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 fueling 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 2.0L kit, the PnP harness ties into three engine sensors, the Throttle Body sensor, the MAF sensor, and the Crank Position Sensor. At each, 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 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 Takeda 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 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 vehicle. 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. 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 vehicle 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… 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 TD, 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, 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!

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 FR-S MY13 on, Subaru BRZ, Toyota 86
2.0L, NA LHD Unichip PnP Installation Instructions
and Warranty Information

2620052 v1.0, 15 Nov 2012

Tools required

12 mm socket, 10mm socket, ratchet drive and long extension, small flashlight, small flat screwdriver, and side cutters.

Notes: These instructions are for Left Hand Drive vehicles only.

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 before commencing work.
2. Turn off ignition, remove key from ignition; wait 15 minutes before starting the installation.
3. (Photo 1) Lay the harness loosely on engine with ***Plug 1*** near the air box at the front of the engine bay, ***Plug 2*** near the throttle body, ***Plug 3*** behind the driver's side of the Intake manifold, and the ***Unichip*** Plug on the fuse box near the passenger side fender.
4. Drop ***Plug 3*** down between the back of the engine and the firewall on the driver's side.

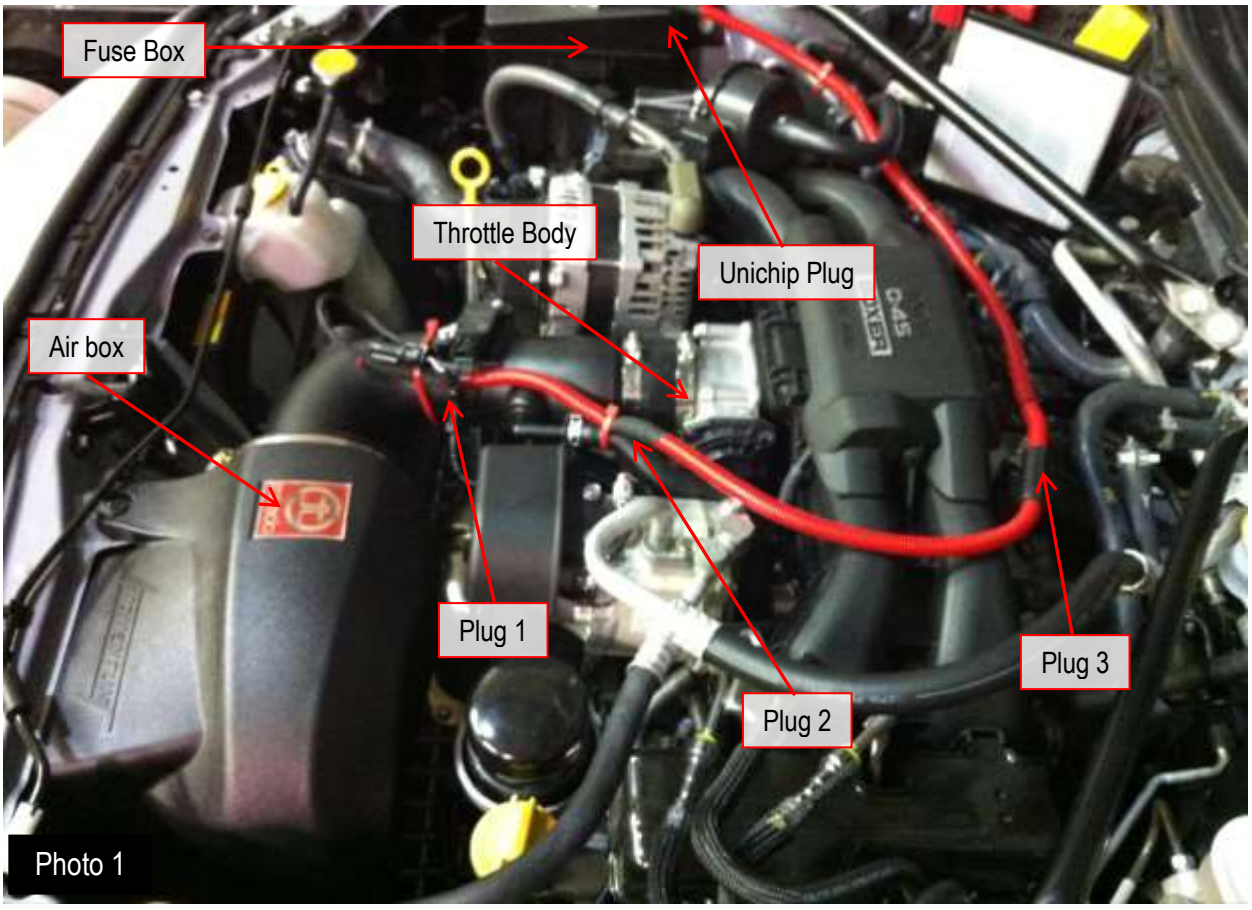


Photo 1

5. (Photo 2 & 2a) ***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 the intake tube just behind the air box (See Photo 1)
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.

