



SCION tC TRD Supercharger Installation Instructions

Part Number: PTR01-21050-90

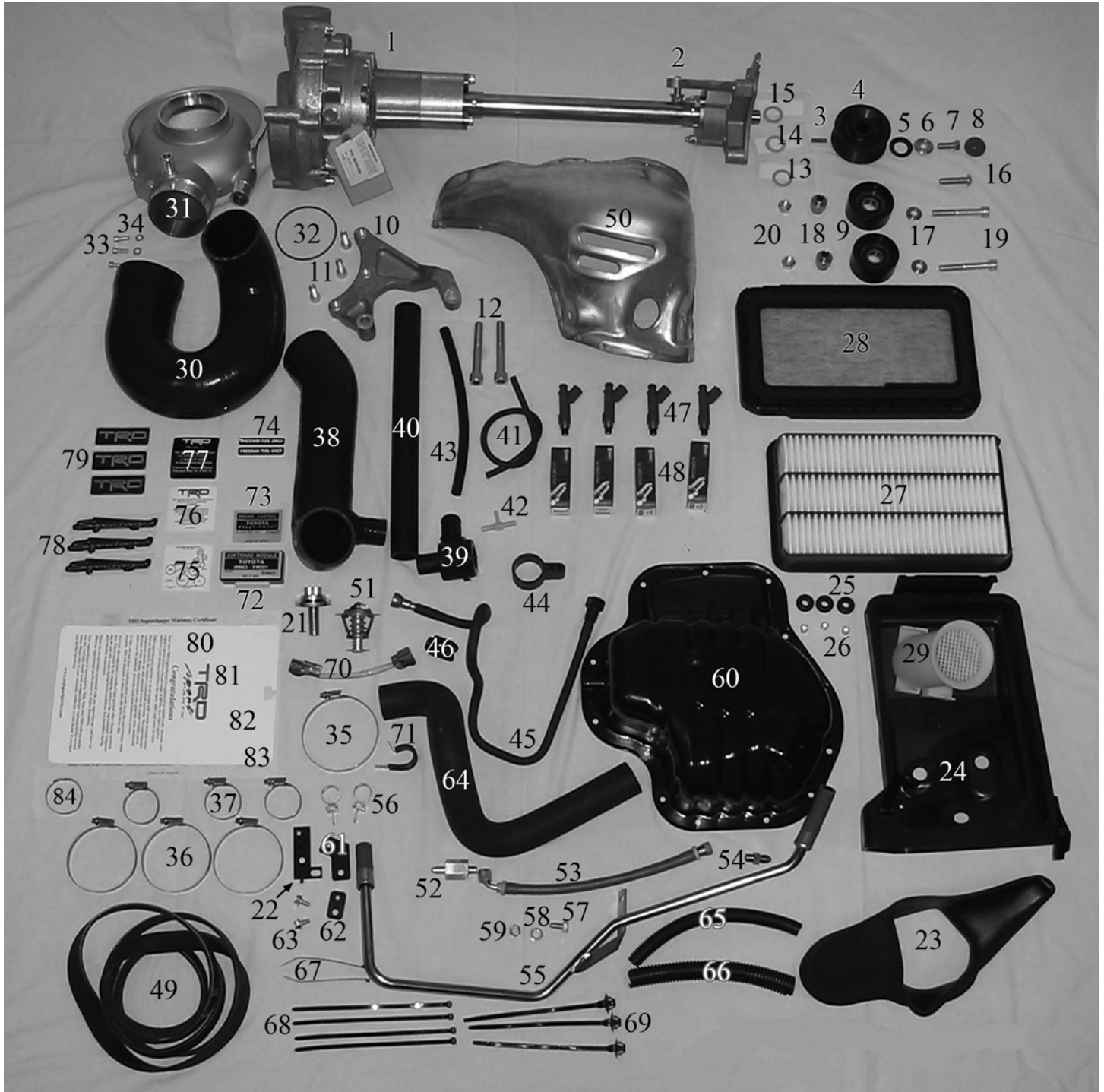
Kit Contents

Item	Qty	Description
1	1	Supercharger Main Assembly
2	1	Bolt, Flange Head 10x1.25x25 x 14WF (captured)
3	1	Key, 3/16" Square by 7/8" long
4	1	Pulley, 7-Groove SC Drive
5	1	Retainer Cup, Drive Pulley
6	1	Retainer Washer, Drive Pulley
7	1	Bolt, 3/8-24 x 1 x 9/16 WF, Gr.8 Drive Pulley
8	1	Cap, Tamper Proof Plastic TRD
9	2	Idler Pulleys
10	1	Bracket, Cast Aluminum Transmission Mount
11	3	Bolts, 3/8-16 UNC x 1"x 5/16 Allen WF
12	2	Bolts, SHCS 12 x 1.25 x 80 x 10mm AllenWF
13	2	Shim, 0.005" Drive Pulley
14	2	Shim, 0.010" Drive Pulley
15	2	Shim, 0.025" Drive Pulley
16	1	Bolt, Button Head 10x1.25x40x6mmAllenWF
17	2	Spacers, Idler Pulley Outer
18	2	Spacers, Idler Pulley Inner
19	2	Bolts, SHCS 10 x 1.50 x 70 x 8mm Allen WF
20	2	Nuts, 10 x 1.5, 6Pt, Self Locking 17mm WF
21	1	Bolt, Hi-Strength 12-Pt Crank Bolt w/captured washer 14 x 1.5 x 45 x 19WF
22	1	Bracket, Lower Airbox
23	1	Intake Boot, Fender to Airbox
24	1	Airbox, Lower TRD
25	3	Rubber Grommets, Airbox Lower
26	3	Metal Spacers, Airbox Lower
27	1	Air Filter 17801-03010
28	1	TRD HC Filter/Trap
29	1	Air Inlet "Trumpet" Diffuser
30	1	Hose, Airbox to SC intake "Tuba"
31	1	Intake Manifold, Cast Aluminum TRD
32	1	O-Ring for SC Inlet Manifold 3.237 " ID
33	3	Bolts, SHCS 6 x 1.0 x 16 x 5 mm Allen WF
34	3	Flat Washers, 6mm
35	1	Hose Clamp 70-90 mm
36	3	Hose Clamps 60-80 mm
37	3	Hose Clamps 25-40 mm
38	1	Hose, SC to Throttle Body
39	1	Bypass Valve, Bosch
40	1	Hose, Bypass to SC Intake
41	1	Hose, 3/16" vacuum, Bypass to Throttle Body 16" long
42	1	T fitting, 1/4 x 1/4 x 3/16 vacuum line

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

43	1	Hose, VSV vacuum 7mm x 12 mm x 250mm
44	1	VSV Rubber mounting bracket
45	1	Fuel Supply Line, TRD
46	1	Plastic Clamp, Fuel Supply Line 23842-28010
47	4	Fuel Injectors, TRD
48	4	Spark Plugs, TRD Denso K22PR-U
49	1	Belt, Serpentine Drive 7PK2275
50	1	Heat Shield, TRD modified
51	1	71°C (160°F) Thermostat
52	1	Fitting, Hexagonal "T" Oil Feed
53	1	Hose Assy., Blue Parker Push Loc Oil Feed
54	1	Fitting, Oil Feed 1/8"MNPT x dash 4 37°M AN
55	1	Hose Assy., Oil Return Hard Line
56	2	Hose Clamps, Oil Return Line, Spring Preload
57	1	Bolt, 8 x 1.25 x 16 x 13WF, Oil Return Line
58	1	Washer, 8 mm Flat, Oil Return Line
59	1	Crimp Nut, 8 x 1.25 x 13 mm WF, Oil Return
60	1	Oil Pan w/ return tube braze-in
61	1	Bracket, AC Line Front
62	1	Bracket, AC Line Rear
63	2	Bolts, Flange Head 6 x 1.0 x 12 for AC line brackets
64	1	Hose, Upper Engine Radiator
65	1	Wire Loom 1/2 " 8 inch length
66	1	Wire Loom 3/4" 7 inch length
67	2	Zip Ty-Wrap, Small
68	4	Zip Ty-Wrap, 7 inch/Medium TY525MX
69	3	Zip Ty-Wrap, OE anchor style, 82711-16830
70	1	CPS Extension Wire
71	1	Adell Clamp, dash 12, Galv. Steel w/ rubber
72	1	ECM Map Module
73	2	ECM Decal
74	1	Premium Fuel Only Decals (1 pair)
75	1	Belt Routing Label
76	1	Tune-Up Label
77	2	EO Label
78	3	Badge, Supercharged, 00602-17620-EMB
79	3	Badge, TRD, 00602-17620-TRD
80	1	Warranty Card, TRD Supercharger
81	1	Mirror Hanger
82	1	Registration Card
83	1	Installation Instructions
84	1	Thermostat Gasket, 16325-28010

Kit Contents



Additional Items Required For Installation

Item #	Quantity Req'd.	Description
1	1 per dealership	TRD Data Transfer Device SST 00002-17620 *

Conflicts

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Recommended Tools

Personal & Vehicle Protection	Notes
Safety Glasses	
Fender Blankets	
Protective Gloves	
Special Tools	Notes
Serpentine Belt tool	SST 09249-63010
Fuel Supply Hose tool	SST 09268-21010
Crankshaft Pulley Holder	SST 09213-54015
Pulley Holder Lever Arm	SST 09330-00021
Gasket Seal Cutter	SST 09032-00100
Oil Filter Wrench	09228-06501 or equivalent
Strap Wrench	For SC 7-rib drive pulley
Installation Tools	Notes
Mechanic's Hand Tools	Combo wrenches & sockets Metric AND Standard
½" Drive Torque Wrench	For crank pulley bolt install
19 mm 12-point socket ½"	For crank pulley bolt install drive
Torx Socket, Female # E7	For exhaust heat shield swap
Electric Drill and Drill Bits	
Uni-Bit up to ½ " diameter	
Special Chemicals	Notes
Anti-Seize Assembly Lube	For threads
Toyota Seal Packing (FIPG) 08826-00080 or 00295- 00102 or 00295-00103	Or equivalent for oil pan reinstallation.
Loctite 242 Blue	Or equivalent
Loctite 272 Red	Or equivalent.

General Applicability

(2005- 2006) Scion tC (2AZ motor)

Recommended Sequence of Application






Item #	Accessory
1	R&R Thermostat
2	R&R Oil Pan
3	Remove Airbox Assy.
4	R&R Crank Bolt
5	Install Supercharger
6	Re-Flash ECU via TRD Data Transfer Device
7	Install Intake System
8	Test

*Mandatory

Vehicle Service Parts (may be required for reassembly)

Item #	Quantity Req'd.	Description
1	1	Oil Filter , 90915-YZZF1
2	1	Oil Drain Gasket 90430-12031
3	4.0 ~ 4.8 Quarts	Oil, SAE 5W-30
4	1 roll	Black Electrical Tape, 600 V

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.

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.).

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



12 mm Wrench



1. Installation review and vehicle preparation.

- Review entire installation instructions provided with this supercharger kit BEFORE beginning the installation. **NOTE: You**



MUST have a TRD Data Transfer Device SST 00002-17620 in order to complete the installation. This SST can be ordered from SPX. <http://toyota.spx.com> 1-800-933-8335

- Review 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. **IMPORTANT:** Check <http://tis.toyota.com> for the most up-to-date revision of these instructions. Print out the newest instructions whenever possible.



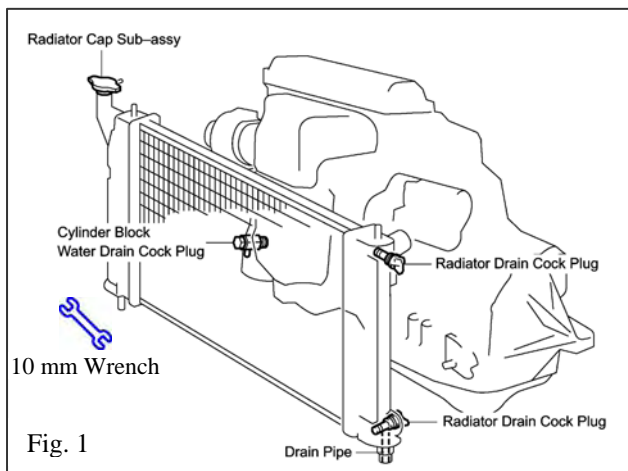
- Remove any low-octane fuel from vehicle. Ensure **ONLY 91 octane or higher** unleaded gasoline is used.
- Place vehicle onto vehicle hoist and place fender protection blankets over fenders and front of vehicle to protect cosmetics.

2. Coolant System Parts Removal & Installation.



- Disconnect battery** negative terminal, then disconnect battery positive terminal. Remove battery hold down strap. Remove battery and plastic tray from engine compartment. Place battery onto workbench until reinstallation later.

- Remove top engine cover. 10 mm socket.



