

## **SUZUKI JIMNY SIERRA Turbo Kit (JB74W)**

### **Installation instructions**

#### **Precautions:**

- We are not responsible for any problems caused by the installation work.
- Before installation, thoroughly check and understand the contents of the instruction manual before starting work.
- Make sure that you have sufficient equipment, technology, and tools required for the work. If there is a problem with the vehicle before installation, make sure to resolve it before installing.
- It is recommended that the installation be done by an auto mechanic or a skilled worker.
- Install after fully understanding the mechanical operation of the vehicle.
- Welding and processing of the Catalyzer flange is required to install this kit.
- Depending on the vehicle, year and country of origin there may be differences to what is shown in these instructions and some different process or modifications may be required according to the specific vehicle.

#### **During Installation:**

- Boost control is actuator type. Approximate adjustments are made at the time of shipment, but in the end, make adjustments according to the individual vehicle. We recommend the kit to run 5 to 6 psi.
- Adjust the turbine water line and oil line as necessary. Also, perform heat insulation treatment for each part as appropriate.
- Be sure to change the engine oil to one for turbo. (AVO recommend engine oil that has a 10w-40 grade)
- After fitting the turbo kit, the fuel used in the vehicle must be the highest octane gasoline specification for your area.

## **Recommended Installation Flow is as follows :**

- Removal of grill and front bumper.
- Removal of genuine intake including airbox. Ensure to leave hose that comes off the throttle body.
- Removal of genuine exhaust manifold.
- Installation of intercooler only at this point.
- Installation of exhaust manifold & turbocharger assembly. This pre-assembled for when you receive it. Please check all nuts and bolts for tightness.
- Oil pan processing which includes removal and refitment of oil pan.
- Turbine water line & oil line installations.
- All the intercooler piping installation from turbo to intercooler and intercooler to existing throttle body hose.
- Fitment of Intake pipe & blow-off valve assembly.
- Catalyst flange welding and installation.
- Check valve installation
- Tightening of all components and re-checking all work completed.
- Vehicle Restore.

## **Preparation for Installation / Removal - Photos 1-3 :**

- [1] Remove the grill & front bumper. Remove the undertray attached to the front bumper.
- [2] Remove the genuine intake to the front of the throttle.
- [3] Remove the blow-by/breather steel pipe from the factory throttle body hose.  
Since the water cooling hose is also attached to it, you will need to stop the water with a clamp or block off.
- [4] Remove the genuine exhaust manifold & front pipe assembly. The O2 sensor will need to be transplanted to the turbo kit.

## **Intercooler Assembly Installation - Photos 4-6 :**

- (5) Remove the bolt under the headlight. (M6) Using the removed screw holes, attach the intercooler with the spacer and the supplied bolts (M6 bolt & washer). Tighten the lower side of the intercooler with the supplied spacers and bolts (M8 bolts and nuts).

## **Turbine Installation - Photos 7-8 :**

- (6) Cut the clip attachment part where the wiring is fixed to the washer tank. This will give you clearance for the intake hose to the turbocharger.
- (7) Attach the supplied studs (3 in total) to the cylinder head where the genuine exhaust manifold was tightened beforehand with bolts.
- (8) Install the exhaust manifold & turbine assembly. Use the supplied stainless nuts (6 in total) for tightening. **Note** : Reuse the genuine exhaust manifold gasket. It is also recommended to apply a high temperature sealant both sides of the gasket. If the gasket is deteriorated, be sure to purchase a new one.
- (9) Tighten the O2 sensor into the outlet after the turbocharger.

## **Oil Pan processing - Photos 9-13 :**

- \* Process for attaching the turbine oil drain pipe to the oil pan.
- (10) Drain the engine oil and remove the oil pan. **Note** : If you have sufficient equipment and technology, you can proceed to the next process without removing the oil pan.
  - (11) Drill a hole in the oil pan referring to the position in the photo (hole size should be 14.75mm or slightly smaller if anything). After the hole is drilled then you must tap the hole using a 3/8" -18 NPT Tap. Make sure not to tap too far in as it may cause the fitting to bottom out and not tighten. Use some high temperature sealant around the threads of the fitting and screw the turbine drain pipe into the sump.
  - (12) Use the manufacturer's specified gasket (if the oil pan is removed) to refit the oil pan. Attach the oil pan to the engine. **Note** : If you remove the oil pan, you need to replace the O-Ring on the oil pan mounting surface as well. **(SUZUKI Genuine Part No. : 3BA-JB74WGJ)**
  - (13) Fill the engine oil with the correct amount of oil for turbo. **(AVO recommended Engine Oil : 10w-40)**

