TECHNICAL INSTRUCTIONS

FOR

SAFETY RECALL ELF

FUEL PRESSURE SENSOR GASKET

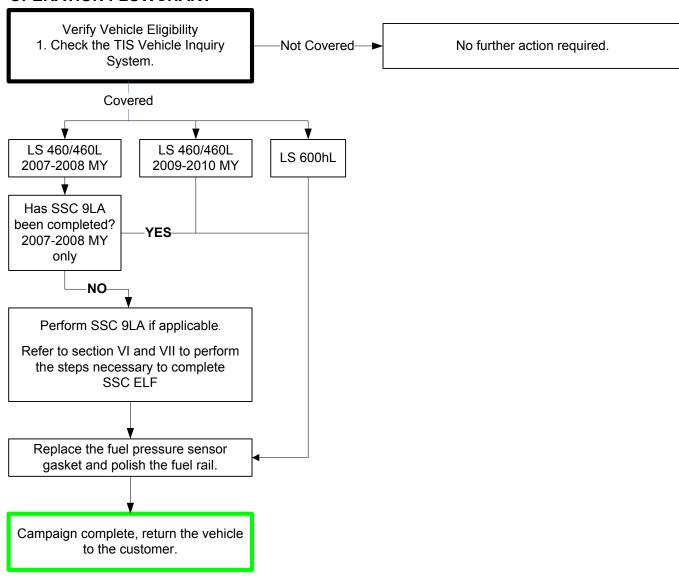
CERTAIN 2007 - 2010 MY LS 460 and 460L (1UR-FSE Engine) 2008 – 2011 LS 600hL (2UR-FSE Engine)

All dealership associates involved in the campaign process are required to successfully complete E-Learning course SC13A. To ensure that all vehicles have the repair performed correctly; technicians performing this recall repair are required to currently hold <u>at least one</u> of the following certifications levels:

- Certified, Senior, or Master Technician
- Certified, Senior, or Master Diagnostic Technician

ELF UR ENGINE FUEL PRESSURE SENSOR GASKET VIDEO OVERVIEW

I. OPERATION FLOWCHART



NOTE:

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Safety Recall, 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 affected or were completed by another dealer.

II. PREPARATION

A. PARTS

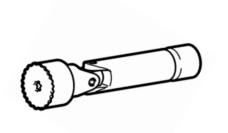
Model	Part Number	Part Description	Quantity
LS 460/460L/600hL	04004-35138	Fuel Pressure Sensor Gasket Kit	1
		The kit contains the following parts	
	90430-12026	Fuel Pressure Sensor Gasket	1
	22271-50050	Throttle Body Gasket	1
	17177-38020	Intake Manifold to	2
		Cylinder Head Gasket	
	09264-99020	Polishing Brush Pad	1

B. TOOLS

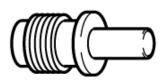
- Standard hand tools
- Techstream
- Blow gun

- Torque wrench
- Air Ratchet

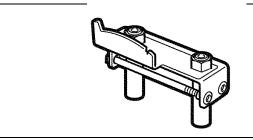
The following special campaign tools where sent to the Dealership free of charge.



Fuel Delivery Pipe Polishing Tool (with Spare Velcro)



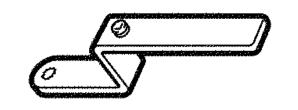
Polishing Guide Tool (with thread protector)



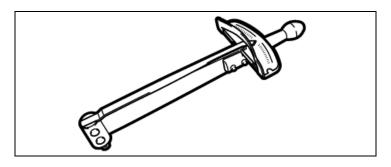
Torque Angle Plate for UR Engines



24 mm Open End Wrench



Torque Wrench Adaptor



Torque Wrench

C. EQUIPMENT & MATERIALS

Brake cleaner
 Protective tape

 Pando39C Adhesive spray (Note: one can will service approximately 120 vehicles)

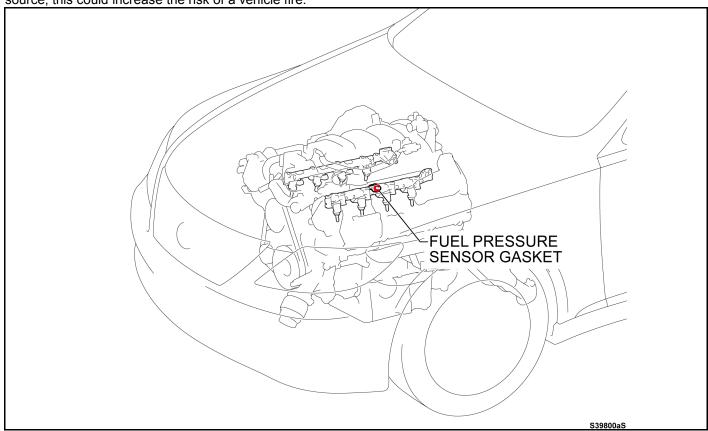
An initial quantity of the required Pando 39C (00289-ELF39) has been shipped to each dealer. Please contact your DSPM to request additional quantities of Pando 39C. Your DSPM will contact Lexus headquarters who will evaluate your ELF paid warranty claim volume, overall remaining UIO, and availability of Pando 39C. Upon Lexus headquarters approval your dealership will be authorized to submit an order for the approved quantity via the LCMC website.

