



Introduction

Thank you for purchasing this Unichip Plug-n-Play (PnP) kit. The Unichip system differs from run-of-the-mill “reflash” tuning products because it’s a fully functional programmable tuning computer integrated into the vehicle’s stock management system via the PnP harness.

The concept of a “piggy-back” tuning computer such as our legendary Unichip is that it intercepts signals from engine sensors, changes these signals according to timing, fuelling, and boost algorithms formulated by our tuners and then feeding the modified signals back to the vehicle’s stock Engine Control Unit (ECU) to create the desired changes.

The PnP harness connects between the stock vehicle sensor male and female connectors: we disconnect a stock connector, plug our connector into the sensor, then plug the stock connector into the back of our connector. Our highly dependable PnP harnesses comprise predominantly Original Equipment (OE) terminals and connectors and only the finest SAE specification wiring.

In this 1.6T kit, the PnP harness ties into five engine sensors, the Boost Sensor, the MAP Sensor, the MAF Sensor, the Crank Position Sensor, and the Water Temperature Sensor. At the first four, we’ll disconnect the factory connector from its sensor, plug the Unichip PnP harness male connector into the sensor, then plug the stock connector into the PnP harness female connector. At the last, we use a Quick Fit Connector to make a T-Connection with one of the sensor wires.

The Unichip is powered from the vehicle’s battery and “wakes up” and “falls asleep” according to the stock ECU cycle, which is not necessarily based upon when the ignition is turned on. At first glance the installation may seem a bit daunting but if you carefully follow the instructions you will find it straight forward. Installation time should be about 30 minutes with approximately an extra 15 minutes if you choose to install the Flux2 Display as well.

Please carefully read the instructions completely before commencing the installation. Familiarize yourself with the relevant sensors according to the pictures and pay special attention to the correct routing of the PnP harness. Also pay careful attention to how the connectors are “unlocked” before they can be removed as none of the connectors are designed to merely “pull-off:” each one has a button or two which needs to be depressed before the connector will disconnect.

Mapping

Each kit is pre-programmed at the factory to suit specific bolt-on part configurations. Our tuners optimize tuning parameters carefully to maximize engine performance based on the various bolt-on parts. So if you select a map for instance for your K&N Cold Air Intake, we have spent hours perfecting mapping for that exact intake. You will notice we do not need to know by brand which cat back exhaust you have, nor are we concerned with things that do not affect engine tuning such as throttle body spacers.

When you order your PnP kit without the Flux2 Display, the kit will be programmed with two maps, usually a midgrade fuel map and a premium fuel map, both maps being optimized for the specific bolt on parts on your vehicle. You may switch between maps by means of our 2-way Map Select Switch which connects to the PnP harness' **COMM** port. The switch may be stowed in the engine compartment. The position of the map switch relative to which map the particular position selects is discussed later in the instructions.

Should you upgrade the kit to our Flux2 Display, the Unichip in the kit will be programmed with 5 maps to suit bolt-on parts, typically: a midgrade octane fuel map, a premium octane fuel/moderate boost map, a premium fuel/maximum boost map, a valet map, and an immobilizer map. The Flux2 display shows which map is selected and displays a brief description of the map.

Since the Unichip is a self-contained computer, it can be re-programmed an infinite amount of times. So should you add parts to your vehicle in the future, you can download new maps at home from our online data base via the MapsQ Download Cable. You can also get custom tuning with the UniQ software. Should you decide to ever sell your Unichip PnP kit, it can be re-programmed to suit a new owner's specific vehicle.

Expectations

Your kit arrived programmed for the modifications specified on your order and will optimize engine performance. Although the Unichip functions the entire time the ignition key is on, it works the same way as the factory computer does... at partial throttle it optimizes emissions and fuel economy and heavy throttle it maximizes power. If you don't push the pedal, you won't feel much of a change because you have more throttle available if you want more power.

Warnings and Cautions

Please pay very special attention to warnings, cautions, and tips printed in red in these instructions. Even experienced mechanics occasionally "forget" to secure a wiring harness with a cable tie, or inadvertently leave a wrench or two under the hood after work has been completed!

Thanks again for purchasing the kit; we are sure that you will enjoy the benefits!

Boosting a cold engine

Your MINI's engine should always be allowed to reach normal operating temperatures before you begin any hard driving. Your Unichip kit is designed to maintain stock boost levels until the engine has warmed up to promote maximum engine life.

Before you begin

Please pull the packing checklist out of the kit's Welcome Pack and inventory and review the parts before starting to work. If you discover any missing parts, please contact Unichip of North America before installing the kit.



MINI Cooper S, MY07-10, 1.6T (N14 engine) Unichip PnP Installation Instructions and Warranty Information

1620032 v1.0, 20 June 2013

Tools required

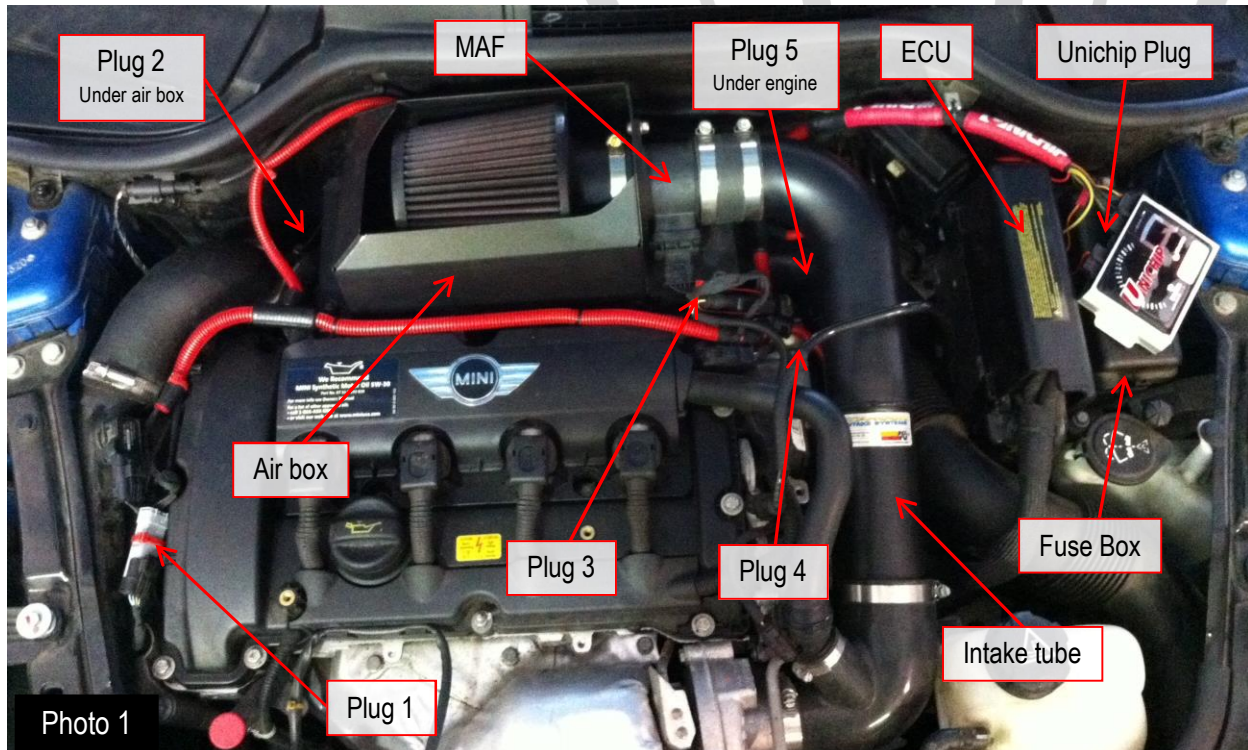
10 mm wrench, T25 Torx bit, 10mm socket, 13mm socket, ratchet drive and long extension, small flashlight, small flat screwdriver, and side cutters.

Cautions

1. Do not work on a warm vehicle! You may be severely burnt on hot engine components, especially exhaust and cooling system components! Allow the vehicle at least an hour to cool down before beginning work.
2. Never lean over a running engine, even "just to have a look!"
3. Be extremely careful when working underneath a vehicle especially when it has been raised by a jack. Never work under a raised vehicle without correctly installed axle stands. Jacked up vehicles must be rested on sturdy axle stands placed correctly on the chassis.
4. Always work on a level, safe surface.
5. Carefully follow all instructions and heed all cautions and warnings. If anything is unclear or if you need any help whatsoever, contact Unichip of North America.
6. Some connectors may have silicon paste residue on them; the paste will not cause any issues and must be left on the connectors.
7. Always wear eye protection when working beneath a vehicle. Failing to do so may result in injury or blindness.

Installation Procedures

1. Remove the ignition fob from the vehicle.
2. Ensure the vehicle sits at least 1 hour with the ignition off before commencing work.
3. (Photo 1) Here is what the finished installation looks like from the front of the car for general orientation.



4. (Photo 2) Disconnect the battery.

Caution: Disconnecting the battery causes all volatile computer memory to dump. Before disconnecting the battery, ensure you know any information like radio anti-theft codes that must be reentered.