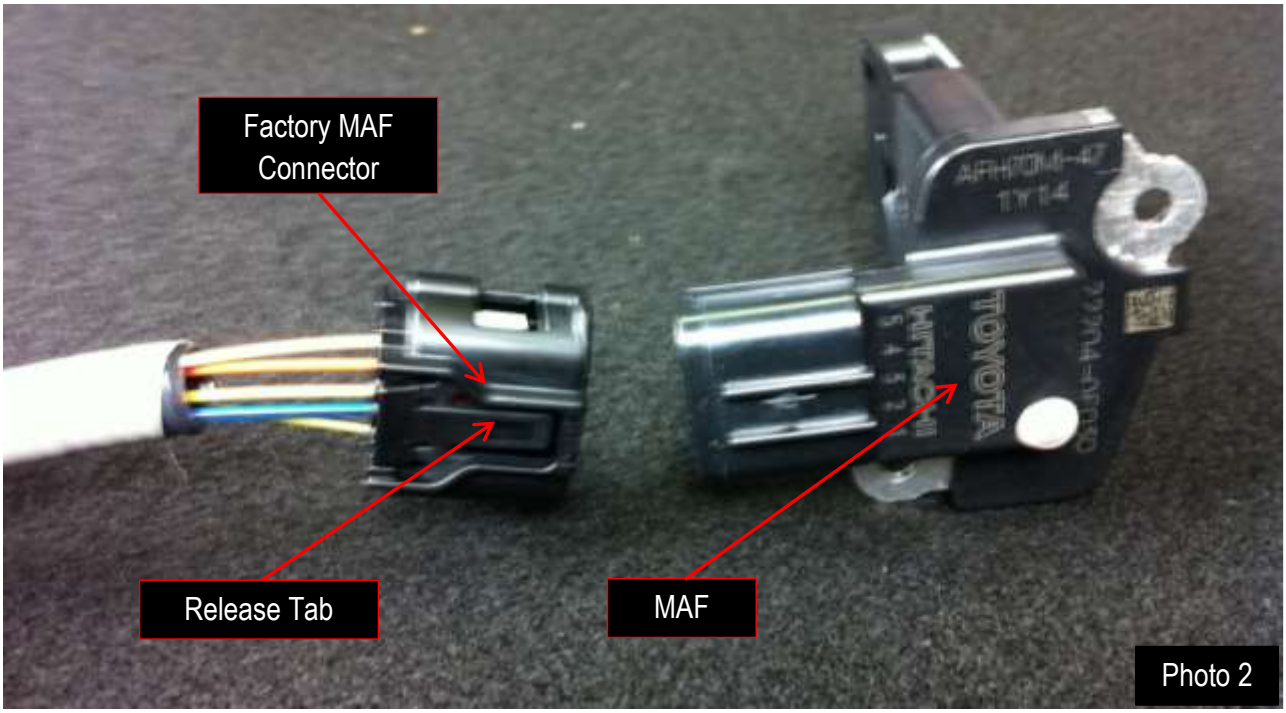


Photo 2

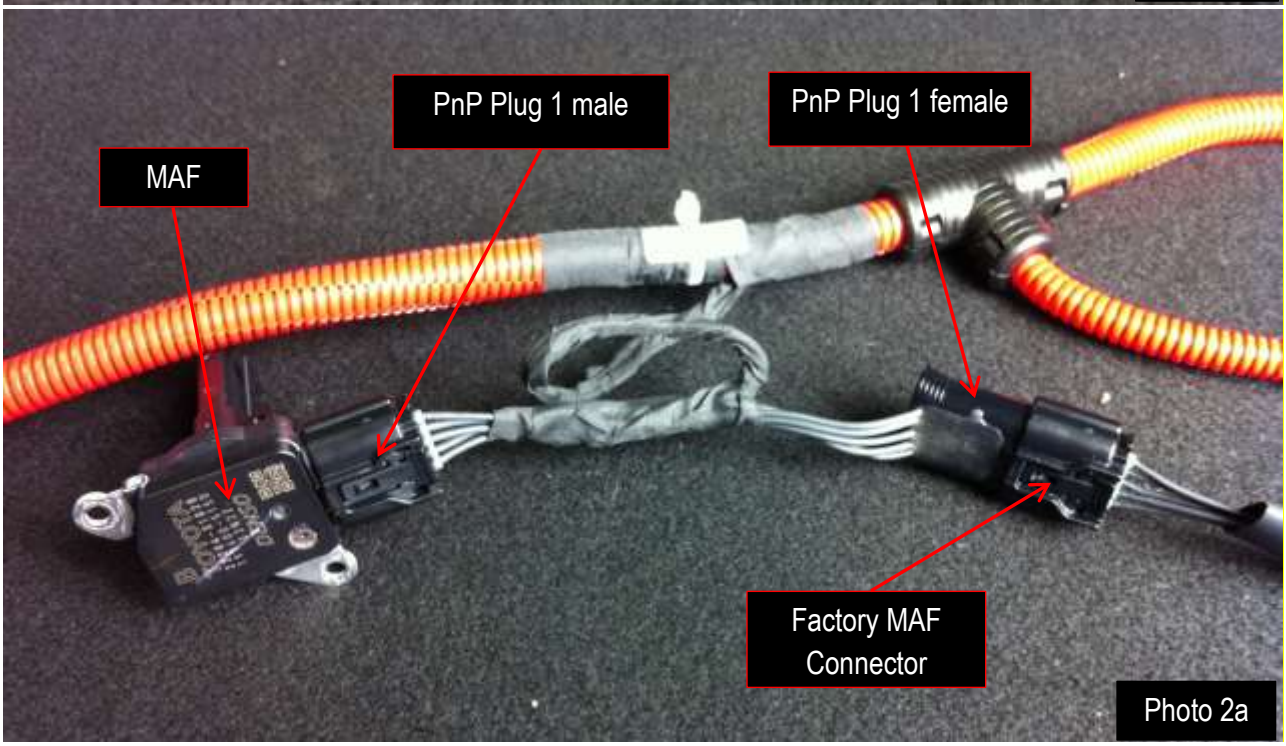


Photo 2a

6. (Photo 3 & 3a) ***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 in front of the engine where the intake tube joins the engine (see Photo 1)
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 ***Plug2***'s female connector to the factory male TPS plug and ensure it clicks in place.

