



Installation Guide

TVS 1900 2GR-FKS Dual VVT-i

Toyota Tacoma 2GR-FKS 2016-2021



Important Information

Installing the supercharger indicates your acceptance of the responsibility and liability associated with the fitment and use of this product. Please ensure the owner and drivers of the supercharged vehicle are aware of their responsibilities and liabilities as indicated below.

Thank you for purchasing this supercharger which has been designed and made with pride. The owner and drivers of the enhanced vehicle must be aware that fitment of a supercharger may affect:

- The vehicle's factory warranty.
- Insurance cover and associated liabilities.
- Compatibility with emission and roadworthy certification.
- The validity of a driver's license for a supercharged vehicle.
- The handling & braking capability of the vehicle due to increased engine power & torque characteristics.
- The longevity of the engine.
- The vehicle will need to use premium unleaded fuel only (93 AKI).

It is the owner's/driver's responsibility to accept any consequences and liabilities of using the supercharger and any subsequent effect it may have. Harrop Engineering shall not be liable and shall be 'Held Harmless' for any direct and/or indirect/consequential losses, costs, damages, expenses, injuries or liabilities whatsoever incurred by the owner/driver of the vehicle or other parties arising from this supercharger, its installation and/or its operation. It is recommended that vehicles have completed 1,500 miles and have been driven, serviced and maintained in accordance with the vehicle manufacturer's handbook before fitting a supercharger. An engine should be deemed reliable and have delivered all reasonable expectations in line with the vehicle manufacturer's specifications prior to fitting a supercharger.

Warranty.

This supercharger is covered by a limited warranty on components and workmanship for a period of 36 months from the date of purchase, subject to the following:

- Installation must be completed by a qualified motor mechanic or technician who has undertaken appropriate training in fitting Harrop superchargers.
- The supercharger has not been modified or "overdriven" by fitting alternative drive pulleys.
- The supercharged vehicle has flashed with the supplied tune and dyno verified.
- The supercharged vehicle has been driven in accordance with the conditions specified by the vehicle manufacturer's normal use of operation, driving care and vehicle service program.
- The supercharged vehicle has not been used for competitive racing.

No warranty shall apply where Harrop have determined improper fitment or handling, misuse in operation, neglect, or accident damage. Engine modifications made prior to or in conjunction with the supercharger fitment may invalidate the Harrop limited warranty. Any warranty claims must be made immediately & directly in writing to Harrop Engineering so that a determination can be made promptly. Involvement of a third party or an attempt to repair a perceived/actual fault may invalidate the warranty. To the extent of the law, the determination on any warranty claim & associated costs will be at the sole discretion of Harrop Engineering.

By installing the supercharger, you acknowledge that all conditions pertaining to this supercharger and its operation have been read, understood and accepted

For 65 years Harrop Engineering has been at the forefront of designing, developing and manufacturing precision performance components. Today our innovative and logical approach is applied to low volume automotive OEMs and the performance aftermarket through a dedicated team of 65 staff. Core performance products include Superchargers, Engine Components, Brakes, Differentials and we are also the exclusive Australian Distributor for Forgeline Motorsport Wheels.

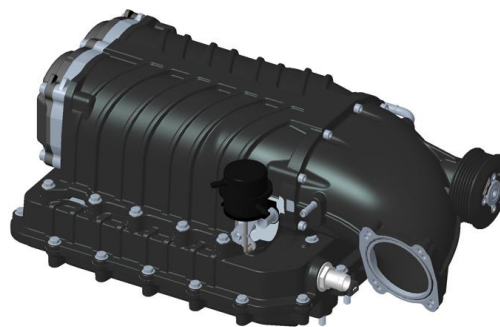
Harrop are also the preferred supplier of Eaton Supercharger and Traction Control technology including dual branded product designed and manufactured in-house. There are currently over 4,000 components in our portfolio and this is growing daily as we continually develop more Harrop Performance Products. Our high-profile car manufacturing customers have included Holden, HSV, FPV, Ford, Roush, Toyota, TRD and Lotus.

We also supply to race teams from categories including F1, NASCAR and V8 Supercars and an extensive range of drag, circuit and off-road competitors. Just as importantly, a large portion of our customers are performance enthusiasts and weekend warriors who are highly passionate about their ride.

