

Install Instructions: Subaru EJ257 Intake Manifold

High Volume Intake Manifold

Part Number: TS-SU-675

Applications: Subaru STI 2004-2021 EJ257 with Drive By Wire Throttle Body and FMIC



Disclaimer

A vehicle modified with Torque Solution performance products may not meet the legal requirements for operation on public roads and highways in your state. It is the purchaser's responsibility to check and comply with all local, state, and federal laws prior to installation and operating the vehicle. Installation and use of performance products may also affect and void warranty and insurance policies. Torque Solution shall not be liable for direct, indirect, incidental, or consequential damage or injury to persons or property that might be claimed as a result from the installation, improper installation, and claims for delay, loss of profits or labor.

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Parts List

LIST #	QTY	DESCRIPTION	PART # (suffix)
1	1	EJ25 Cast High Volume Intake Manifold	675A
2	1	Billet Aluminum Vacuum Block	675B
3	1	O-ring for Vacuum Block (pre-installed)	675C
4	1	Stainless Steel Upper Coolant Expansion Tank Bracket	675D
5	1	Stainless Steel Lower Coolant Expansion Tank Bracket	675E
6	1	1/2" ID Silicone 90° Coolant Hose Elbow (will need trimming to fit, 5" x 2 1/4" legs should work for most applications)	675F
7	2	Spring Clamp (22mm for 675F Coolant Hose Elbow)	675FC
8	12	M6-1.0x25 Stainless Socket Cap Bolt (for IM to TGV)	675G
9	4	M6-1.0x10 Stainless Button Head Bolt (pre-installed w/ the vacuum block)	675H
10	3	M8-1.25x20 Stainless Socket Cap Bolt (for Expansion Tank Brackets)	675I
11	3	M8-1.25 Stainless Nylock Nut (for expansion tank brackets)	675J
12	4	M6-1.0x45 Stainless Socket Cap Bolt (for TB to IM)	675K
13	4	Stainless Steel 1/8" NPT Plug (optional for unused vacuum block ports)	675L
14	4	Spring Clamp (19mm for 675O Brake Booster Hose)	675M
15	1	3/8" Billet Check Valve (Arrow faces towards the manifold away from the brake booster).	675N
16	35"	3/8" ID Silicone Brake Booster Hose (pick a location to cut and install billet check valve)	675O
17	30"	3.5mm ID Silicone Vacuum Hose w/ x2 Zip Ties (for fuel pressure regulator)	675P
18	1	Brass 1/8" Barb to 1/8" NPT Straight Adapter (optional additional vacuum fitting)	675Q
19	1	Billet 1/4" Barb to 3/8" NPT 45° Adapter (for brake booster hose)	675R
20	2	Billet 1/4" Barb to 1/8" NPT 45° Adapter (for EVAP & Boost Control Solenoids)	675S
21	2	Billet 1/8" Barb to 1/8" NPT Straight Adapter (for fuel pressure regulator)	675T
22	1	3/8" Barb to 1/8" NPT 90° Brass Barb Adapter (for optional throttle body coolant pass through)	675U
23	1	Vibra-TITE Medium Strength Blue Thread Locker 2ml Tube	12101

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General Information

It is strongly recommended that your Torque Solution IM is installed by an experienced performance shop, engine builder, or mechanic as this is a basic install guide. Due to differences in aftermarket turbo, intercooler, coolant expansion tank, and crankcase ventilation setups, installations will vary, and customization may be required. It is essential that the installer has a good understanding of high-performance automobile systems and can properly construct any custom air, fuel, oil, or water plumbing as needed. To maximize horsepower and torque gains, we also recommend having your engine professionally tuned by an experienced tuner. Your Torque Solution IM is intended for racing purposes such as autocross, club racing, time trials, track days and drag racing and may not be legal for use on pollution-controlled vehicles that will be operated on a US highway. Please check your local laws for your local regulations.