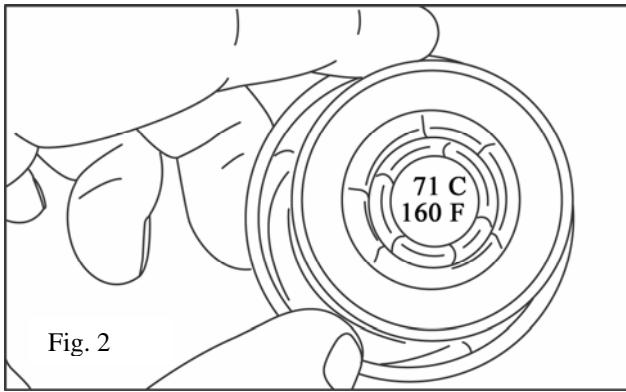


Fig. 2

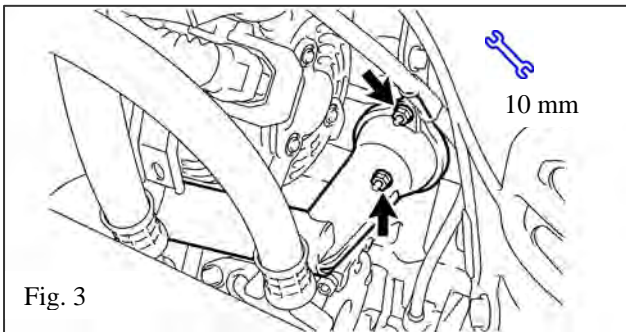


Fig. 3

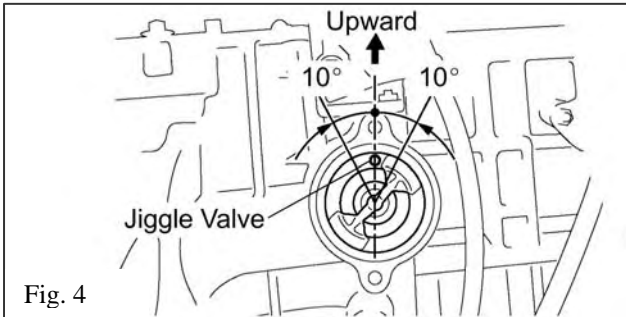


Fig. 4

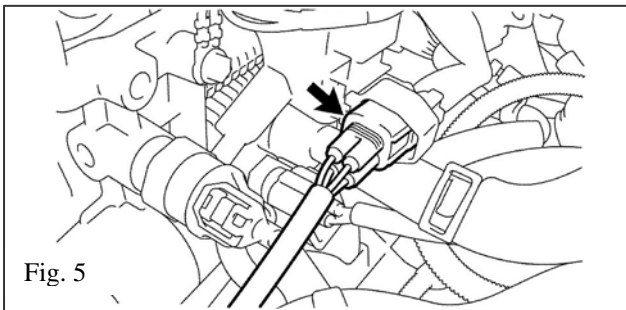


Fig. 5

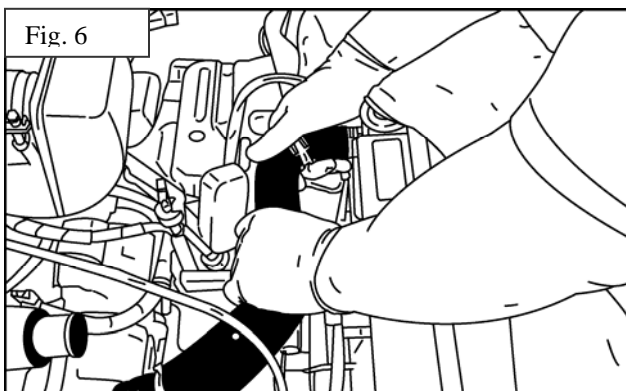
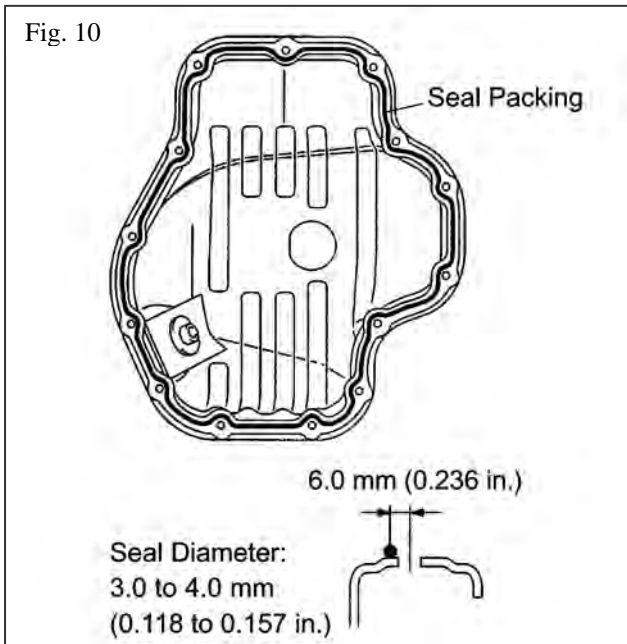
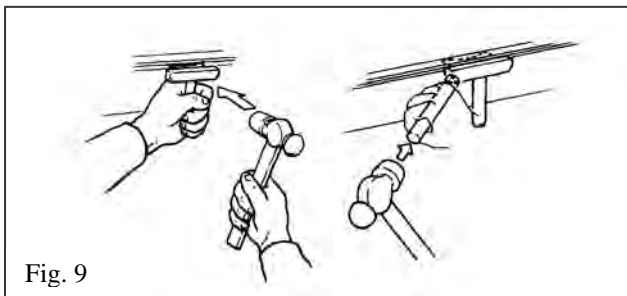
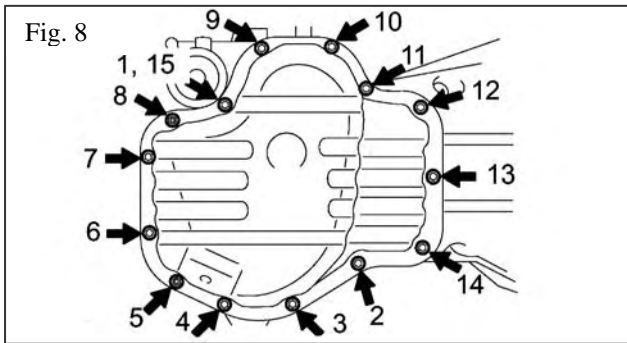
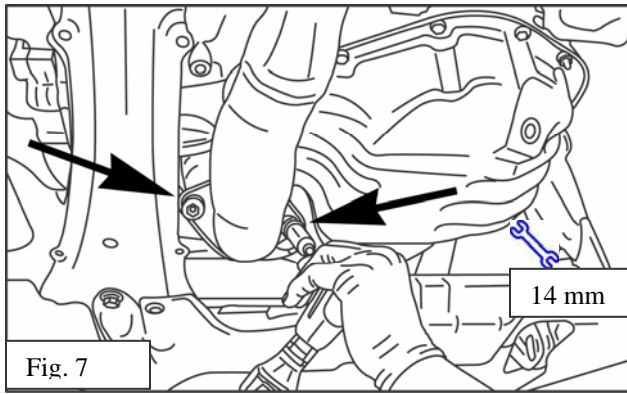



Fig. 6

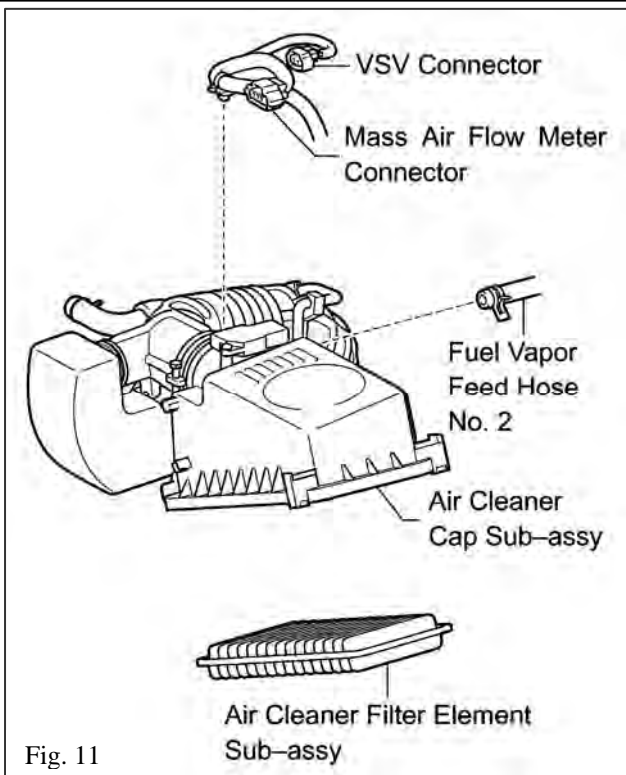


- (c) **Drain engine coolant** into a clean receptacle for re-use later. **Caution:** Be sure to wear eye and hand protection. Also, be sure to allow radiator and engine to cool sufficiently before opening system to drain. Loosen Radiator Drain Cock Plug (Wingbolt by hand) and Cylinder Block Water Drain Cock Plug. 10 mm wrench. Fig. 1.
- (d) **Check TRD thermostat.** Be sure Thermostat reads 71°C / 160°F on the inside bottom of the Thermostat. Fig. 2.
- (e) **Remove OE Thermostat** housing and factory 82° C (180°F) thermostat. (Fig. 3.) Note: You may need to temporarily remove oil dipstick for better access. Use OE rubber thermostat gasket and place onto the TRD supplied 71°C (160°F) thermostat.
- (f) **Install TRD 71° C (160°F) thermostat.** Be sure jiggle valve is in the 12 O'Clock position within +/- 10 degrees. (Fig. 4). Replace thermostat housing. **(Torque to 80 in-lbs)**
- (g) Temporarily disconnect Air Fuel Ratio (AFR) Sensor at the electrical connector. Fig 5. AFR sensor should be left disconnected until later, after exhaust heat shield is replaced. Disconnect plastic retainer clip holding Air Fuel Ratio (AFR) Sensor wire to radiator hose. Save plastic clip for reuse later.
- (h) **Remove upper radiator hose.** Fig. 6. This hose will not be re-used. Remove OE sleeve from upper OE radiator hose and place onto TRD radiator hose for use later. Temporarily cover the engine block coolant spout to prevent debris from entering into the opening.



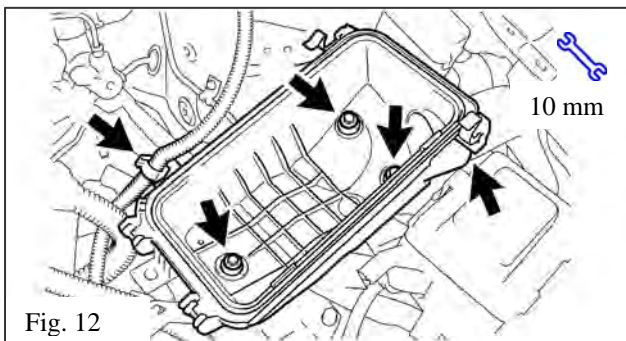
3. Oil Pan Parts Removal & Replacement.

- (a) Drain engine oil (**14 mm wrench**) into proper receptacle, and replace oil filter as needed. Prime new oil filter with SAE 5W-30. The OE oil pan will be removed and replaced with a TRD supplied oil pan after draining.
- (b) Temporarily Remove 2 exhaust bolts and let exhaust pipe hang down low in order to gain access to oil pan bolts. Fig. 7.
- (c) Remove the oil pan by removing the 12 bolts and 2 nuts. Fig 8. Use **SST 09032-00100** to remove pan from crankcase. See Figure 9. **Caution:** Be careful not to damage the sealing surface of the crankcase, chain cover, or oil pan.
- (d) Carefully clean the mating surfaces on the crankcase, chain cover and TRD supplied oil pan.
- (e) Apply a continuous bead of **00295-00103 FIPG** seal packing (3.0 to 4.0 mm in diameter) to the sealing surface of the oil pan as shown in Figure 10. **CAUTION:** Remove **ANY** and **ALL** oil residue from the sealing surfaces first. Install the oil pan within 3 minutes of applying sealant. Do **NOT** put engine oil into the engine for **at least 2 hours** after installing the oil pan.
-  (f) Uniformly tighten the fasteners on the oil pan in the sequence shown in Figure 8. Torque to **80 in-lbs.**
- (g) Re-attach exhaust pipe, and re-install 2 exhaust bolts removed previously. **Torque to 32 ft-lbs.** Install oil drain plug gasket and drain plug. **Torque plug to 30 ft-lbs.** Clean off any excess oil from engine, oil filter, pan and exhaust.

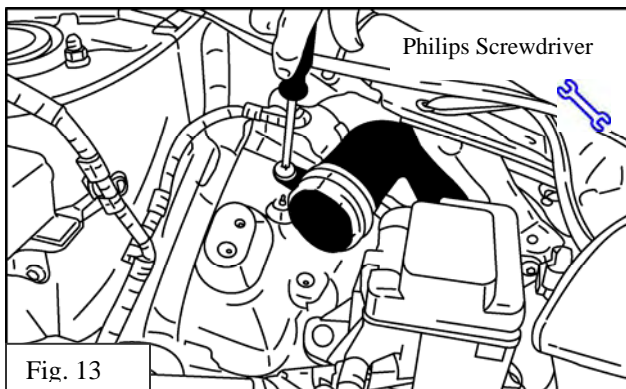


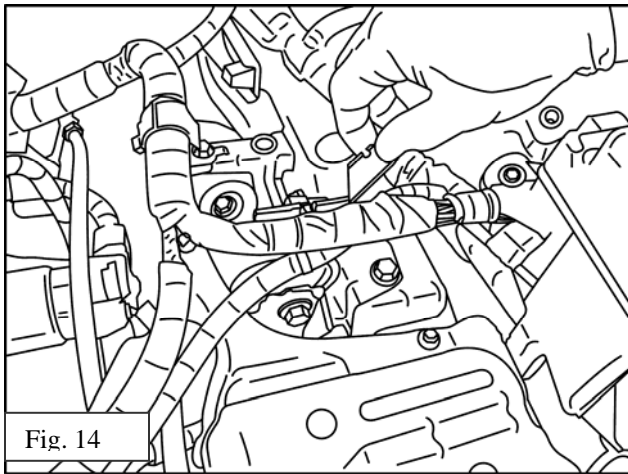
4. Intake & Wiring System.

- (a) **Remove factory Air Intake Tube and Air Cleaner Cap Sub-Assembly including Air Filter Element.** See Fig 11. Temporarily cover throttle body intake with a shop rag and/or duct tape.

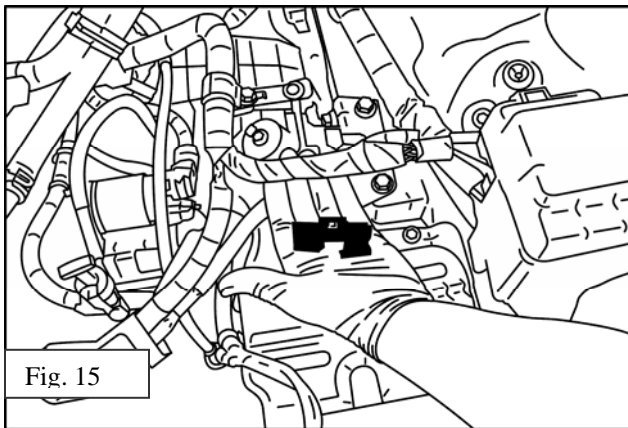


- (b) **Remove factory airbox lower.** You will need to disconnect the engine wire from the airbox lower before removing. See Fig. 12. **NOTE:** Remove and save the 3 mounting fasteners. They will be re-used to mount the new TRD-supplied lower airbox. Also be sure to remove fender intake tube as shown in Fig 13. The fender intake tube will **NOT** be reused.

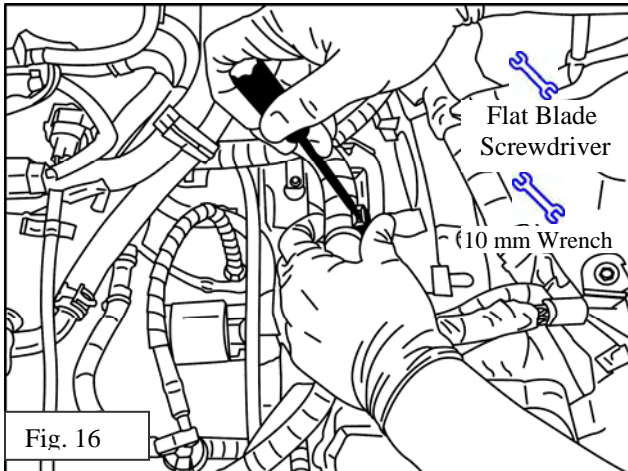




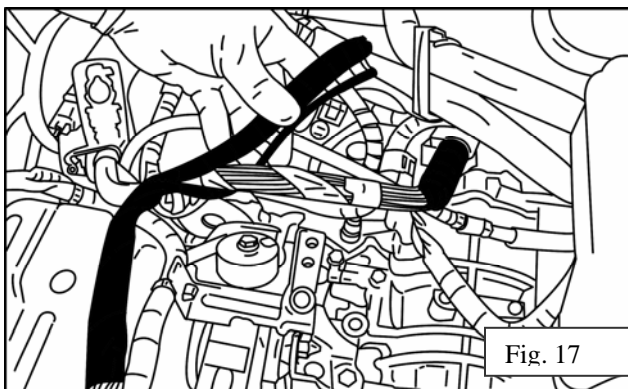
- (c) In order to access wiring loom support plastic, carefully cut and / or remove electrical tape on loom as shown in Fig. 14.



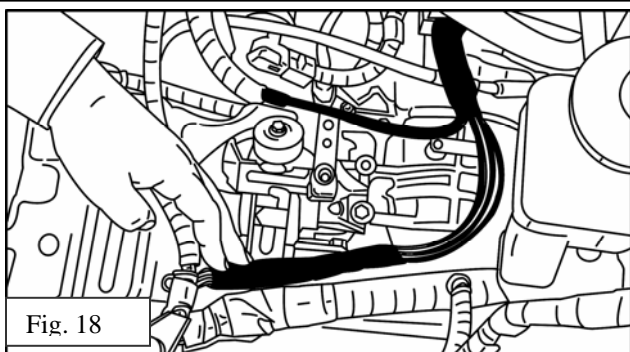
- (d) Remove wiring loom support plastic. Fig. 15.



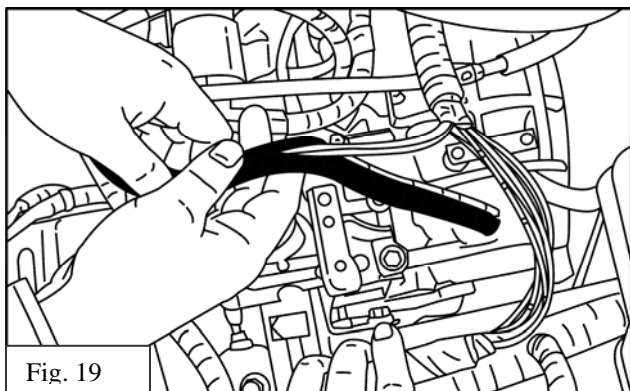
- (e) Remove plastic wiring loom clamp (small flat blade screwdriver) and remove metal clamp bracket (10mm wrench). Fig 16. Be sure to support metal bracket with your hand when removing 6 mm bolt to prevent bracket from bending or twisting out of position.



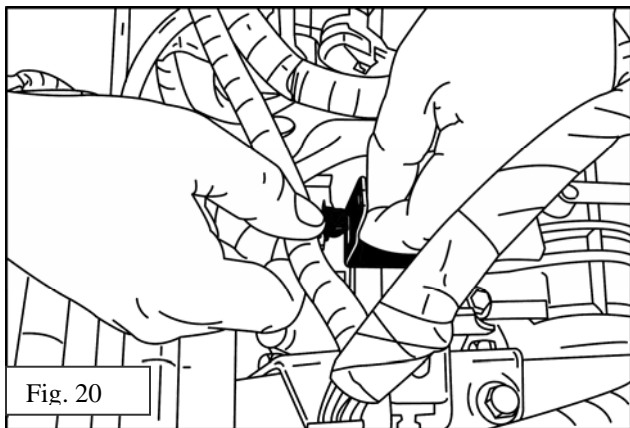
- (f) Temporarily remove OE wire loom cover at area shown in Fig 17.