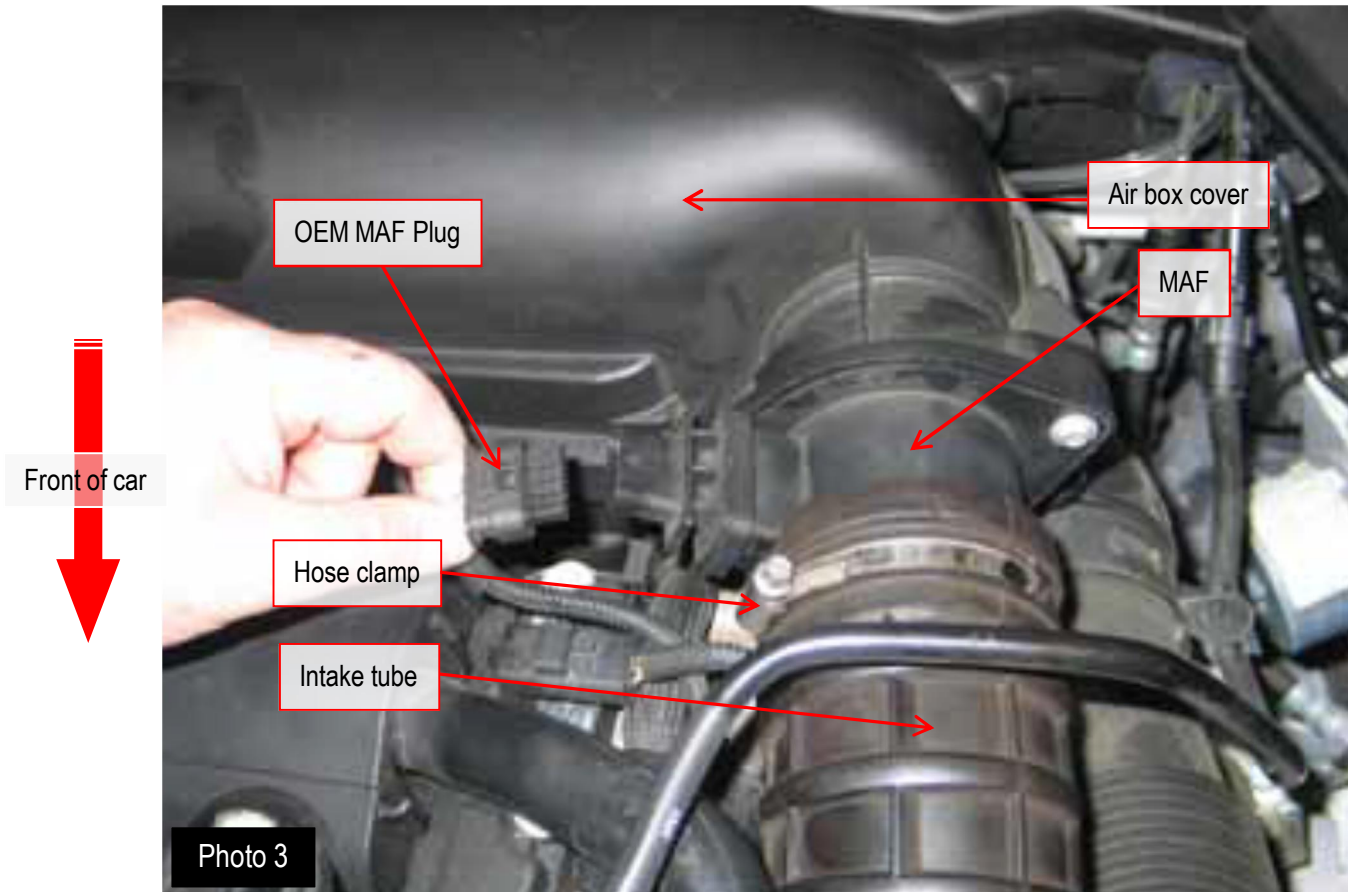
- a. With the hood open, locate the flap covering the battery compartment on the left side of the cowl.
- b. Press the two plastic tabs to open the flap.
- c. Using a 10 mm wrench, disconnect the negative terminal from the battery.



5. **Remove the air box.**

Note: Photo 3 shows the stock air box set up for reference.

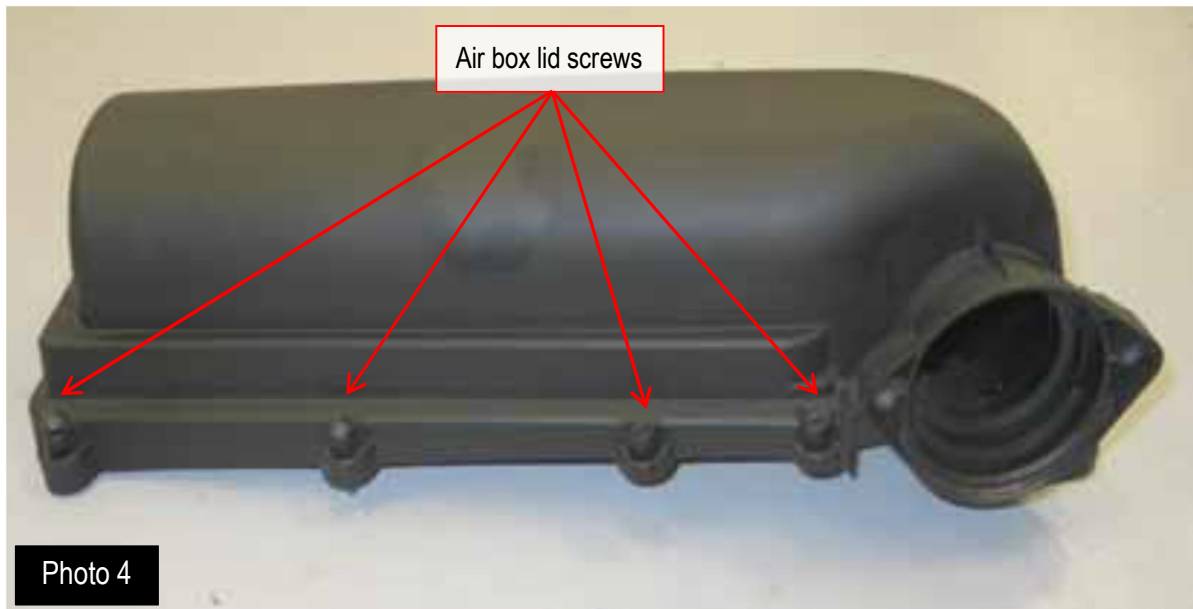
- a. (Photo 3) Press down on the release tab and remove the OEM MAF plug from the MAF Sensor.
- b. Remove the hose clamp securing the intake tube to the MAF sensor body.



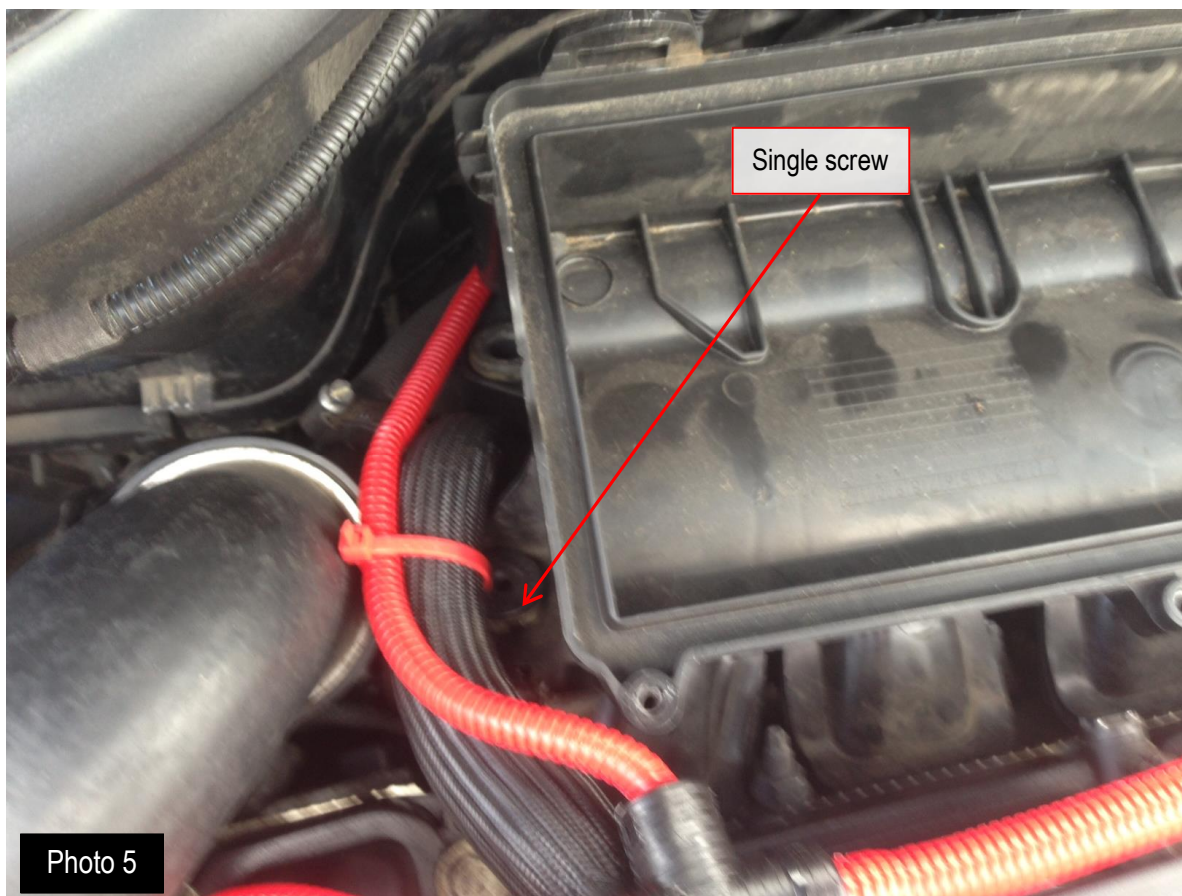
- c. (Photo 4) Locate the screws on the forward edge of the air box lid. Note that although the factory air box lid uses 4 screws, some aftermarket covers use fewer.

Note: The airbox lid is shown removed from the bottom section for clarity.

- d. Using a T25 drive, carefully remove each screw and set it aside. Ensure you don't misplace them... they are not individually available items.
- e. With the intake tube, MAF Plug, and lid screws removed, lift the forward edge of the lid and pull the lid towards the front of the car to release the tabs securing the rear of the lid to the bottom part of the air box.
- f. Set the lid aside.