## Installation of Turbocharger Water and Oil Lubrication lines - Photos 13-16 :

- (14) Attach the turbocharger water line (1.17m length) to the supplied plastic 90degree joiner and then fit the plastic 90degree joiner into the existing water cooling hose that was left exposed from the removal of the steel piping in step 3. The other end of the hose goes to the outside banjo coming out of the turbocharger furthest from the engine. Route it around the front of the engine to this banjo. Fit hose clamp to each end and tighten.
- (15) Remove the factory water cooling hose from the front part of the engine as per photo and which connects to the other end of the steel pipe removed in step 3. Use the supplied hose (0.86m length) to connect directly from the engine to the top of the turbocharger. Route the hose around the front of the engine. Fit hose clamp to each end and tighten. Use cable ties to keep it tidy along with the other water hose routed around the front.
- (16) Remove the oil pressure switch near the engine oil filter. Use the included oil pressure switch adapter to attach it according to the photo. Use sealing tape on the threads with the adapter and pressure switch.
- (17) Install the turbine braided oil line. **Note** : Since the oil line becomes hot, if there is a possibility of interference with surrounding parts (air conditioner pipe, water line, etc...), fix or insulate it as appropriate. The oil line goes between the top of the turbo and the end of the oil pressure switch adapter which is located near the oil filter just in front of the turbocharger and turbo manifold. Now finish off the oil plumbing by fitting the 5/8" oil drain hose between the long straight steel drain under the turbo and the fitting screwed into the sump. Ensure the fire sleeve is pre-fitted over the oil hose, the 16/27 hose clamps are fitted at each end and then tightened.

## Intercooler to Throttle Body Piping installation - Photos 17-20 :

- (18) Refer to the photos and cut a part of the engine side panel and fender liner in the left and right wheel arches. **Note** : Can be easily cut with an air saw. Since the engine moves back and forth and left and right while driving, if the cutting range of the panel is not sufficient, abnormal noise may occur due to the piping interference on the body. Mark out the cutting area with a marker to ensure accuracy, I would start out by marking it slightly undersize and check. If not right, cut it out slightly more.
- (19) Install the steel throttle body pipe. Use the supplied bolt (M6), washer and nut for fixing to the airbox bracket. The pipe bracket attaches to the underside of the bracket and the bolt fits upwards through the pipe bracket and the factory airbox bracket. The steel throttle pipe fits into the original factory rubber throttle hose. The factory rubber throttle hose must have the blank-off fitted into the open hole left by the removal of the steel breather pipe in Step 3. Secure the blank-off with the 12/22 hose clamp. Make sure to tighten the hose clamp on the factory rubber throttle body hose that is attached to the steel throttle body hose.

- (20) The intercooler discharge pipe is to be fitted between the intercooler and throttle body pipe. Using the vehicle sidebolt (M12), remove the bolt for the moment and line up the bracket on the pipe with the threaded hole. Once in place, refit bolt and only screw in finger tight. At the intercooler end, use the 3" long 2" ID silicon joiner and 2 40/60 hose clamps to secure. At the other end, use the 2" hump hose and 2 40/60 hose clamps to secure the 2 pipes together. Now tighten the bolt and all 4 hose clamps.

### **Turbocharger to Intercooler Piping Installation - Photos 17-20 :**

(21)

### **Intake Piping for Air Filter to Turbocharger Installation - Photos 21-25 :**

- (22) The next thing is to connect the silicone Inlet hose to the front of the turbocharger. Fit the 50/70 hose clamp onto the inlet hose that is closest to the turbocharger and 60/80 hose clamp on the end furthest from the turbocharger. Leave the hose clamps firm only at this point as the hose may need to rotated slightly when fitting the BOV pipe.
- (23) You will need to remove the front grill assembly to complete the next part of the intake install. Remove the both left & right blinker globes from behind and this can be achieved when the bonnet is up. Once this is done you can physically pull the grill outwards. There is about 6 push-in tabs (White in Colour in Photo 23) that hold it in.
- (24) You have to cut 10mm off the side of the radiator shroud where the pipe goes through. The cut only has to be about 60mm high. Be careful not to damage the capacitor body. Make sure to clean all the burs off the cut so it is not sharp.
- (25) The pipe can be fitted and has to come from the front of the vehicle inwards. Locate the pipe into the silicon inlet hose in front of the turbo. The bracket attached to the pipe now needs to be secured. You use the 6x16mm bolt, 6x15mm flat washer, and spacer supplied in the kit to do so. It will be quite obvious where it goes as the bracket will line up to a factory threaded hole on the upper left of the headlight. Put spacer between the body and bracket and then fit bolt and washer on other side of bracket. Now tighten the bolt firmly. Do not tighten the hose clamps on the silicone turbo inlet as yet.
- (26) To be able to fit the grill back on you will need to remove the larger bracket (Photo 25) that secures the grill surround. It will not allow the filter to go back on without it removed. Remove it now by undoing the screw.
- (27) Fit the air filter on to the end of the pipe and tighten the hose clamp. Refit the grill and surround. Refit all clips to secure correctly. Refit both left and right blinker globes.