III. WORK PROCEDURE TABLE OF CONTENTS

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Disassemble The Vehicle	Section V
Polish Fuel Delivery Pipe	Section VI
Reinstall The Fuel Pressure Sensor	Section VII
Reassemble Vehicle	Section VIII
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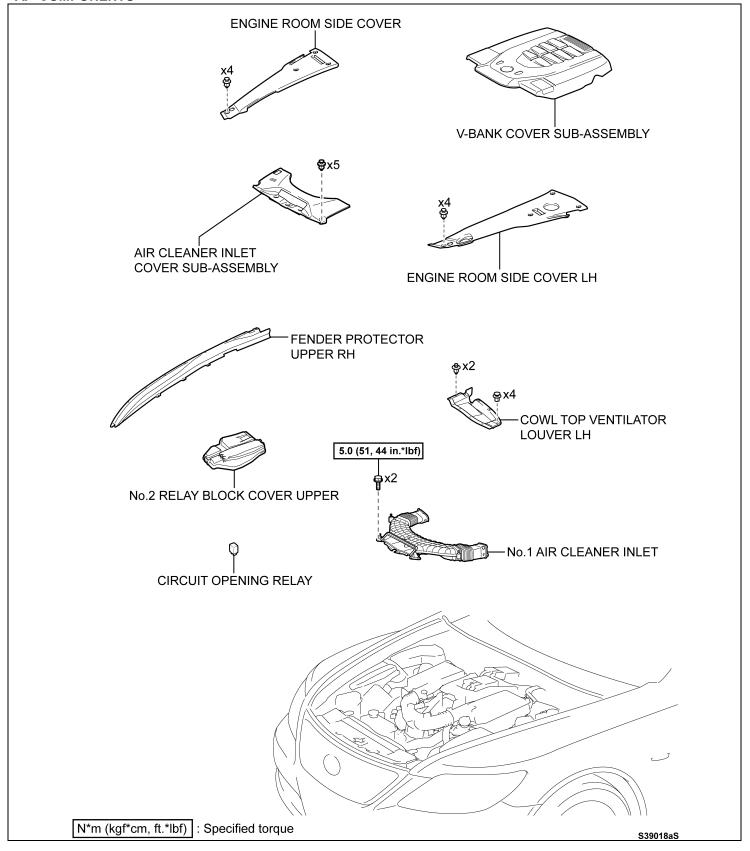
IV. BACKGROUND

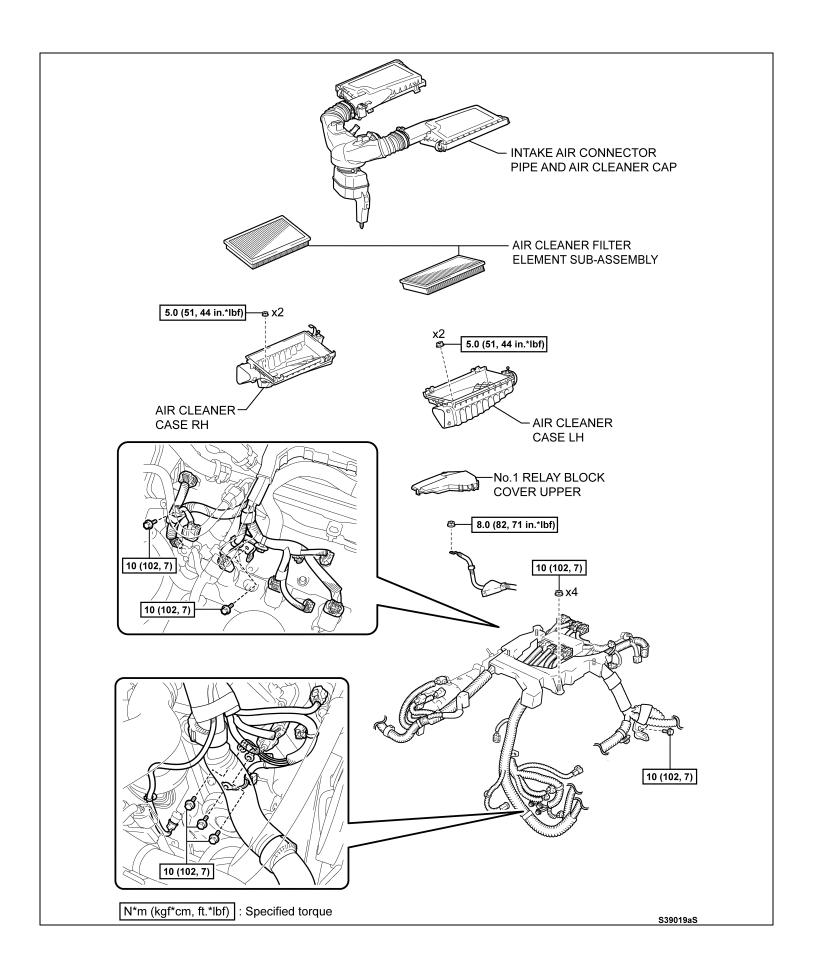
In the subject vehicles, the sealing property of the gasket seated in between the pressure sensor and the fuel delivery pipe could become degraded. During vehicle operation, fuel could leak past the gasket. In the presence of an ignition source, this could increase the risk of a vehicle fire.

