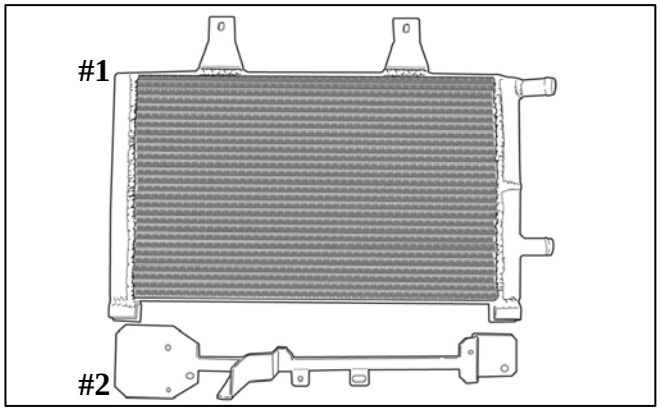
Part Number: PTR29-35091 (FIT KIT)

NOTE: Part number of this accessory may not be the same as the part number shown.

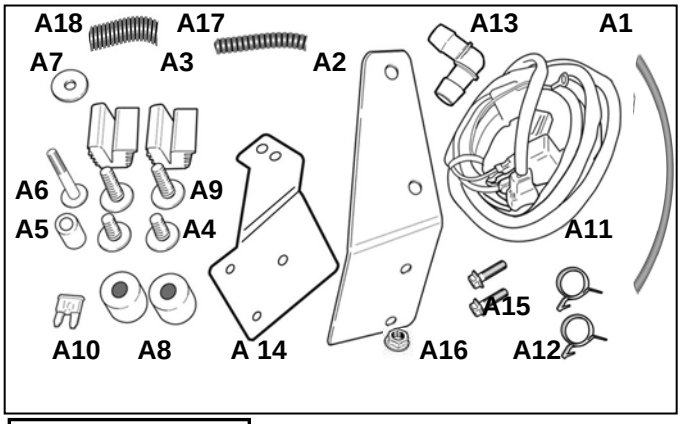
Kit Contents (FIT KIT), P/N PTR29-35091

Item	Qty Req'd	Description
1	1	Heat Exchanger - Low Temperature Radiator (LTR)
2	1	Hood Support Bracket
3	1	Hardware Bag "A"
4	1	Hardware Bag "L" (White Envelope)



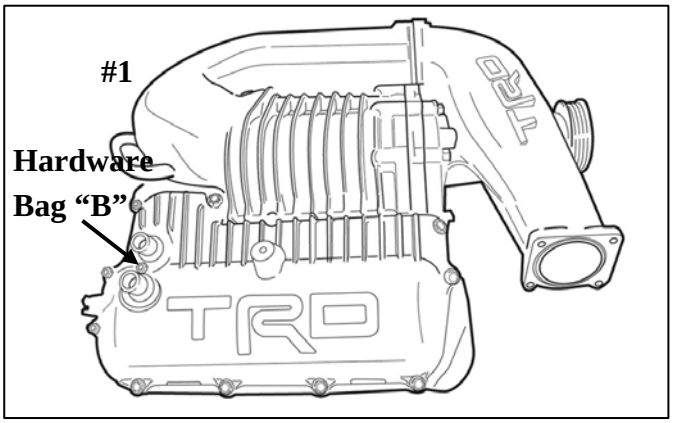
Hardware Bag "A" Contents (FIT KIT)

Item	Qty Req'd	Description
1	1	5/16" EVAP Hose
2	1	Reservoir Bracket
3	2	Rubber Grommet
4	2	M8X20mm Hex Flange Head Bolt
5	1	Spacer, .50" Dia X .75" Long
6	1	M6X50mm Hex Flange Head Bolt
7	1	M6X20mm Dia Washer
8	2	Spacer, .75" Dia X .75" Long
9	2	M8X30mm Hex Flange Head Bolt
10	1	10 Amp Mini Fuse
11	1	Intercooler Pump Harness
12	2	Wide Band Spring Clamp
13	1	¾"x3/4" 90 Elbow Hose Mender
14	1	Reservoir Bracket
15	2	M6x20mm Hex Flange Head Bolt
16	1	M6 Hex Nut
17	1	Tubing – convoluted ½"x4"
18	18"	1" Wire Loom



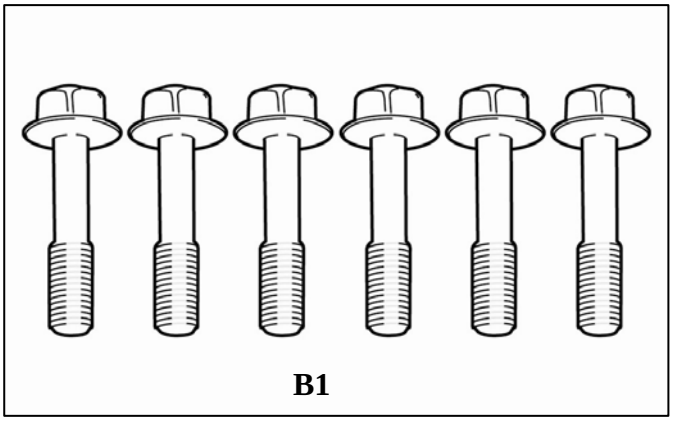
Kit Contents (MAIN SUPERCHARGER KIT) P/N PTR29-35090

Item	Qty Req'd	Description
1	1	Main Supercharger Assembly with Hardware Bag "B" attached to the coolant nipples at the rear of the intercooler lid.
2	1	TRD Air Filter (not illustrated)
3	1	Hardware Bag "C"
4	1	Hardware Bag "D"
5	1	Hardware Bag "E"
6	1	Hardware Bag "F"
7	1	Hardware Bag "G"
8	1	Hardware Bag "H"
9	1	Hardware Bag "I"
10	1	Hardware Bag "J"
11	1	Hardware Bag "K"



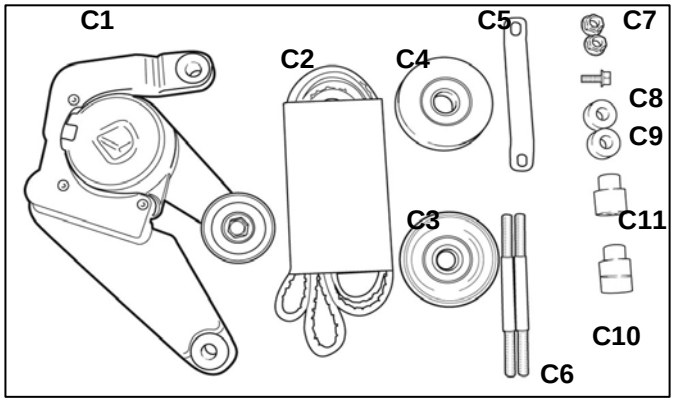
Hardware Bag "B" Contents

Item #	Qty Req'd	Description
1	6	M8 X 35 mm Reduced Shank Hex Head Bolts



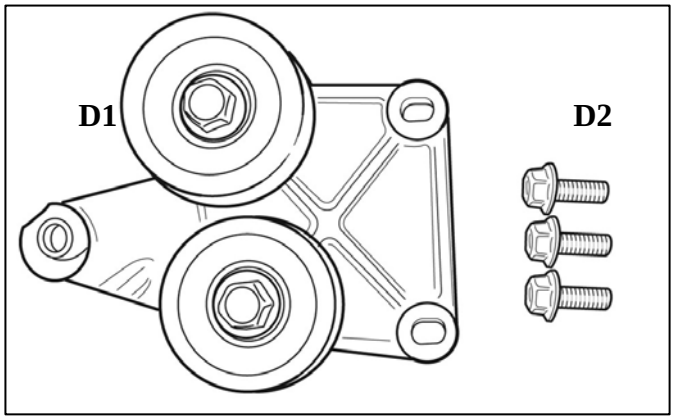
Hardware Bag "C" Contents

Item #	Qty Req'd	Description
1	1	Tensioner Bracket Assembly
2	1	5 Rib Belt
3	1	Smooth Idler Pulley
4	1	5 Rib Idler Pulley
5	1	Tensioner Strut Bracket
6	2	M10 Double Ended Stud
7	2	M10 Hex Flange Nut
8	1	M8X16mm Hex Flange Head Bolt
9	2	Short Spacers
10	1	Idler Spacer with Groove
11	1	Idler Spacer without Groove



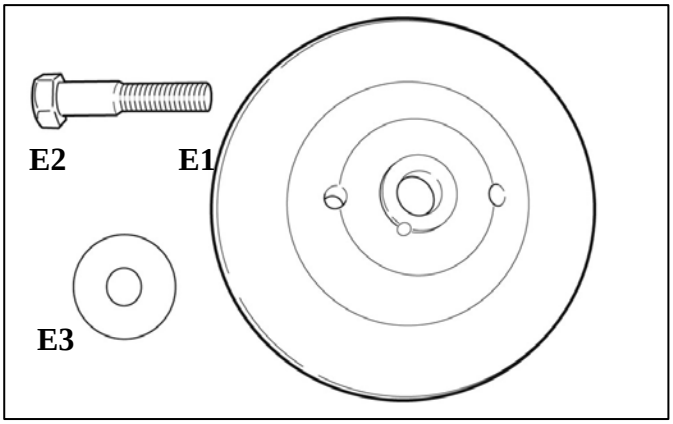
Hardware Bag "D" Contents

Item	Qty Req'd	Description
1	1	Upper Idler Bracket Assembly
2	3	M8X20mm Hex Flange Head Bolt



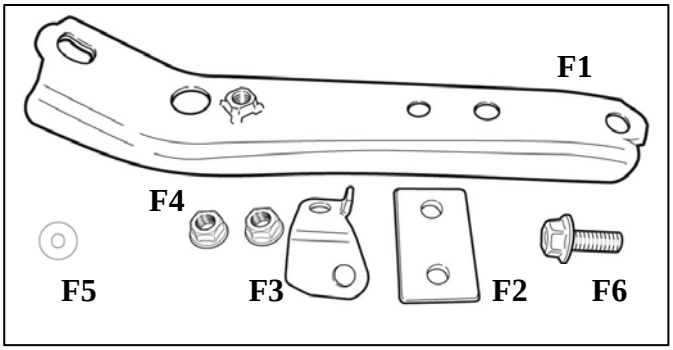
Hardware Bag "E" Contents

Item	Qty Req'd	Description
1	1	Crank Pulley
2	1	M16X70mm Hex Head bolt
3	1	M16X48mm Dia Washer



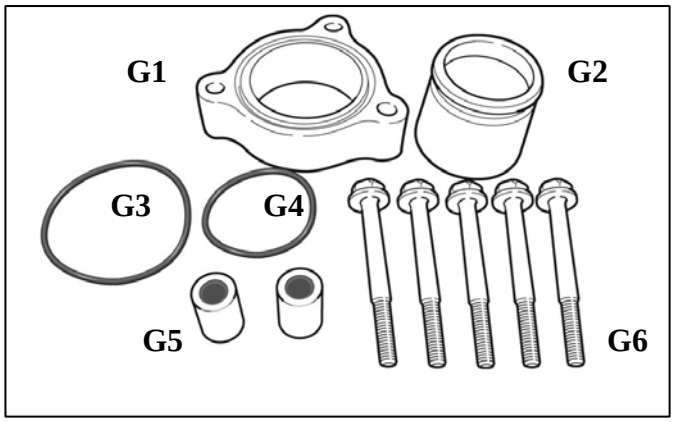
Hardware Bag "F" Contents

Item	Qty Req'd	Description
1	1	Supercharger Support Bracket
2	1	Air Box Bracket
3	1	VSV Bracket
4	2	M6 Hex Flange Nut
5	1	M6 Washer
6	1	M6X16mm Hex Flange Head Bolt



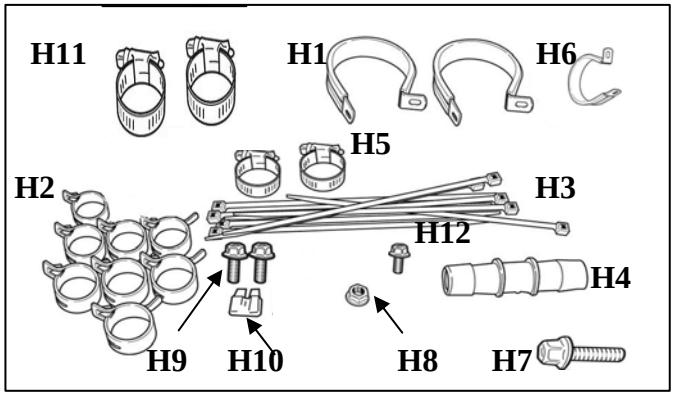
Hardware Bag "G" Contents

Item	Qty Req'd	Description
1	1	Thermostat Spacer
2	1	Water Pipe Spacer
3	1	O-ring – Large
4	1	O-Ring Small
5	2	Spacer
6	5	M6X55mm Hex Flange Head Bolt



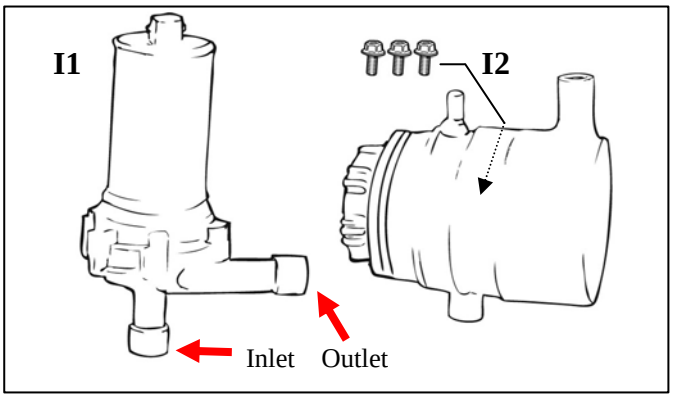
Hardware Bag "H" Contents

Item	Qty Req'd	Description
1	2	Adel Clamp, #36
2	8	Wide Band Spring Clamp
3	10	Tie Wrap, 7.5"
4	1	Hose Mender Fitting, ¾"
5	2	Hose Clamp, #10
6	1	Adel Clamp, #16-2
7	1	M6X20mm Hex Flange Head Bolt
8	1	M6 Hex Flange Nut
9	2	M6X16mm Hex Flange Head Bolt
10	1	15 Amp Fuse
11	2	Hose Clamp, #20
12	1	M6X12 Hex Flange Head Bolt



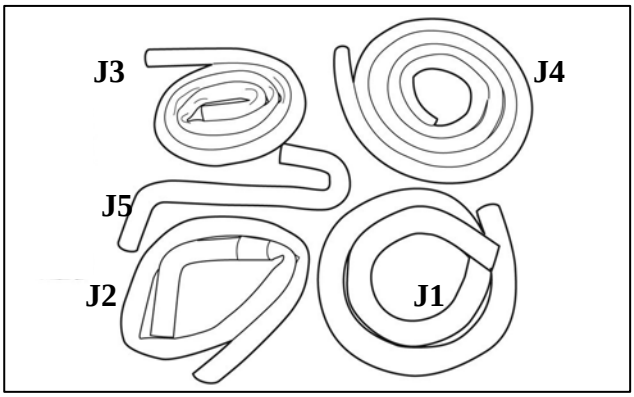
Hardware Bag "I" Contents

Item	Qty Req'd	Description
1	1	Intercooler Pump
2	1	Coolant Reservoir with Cap and Bolts



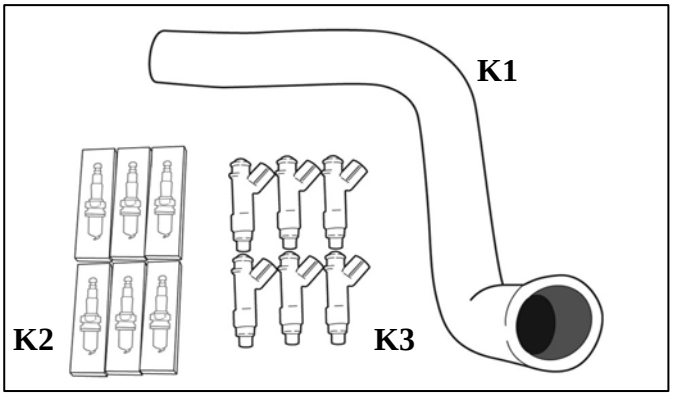
Hardware Bag "J" Contents

Item	Qty Req'd	Description
1	96"	1" Wire Loom
2	1	¾"ID x 4" x 36" Coolant Hose
3	1	¾"ID x 4"x 60" Coolant Hose
4	96"	¾" Coolant Hose
5	1	¾" Formed Hose, LTR to Pump Outlet



Hardware Bag "K" Contents

Item	Qty Req'd	Description
1	1	Lower Radiator Coolant Hose (loose in main box)
2	6	Spark Plugs
3	6	Fuel Injectors



Hardware Bag "L" Contents

Item	Qty Req'd	Description
1	2	Sticker, TRD Supercharged
2	2	Sticker, TRD Development
3	2	Sticker, Premium Fuel Warning
4	2	Sticker, TRD Red TRD Logo
5	1	Warranty certificate, TRD
6	1	Warranty Registration Card
7	1	Mirror Hanger, S/C Noise
8	1	Label, Vacuum and Belt Routing
9	1	Label, CARB D-425-28
10	1	Installation Instruction Manual

Additional Items Required For Installation

Item #	Quantity Reqd.	Description
1	1	Main Supercharger Assembly, P/N PTR29-35090

Conflicts

Cold Air Intake System

Recommended Tools

Personal & Vehicle Protection	**Notes**
Safety Glasses	
Fender Blankets	
Protective Gloves	
Special Tools	**Notes**
Toyota T.I.S. Techstream	4.00.017 or Later
GR8 Battery Charger	
Crankshaft Pulley Holder	SST-09213-54015
Pulley Holder Lever Arm	SST-09330-00021
Installation Tools	**Notes**
Mechanic's Hand Tools	Combo wrenches & sockets
½" & 3/8" Torque Wrenches	
Special Chemicals	**Notes**
Anti-Seize Assembly Lube	For Spark Plugs

General Applicability

All Tacoma with 1GR Motor

Recommended Sequence of Application

Item #	Accessory
1	Not Applicable

*Mandatory

Vehicle Service Parts (may be required for reassembly)

Item #	Quantity Reqd.	Description
1	1 Gallon*	Toyota Pre-Mix Antifreeze Coolant
2		

* Additional coolant will be required if the original coolant is not saved and reused.

Legend

STOP: Damage to the vehicle may occur. Do not proceed until process has been complied with.


OPERATOR SAFETY: Use caution to avoid risk of injury.


CAUTION: A process that must be carefully observed in order to reduce the risk of damage to the accessory/vehicle and to ensure a quality installation.


TOOLS & EQUIPMENT: Used in Figures calls out the specific tools and equipment recommended for this process.


REVISION MARK: This mark highlights a change in installation with respect to previous issue.

SAFETY TORQUE: This mark indicates that torque is related to safety.

Care must be taken when installing this accessory to ensure damage does not occur to the vehicle. The installation of this accessory should follow approved guidelines to ensure a quality installation.

These guidelines can be found in the "Accessory Installation Practices" document.

This document covers such items as:-

- Vehicle Protection (use of covers and blankets, cleaning chemicals, etc.).
- Safety (eye protection, rechecking torque procedure, etc.).
- Vehicle Disassembly/Reassembly (panel removal, part storage, etc.).
- Electrical Component Disassembly/Reassembly (battery disconnection, connector removal, etc.).
- The TIS Repair Manual can be referenced for additional details.

Please see your Toyota dealer for a copy of this document.

1. Installation Review and Vehicle Preparation.

(a) Review the entire instruction instructions provided before beginning the installation

(b) Review the parts list/kit contents to ensure that all parts are present before beginning the installation. If any items are missing contact Technical Support at **(800) 688-5912** before proceeding.

(c) Remove any low-octane fuel from the vehicle. Ensure that ONLY **91 octane or higher** unleaded gasoline is used.

(d) Place the vehicle onto vehicle hoist.

(e) Protect the vehicle with protection blankets over the fenders and front of the vehicle.

(f) Disconnect and remove the battery.

(g) When draining the cooling system into a clean container in Step 7, save this coolant as it will be reused. **CAUTION: To avoid the danger of being burned, do not remove the radiator cap while the engine and radiator are still hot. Thermal expansion will cause the hot engine coolant and steam to blow out from the radiator.**

(h) All parts that are removed and not reused should be saved for the customer, i.e., “discard” means to save for the customer.

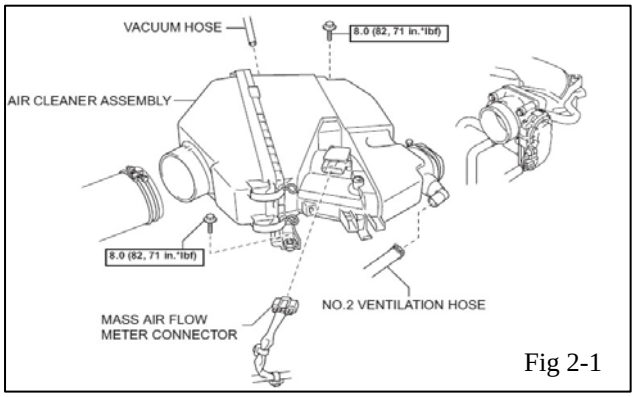


Fig 2-1

2. Remove Air Cleaner Assembly.

(a) Remove the engine V-bank cover by removing the two acorn nuts (Figs 2-1 & 2-2).

