BMS Water/Methanol/Alcohol WMI Kit Install Guide
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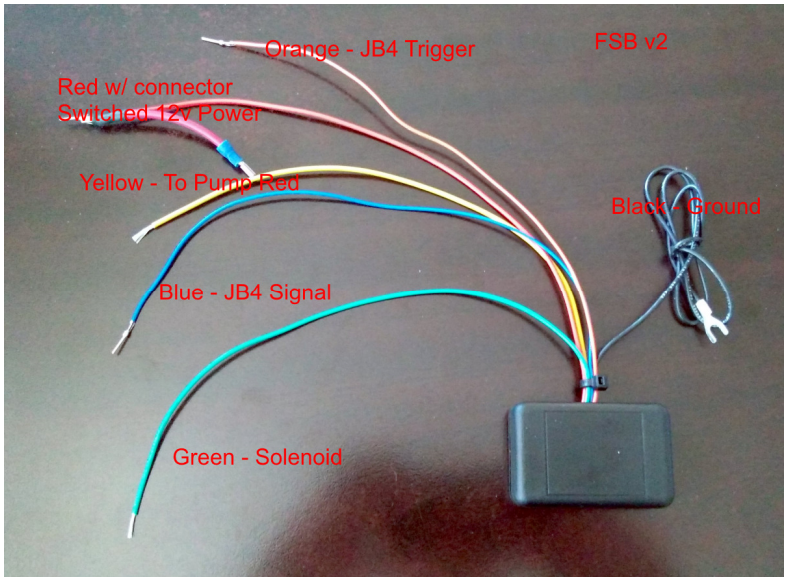
applicable federal and state laws.

Always be aware that using water/methanol/alcohol injection involves risk of fire and engine damage and care should be taken to reduce these risks.

Remove the cowl covers for the model to expose the JB4 control box, and remove the negative battery terminal.

The FSB serves as both the pump controller and the flow sensor. It comes with plug and play connectors ready to install in the JB4 large 25pin connector.



FSB Wiring:

1) Orange/Blue wires.

N54:

Remove the JB4 control box from the AMP connector and remove the two screws holding the AMP connector together. Upon removing the case you'll insert the FSB orange wire in to position #2 and the blue wire in to position #15. These will be the only open slots in the connector. They are numbered on both the front and back so check before pushing the pin in.

If you lock the pin in the wrong spot by mistake you will need to go to Radio Shack or an electronics store to get an inexpensive tool called a "DSUB pin removal tool" to extract the pin and place it in the right slot. If you manage to damage a pin you can replace it with any male DSUB pin.

All other engines:

All N20, N55, N63, S55, S63, B48, B58, VAG, etc, applications use spot #3 for the orange wire.

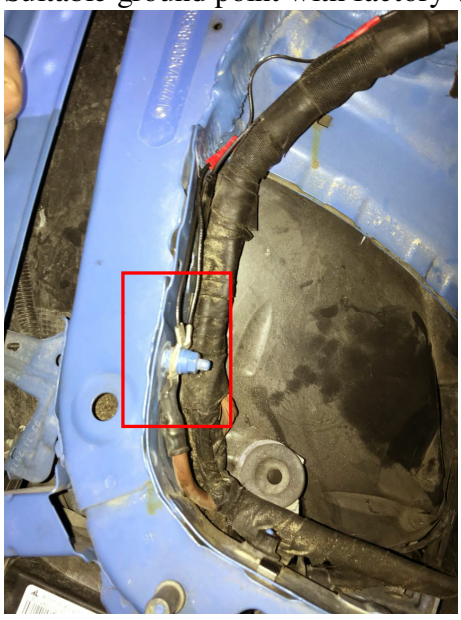
Blue Wire:

#16: pneumatic wastegate board vehicles (E series N55 and 2013 F series N20/N55)
#16: VAG, N63, S55, S63TU, Kia, Porsche
#14: BMW 2014+ EWG N20/N55/B48/B58

If the blue wire is placed in the wrong spot the pump will still turn on but the JB4 will not properly read flow data.

