



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 and fuelling 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 such as timing advancement and fueling manipulation.

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. Coated fiberglass heat shielding is used in heat sensitive areas.

In this Scion XB 2.4L kit, the PnP harness ties into three engine sensors, namely the Throttle Body, the MAF sensor, and the Crank Position Sensor, so in each instance 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.

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 we assure you that if you carefully follow the instructions you will find it straight forward. Installation time should be about 15 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 Volant Cold Air Intake, rest assured that we have spent hours perfecting mapping for that exact

intake. You will notice that 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 or larger tires.

When you order your PnP kit without the Flux2 Display, the kit will be programmed with two maps, usually a regular gas map and a premium map, both maps being optimized for the specific bolt on parts on your Scion. You may switch between maps by means of our 2-way switch which is connected to the PnP harness' COMM port. The switch may be stowed in the engine compartment or you may route it into the cabin for ease of access. The position of the map switch relative to which map the particular position selects is discussed later on 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 low octane map, a mid-octane map, a premium 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 Scion in the future, we can provide maps to suit. 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... that is 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.

Optimizing performance on a gasoline Otto-cycle engine is a precise process and will not produce the same sort of results as working with a turbo Diesel-cycle engine. With a TDi, you can just keep adding fuel and the engine makes more power until something breaks. With a gasoline engine, too little fuel causes a loss of power... and so does too much fuel. Adding too much ignition timing causes a loss of power... and so does too little ignition timing. While adding the Unichip isn't like bolting up a turbocharger, your engine will be optimally tuned and making as much power as it can.

Warnings and Cautions

Please pay very special attention to warnings, cautions & 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!

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.



Scion XB MY08-12, 2.4L, NA Unichip PnP Installation Instructions and Warranty Information

2620032 v1.1, 7 Aug 2012

Tools required

10mm socket, ratchet drive and long extension, small flashlight, Phillips screwdriver, small flat screwdriver, electrical insulation tape, side cutters, and a small crescent wrench. If using the road speed limiter elimination feature, you will additionally need wire strippers, a soldering iron, and solder.

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. Carefully follow all instructions and heed all cautions and warnings contained in these instructions. If anything is unclear or if you need any help whatsoever, contact Unichip of North America.
4. Some connectors may have silicon paste residue on them; the paste will not cause any issues.

Installation Procedures

1. If vehicle is warm, wait at least one hour to allow vehicle to cool down before commencing work.
2. Turn off ignition, remove key from ignition.
3. Wait 10 minutes before starting the installation.
4. (Photo 1) Remove engine cover by undoing 2 x nuts with 10mm wrench.

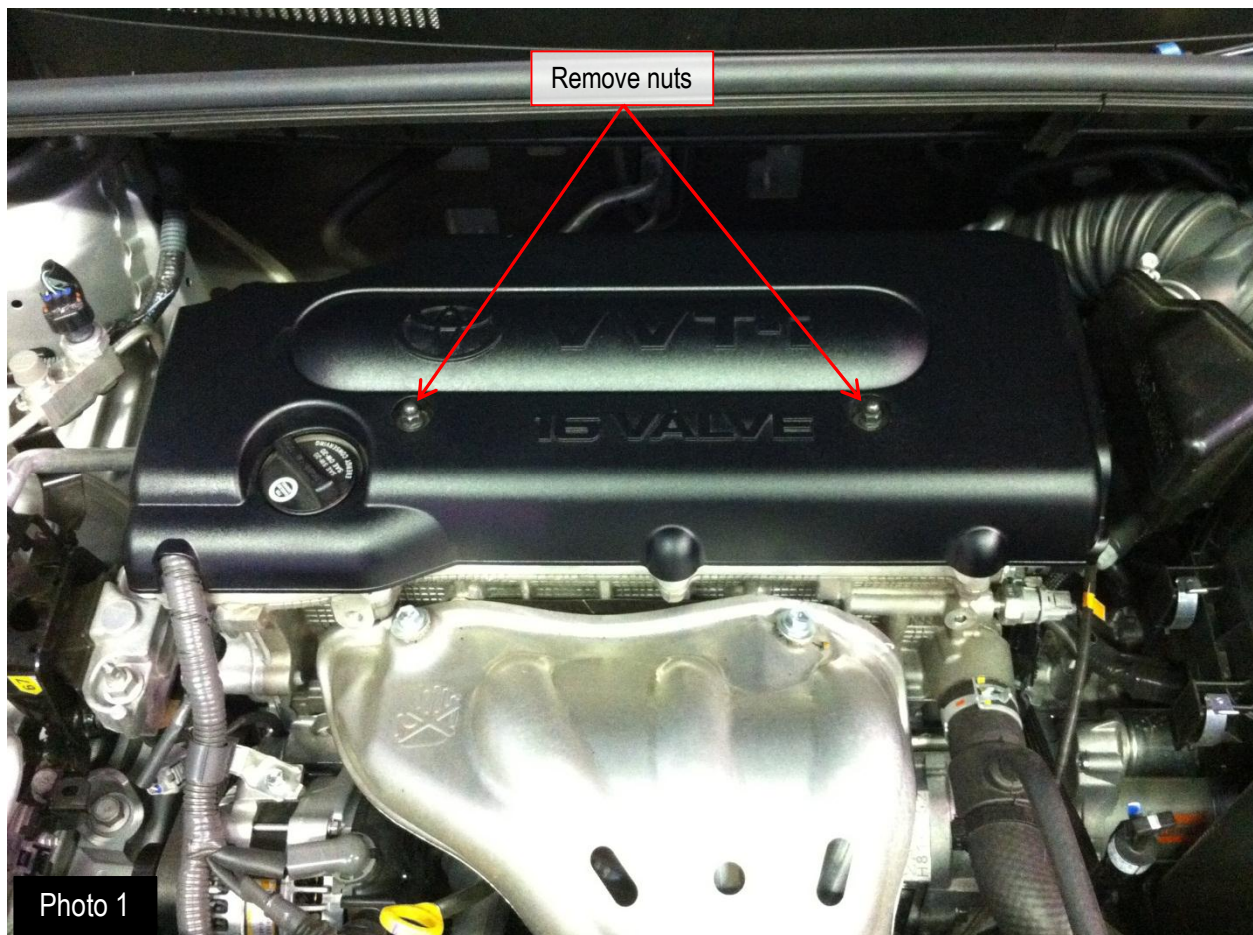
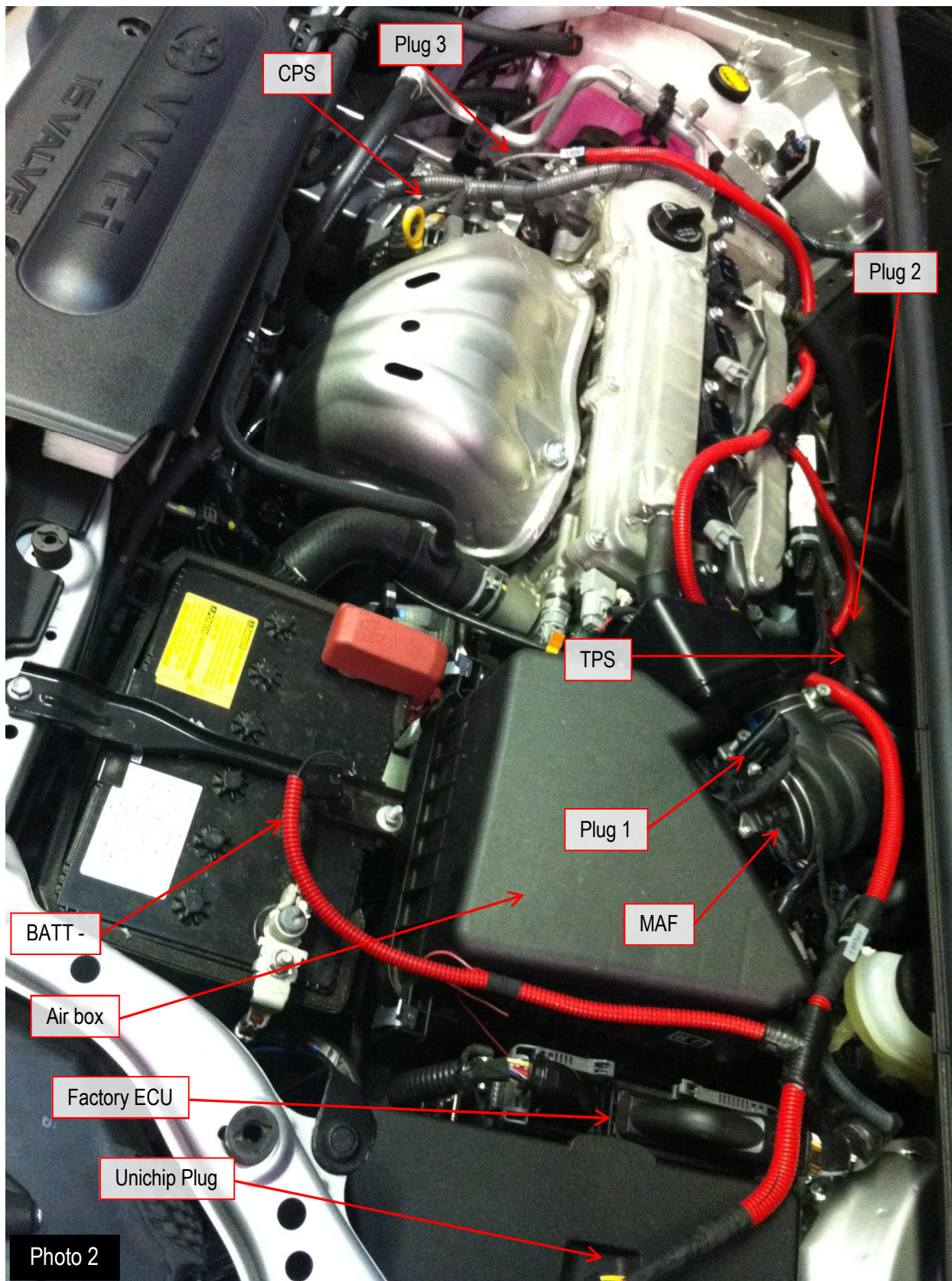