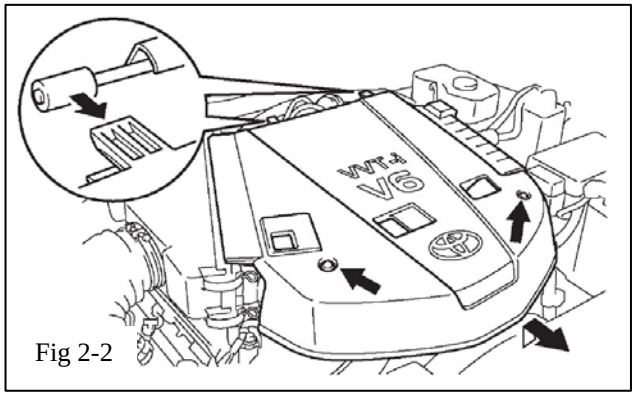


Fig 2-2

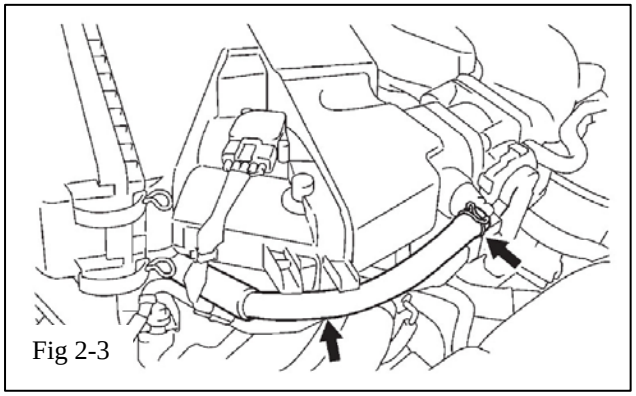


Fig 2-3

(b) Disconnect the ventilation hose No. 2 (Fig 2-3).

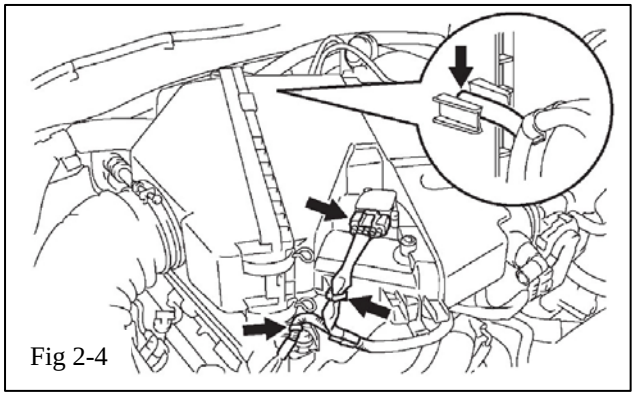


Fig 2-4

(c) Disconnect the vacuum hose. Disconnect the mass air flow meter connector. Remove the 2 wire harness clamps (Fig. 2-4)

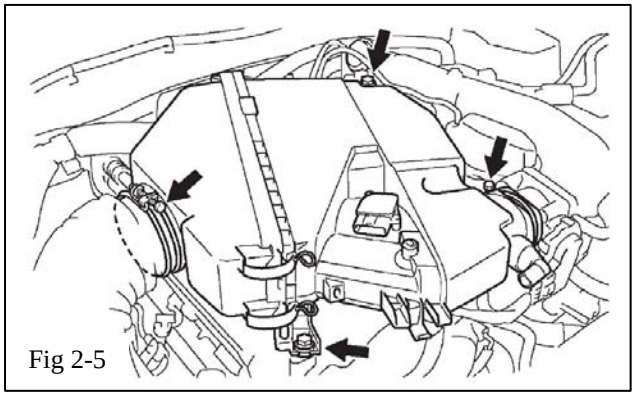


Fig 2-5

(d) Loosen the 2 hose clamps. Remove the 2 bolts, then remove the air cleaner (Fig. 2-5). Remove the air filter from the air cleaner and replace it with the new TRD air filter. Set the air cleaner aside for now.

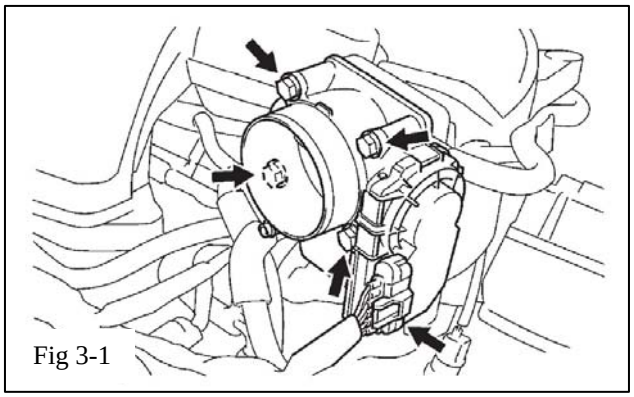


Fig 3-1

3. Remove Throttle Body with Motor Body Assembly.

(a) Disconnect the throttle body connector. Remove the 4 bolts, and then remove the throttle w/ motor body and gasket. Leave the throttle body connected to the coolant hoses for now (Fig. 3-1).

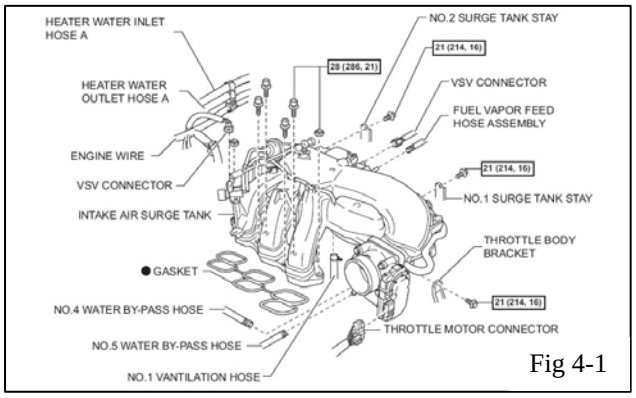


Fig 4-1

4. Remove Intake Air Surge Tank.

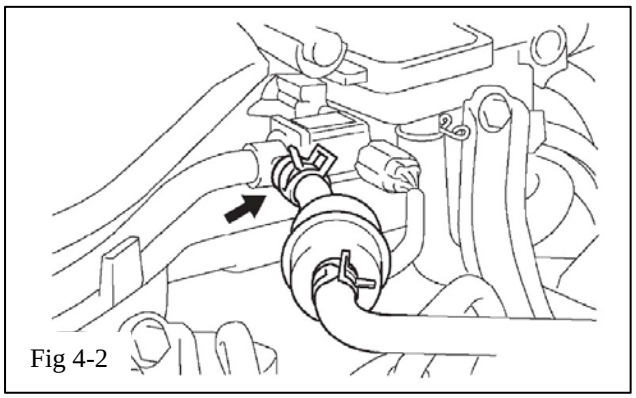


Fig 4-2

(a) Disconnect the fuel vapor feed hose (Fig 4-1 & 4-2).

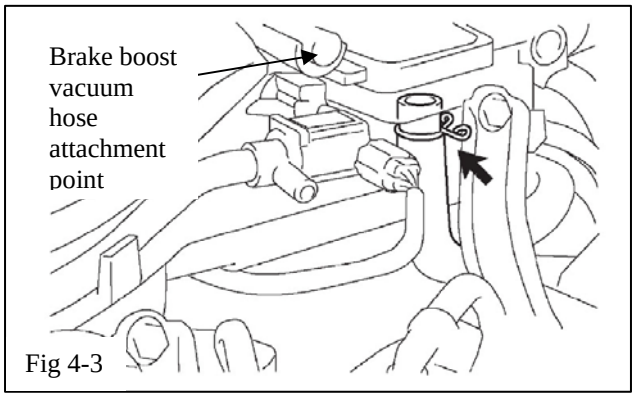


Fig 4-3

(b) Disconnect the ventilation hose (Figs. 4-1 & 4-3). If equipped, remove the Brake Boost vacuum hose from the intake manifold.

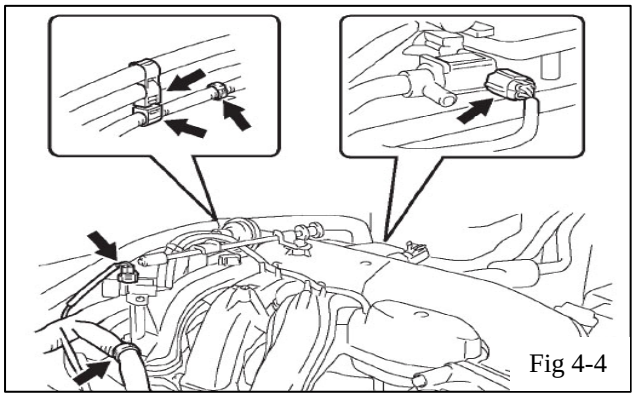


Fig 4-4

(c) Disconnect the 2 VSV connectors. Remove the 4 wire harness clamps and hose clamps (Figs 4-1 & 4-4). With tape cover the end of the intake manifold ACIS housing and secure the harness to the wiring bundle.

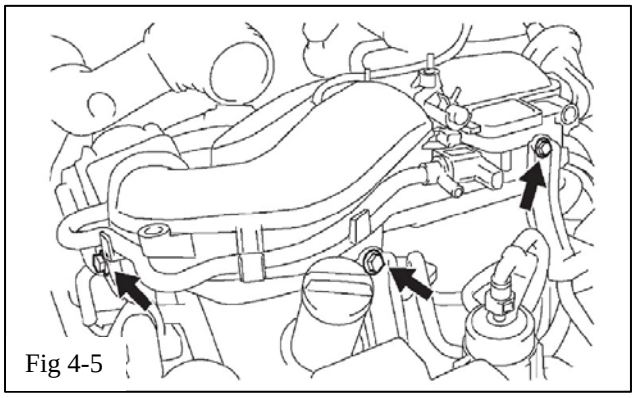


Fig 4-5

(d) Remove the 3 upper bolts which are used to secure the 2 surge tank stays and throttle body bracket (Figs 4-1 & 4-5). Remove the 2 bolts that hold the brackets to the side of the cylinder head. Remove and discard the bracket attached to the front of the cylinder head (Bracket stamped “A”).

CAUTION: Before proceeding, make sure there is no dirt or debris on or around the base of the surge tank. If there is, you must remove it so that it will not enter the engine when the surge tank is removed.

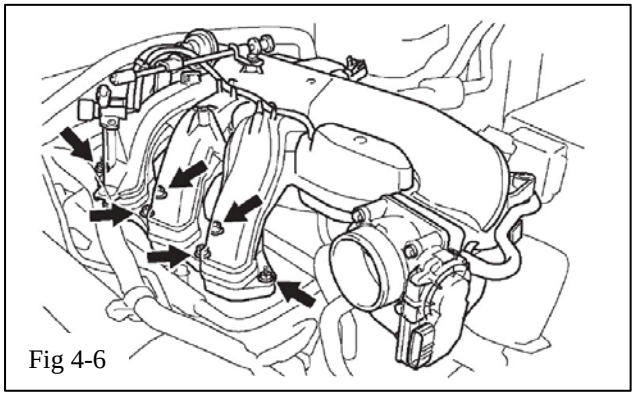


Fig 4-6

(e) Using an 8mm Allen socket, remove the 4 bolts and the 2 nuts with a 12mm socket. Remove the surge tank and gasket (Fig 4-6).

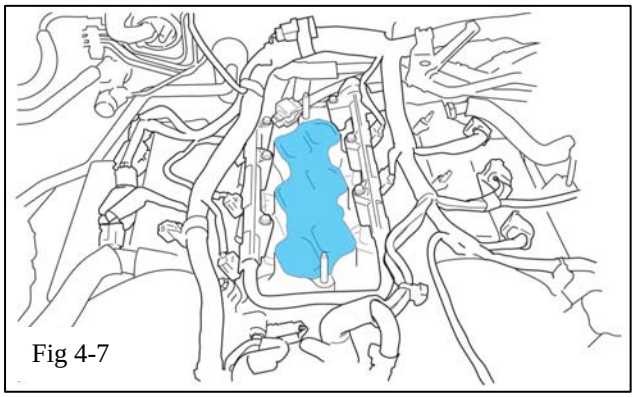


Fig 4-7

(f) Wipe off the engine surface and apply tape to cover the intake ports (Fig 4-7).

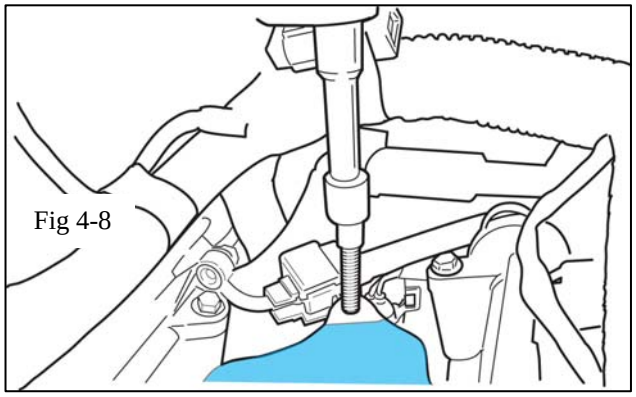


Fig 4-8

(g) After the ports are taped over, using an E-5 internal Torx socket, remove the 2 studs from the intake manifold (Fig 4-8).

5. Fuel Injector Replacement.

Warning: The Fuel System is under High Pressure. Use Safety Glasses and Fuel Compatible Gloves to prevent Personal Injury

(a) For the No. 1 fuel pipe, remove the fuel pipe clamp. Pinch the tube connector, and pull the fuel pipe out of the connector as shown (Figs 5-1, 5-2, 5-3). Repeat for the No. 2 fuel pipe.

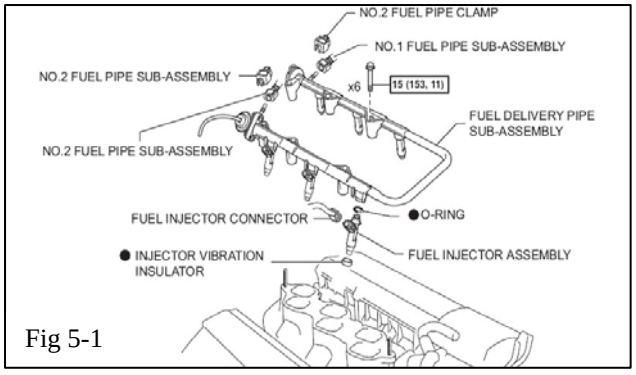


Fig 5-1

NOTICE:

- **Remove any dirt and foreign objects from the connectors before performing this work.**
- **Do not allow any scratches or foreign objects on the parts when disconnecting, as the fuel tube connector has the O-ring that seals the pipe.**
- **Perform this work by hand. Do not use any tools.**
- **Do not forcibly bend, twist or turn the nylon tube.**
- **Protect the disconnected parts by covering them with a plastic bag after disconnecting them.**
- **If the fuel tube connector and pipe are stuck, push and pull to release them.**

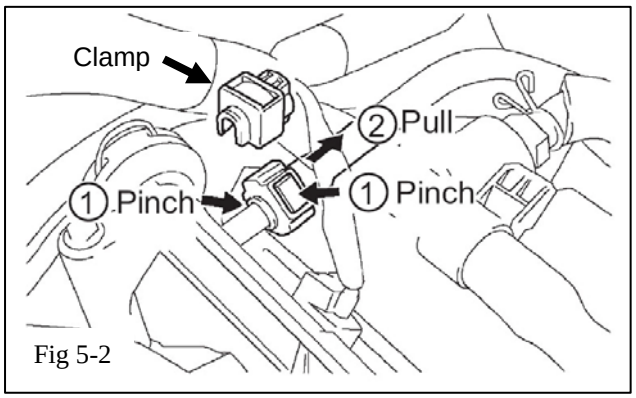


Fig 5-2

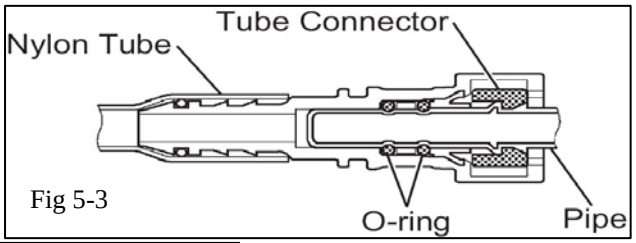


Fig 5-3

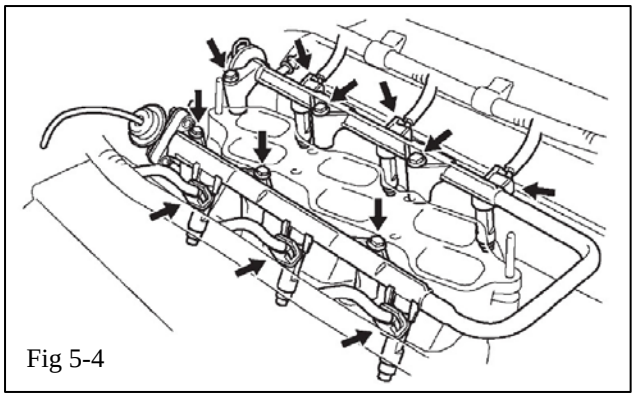


Fig 5-4

(b) Disconnect the 6 fuel injector electrical connectors. Remove the 6 bolts and fuel delivery pipe together with the 6 fuel injectors (Figs 5-1 & 5-4).

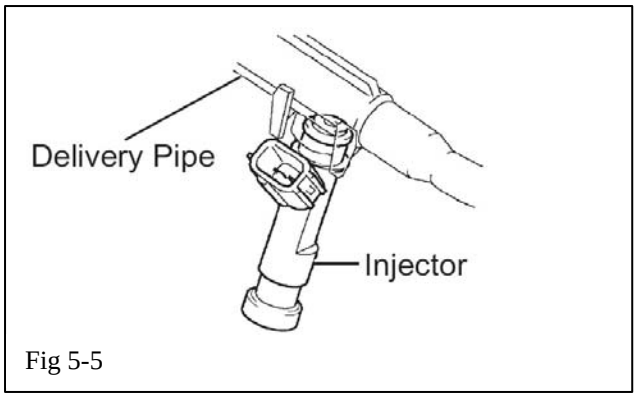


Fig 5-5

(c) Pull the 6 injectors out of the delivery pipe (Fig 5-5). Discard the injectors as they will be replaced with new higher flow injectors. The old injectors should be saved for the customer.

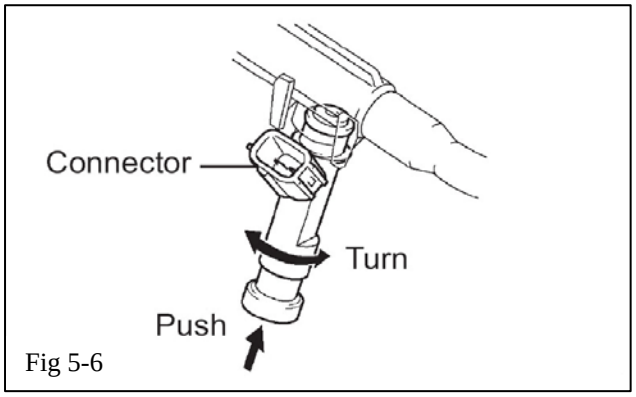


Fig 5-6

(d) Install a light coat of spindle oil or gasoline to the O-ring on the top of each new injector. While turning the fuel injector left or right, install it onto the fuel delivery pipe positioning the connector facing outward (Fig 5-6). Repeat for all six new injectors.

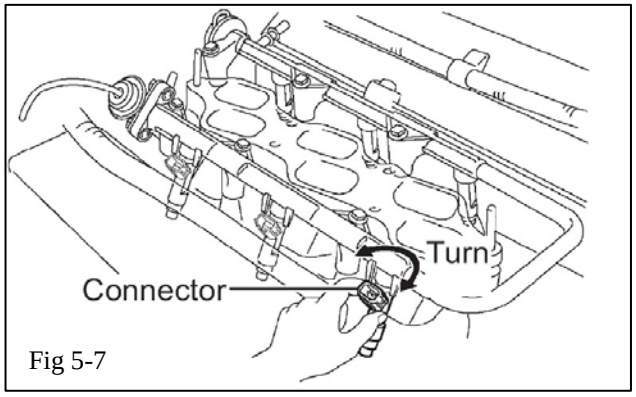


Fig 5-7

(e) Place the fuel delivery pipe together with the new injectors on the intake manifold. Provisionally install the 6 bolts, which are used to hold the delivery pipe, onto the intake manifold. Check to see that the injectors rotate smoothly. Position the injector connectors facing outward. Tighten the 6 bolts. **Torque: 15 Nm (11 ft lbf)** (Fig 5-7).

(f) Reconnect the 6 fuel injector electrical connectors.


Fig 5-8

(g) Reconnect the No. 1 and No. 2 fuel pipe sub-assemblies to the fuel delivery pipe connectors by pushing together until the connector makes a “click” sound. After connecting, check that the pipe and connector are securely connected by pulling on them. Reinstall the clamps on each connector.

(h) To ensure clearance to the supercharger manifold, pry the wire loom retainer up off the stud on the LH cylinder head cover (Fig 5-8). **NOTE: Do not omit this step.**

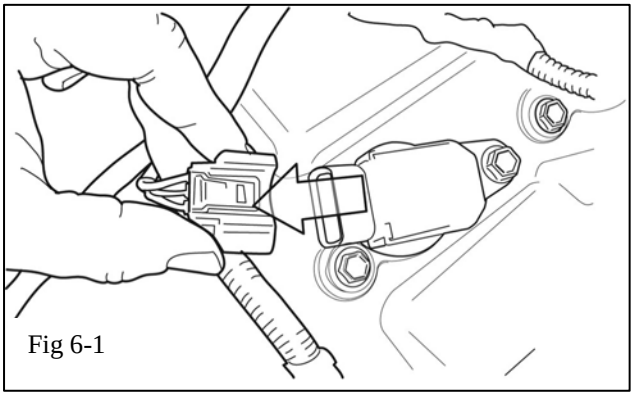


Fig 6-1

6. Spark Plug Replacement

(a) Unplug the electrical connector from each of the 6 ignition coils (Fig 6-1).