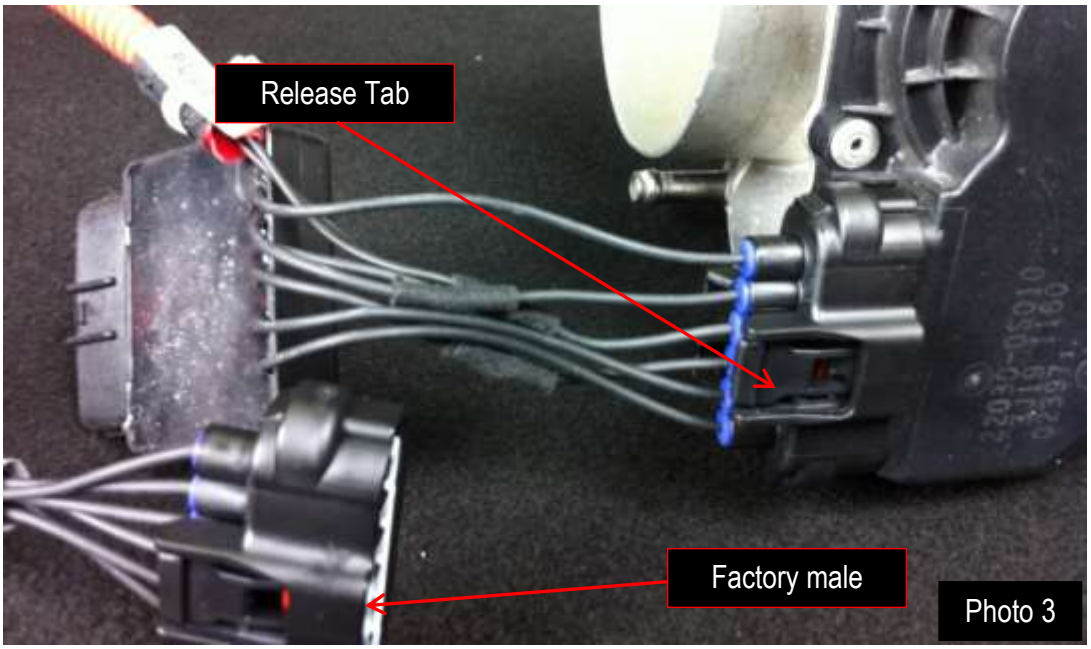


Photo 3

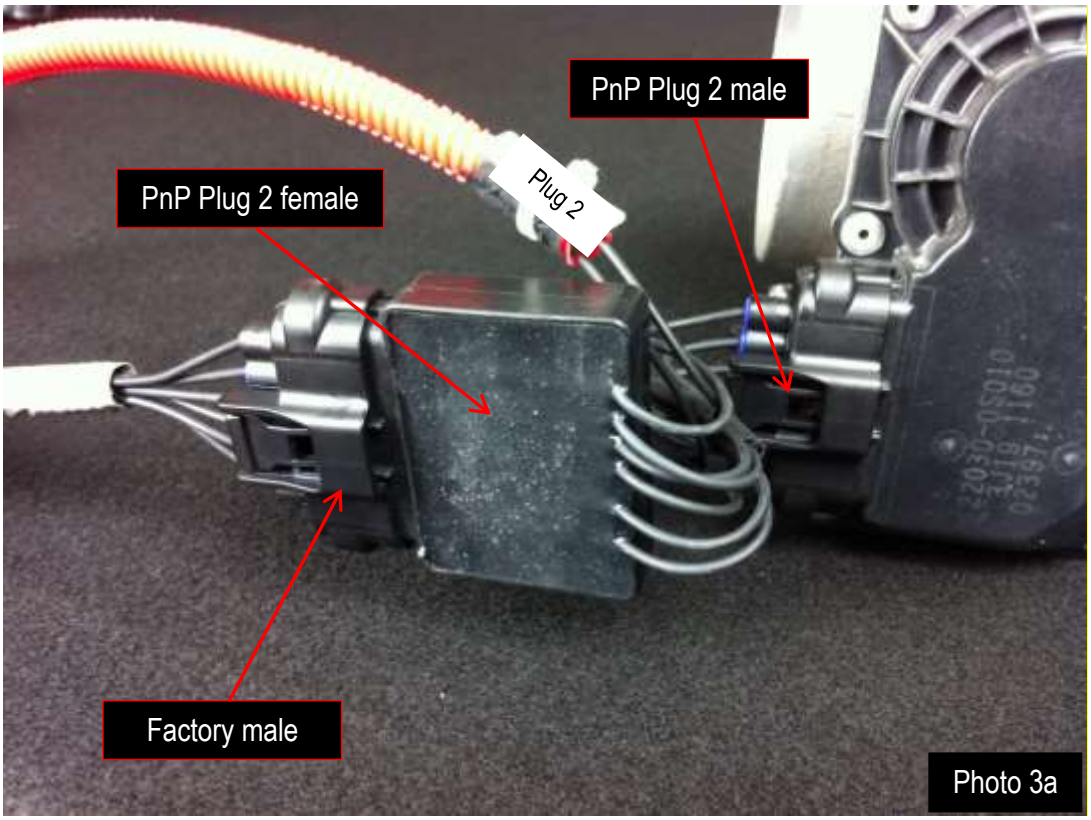


Photo 3a

7. (Photo 4) ***Connect PnP*** Plug 3 ***to the OE Crank Position Sensor (CPS).***
   a. (Photo 4) Working behind the engine on the driver's side near the black PnP T-Connector for ***Plug 3***, locate the 8mm bolt securing the Brake Booster Hose bracket and remove the bolt.