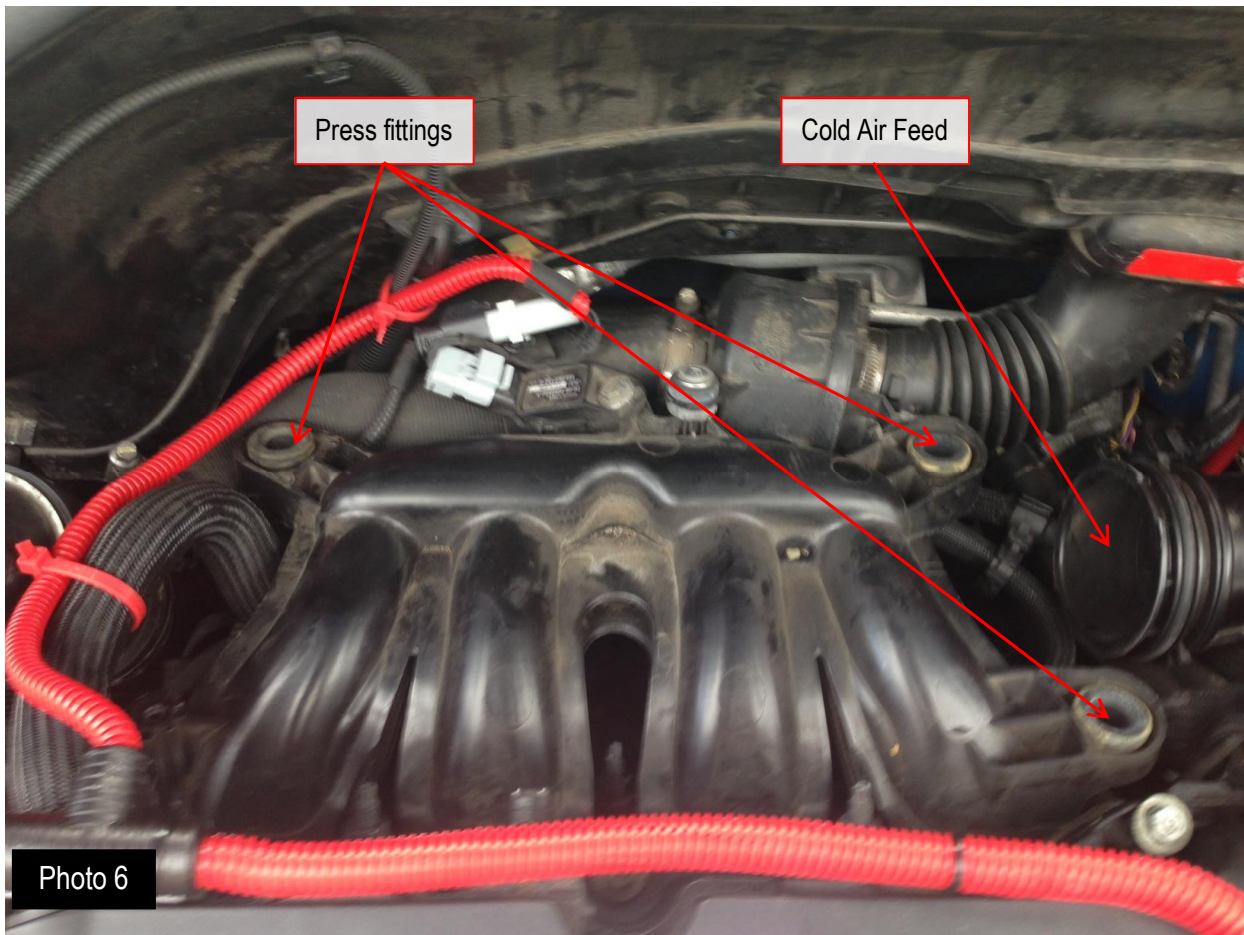
- g. (Photo 5) Looking on the front left corner of the air box's lower section, locate the single Torx fastener securing the lower section to the engine.
- h. Using the T25 bit, remove the screw and carefully set it aside.



- i. Remove the air filter from the air box and set it aside.

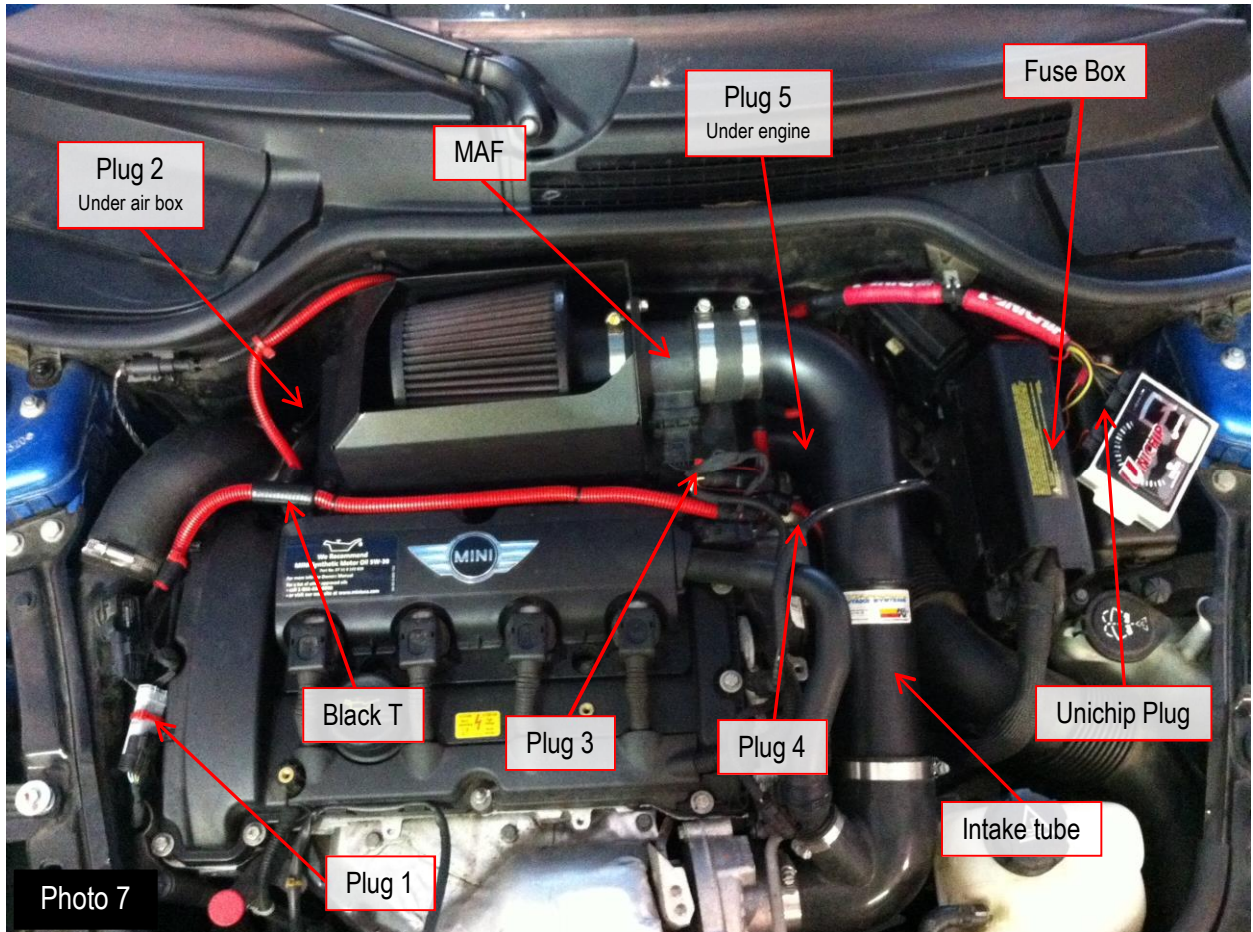
Note: Photo 6 shows the intake manifold beneath the air box lower section for reference.

- j. (Photo 6) The lower half of the air box is now held in place with a press in plastic fitting at each rear corner and one at the front right corner.
- k. Grasp each end of the air box and gently but firmly pull each of the three corners up to release the fittings.
- l. Disconnect the cold air feed from the air box and remove the air box from the vehicle. Carefully set it aside.



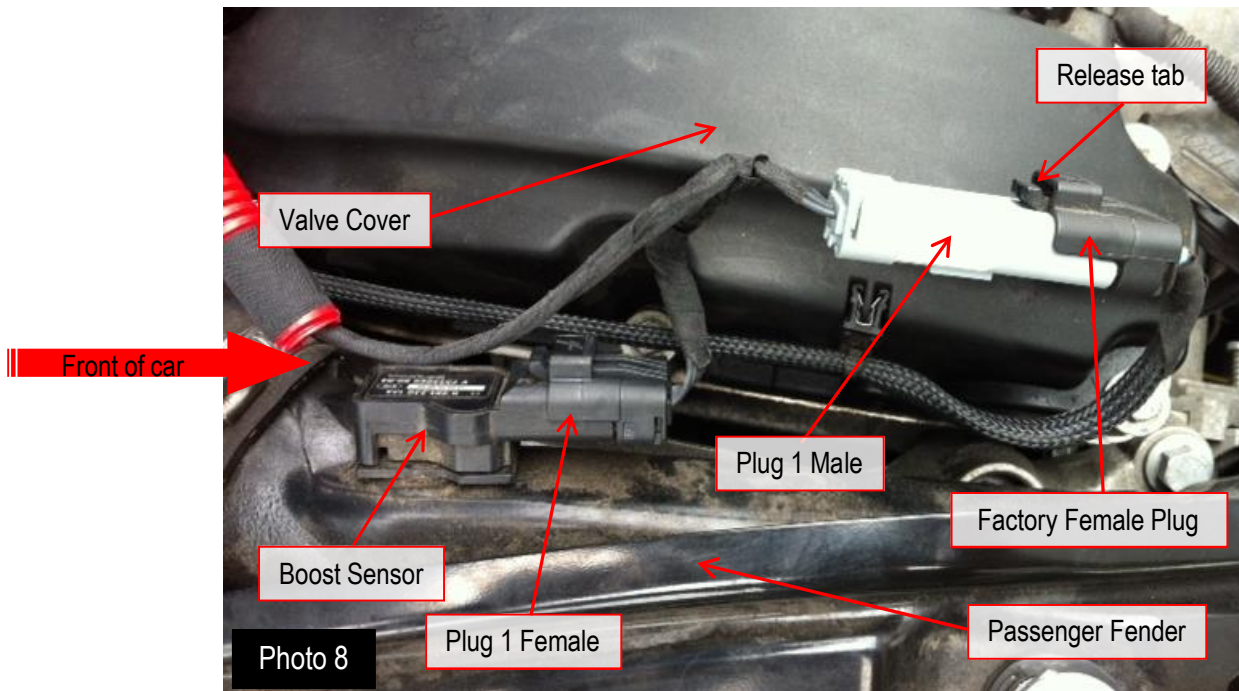
6. **Install the Plug-n-Play Harness.**

- a. (Photo 7) Position the Harness in the engine bay. Place **Plug 1** on the left side of the engine near the front and the first **Black-T** on top of the engine so the **Plug 2** remains on the left side of the opening for the air box and **Plug 3** and **Plug 4** are on the right side of the engine just to the right of the valve cover with the MINI logo on it. Drop **Plug 5** down to the underside of the engine between the engine and firewall, and position the **Unichip Plug** on top of the fuse box.