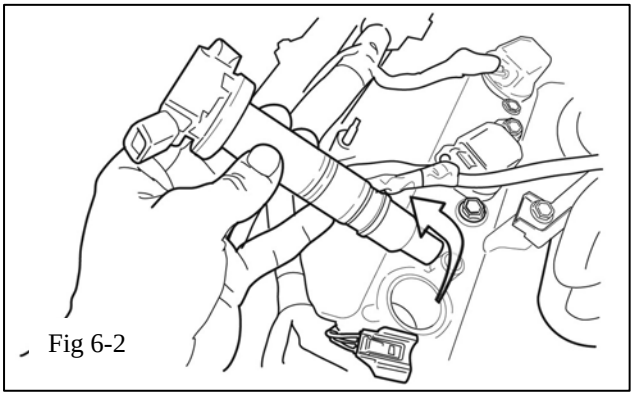


Fig 6-2

(b) Remove the 6 bolts, then remove the 6 ignition coils (Fig 6-2).

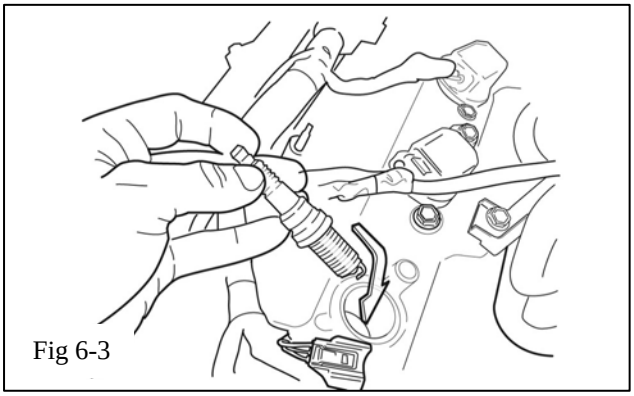


Fig 6-3

(c) Remove the 6 spark plugs and discard them in a box for the customer. New colder plugs will be installed (Fig 6-3).

CAUTION: Blow any dirt or debris from around the spark plugs before removing them.

Wear Safety Glasses when using Compressed air.

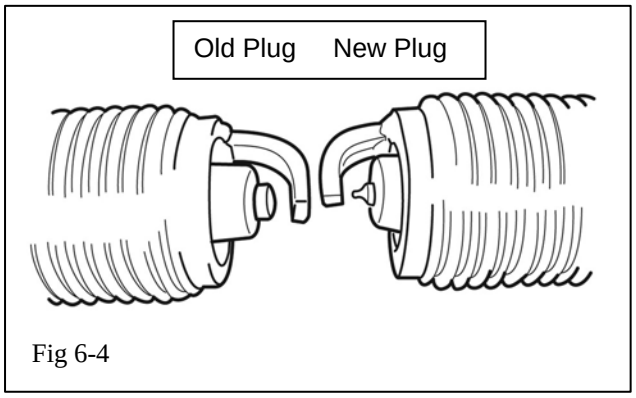


Fig 6-4

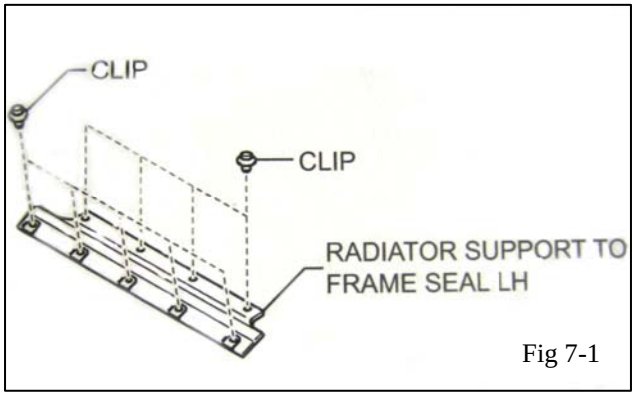


Fig 7-1

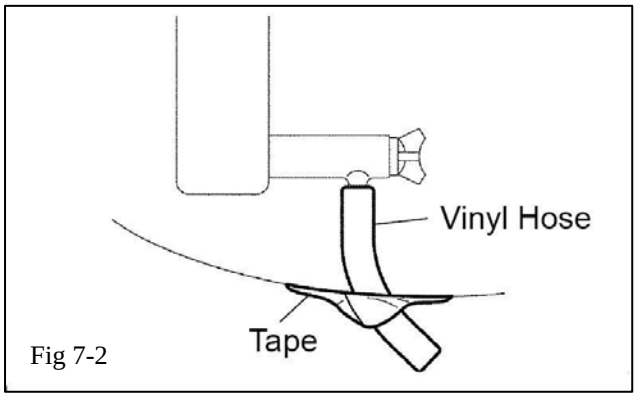


Fig 7-2

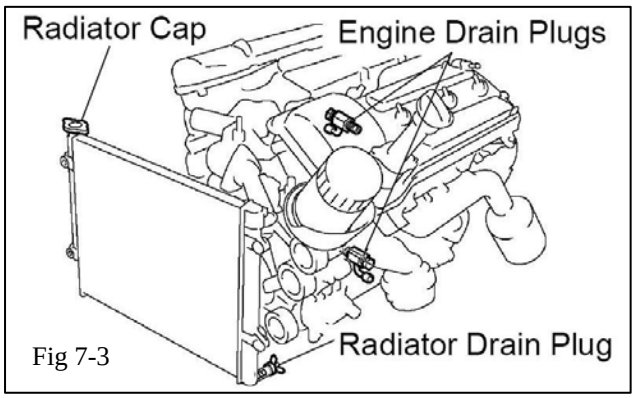


Fig 7-3

(d) **Set Spark Plug Gap at 0.8 mm (0.032")** Install the 6 new spark plugs (K2). A little anti-seize on the plug threads will prevent seizing in the future (Fig 6-4). **Torque: 20 Nm (15 ft lbf)**

(e) Reinstall the ignition coils and the bolts. **Torque: 10 Nm (7.4 ft lbf)**

7. Coolant, Fan and Shroud Removal.

(a) Remove the 9 plastic clips from the black plastic seal cover at the top of the radiator and set it aside for re-installation later (Fig 7-1).

(b) Drain Engine Coolant

CAUTION: To avoid the danger of being burned, do not remove the radiator cap while the engine and radiator are still hot. Thermal expansion will cause hot engine coolant and steam to blow out from the radiator.

i. Remove the service hole cover from the engine under cover. **NOTE: On some vehicles it may be necessary to remove the skid plate.**

ii. Install a vinyl hose onto the drain on the radiator side (Fig 7-2) and secure with tape.

iii. Loosen the three drain plugs on the engine and radiator and drain the coolant into a clean container (Fig 7-3). Save the coolant as it will be reused.

iv. Remove the radiator cap.

v. Drain the coolant from the reservoir tank.

vi. Tighten the three drain plugs. **Torque: 13 Nm (9.0 ft lbf) for the engine**

vii. Remove the vinyl hose from the radiator.

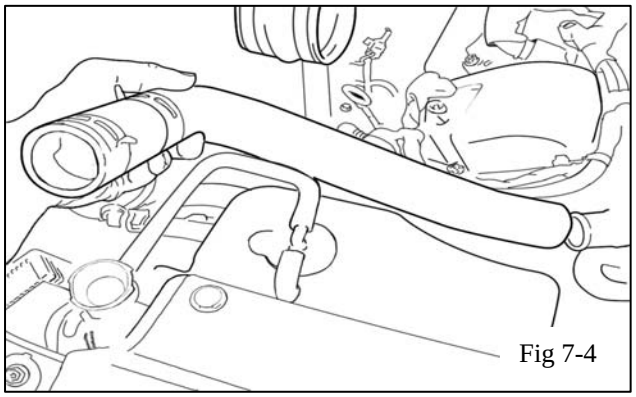


Fig 7-4

(c) Remove the top radiator hose (Fig 7-4). Save for reuse.

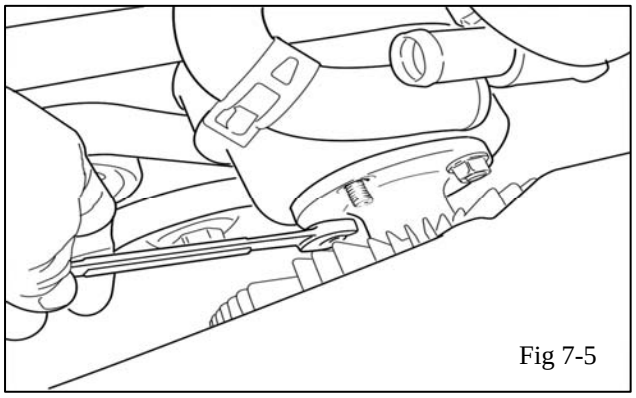


Fig 7-5

(d) Remove the four nuts that attach the fan/clutch to the fan pulley (Fig 7-5). Leave the fan in place for now.

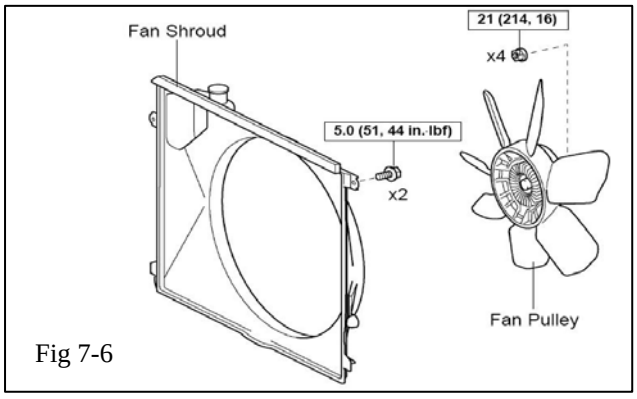


Fig 7-6

(e) Remove the two bolts from the top corners of the fan shroud (Fig 7-6)

(f) Disconnect the coolant overflow tube from the radiator (Fig 7-4). If the vehicle has a transmission oil cooler, it will be necessary to remove a clip holding a fluid line to the shroud.

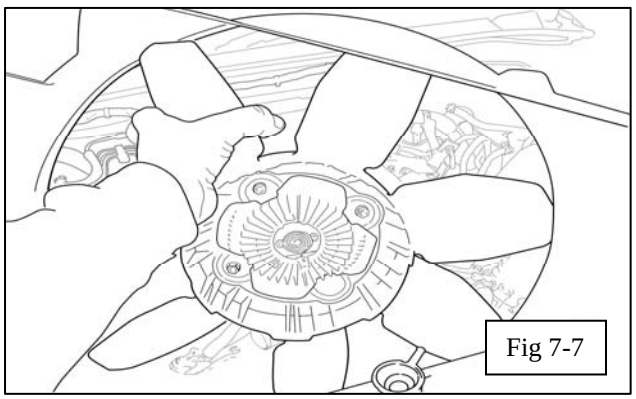


Fig 7-7

(g) Carefully remove the fan and shroud together so you do not damage the radiator (Fig 7-7). Note: Tape a piece of cardboard (about the size of the radiator) to the back side of the radiator to prevent damage during subsequent steps.

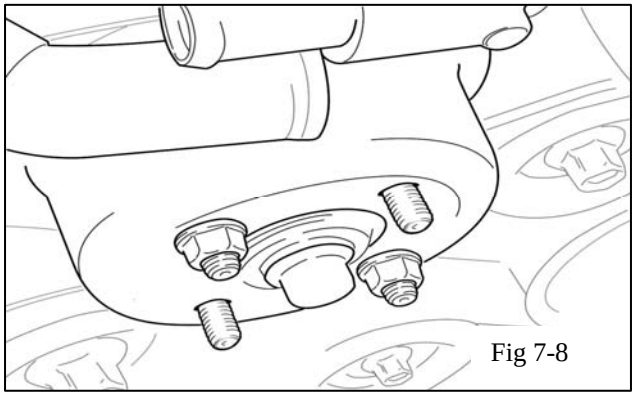


Fig 7-8

(h) Reinstall two of the fan nuts (finger tight) so the fan pulley will not fall off (Fig 7-8).

(i) Remove the lower radiator hose. The hose will not be reused.

8. Installation of the Auxiliary Drive Pulleys.

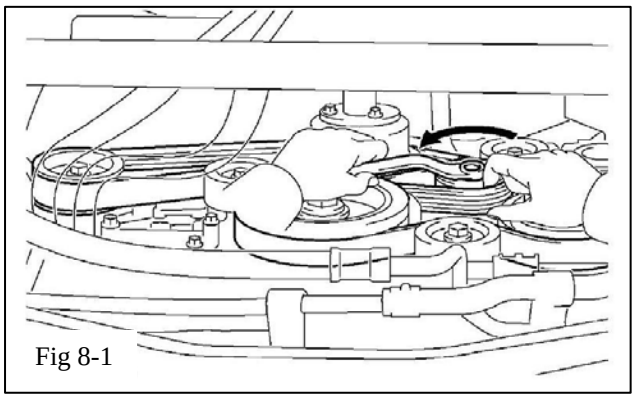


Fig 8-1

(a) While releasing the belt tension by turning the belt tensioner counterclockwise, remove the belt from the power steering pump pulley (Figs 8-1 & 8-2). **NOTE: It is not necessary to completely remove the belt.**

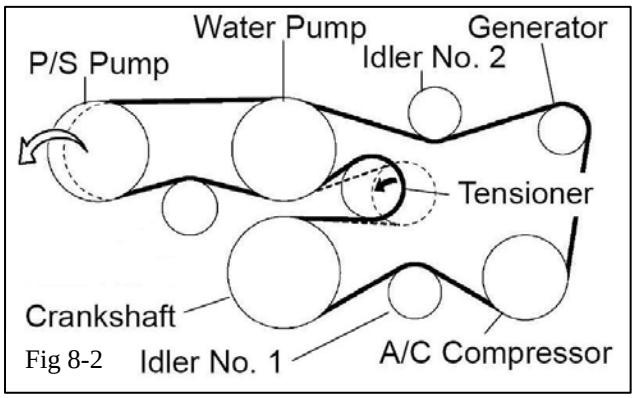


Fig 8-2

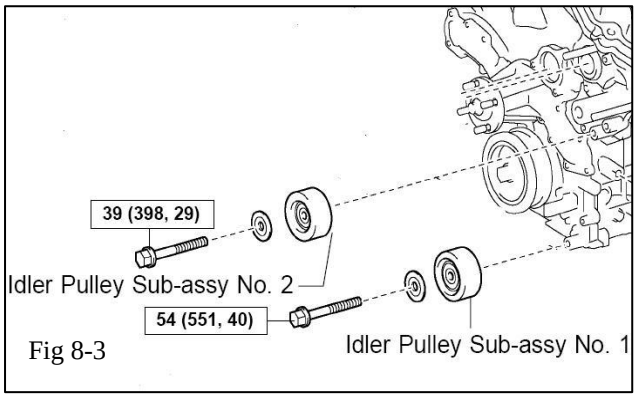


Fig 8-3

(b) Remove Idler No. 1 and discard the bolt (Figs 8-2 & 8-3). Keep the thin step washer and pulley for the next step. **NOTE: Some vehicles may not have the thin step washer.**

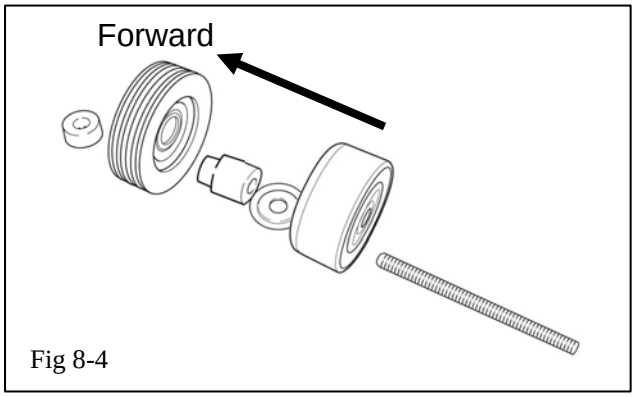


Fig 8-4

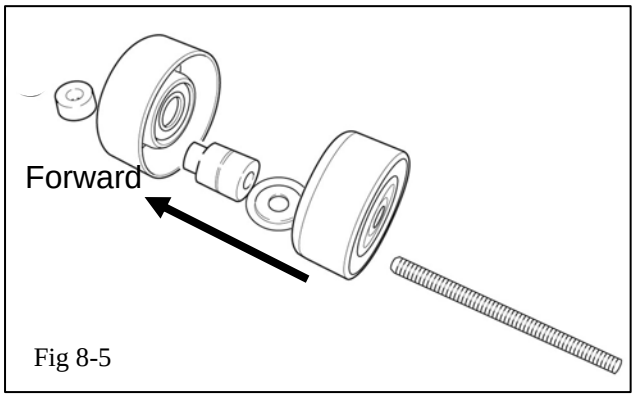


Fig 8-5

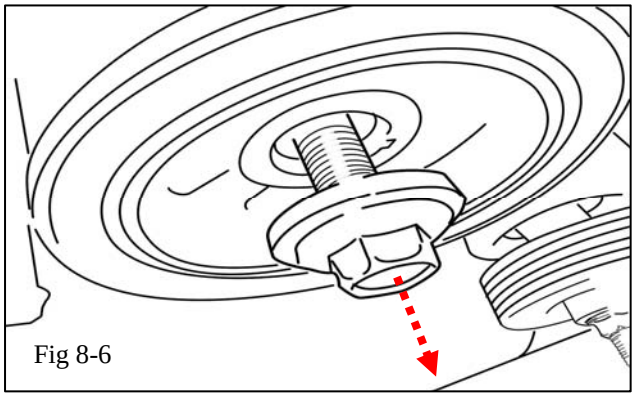


Fig 8-6

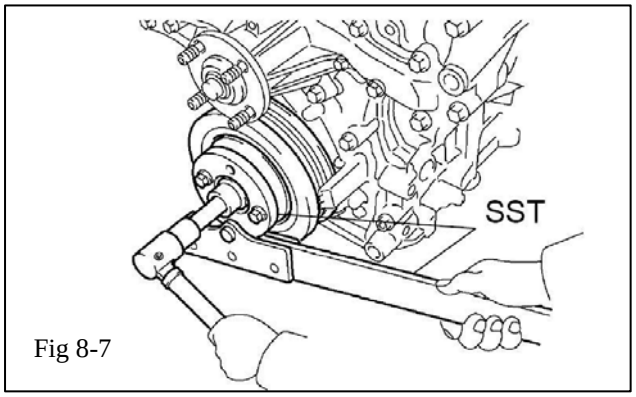


Fig 8-7

(c) Install one of the double ended M10 studs (C6) and snug it in place with a flat blade screwdriver. Reinstall the original smooth pulley and thin step washer (if present), the idler spacer without a groove (C11), the 5 rib idler pulley (C4) (snap ring facing the engine), and one of the short spacers (C9) (Fig 8-4). Temporarily install the M10 nut (C7) finger tight.

(d) Remove Idler No. 2 and discard the bolt (Figs 8-2 & 8-3). Keep the thin step washer and pulley for the next step. **NOTE: do not mistake Idler No. 2 for the tensioner pulley.**

(e) Install the other double ended M10 stud (C6) and snug it in place with a flat blade screwdriver. Reinstall the original smooth pulley and thin step washer, the idler spacer with a groove (C10), the smooth idler pulley (C3), and the other short spacer (C9) (Fig 8-5). Temporarily install the M10 nut (C7) finger tight.

(f) Reinstall the fan and generator belt (Fig 8-2).

(g) Using an impact gun, remove the bolt and washer that secures the crankshaft pulley (Fig 8-6). Discard the bolt and washer. **Do not remove the pulley.**

(h) Install the supplied crankshaft pulley (E1) in front of the existing crankshaft pulley making certain that the dowel pin in the new pulley is aligned with the key way in the existing pulley using the new supplied bolt (E2) and washer (E3) (Fig 8-7). **Torque: 277 Nm (204 ft lbf)**

SST 09213-54015 and SST 09330-00021

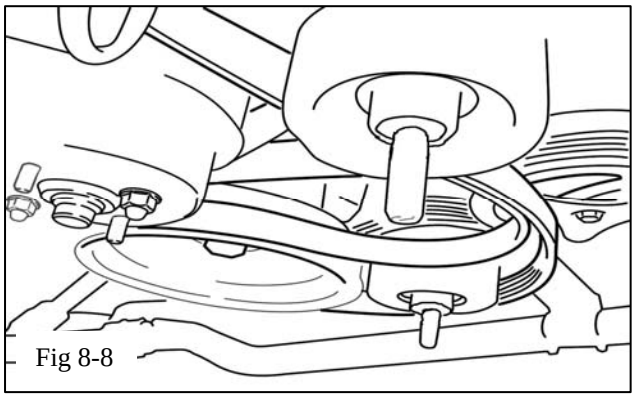


Fig 8-8

(i) Install the blower drive belt (C2) as shown (Fig 8-8).