### **Installation of Intake Blow-Off Valve - Photos 26 - 29 :**

- (28) Fit the short 1" ID silicon hose (2.5" long) & 2 25/40 hose clamps to the steel throttle body pipe. Tighten the bottom hose clamp closest to the steel throttle body pipe only at this point.
- (29) Fit the blow-off valve into the short silicon hose and face it towards the turbo silicon intake hose on the front of the turbocharger.
- (30) Fit the short 1" ID silicon hose (2.5" long) & 2 25/40 hose clamps onto the blow-off valve inlet. Only tighten the hose clamp closest to the blow-off valve at this point.
- (31) Fix the steel blow-off valve return pipe between the blow-off valve short silicon joiner and silicon inlet hose. The blow-off pipe is to be secured to the engine via the welded bracket, use genuine factory bolt and tighten it to the engine body as per Photo 27. Tighten the remaining 25/40 hose clamps that were left loose previously.
- (32) Attach the 6mm silicon vacuum hose to the blow-off valve and fit the special vacuum clamp to secure it. Run the vacuum line towards the rear of the vehicle.
- (33) On the other end of the vacuum line, pre-fit the special vacuum clamp and slide the 6mm plastic tee piece into the vacuum hose. Secure the tee piece to the vacuum hose with the special vacuum clamp by sliding into correct place.
- (34) Now cut the existing factory vacuum line in the right place and then fit each cut piece into opposite ends of the tee piece. Secure with cable ties.

### **Installation of Oil Breather Hose - Photo 30 :**

- (35) Fit the 1/2" 90degree plastic fitting into one end of the 0.77m of 1/2" oil breather emission hose. Fit the hose (non-fitting end) with the 12/20 hose clamp onto the 1/2" tube sticking out of the steel intake pipe in front of the turbo.

### **Processing of genuine catalyst - Photo 31 - 32 :**

- (36) Cut the genuine exhaust manifold removed in step [3] from the upper part of the catalyst, referring to the photo.
  - (37) Flange attached to the catalyst according to the turbine and muffler installed in the vehicle then proceed to weld.
  - (38) Take the catalyst with welded flanges to the vehicle and attach using the supplied gaskets, bolts, and nuts.
- \* It is recommended to use a liquid gasket together with the gasket. \* Be sure to tighten the bracket part that is fixed to the engine side.

**~ Relocation of intake air temperature sensor and installation of check valve ~**  
**Photo 30 ~ 31**

(39) Extend the wiring of the intake air temperature sensor using general-purpose wiring. Relocate the sensor referring to the position in the photo.

(40) Refer to the photo and install the supplied check valve between the canister solenoid and the intake manifold. \* Pay attention to the direction of the check valve and insert it into the hose.

**~ Tightening and fitting check of each part ~**

(41) Check the tightening, fixing, and fitting of hoses and pipes in each part.

(42) Be sure to check for any shortage of coolant or oil.

(43) Start the engine when all the checks are completed.

\* It is recommended to start the engine for the first time with two people. \* After starting, be sure to check for cooling water and oil leaks, abnormal noise, and exhaust leaks. \* If something goes wrong, stop the engine immediately and fix the problem. \* If there is no problem with idling, warm up for about 10 minutes and perform initial learning.

**~ Restoration of vehicle ~**

(44) If there are no problems with turbine installation and engine start, refit the front bumper and grill.

\* Remove the clip fixing part on the upper side of the front grill because the passenger side interferes with the air cleaner.

\* If the bumper under grille mounting part interferes with the intercooler, cut a part of the interfering part as necessary.

\* If you feel any abnormality while driving, immediately stop the vehicle in a safe place and inspect the abnormal part.

(45) When the installation is completed, it will be necessary to re-program the ECU of the vehicle to adjust for the new turbo or fit a new ECU.