Intended to be installed on Subaru STI 2004-2021 EJ257 with drive by wire throttle bodies. Can also be installed on 2008-2014 WRX with additional STI manifold swap parts not included. The IM is not designed for use with any cable-actuated throttle body EJ20/25 applications but may work with a DBW to DBC throttle body adapter and additional custom modification to hold the cable securely in place. Torque Solution does NOT provide technical support for any configuration other than intended.

This IM is designed to replace the factory Subaru IM in vehicles equipped with an aftermarket front-mounted intercooler (FMIC) kit. Throttle body position remains stock, ensuring fitment with any brand FMIC kit piping designed for the stock throttle body and intake manifold. Disassembly procedures depicted in your Subaru factory service manual must be followed during the removal of the factory intake manifold. When installing the Torque Solution intake manifold, you must follow the directions in this installation manual very carefully.

Please take a few minutes to inspect and count the parts to ensure there are no signs of damaged or missing parts. Pay special attention to the flat, machined surfaces. If the parts are damaged, please contact the shipping company to make a claim. If you are missing parts and the box was obviously torn or opened, then contact the shipping company to make a claim. If you are missing parts and the box was fully sealed in Torque Solution packaging, please contact Torque Solution for replacement parts.

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Tech Tips

Fuel Rails

The Torque Solution intake manifold (IM) may be used with stock fuel rails with slight modification and bending of the hard lines. Ensure that any modifications to the fuel system are done professionally and pressure tested prior to being put into service. Always secure hard lines to prevent fatigue and cracking due to vibration. It is recommended to install Torque Solution aftermarket fuel rails and lines with your Torque Solution intake manifold. Route fuel lines away from any hot or moving parts. Secure fuel lines with brackets, p- clips, and/or cable ties to prevent abrasion. Always use a high-pressure rated fuel injection hose.

Turbo Inlet Fitment

The Torque Solution IM is compatible for use with the stock turbo inlet tube. Aftermarket silicone tubes for stock location turbos may cause interference and/or abrasion with the body of the intake manifold. As with any performance part, periodically inspect components for signs of contact or abrasion. Although rotated mount turbo kits usually fit without issue, Torque Solution cannot guarantee fitment due to the large number of styles, brands, and sizes of aftermarket turbo kits. Custom fabrication may be required in a few cases. When extra clearance is required, we recommend either using the Torque Solution lower 19mm phenolic TGV spacers (TS-SU-478-TGV) or the billet 19mm upper TGV spacers (TS-SU-811). We confirmed fitment utilizing spacers on all Torque Solution stock location inlets as well as aftermarket cast hard inlets for turbos with up to an 84mm inlet size.

Tumble Generator Valves

The Torque Solution IM is designed to be compatible with OEM tumble generator valve housings. In general, any direct-fit TGV's or TGV housings will fit without issue.

Removal and Installation of Vacuum Block

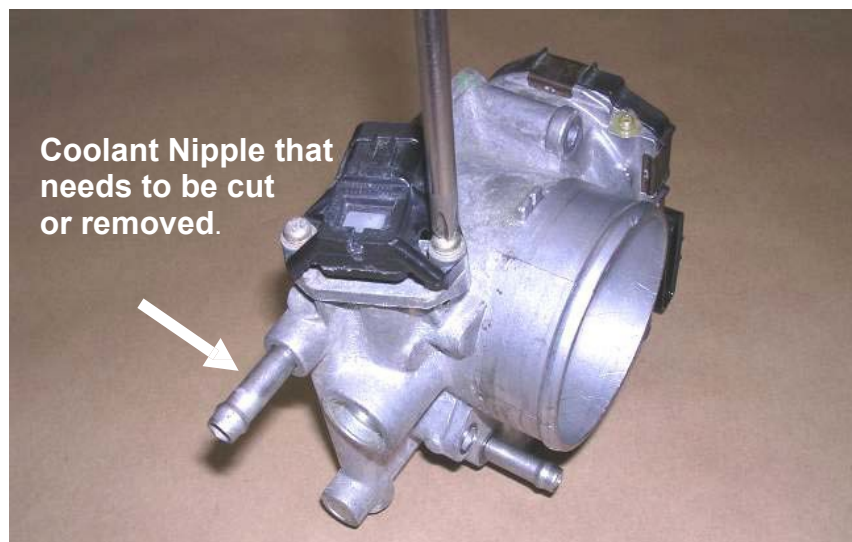
Each time the vacuum block is removed inspect the O-ring. We recommend installing a new O-ring each time the vacuum block has been removed, especially after it has been heat cycled. The O-ring part number is TS-SU-675C. Replacement O-rings can be ordered from Torque Solution or your local authorized dealer. If you must use generic O-ring cord, then a small dab of silicone is should be used to seal the two O-ring ends to each other. Also make sure to cut the O-ring so that one end of the O-ring overlaps approximately 1/8" with the other end. Then gently butt the two ends of the O-ring together inside the groove.