Please take a moment to review the following pages and learn why Harrop is the first choice in Superchargers.

Thank you for choosing Harrop and enjoy your Harrop Enhanced ride.

- Team **HARROP**



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TOYOTA TACOMA 2GR-FKS SUPERCHARGER

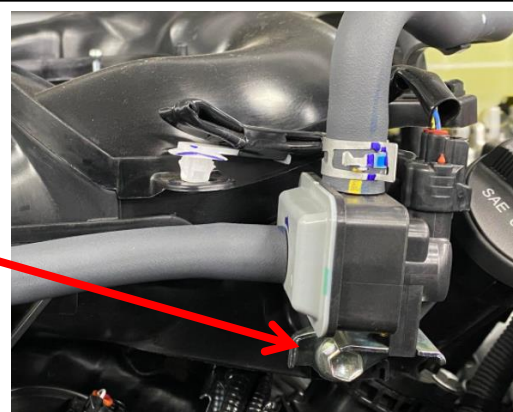
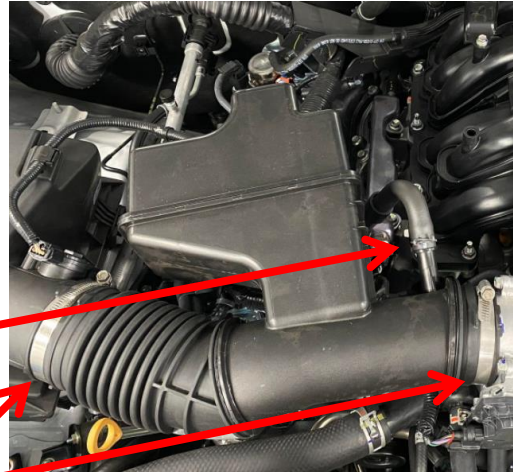
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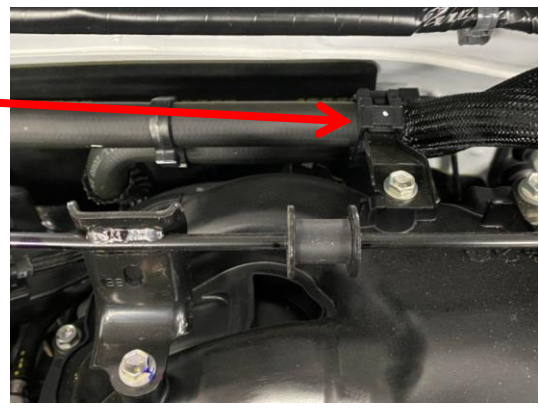
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Removal Of Existing Inlet Manifold

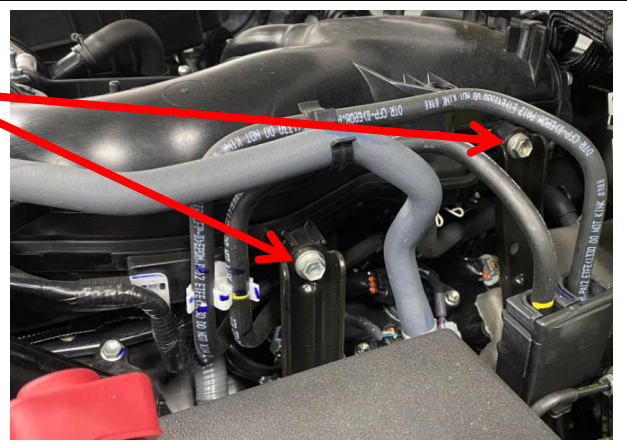
1. RHS (right hand side) of vehicle is from the driver's perspective when in the driving position.
2. Allow the engine to cool before starting installation.
3. Disconnect the battery.
4. Remove the under tray and the engine cover.
5. Drain the coolant from the radiator drain
6. Disconnect the PCV vent hose from intake tube
Save clamp for later step
7. Loosen both hose clamps at either end of air inlet tube at throttle body and airbox
8. Remove intake tube this is not re-used.
9. Dis-connect the throttle loom and vacuum connection from the front of the manifold.
10. Remove 4 10mm bolts that hold the throttle body, leave the coolant lines attached. Carefully place throttle body off to the side.
11. Unplug the connector for fuel purge solenoid, remove solenoid from the intake manifold and set aside for re-attachment later.