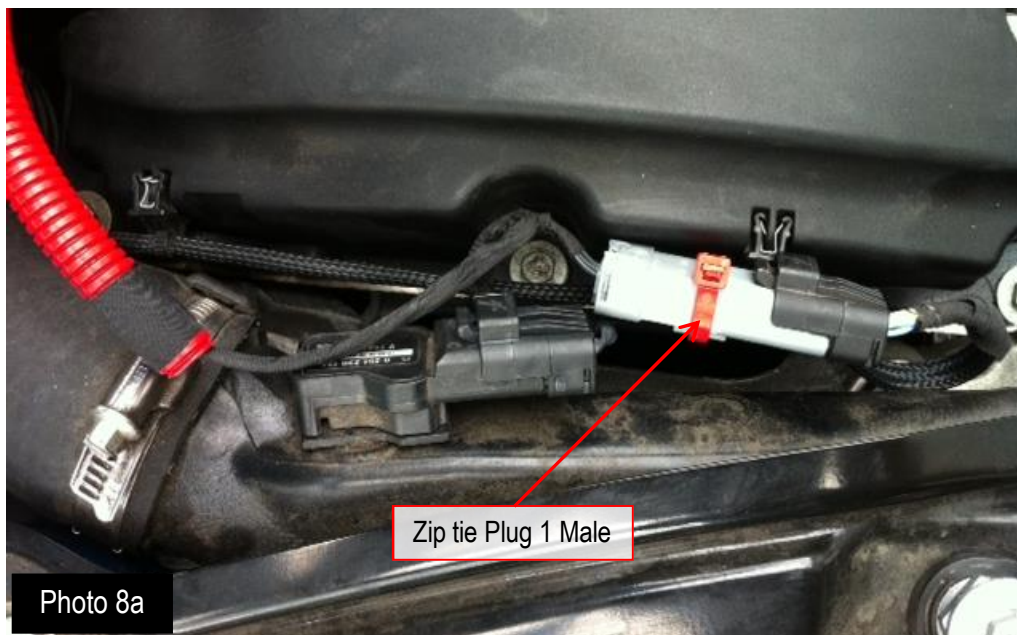


7. Connect PnP Plug 1 to the Boost Sensor

- a. (Photo 8) Locate the factory Boost Sensor on the intake tube between the left side of the engine and the passenger fender.



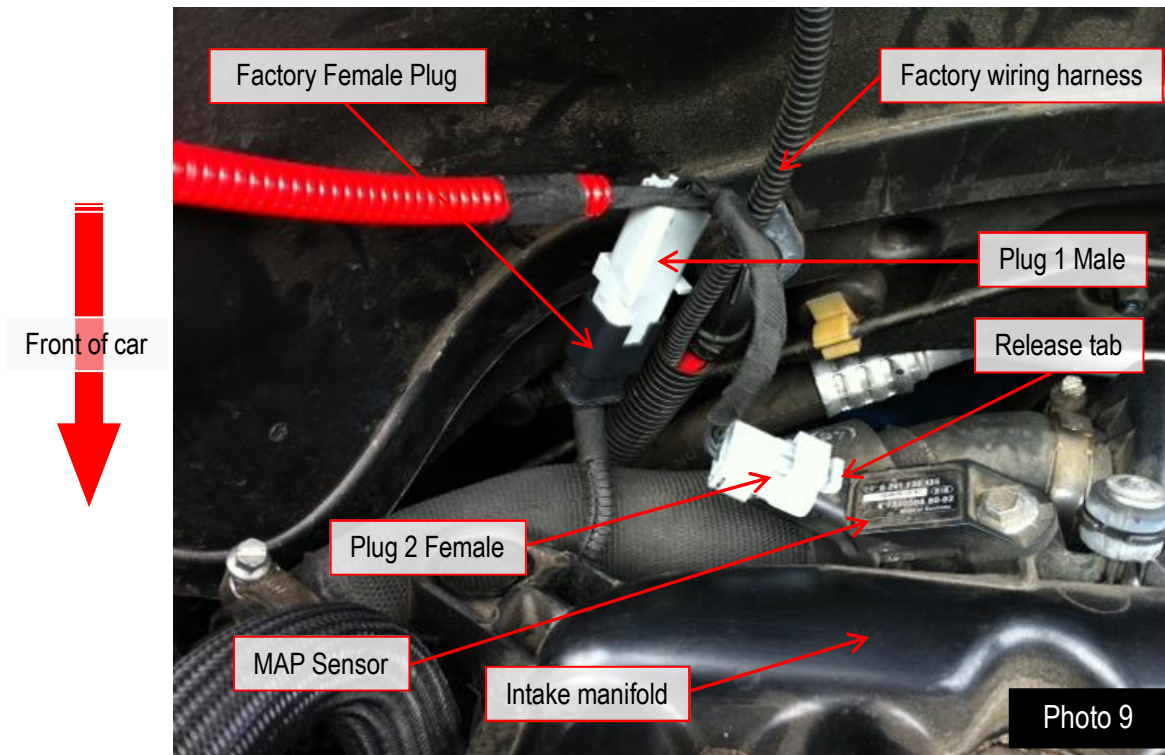
- b. Lift the release tab on the factory female plug and disconnect it from the Boost Sensor.
- c. Connect PnP **Plug 1**'s female connector to the Boost sensor and ensure it audibly clicks in place.
- d. Connect PnP **Plug 1**'s male connector to the factory female connector and ensure it audibly clicks in place.



- e. (Photo 8a) Use a kit provided red Zip tie to secure the PnP **Plug 1** male connector to the factory wiring harness running along the side of the engine.

8. (Photo 9) **Connect PnP Plug 2 to the MAP Sensor**

- a. Locate the factory MAP sensor just behind the intake manifold on the engine's left side in the space beneath where the air box was.
- b. Lift the release tab on the factory female plug and disconnect it from the MAP sensor.
- c. In the same way as you connected PnP **Plug 1**, connect PnP **Plug 2**'s female connector to the MAP Sensor and PnP **Plug 2**'s male connector to the factory female.

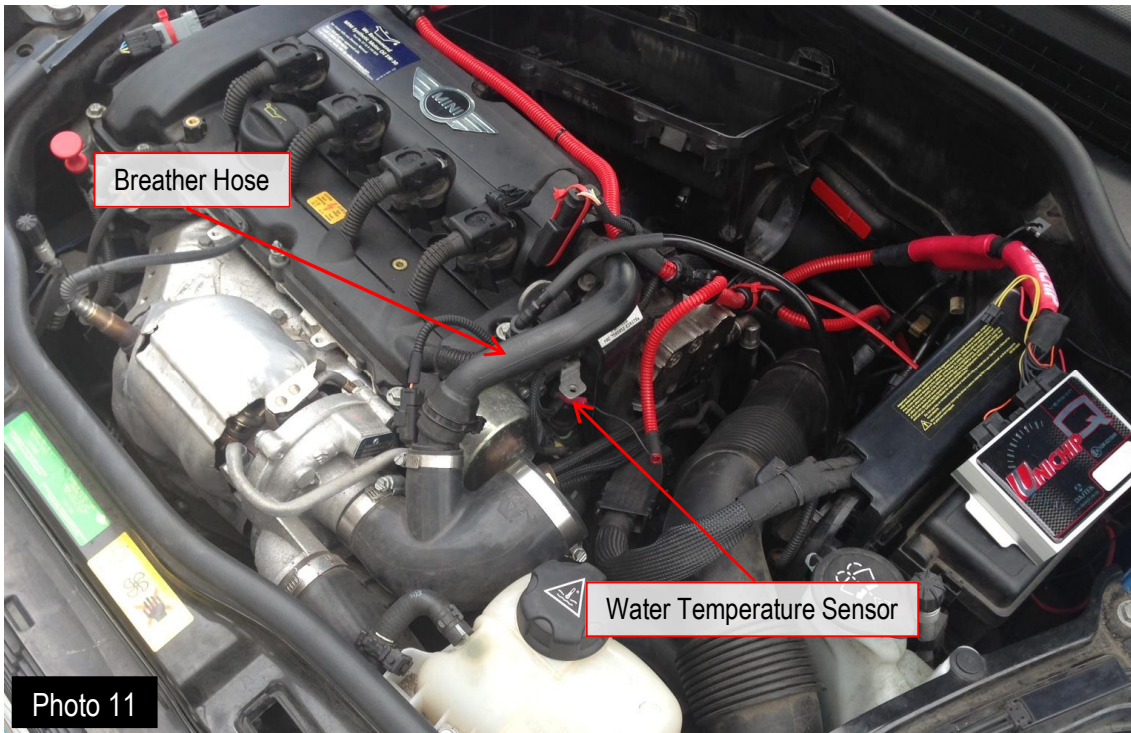


- d. Use a kit provided red Zip Ties to secure PnP **Plug 1**'s male connector to the factory wiring harness running vertically on the firewall.

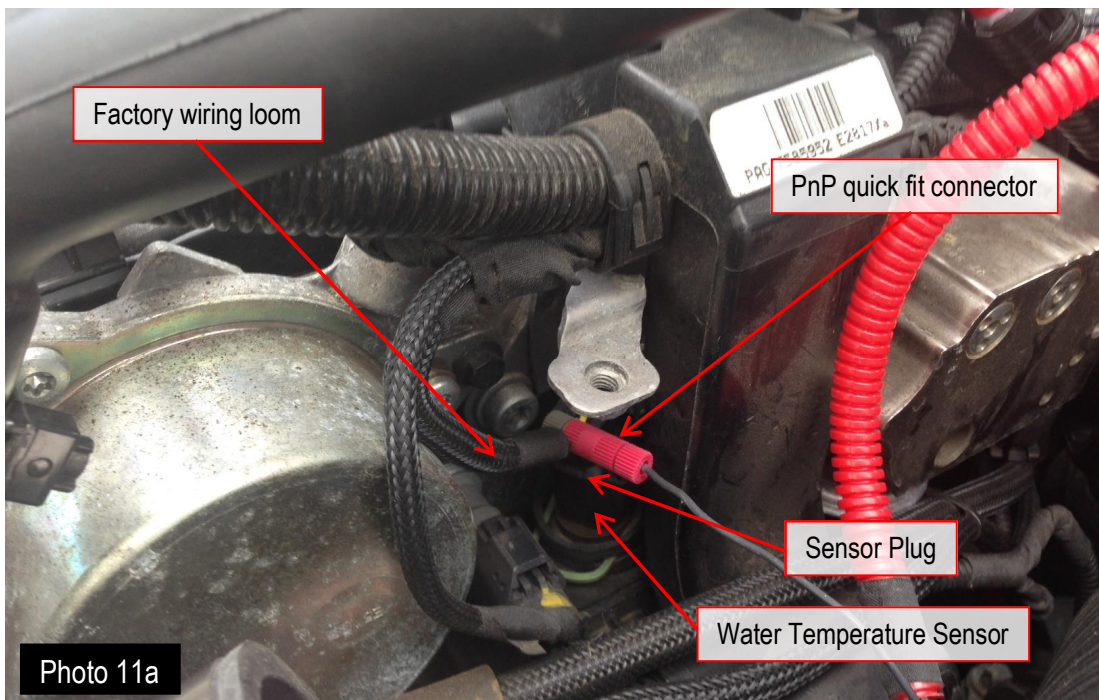
9. **Connect PnP Plug 4 to the water temperature sensor.**

- a. (Photo 11 & 11a) Locate the factory water temperature sensor on the right side of the engine beneath the breather hose and intake tube.