2) Ground: Route the black ground out of the DME box to a chassis ground. A bad ground can damage the FSB resulting in WMI getting stuck on while ignition is on so find a ground that has OEM ground wires (normally brown) going to it. The F series shock tower or random chassis bolts are generally not suitable ground points.

Suitable ground point with factory wires attached to it:



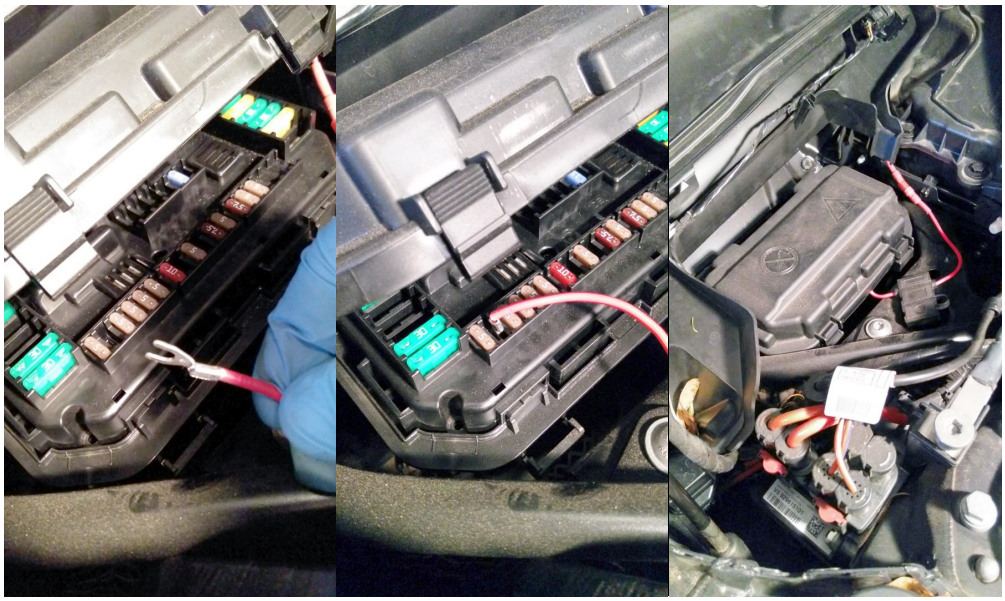
3) FSB Red Wire +12v:

N54:

For N54 installs the FSB power wire with the connector attached to it (the one on the same side as the black ground wire) piggybacks with the JB4 red power wire. The one that is attached to the green connector in the DME box. Unplug the OEM orange wire from the JB4 power wire, connect the FSB female pin to it, and connect the FSB male pin to the JB4 power wire completing the loop. Now, both the JB4 and the FSB control box will have switched 12v power. For the N54 the fuse will go between the FSB red wire to the pump and the pump.

All other applications:

Crimp a fork on the other side of the inline fuse holder and plug that in to an unused fused location in the primary fuse box shown below. Note many unused spots DO NOT have a fuse receptacle and won't work so be sure to locate one that has an actual power feed below it.



4) PUMP POWER:

Extend the yellow wire to the WMI pump located in the trunk and attach with a wirenut.