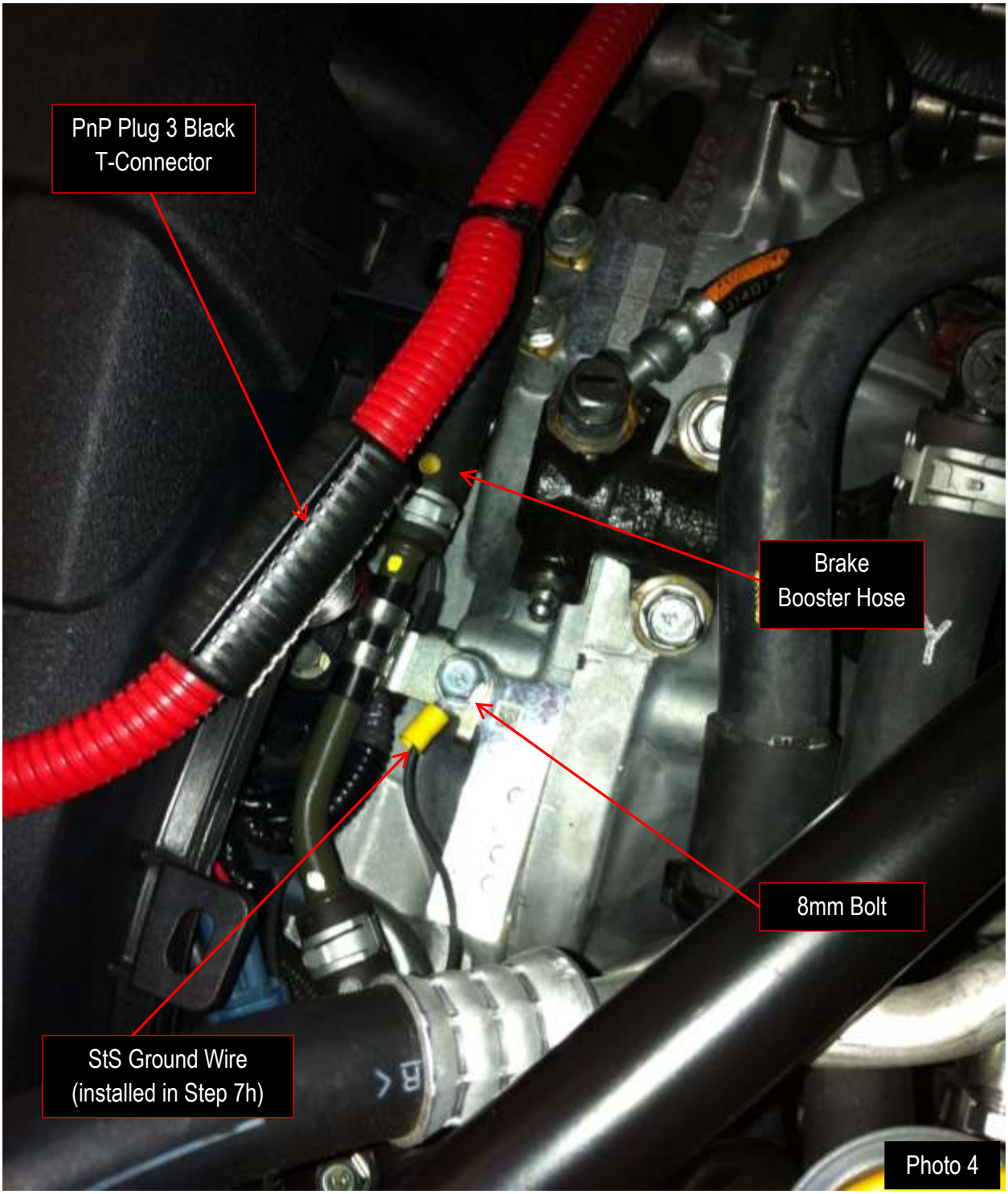
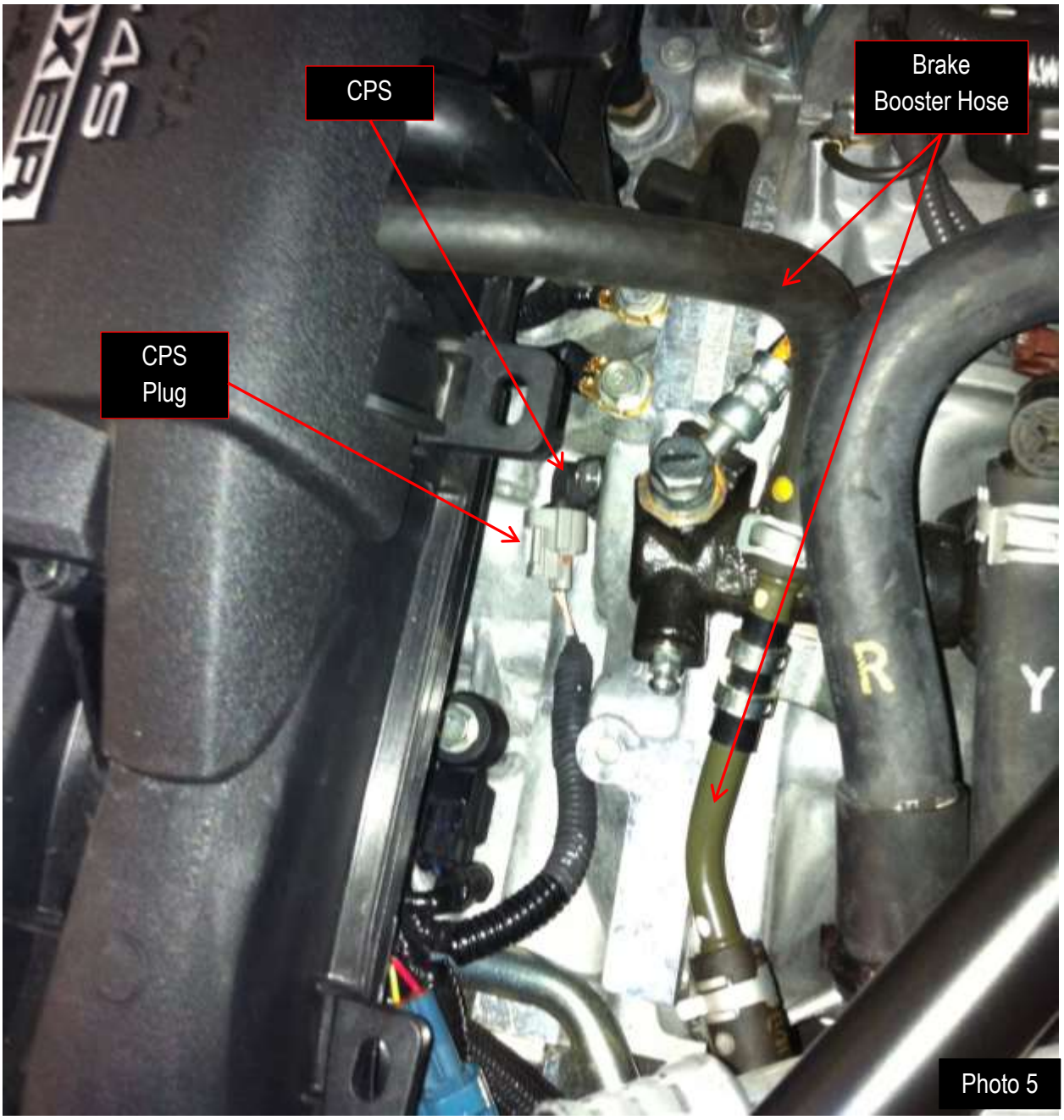


Photo 4

b. Set the bolt aside and gently pull the Brake Booster Hose towards the rear of the engine compartment.
c. (Photo 5) With the Brake Booster Hose out of the way, locate the CPS and Grey CPS Connector.



d. Press the release tab on the CPS Plug and remove it from the CPS Sensor.
e. Connect PnP ***Plug 3***'s male connector to the CPS and ensure it clicks in place.
f. Connect PnP ***Plug 3***'s female connector to the factory male CPS plug and ensure it clicks in place
g. Reposition the OE Brake Booster Hose.
h. Place the StS Ground Ring Terminal over the OE bolt removed in Step 7a.
i. Reinstall and tighten the OE bolt to secure the Brake Booster Hose.