Note: Completely removing the intake tube simplifies this step.



- b. The water temperature sensor mounts vertically into the engine block and can be at different angles rotationally because of the way it's held in place.
- c. Pull back the factory sleeving and attach PnP **Plug 4**'s quick fit connector to the yellow factory wire which may or may not require disconnecting the factory plug from the sensor.



- d. (Photo 12 & 12a) This shows the factory water temperature plug disconnected for clarity. There is normally no requirement to remove the plug to attach the quick fit connector.

Note: Attach the quick fit connector by unscrewing the grey end cap and placing the yellow wire into the slot in the cap. Then screw the Quick Fit Connector's red body securely back onto the grey cap.

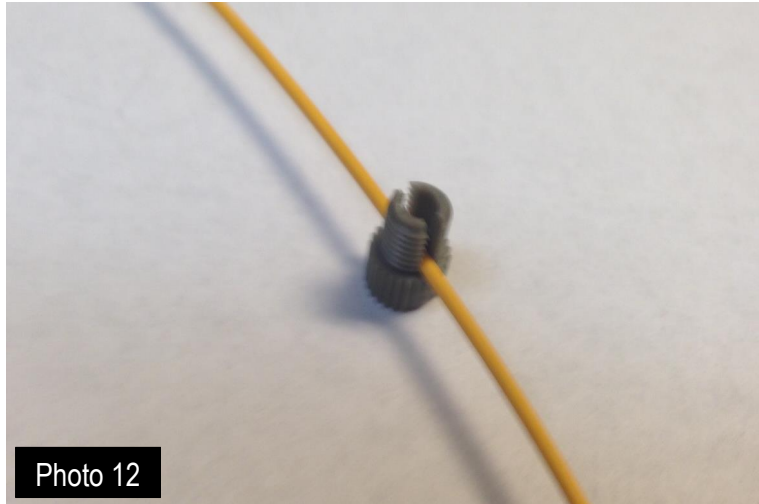


Photo 12

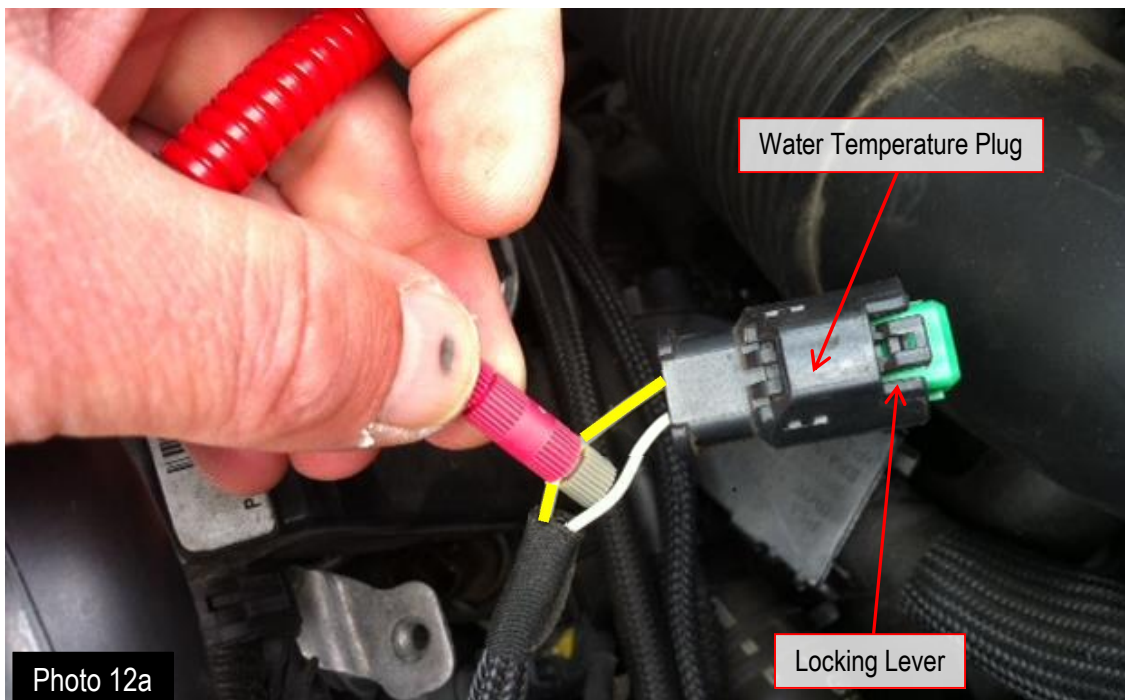


Photo 12a

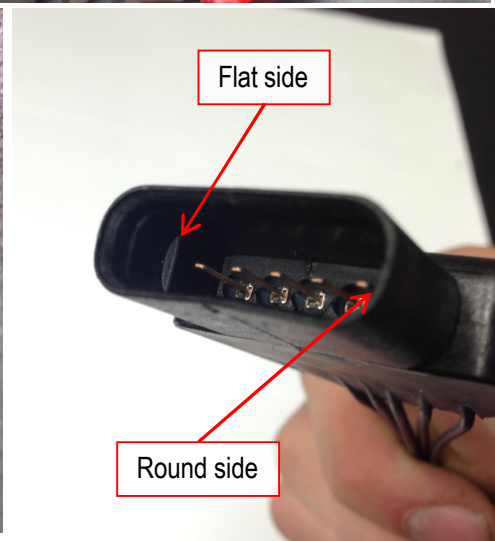
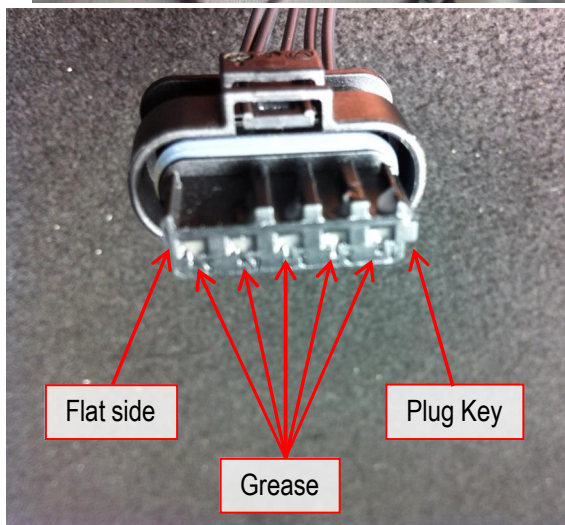
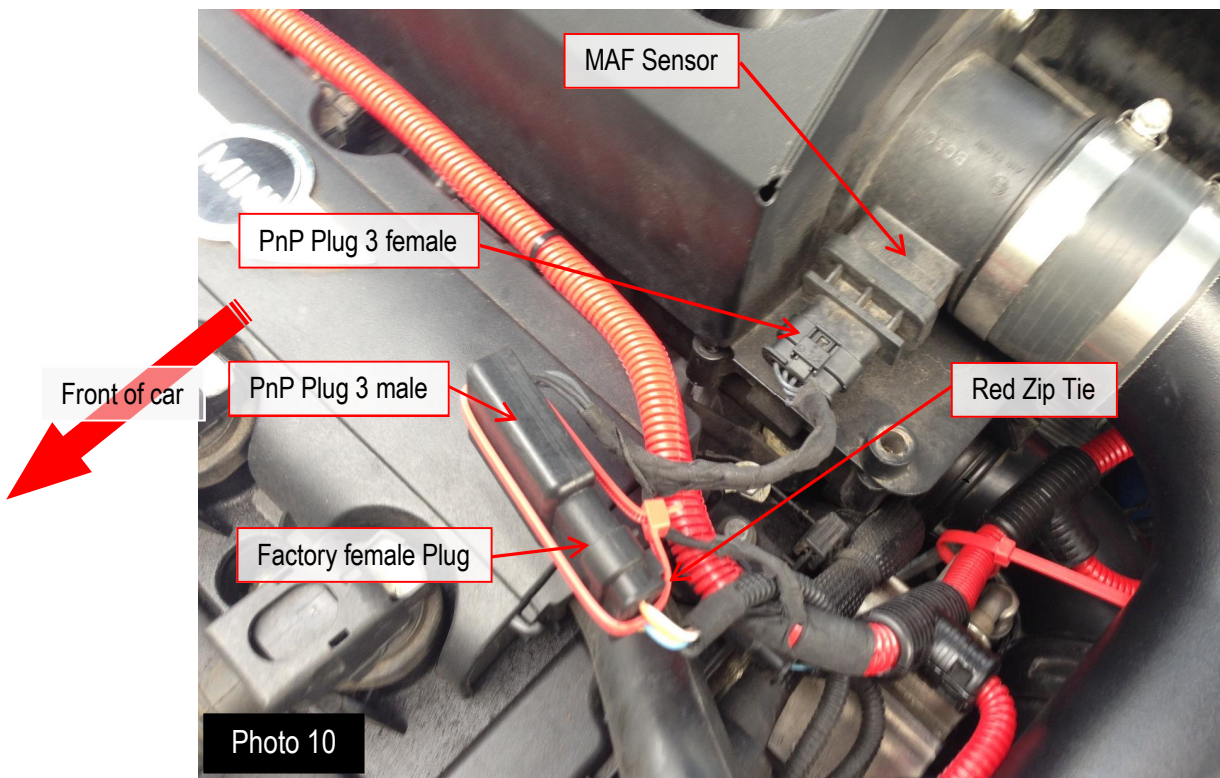
- e. If you must disconnect the factory plug to access the yellow wire, use a small, long common screw driver tip to lift the locking lever and disconnect the plug.
- f. Ensure the water temperature plug is securely attached to the water temperature sensor after attaching the Quick Fit Connector.