5) SOLENOID WIRING :

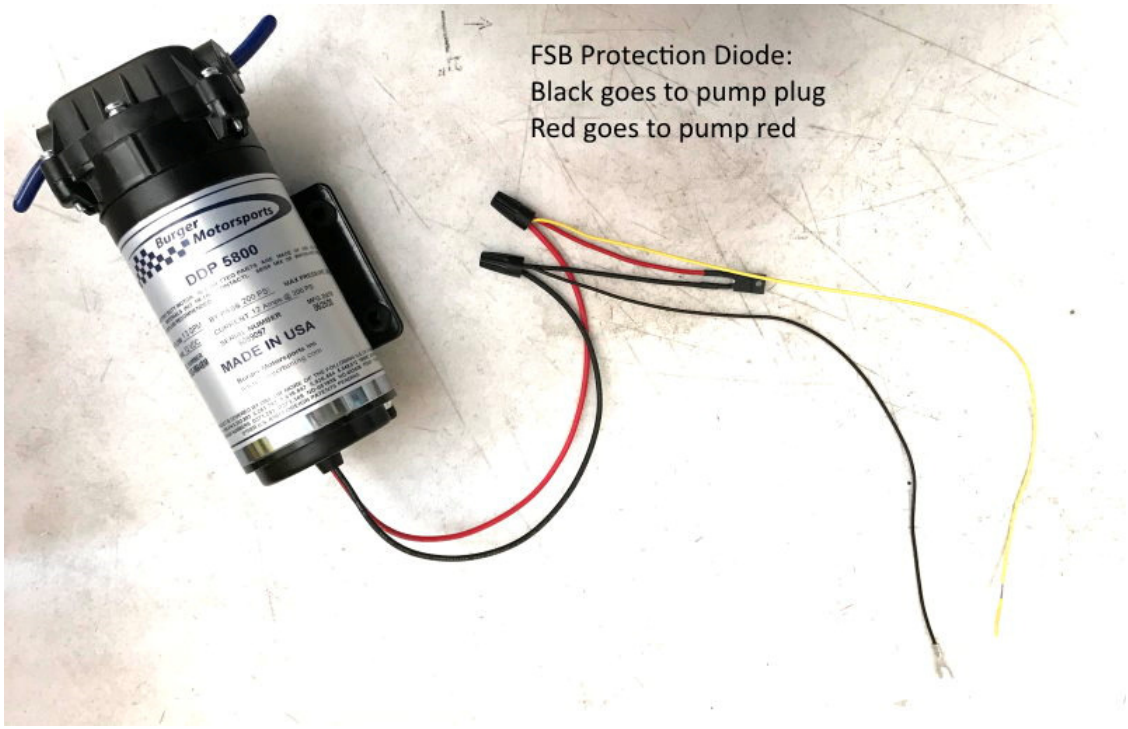
Both solenoid wires are interchangeable. Attach one to the FSB green connection using spare wire as needed to extend it. Attach the other solenoid wire to a suitable ground location by the solenoid.

6) PUMP GROUND:

The pump black wire will be connected to a chassis ground in the trunk. You can use the battery directly or one of the many exposed grounds under the trunk liner.

7) PROTECTION DIODE:

The protection diode helps protect the FSB from damage in the event of a poor ground or loose ground. Attach it close to the pump between the black and red wires as shown.



Fittings:

We've updated the BMS WMI kits with new compression style fittings. The solenoid will go together as shown below. Note the direction of flow on the solenoid and filter fitting during assembly. Line will run from the PUMP, to the filter, to the solenoid, and finally out the solenoid to the nozzles (or nozzle tee if a twin nozzle kit).

To install these fittings apply a small amount of Teflon paste to the threads and tighten them. Then insert the nylon line in to the fitting and turn the compression nut with a wrench until snug.

Tank Assembly:

Note we only cover one tank below but the basic steps are similar for all integrated tanks we offer. For the 1 gallon universal tank note that it must be tapped with a ¼" NPT tap. All other tanks are pretapped.

F Series Stealth Tank:

1) Screw the angle compression fitting in to the tank using Teflon paste.
2) Attach the included 1" line to the tank fitting as shown below.
3) Insert the line in to the WMI pump maneuvering it in to place.
4) Attach the 4 mounting screws securing the pump to the tank. Note these go through rubber isolators and you will need to position the isolators while starting the screw for proper alignment.