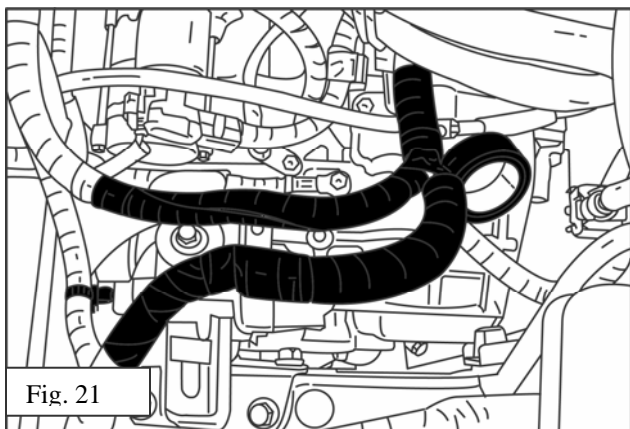
- (g) Remove any electrical tape and Split wiring loom into 2 separate runs. Fig 18. NOTE: The large gage black wire with the red stripe will be on it's own, while all the other wires will be grouped together.



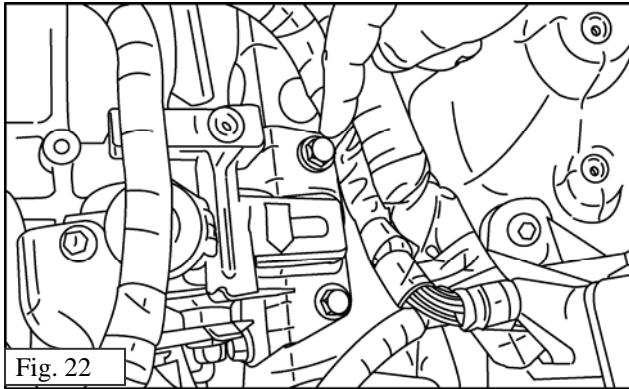
- (h) Wrap exposed wires with TRD supplied loom wrap. See Fig 19. NOTE: Smaller diameter loom wrap is used for the large gage black wire with the red stripe.



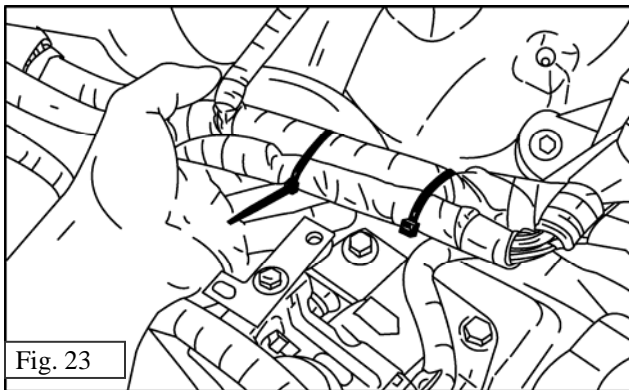
- (i) Remove plastic loom clip from metal bracket as shown in Fig 20.



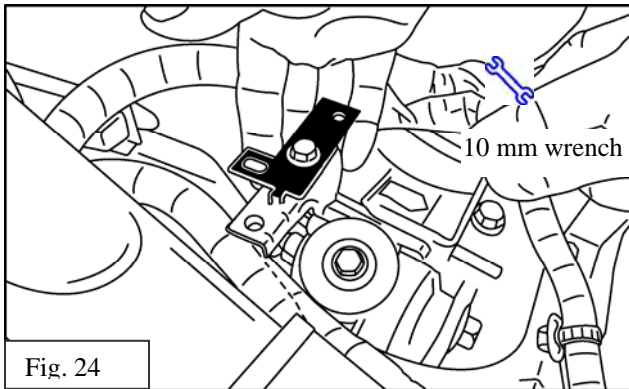
- (j) Using electrical tape, wrap wire loom assemblies as shown in Fig. 21.



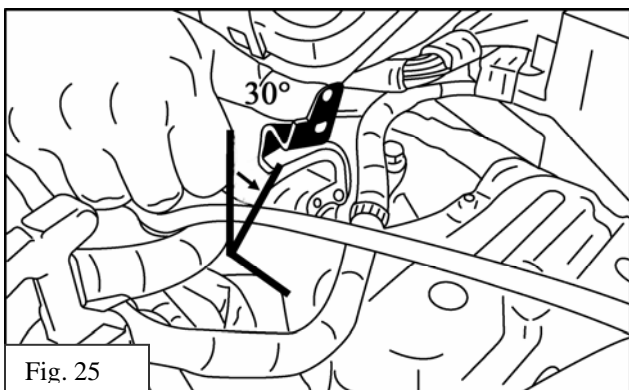
- (k) Be sure to route the wires properly as shown. This is to prevent the wires from getting pinched once the Airbox is installed. See Fig. 22.



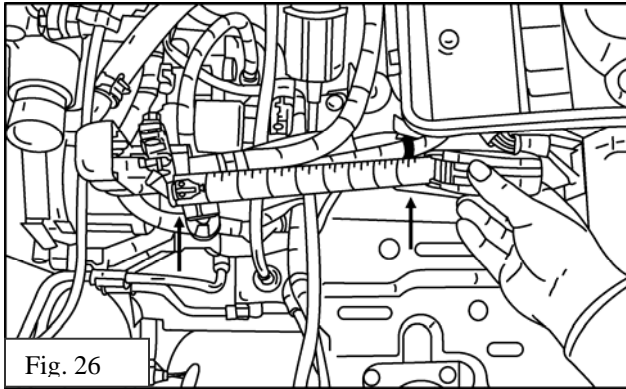
- (l) Install supplied Zip Ties onto wiring looms as shown in Fig. 23. Wire loom assembly should be as close as possible to strut tower.



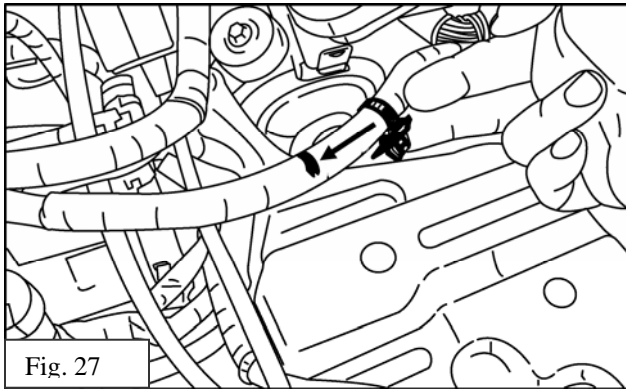
- (m) Attach TRD supplied Airbox bracket. Fig. 24. Reuse OE 6mm bolt to secure bracket into place.



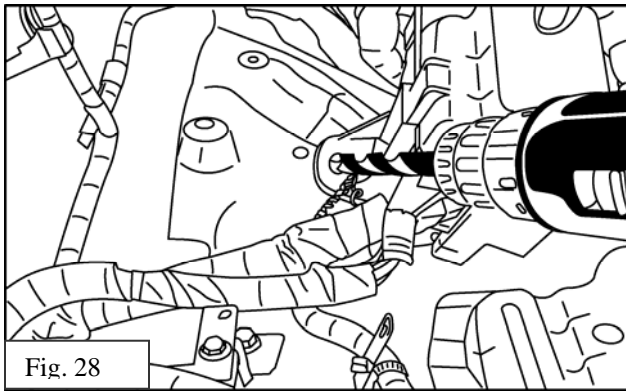
- (n) Adjust metal bracket towards front of vehicle, from vertical to approximately 30° degrees from the vertical plane as shown in Fig 25. This is to allow for proper clearance for the new TRD lower Airbox which will be installed later.



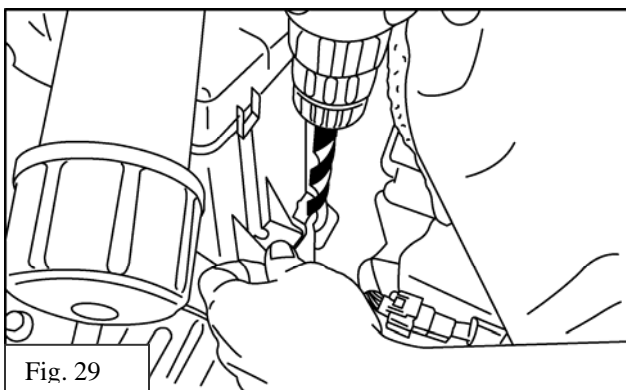
- (o) With a suitable ink pen, mark Battery cable approximately 6 to 7 inches from post terminal end of cable (Arrows). This will be the new location of the OE cable retainer. See Fig 26 and Fig 27.

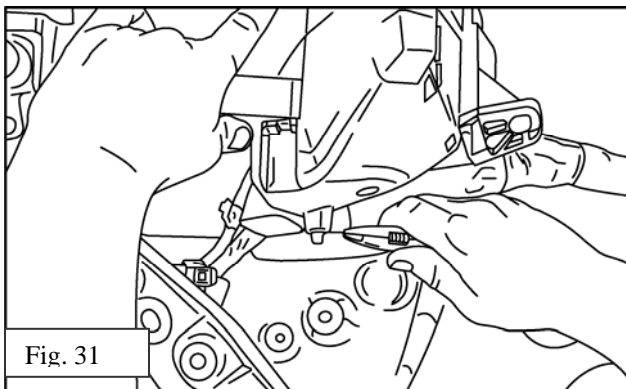
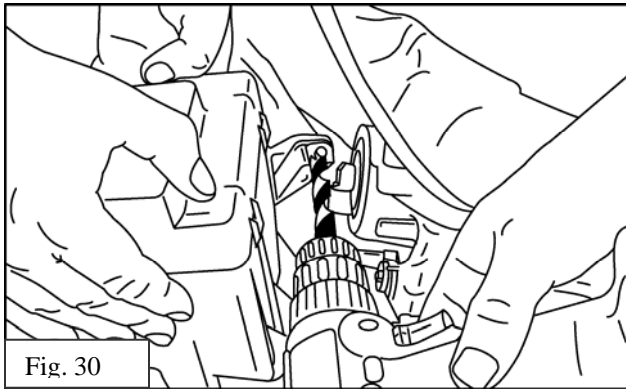


- (p) Remove OE cable retainer. Install TRD supplied cable retainer at new location (Arrow) as shown in Fig 27.

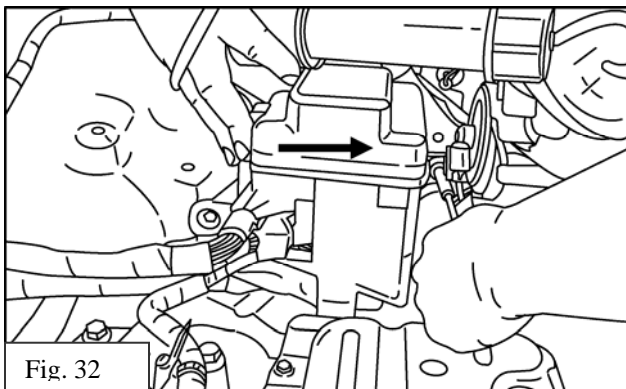


- (q) Temporarily unbolt OE Fuse Box and drill out 3 OE mounting holes using a 1/2" diameter drill bit or Uni-Bit. NOTE: You may need another person to hold fuse box while you drill out the 3 holes. This operation is to allow the fuse box to be mounted slightly forward of it's OE position so that there will be room for the larger TRD airbox. See Fig 28, Fig 29, and Fig 30.

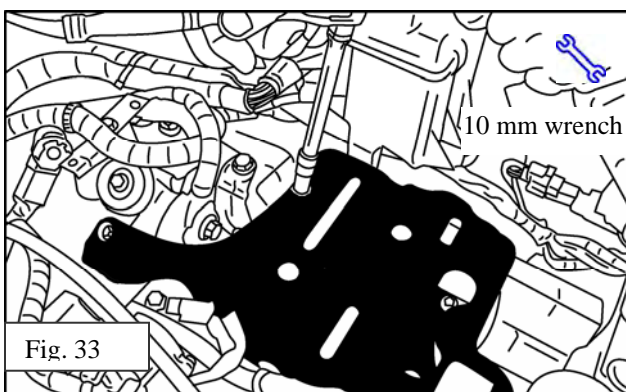




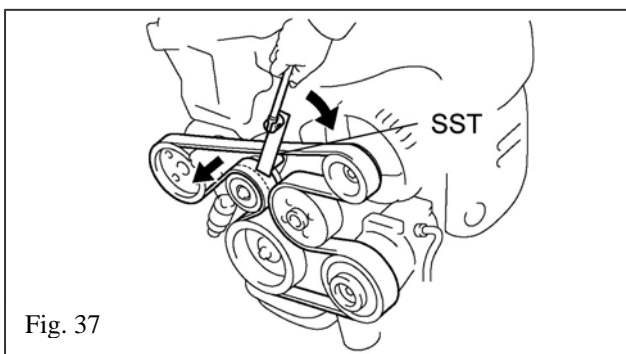
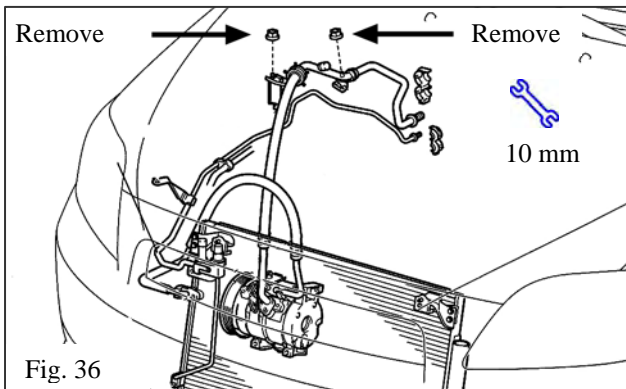
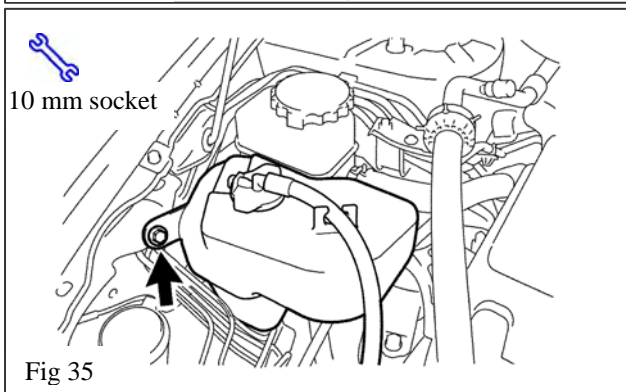
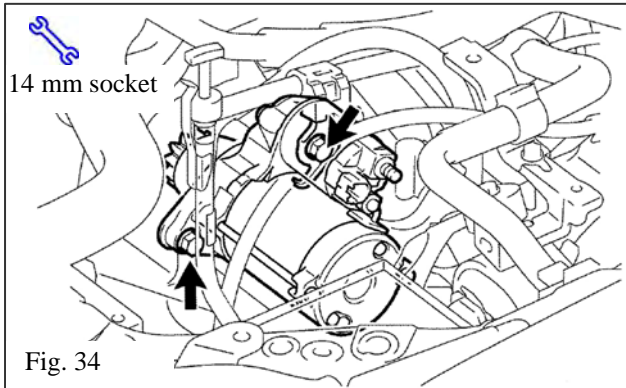
- (r) Cut off the drain nipple on the bottom of the fuse box with a pair of side cutters or other appropriate tool. This is to allow the fuse box to be able to slide forward away from TRD airbox. Fig 31.



- (s) Slide the fuse box into position and reuse all 3 OE fasteners. Slide the fuse box as far forward as possible while tightening the 3 fasteners (10mm socket). This operation is done to allow the larger TRD Airbox lower to fit properly into place. Fig. 32.



- (t) Remove metal battery tray and temporarily set aside on a workbench until re-installation later on. 10mm socket. Fig. 33.



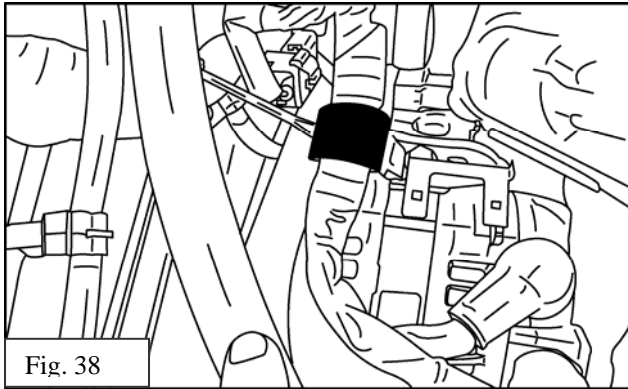
(u) Temporarily disconnect starter motor wires (12mm socket) and remove the two starter-motor mounting bolts (14mm socket). Remove the starter motor and set it aside for now. Removing the starter motor will provide the necessary room and access to install the supercharger assembly. Fig. 34.