10. Reinstall the lower air box section, the air filter, the air box cover, and intake ducting ensuring all fasteners and clamps are secure. Do not reinstall the factory MAF plug.

11. (Photo 10) Connect PnP Plug 3 to the MAF Sensor.

- Locate the MAF sensor on the intake tube just prior to the air box.
- Using the kit provided Dielectric grease, liberally apply grease into the factory male plug that will connect to PnP **Plug 3**. Spread the grease evenly across the plug and ensure each of the holes where the terminals are is filled with grease.
- As you have done with the previous two plugs, connect PnP **Plug 3**'s female connector into the MAF and connect the PnP **Plug 3** male to the factory male.
- Use a kit provided Red Zip tie to secure the factory MAF female plug and the PnP male plug as show in the photo.

Warning: It is possible to insert the plugs upside down which will result in damage to the ECU. The Male plug has a flat side and a keyed side. The PnP Female Plug has a flat side and a round side. The flat sides of both plugs must be on the same side. Note that the release tab on the female connector will be on the same side as the flat/potted side of PnP male Plug 3.



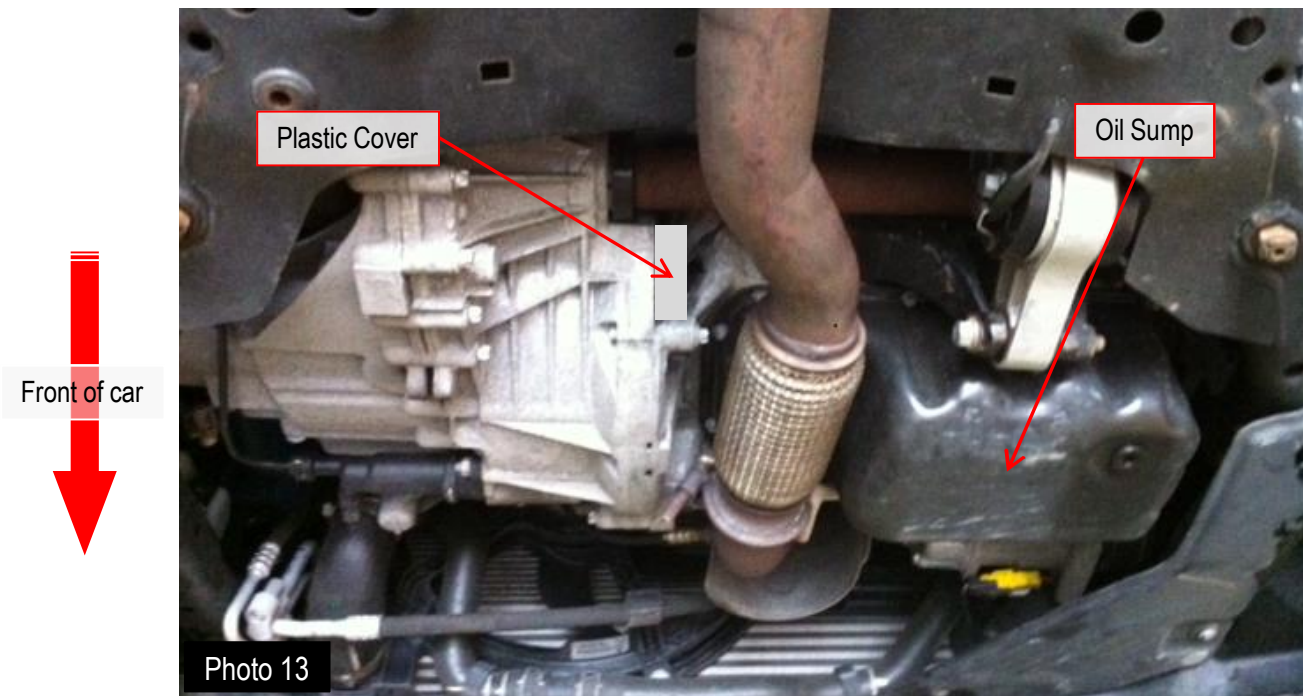
12. Connect PnP Plug 5 to the Crank Position Sensor (CPS).

- a. Use a floor jack to raise the front end of the car and good quality jack stands to support the vehicle.

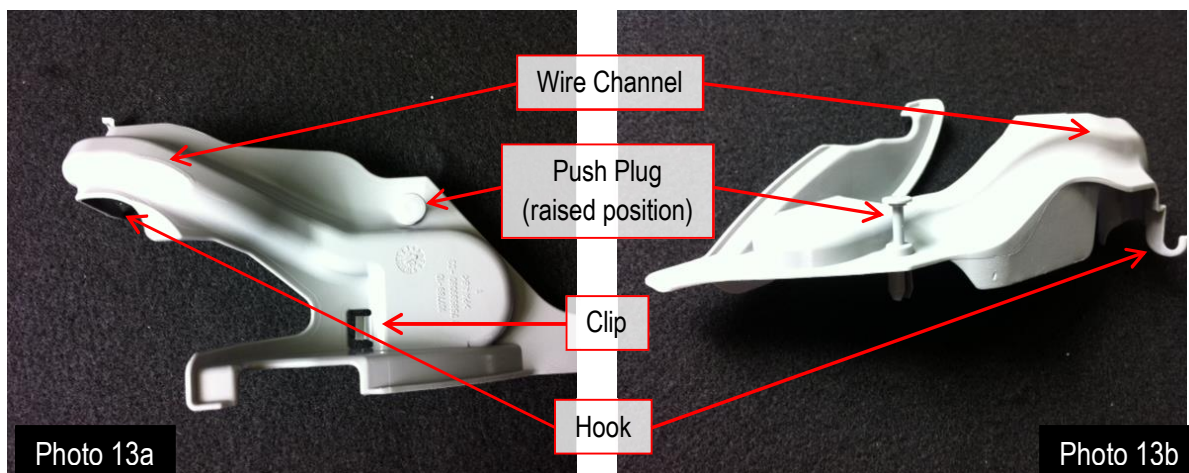
Warning: (1) Always use safety glasses whenever working underneath a vehicle to prevent anything from dropping into your eyes. Failure to do so could result in serious eye injury or loss of vision. (2) Always use Jack Stands whenever working underneath any vehicle with its tires raised off the ground. Ensure the Jack Stands are correctly positioned and secured in place before proceeding. Failure to properly support the vehicle may result in injury or death.

- b. (Photo 13) Locate the CPS's grey plastic cover on the rear of the engine block just to the driver's side of the vehicle near the exhaust pipe S-bend.

Note: The cover's proximity to the exhaust pipe causes it to become brittle and the older your vehicle is the more likely it will break during removal. You can get a new cover from MINI for under \$15 if needed.



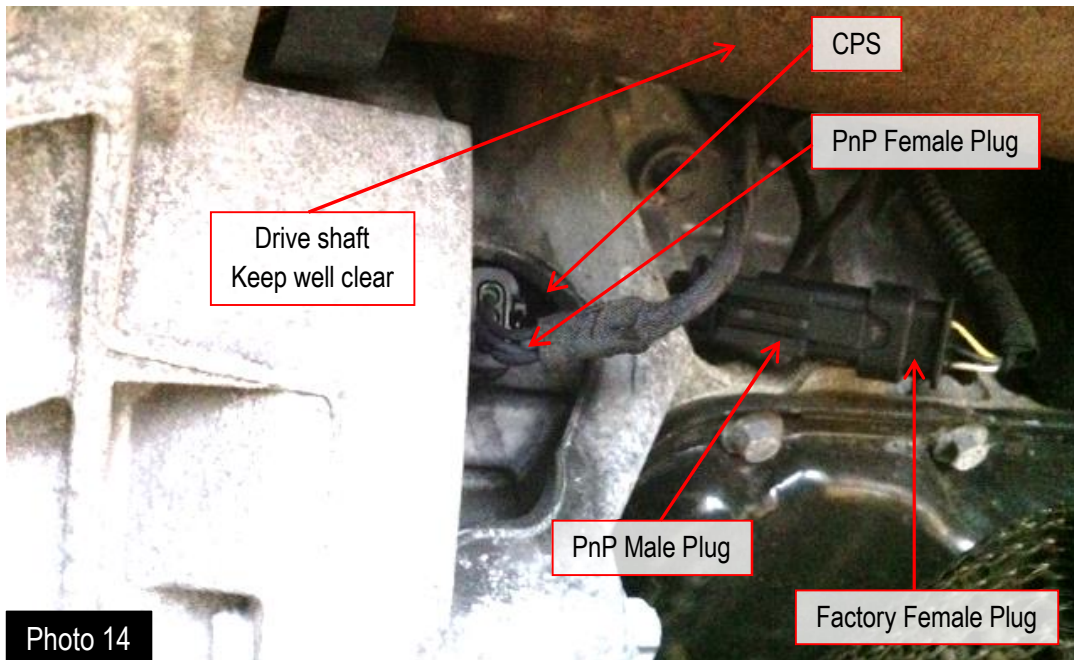
- c. Here is what the plastic cover looks like for reference.



- d. To remove the plastic cover, gently pry the pin to the raise position as shown in Photo 13b.

