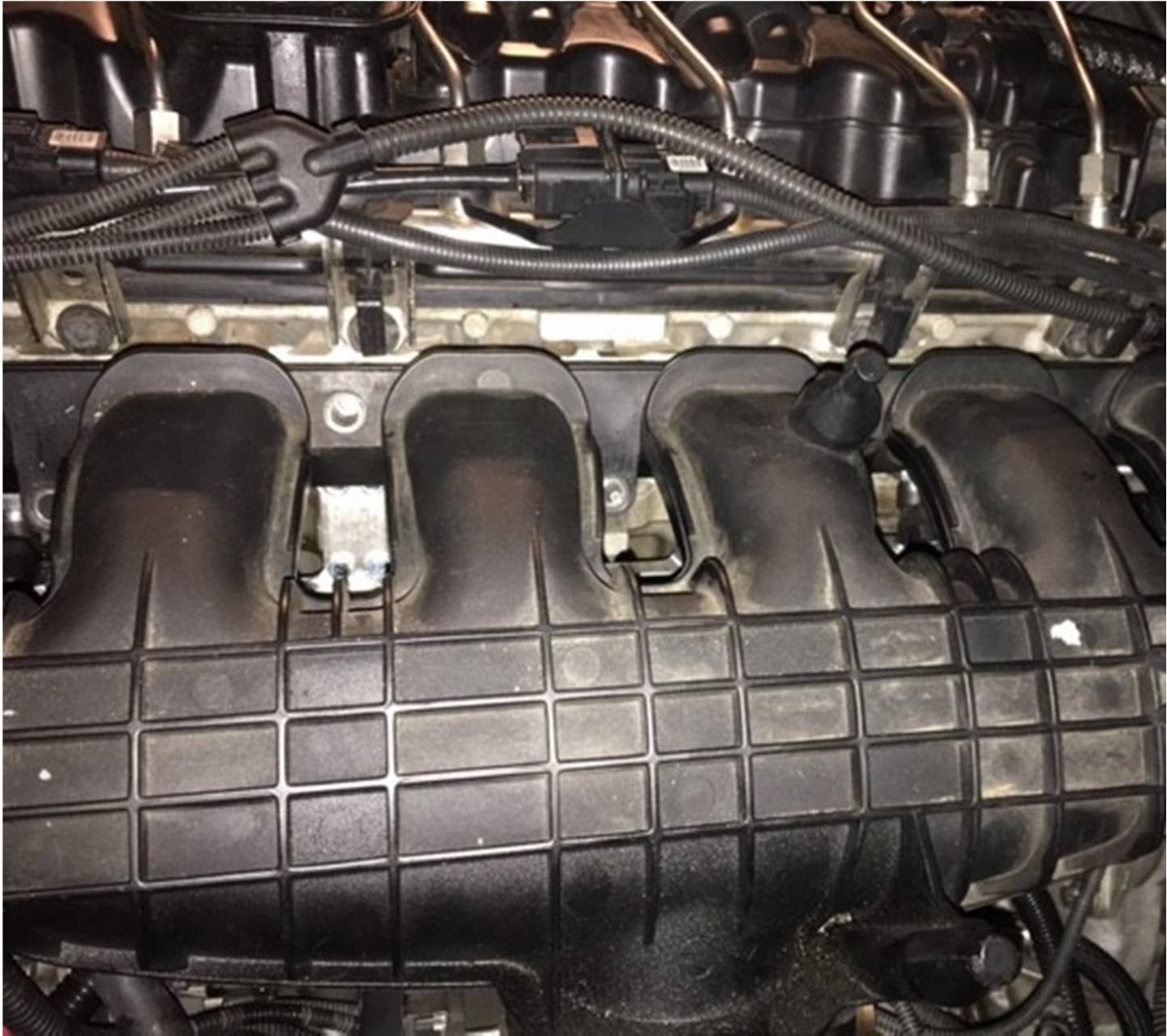


Step 11:

Install the intake manifold on. Make sure to follow the steps on intake manifold reinstallation linked to earlier in this diy online: <http://www.1addicts.com/forums/showthread.php?t=655062>

Install the bolts that came in the kit onto the manifold hand tight. Once you have 5 bolts in you can remove the two OEM studs you used for guidance and install the other two bolts hand tight in those two holes.

Once all bolts are in and hand tight, torque bolts to 11 ft-lbs / 15 Nm, that is not very much so be careful not to overtighten and damage the head.

