

TECHNICAL INSTRUCTIONS

FOR

SPECIAL SERVICE CAMPAIGN G0Y

MUFFLER INSPECTION / REPLACEMENT

CERTAIN

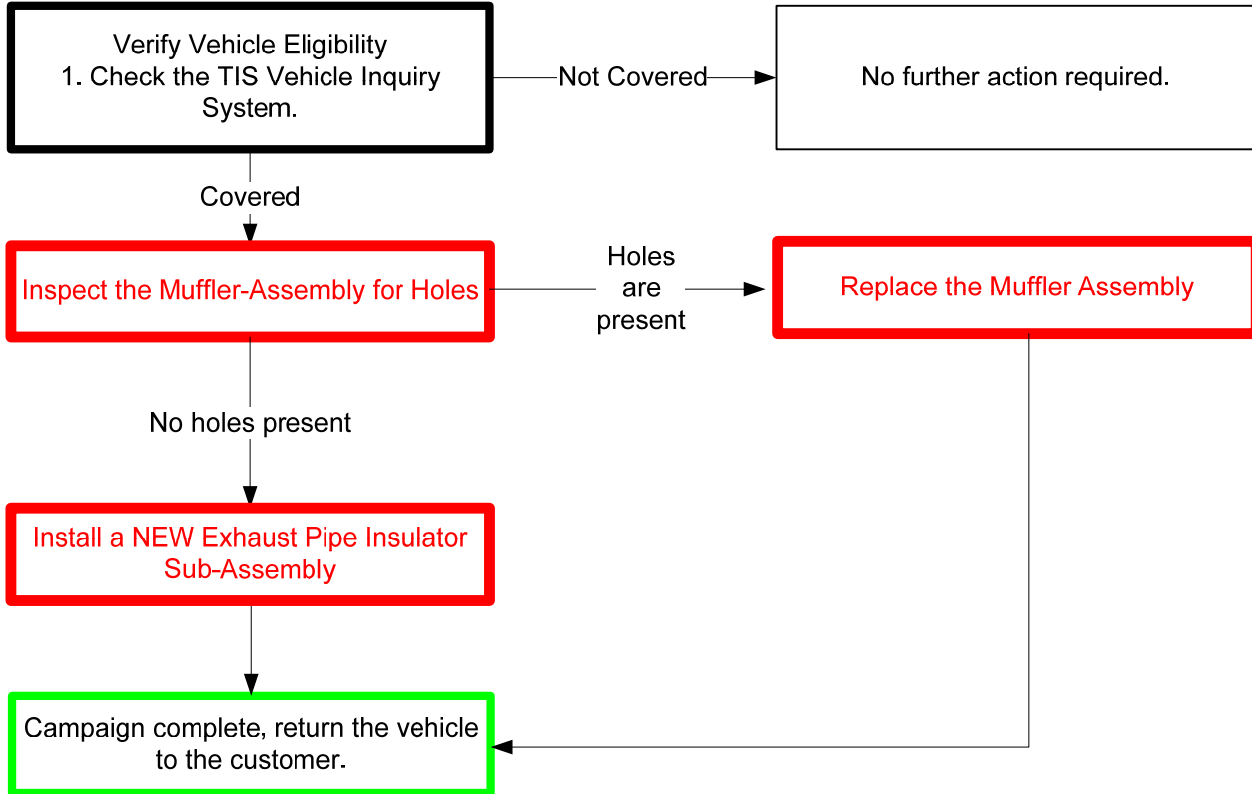
2006 – 2008 MY RAV4

The repair quality of covered vehicles is extremely important to Toyota. All dealership technicians performing this recall are required to successfully complete the most current version of the E-Learning course “Safety Recall and Service Campaign Essentials”. To ensure that all vehicles have the repair performed correctly; technicians performing this recall repair are required to currently hold at least one of the following certification levels:

- Certified Technician (Chassis)
- Expert Technician (Chassis)
- Master Technician
- Master Diagnostic Technician

It is the dealership’s responsibility to select technicians with the above certification level or greater to perform this recall repair. Carefully review your resources, the technician skill level, and ability before assigning technicians to this repair. It is important to consider technician days off and vacation schedules to ensure there are properly trained technicians available to perform this repair at all times.

I. OPERATION FLOW CHART



I. IDENTIFICATION OF AFFECTED VEHICLES

A. COVERED VIN RANGE

NOTE:

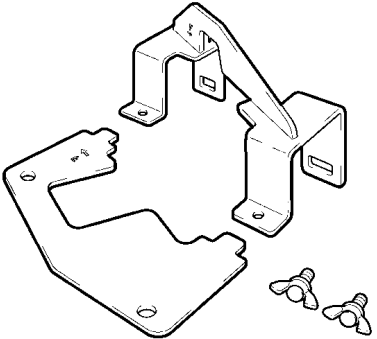
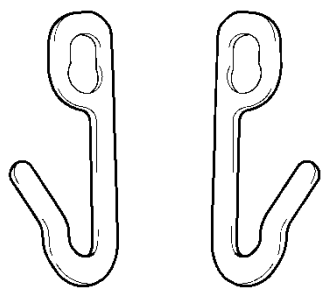
- Check the TIS Vehicle Inquiry System to confirm the VIN is covered in this Special Limited Service Campaign, and that the campaign has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs conducted on vehicles that are not covered or were completed by another dealer.

II. PREPARATION

A. TOOLS & EQUIPMENT

- Standard hand tools
- Torque Wrench
- Air Gun/Nozzle
- Protective Work Gloves
- Protective Eyewear

B. Campaign Tool – These tools were provided to the dealership at the start of the campaign.

Exhaust Flange Holding Tool (Color: Silver)	Hook (Color: Silver)
 A technical line drawing of an exhaust flange holding tool. It consists of a large, flat, L-shaped base plate with several mounting holes. Two vertical support arms are attached to the top of the base. A horizontal arm extends from the top of the right support arm, ending in a hook-like shape. Two small screws are shown separately below the main assembly.	 A technical line drawing of two hooks. Each hook has a circular top loop and a curved, hook-shaped bottom end.