(v) Temporarily remove white plastic cooling system reservoir and set it aside. Be careful not to spill the coolant contained inside. This is removed to access to the serpentine drive belt as well for access to install supercharger assembly fasteners. 10mm wrench. See Fig 35.

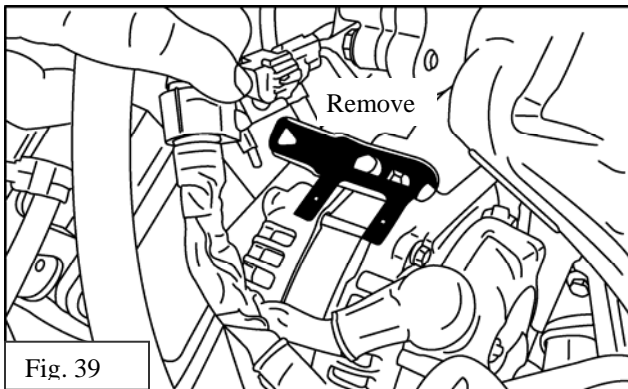
(w) Temporarily remove the 2 indicated retaining nuts on the AC line mounts as seen in Fig 36. (10 mm socket). NOTE: Save these fasteners. They WILL be reused later.

(x) Remove factory serpentine drive belt. Utilize **SST 09249-63010** leverage tool with 19mm, 6-point socket and lever arm or ratchet. See Fig 37.

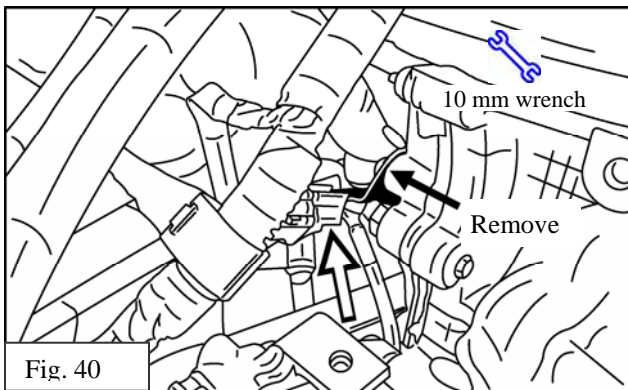
5. OE Wiring Disconnect.



- (a) Using a small flat blade tool, remove the plastic retainer clip from the wire harness on the alternator. Fig. 38.



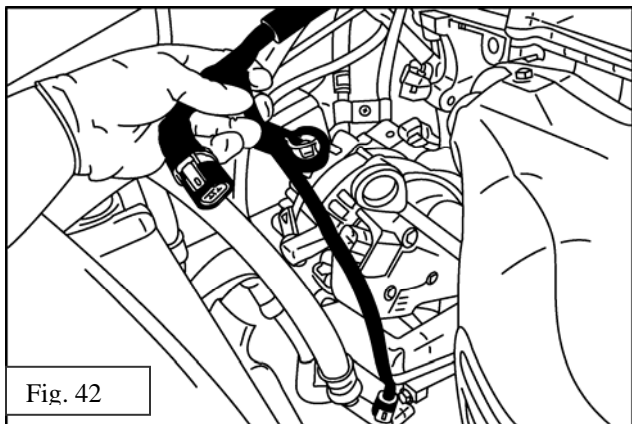
- (b) Remove the metal alternator bracket using a 10mm socket as seen in Fig 39. This bracket will NOT be reused.



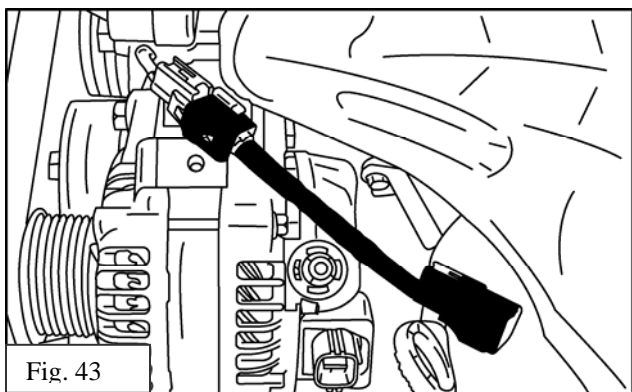
- (c) Disconnect Plastic Crank Position Sensor Connector from metal retainer bracket (White Arrow) and also remove metal retainer bracket from engine (Black Arrow). 10mm wrench. See Fig 40. This bracket will NOT be reused.



- (d) Disconnect Crank Position Sensor (CPS) Wiring Connector. Fig. 41.



- (e) Disconnect Alternator wiring and AC Pump wire, including AC Pump white-plastic wire-retainer clip. See Fig 42. Set these aside out of the way until supercharger is installed.



- (f) Add TRD-supplied CPS extension wire to connector. Let this wire hang loose for now. It will be connected and secured later on. Fig. 43.

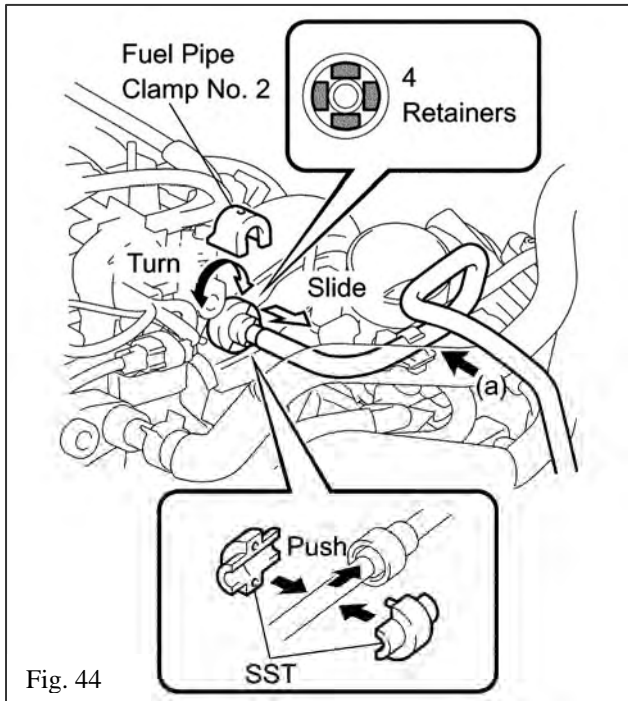


Fig. 44

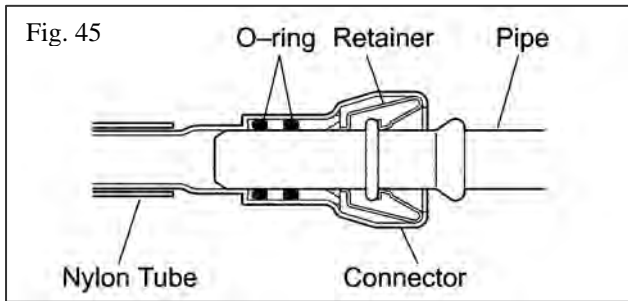


Fig. 45

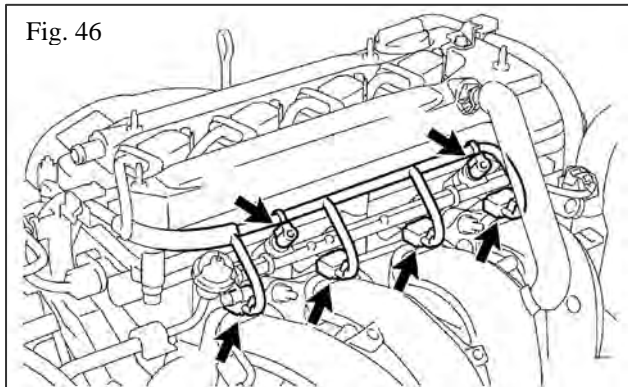


Fig. 46

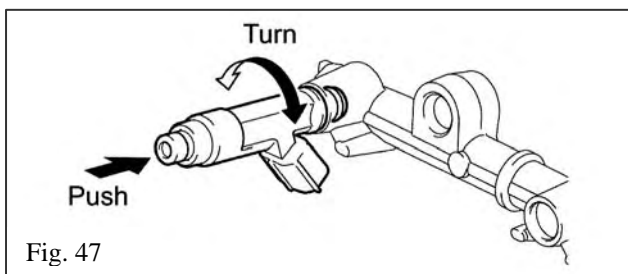


Fig. 47

6. Fuel System.



(a) **Disconnect factory fuel supply hose.** This will not be reused, but replaced later with a new, TRD-supplied fuel supply hose. Utilize **SST 09268-21010**. **Caution:** Fuel system is under high pressure. Cover area with dry shop rags and be sure to wear approved eye and hand protection before beginning removal. See Figure 44 and 45.



(b) Disconnect the rear valve cover ventilation hose, the 2 wire harness zip-tie clamps, and the 4 fuel injector electrical connectors. Fig. 46.

(c) Remove fuel rail fasteners (12 mm wrench) and then remove the fuel rail along with the 4 OE fuel injectors. Be careful not to drop the fuel injectors while removing the assembly.



(d) Remove factory fuel injectors from the fuel rail.

(e) Apply a light coat of gasoline or motor oil to the fuel injector o-rings as needed. Carefully install the four TRD hi-flow fuel injectors into the fuel rail. Fig. 47.



(f) Replace fuel rail assembly. Be sure that the two spacers are in place. Check that the fuel injectors rotate freely and then tighten fuel rail fasteners. (**Torque to 15 ft-lbs**).



Reconnect fuel injector connectors.

(g) Install TRD-supplied fuel supply hose. Be sure it locks properly into place. Be sure to install the new TRD-supplied Fuel Pipe Clamp over the connection. Reinstall rear valve cover ventilation hose.

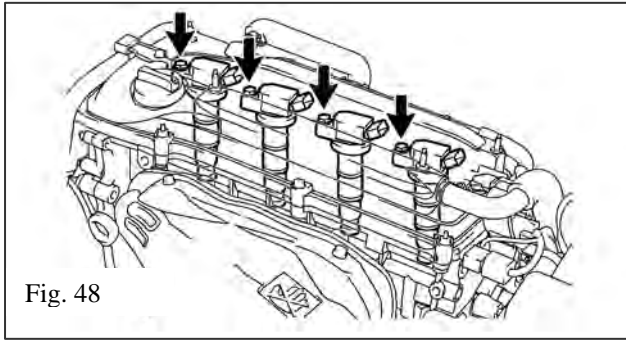


Fig. 48

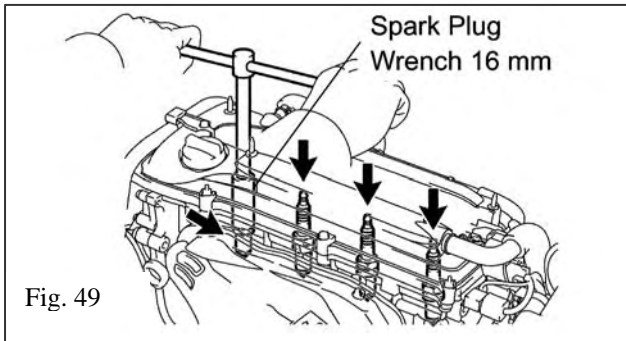


Fig. 49

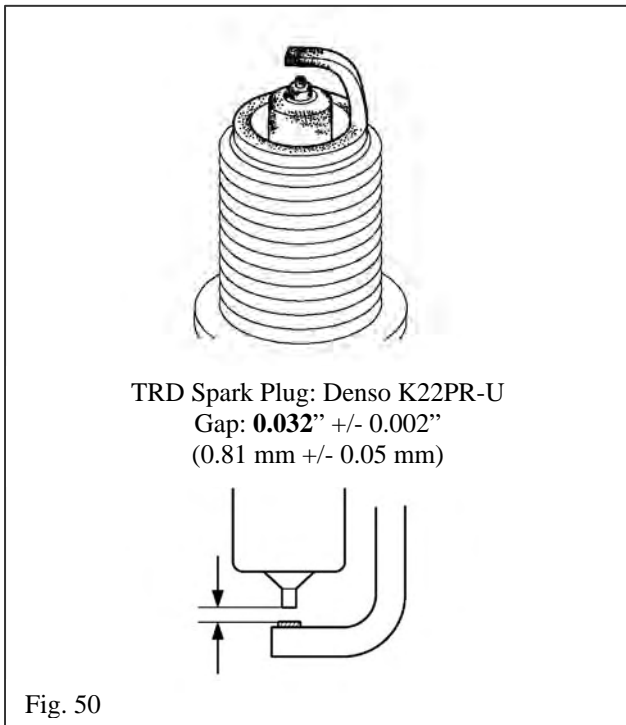


Fig. 50

7. Spark Plugs.

(a) Remove factory ignition coils. Fig. 48.



(b) Remove factory spark plugs. Use a 16 mm or 5/8" spark plug socket. (Stock spark plug is: **Denso SK20R11** or **NGK IFR6A11**) Fig. 49.



(c) Ensure that all TRD (P/N PTR24-21050-00) **Denso K22PR-U** spark plugs are **Gapped to 0.032"** (0.81mm). Figure 50.

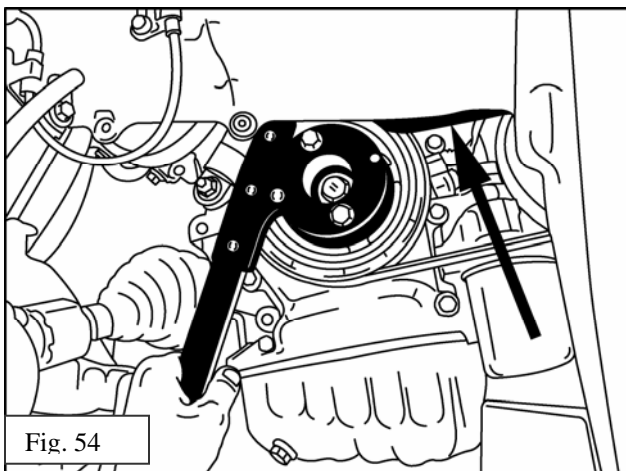
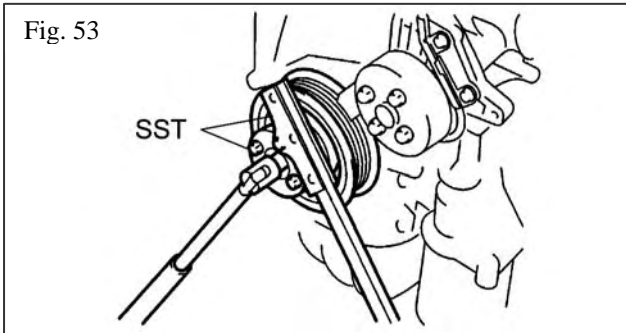
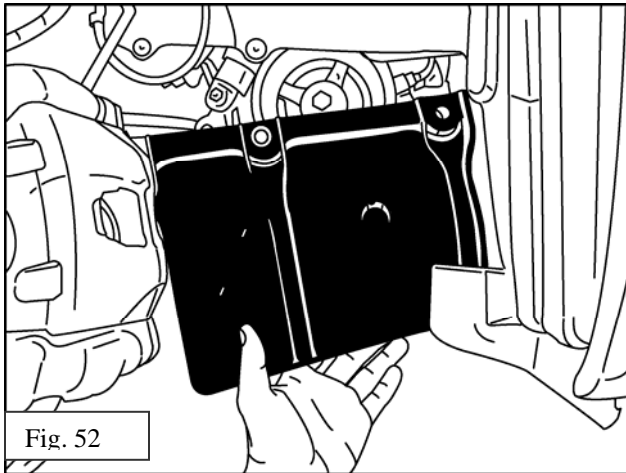
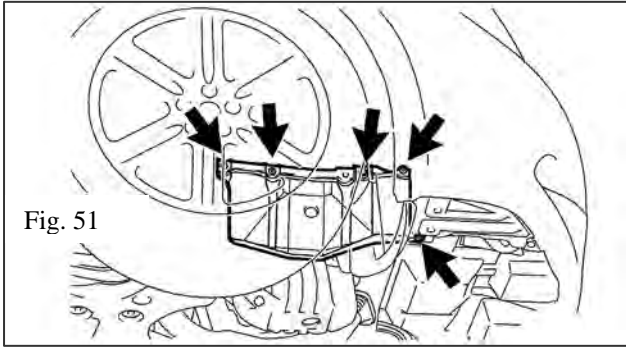
(d) Adjust ALL TRD spark plug gaps to **0.032"** (0.81 mm) as needed, before installation.



(e) Apply a small amount of anti-seize to the spark plug threads prior to installation. Install TRD spark plugs. Be sure to use a spark plug socket to install so as to prevent damage to the spark plug gap and /or electrode. **Torque to 14 ft-lbs.**

(f) Install factory ignition coils. 10 mm socket. **Torque to 80 in-lbs.** Fig. 48.