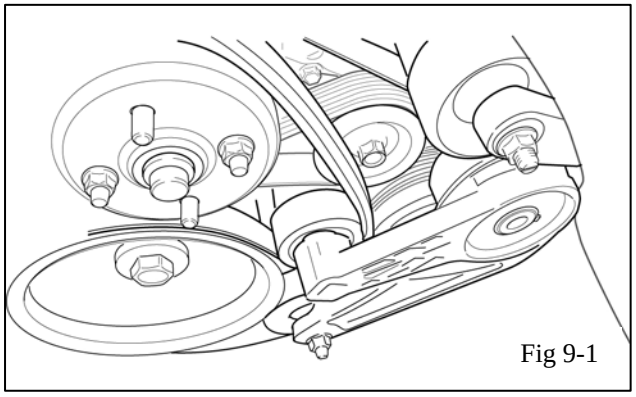


Fig 9-1

9. Installation of the Auxiliary Tensioner Assy.

(a) Remove the 2 M10 nuts and then install the belt tensioner assembly (C1) onto the two double ended studs previously installed (Fig 9-1 & 9-2). Make sure both sides of the blower drive belt are free between the tensioner pulley and the upper idler pulley. Reinstall the two M10 nuts (C7) finger tight.

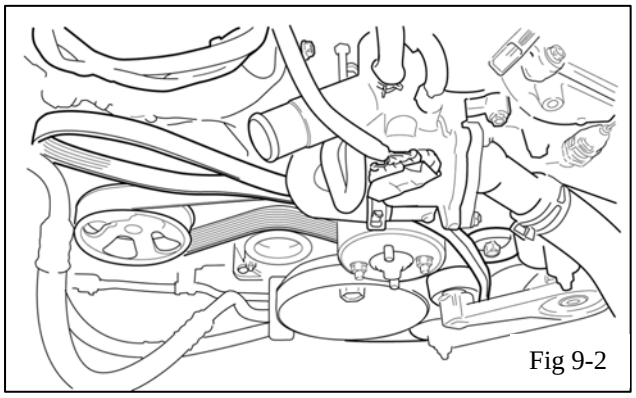


Fig 9-2

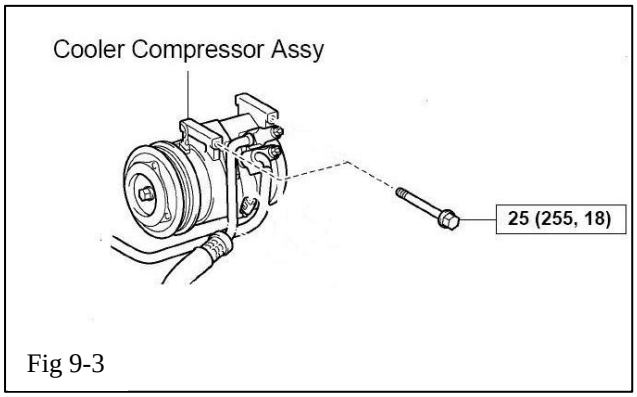


Fig 9-3

(b) Remove the top/forward AC compressor mounting bolt (Fig 9-3). **CAUTION: Do not remove the bolts that attach the AC lines to the compressor.**

(c) Using the bolt removed in step 9-b, attach one end of the tensioner support bracket (C5) to the AC compressor finger tight (Fig 9-4). **NOTE: Notice that the bracket goes behind the belt.**

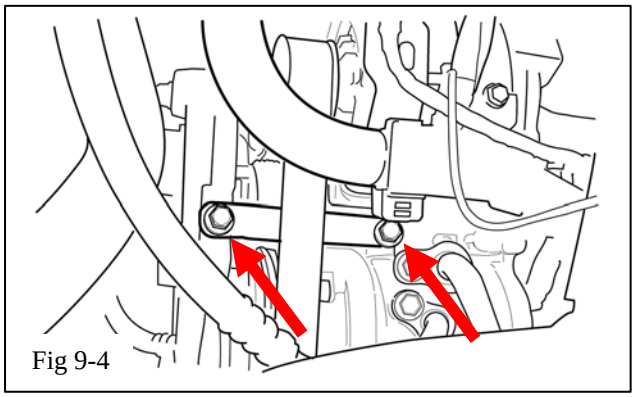


Fig 9-4

(d) Attach the other end of the strut bracket to the belt tensioner bracket using an M8x16 bolt (C8) (Fig 9-4). Tighten the two M10 nuts, then M8x16 bolt, and finally the AC Compressor bolt.

Torque: 39 Nm (29 ft lbf) for M10 nuts

Torque: 25 Nm (18 ft lbf) for M8 bolts

(e) Be sure the blower drive belt is on the bottom of the tensioner pulley (Fig 9-1).

10. Installation of the Water Manifold Spacers.

(a) Remove 2 throttle body bypass hoses, 2 small bypass hoses, and the larger bypass hose that are attached to the thermostat water manifold (Fig 10-1). It is suggested that a diagram be made showing where all the hoses go. Some vehicles may also have 2 oil cooler hoses to remove.

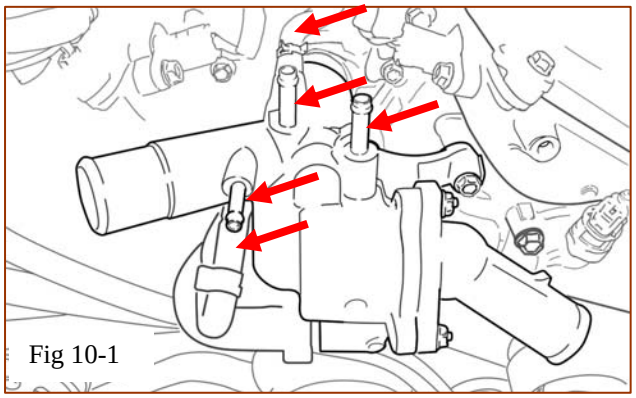


Fig 10-1

(b) Remove and discard the 5 bolts attaching the thermostat water manifold to the engine. Make sure the 2 o-rings remain on the engine (Fig 10-2).

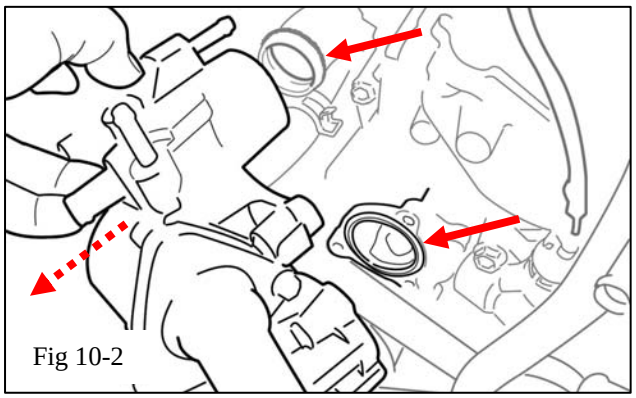


Fig 10-2

(c) Install the small o-ring (G4) onto the new water pipe spacer (G2). Apply a small amount of grease to the o-ring and inside the bore of the thermostat water manifold (Fig 10-3).

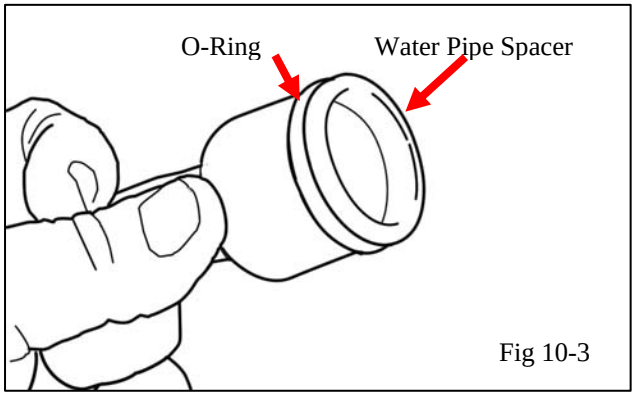


Fig 10-3

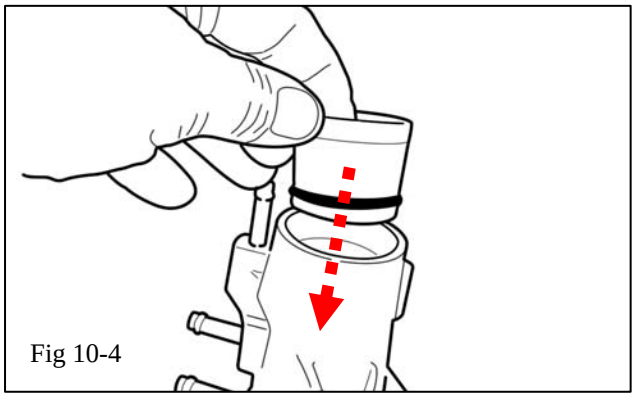


Fig 10-4

(d) Install the water pipe spacer into the thermostat water manifold (Fig 10-4).

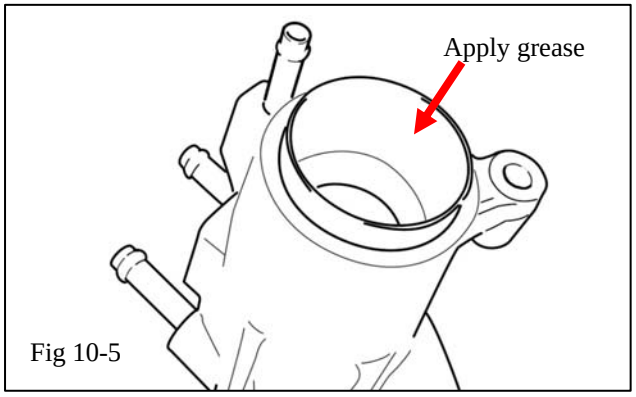


Fig 10-5

(e) Apply a small amount of grease to the inside bore of the water pipe spacer (Fig 10-5).

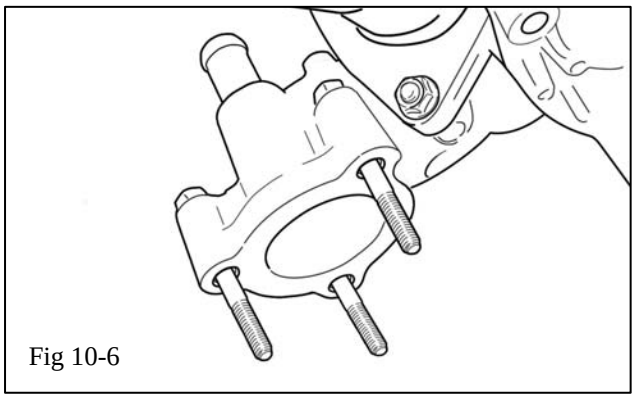


Fig 10-6

(f) Install 3 of the new M6x55 bolts (G6) in the thermostat water manifold (Fig 10-6).

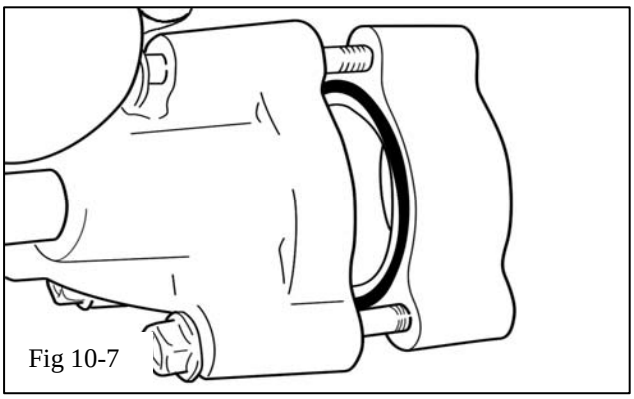


Fig 10-7

(g) Install the large o-ring (G3) in the groove of the thermostat spacer (G1), a small amount of grease will help hold it in place, and then place the spacer (G1) on the 3 bolts with the o-ring facing the thermostat water manifold (Fig 10-7).

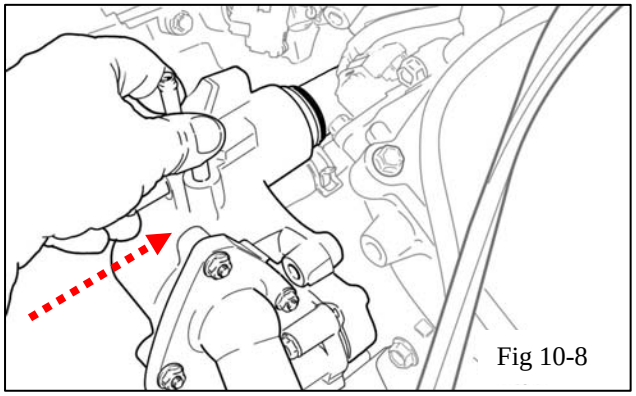


Fig 10-8

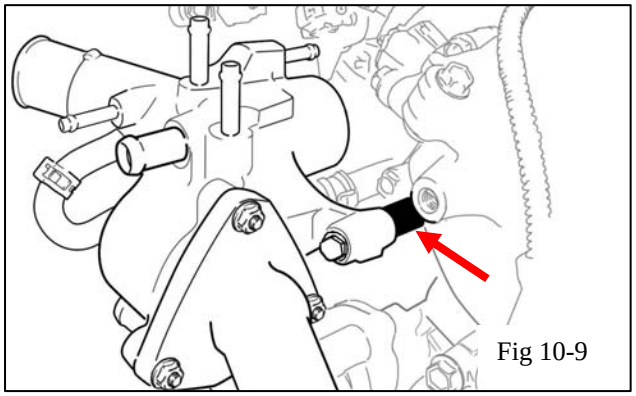


Fig 10-9

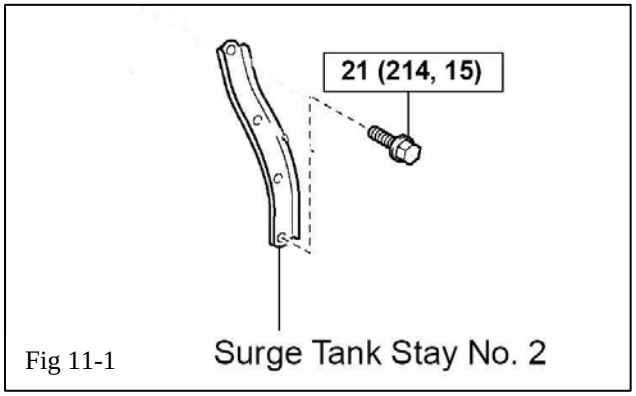


Fig 11-1

(h) Install the thermostat water manifold back onto the engine making sure the 2 o-rings are still in place on the engine (Fig 10-8). Start the 3 bolts, but do not fully tighten them at this time. **CAUTION: Make sure all o-rings stay in place. NOTE: If the water pipe spacer appears too tight to slip over the o-ring on the engine, it is not properly aligned.**

(i) Using the 2 spacers (G5), place them between the thermostat water manifold and the engine at the 2 remaining mounting bosses and insert the 2 remaining M6x55 bolts (G6) (Fig 10-9). Tighten all 5 bolts. **Torque: 9 Nm (80 in lbf)**

(j) If the vehicle has an oil cooler, ½" will need to be cut from the ends of the coolant lines where they attach to the thermostat water manifold. **CAUTION: If this step is omitted, the hoses will hit the fan.**

(k) Reconnect all hoses, except for the radiator hoses, to the thermostat water manifold.

11. Installation of the Support Bracket

(a) On the driver's side (left) of the engine, remove the rear intake manifold support bracket (surge tank stay No. 2) and replace it with the new support bracket (F1) (Fig 11-1). Note: the original bracket is stamped with a "C" and the new bracket is stamped with a "B". Leave the attaching bolt finger tight. Make sure you use the same threaded bolt hole on the engine.

(b) If the vehicle has a manual transmission, remount the clutch hydraulic line bracket to the new support bracket.

(c) Unclip the A/C wire from the stud on the cam cover and the alternator bracket. Unclip the power harness from the bracket on the front surge tank stay. Unbolt the wire harness bracket from the front surge tank stay and invert the harness bracket 180 degrees. **Torque: 9 Nm (80 in lbf).**

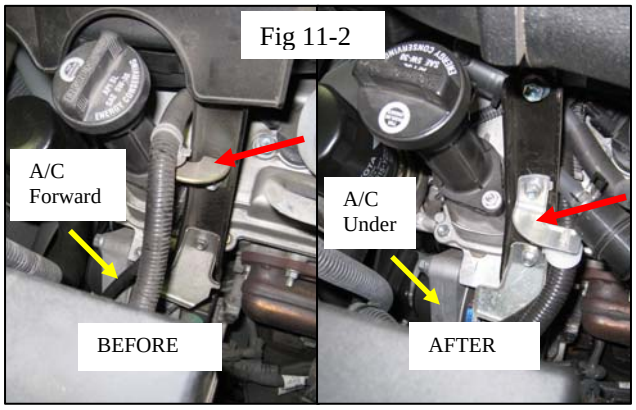


Fig 11-2

(d) Remove air surge tank stay from the cylinder head and reinstall the power harness routed behind the bracket to the rear of the engine. Leave the bracket loose for now. Re-clip the wire harness back onto the harness bracket on the surge tank stay. Re-clip the A/C harness back onto the alternator bracket making sure the wires are not pulled tight. **Note: The A/C conductors remain forward of the surge stank stay or under, not rearward. (Fig 11-2)**

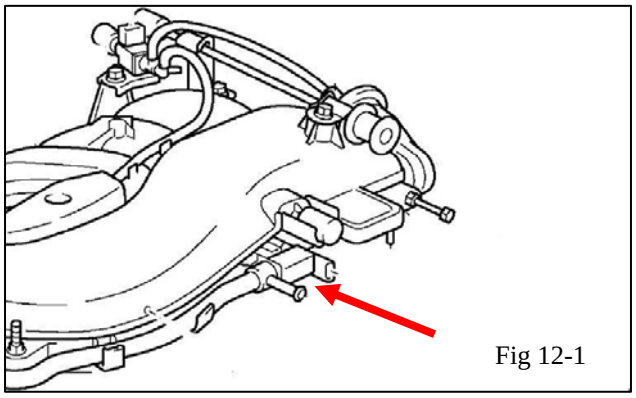


Fig 12-1

12. Installation of the Vacuum Switching Valve (VSV) Assembly.

(a) Remove the VSV from the left rear side of the original intake manifold (surge tank) (Fig 12-1). Keep the VSV and bolt for the next step.

(b) Attach the VSV to the supplied VSV Bracket (F3) using the stock bolt and a supplied M6 nut (F4) (Fig 12-2).

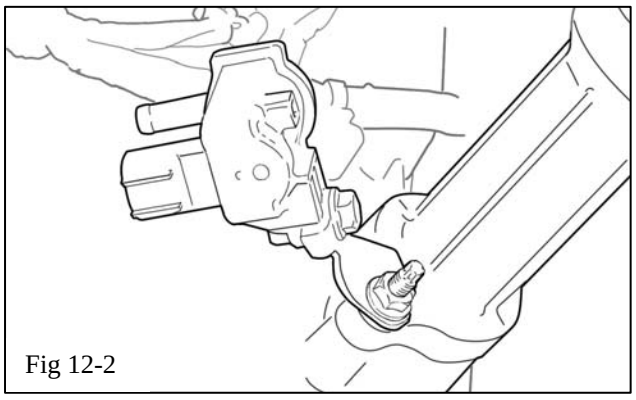


Fig 12-2

(c) Mount the VSV/VSV bracket subassembly to the front stud of the oil filler cap housing. Remove the stock nut, install the M6 washer (F5), the bracket-valve assembly, and reinstall the nut (Fig 12-2). **Torque: 9 Nm (80 in lbf)**

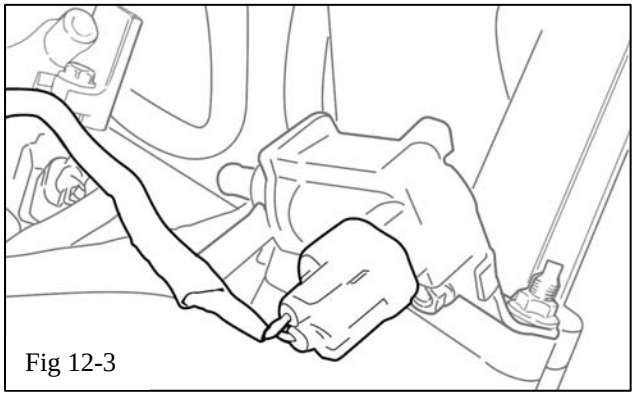


Fig 12-3

(d) Plug in the electrical connector to the VSV (Fig 12-3).