C. PARTS

Option 1: When holes are not present

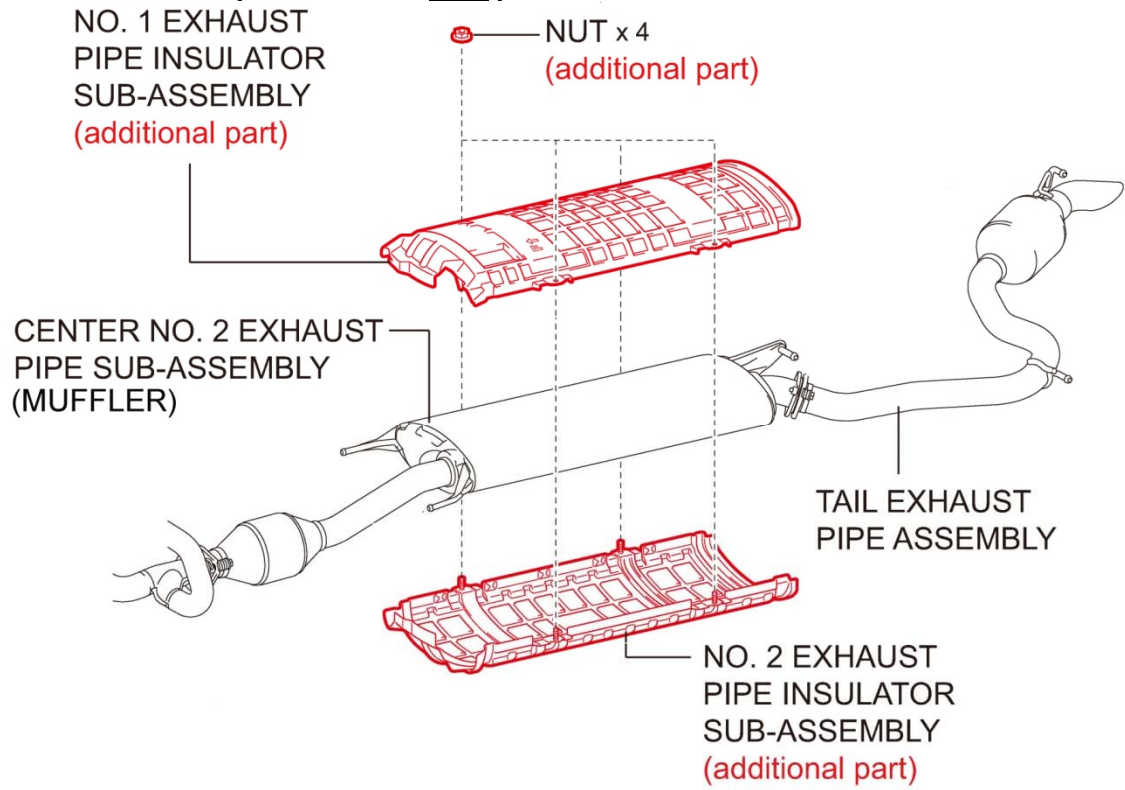
Part Number	Part Description	Quantity
04002-37131	Insulator Kit, Exhaust Pipe*	1
<u>*The kit above includes the following parts:</u>		
Part Number	Part Description	Quantity
17055-31010	Insulator Sub-Assy, Exhaust Pipe, No.1 (Upper)	1
17056-31010	Insulator Sub-Assy, Exhaust Pipe, No.2 (Lower)	1
94151-80800	Nut, Flange	4

Option 2: When holes are present

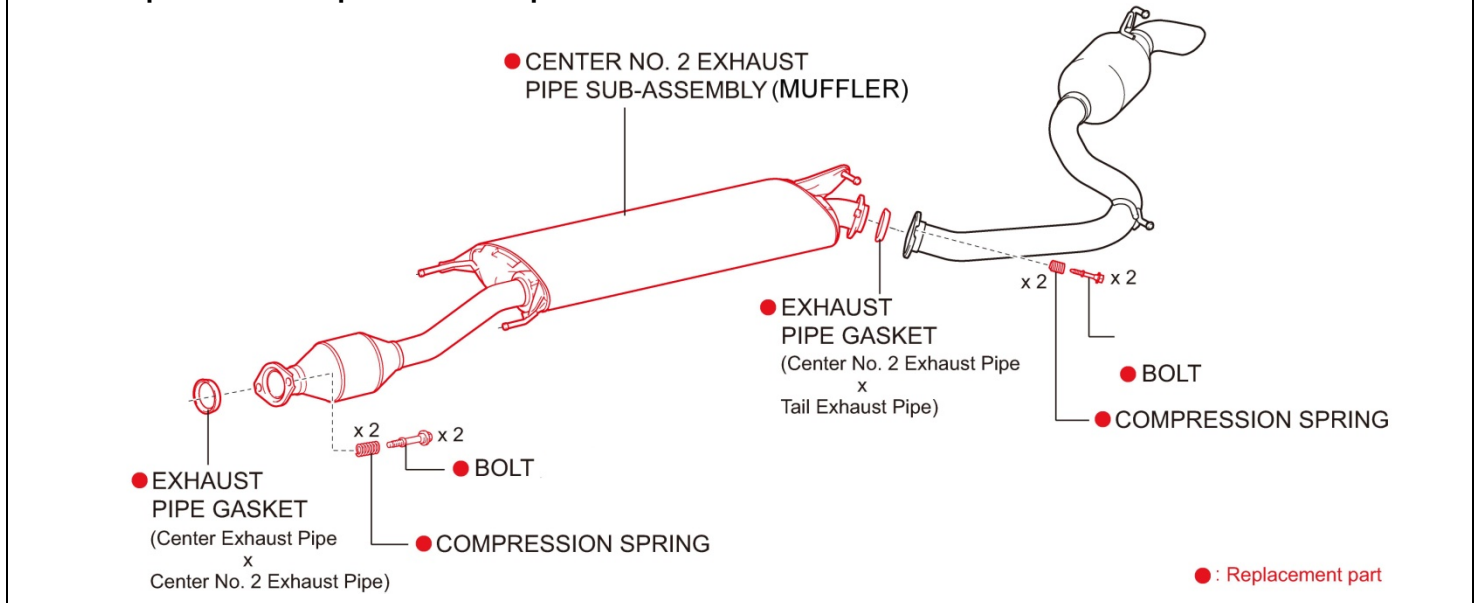
Part Number	Part Description	Quantity
04002-32131	Pipe Sub-Assy, Exhaust, CTR No.2 (Muffler)	1
04002-37128	Repair Kit, Exhaust Pipe Exchange*	1
<u>*The kit above includes the following parts:</u>		
Part Number	Part Description	Quantity
17451-28040	Gasket, Exhaust Pipe (for Front side)	1
17451-31012	Gasket, Exhaust Pipe (for Rear side)	1
90901-05020	Bolt (for Front side)	2
90901-05026	Bolt (for Rear side)	2
90501-35037	Spring, Compression (for Front side)	2
90501-35035	Spring, Compression (for Rear side)	2