12. Un-clip the heater hoses from the rear of the inlet manifold in 2 places.



13. Remove both of the intake manifold support brackets from the LHS (left hand side) of the manifold and engine



14. Remove the steel manifold support bracket at the front of the engine.

15. Clean out the areas around the inlet manifold bolts to ensure no loose material can fall into the engine.



16. Disconnect PCV hose from LHS rear of inlet manifold

17. Ensure that no debris, dirt or loose bolts/nuts/washers etc fall into the intake ports

18. Unscrew 5x bolts and 2x nuts that secure the inlet manifold.

19. Unplug the intake flap motor from the back of the intake manifold.

20. Remove the intake manifold from the engine.

21. Verify mounting face for lower manifold is clean of debris. Tape intake ports to protect from dirt or objects from falling into the lower inlet manifold



Supercharger Installation

1. Remove studs from lower intake manifold and set to the side. **These will not be reused.**
(Note: head of the studs is an E6 external torx)



2. Remove plastic wire cover from rear of engine and set to the side, this will not be reused. ****Be cautious not to damage any wiring when removing loom tape.** There is a 10mm bolt on the LHS and 2 10mm nuts on the RHS**

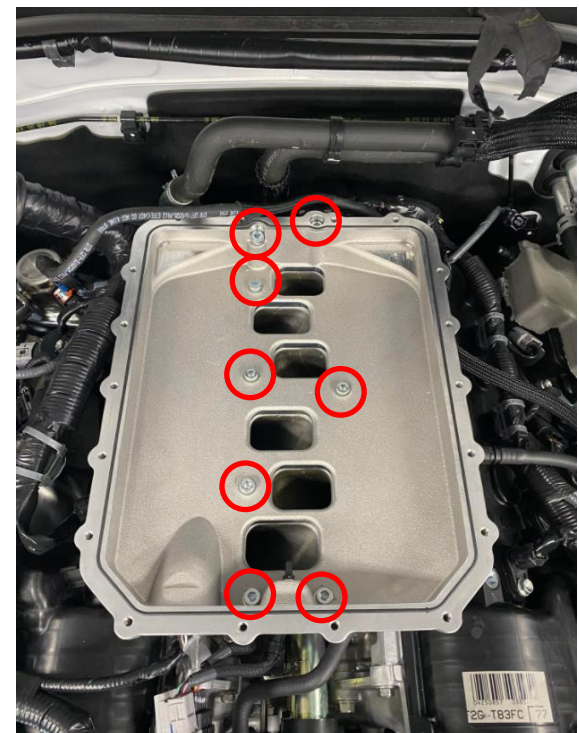
Remove ziptie that holds the loom to the cover on the right side. Remove top of cover by releasing tabs with small flat bladed screw driver 11 tabs total. Remove wiring loom out of case. It may help to unclip wiring loom from firewall on the RHS to gain enough slack



3. Verify all o-rings in Harrop lower supercharger manifold are in place.

4. Remove tape from OEM lower inlet manifold and ensure surface is clean

5. Install Harrop lower supercharger manifold using supplied hardware x8 M8 allen head bolts torque bolts to 40 in/lbs. Use Loctite #271 (blue) on bolts



6. Install intercooler manifold onto lower supercharger manifold using supplied hardware. Torque bolts to 11.8 NM ****Care taken to line up small dowel pins try not to slide dowels across machined surface or damage o-ring***
7. Install the Supercharger unit to the engine. Ensure the o-ring and 2x dowels are in the base of the supercharger, and all surfaces are clean.
8. 10x M6x25 flange head screws shown in Green. Install the 2 studded M6 bolts in the position noted in red. Tighten to 11.8 NM
9. Disconnect coolant lines from the throttle body. Taking care that coolant inside the throttle body does not run all over the front of the motor/serp drive. Recommend using rags or paper towels to catch residual coolant
10. Install throttle body on to supercharger, with factory throttle body bolts. (there is 2 bolt patterns, verify you are using the correct bolt pattern and covering the o-ring completely
11. Using the supplied 5/16" coolant hose, mock up the length of hose and noted routing needed to get from the throttle body to the corresponding nipple. Make sure to keep the hoses from interfering with the fan or any other moving parts.
12. Clean all spilled and residual coolant off the engine as best you can with plain water.