Complete installation image



# Installation Photos

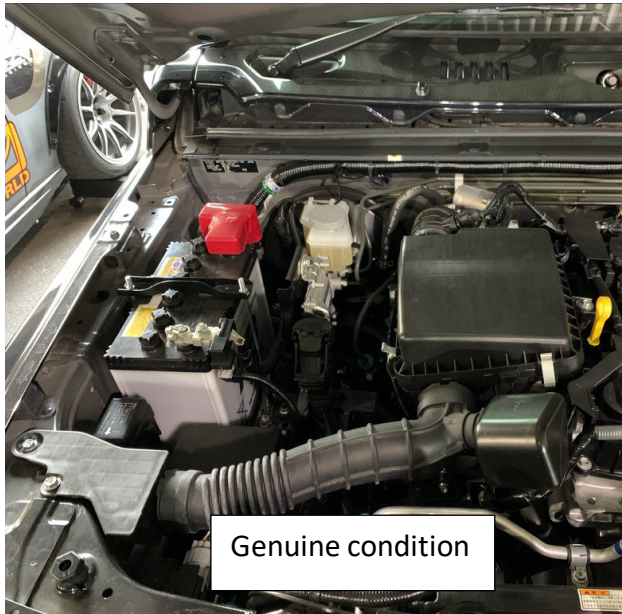


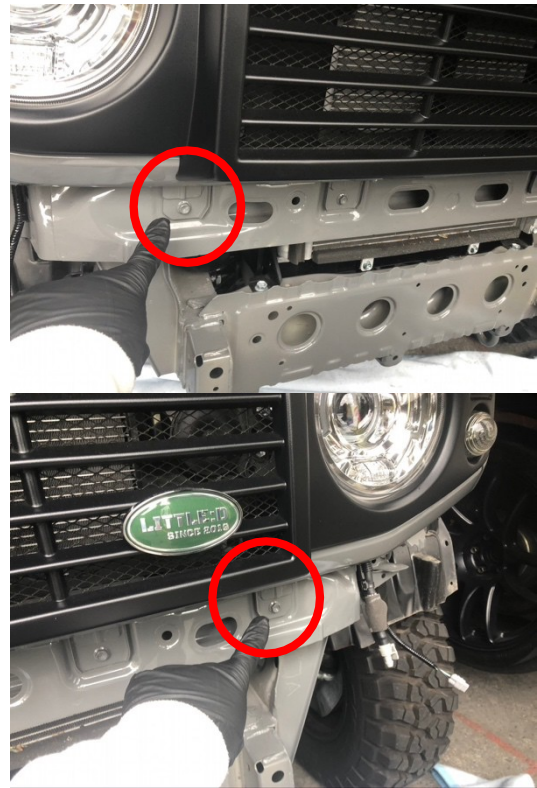
写真 01



写真 02



写真 03



Remove the bolt and use it as the mounting hole for the intercooler.