D. PARTS ILLUSTRATION

Exhaust Pipe Insulator Kit – Option 1: Holes ***NOT*** present



Muffler Replacement – Option 2: Holes present

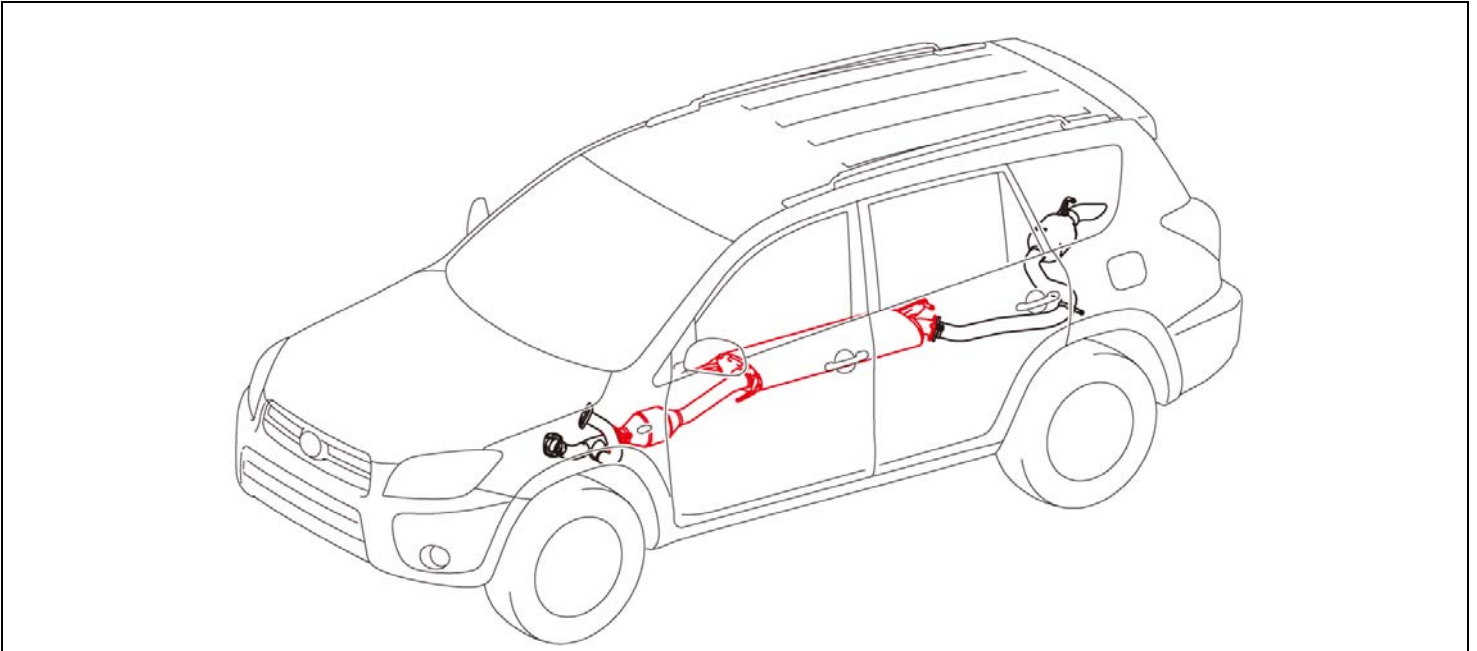


III. BACKGROUND

Toyota has received reports that certain 2006 through 2008 Model Year RAV4 vehicles (equipped with a V6 (2GR) engine) operated in specific cold climate areas where high amounts of road salt are used (“Cold Climate States”) may exhibit more-than-normal corrosion to the vehicle’s Center No.2 Exhaust Pipe sub-assembly (muffler). Toyota investigated these reports and determined that this condition may lead to rust perforation in the muffler. This condition is unrelated to and separate from normal surface rust which is commonly found on metallic surfaces after some years of use and/or exposure to the environment.

The following states and the District of Columbia are covered by this campaign and will be known as the “Cold Climate States” under this campaign. CT, DE, IL, IN, KY, MA, MD, ME, MI, MN, NH, NJ, NY, OH, PA, RI, VA, VT, WI, and WV.

IV. COMPONENTS

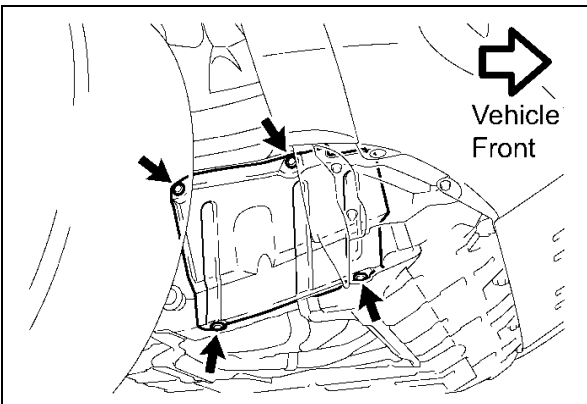


V. MUFFLER INSPECTION



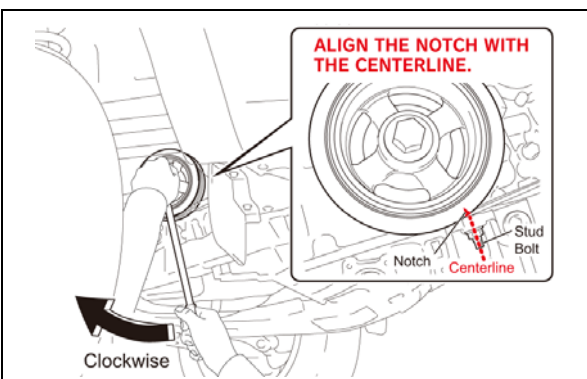
Allow the exhaust temperature to cool before performing the inspection to prevent personal injury.

A. INSPECT THE MUFFLER FOR HOLES



1. ROTATE THE CRANKSHAFT PULLEY TO CLOSE ALL ENGINE VALVES

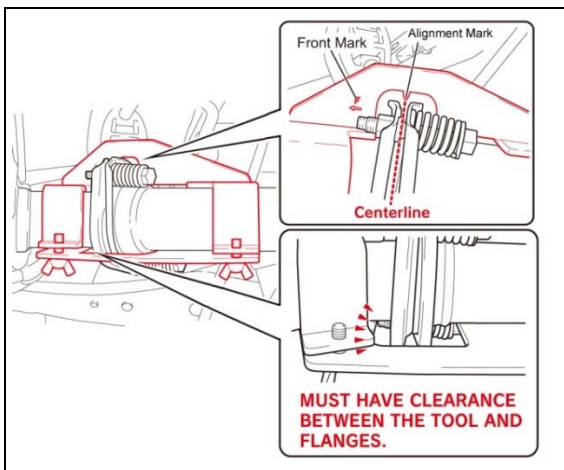
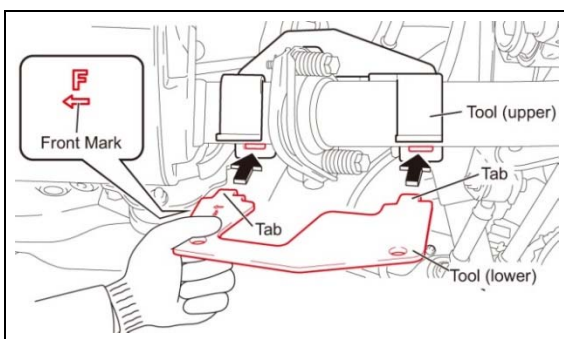
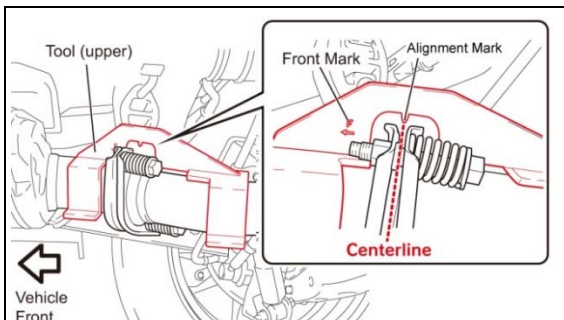
- Turn the steering wheel to the full right position.
- Remove the 4 clips and rear engine undercover RH located in the passenger side front wheel well.
- Rotate the crank clockwise until the timing mark aligns with the centerline of the oil pan stud bolt.
- Reinstall the rear engine undercover RH with the 4 clips.