8. (Photo 6) ***Install the Unichip Computer***.
   a. Remove the protective plastic strip from one side of the kit supplied Velcro strip and firmly press the Velcro to the back of the Unichip Computer.
   b. Ensure the top of the OE fuse box cover is clean and free of grease and solvents.
   c. Remove the remaining plastic strip from the Velcro on the back of the Unichip Computer and position the Unichip on the fuse box cover as show. Firmly press the Unichip Computer in place.

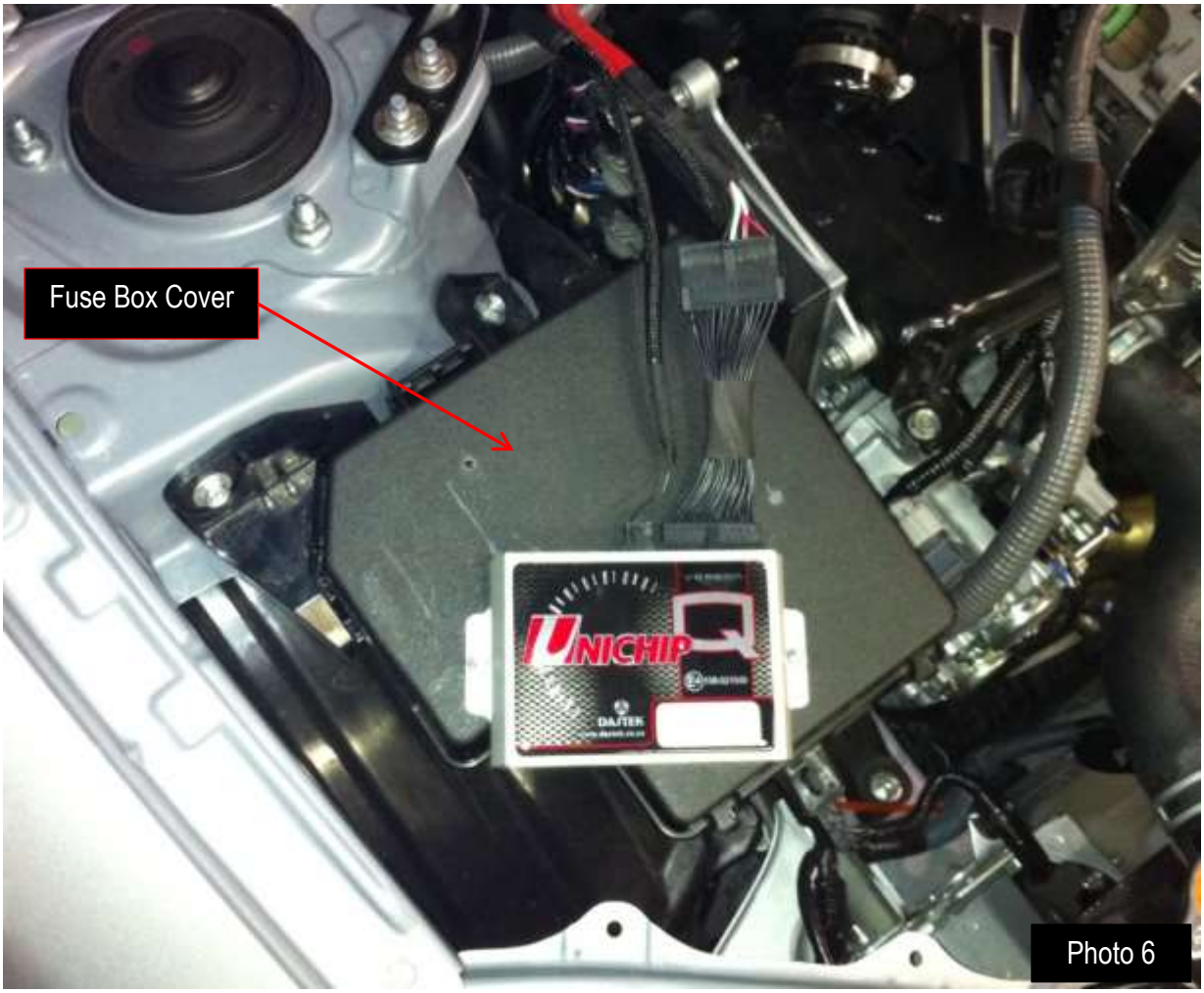


Photo 6

d. (Photo 7 & 7a) Liberally apply the kit provided dielectric grease to both sides of the StS's ***Unichip*** 24-pin connector and to the Unichip Computer's 24-pin connector to provide improve water intrusion resistance.

Photo 7

e. Connect the black 24-pin StS Plug ***Unichip*** into the large Unichip Computer connector.

Photo 7a

9. (Photo 8) ***Secure the StS Harness***.
   a. Use a supplied large red Zip tie to secure the StS Harness to the intake ducting.

Warning: Ensure all of the harness slack is tightly secured to preclude the harness from being caught up in the v-belt.

Notes: (1) Different aftermarket intakes require different Zip tie placement and some may require you to link two Zip ties together. (2) Don't over tighten the Zip ties when securing the StS – while it must be secure so as to not contact any hot or rotating components, do not deform or crush the StS convoluted tubing.

   b. Use three small black kit supplied Zip ties to secure the StS harness to the brackets behind the intake manifold
   c. Use another small black kit supplied Zip tie to secure the StS to the OE hose running near the StS ***Plug 3*** black T-connector.
   d. Use last large red Zip tie to secure the StS to the OE tube between the engine and the fuse box.