Photo 1

5. (Photo 2) Lay harness loosely on engine with Plug 3 near alternator, Plug 2 near the fuel rail on the back of the engine, Plug 1 near air box, and the BATT – connection on the battery in front of the air box.



6. Your kit can either be used to remove the factory road speed limiter or leave it stock.

If you choose to remove the road speed limiter, because you attach wires directly to the factory wiring, you will leave a "footprint" that the kit was installed which may impact your factory warranty.

Operating the vehicle above the factory road speed limiter is dangerous and may result in damage to property, and injury or death. High speed driving should only be done in appropriate venues and UNA does not endorse and is not responsible for any damage or injury resulting from operating your vehicle.

a. If you choose to leave the factory road speed limiter stock, use good quality electrical tape to secure the Red/Yellow and Red PnP wires to the convoluted tubing leading to the **BATT** – terminal. After securing the wires, skip Step 7 and proceed to Step 8.

7. To eliminate the factory road speed limiter:

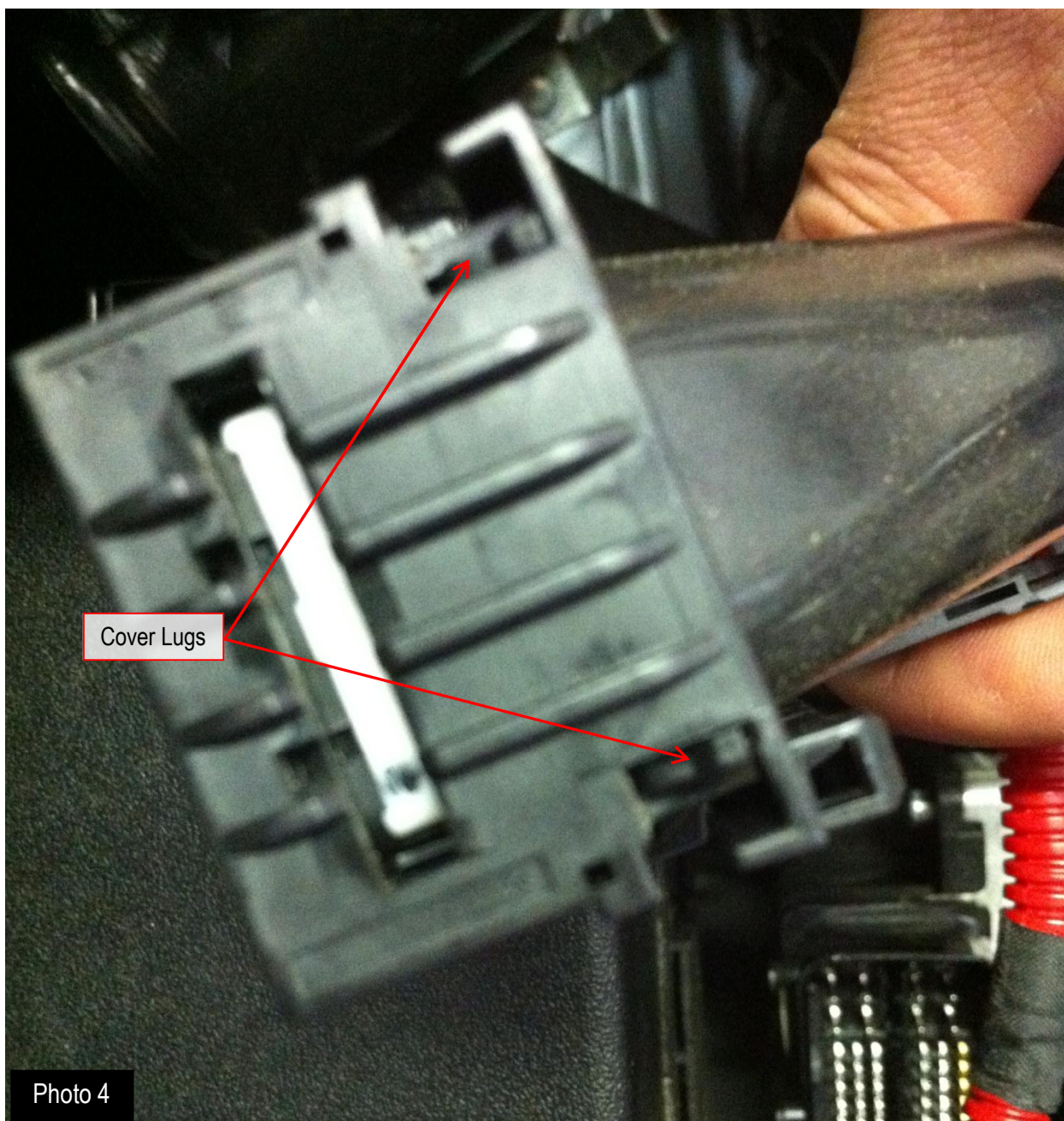
- a. Locate the factory Engine Control Unit (ECU) next to the air box and find the smaller ECU plug.
- b. Where the factory wiring bundle enters the plug, find the small factory cable tie holding the bundle to the plug cover. Use a small side cutter to cut and remove the cable tie.

Note: Use care to not cut any factory wires while snipping the cable tie

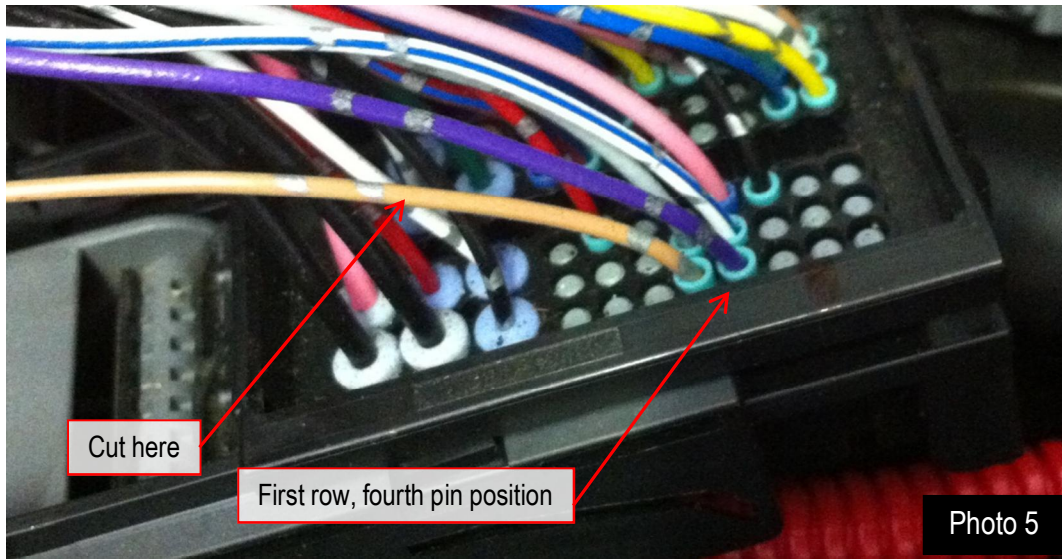
c. (Photo 3) Press the small release button in the end of the locking lever on the small factory ECU plug and rotate the lever up to remove the plug from the ECU.