Add a bit of fluid to check for leaks and then drop the tank assembly in as shown. There is a ground point/10mm bolt for the pump ground by the fuse area.

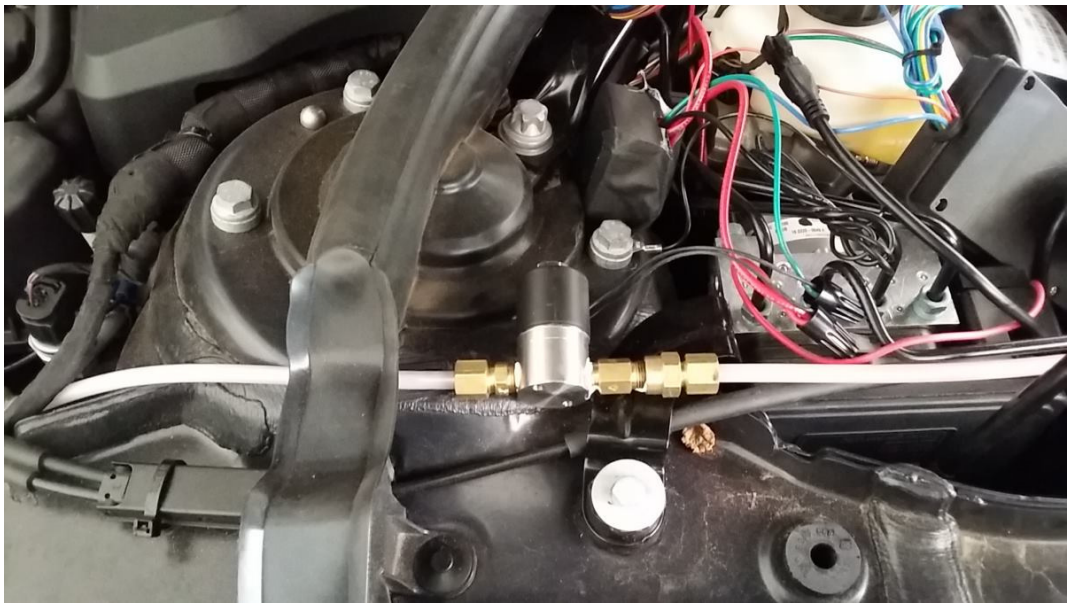
Routing lines:

These photos cover basic BMW installation but the steps are similar for all vehicles.

We suggest running the lines and wires through the interior as we've found this the most convenient method of install. But you also have the option to route the lines/wires under the car, or any way you'd like, so rely on your own judgement here. Included are some photos demonstrating how you may choose to route the lines:

Remove the plastic panel under the steering wheel for easy access through the firewall in to the engine bay.

Run the WMI line and red power wire from the tank in the trunk working backwards towards the engine bay. It will tuck behind the rear seat and along the driver site interior panels up around the hood-latch mechanism towards the firewall. There is a rubber grommet you can poke a hole in to extend meth line and power wire in to the engine bay by the brake booster.