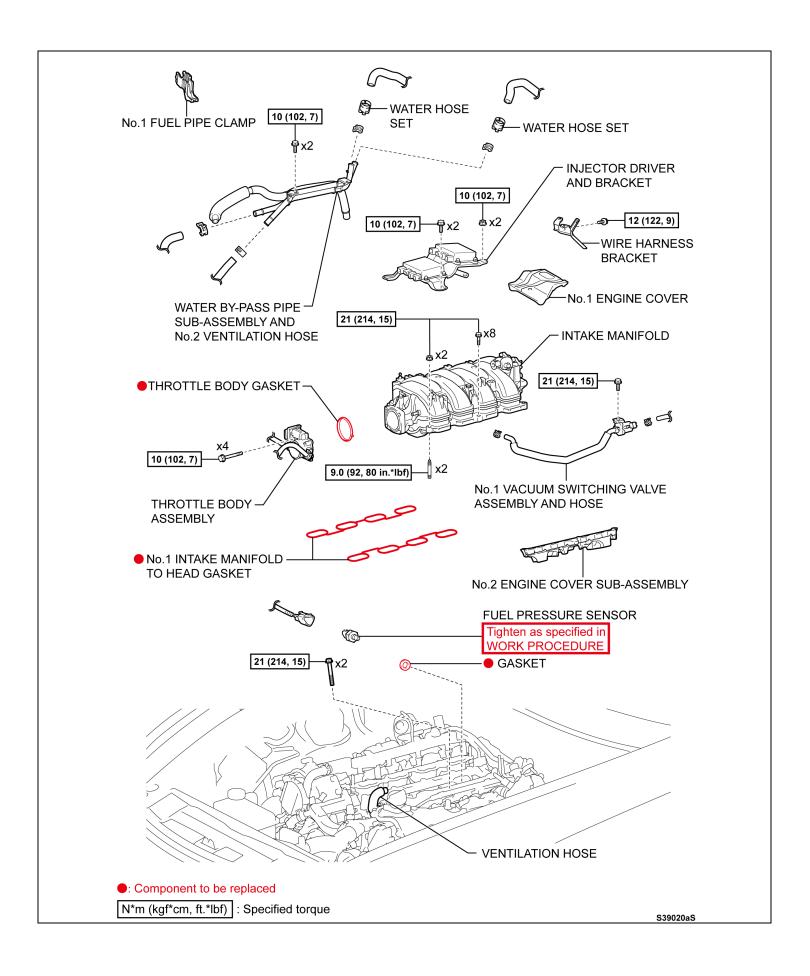


V. DISASSEMBLE THE VEHICLE

A. COMPONENTS







B. CHECK SYSTEM FOR DTC's.



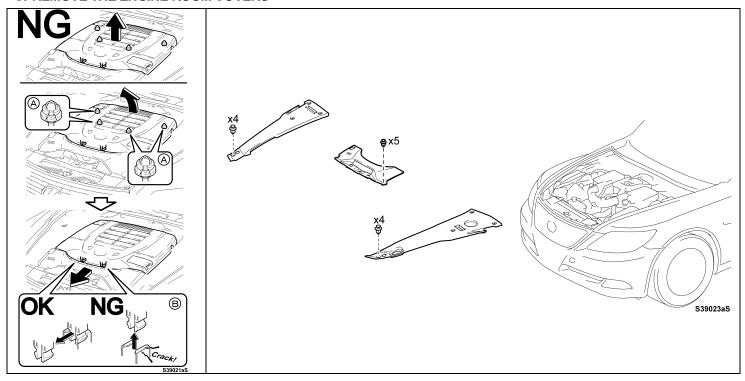
This campaign only covers the replacement of the fuel pressure sensor gasket. No other components in the engine management or fuel system are covered by this campaign.

a) Using Techstream, perform a health check to confirm if there are any fuel system mangement related DTCs present in the system (current, history or pending).

NOTES:

- Ensure that the Techstream software is 9.2 or higher.
- On the "connect to vehicle" screen, enter the VIN number to ensure that the vehicle information is uploaded to TIS.
- Record any fuel system mangement DTCs to aid in any additional dicussions needed with the customer.

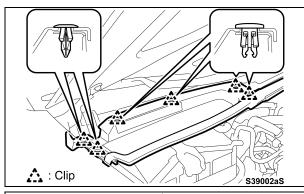
C. REMOVE THE ENGINE ROOM COVERS



D. DISCHARGE THE FUEL SYSTEM PRESSURE

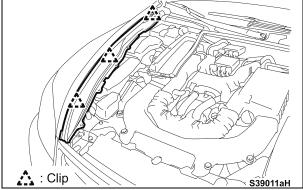


- DO NOT disconnect any part of the fuel system until you have discharged the fuel system
 pressure.
- Even after discharging the fuel system pressure; place a shop cloth around the fuel pressure sensor as you separate it to reduce the risk of fuel spraying on yourself and in the engine compartment.

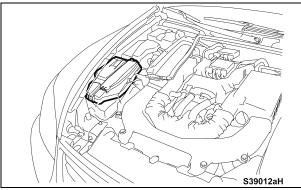


1. DISCHARGE THE FUEL SYSTEM PRESSURE

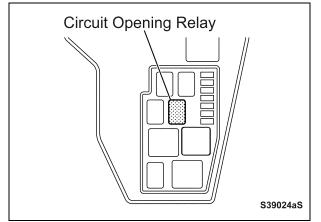
a) Remove the 6 clips and move the top cowl cover.



b) Remove the 3 clips and remove the right upper fender protector.



c) Remove the No. 2 relay cover block.