2. INSTALL THE EXHAUST FLANGE HOLDING TOOL

STOP

Proper installation of the Exhaust Flange Holding Tool is **critical** to prevent excessive load from being applied to the exhaust gasket and creating an exhaust leak. Follow the instructions carefully.



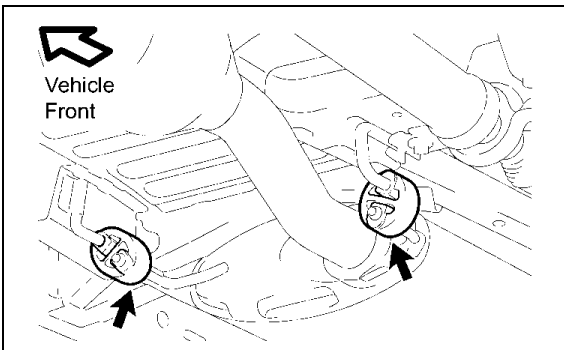
- Install the upper half of the Exhaust Flange Holding Tool with the stamped "F" oriented toward the front of the vehicle.
- Confirm the flange holding tool alignment mark lines up with the centerline of the flange joint as shown.
- Confirming the stamped "F" is oriented toward the front of vehicle.
- Install the lower half of the tool by inserting the tabs into the slots located in the upper half of the tool.
- Loosely tighten the wing nuts by hand.
- Tighten the wing bolts hand tight.
- Confirm the tool alignment mark remains aligned with the centerline as shown.
- Confirm the flange tool does not touch the flange joint on the exhaust as shown.

STOP

If the flange tool contacts the exhaust flange you must remove the tool and reinstall.

Note: Clearance between the upper and lower halves of the tool is acceptable when installed.

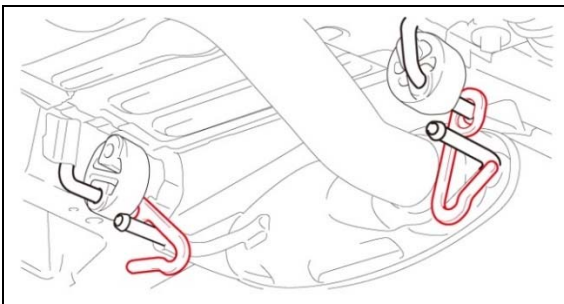
3. DISCONNECT THE EXHAUST PIPE SUPPORT



- a) Disconnect the 2 front muffler exhaust hangers.

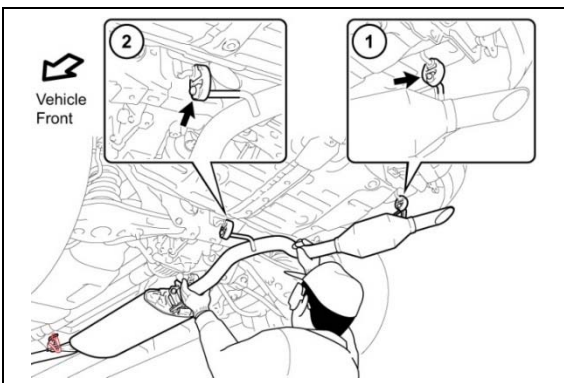


Follow the exhaust hanger removal order exactly to ensure an exhaust leak is not created!



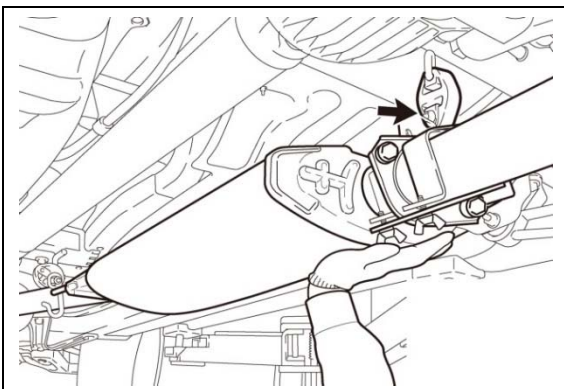
- b) Install the support hooks with the hooks facing outward from the muffler.

Note: This will ensure that the hooks catch the muffler supports as the remaining rubber supports are removed and the exhaust is lowered.



- c) Disconnect the rear exhaust pipe assembly hangers in the order shown.

Note: Removing the exhaust hangers in the order shown will ensure that minimal stress is placed on the compression gasket.



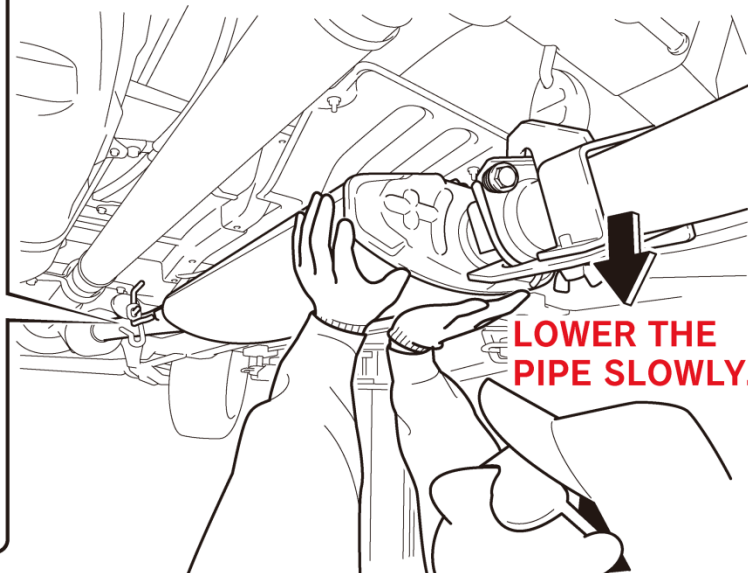
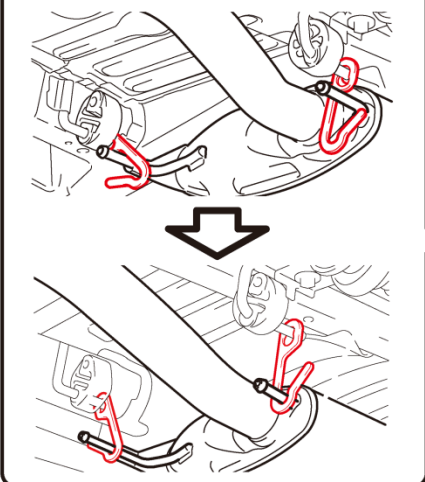
- d) While securely supporting the exhaust, carefully disconnect the rear muffler hanger.