The vacuum block may be installed in either direction. For most installations, the vacuum ports will face the throttle body mounting face. For forward facing throttle body installations, the vacuum block can be flipped to keep the vacuum ports pointing towards the firewall. Any such installation forward facing installation is completely custom, and Torque Solution cannot provide any technical support.

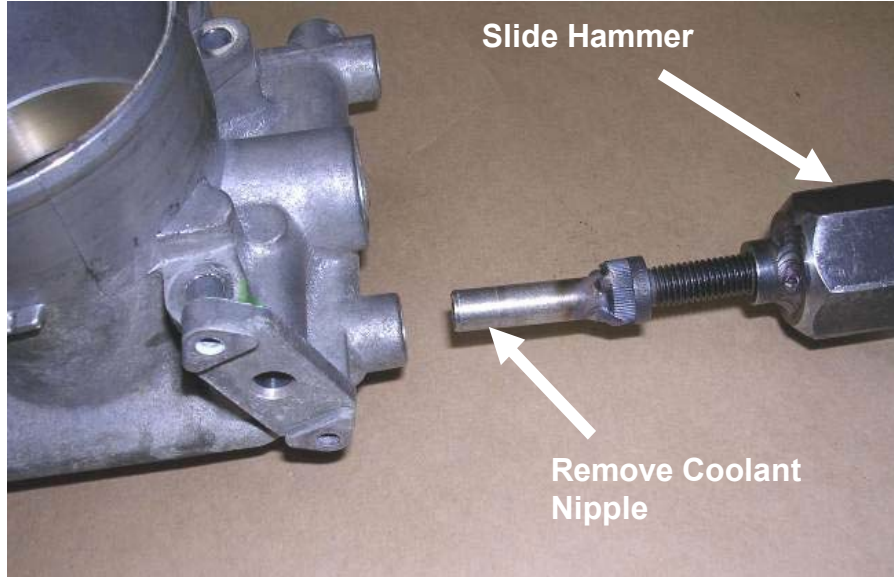
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Basic Install Guide

1. Prepare the vacuum block for installation by installing fitting part #'s **675R (1), 675S (2), 675Q (1), and 675L (4)**. Besides fitting part # 675R for the brake booster the configuration of the ports can be customized by user preference with supplied fittings and plugs. Use Teflon tape or pipe sealing paste to ensure a leak free seal on all NPT threads when installing. Make sure fitting orientations do not interfere with the IM by testing fitting on the IM before full installation. Refer to part list for recommended fitting use.
2. Inspect the inside of the IM internally to ensure it is clean of debris, dirt, or other foreign matter. It is recommended to blow compressed air through the IM to clear any possible debris.
3. Install the vacuum block to the intake manifold, making sure the supplied o-ring is installed and properly seated. It may be helpful to secure the o-ring in a few spots with silicone grease to hold it in place during installation. The vacuum fittings should face the throttle body mounting flange for standard rear facing IM orientation. Using the supplied blue thread locker apply a small amount onto each 675H bolt and secure the vacuum block to the IM by torquing the bolts to **75 in-lb (6.25 ft-lb)**.
4. The throttle body will need modification to work with the Torque Solution IM. Remove the MAP sensor located on the top of the throttle body. As per the factory service manual, remove the throttle body from the OEM IM. Cover the exposed TB hole to ensure no debris enters the OEM IM.
5. You will need to determine if you will still be running coolant through the throttle body, as we will now need to remove or cut the OEM coolant nipple located on the left just below the MAP sensor port on the TB.