- d) Remove the circuit opening relay.
- e) Start the engine.
- f) After the engine has stopped, turn the ignition switch OFF.

NOTE:

DTCs related to fuel pressure, lean fuel mixture, and/or engine stop may be detected.

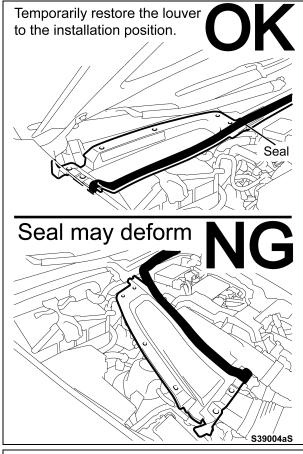
g) Remove the fuel tank cap to discharge the fuel tank pressure.

NOTE:

DO NOT reinstall the fuel tank cap.

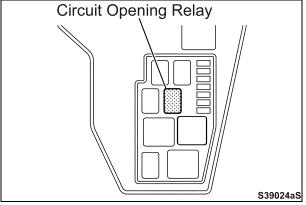
2. DISCONNECT THE NEGATIVE BATTERY CABLE

NOTE: For models with a navigation system, wait at least 6 minutes before disconnecting the battery. The system requires approximately 6 minutes to save information and settings after vehicle shut down.

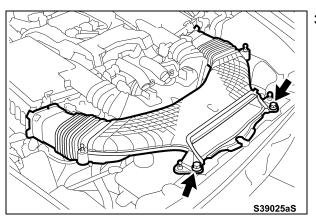


a) Return the top cowl cover to its original position.

NOTE: DO NOT reinstall the clips.



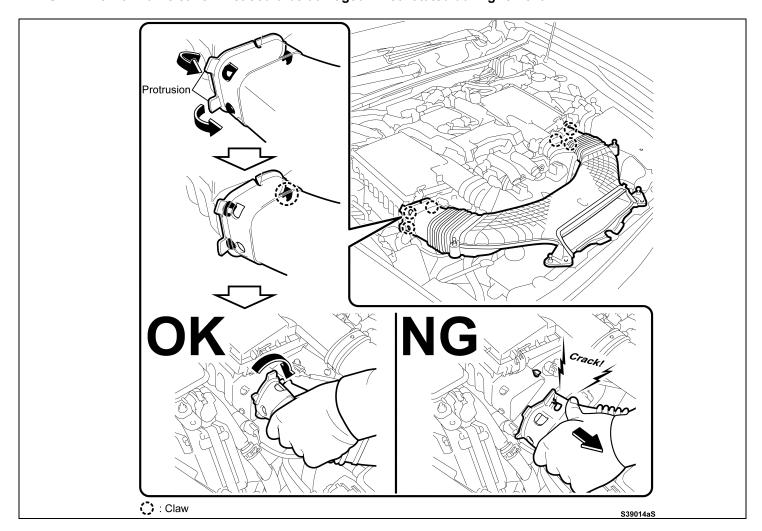
- b) Reinstall the circuit opening relay.
- c) Reinstall the relay block cover.



- 3. REMOVE THE No.1 AIR CLEANER INLET
 - a) Remove the 2 bolts and the air cleaner inlet.

- b) Pull on the protrusions to detach the 4 claws.
- c) Detach the 2 claws by rotating the No. 1 air cleaner inlet as shown.

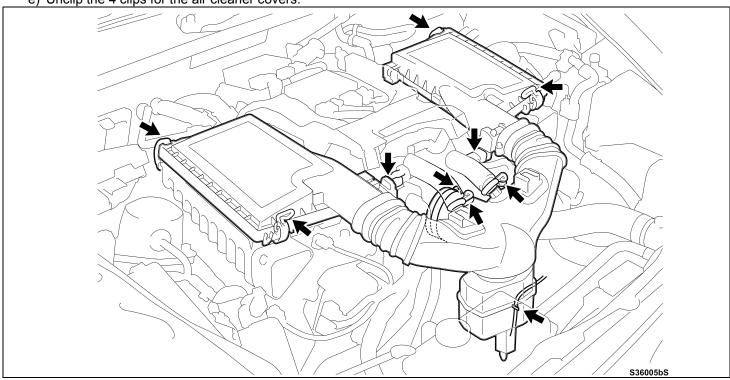
NOTE: The No. 1 air cleaner inlet could be damaged if not rotated during removal.



4. REMOVE THE INTAKE AIR CONNECTOR PIPE AND AIR CLEANER CAP

- a) Disconnect the harness.
- b) Disconnect the hose.
- c) Disconnect the 2 connectors.
- d) Lossen the clamp for the throttle body.

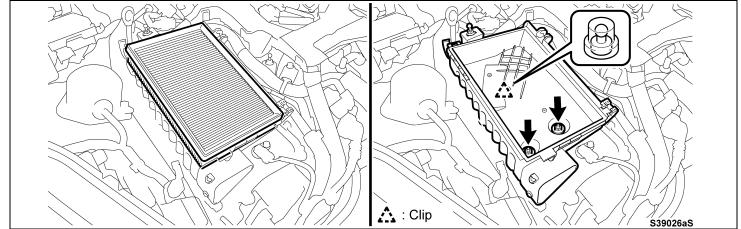
e) Unclip the 4 clips for the air cleaner covers.