Make sure you are holding the pipe securely so it does not fall!

e) Slowly lower the exhaust assembly and engage the 2 center No.2 Exhaust pipe hanger hooks.

ENGAGE EACH HANGER TO THE HOOK.

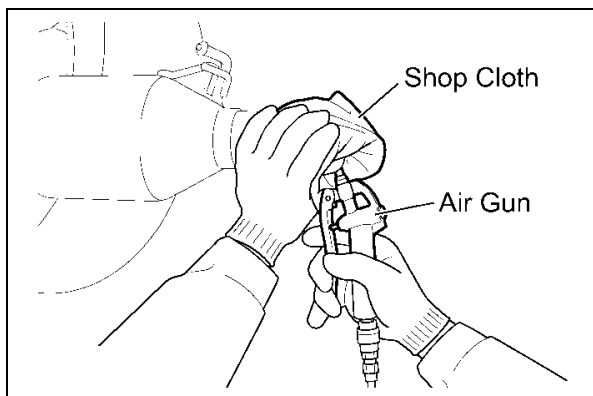


4. PERFORM MUFFLER ASSEMBLY HOLE INSPECTION



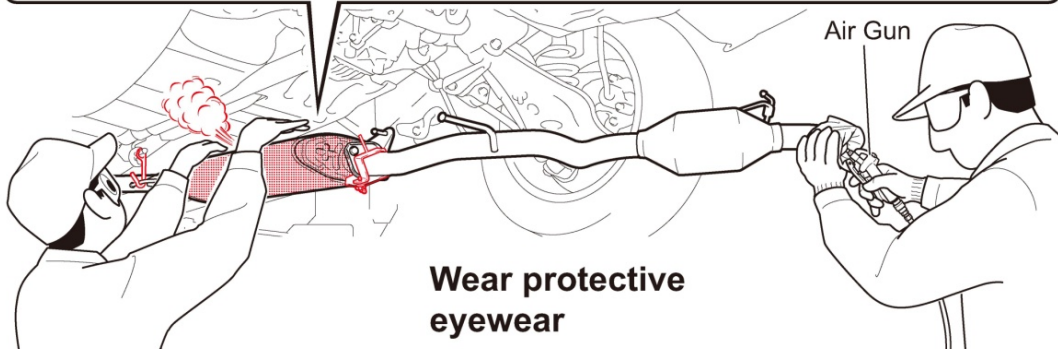
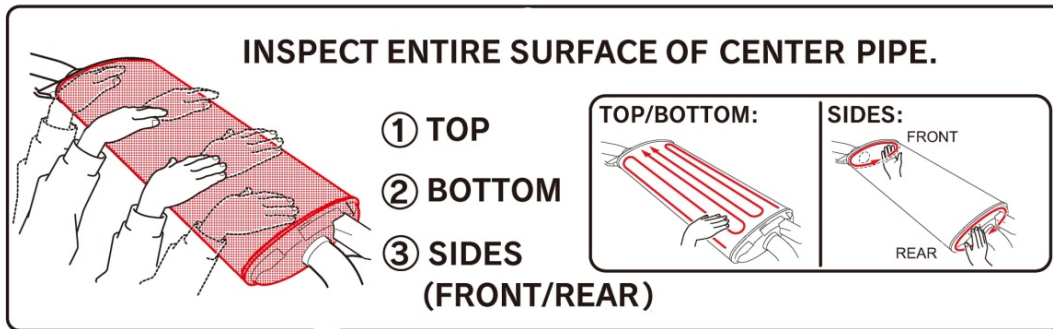
- **ALWAYS** wear protective eyewear.
- The inspection will require 2 technicians, one to apply shop air and one to inspect the muffler assembly.

- a) Visually inspect the Muffler Assembly for holes.
- If holes are present refer to the "Inspection Result Table" below.



- b) Using rubber nozzle air gun and a shop rag apply air pressure to the exhaust system.

- c) While applying air pressure using the air gun, inspect the muffler assembly as shown for air leaks indicating a hole is present.



INSPECTION RESULT	ACTION REQUIRED
Holes are Not Present	Install the <i>NEW</i> Exhaust Pipe Insulator Sub-Assembly, Option 1 (Refer to Section VI)
Holes are Present	Replace the Muffler Assembly, Option 2 (Refer to Section VII)

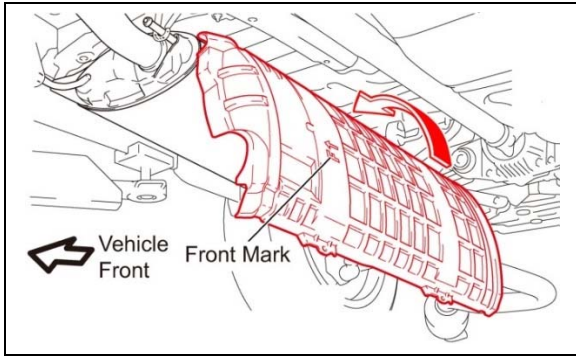
STOP Make sure to remove the shop cloth from the tail exhaust pipe assembly after the inspection.

VI. EXHAUST PIPE INSULATOR SUB-ASSEMBLY INSTALLATION (OPTION 1)

A. INSTALL THE NEW EXHAUST PIPE INSULATOR SUB-ASSEMBLY

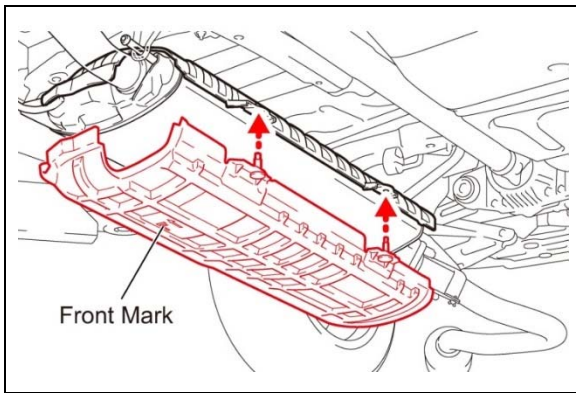


- To prevent yourself from being burned and protect your hands, wait until the exhaust pipe is cool and wear protective gloves before beginning the installation.
- Remove all debris from muffler to prevent damage when installing the insulator.



1. LOOSELY INSTALL THE NO. 1 INSULATOR TO THE MUFFLER ASSEMBLY

- a) Confirm you have the No. 1 Insulator (does not contain studs).
- b) Confirm that the orientation arrow points toward the front of the vehicle.
- c) Rotate the No. 1 Insulator from the center of the vehicle and place it on top of the muffler assembly.