(g) Reconnect spark plug ignition coil connectors.



8. Crankshaft Pulley Bolt.

(a) Remove Passenger Side Front Wheel in order to properly access fender shroud and crankshaft pulley bolt.



(b) Remove passenger side plastic body/fender shrouds in order to gain access to crankshaft pulley. Fig. 51 and Fig. 52.

(c) Remove factory crankshaft pulley bolt. Utilize **SST 09213-54015-01 and 09330-00021**. Fig. 53. **CAUTION:** be careful not to damage OE power steering hard line when working with crankshaft pulley. See arrow in Fig. 54.

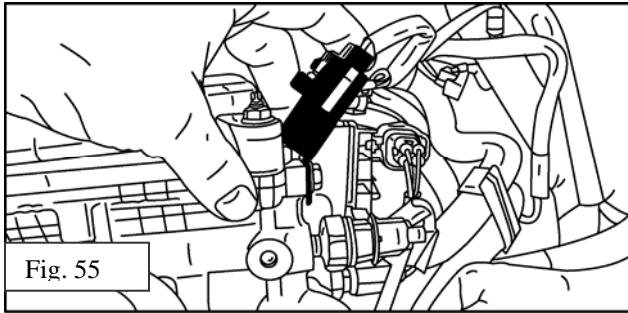


(d) **DO NOT remove pulley from crankshaft!** Remove ONLY the retaining bolt. **NOTE:** some crankcase oil may drip out. This is normal.

(e) Clean and coat the threads of the TRD Hi-Strength 12-Point Bolt with **Red Loctite 272** Thread Locking Compound or equivalent. Install into crankshaft pulley. Using the SSTs and a 1/2 inch drive TORQUE WRENCH, **Torque to 150 ft-lbs.**

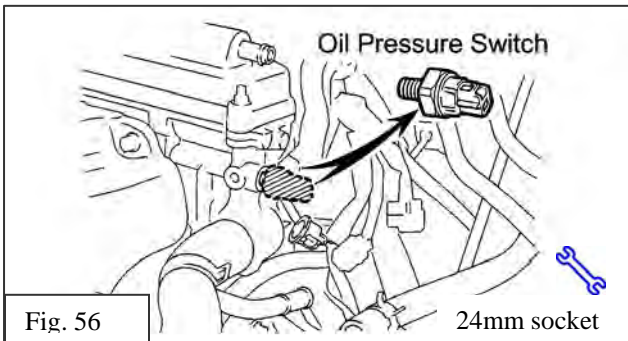
(f) Leave passenger side plastic body/fender shroud and fasteners off until the very end of the installation. This will make it much easier to install the TRD supplied serpentine belt later on.

(g) Leave passenger side front wheel assembly off as well, until the end of the installation.

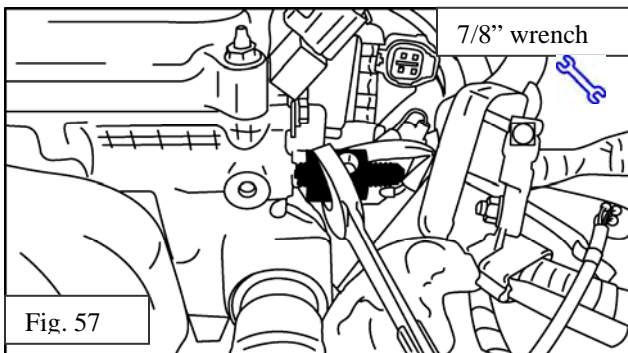


9. Mechanical

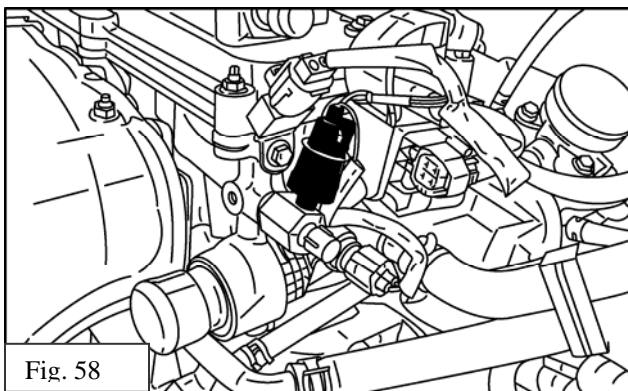
- (a) Rotate radio noise suppressor up at approximately a 45 degree angle. Fig. 55.



- (b) Remove OE oil pressure sending unit. Use a deep 24 mm (or 15/16") socket to remove. Fig. 56.

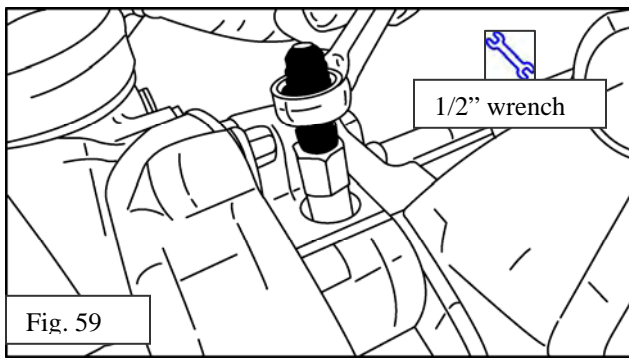


- (c) Place a small amount of motor oil onto threads and Insert TRD hexagonal T fitting. (**Torque to 11-ft-lbs**). NOTE: The female threads need to be pointing upwards within about +/- 10 degrees from the 12 O'Clock position. You will need a **7/8 inch** combination wrench.

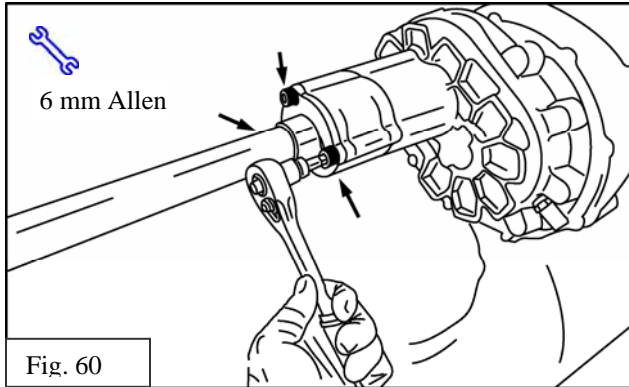


- (d) Place a small amount of motor oil onto threads and Thread in OE Oil Pressure Switch into the top of TRD hexagonal T fitting. (**Torque to 11-ft-lbs**). Reconnect electrical connector. Fig. 58. Be sure that the wires are in a relaxed, strain-free position.

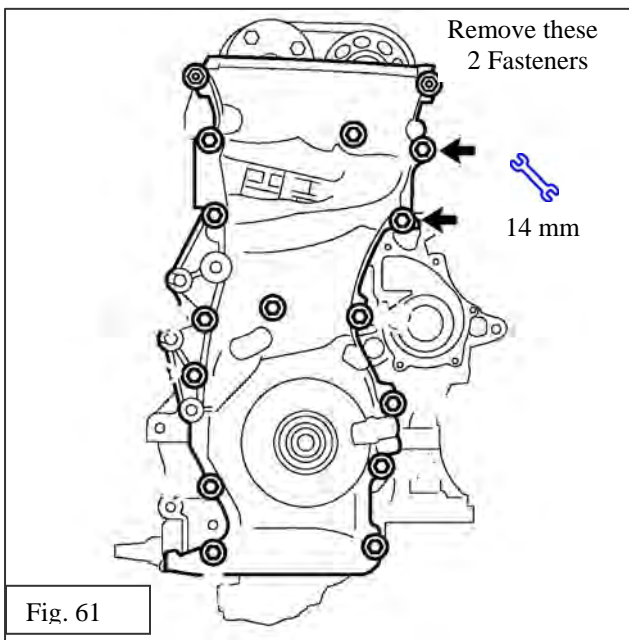
- (e) Apply a small amount of motor oil onto the male pipe threads of the TRD Supercharger Oil Feed Line Fitting.



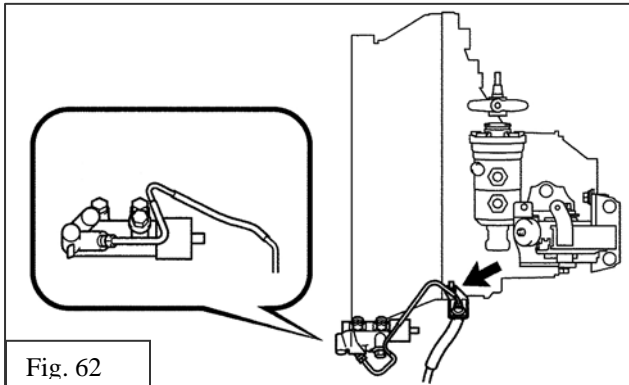
(f) Remove supercharger assembly from packaging and place onto a workbench. Attach TRD Supercharger Oil Feed Line Fitting to Supercharger using a 1/2" box wrench. Fig. 59. **NOTE:** Use a second wrench to hold the supercharger fitting in place as you tighten the TRD fitting into it.



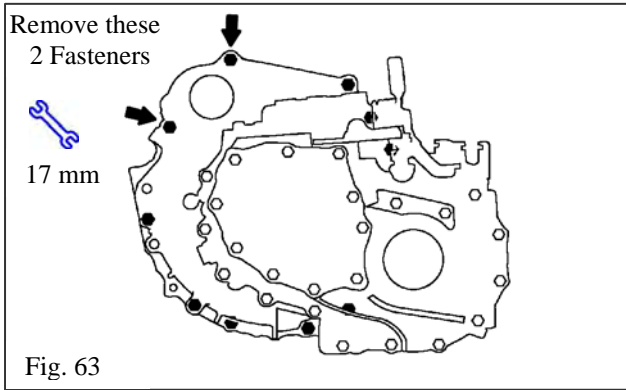
(g) Temporarily loosen the three "horseshoe" bracket fasteners a few revolutions, as shown in Fig. 60. 6mm Allen wrench. Do NOT take the bolts out of their respective holes.



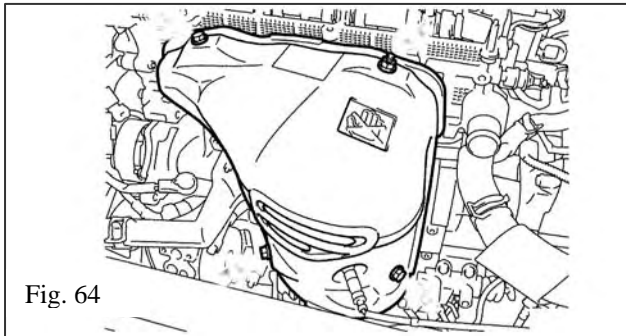
(h) Remove the two OE front cover bolts indicated by arrows in Figure 61. The top one will be reused later. The bottom one will not be reused, but replaced later, with a 10 x 1.25 x 40 TRD-supplied button-head bolt. This button head bolt is to allow for clearance for the re-routed serpentine drive belt.



(i) Temporarily remove bolt securing slave cylinder line to gain access to transmission bell housing bolts AND for clearance to install TRD bolts as well. Fig 62. Carefully move slave cylinder line out of way until re-assembly later.



- (j) Remove two OE transmission bell-housing bolts (17 mm wrench) as shown in Figure 63. These will NOT be re-used.



- (k) Replace OE heat shield with TRD provided pre-bent heat shield. See Fig 64. You will need to remove 3 bolts, one flange nut and one threaded stud. 12 mm wrench and **E7 female Torx socket** for the threaded stud. **CAUTION:** The sheet metal heat shield has many sharp edges! Care should be taken when handling to avoid getting cut.

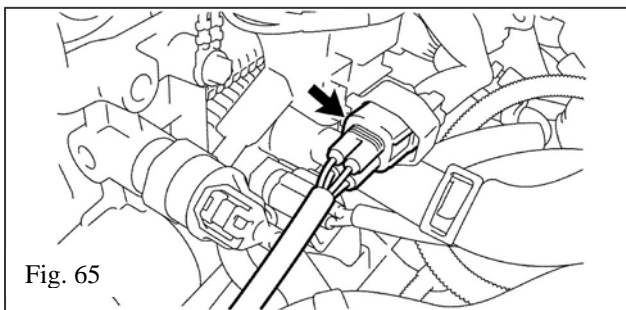
- (l) After all of the fasteners are removed, carefully remove the OE heat shield by gently guiding it over the AFR sensor wires and electrical connector.

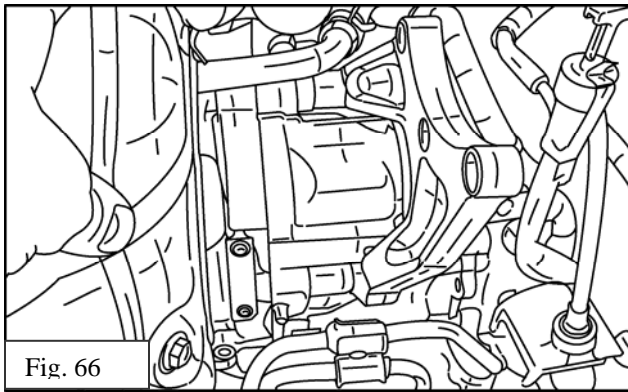
- (m) Now install the TRD supplied heat shield. You will need to thread the AFR sensor wires and connector through its access hole in order to install the TRD heat shield onto the exhaust manifold.

- (n) Now insert the threaded stud back into its respective location as well as the other remaining three fasteners.

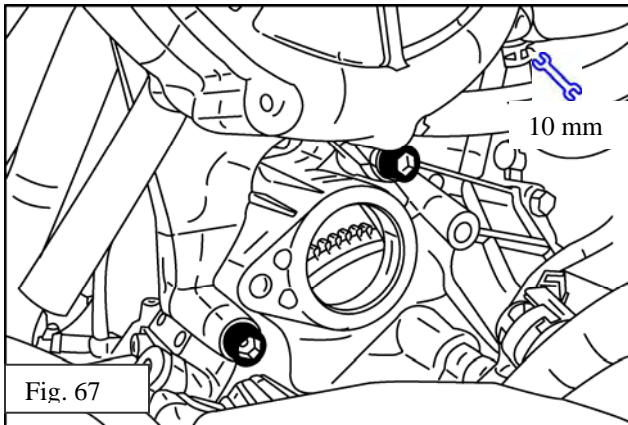
Torque to 9 ft-lbs.

- (o) Reconnect the AFR sensor wire connector and secure wires to radiator hose with OE wire clip. See Fig 65.

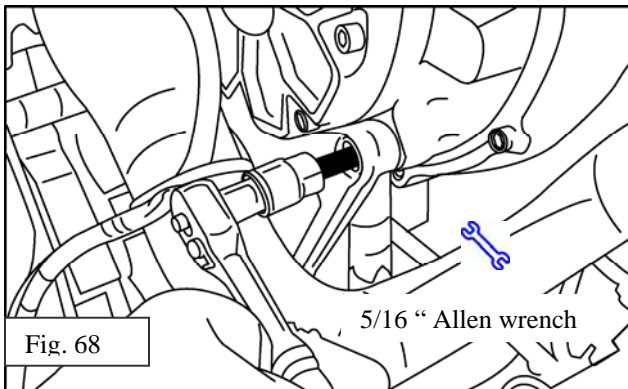




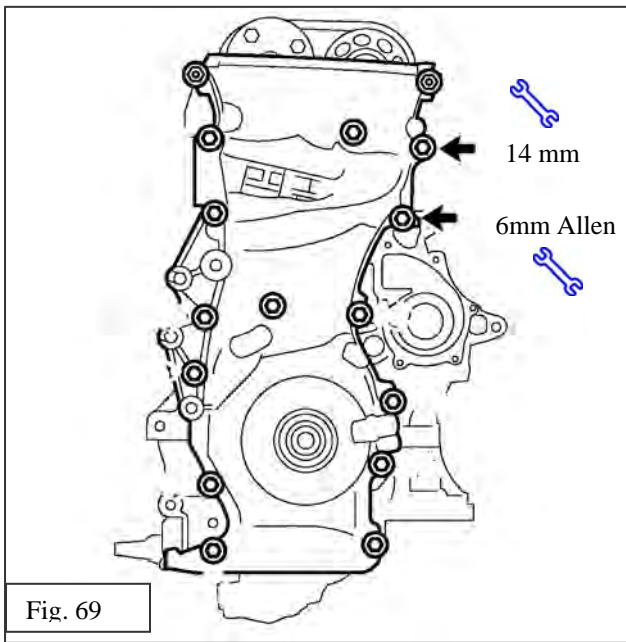
(p) Utilize TRD transmission mounting bracket to attach supercharger assembly to engine block and bell housing. Fig. 66.