写真 04





写真 05

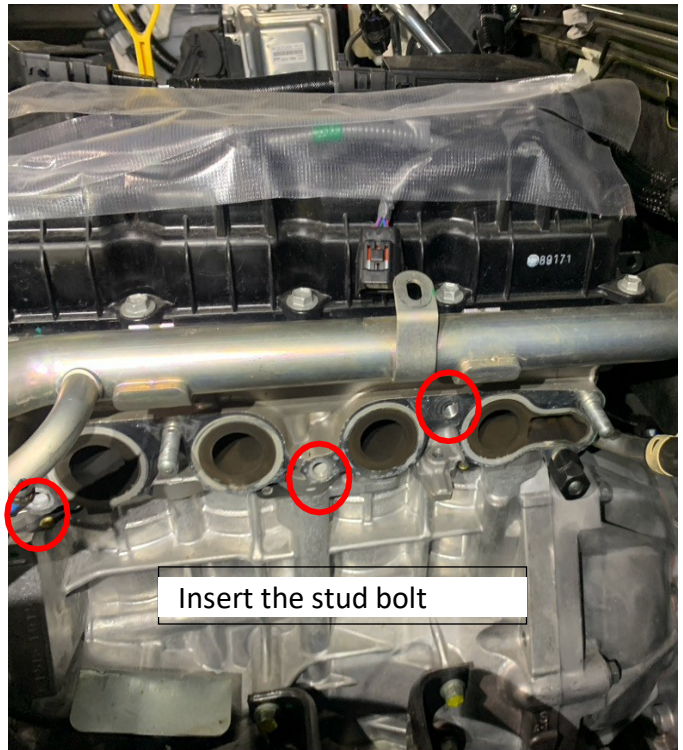


写真 06



Cut the clip mounting part

写真 07



Insert the stud bolt

写真 08





写真 09



写真 10



写真 11

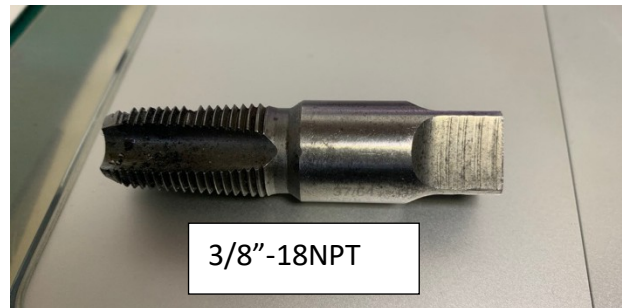


写真 12