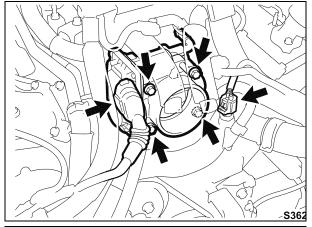


5. REMOVE THE LEFT AND RIGHT AIR CLEANER CASE

- a) Remove the air filter element.
- b) Remove the 2 nuts.
- c) Disengauge the clip.
- d) Remove the air cleaner case.

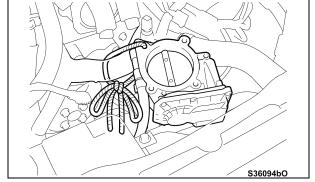
e) Repeat on other side.





6. REMOVE THE THROTTLE BODY

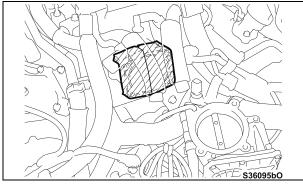
- a) Disconnect the 2 connectors.
- b) Remove the 4 bolts.
- c) Separate the throttle body from intake manifold.



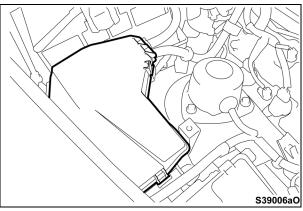
d) Secure the throttle body to provide clearance.

NOTE: Leave the coolant lines attached to the throttle body.

e) Remove and discard the throttle body gasket.

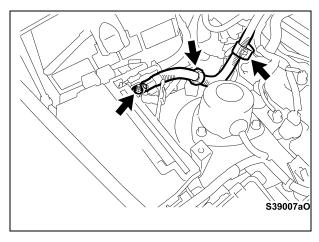


f) Place protective tape over the throttle body opening to prevent foreign objects from entering the surge tank.



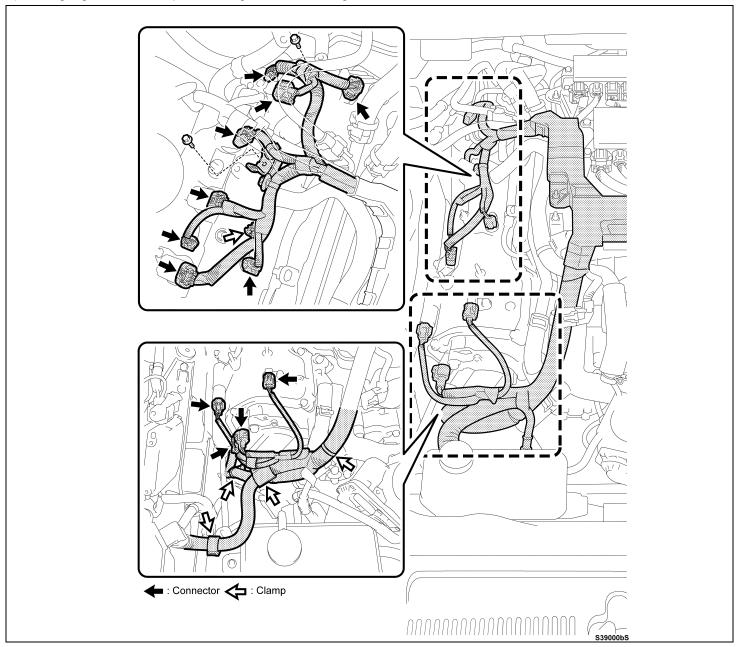
7. ENGINE WIRE HARNESS DISCONNECT

a) Remove the No. 1 Relay block cover.

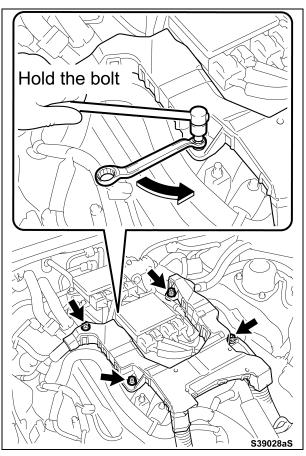


- b) Remove the nut.
- c) Disengage the 2 claws and separate the harness.

- d) Remove the 2 bolts and disconnect the connectors.
- e) Disengauge the the clamps for the right side of the engine.



f) Remove the 4 bolts and disengage the connectors.
g) Disengage the clamps for the left side of the engine harness. : Connector : Clamp S39001bS

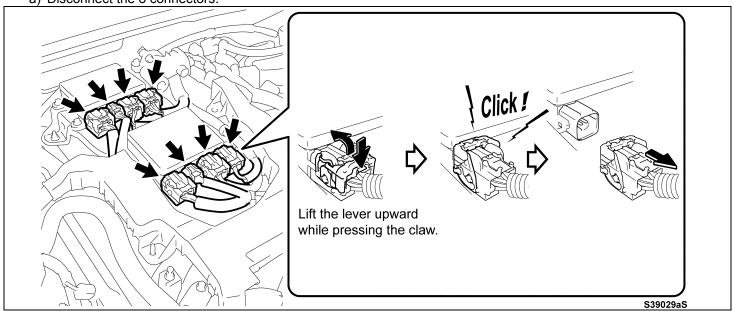


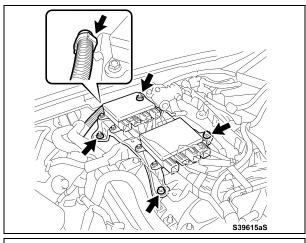
h) Remove the 4 nuts while holding the studs.