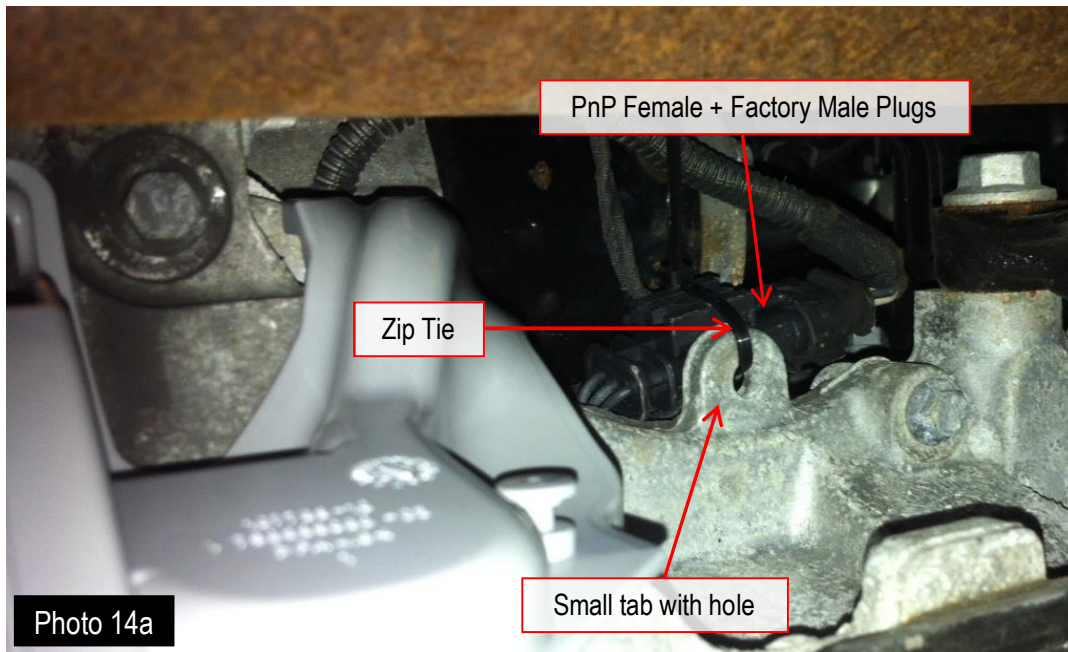
Note: Applying anti-seize compound and allowing it to penetrate for a few moments will make things a lot easier.

- e. The cover is now held in place by the clip and the hook over a sump bolt. Gently work the cover back and forth to release it and set the cover aside.
- f. (Photo 14) After removing the grey plastic cover, locate the factory CPS connector. Press down on the plug release tab and remove the factory plug from the CPS.
- g. Connect the PnP Female **CPS** Plug into the CPS and connect the factory Female plug into the PnP **CPS** Female Plug.
- h. Reinstall the grey plastic cover and ensure the PnP wire loom is routed within the cover's wire channel and not pinched underneath the edges of the cover.



- i. (Photo 14a) Using a small black kit provided Zip Tie, secure the PnP loom to the engine case above the small tab with the hole in it just above and outboard of the grey plastic cover.

Warning: Ensure the PnP Loom remains clear of all exhaust components and rotating drive train components. Failure to do so will lead to Loom failure and possible damage to the Unichip and vehicle.

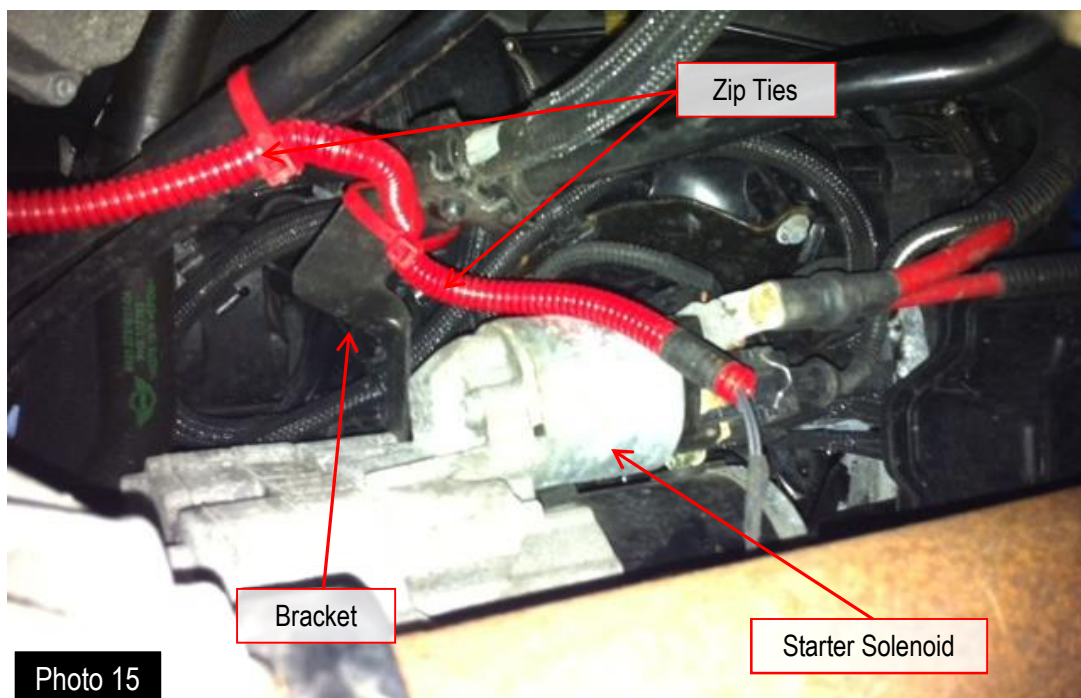


- i. (Photo 15) Looking on the other side of the exhaust pipe, find the starter motor solenoid. Using a larger red kit provided Zip tie, secure the PnP Loom to the factory starter motor wiring bracket.

Note: (1) There are minor variations between models. The important concept is to ensure the PnP harness remains completely clear of all exhaust and drive train rotating components.

(2) When securing the harness with the Zip Ties, there is no need to make things so tight that the PnP tubing becomes distorted... just make everything sufficiently tight that the harness remains clear of hot and rotating components.

Warning: More is better... when you finish Zip Tying the lower section of the PnP loom, ensure there is no possibility any portion of it will contact any exhaust/hot section items or any rotating drive train components. If there's any doubt, use more Zip Ties.



13. Remove the Floor Stands and lower the car back to the ground on its tires.

14. Connect the PnP Batt + and Batt – Ring Terminals

- a. (Photo 16) Connect the **Batt +** Ring Terminal
 - i. Remove the factory fuse box cover.
 - ii. Locate the factory power supply bolt at the rear of the fuse box.
 - iii. Using a 13 mm socket or wrench, remove the bolt, slip the PnP's **Batt +** Ring Terminal over the bolt, and replace the bolt into its original position.

Caution: Route the Batt + wire as show so that when the fuse box cover is replaced the wire emerges from the fuse box underneath the same cover wire channel that the factory power cable uses (Photo 16b). Failure to do so will cause the wire to be pinched between the fuse box and the cover and may lead to wire fraying and failure.

- iv. Retighten the factory bolt.

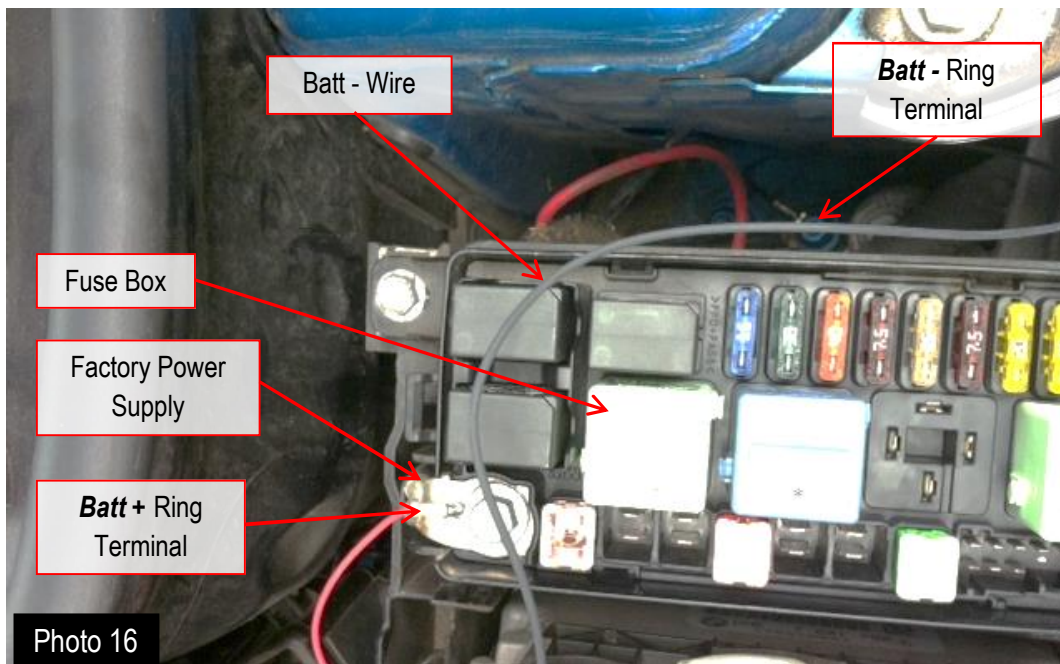


Photo 16

- b. (Photo 16 & 16a) Connect the **Batt –** Ring Terminal
 - i. Locate the chassis ground 6 mm nut between the fuse box and the driver's side fender.
 - ii. Remove the nut (Note: Use tape inside the socket to prevent it from falling when you're removing it.)
 - iii. Place the PnP **Batt –** Ring Terminal onto the bolt and place the bolt back into its original position.
 - iv. Retighten the factory nut.