2. LOOSELY INSTALL THE NO. 2 INSULATOR TO THE MUFFLER ASSEMBLY

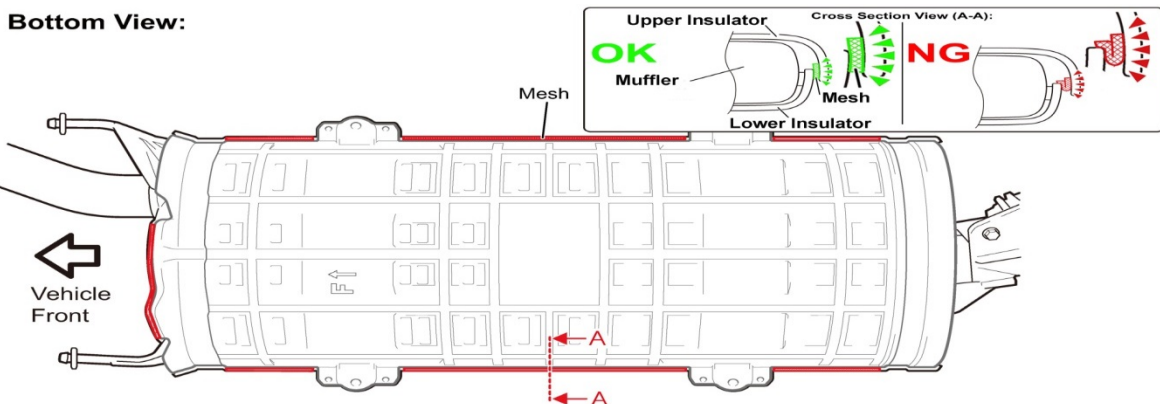
- a) Confirm that the orientation arrow points toward the front of the vehicle.
- b) Align the studs with the holes on the flanges of the upper insulator and loosely secure with the 4 nuts provided by hand.



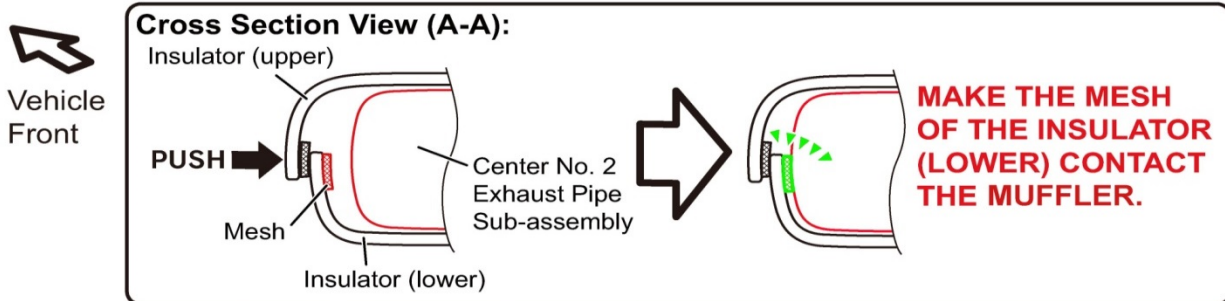
Do not tighten the nuts prior to adjusting the insulator to ensure no rattles are created.

3. Perform Final Insulator Alignment

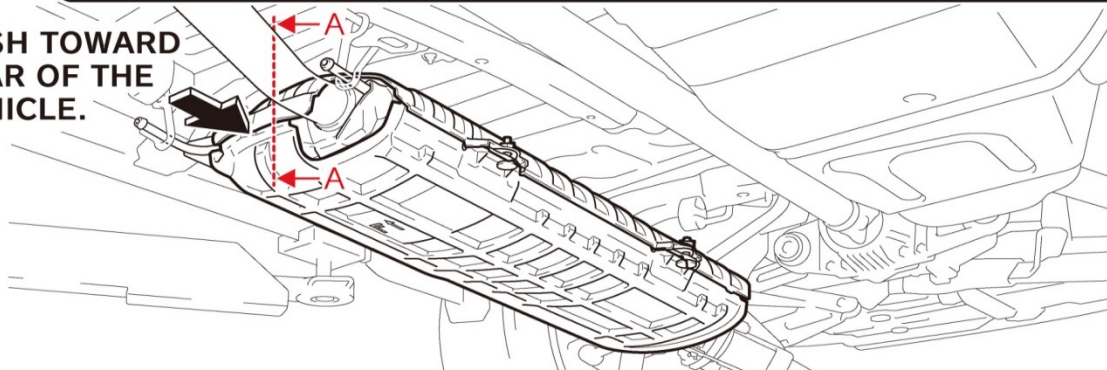
- a) Visually check all contact surfaces of the No. 1 Insulator and No. 2 Insulator to confirm that no mesh is caught/folded between them. If caught/folded carefully use a screw driver to adjust the mesh until it is in the "OK" condition.



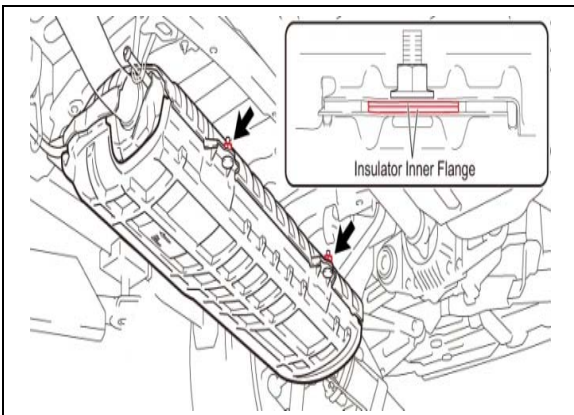
- b) Push the insulator assembly toward the rear of the vehicle until the mesh from the No.2 Insulator contacts the muffler.



PUSH TOWARD REAR OF THE VEHICLE.



Failure to firmly install the insulator securely against the muffler will result in noise/vibration.

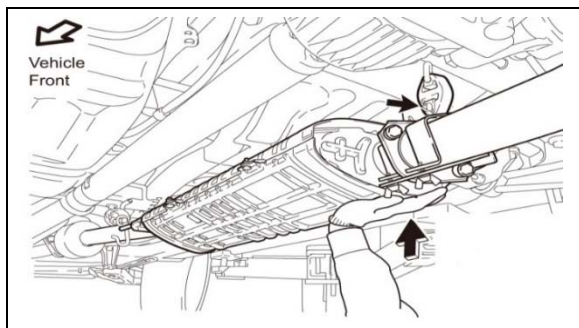


4. TORQUE THE INSULATOR NUTS

- a) Tighten the 4 nuts until the upper and lower insulator flanges touch.