NOTE: Failing to hold the studs while removing the nuts could result in damage to the intake manifold.

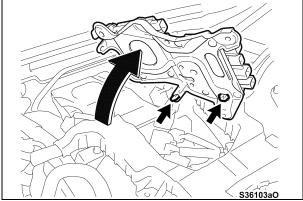
8. REMOVE THE INJECTOR DRIVER

a) Disconnect the 8 connectors.

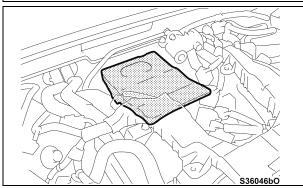




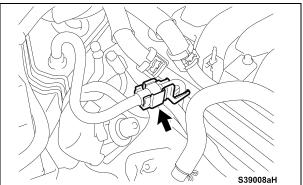
- b) Detach the harness clamp.
- c) Remove the 2 bolts and 2 nuts.



d) Lift the injector driver and detach the 2 harness clamps.

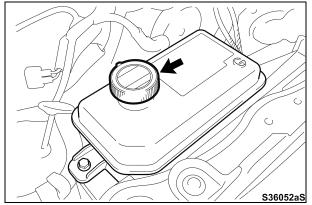


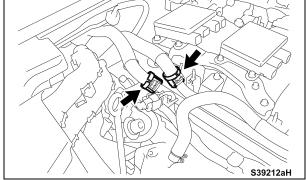
9. REMOVE THE No. 1 ENGINE COVER

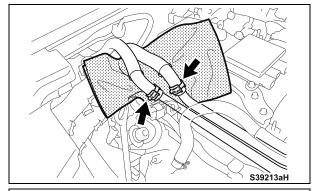


10. REMOVE THE No. 1 FUEL PIPE CLAMP

NOTE: The clamp must be removed to prevent damage during intake manifold removal.









11. REMOVE THE WATER BY-PASS PIPE

- a) Remove the reservoir cap and check coolant level.
- b) If the level is above the full mark remove the excess coolant.

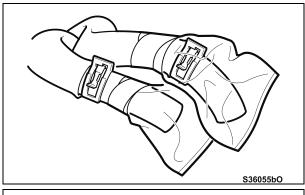
NOTE: Use the appropriate devise to remove any excess coolant.

c) Remove the 2 water hose sets.

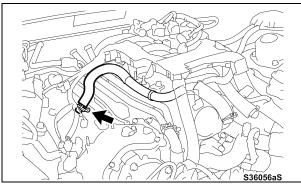
- d) Place a cloth under the hoses as shown.
- e) Slide the clips up the hose.

f) Slowly disconnect each hose while allowing air to enter the hose.

NOTE: DO NOT disconnect the hoses quickly as it could cause a large amount of coolant to flow from the hoses.

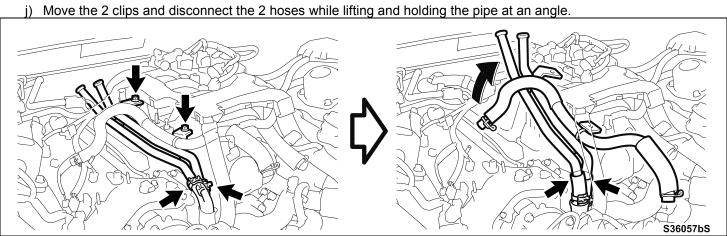


g) Cover the ends of the hoses to prevent foreign objects from entering.

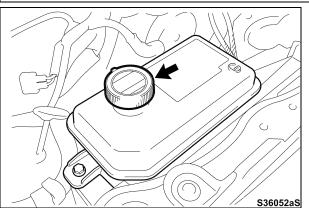


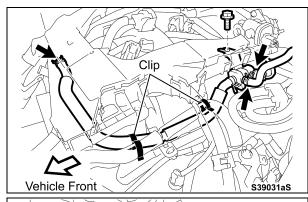
h) Disconnect the vent hose.

i) Remove the 2 bolts.



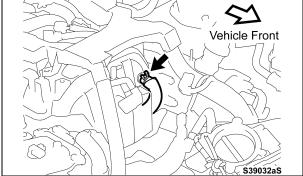
k) Reinstall the reservoir cap.





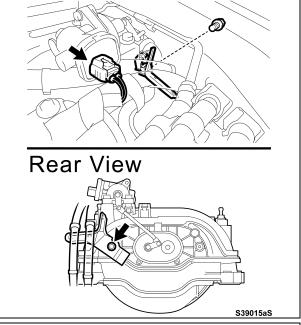
12. REMOVE THE No. 1 VACUUM SWITCHING VALVE AND HOSE

- a) Disconnect the 2 hoses and the connector.
- b) Remove the bolt and remove the valve and hose.

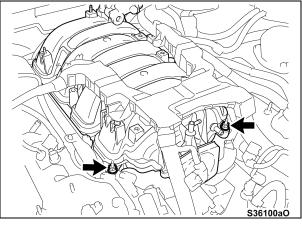


13. REMOVE THE INTAKE MANIFOLD

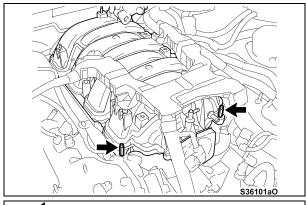
a) Disconnect the vent hose.