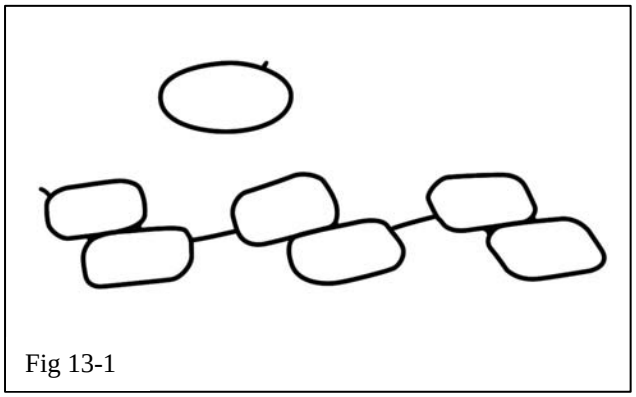


Fig 13-1

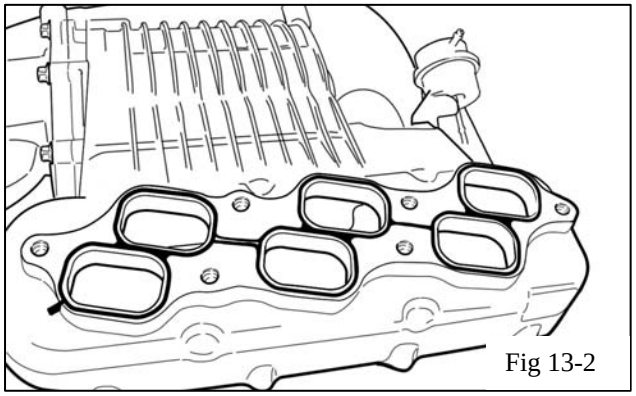


Fig 13-2

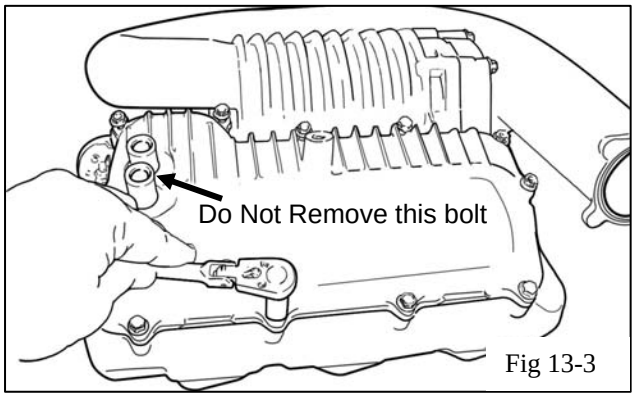


Fig 13-3

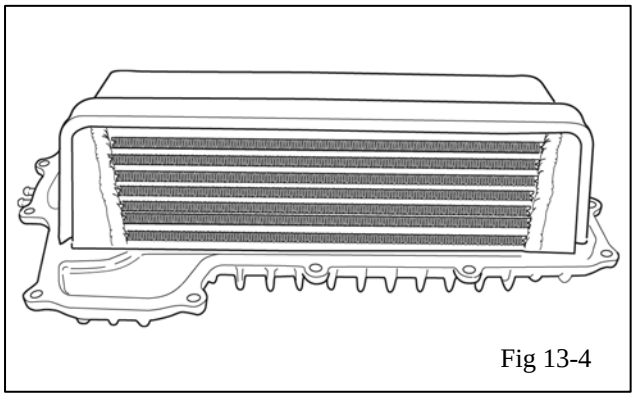


Fig 13-4

13. Preparation for the Supercharger Housing Installation.

(a) Remove the intake port gasket and throttle body o-ring from the intake air surge tank (Fig 13-1). Retain these parts for the next step.

(b) Install the intake manifold gasket and throttle body o-ring in the supercharger housing (Fig 13-2). The molded gasket and o-ring should fit snugly in the grooved recesses in the housing.

(c) Turn the supercharger housing upright and remove the 12 M6 bolts that attach the top cover (Fig 13-3). Retain these bolts. Attached to the coolant nipples in the top cover will be a plastic bag with 6 special reduced shank M8 bolts (B1). Remove and open the bag and set these bolts aside. **CAUTION: Do not remove the larger bolt between the two coolant nipples!**

(d) Carefully lift the cover up removing it from the main housing. Note: the charge air cooler will come out attached to the cover (Fig 13-4). It is bonded to the cover. **DO NOT SEPARATE it from the lid.** Set the assembly upside down so the foam seal is not damaged. The sealing o-ring should remain in the groove in the main housing.

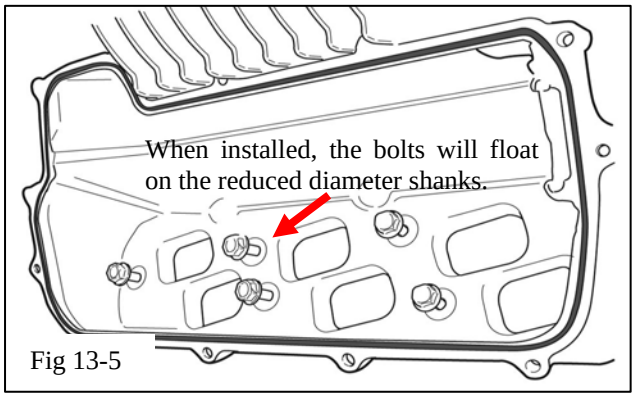


Fig 13-5

(e) Preinstall the 6 special reduced diameter shank M8 intake manifold bolts (B1) by threading them into the main housing (Fig 13-5). By reinstalling these bolts into the housing, the possibility of dropping them into the engine ports is reduced. When the bolts are fully threaded in, they will float up and down on reduced diameter shanks.

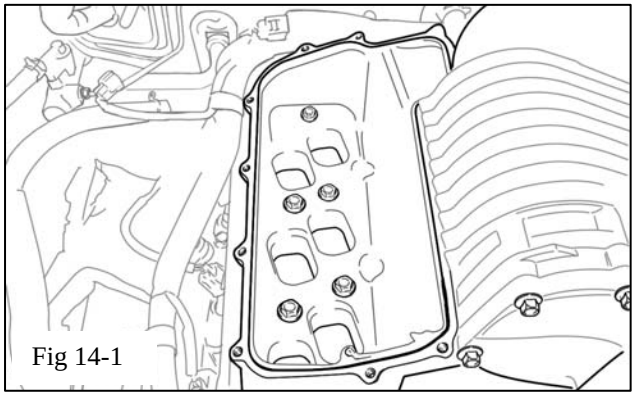


Fig 14-1

14. Installation of the Supercharger Housing.

(a) Remove the tape covering the intake ports in the engine manifold. Make sure the surface is clean.

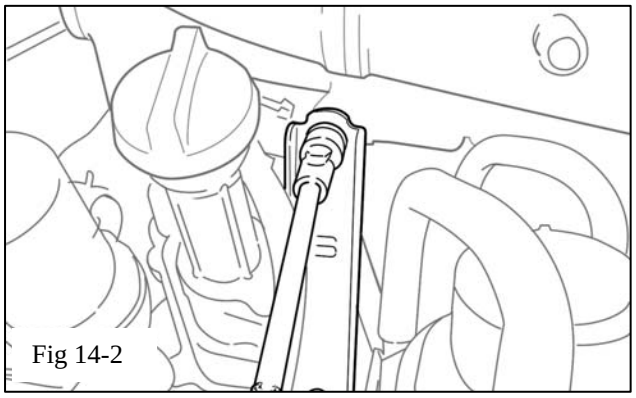


Fig 14-2

(b) Carefully, position the supercharger main housing on the intake manifold and hand start the 6 bolts (Fig 14-1). Do not tighten at this time.

(c) Install the original 2 bolts that attach the support brackets (2 surge tank stays) to the supercharger housing Fig 14-2). Do not tighten.

(d) Using the 3 M8 bolts (D2), install the upper idler bracket assembly (D1) to supercharger housing (2 places) and the engine cylinder head boss (1 place) Fig 14-3). Do not tighten.

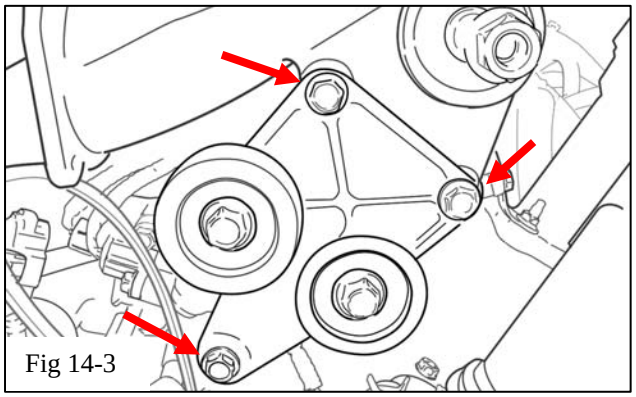


Fig 14-3

(e) Tighten all fasteners starting with the intake manifold, then the side support brackets, and finally the idler pulley assembly.
Torque: 28 Nm (21 ft lbf) (Fig 14-1 ~ 14-3)

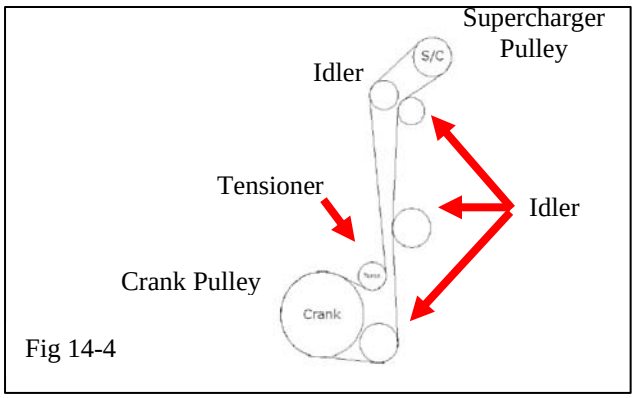


Fig 14-4

(f) After checking to make certain the large o-ring is properly seated in the groove in the main housing, carefully re-install the supercharger housing top cover by lowering it straight down. Fasten with the original 12 M6 bolts. **Torque: 12 Nm (9 ft lbf)**

CAUTION: If the o-ring ends have separated, place a small spot of black RTV over the area where they join before placing the lid in position.

(g) Finish installing the supercharger belt drive making sure the routing is correct (Fig 14-4).

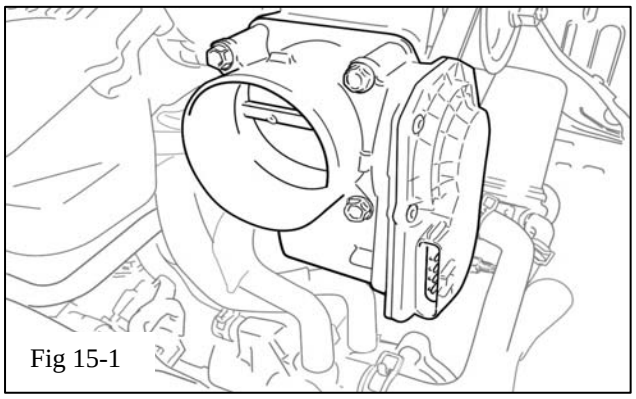


Fig 15-1

15. Installation of the Fan and Shroud Assembly, Hoses and Throttle Body.

(a) Re-install the fan and radiator shroud and tighten all fasteners.
Torque: 21 Nm (15 ft lbf) fan nuts

Torque: 5 Nm (44 in lbf) shroud bolts

(b) Re-install the top radiator hose.

(c) Install the throttle body to the supercharger housing and re-connect the coolant hoses to the thermostat water manifold (Fig 15-1).
Torque: 11 Nm (8 ft lbf)

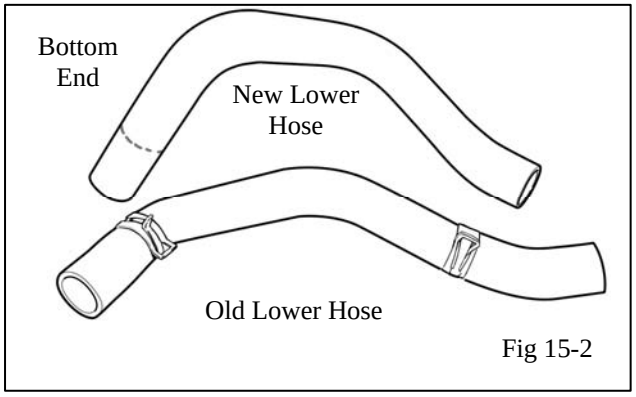


Fig 15-2

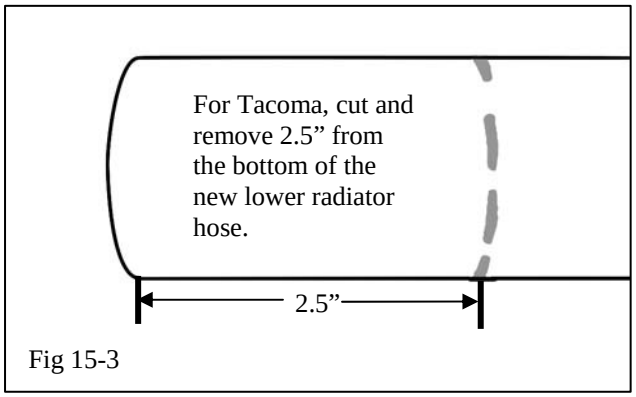


Fig 15-3

(d) The new lower radiator hose (K1) is shown at the top (Fig 15-2) with the botton end of the hose on the left side of the figure.

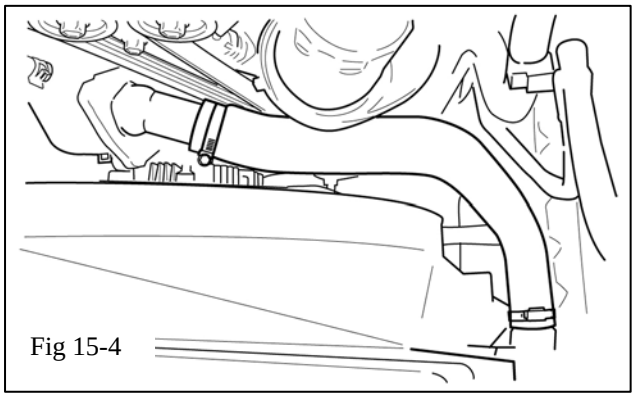


Fig 15-4

(e) For the Tacoma, it will be necessary to cut 2.5” off the bottom end of the new lower radiator hose (Fig 15-3).

(f) Using the new screw clamps (H11) provided, install the new lower radiator hose (Fig 15-4). **CAUTION: Turn the clamps so they do not hit the fan or the belt.**

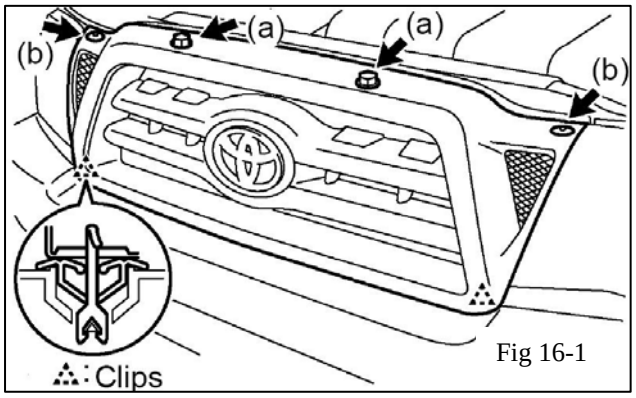


Fig 16-1

16. Preparation for the Low Temperature Radiator (LTR).

(a) Remove the radiator grill (Fig 16-1).

(i) Remove the 2 screws (a).

(ii) Remove the 2 clips (b).

(iii) Disengage the 2 lower clips and remove the radiator grill by lifting straight up.

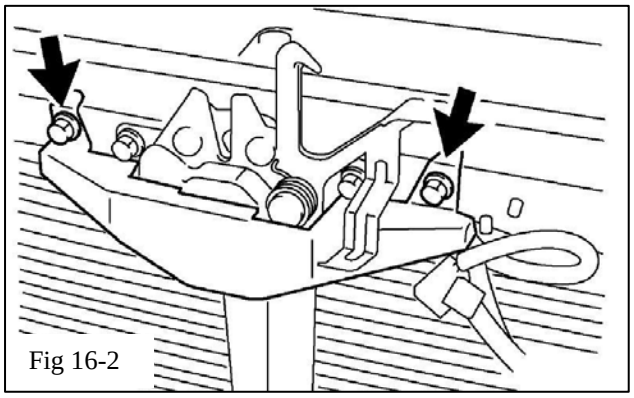


Fig 16-2

(b) Remove the 2 bolts and hood lock release lever protector (Fig 16-2). Retain these parts.

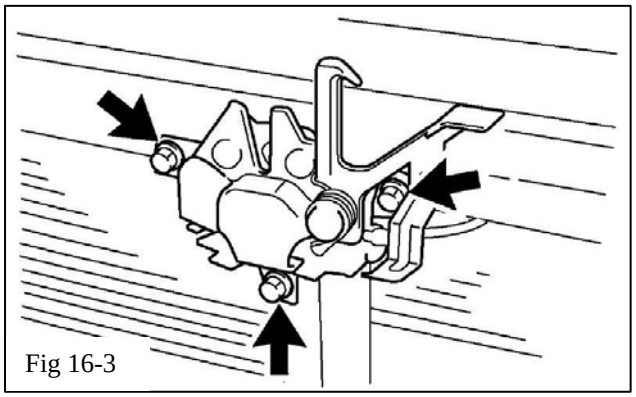


Fig 16-3

(c) Remove the 3 bolts and the hood lock assembly (Fig 16-3). Let the hood lock assembly hang loose on the cable. Retain these parts.

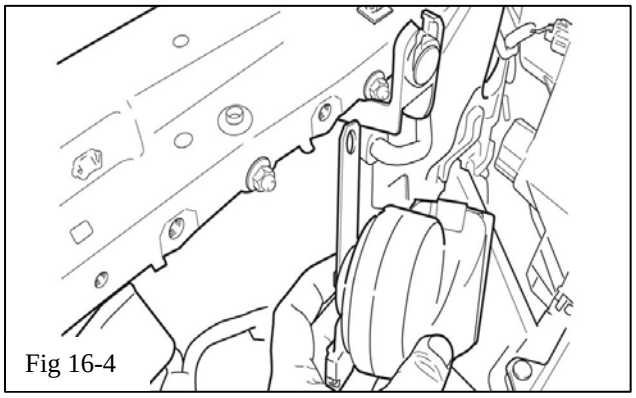


Fig 16-4

(d) Disconnect the electrical connector and remove the horns (Fig 16-4). Retain these parts. Unclip the temperature sensor from the hood support bracket.

(e) If the vehicle has a transmission oil cooler, disconnect it and swing it out of the way. Do not disconnect the fluid lines.

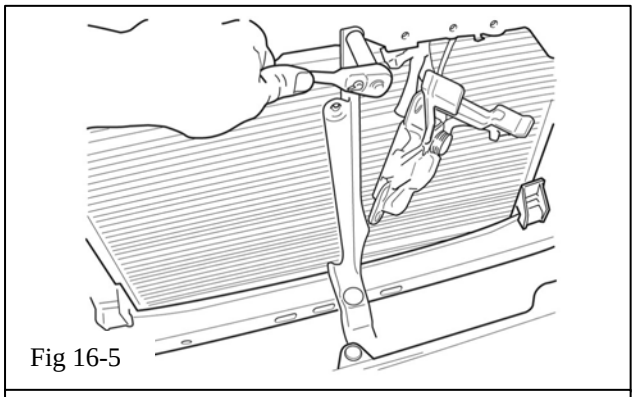


Fig 16-5

(f) Remove the 2 plastic retainers and the 2 nuts and bolts that attach the hood support bracket to the bumper cover and radiator support (Fig 16-5). **Hint, some of these fasteners are hidden under the bumper cover, which needs to be lifted to get at the fasteners.**

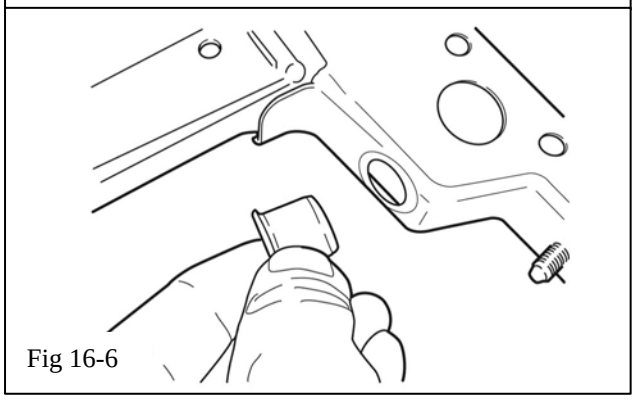


Fig 16-6

(g) Remove the oval grommet from the hood support bracket and install the grommet into the new hood support bracket (Fig 16-6). Discard the original hood support bracket.

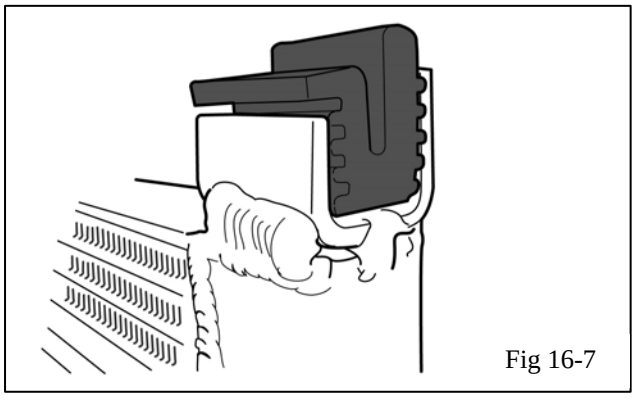


Fig 16-7

(h) Place the 2 rubber grommets (A3) supplied in the kit into the brackets on the bottom of the LTR (Fig 16-7). Note the orientation of the grommets in the U-shaped brackets which have one leg shorter than the others.