写真 13



写真 14



写真 15

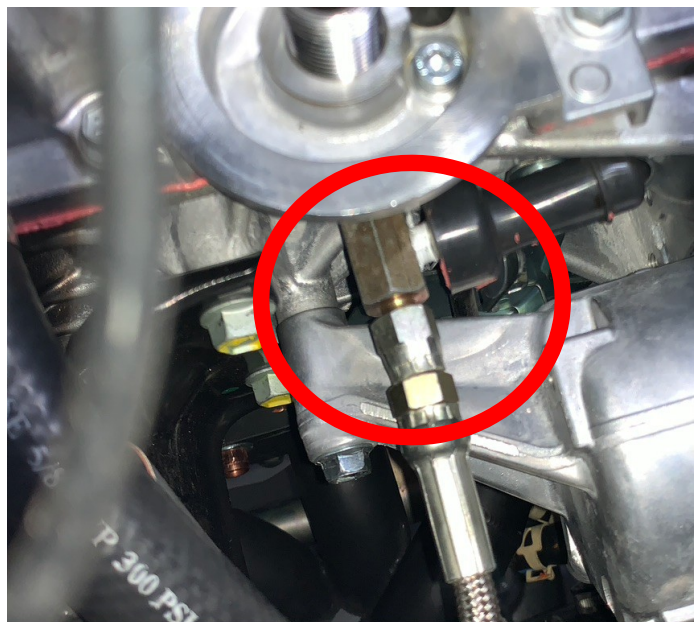


写真 16





写真 17

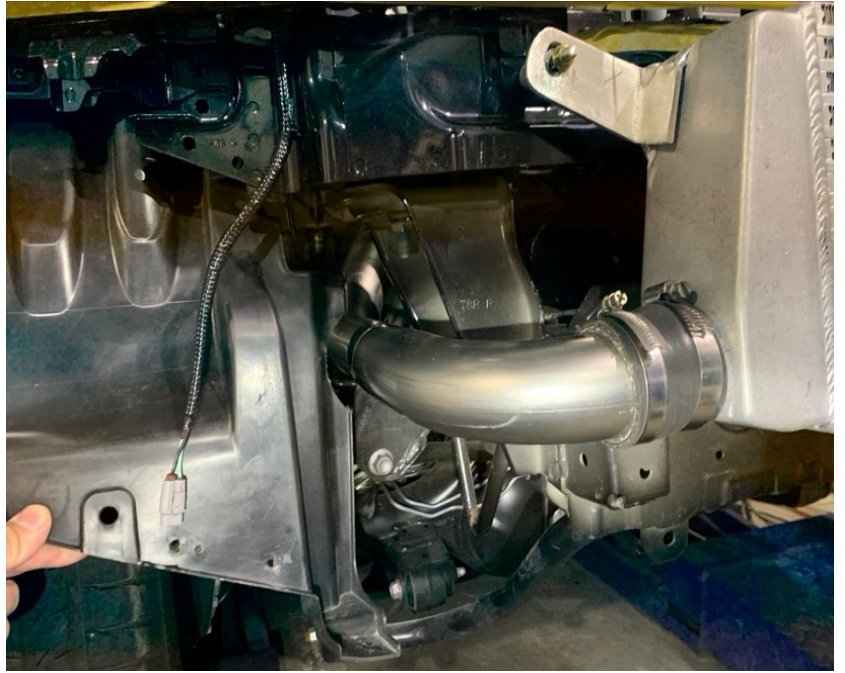


写真 18



写真 19

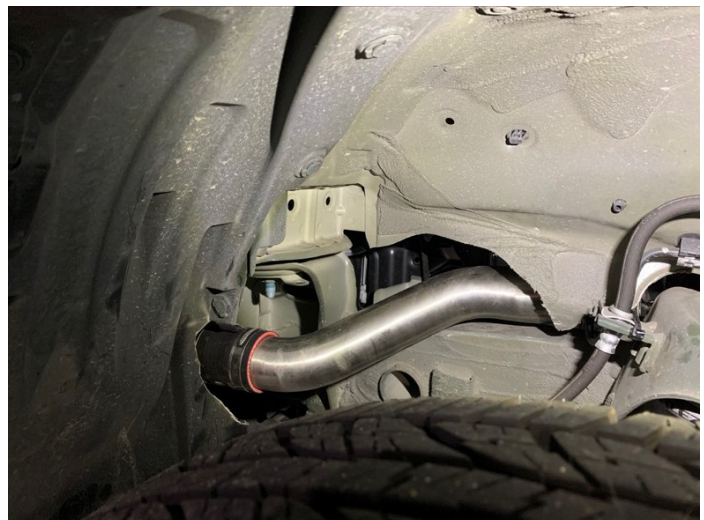


写真 20





写真 21



写真 22