Installation of Supercharger drive

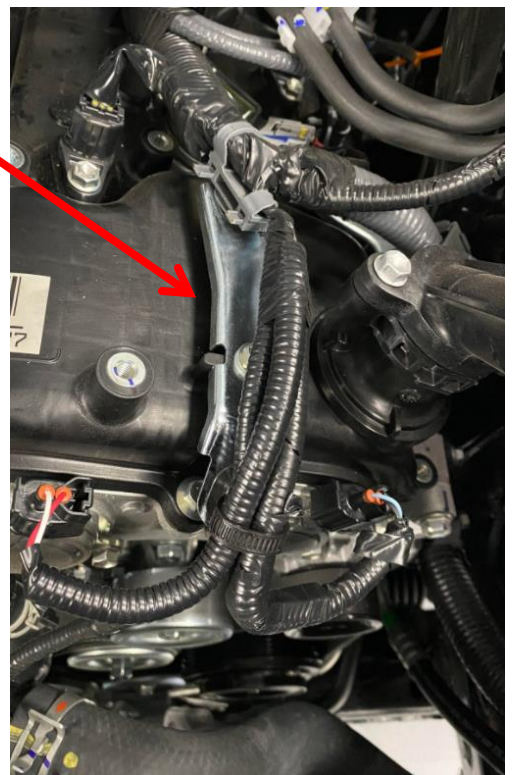
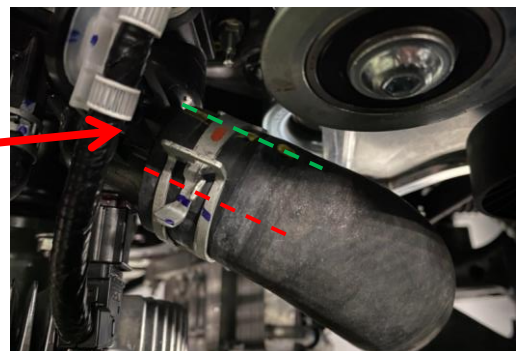
1. Remove the 2x timing cover bolts on LHS front of engine.

2. Remove lower alternator mount bolt



3. Loosen radiator hose clamp on water outlet and rotate the hose about 15 degrees to rear of engine as pictured.

4. Remove loom bracket on LHS of engine near VVT actuators. This will not be reused



5. Install tensioner to Harrop FEAD (front engine accessory drive) bracket using the supplied hardware. Then install FEAD bracket to engine using supplied hardware. Careful not to pinch wiring for VVT solenoids behind bracket. Apply thread sealant to bolts noted in green.

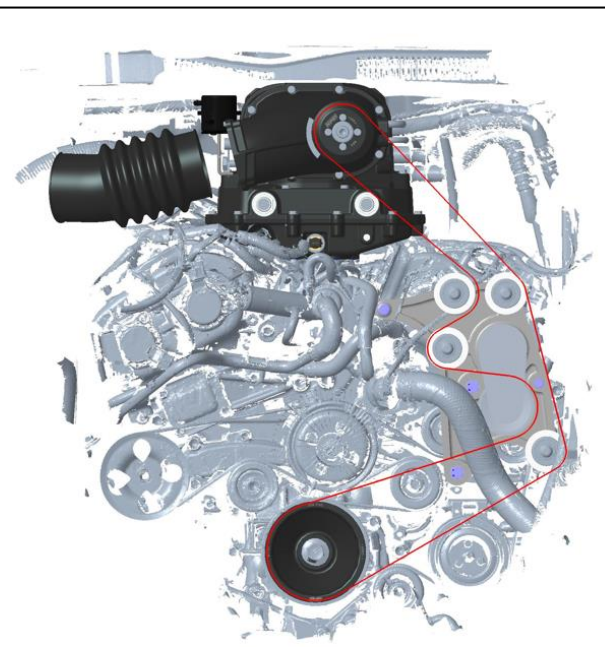
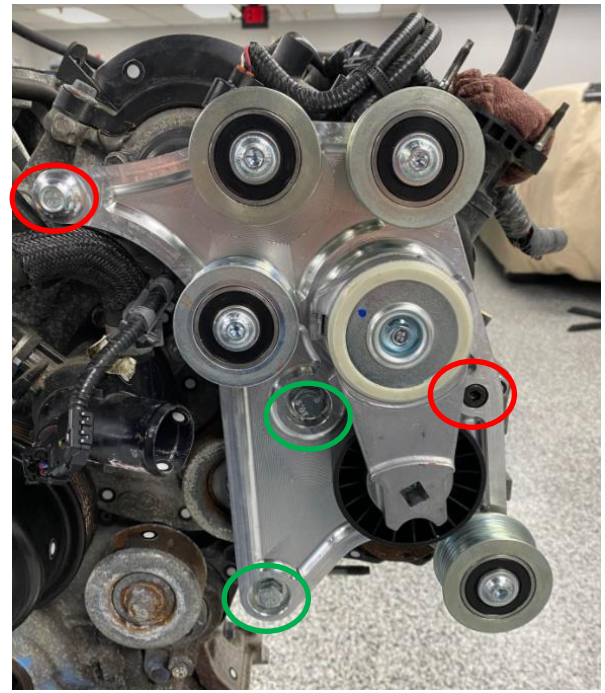
6. Torque bracket bolts in red to 20 NM. Torque all bolts in green to 43 NM.