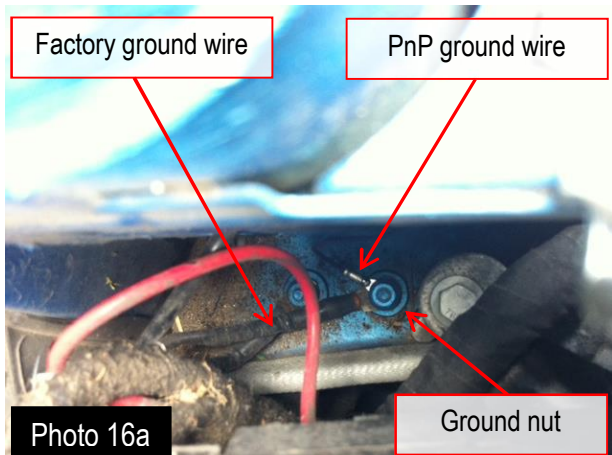


Photo 16a

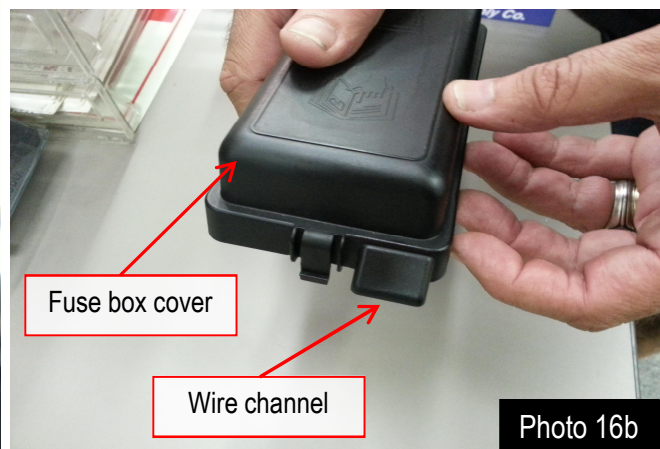
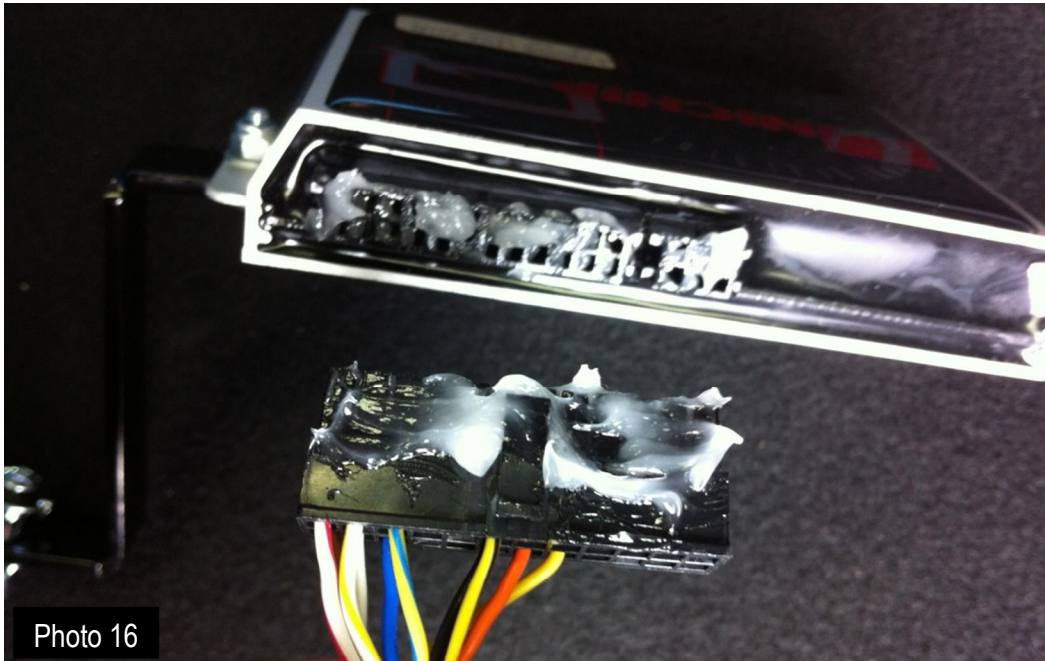
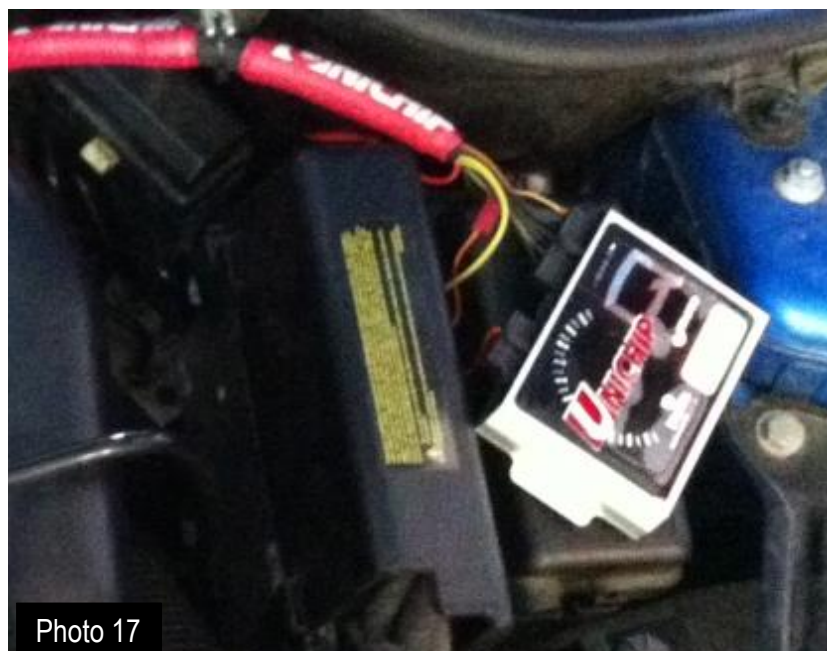


Photo 16b

15. Install the Unichip Computer.



- Liberaly apply the remaining kit provided dielectric grease to the 24-pin and 6-pin Female connectors on the Unichip computer and to the PnP's 24-pin and 6-pin Male plugs labeled **Unichip**.
- Remove the protective plastic strip from the back of one side of the kit provided protective Velcro strip and firmly attach the strip to the back of the Unichip.
- If not already attached, attach the other Velcro strip section to the one now attached to the Unichip.
- Ensure the factory Fuse Box is clean of dirt and grease.
- (Photo 17) Remove the protective plastic strip from the Velcro strip on the Unichip computer and position the Unichip above the factory Fuse Box so the Unichip is in the center of the Fuse Box with its Connectors facing the center of the car and angled back toward the center of the firewall.



- f. Firmly press the Unichip computer in place on the Fuse Box.
- g. Connect the PnP's **Unichip** Plug into the Unichip's 24-pin and 16-pin connectors.

**Notes: (1) Nothing connects to the small 6-pin connector on the Unichip
(2) The Unichip should be angled during the installation to reduce strain on the wires and terminals in the 24-Pin Connector.**

16. Test start the engine.

- a. After double checking your installation, start the vehicle and verify normal starting and idle operation. If the vehicle is difficult to start, stalls, or runs abnormally at idle, turn off the ignition and recheck the installation.
- b. If the engine runs normally, your installation is complete... enjoy!

For the basic kit:

- c. Connect the **Map 0/1** Switch 2-pin connector to the 2-pin **COMM** connector on the PnP harness. The 2-pin connector is adjacent to the 24-pin **Unichip** Plug.
- d. Position the **Map 0/1** Switch such that it will not contact any hot or rotating components in the engine bay.

Note: Ensure the Map 0/1 Loom remains clear of hot engine components and hood and hinge operation.

Switch	Mode	Function	Notes
Map 0/1	1	More aggressive boost	Unless otherwise specified, for higher octane fuel
	0	Less aggressive boost	Unless otherwise specified default operational setting

17. To install the Flux2 version of the kit refer to the supplemental Flux2 Display installation instructions.

Unichip Warranty Information

For 90 days following the original owner's purchase of a Unichip, Unichip of North America (UNA) warrants no other ECU product generates more power from a specific gasoline engine than a properly functioning, custom tuned Unichip in the specific vehicle for which it is tuned. If another ECU product generates more power from that engine within 90 days of the original owner's purchase of the Unichip, the original owner can contact their Unichip dealer for a refund of all Unichip parts, Unichip installation charges, and Unichip custom tuning. Shipping, testing, dynamometer costs and the cost of removing any UNA parts are specifically not covered by this warranty and will not be refunded to the owner.

To claim a refund, owners must provide dynamometer proof another ECU product produced more power when installed on the specific vehicle and that vehicle and all of its parts were in an identical condition other than the ECU enhancement. Three repeatable dynamometer tests must be performed using the Unichip and three repeatable tests using the other ECU product. The average of the three tests performed on each product shall constitute that product's score for determining power. The same technician, using the same dynamometer in an identical condition with the same settings, must perform all test runs. All environmental conditions including ambient and IAT temperature and pressure altitude and the vehicle's cooling system temperatures and drive train temperatures must also be identical for all six runs. IAT and Coolant temperature data logged information for each run is required. The vehicle must also use the same fuel for all six tests. UNA reserves the rights to, at UNA's exclusive discretion, re-tune the Unichip involved in a performance warranty claim at no cost to the customer making the claim or to provide a warranty refund; if after a retune, the Unichip still makes less power than another product, the owner will receive a refund IAW this warranty statement.

All UNA parts, including Unichip piggyback computers, driver modules, and harnesses also carry a limited warranty against manufacturer's defect. This warranty is valid for the original owner only, for one year from the date of purchase regardless of the installation date. UNA only warrants Unichip products sold by an authorized UNA reseller. If a UNA product is found defective, the original purchaser may contact the reseller from whom they purchased the product for a replacement component at no cost. Shipping, testing, dynamometer costs, and the cost of removing any UNA parts are specifically not covered by this warranty and will not be refunded to the owner.

The above warranties are expressly made in lieu of any and all other warranties, express or implied, including any warranty on the engineering or design of the goods as well as the implied warranties of merchantability and fitness for a particular purpose.

Any and all warranties on the Unichip are void if: 1) the custom installation or custom tuning of the Unichip was performed by anyone other than a UNA qualified dealer or tuner, 2) anyone other than a qualified UNA tuner or dealer alters or modifies or attempts to alter or modify any of the electronic data within the Unichip or 3) the UNA product is used for anything other than its intended purpose or is physically or electrically damaged.

For all warranty claims, the product return shipping date stamp must be within the appropriate time limitation from the time of purchase. Additionally, proof of purchase in the form of either a properly completed warranty card or a sales receipt indicating both the date of sale and owners name is required and is the owner's responsibility. Customers with hard-wire installations are responsible for providing proof of when and where the installation was performed. Warranty claims will be denied if the customer cannot provide proof of purchase.

UNA is not liable for incidental, consequential, or punitive damages attributable directly or indirectly to the Unichip or UNA's actions or inactions with respect to the Unichip. UNA is also specifically not responsible or liable for damage of any kind: 1) to a vehicle into which UNA products are installed or 2) resulting from the use of a vehicle equipped with any UNA products.

UNA believes high performance driving should be confined to appropriate venues such as racetracks or organized closed course events such as Autocross competitions, and does not sanction or participate in any street racing or other illicit driving activity.