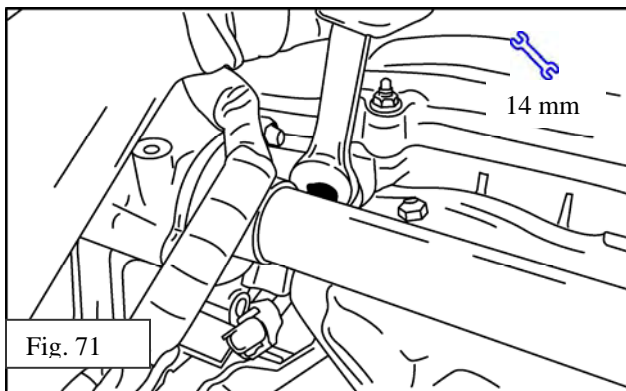
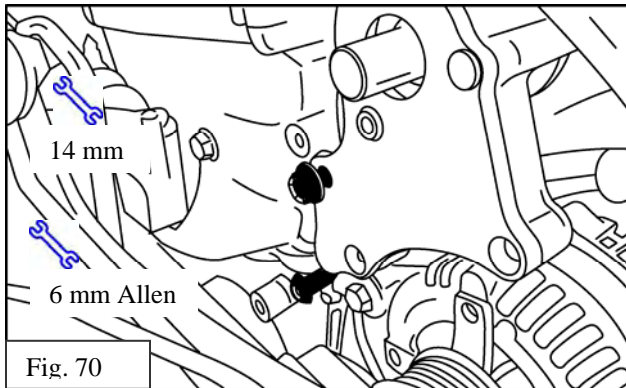
(q) Install using (12 x 1.25 x 80 SHCS) TRD bolts provided (10 mm LONG Allen wrench). Hand-tighten only until all fasteners are in place. See Fig 67.



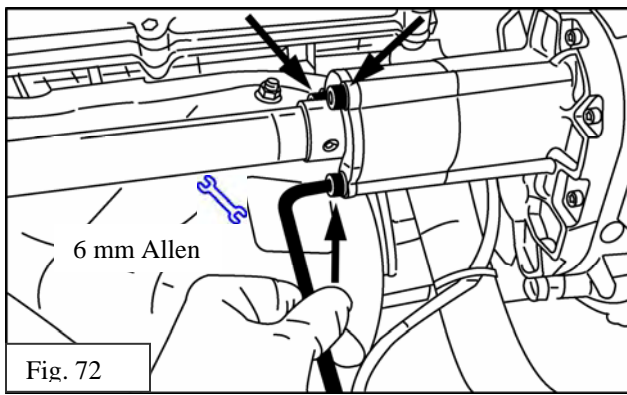
(r) Install the three 3/8"-16 UNC x 1" Socket Head Cap Screws that mount the supercharger to the engine/bell housing bracket. 5/16 inch Allen wrench. Leave loose for now. **Torque to 25-30 ft-lbs later.** Fig. 68



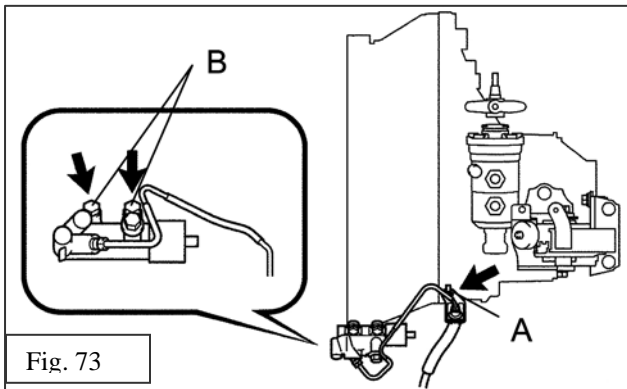
(s) After applying a small amount of anti-seize onto the threads, Re-install top OE bolt and the 10 x 1.25 x 40 TRD-supplied Button-Head Bolt into front engine cover through stainless steel supercharger plate, as show in Fig. 69 and Fig 70. Leave hand tight for now.



(t) Thread in captured TRD (10 x 1.25 x 25 flange head) bolt into engine at cylinder head hanger hole. 14 mm wrench. Leave hand tight for now. Fig. 71.



- (u) Ensure supercharger assembly and brackets are properly aligned or “seated” and then proceed to uniformly tighten ALL supercharger fasteners at this time. Don’t forget to re-tighten the 3 “horseshoe” bracket fasteners. Fig 72. NOTE: A wobble drive Allen wrench may be the preferred tool here. **Torque to 14-16 ft-lbs**



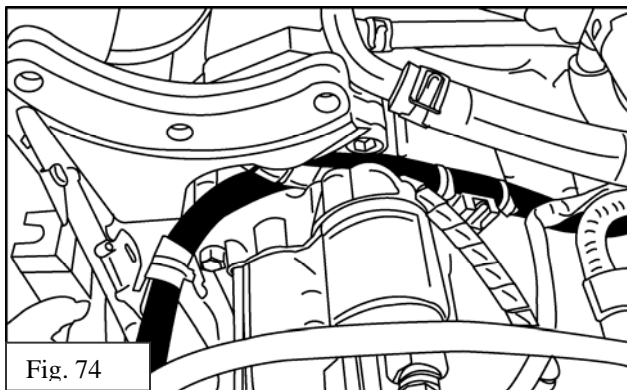
- (v) Replace Clutch Slave Line bolt fastener(s). Fig 73.

Torque fasteners as follows:

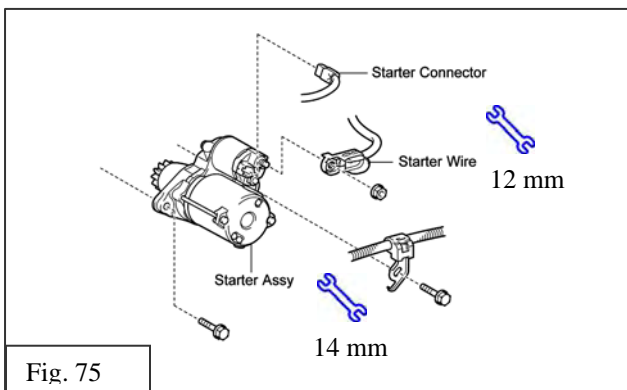
Bolt A : 5.75 ft-lbs

Bolt B : 9 ft-lbs. (if removed)

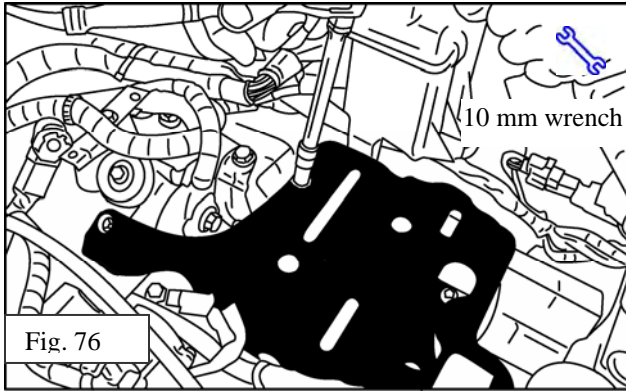
Ensure that the clutch fluid line is clear of any abrasion or sharp edges. Adjust as needed.



- (w) Route the wiring loom and breather hose (if applicable) before and/or during starter motor installation. See Fig. 74. NOTE: Supercharger is removed in photo for clarity.

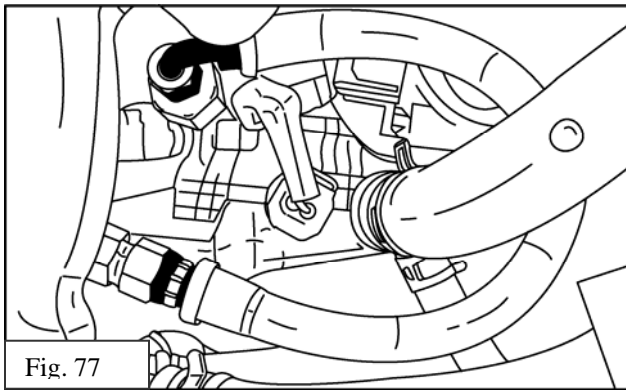


- (x) Reinstall starter motor and starter motor wires. Tighten starter motor mounting bolts. 14 mm wrench. **Torque to 27 ft-lbs**
- (y) Re-connect Starter Connector wire plug and main Starter Wire. 12 mm wrench. **Torque to 7 ft-lbs.**



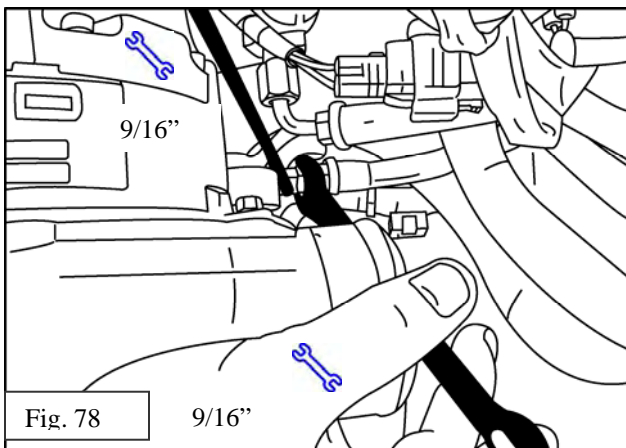
(z) Re install the metal battery tray. Fig. 76.

10. Oil Feed Line & Pulleys.



(a) Next, attach TRD supercharger Oil Feed Line to TRD hexagonal T fitting. Connect the 90 degree bend end of the oil feed line to the T fitting. Leave hand tight for now. Fig. 77.

(b) Attach the other, straight end, of Oil Feed Line to supercharger fitting. Leave hand tight for now. See Fig 77.

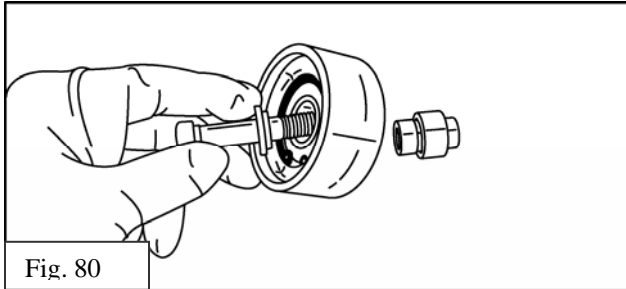
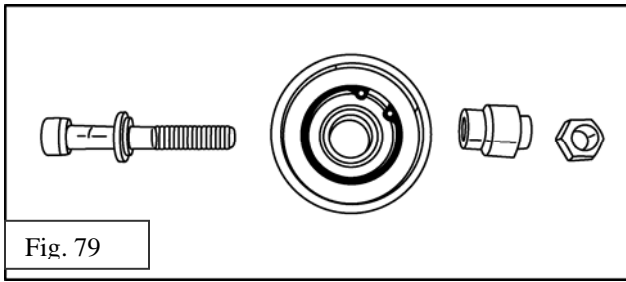


(c) Adjust and or align Oil Feed Line so that it has a clear path thru any and all other hoses or objects near it. It should not be touching any other objects.

(d) Adjust plastic water line clamp as needed to reposition water lines so that they do not interfere with Oil Feed Line.

(e) Now **carefully** tighten both ends of the Oil Feed Line (9/16" wrench) and recheck for clearance around line. Loosen and re-clock as needed until line is clear and then re-tighten into place. Fig. 78.

Do not over-tighten AN fittings!



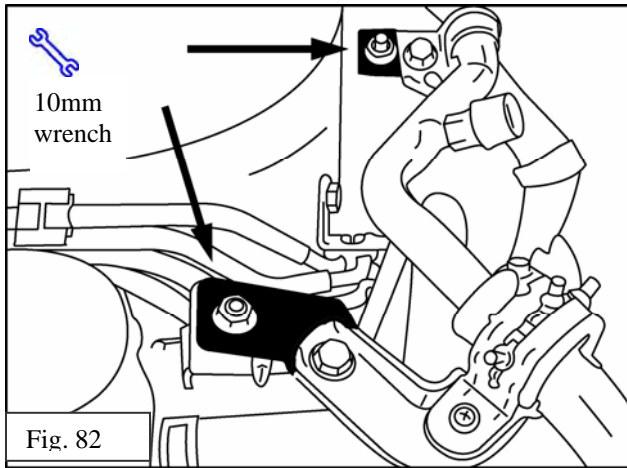
- (f) Install both TRD idler pulleys. See Fig 79 and Fig 80 for proper assembly of components. **NOTE:** Snap Ring in idler pulleys needs to face outward, away from engine

- (g) Tighten Idler pulley assemblies onto stainless steel plate as in Fig. 81. **NOTE:** You will need to hold the crimp nut on the back side with a 17mm wrench and tighten the SHCS with an 8mm Allen wrench or socket.

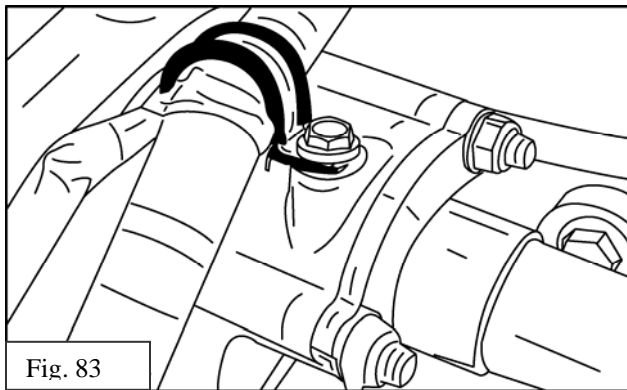
- (h) Next install the 3/16" square woodruff key into the shaft keyway.

- (i) Now slide the TRD 7-Rib Drive Pulley onto supercharger shaft. The "stem" side of the pulley goes on first.

- (j) Install the Drive Pulley Retainer Cup, Drive Pulley Retainer Washer, and the 3/8-24 x 1", Grade 8 Drive Pulley Bolt. Using a **strap wrench** to hold the 7-rib drive pulley, **Torque to 36-40 ft-lbs.** 9/16 inch socket. **NOTE:** DO NOT install the grey plastic TRD tamper-proof cap yet. Depending upon vehicle and component build tolerance, you may need to add or subtract shims during the testing and evaluation of the completed kit.



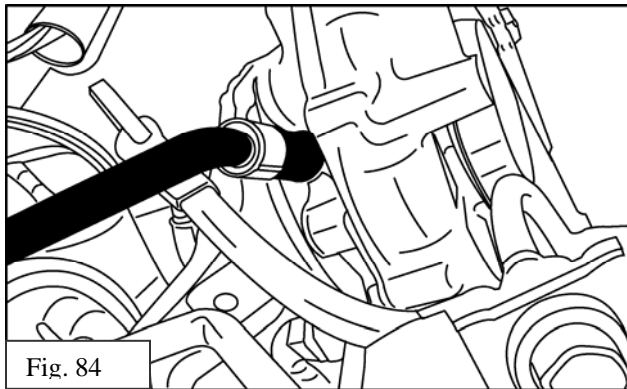
(k) Install the two different AC-hose relocation brackets. You will utilize one TRD-supplied 6 x 1.0 x 12 mm flange head bolt for each bracket, *in addition to* the OE fasteners. Apply some Blue Loctite 242 or equivalent, to the threads of all of the fasteners before assembly. See Fig. 82.



(l) Reconnect Alternator, Crank Position Sensor, and AC Pump wires.

(m) Add wire clamp to supercharger front bearing bracket. Reuse OE 6mm bolt to fasten clamp to cast aluminum SC bracket. Use 2 small TRD-provided zip ties to secure CPS wire to wire loom. Keep wires and wire connectors strain-free and away from the exhaust manifold heat as much as possible.

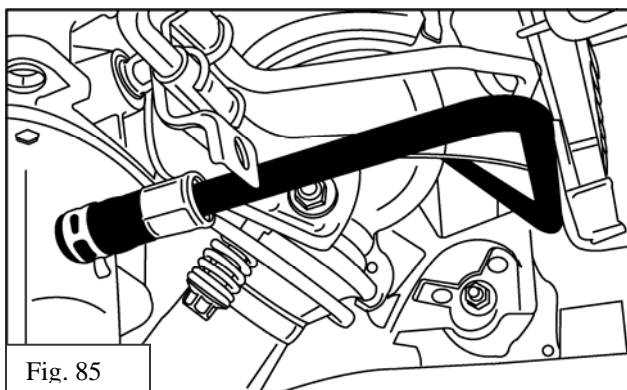
11. Oil Return Line.