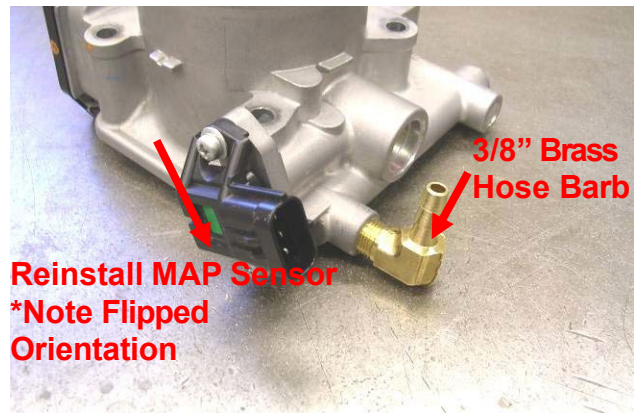
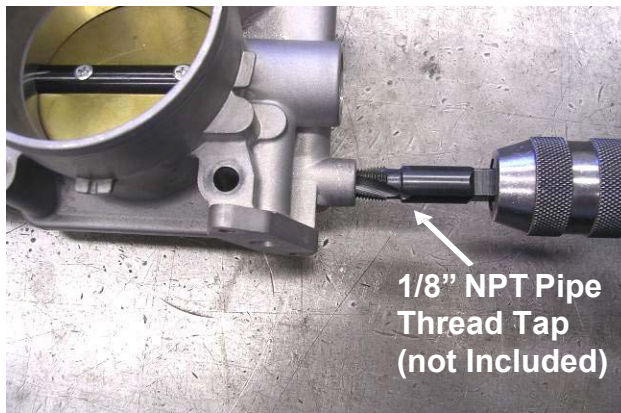
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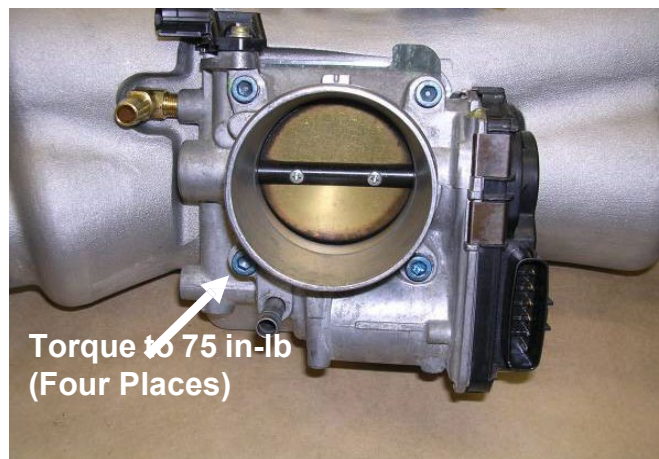
- **Not Running Coolant:**
 - Simply cut the nipple as close to the TB as possible.
 - Or by using Vise-Grips you will need to clamp onto the nipple and slowly rotate it back and forth while pulling outwards. You may need to adjust Vise-Grips several times during this process till it has worked its way out.
 - Tack-weld a screw to the coolant nipple. Secure the throttle body to a vise making sure you have clear access to the welded bolt ensuring you are not causing any damage to the throttle body. Attach a slide hammer to the welded bolt to slide hammer the coolant nipple out.
 - Once removed proceed to step 6.
- **Running Coolant:**
 - Using Vise-Grips you will need to clamp onto the nipple and slowly rotate it back and forth while pulling outwards. You may need to adjust Vise-Grips several times during this process till it has worked its way out. Use caution so not to damage the TB coolant passage.
 - Tack-weld a screw to the coolant nipple. Secure the throttle body to a vise making sure you have clear access to the welded bolt ensuring you are not causing any damage to the throttle body. Attach a slide hammer to the welded bolt to slide hammer the coolant nipple out.