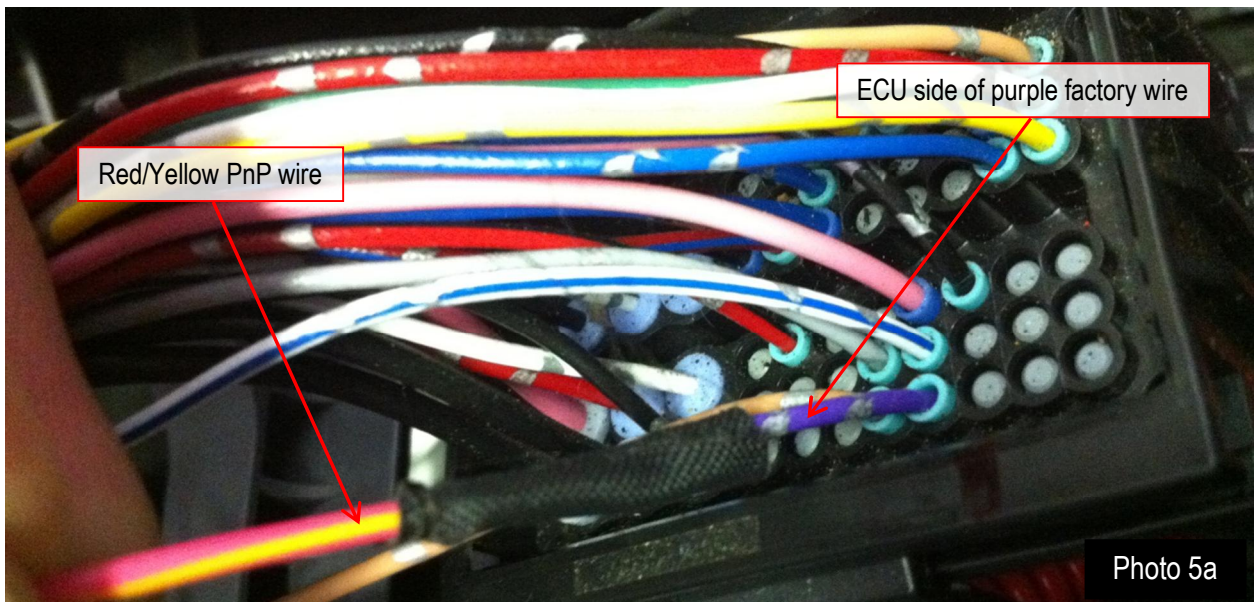
- d. (Photo 4) Using a screwdriver, press the two cover lugs in to release them and remove the plug cover. .



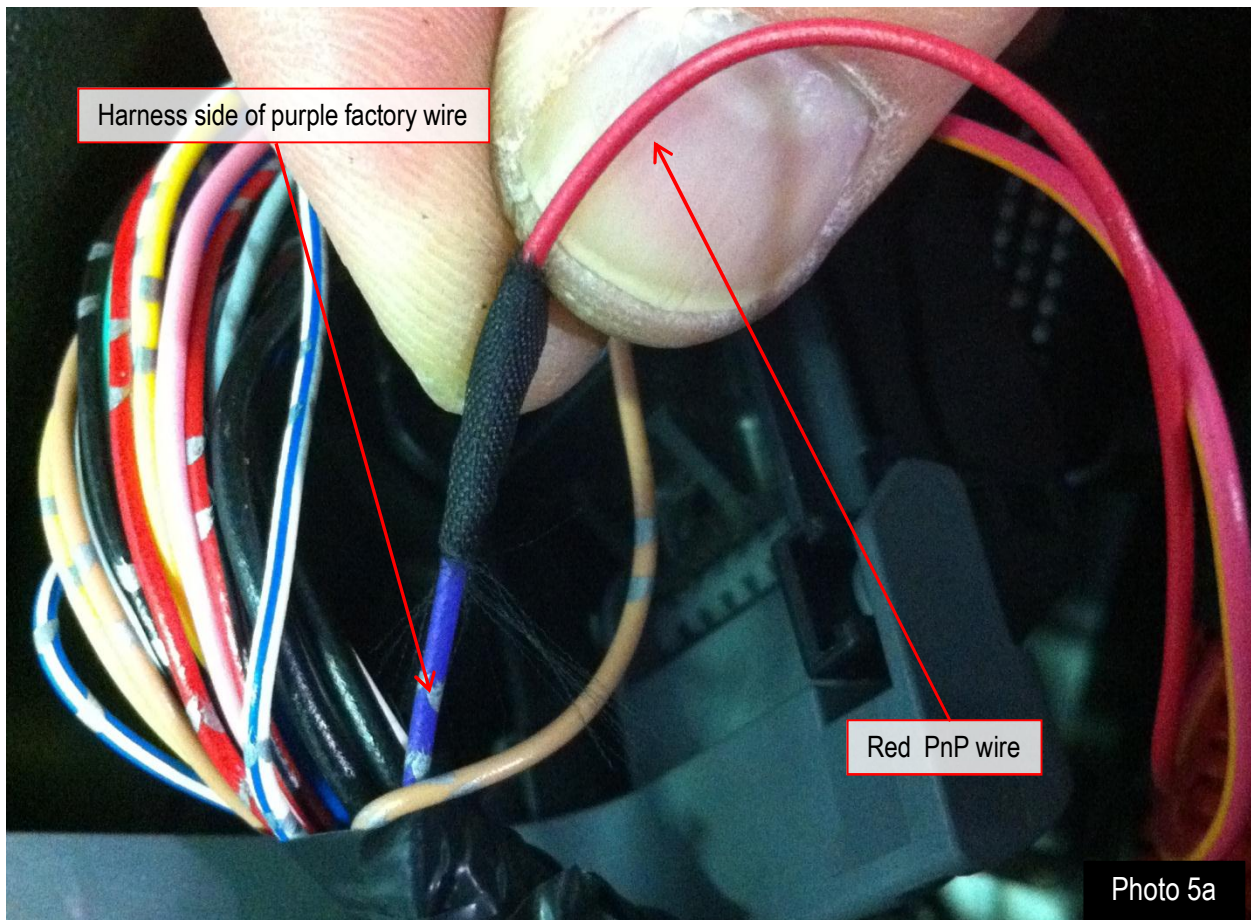
- e. (Photo 5) Locate the purple wire in the fourth pin position of the first row and cut the wire where indicated.



- f. Use wire strippers to strip the insulation from each end of the factory purple wire.
- g. (Photo 5a) Connect the red/yellow PnP wire to the section of the purple factory wire connected to the factory ECU plug. Solder the connection and use electrical tape to cover the connection.