写真 23



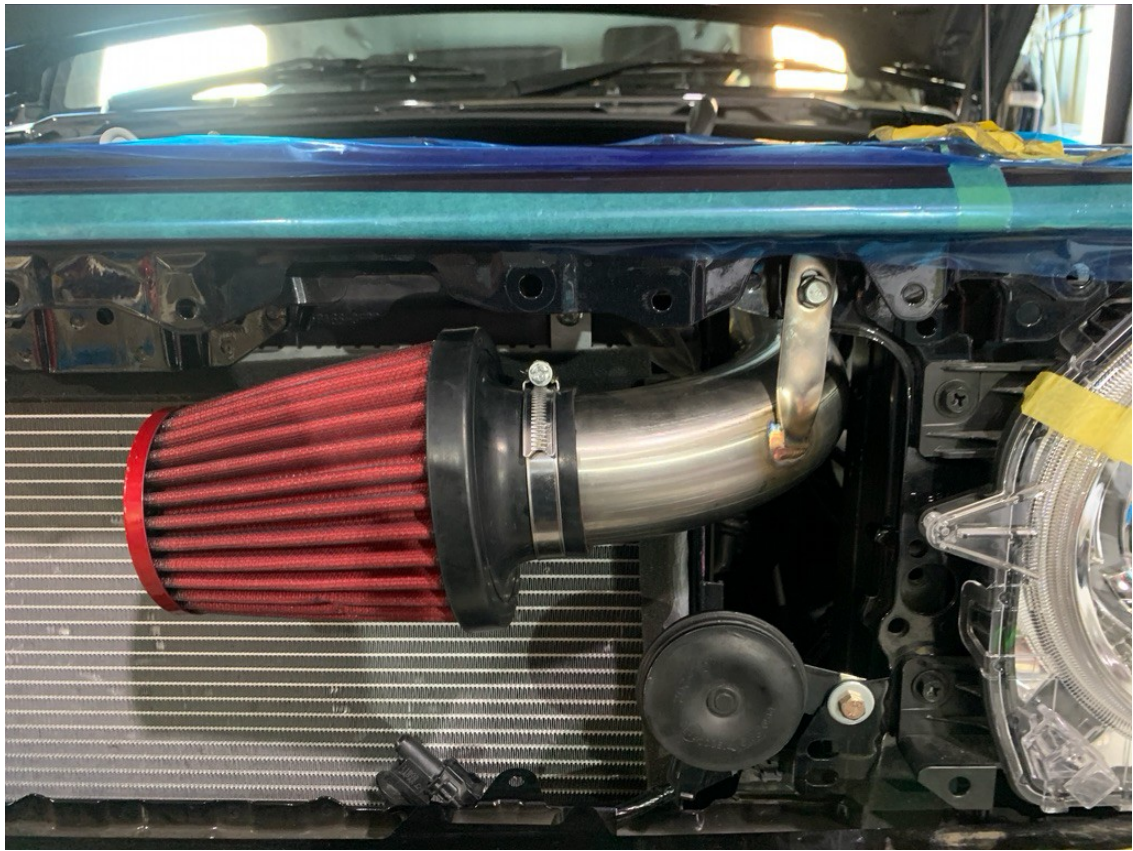


写真 24



写真 25



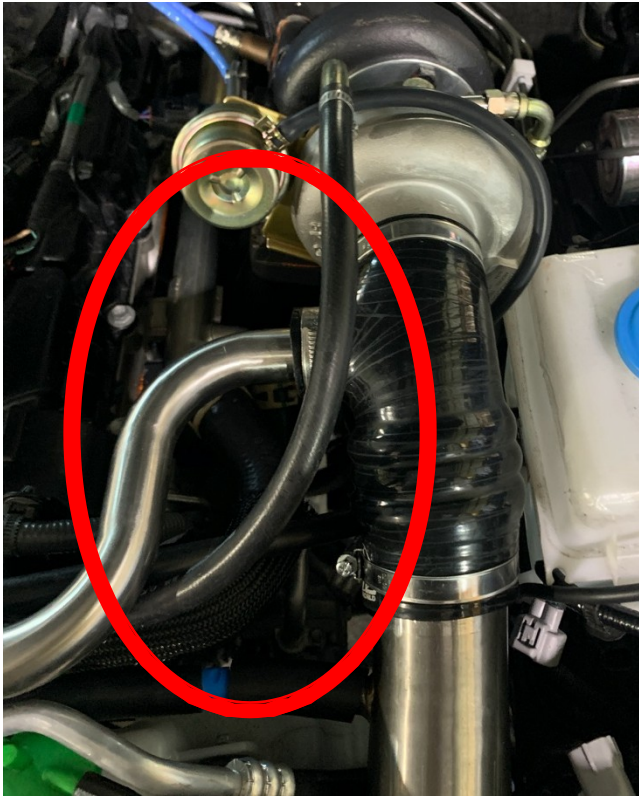


写真 26



写真 27

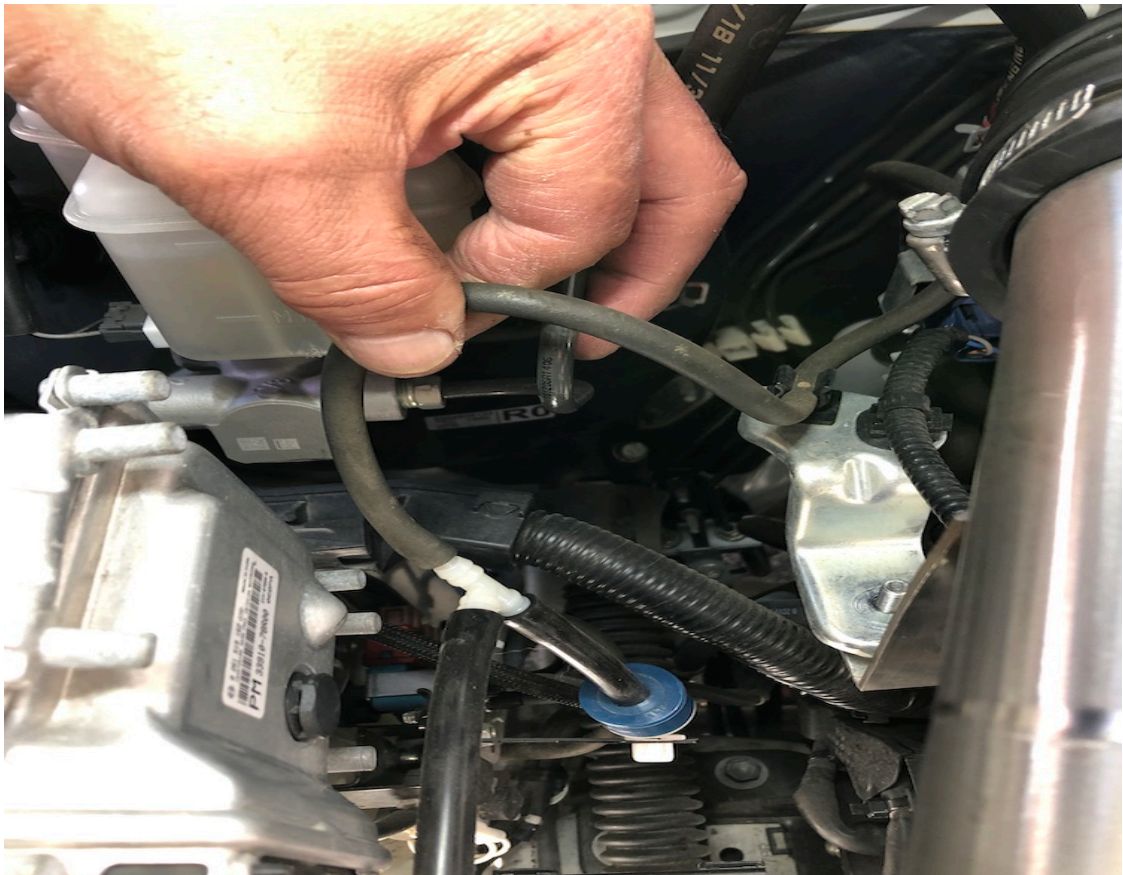
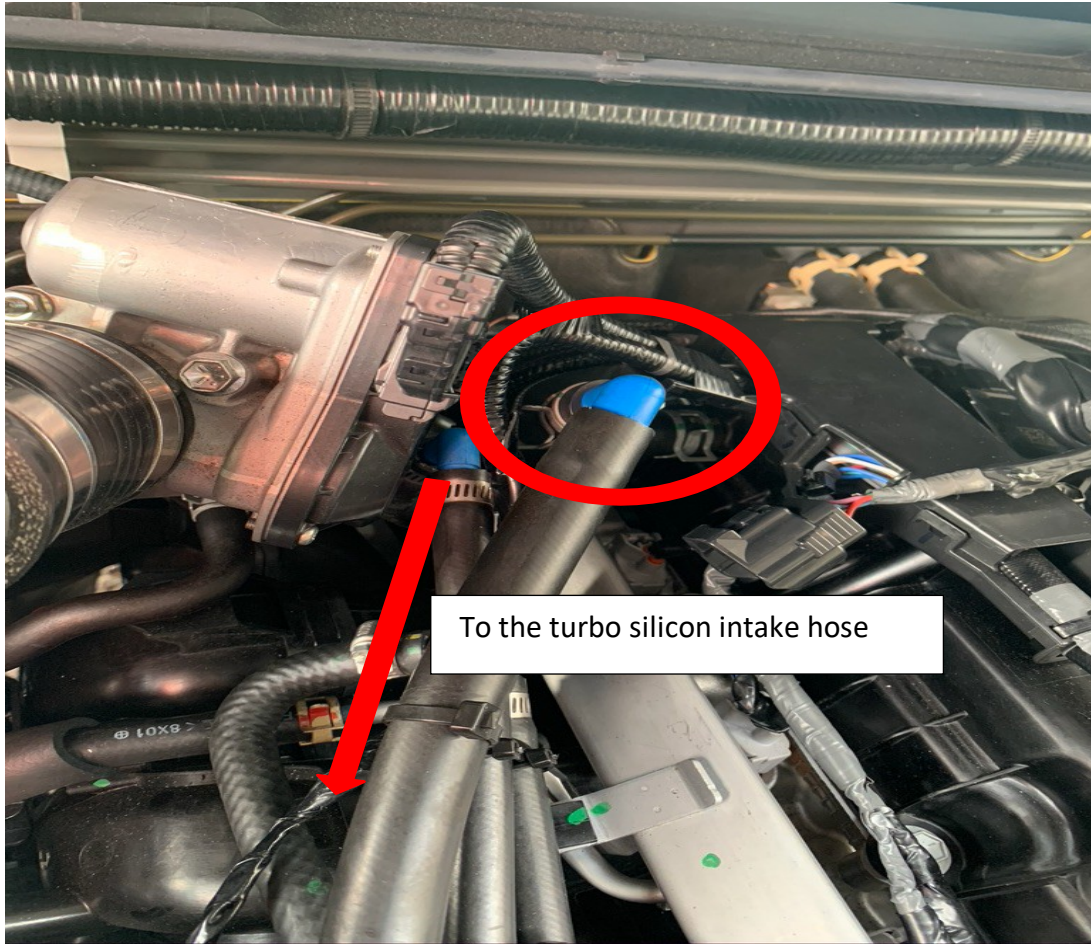