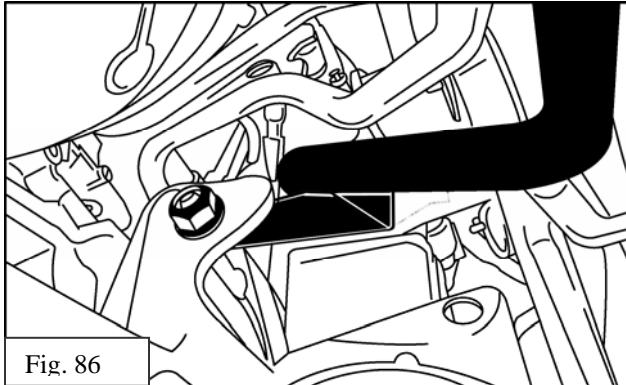
(a) Attach supercharger Oil Return Line between TRD oil pan and oil fitting on bottom of supercharger housing. Fig. 84.

IMPORTANT: Remove blue plastic dust cover from supercharger oil drain first.

NOTE: You will need to place the TRD supplied hose clamps onto the hose ends before installing assembly onto the motor.

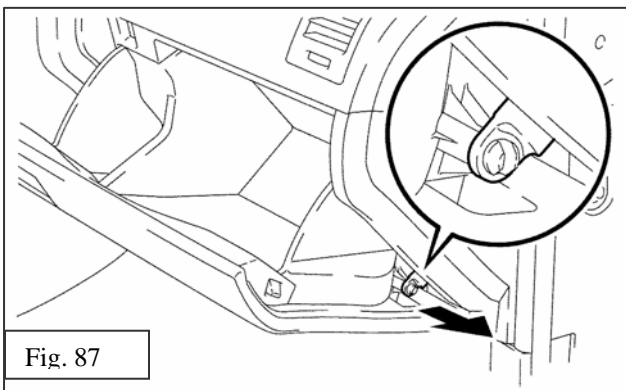


(b) Be sure hose clamps are secure and in place. Fig. 85

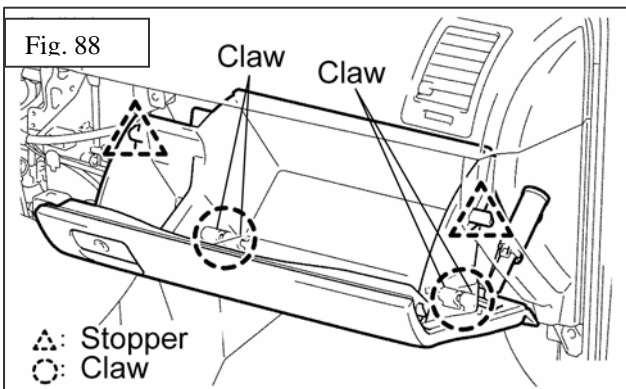


- (c) Fasten Oil Return Line mounting bracket to OE engine mount with the TRD supplied hardware. 8 x 1.25 x 16 bolt, 8mm flat washer and 8 x 1.25 self locking nut. 13 mm wrench. See Fig. 86.
- (d) Visually check that Oil Return Line is free of abrasion and interference with any other item.

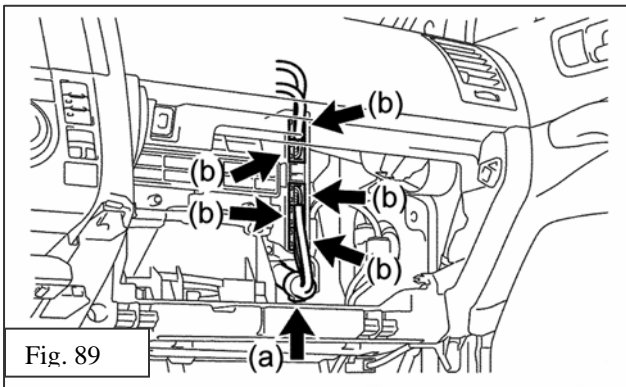
12. ECM Re-Flash



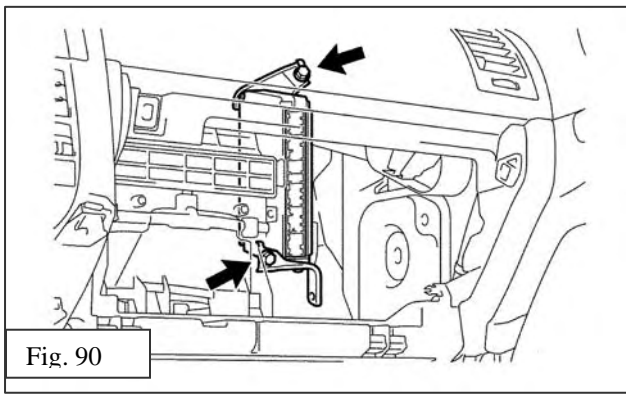
- (a) Remove glove box by first separating the door stopper from the glove box door assembly.



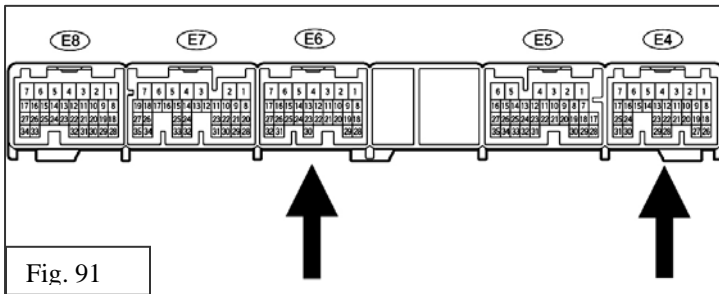
- (b) Slightly press in on the upper sides of the glove box door to release the 2 stoppers. Disengage the 4 claws and remove the glove box assembly.



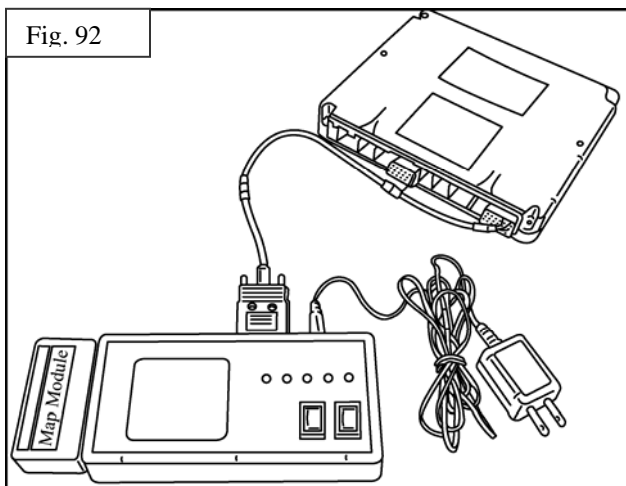
- (c) Remove the Engine Control Module (ECM) by first disconnecting the wire harness clamp (a) and then the connectors (b). Fig. 89.



(d) Remove the retaining fasteners and then remove the ECM from the vehicle and place onto a clean workbench.



(e) Before beginning the ECM map re-flash, make sure that ALL devices are disconnected from power and that the devices are in the power OFF mode. On a clean work bench, connect TRD communication cable between the TRD Data Transfer Device (DB 15) and the appropriate ECM receptacles. See Fig. 91.



- (f) Carefully insert the Map Module into Data Transfer Device. Fig. 92.
- (g) Be sure mode control switch on TRD Download box is set to "E.M."
- (h) Connect AC power cord into TRD Download Box, and then plug AC power supply into a 115 V AC wall outlet.
- (i) Begin Map re-flash by switching power switch to the ON position. During this process the CHK LED will blink with a set pattern (...off-yellow-red-green-off...). CAUTION: Do NOT disconnect ECU or Module until the re-flash is complete. Do NOT turn power OFF until re-flash is complete. The data transfer will take approximately **20 minutes** to complete. While you are waiting, you can proceed to the Intake System Installation.
- (j) If a writing error should happen to occur, the CHK LED will blink red and a buzzer will ring. You must then begin the sequence all over again.

- (k) When the Re-Flash is complete, the CHK LED will blink green and the buzzer will ring indicating that the data has transferred successfully. It is now safe to turn the power switch to OFF and disconnect the ECM.
- (l) After successfully re-flashing the ECM, apply the appropriate decal to the ECM. “WY201” for Manual Transmission cars.

DO NOT apply label over OE label.

- (m) Re-Install ECM into the vehicle in the reverse order as you removed it. **Be sure to place customer Map Module into glove box.**

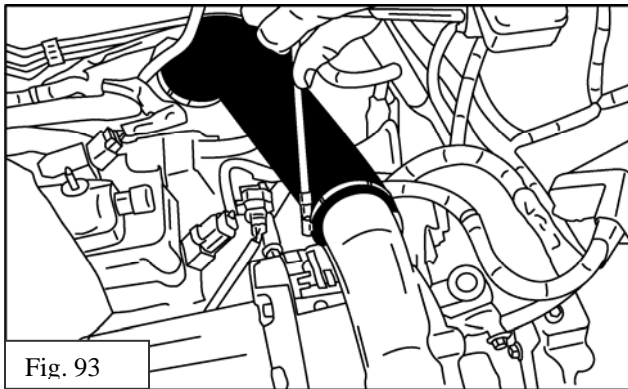


Fig. 93

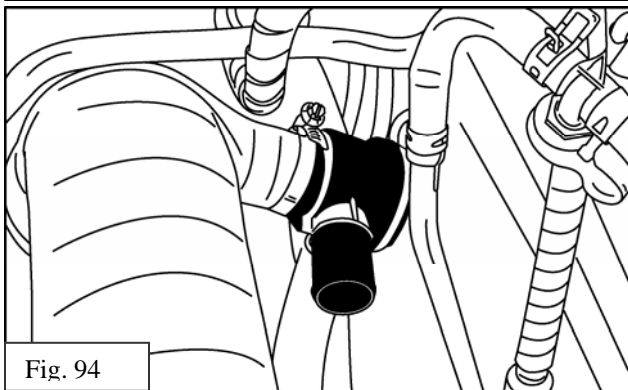


Fig. 94

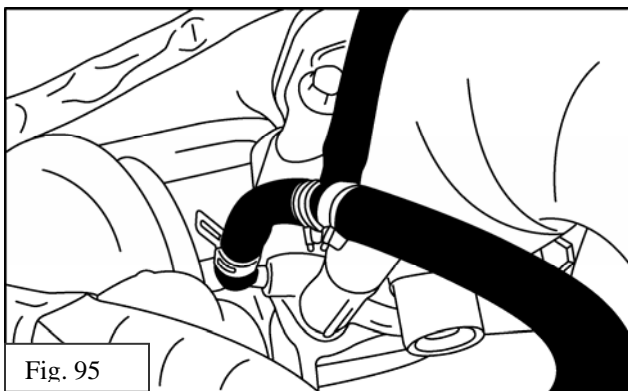
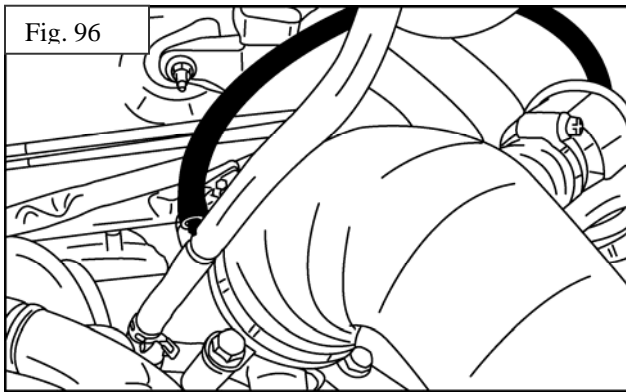


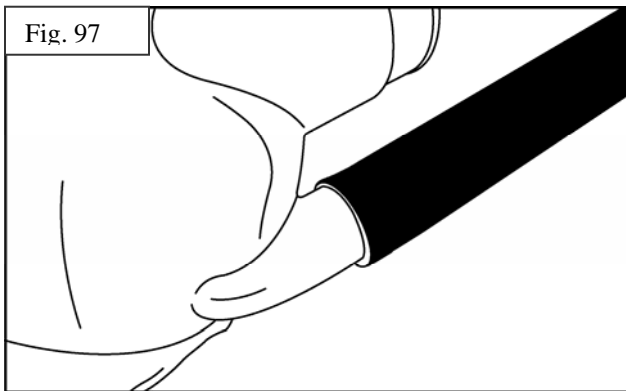
Fig. 95

13. Intake System.

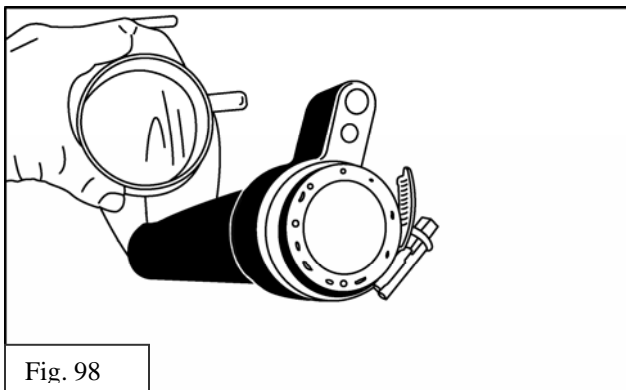
- (a) Install rubber TRD intake tube between S/C and Throttle Body. Be sure to install the hose clamps over the tube before fitting into place. Fig. 93.
- (b) Attach bypass valve to intake tube with appropriate hose clamp. See Fig. 94.
- (c) Cut OE vacuum line near throttle body and insert TRD-provided plastic T fitting and TRD-provided vacuum hose. See Fig 95.



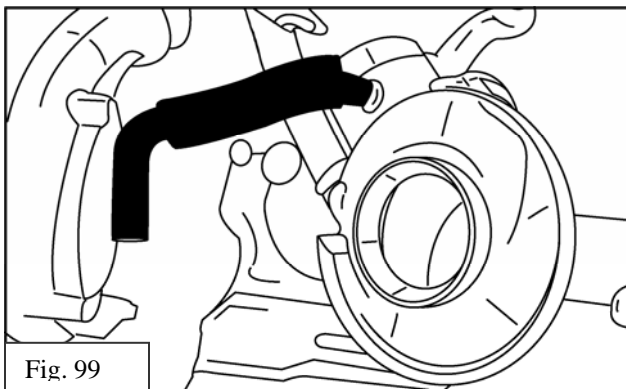
- (d) Connect other end of TRD-provided vacuum hose to nipple on end of bypass valve.
Fig. 96.



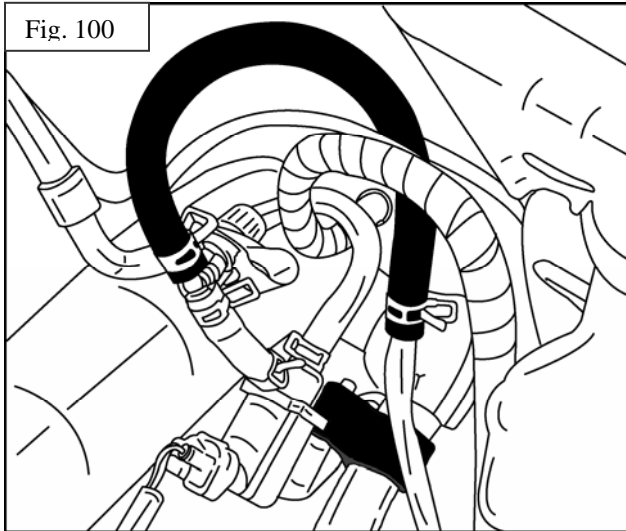
- (e) Install bypass-to-supercharger inlet hose onto cast aluminum TRD intake manifold.
NOTE: No hose clamp is needed at this connection, as seen in Fig. 97. You may need to trim the hose for proper length.



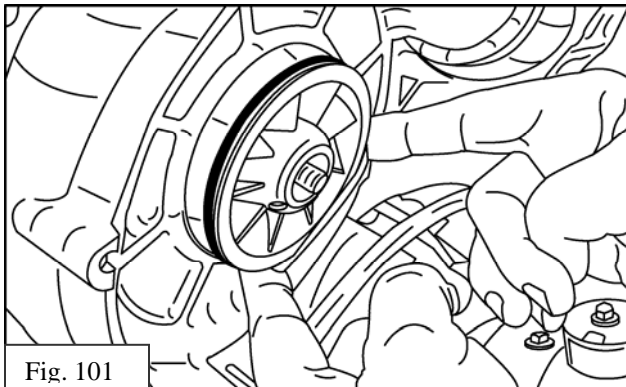
- (f) Install TRD-provided rubber VSV mount and hose clamp to bypass-to-supercharger hose.
See Fig. 98.