7. Remove factory crank pulley bolt. With help from supplied crank pulley tool

8. Install Harrop drive pulley #15280 to the crank pulley. Verify crank pulley locating dowel is in place and oriented in keyway slot.

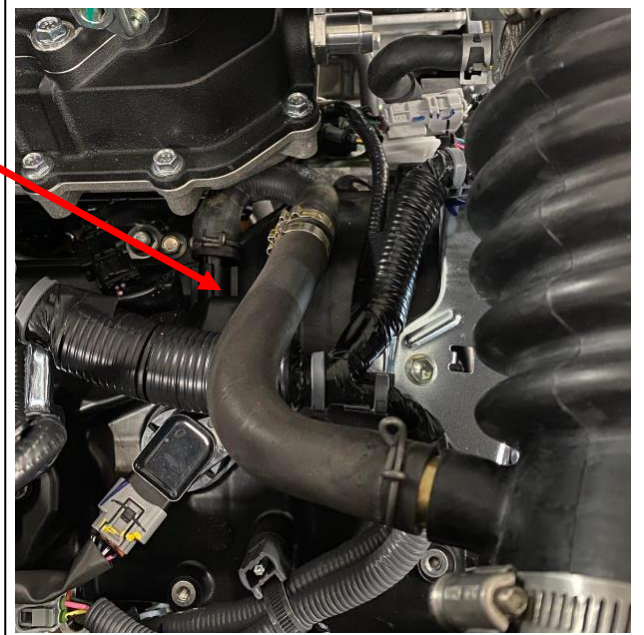
9. Torque crank pulley bolt to 260 NM. With help from supplied crank pulley tool