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- Once the coolant nipple is removed tap the hole with a 1/8" NPT thread tap. Once tapped be sure to remove all chips and debris by blowing compressed air through the lower coolant nipple. Install the supplied 675U brass fitting. Use Teflon tape or pipe sealing paste to ensure a positive seal on the NPT threads. Position the fitting so that the hose barb points away from the mounting face.



6. Reinstall the MAP sensor so that the wire connection faces outwards (see pic above).
7. Install the throttle body onto the Torque Solution intake manifold using the supplied **675K** bolts and a new OEM throttle body gasket (not supplied). Torque the bolts to **75 in-lb (6.25 ft-lb)**.



8. As per the factory service manual, remove the factory intake manifold. Cover the exposed ports to prevent debris from falling in. Remove the top-mount intercooler brackets and fuel pipe protectors.

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- Depending on how your fuel system and wiring harness are configured, some modification may be necessary. Remove the plastic channel from the wire harness, wrap the wire harness in a protective covering, and secure it to the top of the engine.
- Modify and/or replace the fuel system hard line assembly as necessary. This is the perfect time to install upgraded fuel rails and fuel lines.
- Prepare silicone hose **675F** for fitment. Trim the legs to 5.00" and 2.25" as pictured. Secure the shorter leg to the coolant tube with the supplied 22mm **675M** spring clamp.



- Temporarily install the Torque Solution IM and check clearance to all fuel system components and wiring harness. Pressure test any fuel system modifications to check for leaks. Once routing is finalized, wrap any exposed lines in protective covering (not supplied) and secure to the top of the engine.

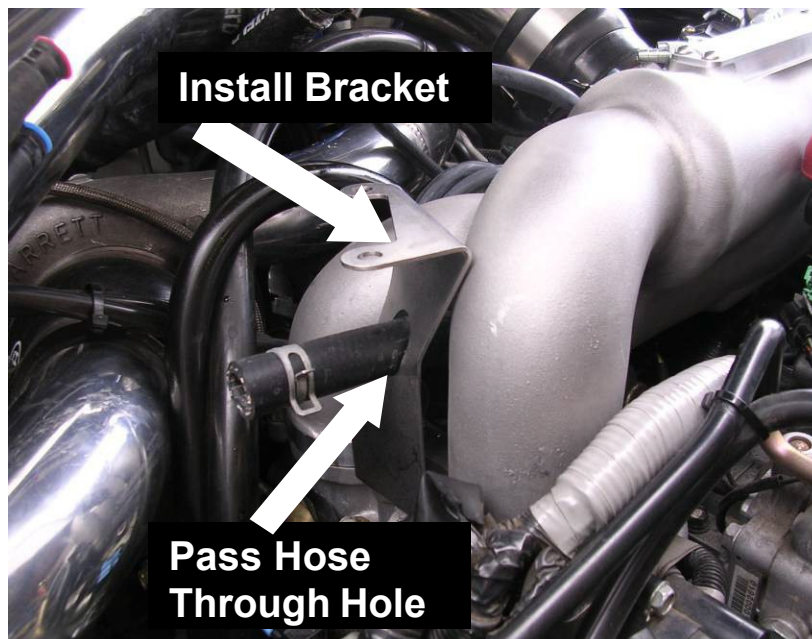


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13. Install the Torque Solution IM using new OEM upper TGV housing gaskets (not supplied) and the supplied **675G** M6x25 bolts (12 total, 6 per side). Torque screws to **75 in-lb (6.25 ft-lb)**.