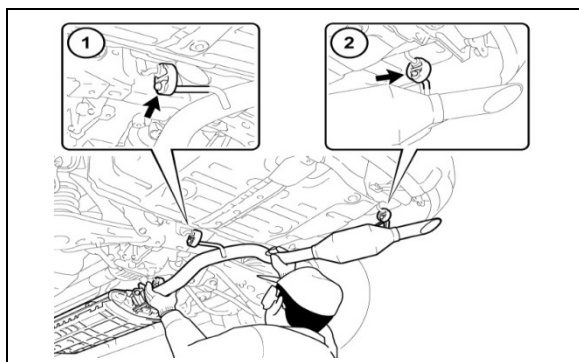
Torque Spec: 14 ft.lbf (19 Nm or 194 kgf)

B. RECONNECT THE EXHAUST PIPE HANGERS



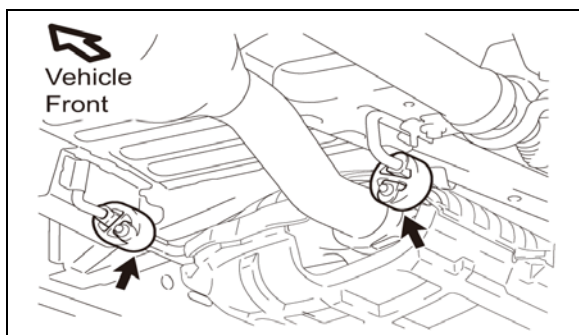
1. RECONNECT THE REAR MUFFLER EXHAUST HANGER

- a) Using your hands to support the exhaust pipe at the rear of the muffler, attach the rear muffler exhaust hanger.

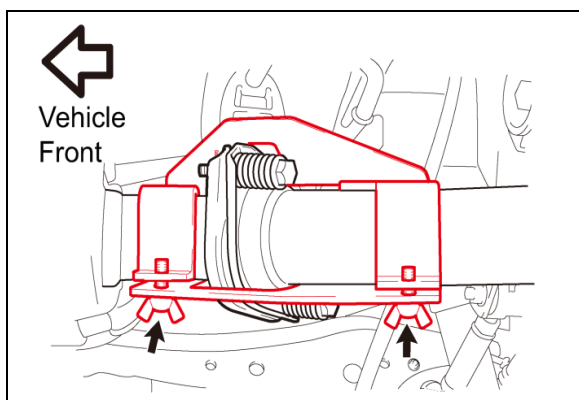


2. RECONNECT THE TAIL EXHAUST PIPE HANGERS

- a) Lift the tail exhaust pipe and reconnect the forward most tail pipe hanger.
- b) Proceed with reconnecting the rear tail pipe hanger.



3. RECONNECT THE FRONT MUFFLER HANGERS



4. REMOVE THE FLANGE HOLDING TOOL

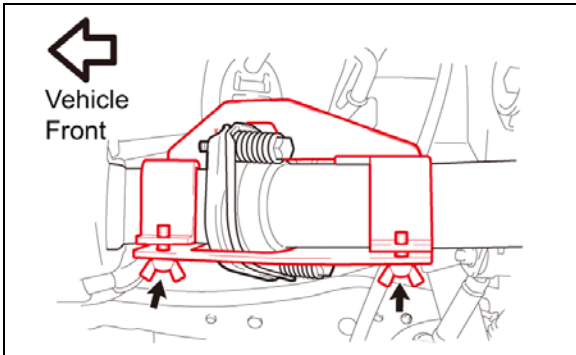
◀ VERIFY REPAIR QUALITY ▶

- Confirm ALL Rubber Exhaust Hangers are removed and installed *EXACTLY* as described in these instructions.
- Confirm the Support Hooks used with the flange tool have been removed.
- Confirm ALL inspection steps are followed *EXACTLY* as described in these instructions.
- Confirm there are no exhaust leaks from flange gaskets.
- Confirm there are no exhaust rattles/noises.

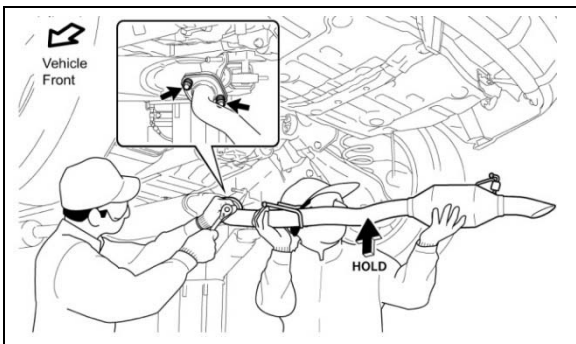
If you have any questions regarding this Limited Service Campaign, please contact your regional representative.

VII. MUFFLER ASSEMBLY REPLACEMENT (OPTION 2)

A. REMOVE THE MUFFLER ASSEMBLY

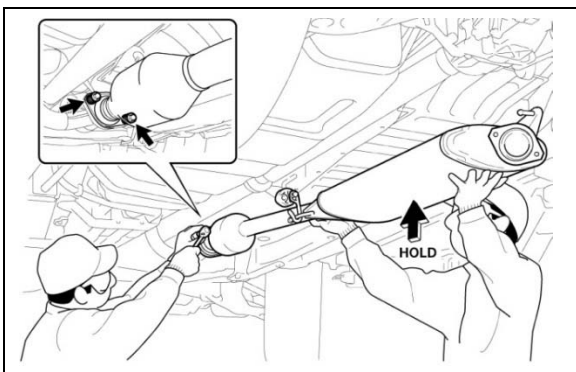


1. REMOVE THE FLANGE HOLDING TOOL



2. REMOVE THE TAIL EXHAUST PIPE ASSEMBLY

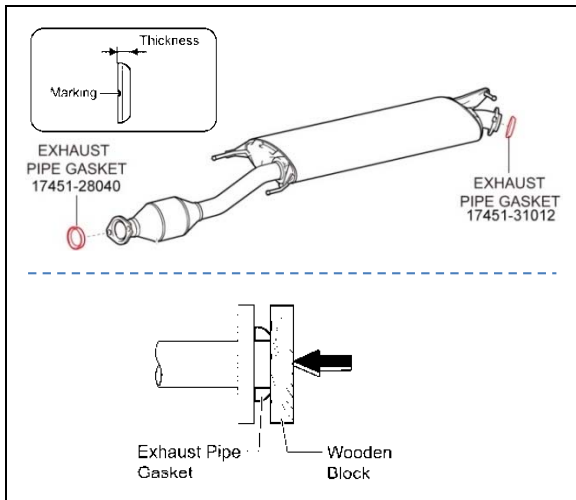
- Support the tail pipe so it will not fall during the removal.
- Remove the 2 bolts and 2 compression springs.
- Remove tail pipe assembly.



3. REMOVE THE MUFFLER ASSEMBLY

- Support the muffler assembly so it will not fall during removal.
- Remove the 2 bolts and compression springs.
- Remove the muffler assembly.
- Remove the Support Hooks.
- Remove the 2 exhaust pipe gasket from the muffler and header pipe.

B. INSTALL THE NEW MUFFLER ASSEMBLY



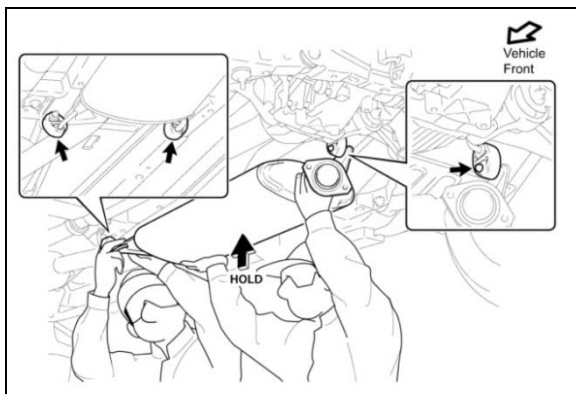
1. INSTALL THE NEW EXHAUST PIPE GASKETS

a) Install the new exhaust pipe gaskets by hand.