- b) Disconnect the connector.
- c) Remove the bolt for the harness bracket at the rear of the manifold.



d) Remove the 2 nuts.



Vehicle Front

S39033aS

e) Remove the 2 studs.

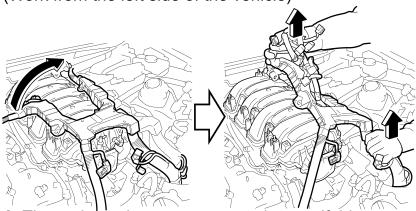
NOTE: The studs need to be removed to provide enough clearance to remove the intake manifold.

f) Remove the 8 bolts.

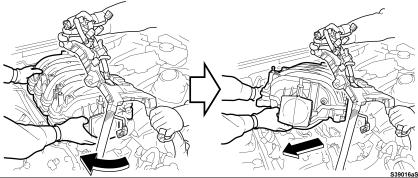
g) Remove the intake manifold from the right side of the vehicle as shown.

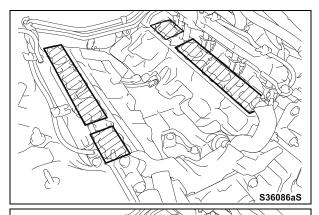
Requires 2 Workers

1. The assisting worker must lift the wire harnesses. (Work from the left side of the vehicle)

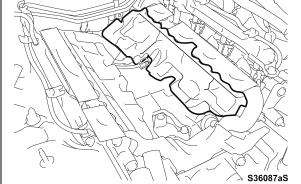


2. The main worker must remove the manifold while the assisting worker is lifting the wire harnesses. (Work from the right side of the vehicle)

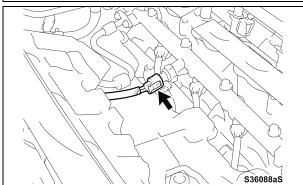




- h) Remove and discard the intake gaskets.
- i) Cover the intake ports with tape.



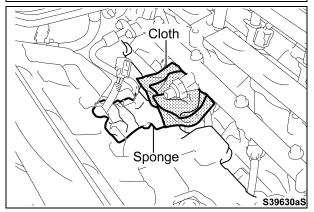
14. REMOVE THE No. 2 ENGINE COVER



15. REMOVE THE FUEL PRESSURE SENSOR

a) Disconnect the connector.

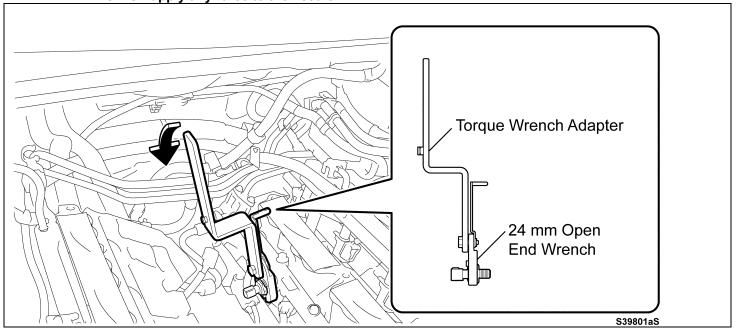
NOTE: It may be necessary to loosen the sensor 90 degrees to remove the connector.

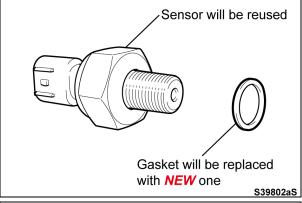


b) Place a cloth under the sensor to absorb any fuel.

c) Attach the supplied torque wrench adaptor to the 24 mm wrench as shown and loosen the sensor.

NOTE: The needle on the wrench is not used during removal. DO NOT apply any force to the needle.





- d) Remove the tool and remove the sensor by hand.
- e) Remove and destroy the sensor gasket.

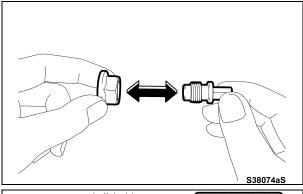


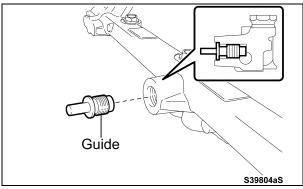


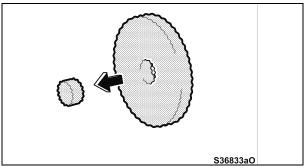
DO NOT drop the sensor.

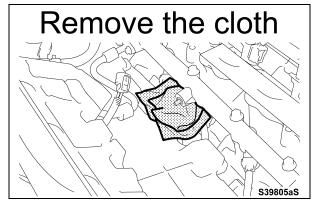
If dropped, DO NOT reuse it but replace it with a NEW one.

16. POLISH THE FUEL DELIVERY PIPE









- a) Ensure that fuel has stopped dripping from the delivery pipe.
- b) Clean the end of the fuel delivery pipe of any fuel.
- c) Remove the supplied guide from the thread protector.
- d) Inspect and clean the threads of the guide.

NOTE: DO NOT dispose of the guide protector it is needed to store the guide.