10. Route belt as image shows

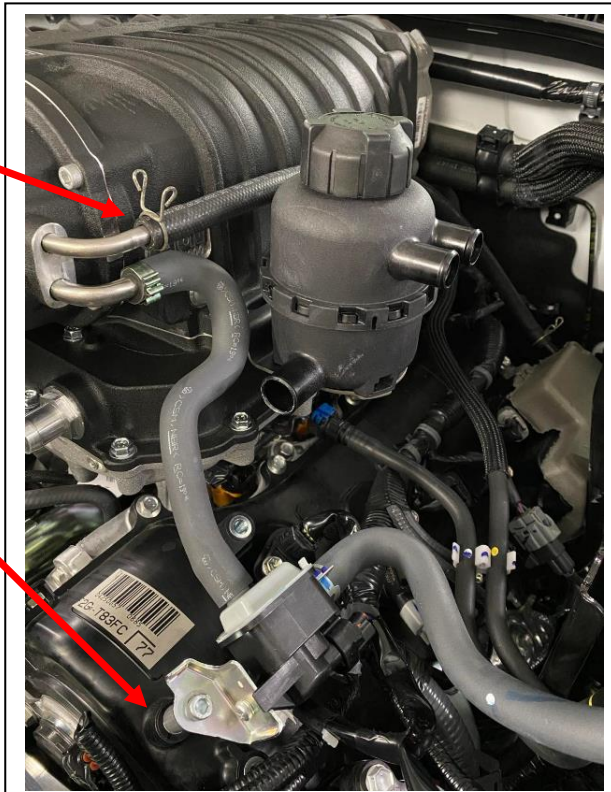


Installation of Supercharger ancillary hoses

1. Install PCV hose from Harrop inlet boot to valve cover RHS



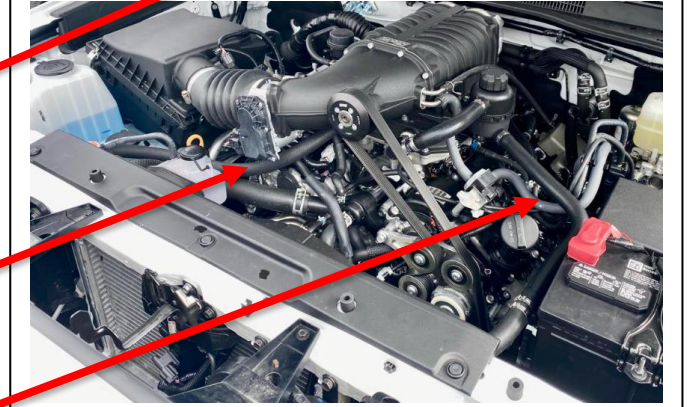
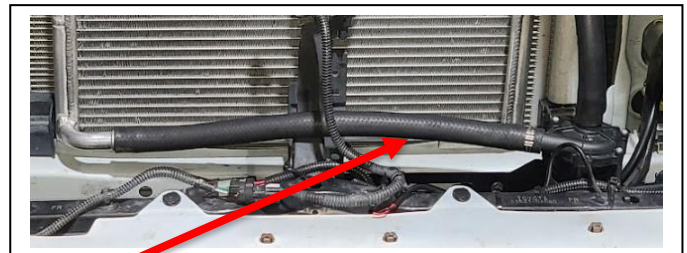
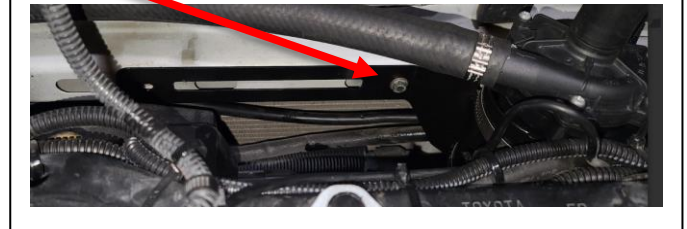
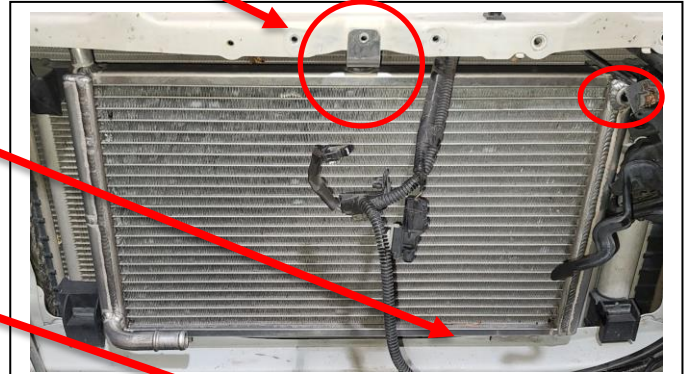
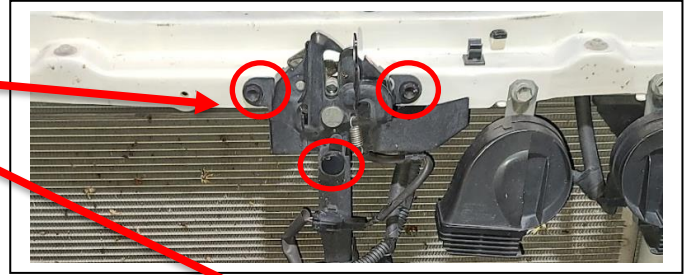
2. Use provided 3/8" hose and route from the top port of the supercharger inlet to the factory PCV valve on the LHS valve cover