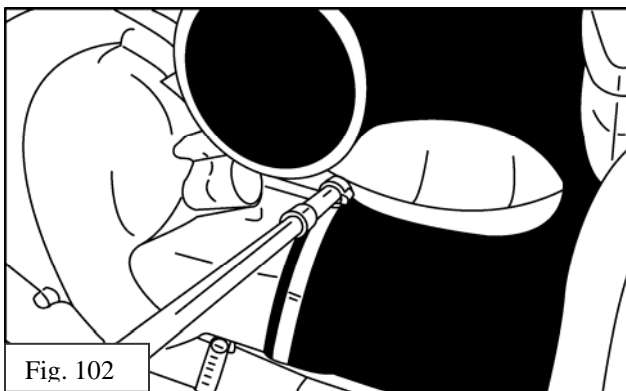
- (g) Install OE valve cover breather hose and OE clamp onto cast aluminum TRD intake manifold. Install intake with bypass hose to bypass valve. Do not tighten hose clamps yet. Fig. 99.



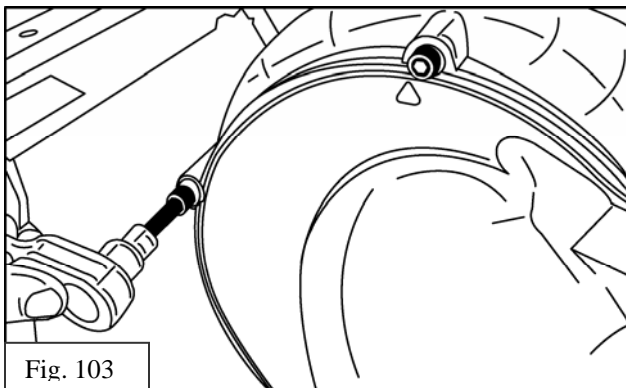
- (h) Remove 90 degree OE vacuum line and install TRD provided 250mm long vacuum line as shown in Fig 100. Insert VSV into rubber TRD VSV mount.



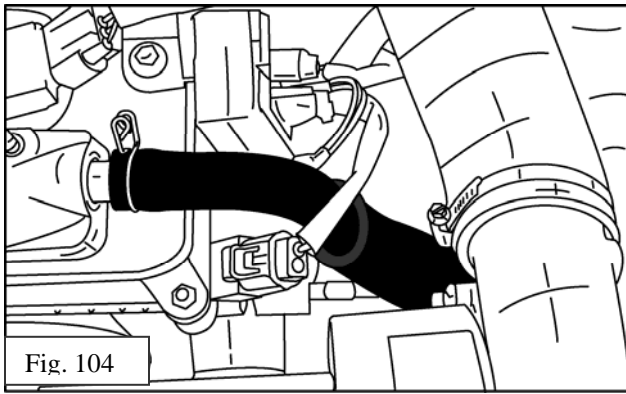
- (i) Fit intake manifold O-Ring to supercharger assembly. Be sure to use some assembly lube or motor oil on O-Ring prior to installation. Fig. 101.



- (j) Install "Tuba" intake hose onto inlet manifold and secure with hose clamp. NOTE: Proper orientation of "tuba" hose is with large diameter end attached to aluminum intake manifold. Fig. 102.



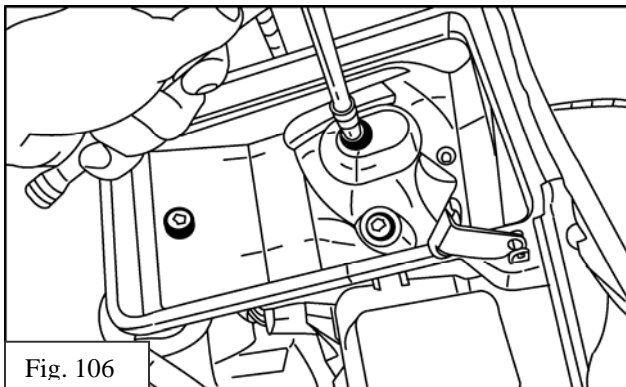
- (k) Fit TRD inlet manifold to supercharger. NOTE: Use a small amount of motor oil or equivalent to lubricate the intake bore and O-ring surface interface prior to assembly. Be sure to align manifold so that all hoses are free from kinks and away from any sharp edges. Using the cast-in locator arrow, align arrow approximately with top fastener hole. See Fig 103.
- (l) Utilizing the 3 TRD supplied 6 x 1.0 x 16mm SHCS and three 6 mm flat washers, clamp down TRD inlet manifold to supercharger assembly. 5 mm Allen wrench. **Torque to 5-7 ft-lbs** See Fig. 103.



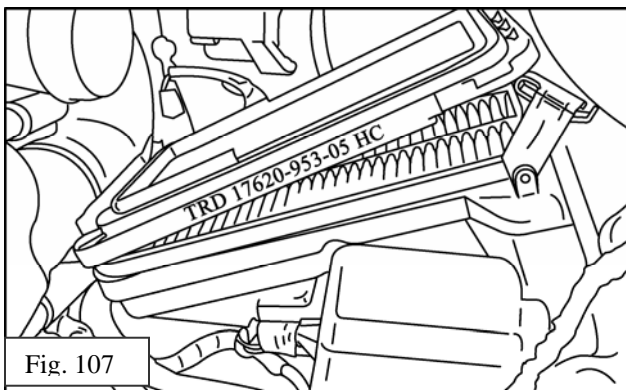
- (m) Tighten all hose clamps for bypass hose and inlet manifold hose.
- (n) Install valve cover breather hose onto valve cover. Fig. 104.



- (o) Install the TRD flexible rubber fender inlet piece into the fender well. See Fig. 105.



- (p) Install the low-profile TRD supplied spacers and grommets into the TRD supplied lower airbox. Now install airbox assembly into place, making sure that the flexible rubber inlet gets attached to airbox and fits correctly into fender hole without obstruction. Using the 3 OE fasteners, secure into place. See Fig. 106.



- (q) Install TRD supplied air filter and Hydro-Carbon (HC trap) NOTE: HC trap writing should face up and forward when installed properly. See Fig. 107.

WARNING

Your 2AZ-FE (2.4L) supercharger system is equipped with a Hydrocarbon (HC) trap for emissions compliance. **DO NOT** remove, modify, or tamper with this part (#17620-953-05). Your supercharger system has been designed and calibrated to operate correctly with this HC trap.

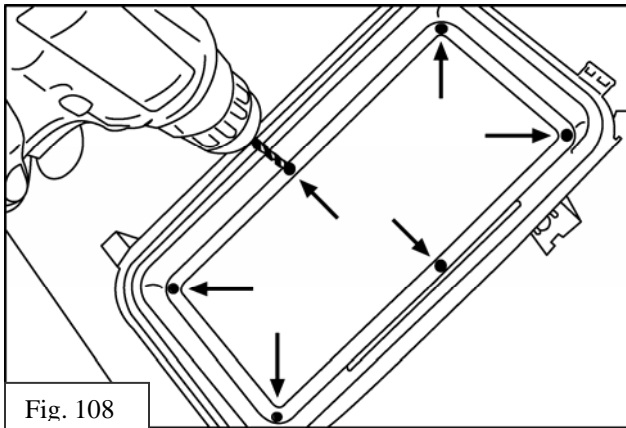


Fig. 108

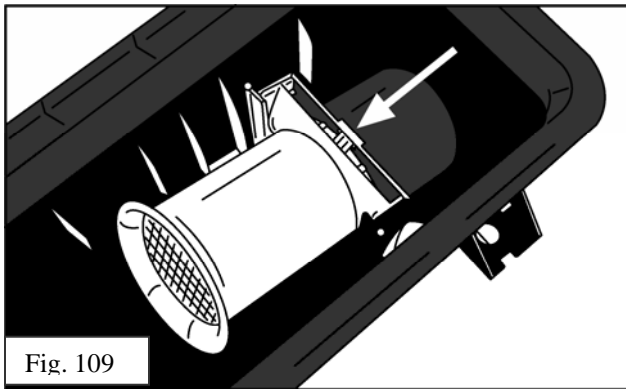


Fig. 109

(r) Remove OE HC filter from OE Airbox top. This is accomplished on a workbench by drilling out the plastic rivet heads. See Fig. 108. Be sure to remove any and all loose debris. NOTE: The OE HC trap is not reused for this kit. However, the Airbox top will be retained. Be careful not to damage the Mass Air Flow Sensor.

(s) Install TRD-supplied white plastic inlet “trumpet” tube into Airbox top. Be sure tube clicks into place. See Arrow in Fig 109.

(t) Assemble Airbox components together.

(u) Secure TRD inlet “Tuba” tube between Airbox and supercharger inlet. Be sure to install the hose clamps over the tube before fitting into place.

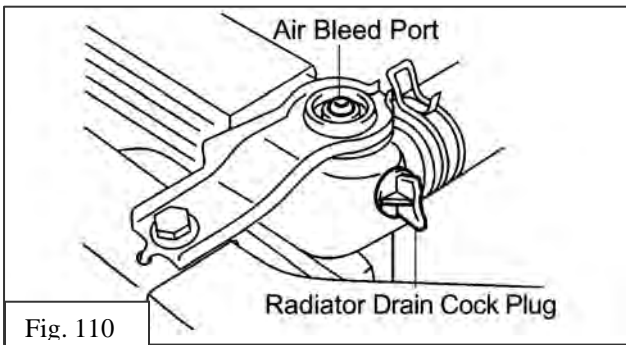
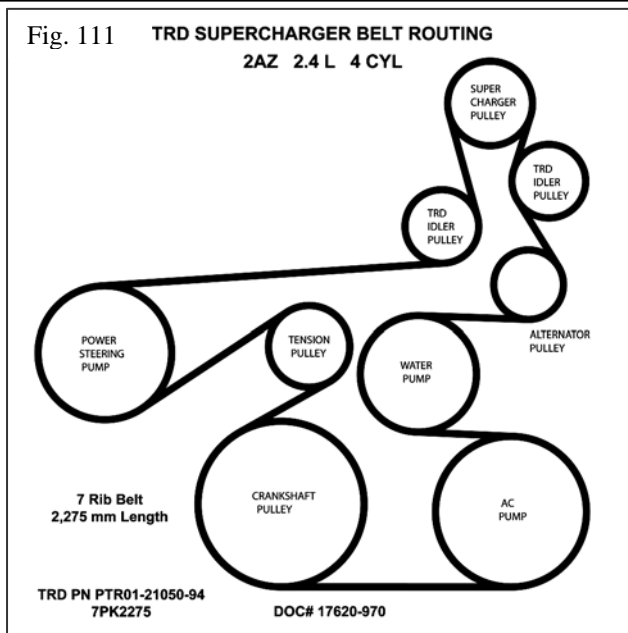


Fig. 110

14. Final Assembly

(a) Be sure both coolant system drain cocks are closed. Engine block drain cock should be torqued to 9 ft-lbs. Install the TRD supplied radiator hose at the engine spout. Carefully backfill block with coolant mix through front of TRD hose. When block is full connect TRD hose to radiator. Place clear vinyl hose onto bleeder nipple (Fig 110.) on upper right side of radiator. Crack open upper bleeder valve three turns. Pour any remaining OE coolant back into radiator filler mouth. Use only Toyota Super Long Life Coolant or equivalent. Fill system up with coolant/water mix (approximately 50-50). Close bleeder port when done. Cap radiator. Wipe up any spilled or excess coolant.

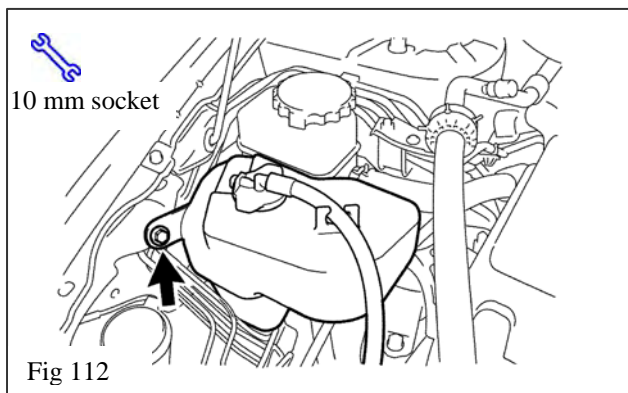


(b) Install TRD Supercharger Serpentine Drive Belt. As before, utilize **SST 09249-63010** leverage tool with 19mm, 6-point socket and lever arm, or ratchet. See Fig 111.

TRD P/N PTR01-21050-94

DAYCO P/N 7PK2275 / 5070895.

BE SURE that the belt is properly seated into ALL of the pulleys.

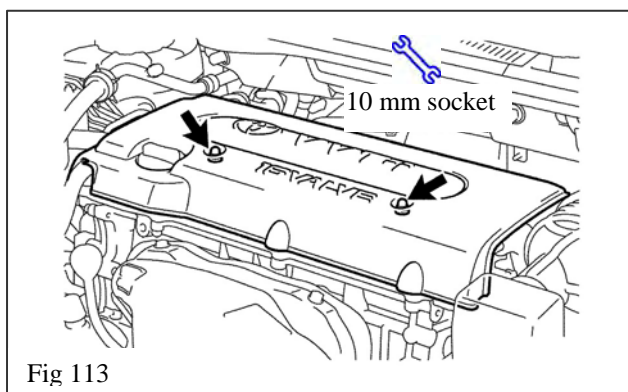


(c) Reinstall radiator reserve tank and torque fastener to **44 inch-lbs.** See Fig 112.



(d) **ADD ENGINE OIL!!!**

Use SAE 5W-30, 4 U.S. Quarts minimum. Check oil level on engine dipstick. Add oil as needed.



(e) Replace engine cover. **Torque to 62 inch-lbs.**

(f) Select a suitable location under the vehicle hood and install the **Belt Routing Label**, the **CARB EO Emissions Compliant Label**, and the **TRD Tune-Up Label**. Clean the area first of any dirt or contamination so that the labels will adhere properly. NOTE: Do NOT cover over any OE labels.

(g) Install **Premium Fuel Only** decals. Place one on dash near fuel gauge AND also one near fuel filler cap.

(h) Replace plastic battery tray and battery. NOTE: Be sure to locate battery in battery

tray all the way forward AND all the way toward the driver side of the tray. Replace hold down strap.

- (i) Connect Battery Positive. **Be sure to route Battery (B+) cable safely away from engine components, supercharger components, abrasive surfaces, and any sharp objects.**
- (j) Connect Battery Negative.

15. Testing and Evaluation.



- (a) Start motor and let it idle.
- (b) Check the fuel system for any leaks.
- (c) Check Oil system for any leaks.
- (d) Check Coolant system for any leaks.
- (e) Check the Air Intake system to ensure there are no leaks and for tightness.



- (f) **IMPORTANT:** Check the serpentine drive belt for correct alignment on ALL pulleys, especially the two TRD idler pulleys.



- (g) **If belt is not properly aligned, stop the motor. TRD supplied shims must be added or subtracted behind the 7-Rib drive pulley until belt alignment is correct. NOTE: Belt alignment must be visually checked while the motor is running. The serpentine drive belt alignment will change slightly from when the motor is off to when it is in motion. ALWAYS VISUALLY CHECK WITH THE MOTOR RUNNING.**
- (h) Turn off engine and allow it to sit for approximately 5 to 10 minutes.
- (i) Re-check engine oil level. Add engine oil as needed to correct level on dipstick.

- (j) **IMPORTANT:** Add or subtract TRD supplied shims behind serpentine drive pulley if needed, to attain correct drive belt alignment. When motor is running the edge of the drive belt must NOT hang off the edge of either of the TRD idler pulleys.
- (k) Drive test vehicle. If all OK, park and proceed to next step. If not, troubleshoot as needed.
- (l) Pre-Heat TRD grey plastic tamper-proof cap with a heat gun or equivalent method, in order to make the plastic more pliable for installation. Otherwise, plastic may be too brittle and crack or break during installation. After sufficient pre-heat, Install TRD grey plastic tamper proof cap over end of 7-Rib drive pulley bolt.
- (m) Install mirror hangtag placard.
- (n) Fill out warranty card/ give to customer/ service writer.
- (o) Place all factory hardware, components, and this instruction sheet, into TRD box and give to customer and/or place into vehicle cargo compartment.
- (p) **IMPORTANT:** Review with the customer/end-user that the supercharger will have a slight rattling and or chirping sound especially at idle and that **these are normal noises** for this type of supercharger.
- (q) **IMPORTANT:** Review with the customer/end-user that it is imperative that only **91 octane or higher fuel** be used after supercharger is installed. Performance will suffer and engine damage is possible otherwise.

Accessory Function Checks

- IMPORTANT:** Ensure that Battery Positive Cable does NOT touch or rub on supercharger. Adjust as necessary.
 - Verify correct belt alignment. When engine is running, belt should not be running of edge of any pulleys.
-

Vehicle Function Checks

- NVH on plastic in cabin near accelerator pedal. Use Adhesive Foam Tape or equivalent as needed.
- Be sure to follow recommended factory engine break-in procedures and maintenance schedules.
- Be sure to initialize each door's power window and moon roof per factory procedure.