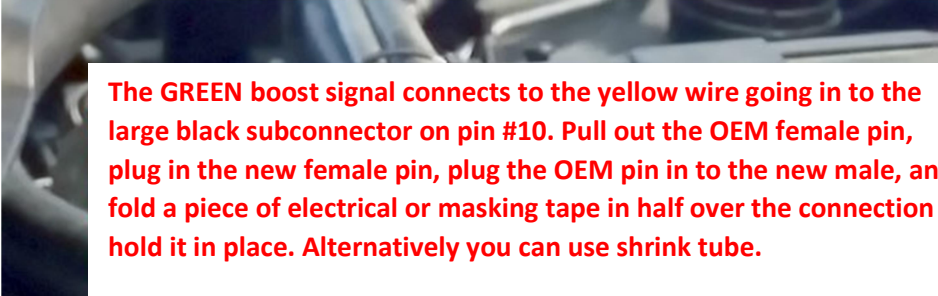


All hard parts installation is complete now.

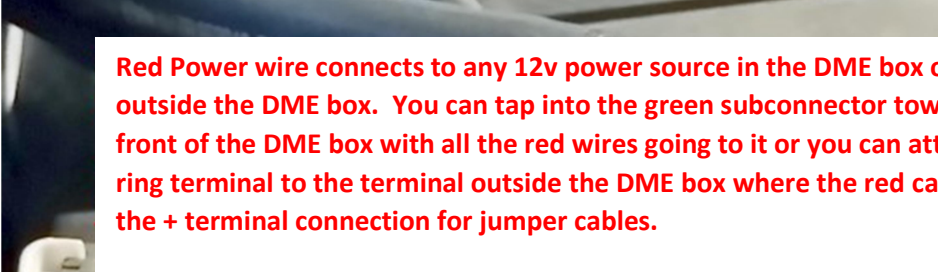
For the controller here are the installation steps

Here is how to layout the controller and harness in the engine bay





The GREEN boost signal connects to the yellow wire going in to the large black subconnector on pin #10. Pull out the OEM female pin, plug in the new female pin, plug the OEM pin in to the new male, and fold a piece of electrical or masking tape in half over the connection to hold it in place. Alternatively you can use shrink tube.