Fig 17-1

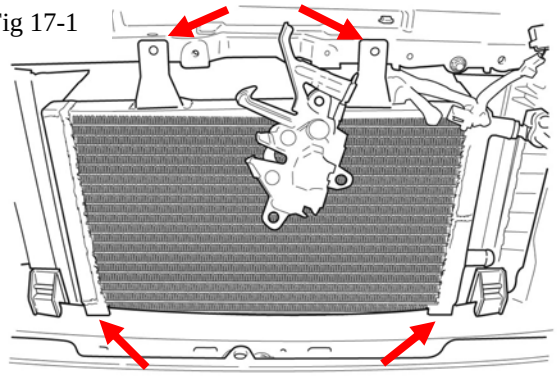


Fig 17-2

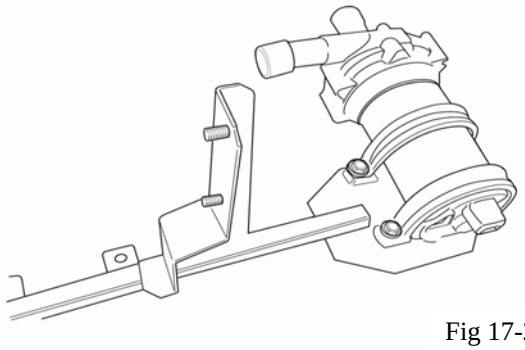


Fig 17-3

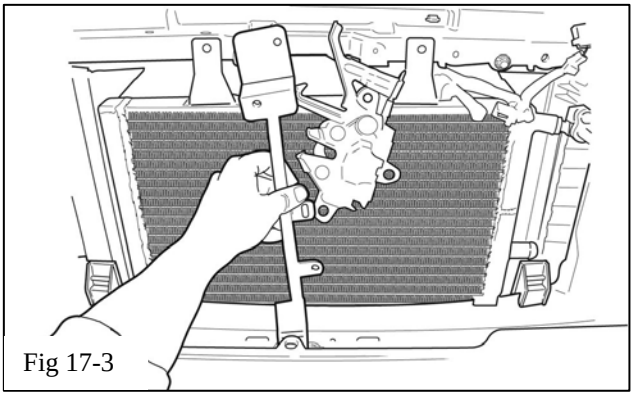
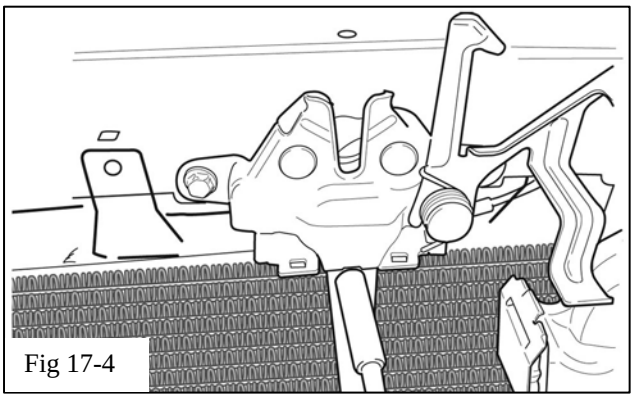


Fig 17-4



17. Installation of the Low Temperature Radiator (LTR), Intercooler Pump, Latch, and Horn Assemblies.

(a) Place the LTR in position by placing the rubber grommets on the bottom over the upright flange on the lower radiator support. The upper mounting tabs on the LTR align with the mounting locations for the hood lock lever release protector (Fig 17-1). Do not install the bolts at the top at this time.

(b) Mount the intercooler pump (I1) to the new hood support bracket using the two large #35 Adel Clamps (H1) and M6X16 Hex Flange Head Bolts (H9) (Fig 17-2). Do not tighten the fasteners at this time. **HINT: It helps to hand shape the Adel Clamps to the shape of the pump.**

(c) Install the new hood support bracket with the original fasteners (Fig 17-3).

(d) Reinstall the hood lock assembly (Fig 17-4). **Torque: 12 Nm (9 ft lbf)**

(e) Temporarily place the hood lock lever protector in place and mark where it needs to be trimmed to clear the new hood support bracket and LTR mounting tabs. Remove and trim the protector as required in 3 places.

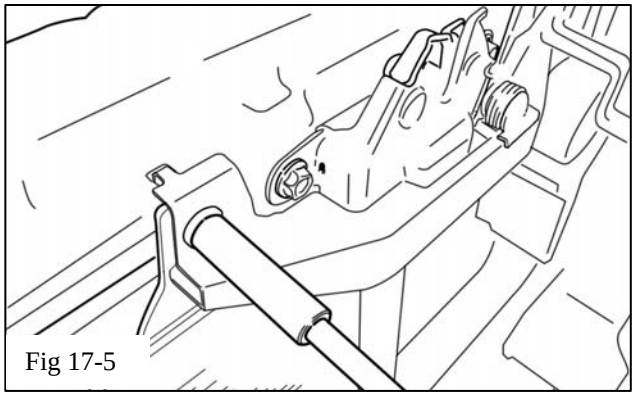


Fig 17-5

(f) Reinstall the hood lock release lever protector with the original fasteners (Fig 17-5). **Torque: 12 Nm (9 ft lbf).** The wires for the horns need to be routed to the left (driver side) of the LTR bracket. The temperature sensor wire needs to be routed between the 2 brackets.

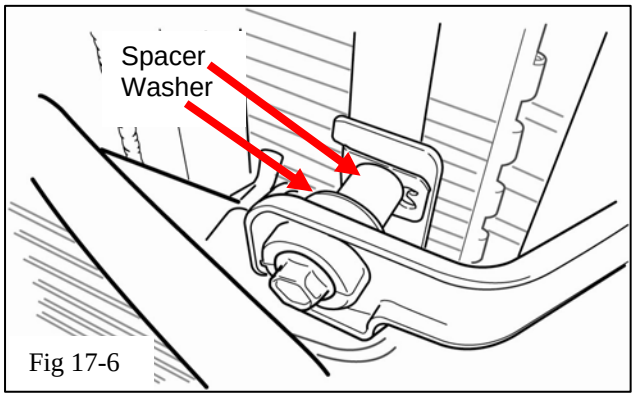


Fig 17-6

(g) If the vehicle has a transmission oil cooler, mount the inboard end to the new hood support bracket with the original fasteners. **Torque: 5 Nm (44 in lbf)**

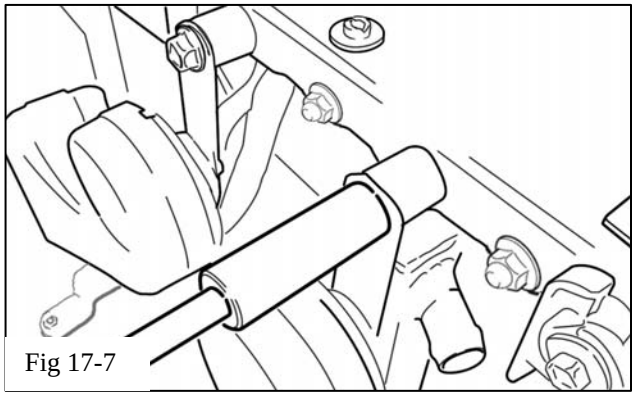


Fig 17-7

Re-mount the outboard end of the transmission oil cooler with the spacer (A5), M6X50 mm bolt (A6), and washer (A7) as shown (Fig 17-6). Note: This is to space the oil cooler out away from the LTR. Torque: 5 Nm (44 in lbf)

(h) After making sure the outlet on the pump points straight up, tighten the mounting bolts. **Torque: 12 Nm (9 ft lbf)**

(i) Reinstall the horns using the spacers (A8) and new M8X30 bolts (A9) (Fig 17-7). **Torque: 12 Nm (9 ft lbf)**

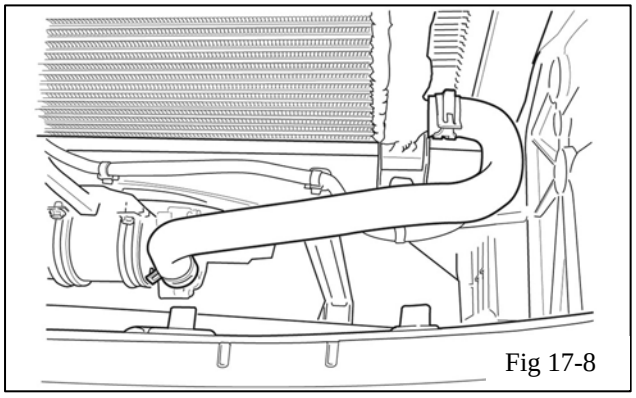


Fig 17-8

(j) Slide a wide band spring clamp (H2) approximately 2” onto each end of the LTR to pump formed coolant hose (J5). Install this hose to the lower outlet on the LTR and the pump outlet and position each clamp to hold it in place (Fig 17-8).

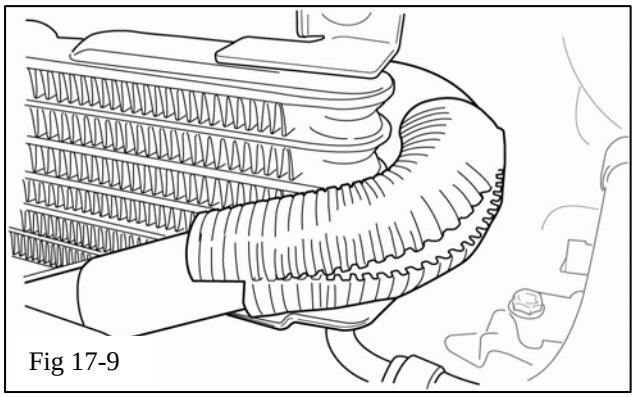


Fig 17-9

(k) If the vehicle has a transmission oil cooler, cut and install a 4” long piece of 1” split wire loom (J1) on the coolant hose where it wraps around the cooler (Fig 17-9).

STEP 18 **STEP 18 ALTERNATE**

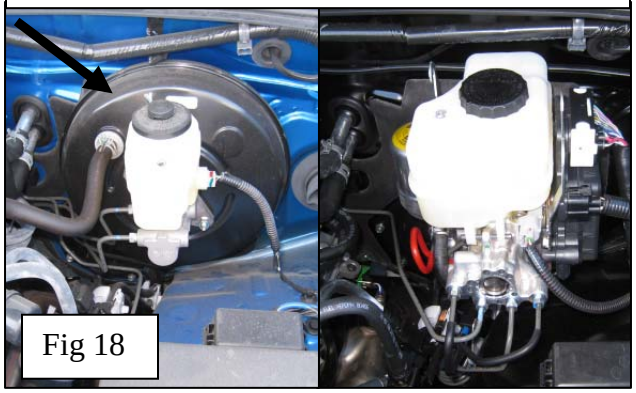


Fig 18

18. Installation of the Intercooler Tank and Hoses. NOTE: Removing the battery and unbolting the fuse box is highly recommended to avoid damaging the wire harness.

NOTE: If the vehicle is not equipped with the Brake Vacuum Boost Cylinder shown in Fig 18 proceed to step 18 ALTERNATE p.30

(a) Using 3 M6x12 bolts (I2), mount the intercooler reservoir tank (I2) to the reservoir bracket (Fig 18-1). **Torque: 4 Nm (35 in lbf)**

(b) Using 2 M8x20 bolts (A4), mount the intercooler reservoir bracket (A2) to the existing holes in the driver’s side fender well (Fig 18-1). **Torque: 12 Nm (9 ft lbf)**

(c) Take the 96” length of ¾” coolant hose (J4) and cut it into 54” and 42” lengths.

(d) Take the remaining 1” wire loom (J1) and cut it into two 29” plus two 17” lengths.

(e) Slide one 29” length of wire loom onto the 54” length of ¾” coolant hose and center it. Slide a wide band spring clamp (H2) approximately 2” onto one end of the ¾” hose and a screw clamp (H5) onto the other end.

(f) Route this hose (Screw clamp side) from the coolant reservoir outlet (Bottom nipple on

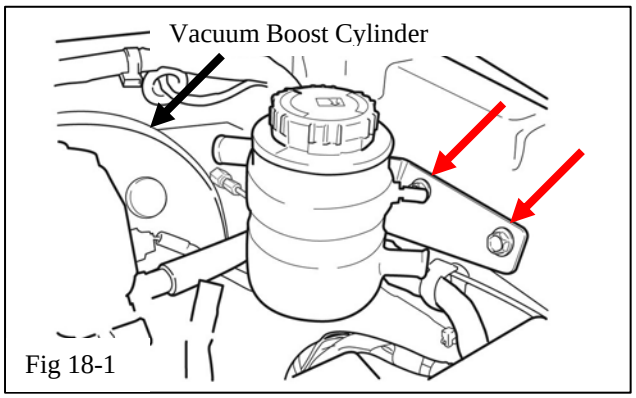


Fig 18-1

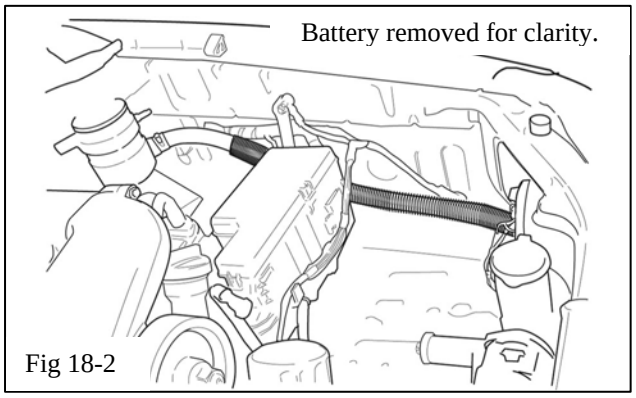


Fig 18-2

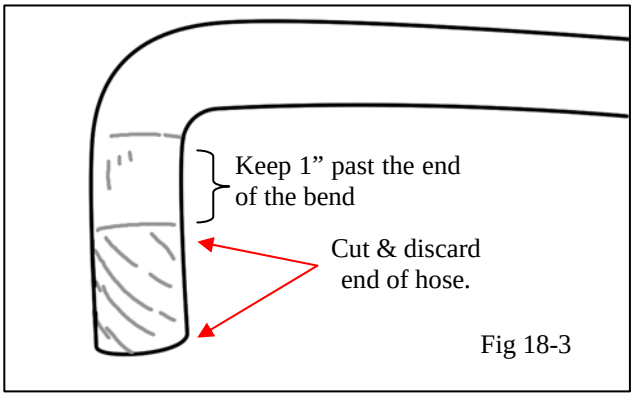


Fig 18-3

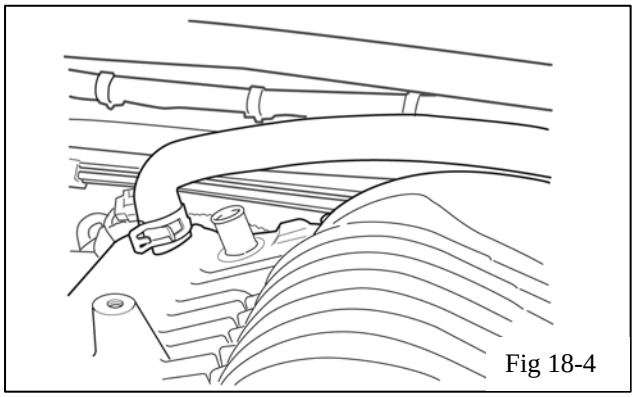


Fig 18-4

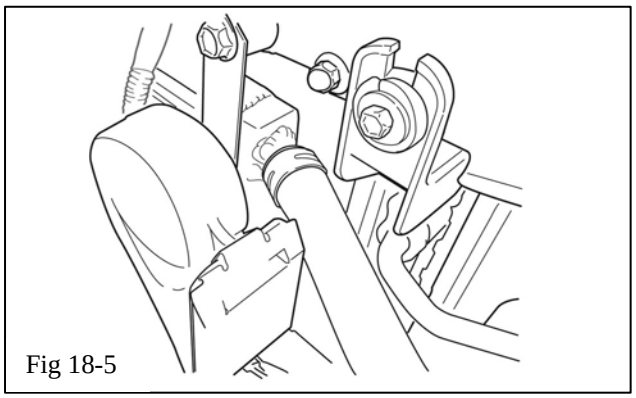


Fig 18-5

the reservoir bottle) under the wiring harness between the fuse panel and fender, and through the opening behind the headlight assembly (Fig18-2). Connect the other end of the hose to the intercooler pump inlet. Position the wide band spring clamp to secure the hose to the intercooler pump and tighten the screw clamp at the reservoir outlet. Finally, position the 1” wire loom so it protects the hose where it runs through the bulkhead behind the headlights.

(g) Take the remaining 29” piece of 1” wire loom and slide it onto the remaining 42” piece of ¾” hose and center it for now. Slide a wide band spring clamp (H2) on each end. Insert the ¾” hose mender fitting (H4) in one end and secure it with the wide band spring clamp.

(h) Take the 4” x 60” molded coolant hose (J3) and cut the long length to 42”. Cut the short 4” leg as shown in (Fig 18-3). Slide a wide band spring clamp (H2) approximately 2” on each end of this hose. Connect this hose to the other end of the hose mender (H4) from step 18 g and secure it with the clamp.

(i) Install the short leg of the molded hose end to the passenger side intercooler fitting on the supercharger housing top cover (Fig 18-4). Secure it with the wide band spring clamp.

(j) Route the hose across the firewall, in front of the brake vacuum booster, down under the reservoir tank, along side the earlier hose, on through the bulkhead opening behind the headlight assembly, and connect it to the upper nipple on the LTR and secure it with the wide band spring clamp (Fig 18-5).

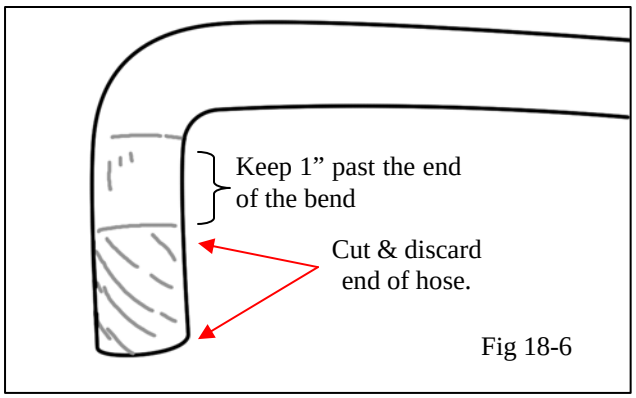


Fig 18-6

(k) Trim the short end of the 4” x 36” molded hose (J2) as shown (Fig 18-6). Slide a wide band spring clamp (H2) approximately 2” onto the short leg of the ¾” hose and a screw clamp (H5) onto the other end.

(l) Attach the short leg of the molded hose end to the driver side intercooler fitting on the supercharger housing top cover (Fig 18-7). Secure it with the wide band spring clamp (H2).

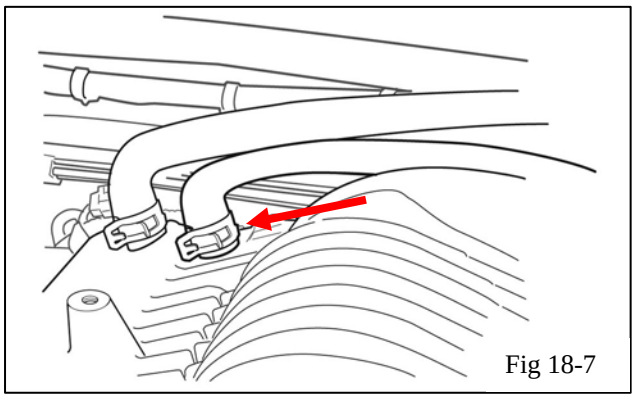


Fig 18-7

(m) Run the hose along the earlier hose in front of the brake booster, trim the remaining end as necessary, and install it on the inlet nipple of the intercooler reservoir (Fig 18-8) with the screw clamp (H5)

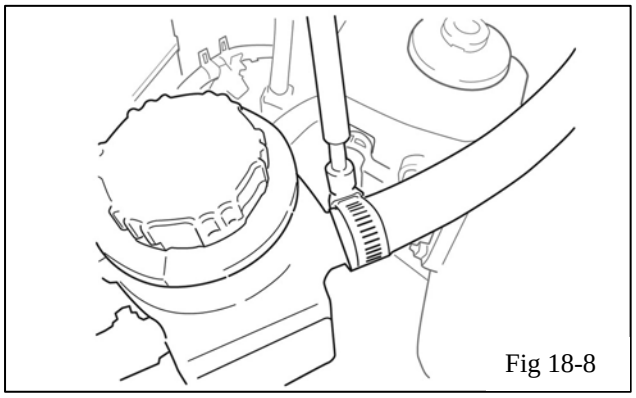


Fig 18-8

(n) Using the small Adel clamp (H6) and a M6X12 bolt (H12), secure the two coolant hoses to the boss on the rear of the supercharger housing (Fig 18-9).