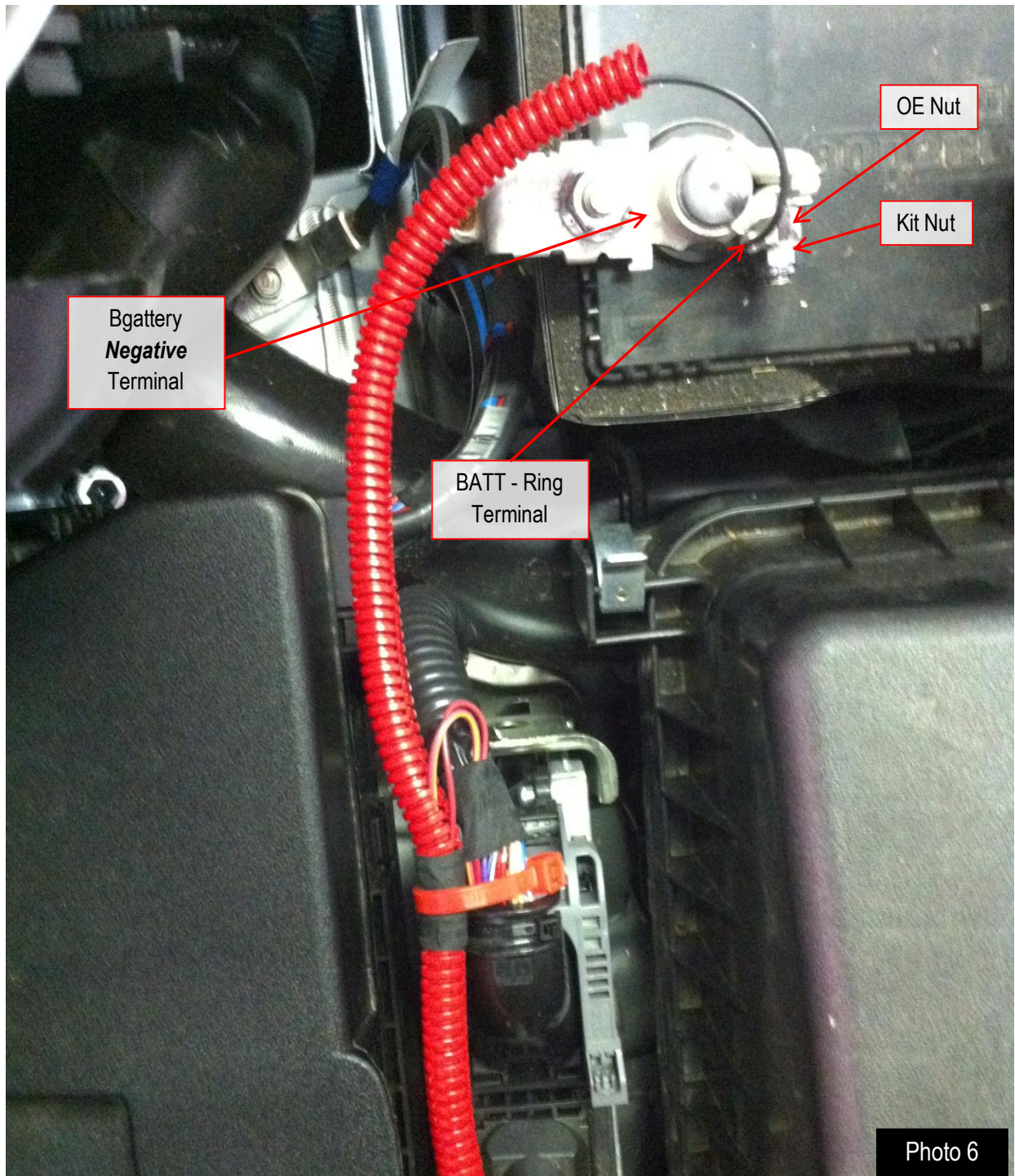


- h. (photo 5b) Connect the red PnP wire to the section of the purple factory wire connected to the factory harness. Solder the connection and use electrical tape to cover the connection



- i. Replace the cover to the plug ensuring the lugs correctly engage the plug body.
- j. Connect the small factory ECU plug back into the ECU, carefully rotate the grey locking lever down flush with the plug body, and ensure the lever locks in place.
- k. Use the kit provided small black cable tie to secure the cover to the factory wire bundle.
- l. (Photo 6) Use a kit provided large red cable tie to secure the PnP loom to the factory wire bundle coming out of the factory plug... loop the red cable tie around in the same position as the black cable tie.

8. (Photo 6) Connect the small ring terminal to the **negative** battery terminal. Slide the BATT – Ring Terminal onto the same stud used to secure the OE battery terminal to the battery post, then use the kit supplied 6mm washer and Nylock nut to secure the terminal.

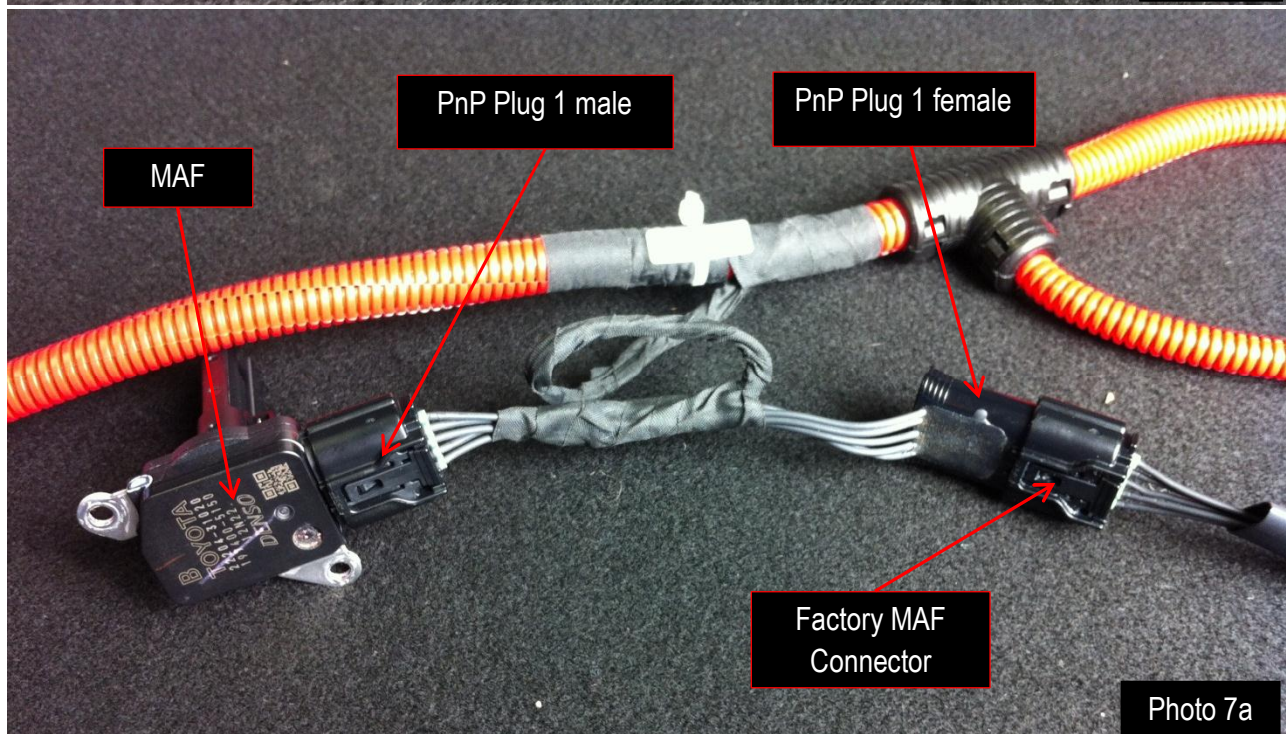
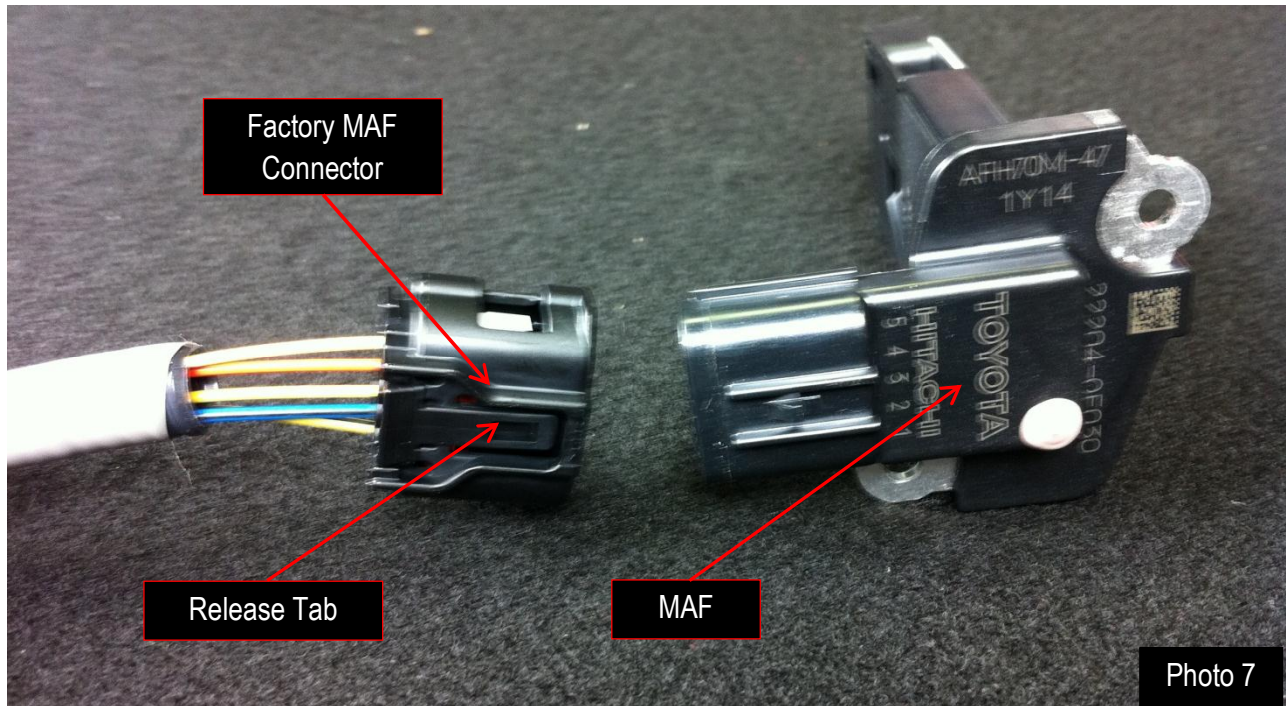