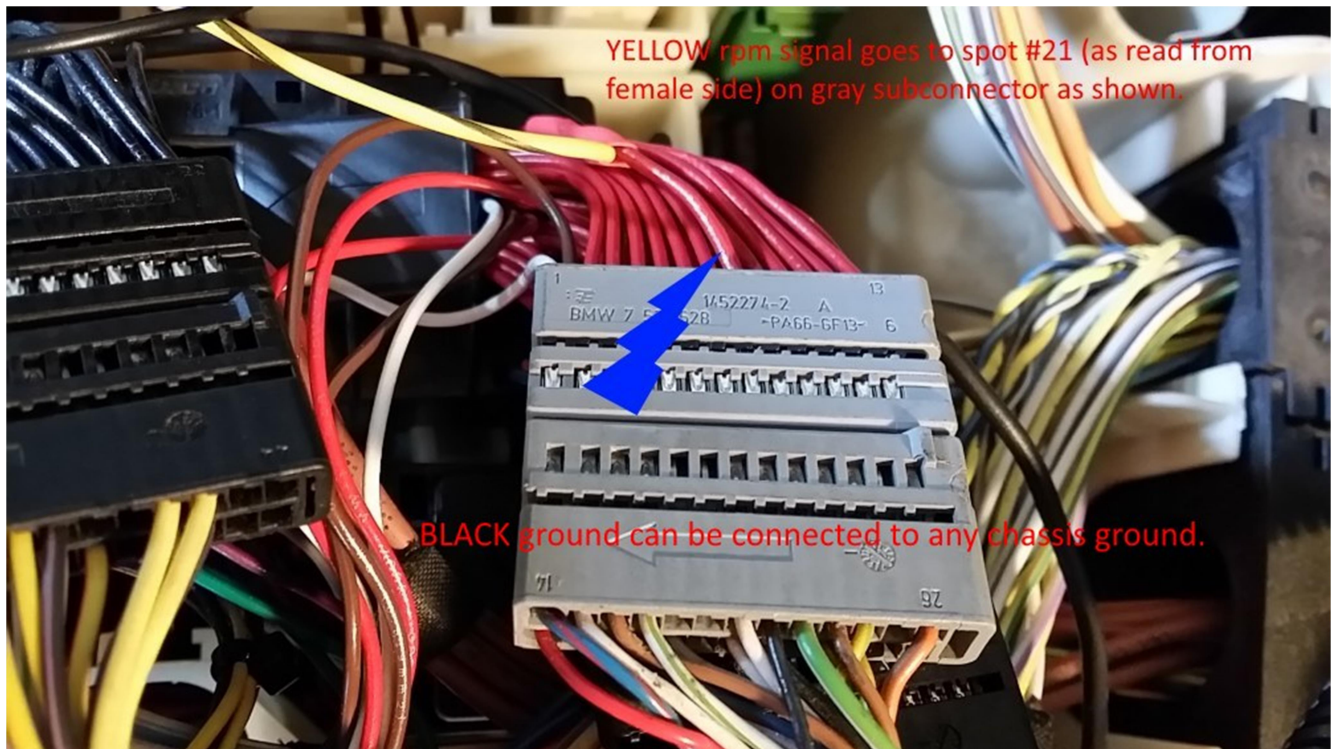


Red Power wire connects to any 12v power source in the DME box or just outside the DME box. You can tap into the green subconnector toward the front of the DME box with all the red wires going to it or you can attach with ring terminal to the terminal outside the DME box where the red cap protects the + terminal connection for jumper cables.



AIC6 fitting nicely in the DME box

The AIC6 system itself will fit in the DME area if you organize it properly. But it can also be installed externally in the engine bay.



To program it you'll need a generic USB to RS232 data cable you can buy at Fry's Electronics or similar or on Amazon or eBay. Once wired up you can use the R4 software to monitor "live data" and ensure RPM is moving as engine idles. If it doesn't then something is likely wired wrong.

I suggest locating the unit in the DME box by rearranging any loose wires. It should slide in nicely in the compartment in front of the DME inside the box.

The RED +12v power wire connects to any 12v power source in the DME box or just outside the DME box. You can tap into the green subconnector toward the front of the DME box with all the red wires going to it or you can attach with a ring terminal to the terminal outside the DME box where the red cap protects the + terminal connection for jumper cables.

The BLACK ground can go to any chassis ground. I recommend the ground terminal just outside the DME box that is next to the windshield washer neck.

The GREEN boost signal connects to the yellow wire going in to the large black subconnector on pin #10. You will need to carefully splice in.

The YELLOW rpm signal connects to #21 on the gray subconnector. You will need to carefully splice in.

Basic R4 software directions:

Download the fuel maps/database here and also the R4 software:

When you click on the link and it asks you to register to login, just click on "no thanks continue to view" at the bottom

Software: https://www.dropbox.com/s/0ljpr6oa3aibgza/R4_SETUP.EXE?dl=0

OEM TMAP: https://www.dropbox.com/s/2ssc14anui4sudd/PI_OEM_TMAP.mdb?dl=0

N20 3.5 bar TMAP: https://www.dropbox.com/s/wvsu6w48xs4ncvq/PI_N20_TMAP.mdb?dl=0

Soon as you open the R4 software, click file, open customer then select either the "N20_TMAP" or "OEM_TMAP" port injection maps you downloaded to the AIC6 depending if you have OEM or N20 3.5 bar TMAP

NEVER SELECT NEW CUSTOMER AS THIS WILL RESULT IN AN EMPTY FUEL MAP.

Select com port under "connect to ECU". Vehicle ignition must be on. You can find the com port that was mapped to the usb cable when you connected it under windows device manager.

Select button to right of com port drop down that when you hover over it it says connect to ECU. Click that to connect it.

Select maps menu at the top and then fuel maps

You should see values filled in the table as you scroll through if you did everything correct to this point. If not start over and follow carefully the instructions above.

Click the button in the upper left that says write to device and this will write the fuel map to the AIC6 controller installed on your car.

If you want to make changes to the fuel map you can and then write it again to the controller by clicking the button.

The top left hand corner in the table tells you the injector duty cycle for that cell in the table. TMAP voltage is across the top of the table. RPM is down the side of the table. If you don't know how to tune this higher a pro tuner for your car. I don't offer that service so please don't email me to help you tune the R4 maps.

IMPORTANT: The maps I provide are just a starting point and ARE IN NO WAY guaranteed to work for your setup. If you use them and don't know what you are doing and go WOT and blow your engine, I am not responsible for you not understanding how to tune safely the fuel system. All pro tuners out there can safely tune the R4 software for your specific mods/turbos/boost/fuel and they don't charge very much. \$100-\$200 for a custom tune with MHD flash tune included. You need to search for this. People that have tuned successfully are Motiv, Twisted Tuning, Treblia, PTF, and others. If you go to these guys tell them I recommended them to you,