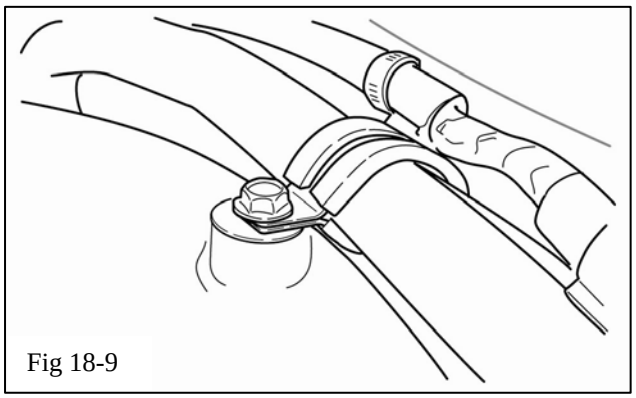


Fig 18-9

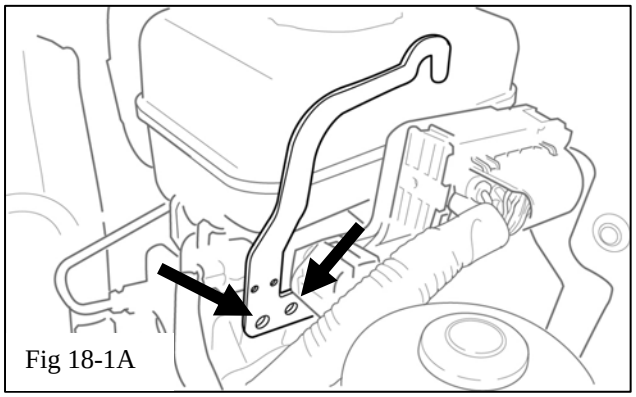


Fig 18-1A

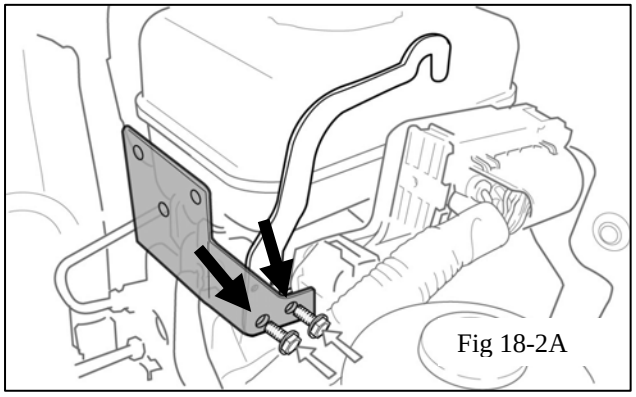


Fig 18-2A

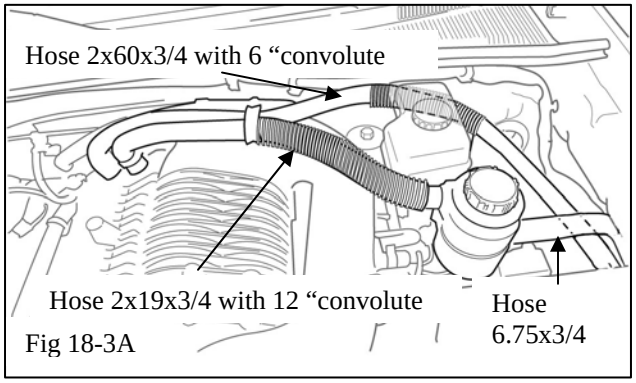


Fig 18-3A

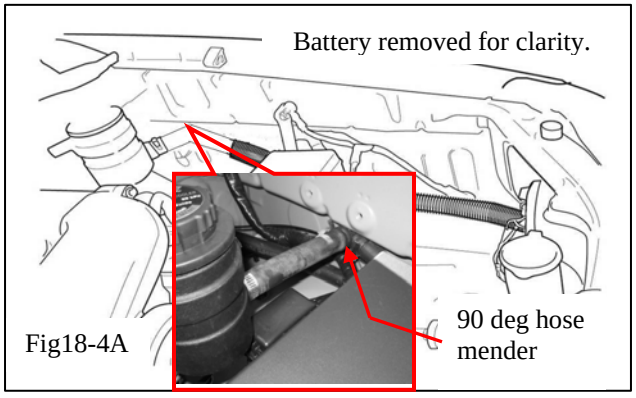


Fig18-4A

18. ALTERNATE Installation of the Intercooler Tank and Hoses. See fig 18

(a) There are 2 holes in the lifting bracket for the brake master cylinder (Fig 18-1A). They will be used to mount the intercooler coolant reservoir. The forward most of the two holes has an M6 weld nut attached to the lifting bracket.

(b) Using 2 M6x20 bolts (A15) and 1 M6 nut (A16), mount the intercooler reservoir bracket (A14) to the 2 holes in the lifting bracket (Fig 18-2A). **Torque: 5.5 Nm (49 in lbf)**

(c) Using 3 M6x12 bolts (I2), mount the intercooler reservoir tank (I2) to the reservoir bracket. **Torque: 4 Nm (35 in lbf)**

(d) Take the 96” length of ¾” coolant hose (J4) and cut it into 47.25”, 6.75” and 42” lengths.

(e) Slide one 29” length of wire loom onto the 47.25” length of ¾” coolant hose and center it. Slide a wide band spring clamp (H2) approximately 2” onto one end of the ¾” hose and a screw clamp (H5) onto the other end.

(f) Attached the 90deg elbow (A13) at the screw clamp end.

(g) Attach the 6.75 “ hose to the other end of the 90 deg elbow with a wide band clamp (A12)

(h) Route this hose (elbow end) at the coolant reservoir outlet (Bottom nipple on the reservoir bottle) under the wiring harness between the fuse panel and fender, and through the opening behind the headlight assembly (Fig18-4A). Connect the other end of the hose to the intercooler pump inlet.

Position the wide band spring clamp to secure the hose to the intercooler pump and tighten the screw clamp at the reservoir outlet. Finally, position the 1” wire loom so it protects the hose where it runs through the bulkhead behind the headlights.

(i) Take the remaining 29” piece of 1” wire loom and slide it onto the remaining 42” piece of ¾” hose and center it for now. Slide a wide band spring clamp (H2) on each end. Insert the ¾” hose mender fitting (H4) in one end and secure it with the wide band spring clamp.

(j) Take the 4” x 60” molded coolant hose (J3) and cut the short 4” leg as shown in (Fig 18-5A). Slide a wide band spring clamp (H2) approximately 2” on each end of this hose. Connect this hose to the other end of the hose mender (H4) from step 18i and secure it with the clamp.

(k) Install the short leg of the molded hose end to the passenger side intercooler fitting on the supercharger housing top cover (Fig 18-6A). Secure it with the wide band spring clamp.

(l) Route the hose across the firewall, behind the brake fluid reservoir, down along the engine compartment, then along side the earlier hose, on through the bulkhead opening behind the headlight assembly, and connect it to the upper nipple on the LTR and secure it with the wide band spring clamp (Fig 18-7A).

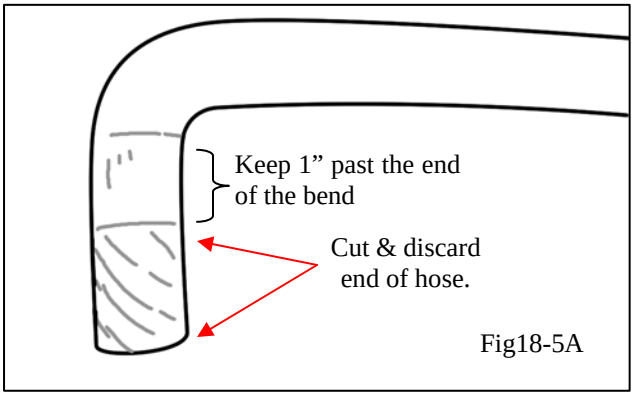


Fig18-5A

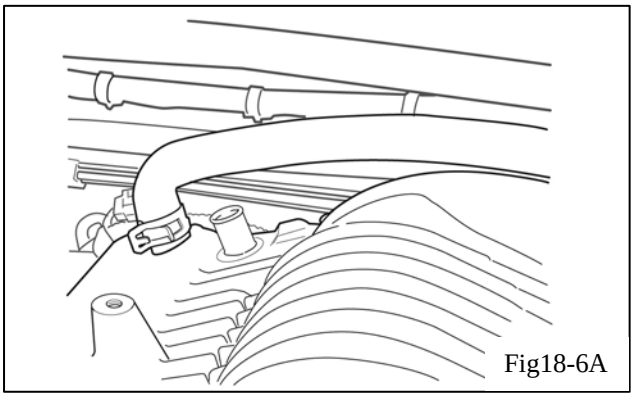


Fig18-6A

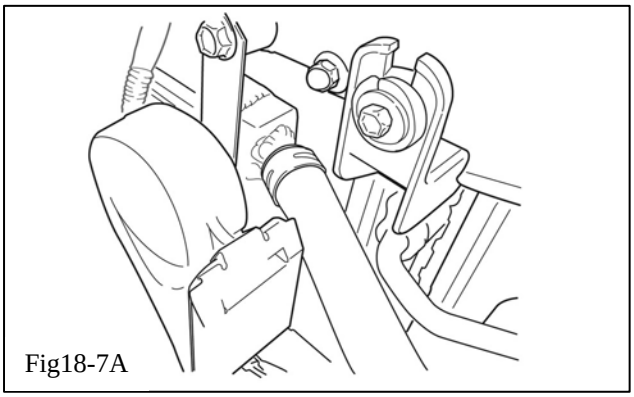


Fig18-7A

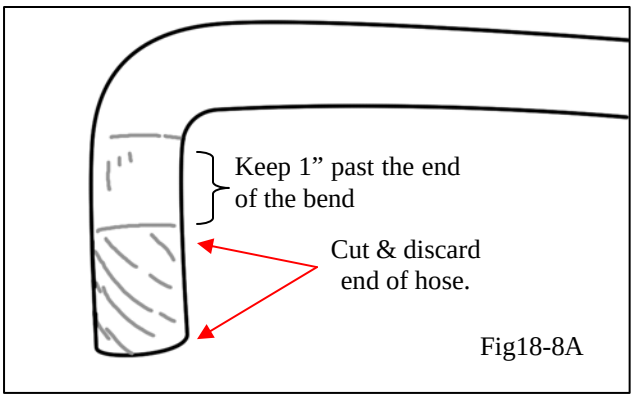


Fig18-8A

(m) Trim the short end of the 4" x 36" molded hose (J2) as shown (Fig 18-8A). Slide a wide band spring clamp (H2) approximately 2" onto the short leg of the ¾" hose and a screw clamp (H5) onto the other end.

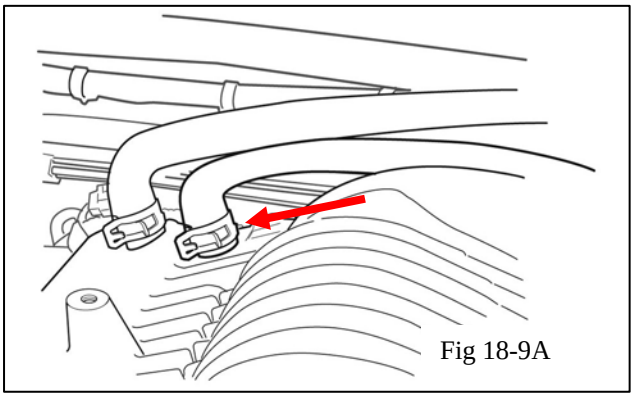


Fig 18-9A

(n) Attach the short leg of the molded hose end to the driver side intercooler fitting on the supercharger housing top cover (Fig 18-9A). Secure it with the wide band spring clamp (H2).

(o) Run the hose along the earlier hose in front of the brake booster, trim the remaining end as necessary, and install it on the inlet nipple of the intercooler reservoir (Fig 18-10A) with the screw clamp (H5).

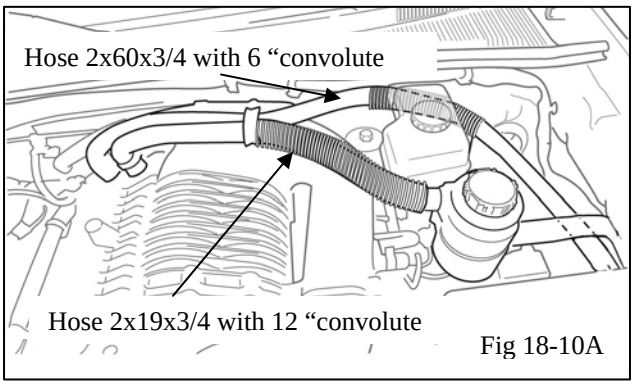


Fig 18-10A

(p) Cut the 18in piece of 1" wire Loom (A18) two pieces of 6" and 12"lengths. Place them on the inlet and outlet cooler hoses as shown in Fig 18-10A. One between the Tank and the clamp and the other vehicle rearward of the brake fluid reservoir.


Fig18-11A

(q) Using the small Adel clamp (H6) and a M6X12 bolt (H12), secure the two coolant hoses to the boss on the rear of the supercharger housing (Fig 18-11A).

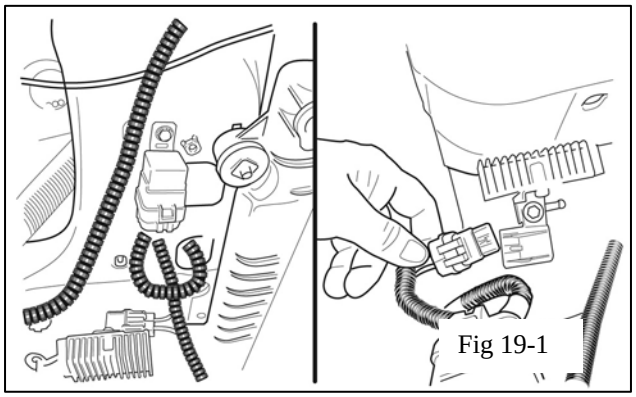


Fig 19-1

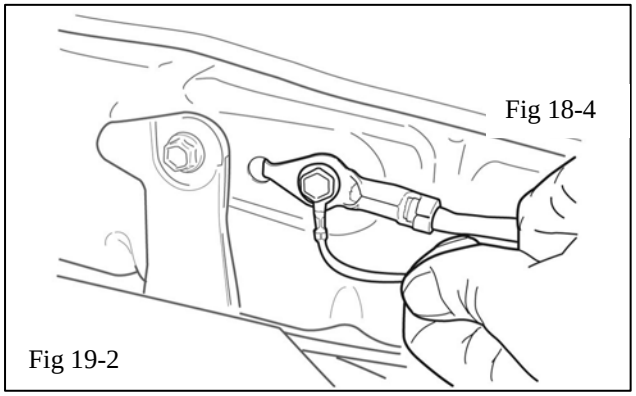


Fig 19-2

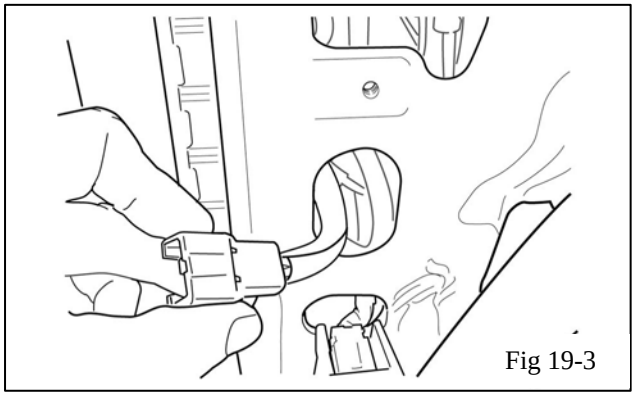


Fig 19-3

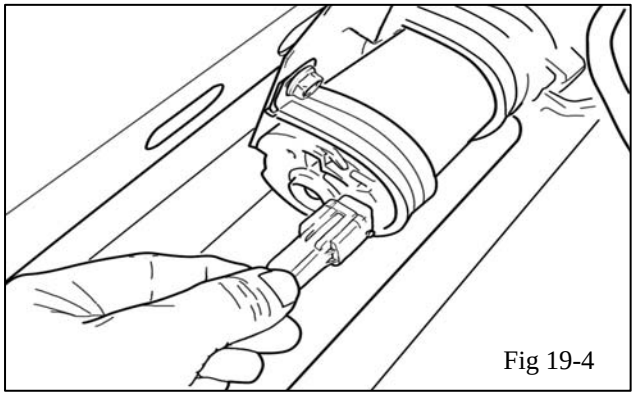


Fig 19-4

19. Installation of the Intercooler Pump Relay Harness.

(a) Using the supplied M6x20 bolt (H7) and hex nut (H8), mount the intercooler relay harness (A11) on the **rear** of the radiator support bulkhead using an existing open hole. (Fig 19-1). Install 15 amp ATO fuse (H10) into fuse holder. Fig 19-1 RH **NOTE: If the bolt diameter is slightly larger than the hole in the relay, you can either drill out the hole in the relay with a 6 mm drill or just screw the bolt into the relay mounting hole.**

(b) Remove the bolt retaining the vehicle ground wire to the fender, take the ground wire from the intercooler pump relay and install it over the vehicle ground wire and reinstall the bolt (Fig 19-2).

(c) Route the two wire connector through the opening in the radiator support bulkhead (Fig 19-3).

(d) Plug the two wire connector into the intercooler pump (Fig 19-4). Secure the extra wire with tie-wraps (H3).

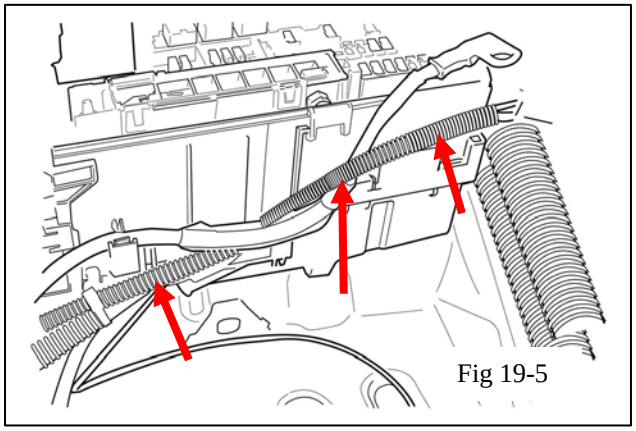


Fig 19-5

(e) Route the wire harness containing the 10 gauge red wire and the yellow wire along the front of the fuse panel from the fender to the inside of the fuse panel (Fig 19-5). Note: the battery is removed for clarity in the figure. Feed both wires up into the fuse panel through the same opening used by the vehicle wiring harness.

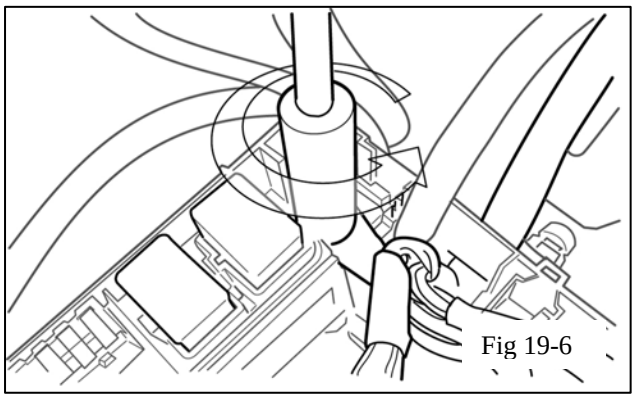


Fig 19-6

(f) Remove the nut that is on the B (+) connection in the fuse panel (Fig 19-6).

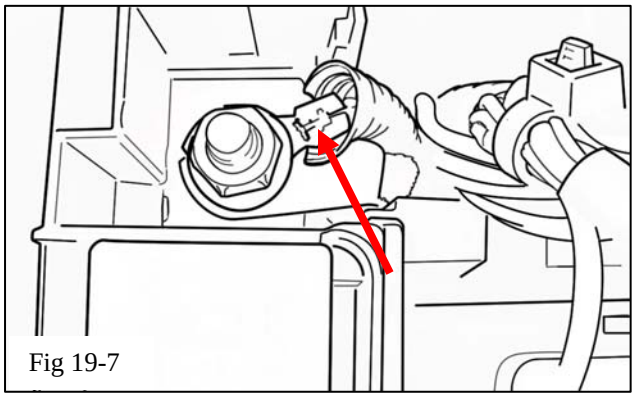


Fig 19-7

(g) Connect the 8mm ring terminal from the intercooler relay to the B (+) terminal in the fuse panel (Fig 19-7) after trimming it to length.

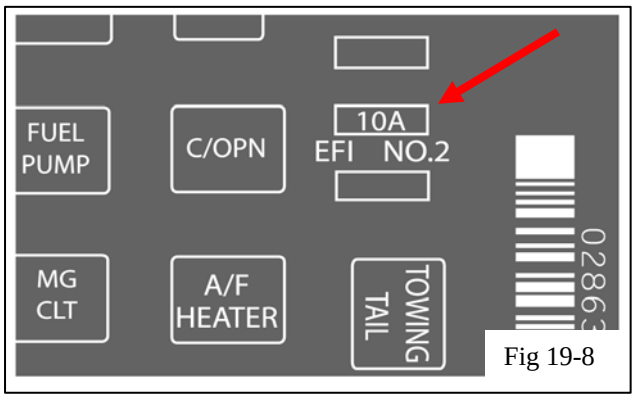


Fig 19-8

(h) Remove the 10-amp mini fuse labeled EFI No. 2 (Fig 19-8 & 19-9).

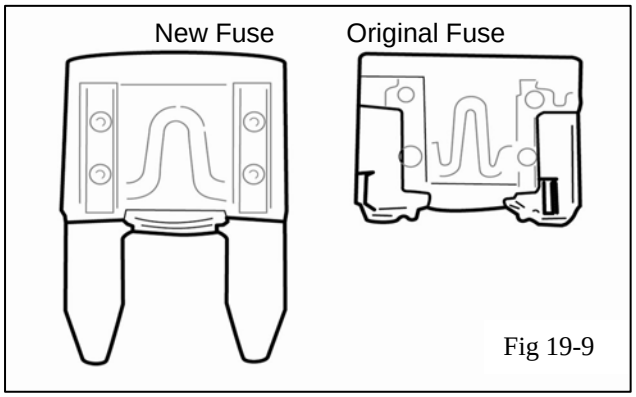


Fig 19-9

(i) Install the T-tap on the new 10 amp mini fuse (A10) supplied with the kit (Fig 19-10).