Do not mistakenly connect the BATT – ring terminal to the vehicle battery positive terminal.

9. (Photo 7 & 7a) Connect PnP Plug 1 to the MAF.

Note: The MAF connectors are shown removed from the vehicle for clarity. There is no requirement to remove the part to do the installation.

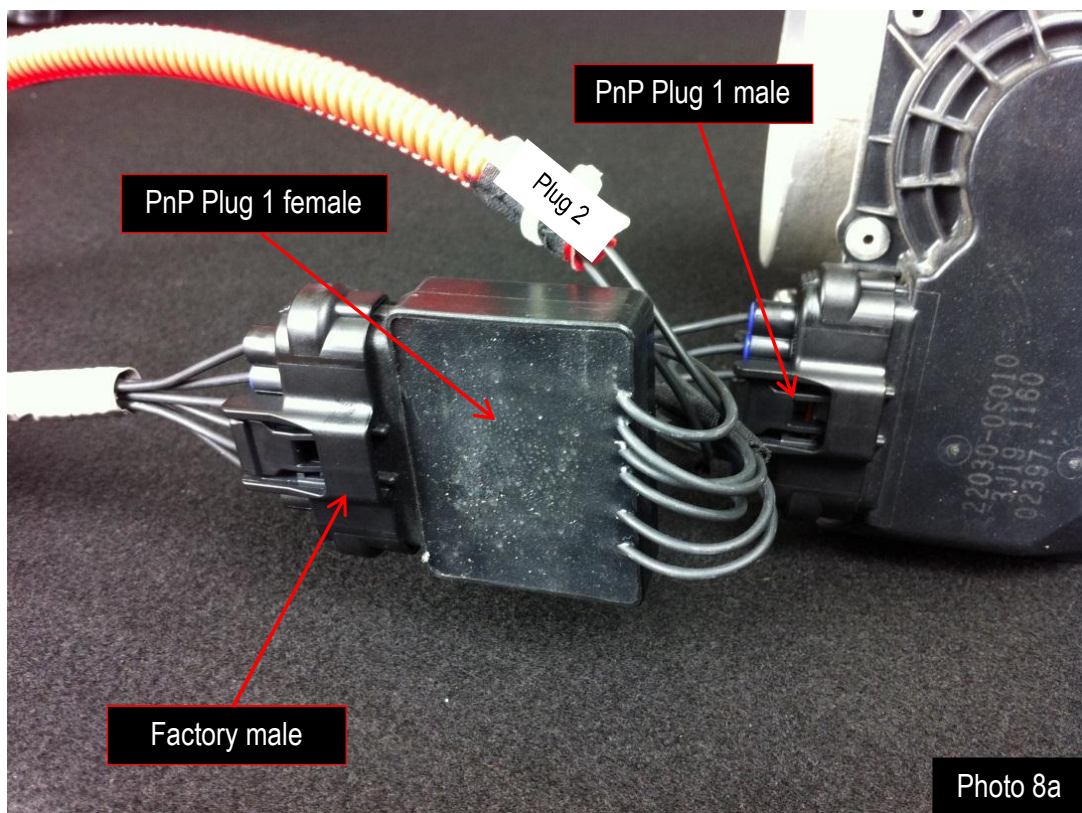
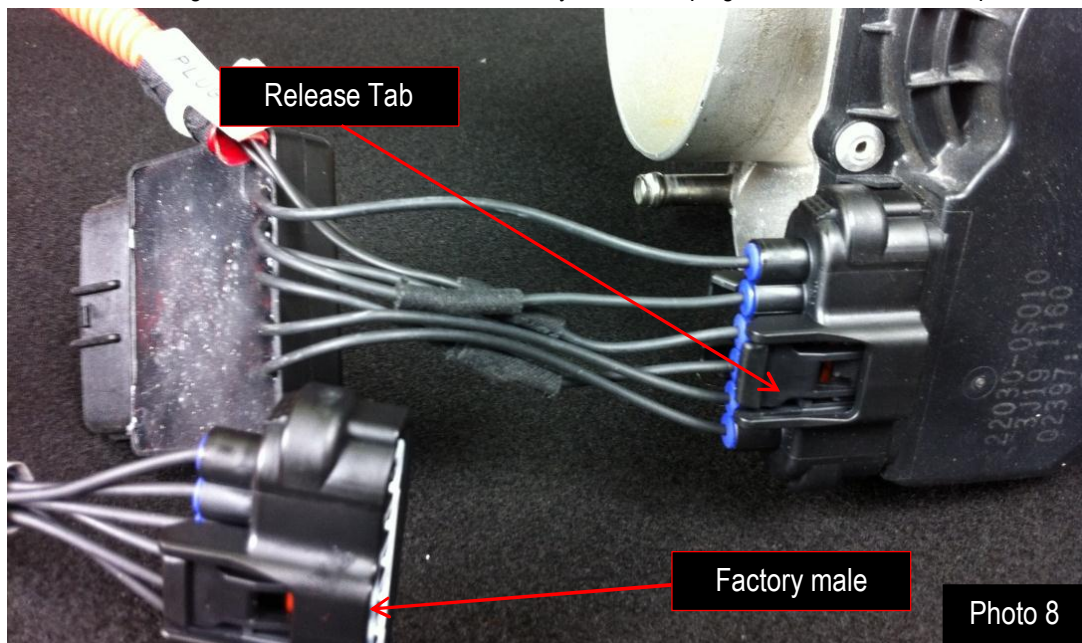
- a. Locate the factory MAF sensor on top of the intake tube just behind the air box (See Photo 2)
- b. Press the release tab on the factory female MAF Plug and remove it from the MAF.
- c. Connect PnP Plug 1 male Plug to the factory MAF and ensure it clicks in place.
- d. Connect PnP Plug 1 female Plug to the factory male MAF connector and ensure it clicks in place.