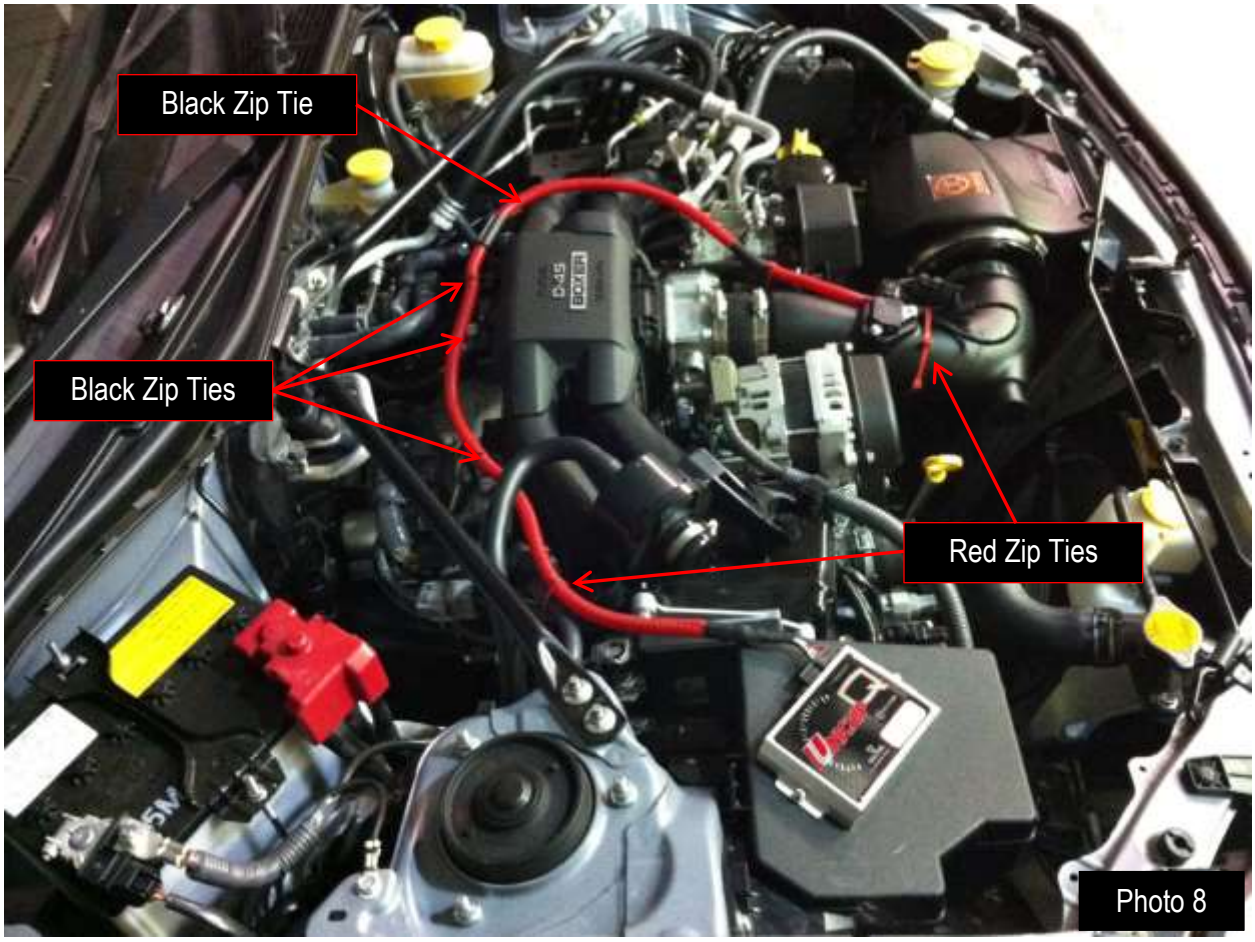


Photo 8

10. ***To install the basic version of the kit***:
    a. Connect the Map 0/1 Switch black 2-pin Molex plug to the StS's 2-pin ***Comm*** Connector.
    b. Position the Map0/1 Switch Loom as desired.