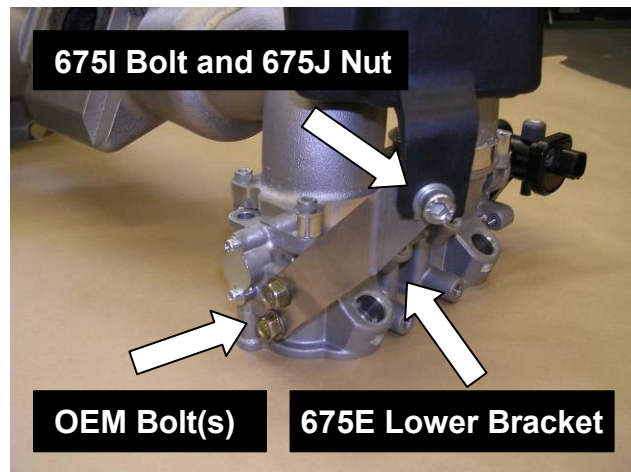
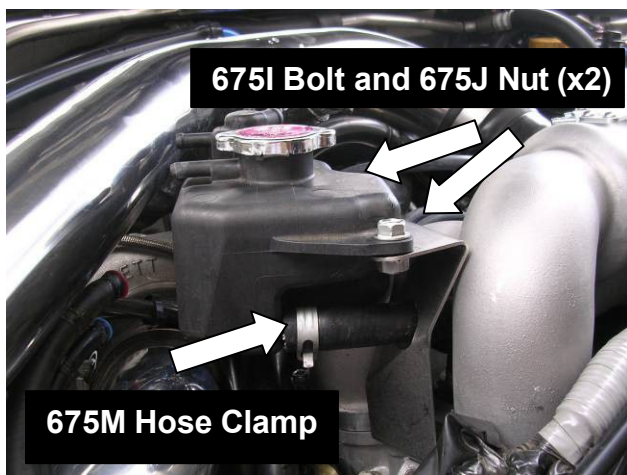


14. Remove the two center TGV mounting bolts on the passenger side. Install **675D** upper expansion tank bracket using the factory bolts to the TGV making sure to pass the silicone hose through the cut hole in the bracket. Torque bolts to **18.4 ft-lb**.

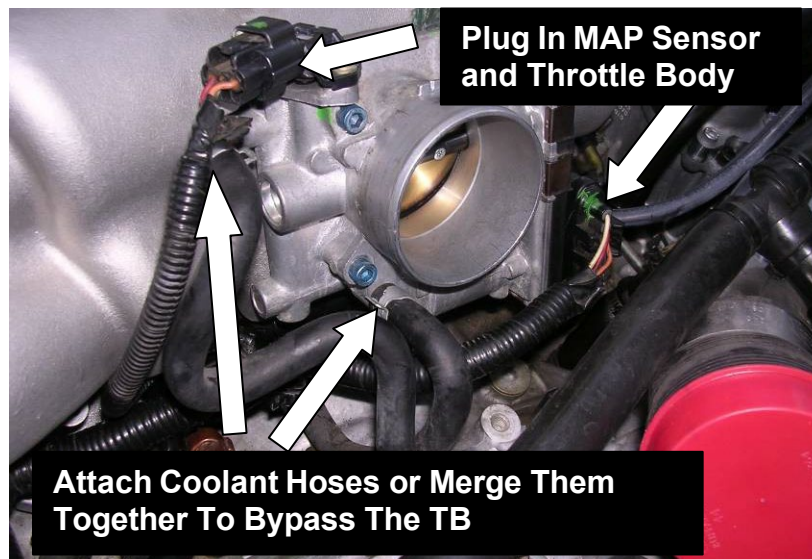


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15. Secure the coolant expansion tank to the bracket using two each of **675I** M8x20 bolts and **675J** M8 nuts. Attach the lower silicone expansion tank hose using the last supplied 22mm **675M** spring clamp. May need to attach the hose before bolting in the tank.
16. Bolt **675E** lower expansion tank bracket to the TGV housing using the factory M8 bolt(s). Attach the lower mounting tab on the expansion tank to the bracket using one each of the **675I** M8x20 bolts and **675J** M8 nuts. Re-connect all coolant hoses to the expansion tank.