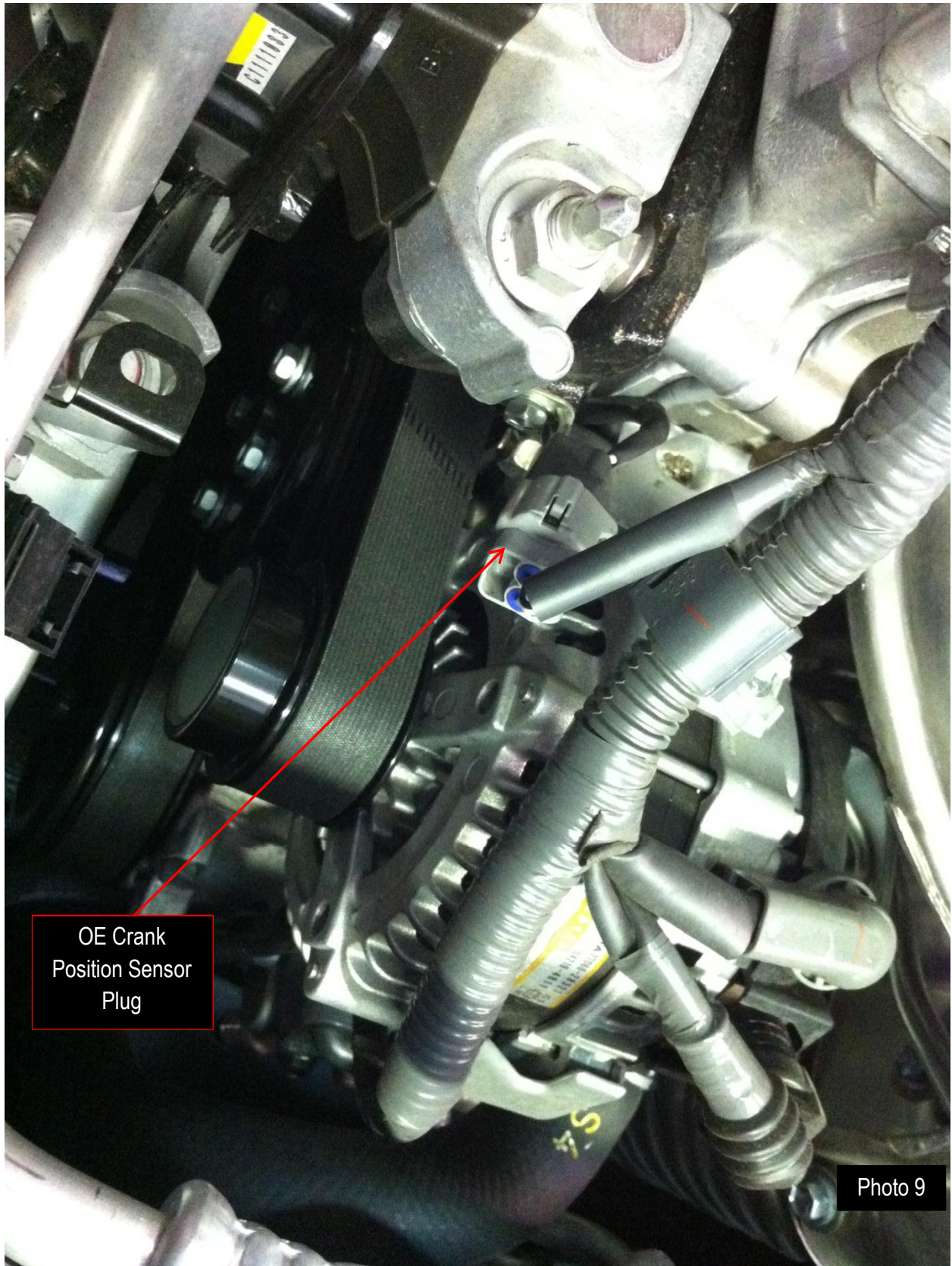
10. (Photo 8 & 8a) Connect PnP Plug 2 to the OE Throttle Position Sensor (TPS).

Note: The TPS connectors are shown removed from the vehicle for clarity. There is no requirement to remove the part to do the installation.

- a. Locate the Throttle Body behind the engine where the intake tube joins the engine (see Photo 2)
- b. Locate the factory TPS connector on the Throttle Body. Press the release tab and disconnect the factory TPS connector from the Throttle body.
- c. Connect PnP Plug 2's male connector to the Throttle Body and ensure it clicks in place.
- d. Connect PnP Plug 2's female connector to the factory male TPS plug and ensure it clicks in place.



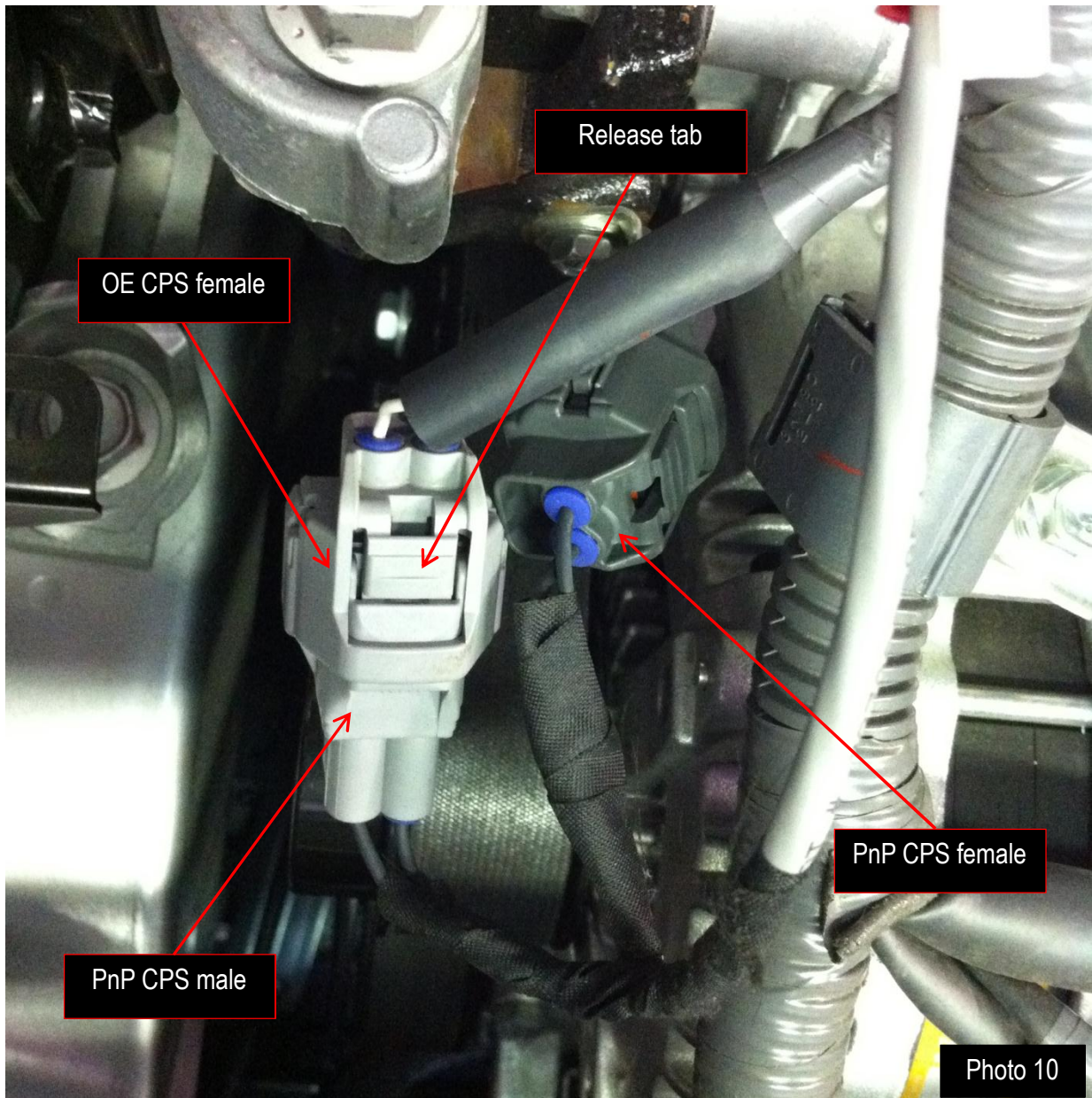
11. (Photo 9) Connect PnP Plug 3 to the Crank Position Sensor (CPS).
 - a. Moving to the passenger side of the engine compartment, locate the factory CPS connector on the engine block just behind the alternator. Note that plug colors may vary. See Photo 2 for general location of the CPS.