3. Install purge valve with supplied spacer and bolt and route hoses as shown reusing any factory clamps.

Intercooler install

1. Remove front grille.
2. Remove hood latch.
3. Remove center hood latch support bracket.
4. Attach upper mount to low temp radiator as shown, also install blanking plug in RH corner
5. Locate lower mounting tabs on low temp radiator and install the low temp radiator with rail on the core support as shown. Upper mounting tab lines up with the existing hood latch bolt hole.
6. Install intercooler pump to bracket
7. Install intercooler pump bracket to core support using existing threaded hole. Do not tighten this yet.
8. Reinstall center hood latch support verifying it doesn't interfere with the low temp radiator.
9. Tighten previously installed intercooler pump bracket bolt
10. Reinstall hood latch
11. Route 460mm long $\frac{3}{4}$ " heater hose from the lower port of the heater exchanger to the intercooler pump out. Use supplied clamps.
12. Route 775mm long $\frac{3}{4}$ " heater hose from the top of the heater exchanger to the RHS port on the front of the supercharger manifold. Use supplied clamps.
13. Install the remaining $\frac{3}{4}$ " moulded heater hose From the reservoir outlet (bottom) to the pump inlet
14. Mount intercooler pump relay and route harness from pump to battery.
15. Remove fuse # 3 (EFI) and install harness fuse



Ensure all coolant hoses are connected and have a clamp at each end.

Re-fill the Engine radiator and reservoir with coolant as specified in the vehicle's service manual.

Fill the intercooler system with GM6277M, mixed with distilled or deionised water in a 50% concentrate. Note: Filling with a noncompliant coolant will void warranty. Fill until the level covers the upper fitting, allow some time for the coolant to completely fill the intercooler radiator.

Make sure any components that were removed to aid installation have been re-fitted where necessary.

Re-connect the Battery and switch the ignition on without starting the engine.

Check that the intercooler pump is running. The coolant should be visibly flowing through the reservoir. Let the pump run for a minute and then switch off and re-fill the reservoir. Repeat until the coolant level is constant.

Check that all hoses and wiring looms are secured and cannot come into contact with any pulley, fan or belt.

