

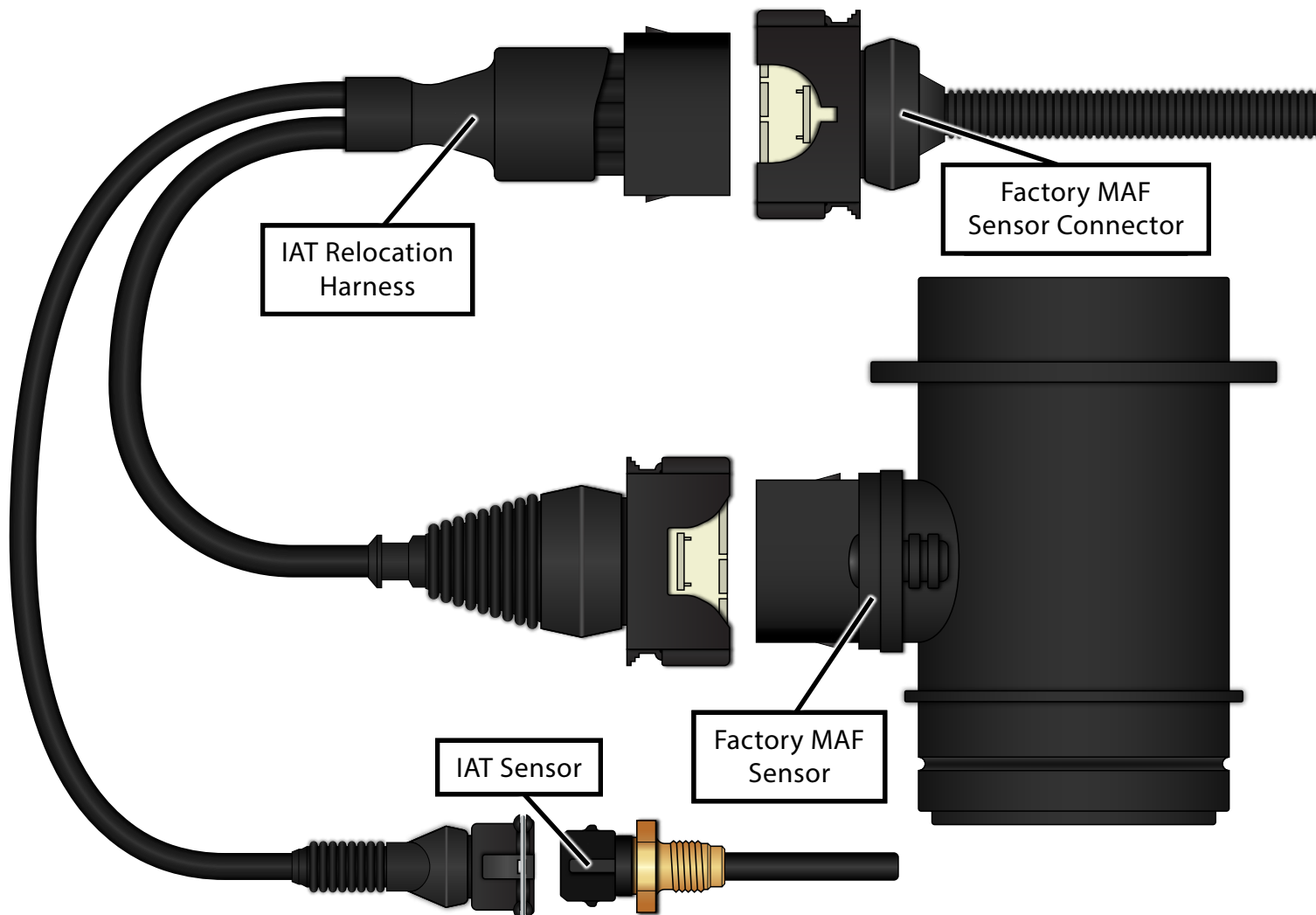


BMW IAT Relocation Harness Installation Instructions

BMW integrated the intake air temperature (IAT) sensor in the mass air flow (MAF) housing on several of their models. When the sensor is sandwiched behind a hot radiator and in some applications next to an even hotter valve cover the result can be what is called "heat soak". Absorbing excess heat from its surroundings, the MAF can't shed it fast enough, and the ECU reads an inaccurately high intake air temperature. Compensating for this false hot air measurement, the ECU will pull timing and unnecessarily adjust the fuel mixture, resulting in a significant loss of torque.