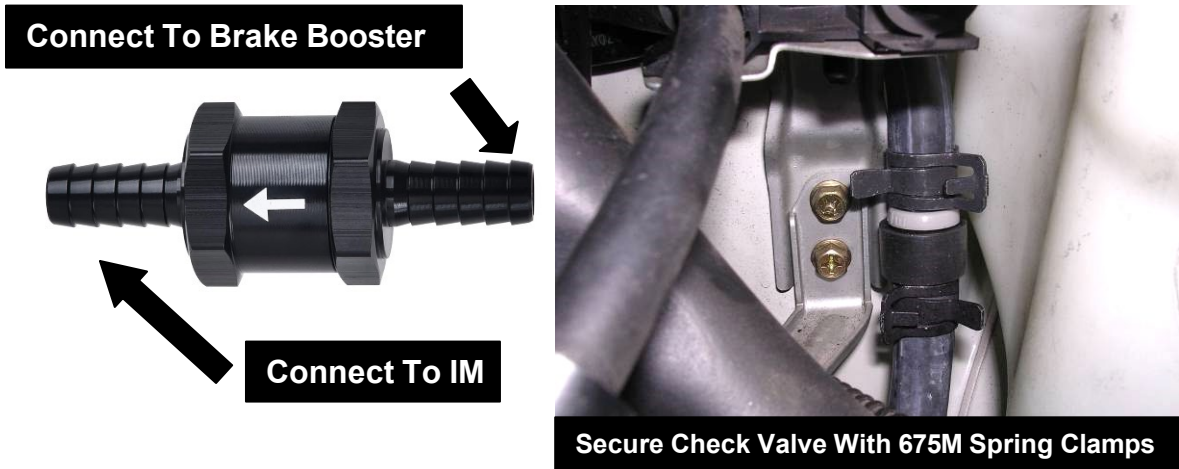


17. Plug the wire harnesses into the MAP sensor and throttle body. Attach throttle body coolant lines, the upper line will attach to the new fitting installed in step 5 if running coolant through the throttle body or merge the 2 lines together with a 3/8" hose barb joiner (not supplied).



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18. Remove the stock hose from the vacuum brake booster. Install hose **675O** 3/8" ID hose and secure with spring clamp **675M**. Route the hose to the **675R** 3/8" hose barb fitting installed on the vacuum block, when doing make sure to route the hose away from any hot or moving objects. Secure at the intake manifold with another **675M** spring clamp.



19. Find a suitable section of straight brake booster hose to install the **675N** check valve. Cut the 3/8" hose and install the check valve using two **675M** spring clamps. The check valve is directional, take note of the arrow engraved on the housing. The arrow on the check valve must face the IM side of the hose going towards the engine. The opposite side connects to the hose side attached to the brake booster.
20. Reattach all vacuum lines to the Torque Solution intake manifold's vacuum block. The vacuum fittings may be customized to accommodate any combination of boost gauge, boost controller, remote mounted MAP sensor, fuel pressure regulator, etc. The Torque Solution vacuum block has five 1/8" NPT holes that may be used for hose adapters or plugged if not used.

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21. Find a suitable location for any wiring harness grounds that were removed from the stock inlet manifold. Depending on model year, there may be threaded bosses on the TGV housings that can be used. Ensure all grounds are securely mounted and make good electrical contact. Remove any paint or coating from the mounting points to ensure good contact if necessary.



22. Reinstall the intercooler plumbing and anything else that was removed during installation. Double check all fuel, coolant, and electrical connections before starting the engine. Fill and bleed cooling system, following the procedure in the factory service manual.

Disclaimer & Warranty

In general, Torque Solution competition and/or performance parts carry no warranty.

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