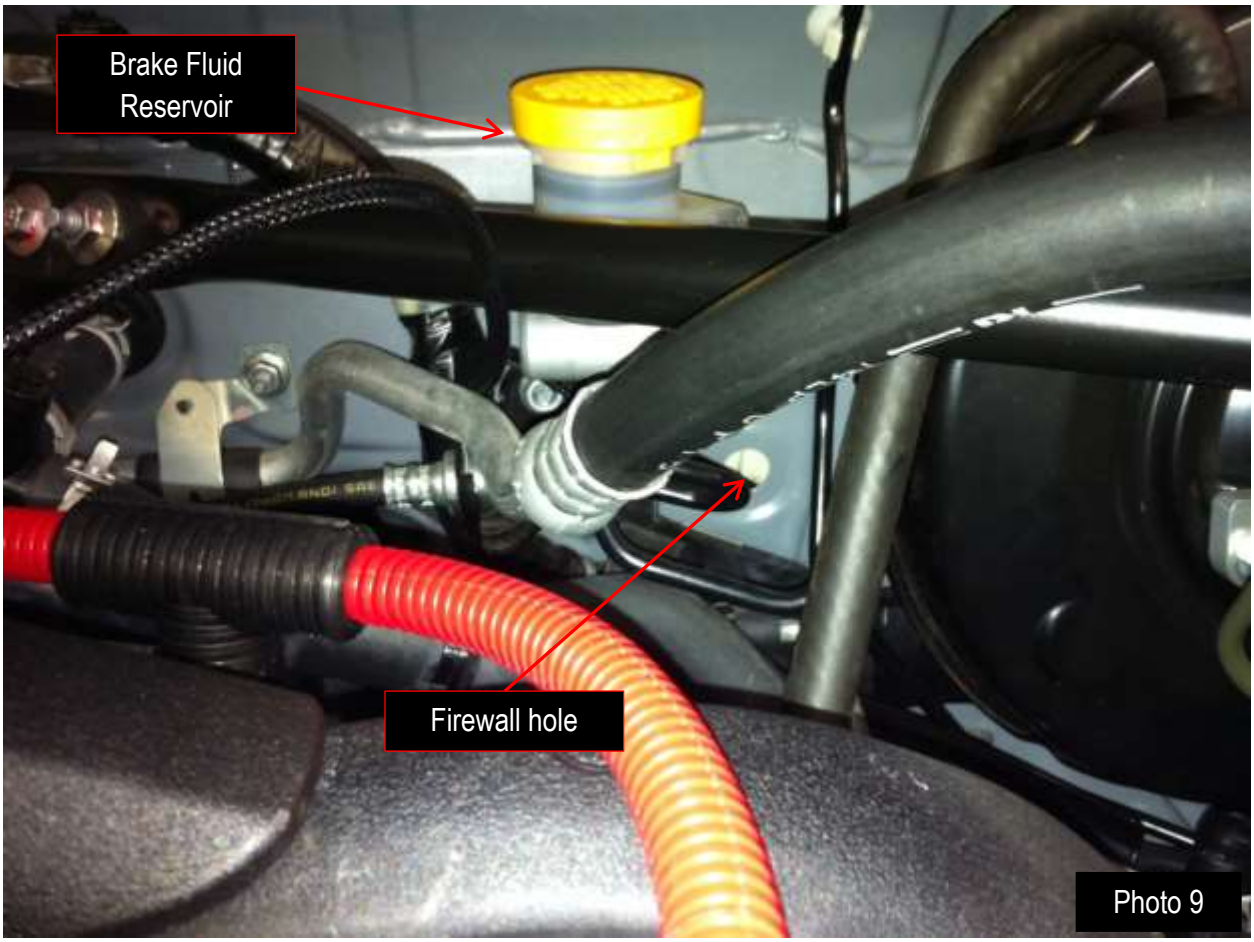
Note: Ensure the Map 0/1 Loom remains clear of hot engine components and hood and hinge operation.

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

11. ***To install the Flux2 version of the kit***:
    a. Install the FST-10 loom's black 24-pin male/female ***Unichip*** connector and the black 6-pin connectors into the corresponding Unichip Computer as described in the Flux2 User Guide.

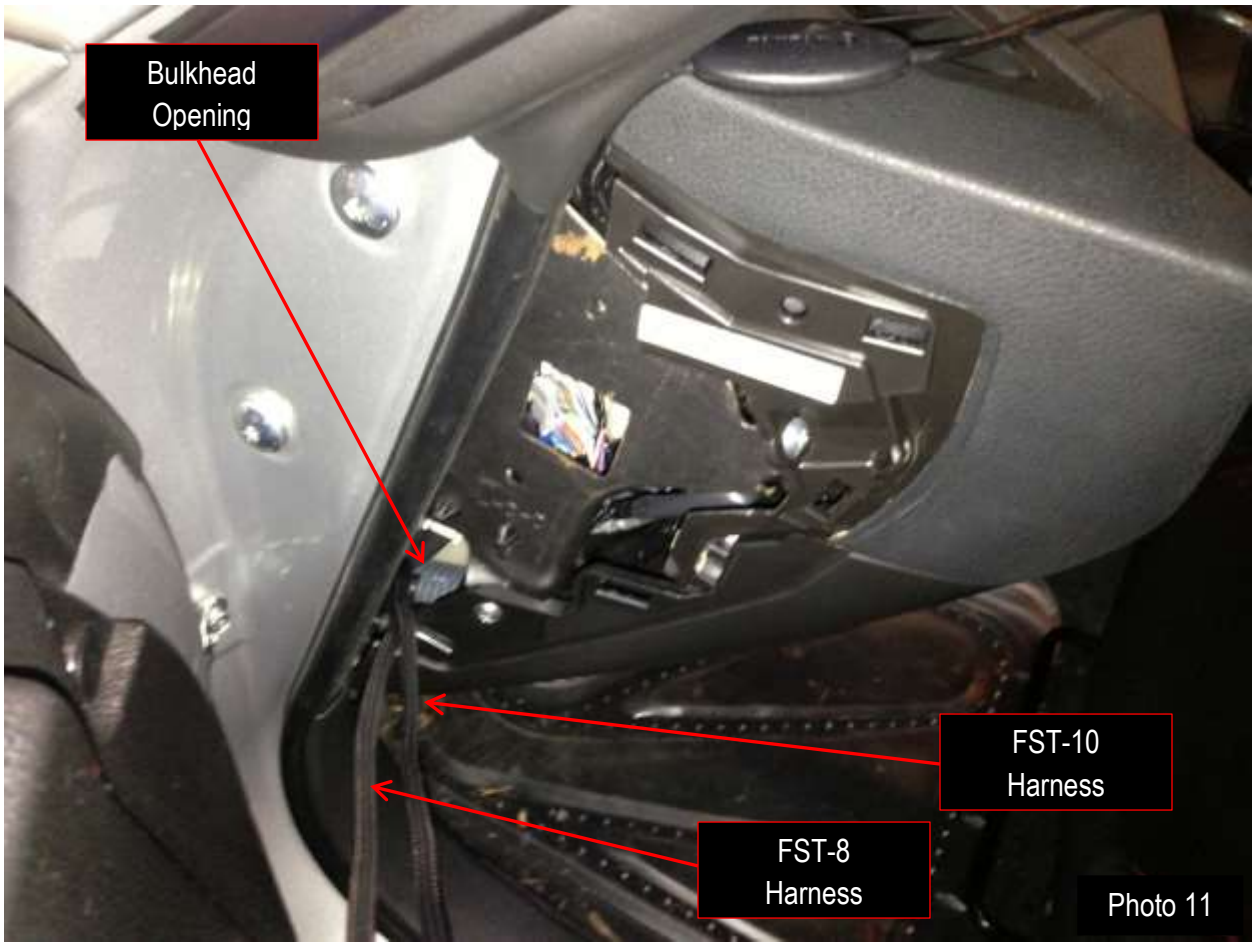
Note: As with the Basic Kit installation, liberally apply the kit provided dielectric grease to the Unichip computer and PnP Plugs to improve water intrusion resistance. See Step 8d in these instructions.

    b. (Photo 9) Locate the black firewall body plug covering the small hole below the OE Brake Fluid Reservoir and use a small common screw driver to pop out the plug.
    c. Push the FST-10 loom's 10-pin plug through the hole in the firewall.



d. (Photo 10) Working inside the passenger compartment, pull back the carpet to expose the base of the steering column and accelerator pedal.
e. Locate the FST-10 harnesses 10-pin plug and pull it into the passenger compartment.