OE Crank
Position Sensor
Plug

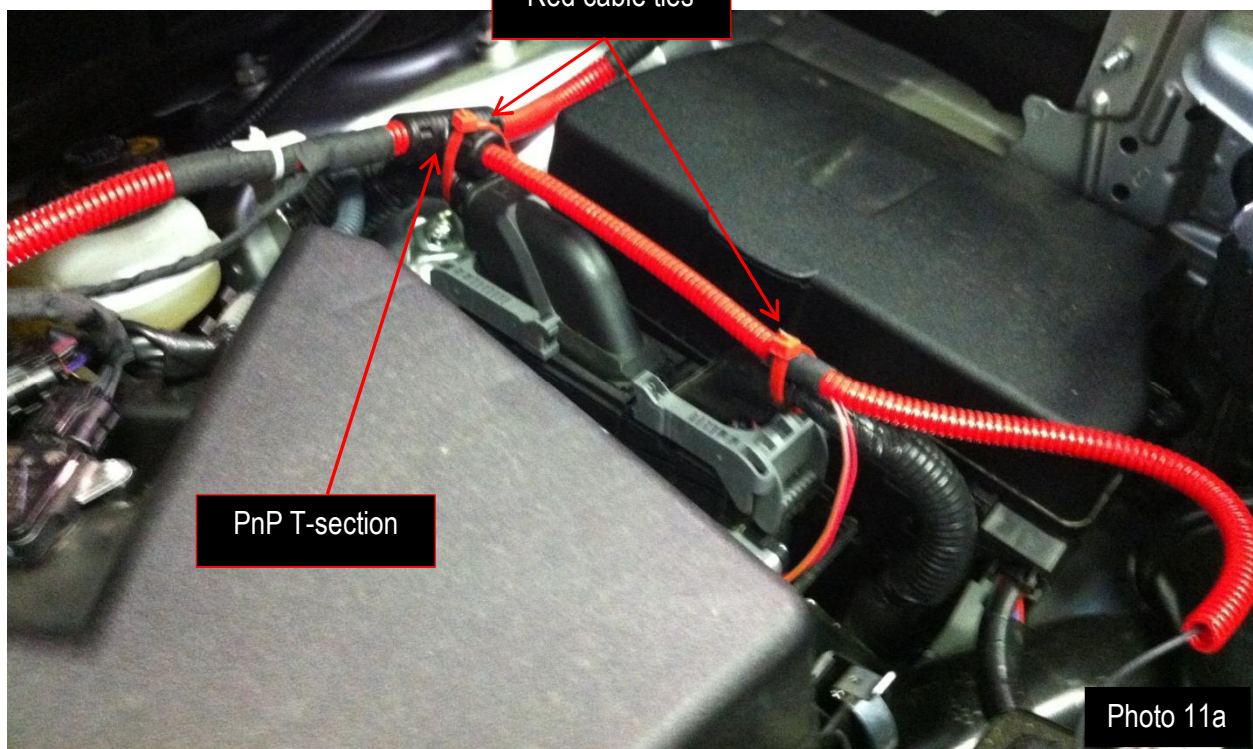
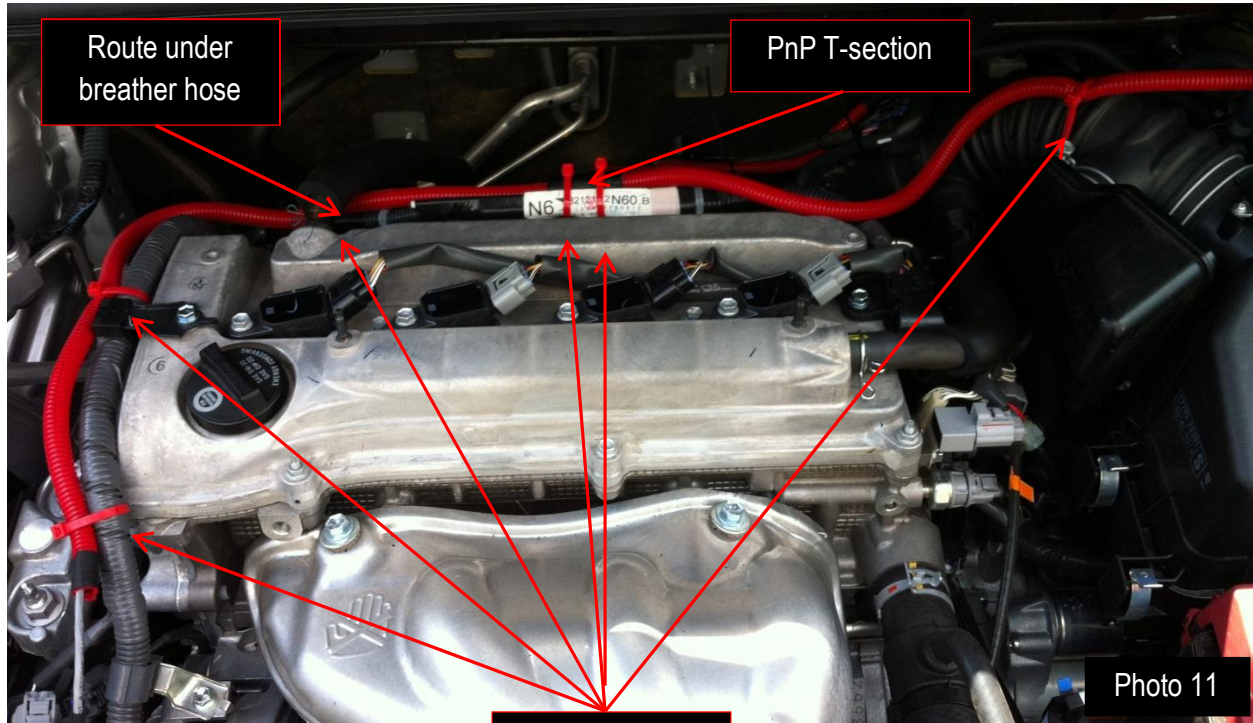
Photo 9

- b. Press the release tab on the OE female CPS Plug and remove it from the CPS.
- c. (Photo 10) Connect the PnP female CPS Plug to the OE CPS and ensure it clicks in place.
- d. (Photo 10) Connect the PnP male CPS Plug to the OE female CPS Plug and ensure it clicks in place.



12. (Photo 11 & 11a) The PnP harness will be secured with both the kit provided large red and small black cable ties; securing it exactly as shown is paramount to preclude damage to any of the components. Using the large red cable ties, secure the PnP to the factory harness exactly as shown.

Note: Do not over tighten the cable ties; the convoluted tubing should not be distorted when secured

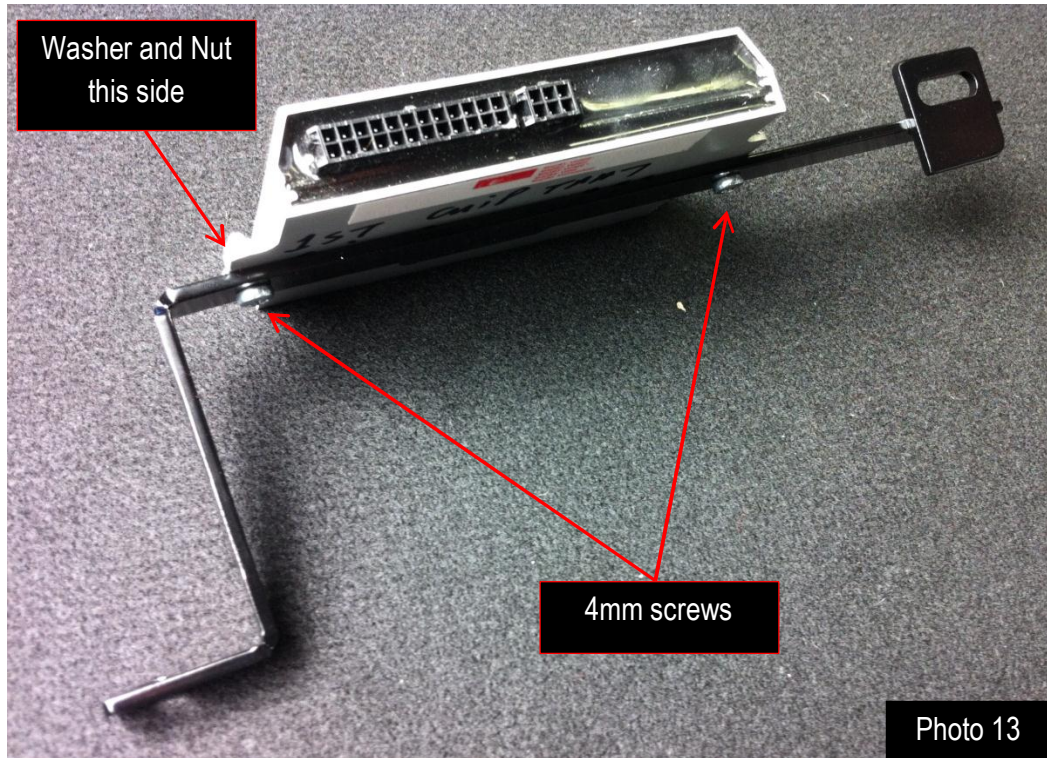


13. (Photo 12) Using the small black cable ties, secure the PnP harness as shown. Ensure the TPS connector does not move.