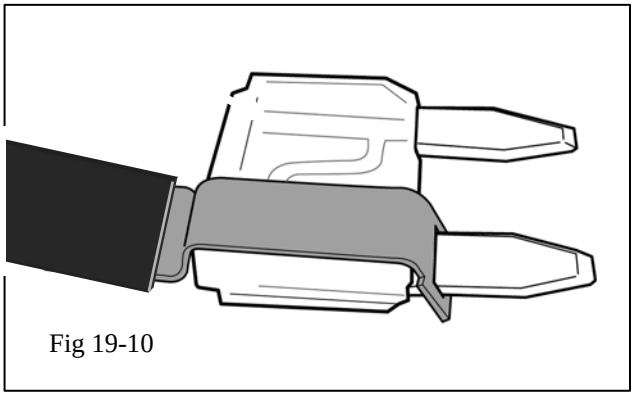


Fig 19-10

(j) Install the new 10amp mini fuse with the T-tap yellow wire back in the same EFI location. (Fig 19-12). **CAUTION: When installing the fuse, make sure the tap is toward the rear of the vehicle (Fig 19-12).**

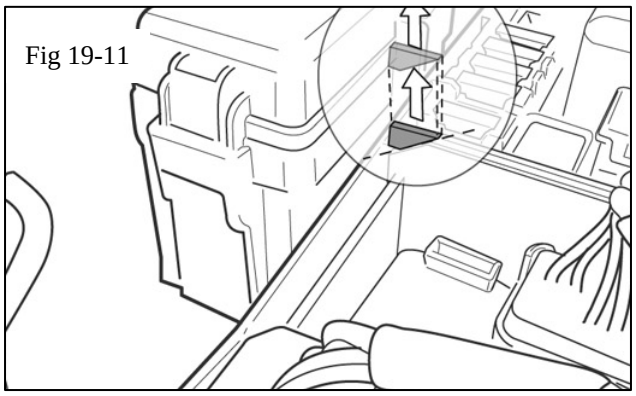


Fig 19-11

(k) With a pair of side cuts nip the plastic baffle as shown in fig 19-11 to allow the yellow wire to be routed as shown in Fig 19-12. Replace the fuse box cover.

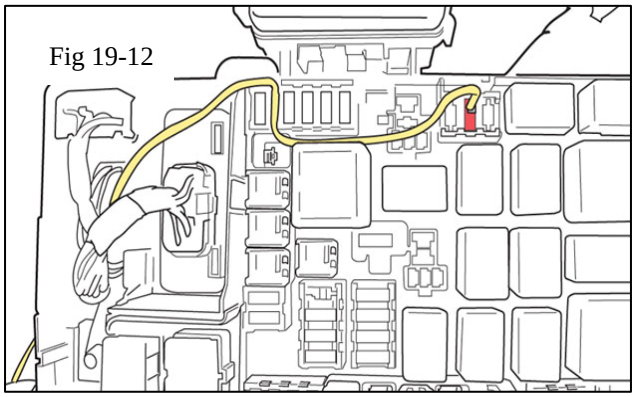


Fig 19-12

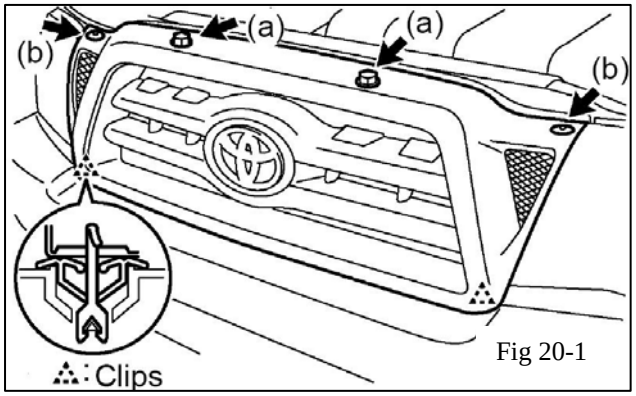


Fig 20-1

20. Reinstall the Radiator Grille.

(a) Engage the 2 lower clips and install the radiator grill.

(b) Install the 2 clips (b).

(c) Tighten the 2 screws (a) Fig 20-1.

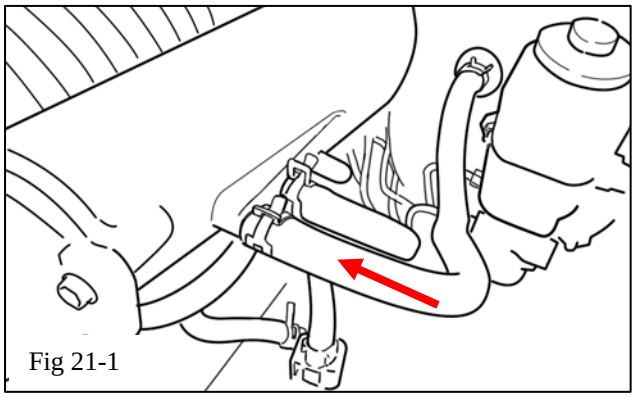


Fig 21-1

21. Installation of the Vacuum Hoses.

(a) **w/o VSC:** Connect the power brake booster hose onto the supercharger housing using the forward 3/8" nipple (Fig 21-1).

w/ VSC: Remove the cap shown in (Fig 21-2) from the previously removed air surge tank and install it on the forward 3/8"nipple on the supercharger housing.

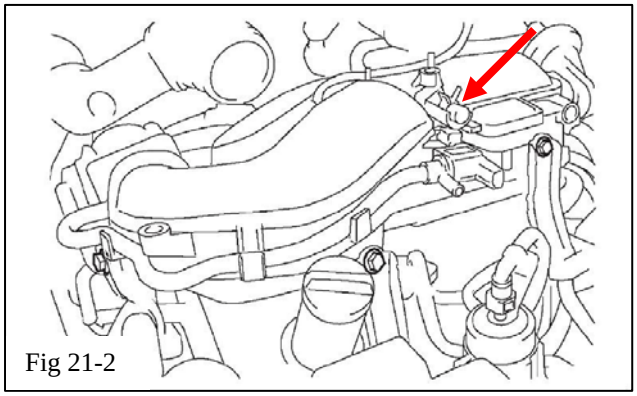


Fig 21-2

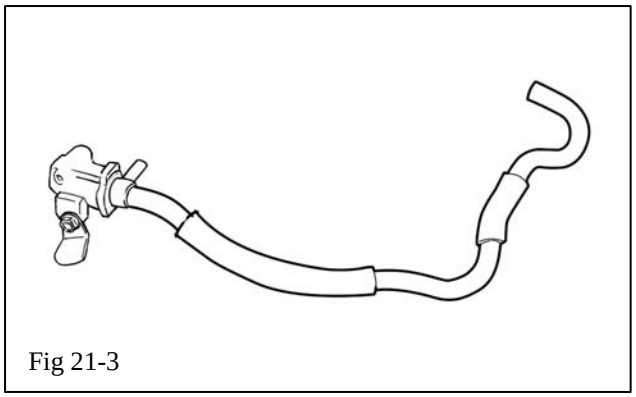


Fig 21-3

(b) Remove the stock EVAP hose from the vehicle surge tank. Install the EVAP hose onto the vacuum switching valve (VSV) that was installed on the oil filler neck housing in step 12 (c). Note: the VSV is shown removed from the vehicle for clarity (Fig 21-3).

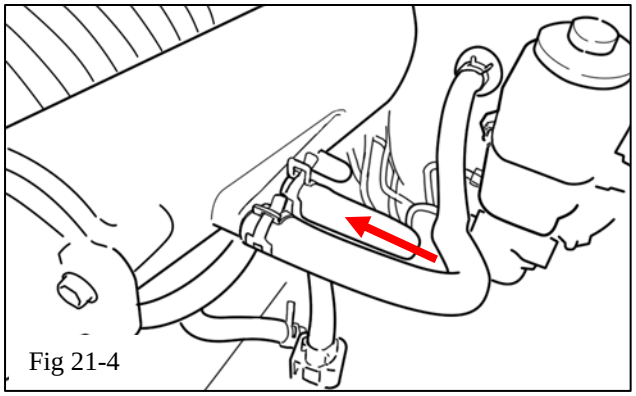


Fig 21-4

(c) Route this EVAP hose to the remaining 3/8" nipple on the supercharger housing (Fig 21-4).

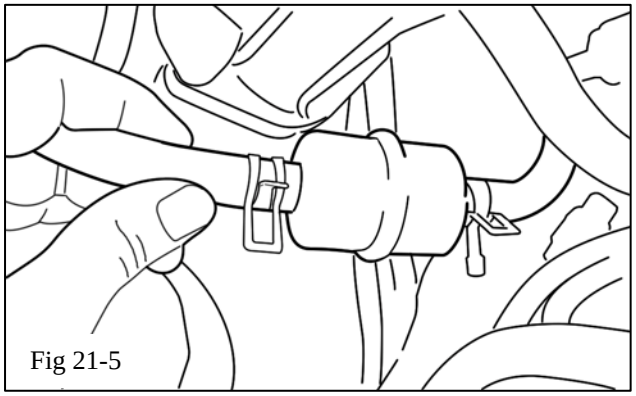


Fig 21-5

(d) Using the supplied 5/16" hose (A1), connect the remaining open port on the VSV to the EVAP canister using the stock clamps (Fig 21-5).

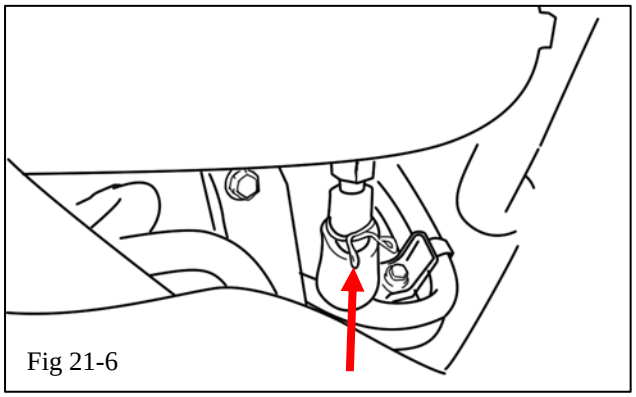


Fig 21-6

(e) Finally, connect the ventilation hose that was disconnected in step 4 (b) Fig 4-3 to the 3/8" nipple that is on the bottom of housing the supercharger housing (Fig 21-6).

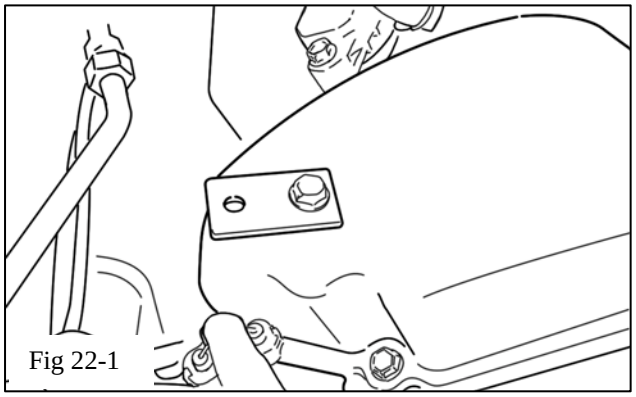


Fig 22-1

22. Installation of the Air Cleaner Assembly.

(a) Using an M6x16 bolt (F6), install the air box bracket (F2) to the passenger side cylinder head cover (Fig 22-1) finger tight.

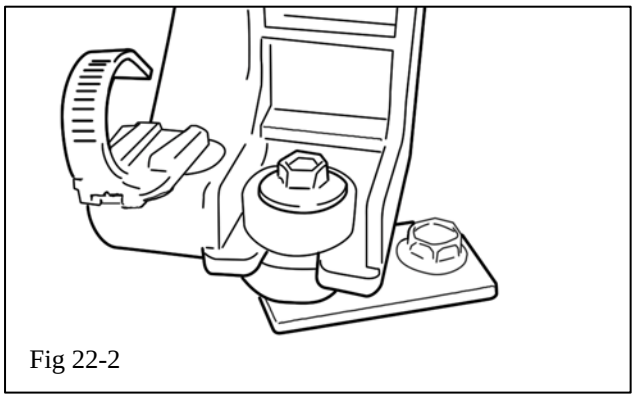


Fig 22-2

(b) Install the air cleaner assembly using the original bolt and a M6 nut (F4) from the kit (Fig 22-2).

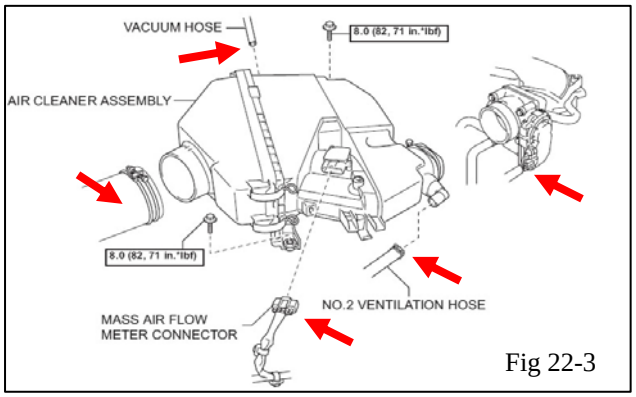


Fig 22-3

(c) Reconnect the No. 2 ventilation hose, the vacuum hose, mass air flow meter connector, the throttle motor connector, and the air inlet duct (Fig 22-3).

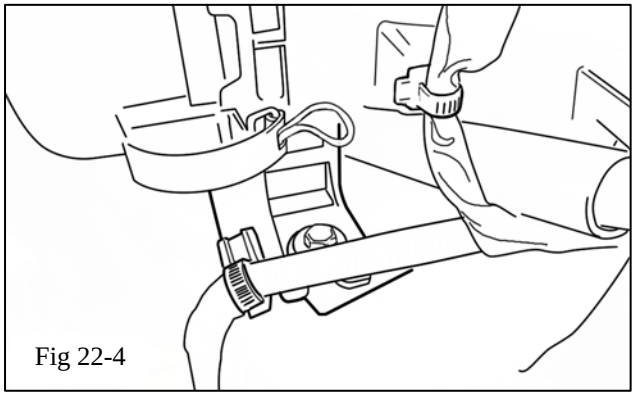


Fig 22-4

(d) Reconnect the 2 wire harness clamps removed in step 2 (c) (Fig 22-4).

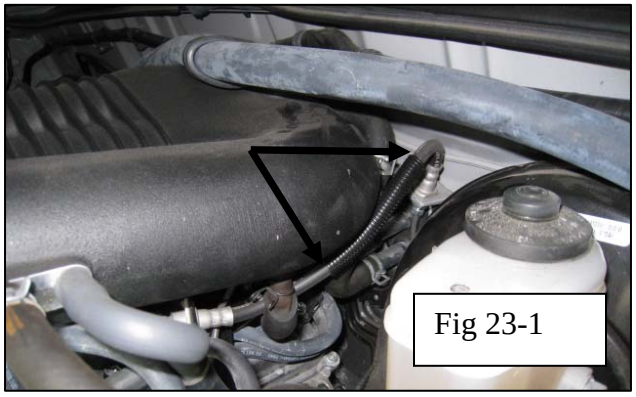


Fig 23-1

23. Clutch Hydraulic Line Protection

(a) Install a 4 ” length of ½” convoluted tubing (A17) on the clutch hydraulic line shown in (Fig 23-1) if vehicle is equipped with a manual transmission.

24. Preparation for Vehicle Start-up.

(a) Using the saved coolant from step 7 (b) pour coolant into the radiator until it is full.
Hint:

- Use of improper coolant may damage the engine cooling system.
- Use Toyota Super Long Life Coolant or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrate, and non-borate coolant with long-life hybrid organic acid technology.
- New Toyota vehicles are filled with Toyota Super Long Life Coolant (color is pink, premixed ethylene glycol concentration is approximately 50% and freezing temperature is -35°C (-31°F). When replacing and or adding coolant, Toyota Super Long Life Coolant is recommended.

NOTICE: Do not substitute plain water for engine coolant.

(b) Check the coolant level inside the radiator by squeezing the inlet and outlet radiator hoses several times by hand. If the coolant level goes down, add coolant.

(c) Install the radiator cap.

(d) Slowly pour coolant into the radiator reservoir until it reaches the FULL line.

(e) Fill the intercooler reservoir with the same coolant as the vehicle radiator.

(f) Reinstall and connect the battery.

(g) Once the reservoir is full and will not take any more coolant, turn the ignition key to on, **but do not start the engine.** This will cause the intercooler pump to run and purge air

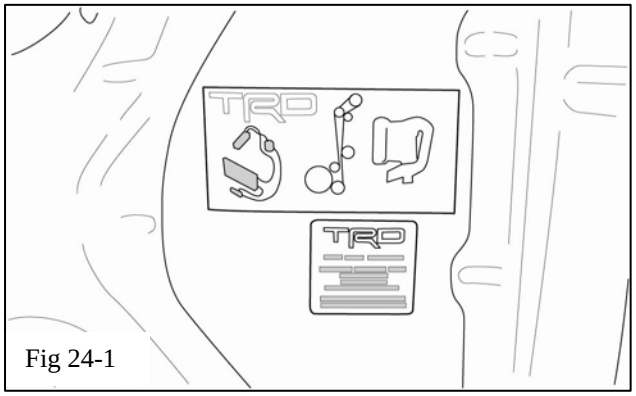


Fig 24-1

from the intercooler system. Continue to add coolant to the reservoir until it is full.

(h) Place the new vacuum and belt routing label (L8) on an open area under the hood (Fig 24-1). **DO NOT cover the original vacuum hose label.** Place the CARB OE Emissions label (L9) near the vacuum and belt routing label (Fig 24-1). Clean the area of any dirt and contaminants before adhering the labels.

(i) Install the **Premium Fuel Only** decals (L3). Place one on the dash near the fuel gauge AND one near the fuel filler cap.

25. ECU Re-flash

(a) The proper procedure to re-flash the ECU (Engine Control Unit) is explained in a Technical Service Bulletin (SS002-07) titled "Techstream ECU Flash Reprogramming Procedure" located on T.I.S. (Toyota Information System).

(b) Download your correct vehicle ECU Calibration Update (See table below) from TIS into the Toyota Techstream Tool using the TIS Calibration Update Wizard.

Note: For 2005, 2006, and 2007 Tacoma vehicles, the ECU must have TSBEG011-07 (Intermittent No-Start Condition) applied before attempting to install the supercharger calibration. Failure to update or verify the proper *"Target Calibration ID"* will result in a no re-flash condition. Your Techstream system must be updated to at least operating version 4.00.017 or higher. Failure to do so may also result in a no re-flash condition.

Model	Model Year	Target Calibration ID	Supercharger Calibration ID
X-Runner M/T	2005	30429200	3YWG0100
	2006	30434100	
	2007	30440100	
	2008	30443000	
	2009	30450000	3YWG0400
		30450100	
Tacoma Pre-Runner 2WD, 4WD, M/T	2005	30430200	3YWG0200
	2006	30435100	
	2007	30441100	
	2008	30444000	
	2009	30451000	3YWG0500
		30451100	
Tacoma Pre-Runner 2WD, 4WD, A/T	2005	30426200	3YWG0300
	2006	30433100	
	2007	30439100	
		30439200	
	2008	30442000	
		30442100	
	2009	30449000	3YWG0600
		30449100	

(c) Follow the re-flashing procedure outlined in T.S.B. SS002-07.

NOTE: The GR8 Battery Charger MUST be used in Power Supply Mode to maintain battery voltage at 13.5 volts while flash reprogramming the vehicle.

For details on how to use the GR8 Battery Charger please refer to the GR8 Instructions Manual located on TIS, Diagnostics-Battery.

NOTE: The vehicle WILL NOT operate properly without this ECU update.

26. Testing and Evaluation.

(a) Start the engine and let it idle.

(b) Check the fuel system for any leaks.

(c) **IMPORTANT:** Check the serpentine belt drive systems for correct alignment on ALL pulleys.

(d) Check the coolant system for any leaks.

(i) Set the A/C system as follows:

Fan Speed	Any setting except OFF
Temperature	Toward Warm
A/C Switch	OFF

(ii) Maintain the engine speed at 2,000 to 2,500 rpm and warm up the engine until the cooling fan operates.

(iii) Squeeze the inlet and outlet radiator hoses several times by hand while warming up the engine.

(e) Check the air intake system to ensure there are no leaks and for tightness.

(f) Stop the engine and wait for the coolant to cool down.

(g) Carefully remove the radiator cap and check the coolant level inside the radiator and add coolant if necessary. Reinstall the radiator cap.

(h) Check the coolant level inside the radiator reservoir. If it is below the full level, add coolant.

(i) Check the coolant in the intercooler reservoir and add coolant if necessary.

(j) Drive test the vehicle. If all is okay, park and proceed with the next step. If not, troubleshoot as necessary.

(k) Use the diagnostic TechStream tool to check for ECU error codes.

(l) Place the Supercharger noise Mirror hanger card (L7) on the inside rearview mirror.

(m) Complete and mail the warranty registration card (L6). **Note: The installation of the Supercharger is not complete until this card has been returned to TRD.**

(n) Place all removed factory hardware, components, and this instruction sheet into the original TRD kit box and give it to the customer and or place it in the vehicle cargo compartment.

(o) **IMPORTANT:** Review with the customer/end-user that the supercharger will make a slight noise at idle that increases as the throttle is opened and that this is normal.

(p) **IMPORTANT:** Review with the customer/end-user that it is it is imperative that only **91octant or higher fuel** be used after the supercharger is installed. Performance will suffer and engine damage is possible otherwise.

Notes:

Checklist - these points **MUST** be checked to ensure a quality installation.

Check:	Look For:
Accessory Function Checks	
☐ Use of 91 Octane Fuel (R+M / 2)	Use 91 Octane Unleaded Fuel (R+M /2)
☐ All Fluid Levels & Leaks	Inspect Engine Cooling System and Supercharger Cooling System for Proper Fluid Type and Level.
☐ Serpentine belt alignment	Inspect Serpentine Belt Drive Belts for Proper Alignment, Tension, and Clearance from Engine Compartment Items.
☐ Fuel Line connections	Inspect all Fuel Rails, Injectors, Injector Seals, Pressure Regulator, and Fuel Line Connectors for Leaks.
☐ Engine Fan clutch Clearance	Inspect Engine Fan Clutch for Free Movement and Clearance from Radiator.
☐ Engine ECU Reflash	Ensure the Proper Calibration File was used for the Vehicle.
Vehicle Function Checks	
☐ Fuel leak	No Fuel leaks are present
☐ Coolant leak	No coolant leaks are present
☐ Drive test	Vehicle starts Up Easily, No DTC Trouble Codes are Present, Drivability is Smooth and Predictable.