12. (Photo 11) Locate the trim panel on the side of the dash and – being careful to avoid damaging the plastic – use a small common screwdriver to pry the panel off.
    a. Working under the dash, route the FST-10 harness along the bulkhead and through the opening in the dash support structure as shown below.



    b. Gently but firmly, pull the FST-10 harness through the bulkhead opening to so that it is taught between the firewall opening and the bulkhead opening to avoid interference with the driver pedals.
    c. Connect the FST-8 harness' OBD Plug to the vehicle's OBD connector underneath the dash on the right side of the steering column. Route the 8-pin Plug on the other end of the FST-8 through the same dash bulkhead opening as the FST-10

d. (Photo 12) Route both the FST-8 and FST-10 harnesses vertically along the intersection of the dash and vehicle chassis and replace the dash trim cover.

Photo 12

Warning: Ensure there is no excess harness that may interfere with the pedals. You may need to pull some of the FST10-UNI harness back into the engine bay to eliminate slack in the cabin.

e. Connect the FST-8 and FST-10 to the Flux2 Display per the Flux2 User Guide and mount the Display as desired.

Warning: Mount the Flux2 Display such that it does not interfere with your view of the road. Never make changes to the Flux2 Display while the vehicle is in motion.

13. Working back in the engine compartment, use the kit supplied Zip ties to secure the FST-10 harness so that it will not come in contact with any hot engine components or interfere with hood or hood hinge operation.

14. (Photo 13) Use kit provided sealing putty to completely seal the firewall opening through which the FST-10 harness enters the passenger compartment. Work the putty into the opening and into the weave of the FST-10 harness cover.

Caution: Ensure there is putty on all sides of the FST-10 harness so that the harness is not in contact with the firewall opening to preclude fraying due to vehicle vibration.

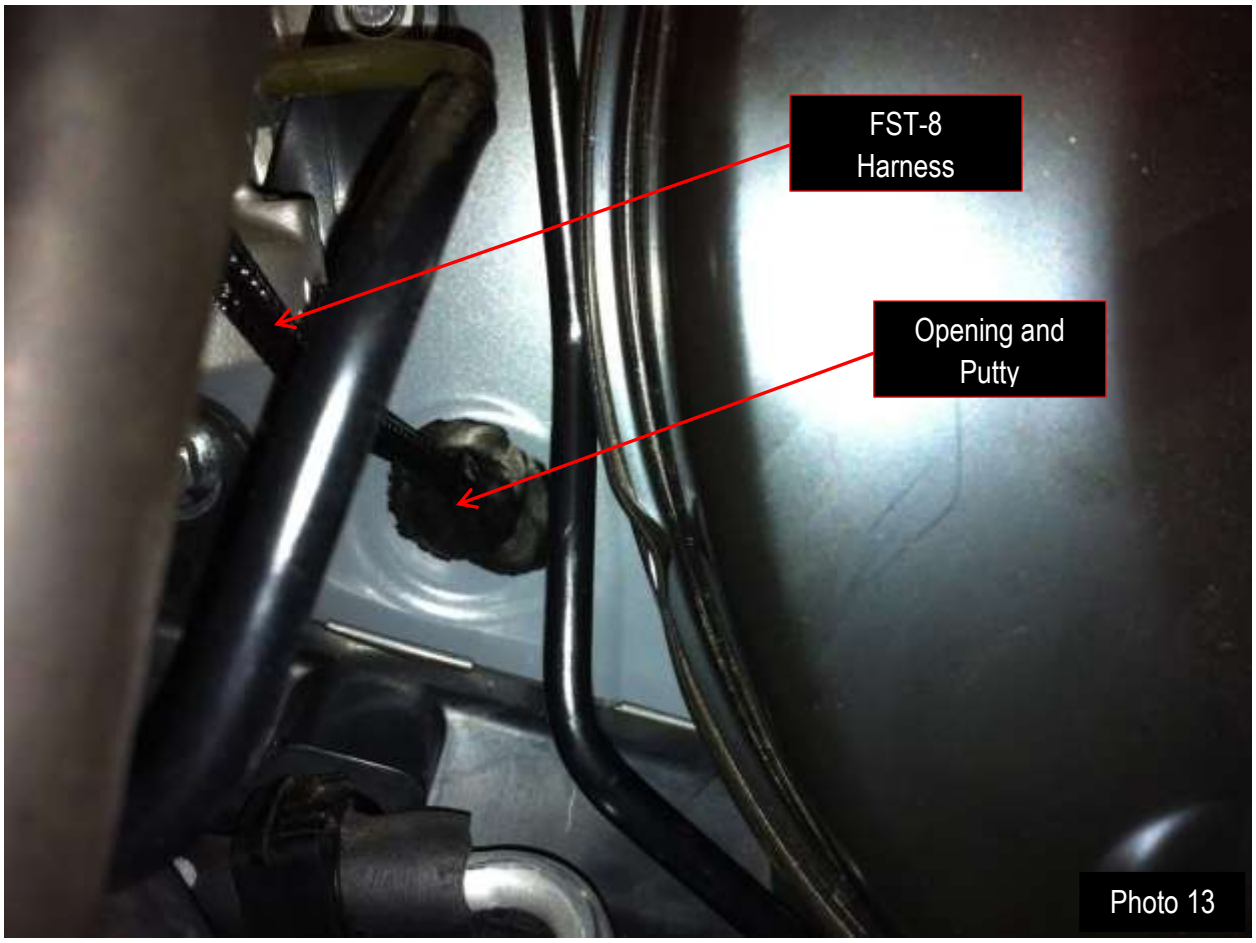


Photo 13

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.