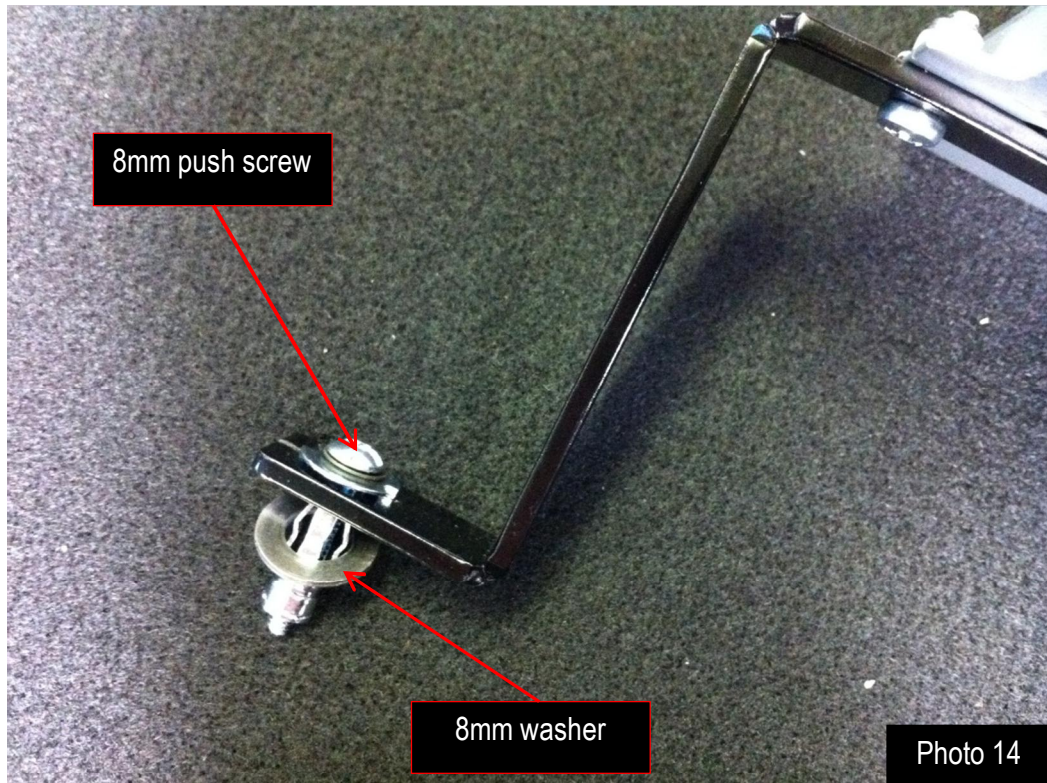
Note: Do not over tighten the cable ties; the convoluted tubing should not be distorted when secured



14. (Photo 13) Secure the Unichip to the supplied mounting bracket
- Use the kit supplied 4mm bolts, nuts & washers, to secure the Unichip to the bracket. The bracket fits against the flat back side of the Unichip computer and the Unichip's Molex connectors should be closer to the L-shaped side of the bracket.



15. (Photo 14) Insert the kit provided push screw into the hole in the L-shaped bracket leg.



16. (Photo 15) Install the Unichip Computer

- a. Working in the engine compartment under the lip of the fender on the driver's side outside of the air box, align the Unichip mounting bracket with the two holes in the tub.
- b. Drop the push screw into the lower tub hole.
- c. Place kit provided 6mm bolt through the bracket and tub hole with the bolt head on the back side as shown. Put the kit provided 6mm flat washer onto the bolt and secure it with the provided Nyloc nut.
- d. Once both bracket feet are positioned, tighten the fasteners.

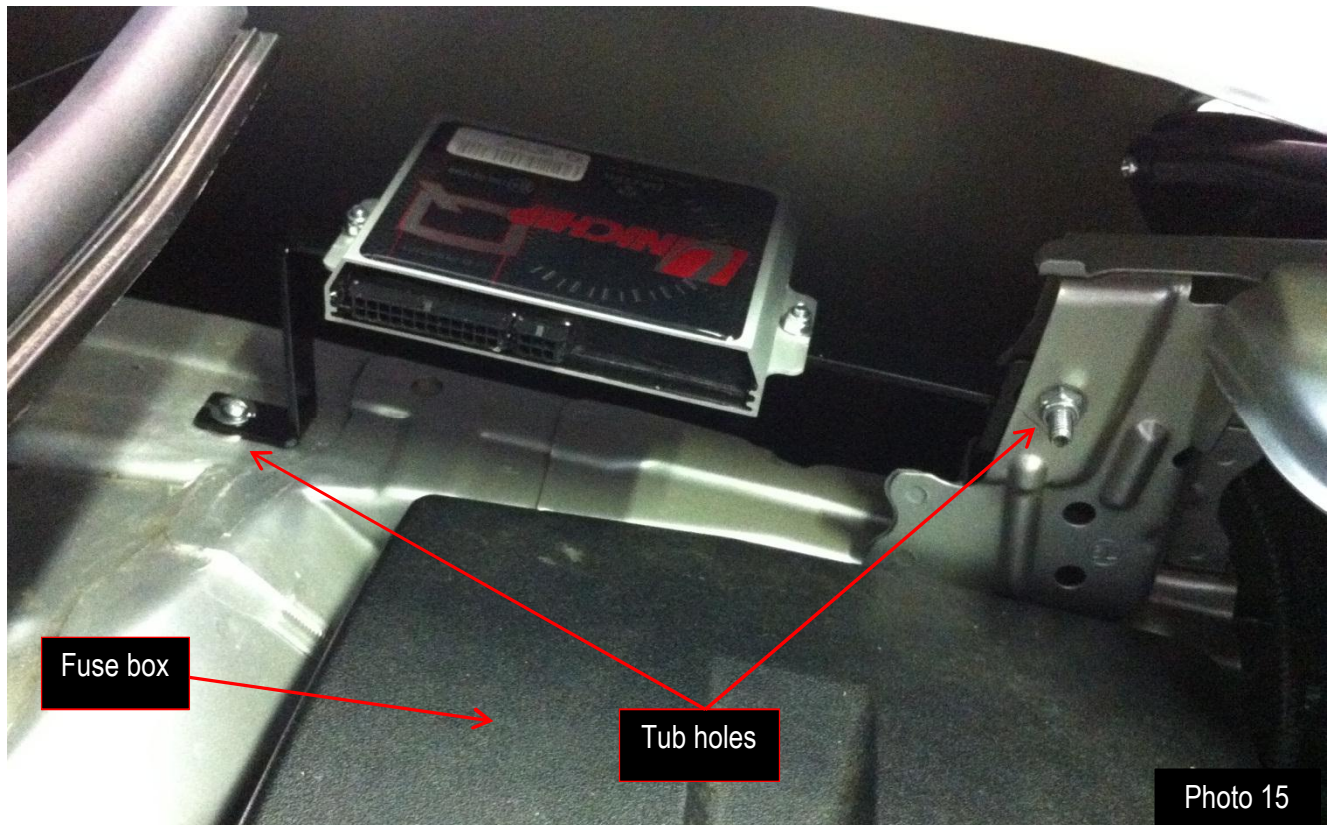


Photo 15

17. If installing the basic kit ***without*** the Flux2 Display
- Connect 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.
 - Position the Map 0/1 Switch such that it will no contact any hot or rotating components in the engine bay. You can cable tie the Map 0/1 switch loom to the Unichip bracket.
 - (Photo 16 & 16a) Liberally apply the kit provided dielectric grease to both sides of the 24-pin connector and to the Unichip Computer's 24-pin connector to provide improve water intrusion resistance.



- Connect 24-pin connector to Unichip Computer.

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

18. If installing the Flux2 version of the kit:
 - a. Refer to the Flux2 installation instructions that came with the Flux2 components
 - b. Connect the FST-10 harness' 24-pin and 6-pin connectors to the Unichip Computer.
19. Re-fit engine cover.



Photo 17

Warning: Carefully inspect the engine bay and work space to ensure all tools are accounted for, all components are installed, and everything that all wires and components are clear of all hot and rotating components. Failure to ensure things are correctly finished may result in serious damage to either the vehicle or Unichip components.

20. 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 check the installation again.
21. If the engine runs normally, your installation is complete... enjoy!

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.