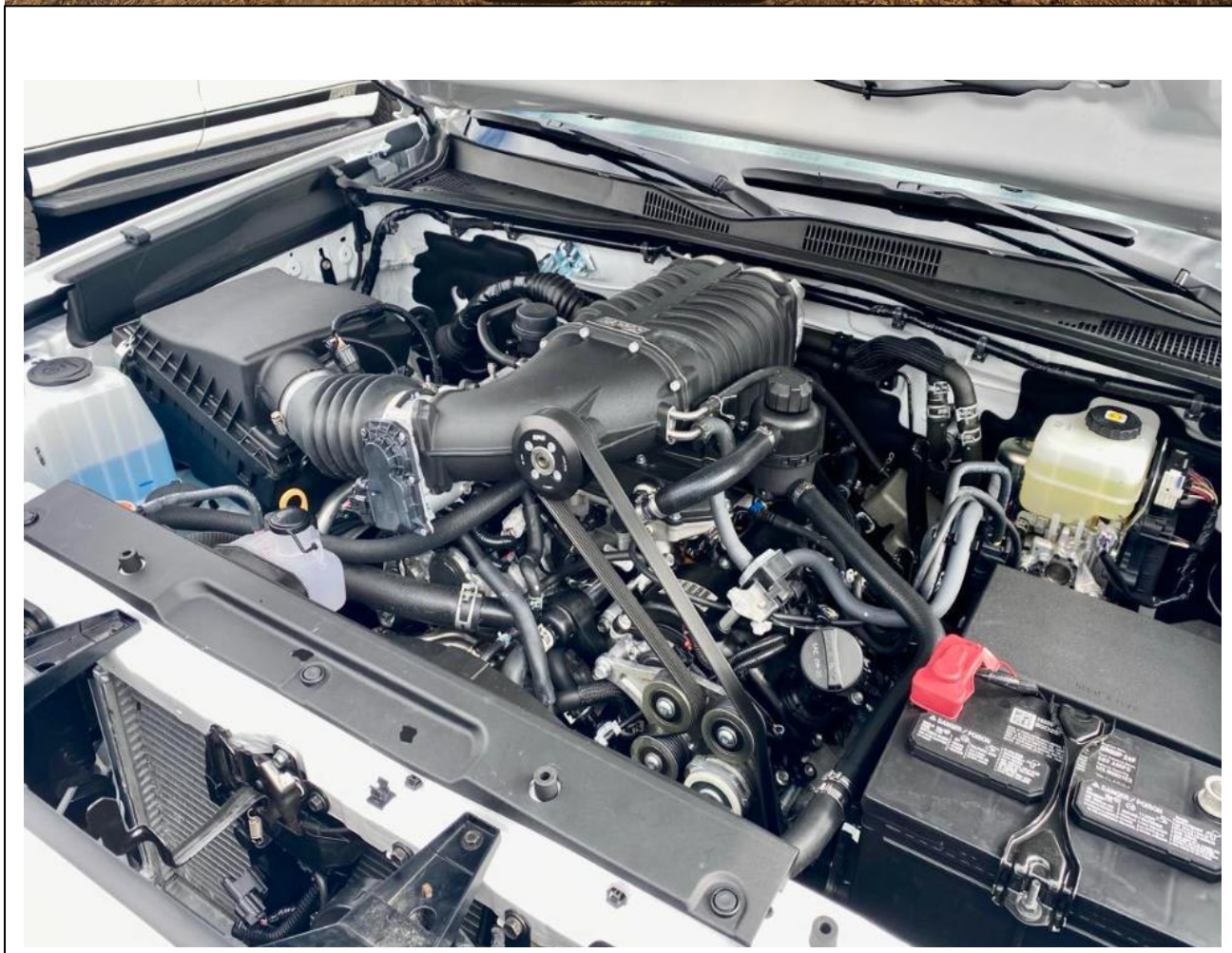
Start the engine and allow to idle only. **Do not place and load, or rev the engine until re-calibration flashing and verification has been performed.**

Check that the supercharger belt is running correctly and that the belt tensioner is approximately half way along its total travel.

Check for coolant and vacuum leaks.

The ECU requires calibration to ensure high performance and safe operation.

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Installation of Supercharger Calibration

Activate Tune Files

- With the Tuner plugged in and ignition ON (engine not running), select “Programming”



- Select “Continue”
- Select “Save Stock Cal”



If you receive a “Unable to Save Stock Cal” message, please contact technical support

- Otherwise your pre-loaded tunes will now be activated

Flashing a Tune

- With the Tuner plugged in and ignition ON, select “Programming”



- Select “Continue” then select “Performance Cals”

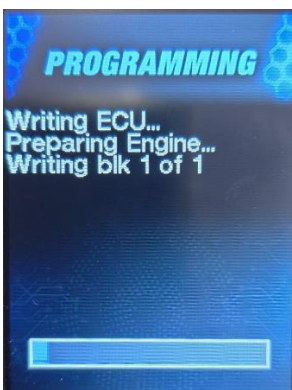


Choose a tune file

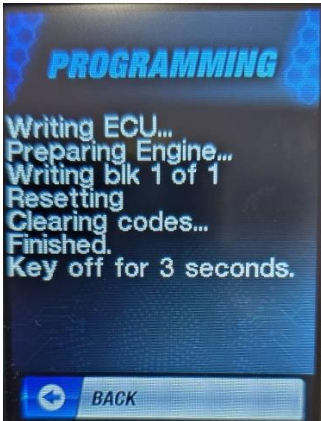


Select “Continue” to flash the tune

DO NOT UNPLUG TUNER OR TURN IGNITION OFF WHILE PROGRAMMING



- When programming is complete, you will get this screen.



• The check engine light may turn on after reprogramming. Use the “Clear Codes” function under “Diagnostics” to turn the check engine light off.

- Follow all programming prompts.
- Once you have finished the Calibration install, your Tacoma should be ready for a test drive.
- Recommend doing a short test drive to start. Stop and recheck that everything is in its place. E.g. Nothing rubbing or leaking. Check the coolant over flow bottle and top off if needed.