So what can you do to fix this? Locate a separate intake air temp sensor in a location where it can properly measure the temperature of incoming air and avoid the problems associated with heat soak. The Turner engineering team has designed this kit to do just that. It is completely plug and play, completely reversible, and it offers a clean OE appearance when installed.

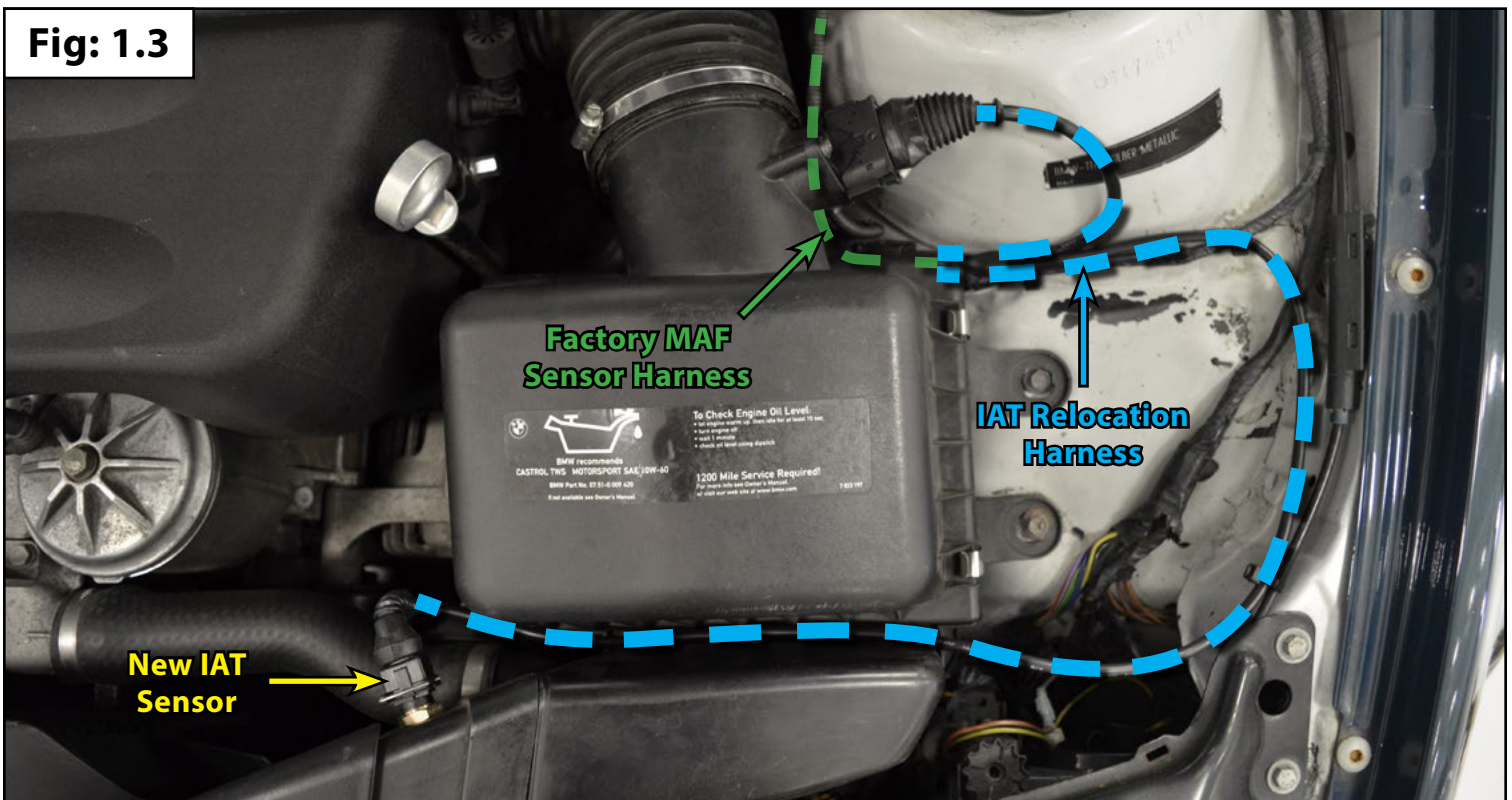
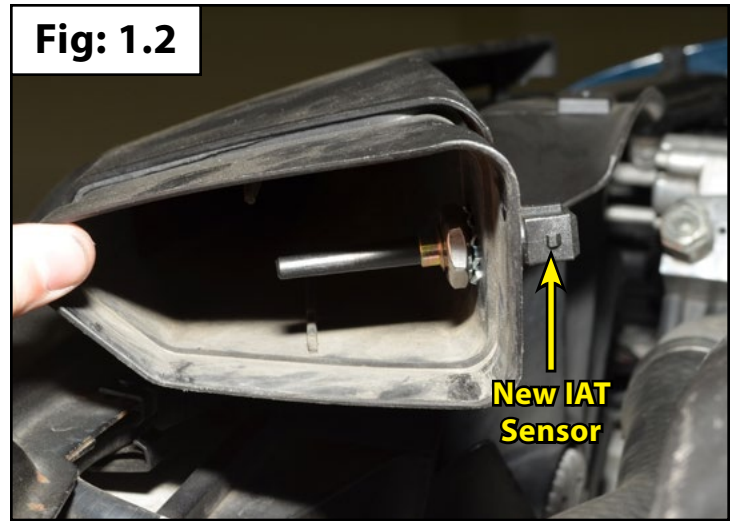
Installation time: ½ hour



Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

Section 1: Installation Instructions

- Step #1**
- Select a location for the new IAT sensor and drill a $\frac{15}{32}$ " hole. (**Fig: 1.1**)
 - The location for the sensor is completely discretionary, but it should be mounted somewhere in the incoming air path and clear of any moving or hot components (we chose the air snorkel in our E46 M3).
- Step #2**
- Secure the IAT sensor into place using the supplied lock washer and nut. (**Fig: 1.2**)
- Step #3**
- Connect the IAT relocation harness between the factory MAF sensor connector and the MAF sensor.
 - Route the IAT sensor end of the harness to the newly mounted IAT sensor and connect it.
 - Route the entire harness in a manner similar to what is shown in **Fig: 1.3**.
 - The goal here is to route the harness away from any moving or hot components, feel free to use zip ties to secure the harness out of the way wherever necessary.



Section 2: Additional Examples

- Example #1**
- **Fig: 2.1** shows the IAT sensor mounted in the air box of an E39 540i.
 - The wiring harness is routed around the air box to the MAF sensor, and it is connected and secured out of the way.
- Example #2**
- **Fig: 2.2** shows the IAT sensor mounted in the air box of an E60 545i.
 - Notice how every one of these installs involve placing the IAT sensor directly in the path of incoming air for the best possible sampling.
- Example #3**
- **Fig: 2.3** shows how we secured the wiring harness on an E60 545i.
 - We used the factory wiring retainers and a few zip ties to hold the harness in place underneath the intake tube.
 - There are many different places where you can mount your new IAT sensor, and even more places where you can mount/route the wiring harness.
 - Use these examples as a reference, then use your best judgment when installing the kit onto your own vehicle.