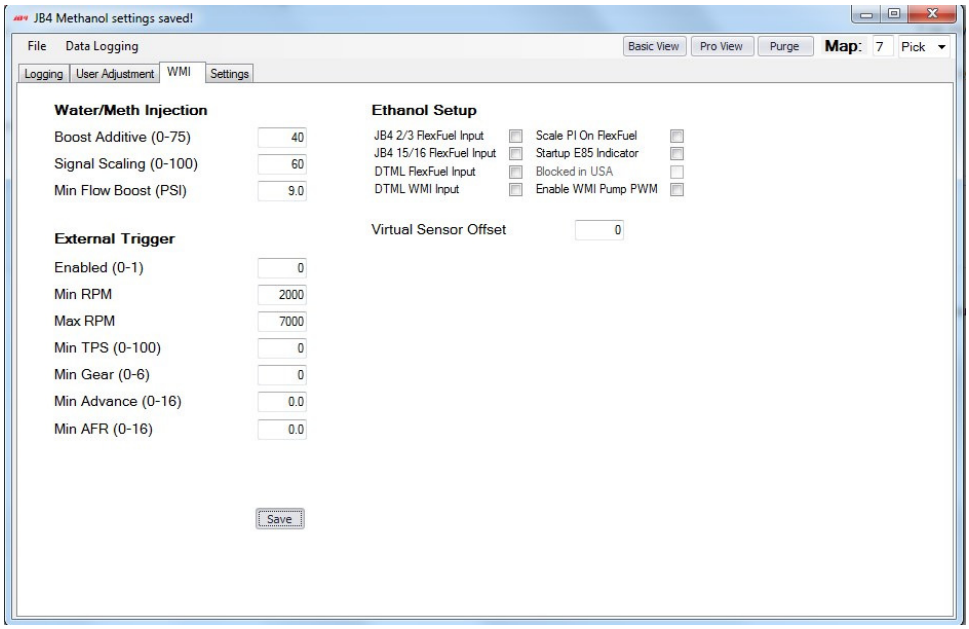
JB4 setup:

Using your BMS DATA cable or JB4 Connect Kit you'll have to enter a few settings to enable the meth integration. Refer to the n54tech support thread for your model JB4 for the most up to date firmware, settings, and map use notes.

Generally speaking under the meth tab set Signal Scaling to 60 and set Boost Additive to 40. The Boost Additive determines how aggressive the JB4 will be with boost when WMI is at full flow. We suggest the 40 setting for pump gas as a starting point. If you happen to run higher octane fuel such as race gas or E85 then this value can be increased. The maximum suggested setting for factory turbos is 75. Note the WMI maps are application specific so refer to the JB4 thread for your application for additional information.

For the N54/N55/N20 the WMI map is map3 while with the S55/S63/B58/Kia the WMI map is map7. WMI can be used on other maps with reduced safety function so refer to the application specific JB4 thread for additional settings. Some of external trigger and ethanol settings are also active for WMI so be sure to set those as shown below.

Default JB4 WMI settings:



WMI flow:

Note when the system is operating normally you will see a WMI flow reading of 60% to 100%. It's normal for the flow reading to vary between 60-100% based on weather, fluid injected, nozzle size, etc. Readings below 60% indicate a flow issue. If you run out of meth the reading will drop to 10% or less. If you have a wiring or electrical issue the reading will drop to 0%.

Priming system:

The first time you install and any time you run the system dry you will need to prime the pump to get all of the air out of the pump and lines. If you see air bubbles in the line feeding the pump you will need to resolve that issue first and then prime to remove air from the pump after. Any time air is detected in the pump or lines leading in to the pump the JB4 will give a lower meth reading. Note it is normal to see air pockets in the short line between the solenoid and the nozzle when the system is off. It is also normal to see an occasional air bubble in the line feeding the pump. But many bubbles combined with a consistent low flow reading indicate air is leaking in to the system.

Purge Directions:

Select the JB4 WMI map. With ignition on and JB4 software connected press the small "purge" button in the upper right hand corner repeatedly to activate/test the pump. Each press will activate the pump for around a second and it should take 6-8 seconds to push all the air from the pump and get it properly primed.

If you are unable to get fluid to come out using the methods above you have a wiring or installation issue and will need to further troubleshoot. Assuming fluid comes out everything should be working properly.

Troubleshooting:

Unable to purge:

1) Not on the correct meth map for your firmware
2) Orange and blue wires in JB4 crossed
3) Inline fuse installed may be missing or blown
4) Poor power source, you can open up the FSB enclosure to reveal a blinking green LED light. If the light is not blinking the FSB is not getting power or ground.

FSB Mounting:

Although the FSB is designed to be water resistant we suggest placing it under a plastic cover when possible and not exposed to extreme heat or wet conditions in the engine bay.