- **Front of Muffler Gasket: P/N 17451-28040**
Thickness: 14.6 mm (.575 in.)
Mark Color: Black
- **Rear Muffler Gasket: P/N 17451-31012**
Thickness: 10.9 mm (.429 in)
Mark Color: Yellow

Note:

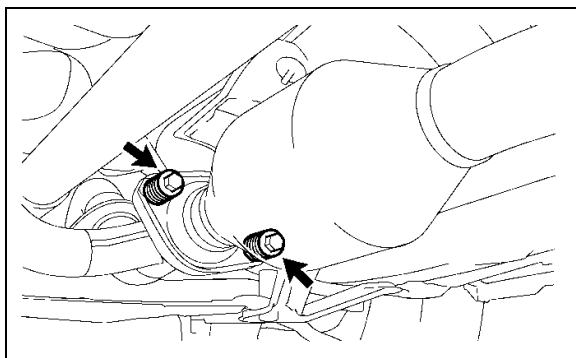
- **Confirm you use the correct gasket, they vary in thickness.**
- **If you cannot fully seat the gasket by hand use a wood block to press it on.**
- **Do not use a hammer as this can damage the gasket.**



2. CONNECT THE MUFFLER EXHAUST HANGERS

a) Connect the 3 muffler hangers to the new muffler assembly.

Note: 2 technicians may be used for this step if needed.

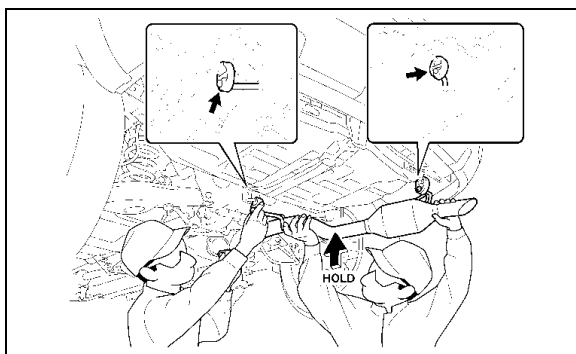


3. CONNECT THE MUFFLER ASSEMBLY TO THE CENTER PIPE

a) Connect the Muffler Assembly to the Center Pipe with the 2 NEW Compression Springs and 2 NEW bolts.

- **Bolt P/N: 90901-05020**
Color: Silver
Length: 75 mm (2.95 in)
- **Compression Spring P/N: 90501-35037**
Color: Blue
Length: 43 mm (1.69 in)

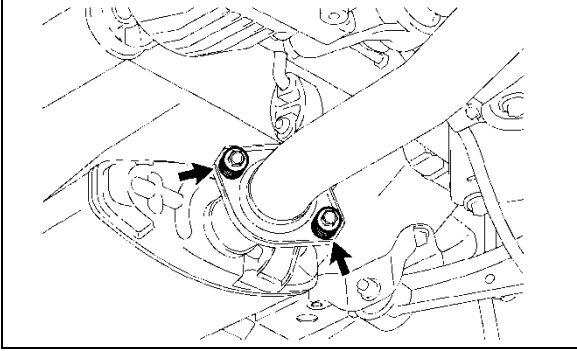
Torque Spec: 32 ft. lbf (43 Nm, 440 kgf cm)



4. REINSTALL THE TAIL EXHAUST PIPE

a) Reconnect the tail pipe to the 2 exhaust hangers.

Note: 2 technicians may be used for this step if needed.



5. CONNECT THE MUFFLER ASSEMBLY TO THE TAIL PIPE

a) Reinstall the tail pipe to the muffler assembly using the 2 New compression springs and 2 NEW bolts.

- Bolt P/N: 90901-05026
Color: Black
Length: 74 mm (2.91 in)
- Compression Spring P/N: 90501-35035
Color: Pink
Length: 40 mm (1.57 in)

Torque Spec: 32 ft. *lbf (43 Nm, 440 kgf* cm)

◀ VERIFY REPAIR QUALITY ▶

- Confirm ALL Rubber Exhaust Hangers are removed and installed **EXACTLY** as described in these instructions.
- Confirm the Support Hooks used with the flange tool have been removed.
- Confirm ALL inspection steps are followed **EXACTLY** as described in these instructions.
- Confirm there are no exhaust leaks from flange gaskets.
- Confirm there are no exhaust rattles/noises.

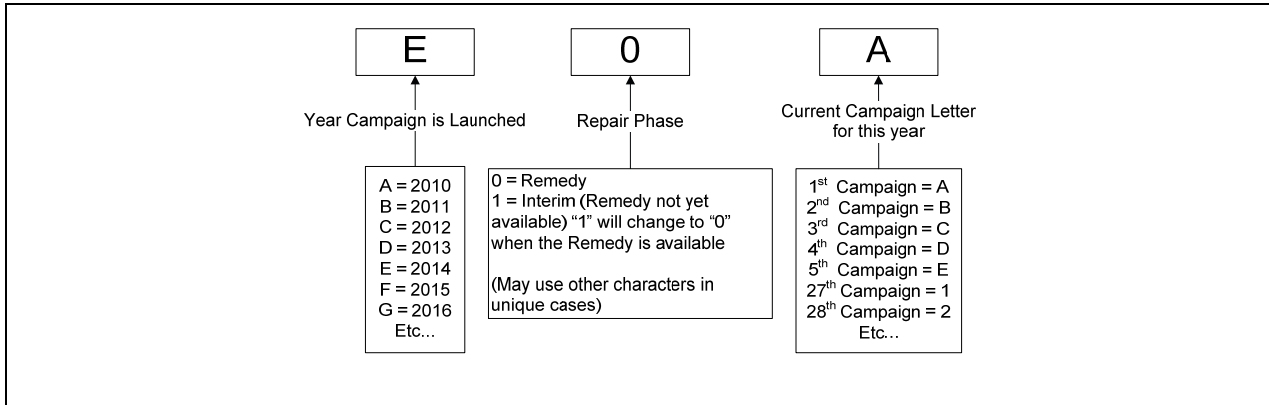
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I. APPENDIX

A. PARTS DISPOSAL

As required by Federal Regulations, please make sure all recalled parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused, **unless requested for parts recovery return.**

B. CAMPAIGN DESIGNATION DECORDER



Examples:

- A0D = Launched in 2010, Remedy Phase, 4th Campaign Launched in 2010
- B1E = Launched in 2011, Interim Phase, 5th Campaign Launched in 2011
- C1C = Launched in 2012, Interim Phase, 3rd Campaign Launched in 2012