写真 29





To the turbo silicon intake hose

写真 30



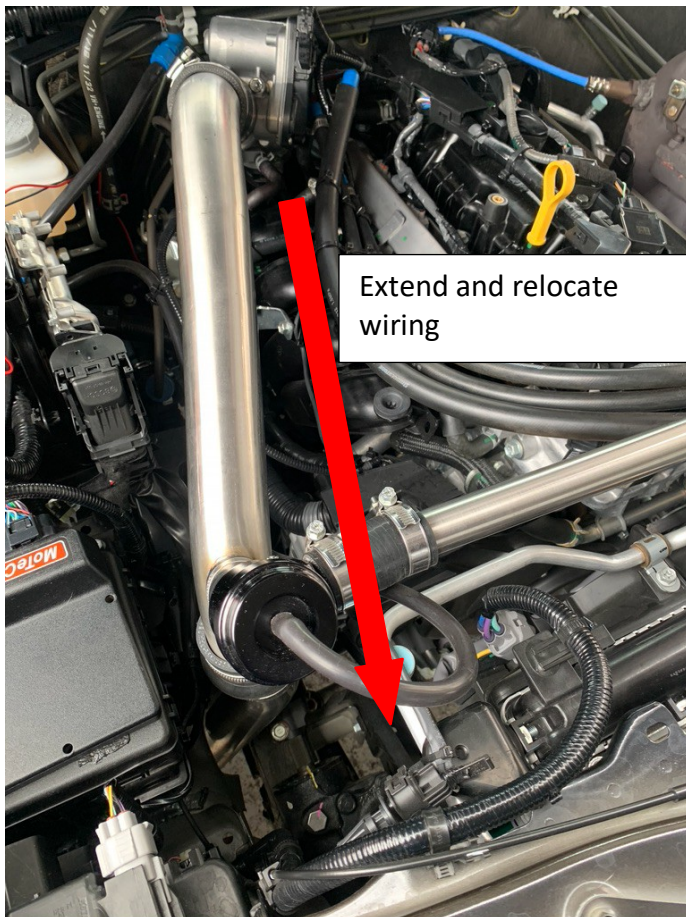
Cut about 10 mm above the welded part as a guide

写真 31



Installation image

写真 32



Extend and relocate wiring

写真 33



Throttle body side

Check the direction of the arrow

写真 34