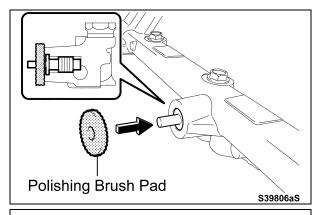
Replace the guide if the threads are damaged.

e) Install the guide into the fuel delivery pipe finger tight.

f) Inspect the polishing pad that is contained in the parts kit. Ensure that the center piece of the new pad is removed.

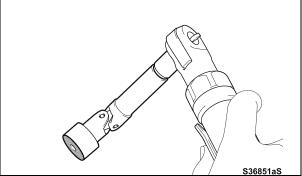
NOTE: DO NOT drop the center piece in the engine compartment.

g) Remove the cloth from under the sensor mounting hole.



h) Place the NEW polishing pad onto the guide in the fuel delivery pipe.

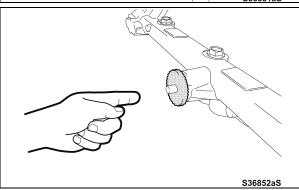
NOTE: Always use a new polishing pad each time. Either side of the pad can be used.



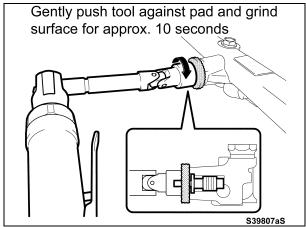
i) Check that the air ratchet will rotate clockwise.

NOTE: Operating the air ratchet in the counter clockwise direction could case the guide to come out of the delivery pipe.

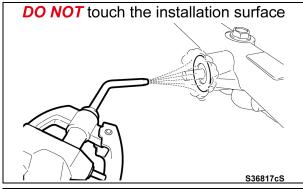
j) Attach the supplied fuel pipe polishing tool to the air ratchet.

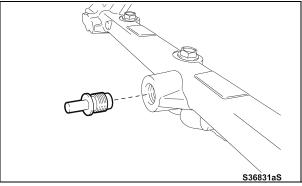


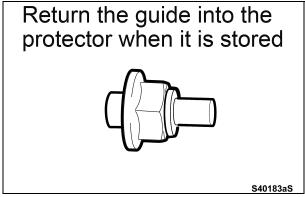
NOTE: Check that the pad is in the correct position.



- k) Gently push the tool and pad against the end of the delivery pipe.
- I) Polish the end of the delivery pipe for 10 seconds.







- m) Remove the polishing tool and pad from the pipe.
- n) Clean the end of the pipe with compressed air.

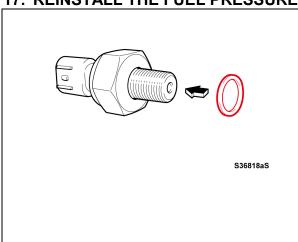
NOTE: Do not touch the end of the pipe after cleaning.

o) Remove the guide from the end of the pipe.

NOTE: The guide may need to be removed with pliers. Be careful not to damage the sensor sealing surface on the pipe.

p) Reinstall the guide into the protector to protect the threads.

17. REINSTALL THE FUEL PRESSURE SENSOR



- 1. REINSTALL THE SENSOR
 - a) Check the sensor for any damage, and that the threads and sealing surface are clean.
 - b) Check that the **NEW** sensor gasket for damage and that it is clean.
 - c) Install the **NEW** gasket onto the sensor.

Caution:

When reinstalling the fuel pressure sensor to the fuel delivery pipe, follow the specified procedure.

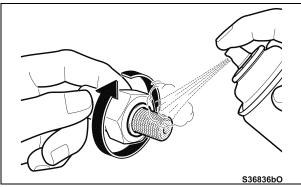
Failure to observe the instructions may cause looseness or deformation of the sensor and could result in abnormal sensor outputs.



The Pando 39C is the only approved product to be used for this campaign.

Do not use any other chemical on the fuel sensor threads.

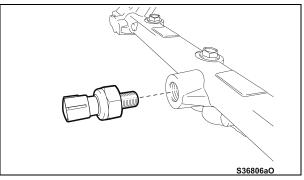
To order Pando 39C see Section II Step C.



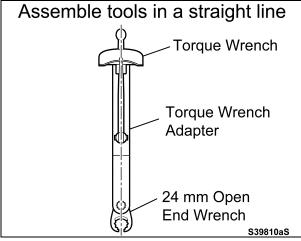
d) Spray Pando 39C onto the threaded portion of the sensor.



DO NOT spray the Pando 39C into the connector.



e) Reinstall the sensor into the pipe.



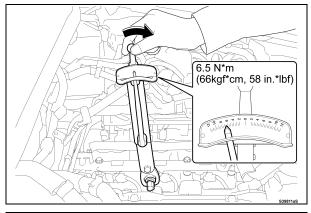
f) Assemble the 24 mm wrench, torque adapter and the supplied torque wrench as shown.



Only use the torque wrench that was supplied for this campaign.

Ensure that three pieces are assembled in a straight line.

The needle on 24 mm wrench is not used on this initial tightening step.

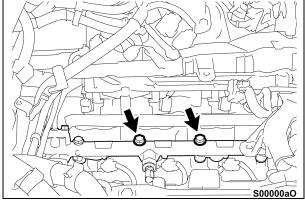


g) Tighten the sensor as shown until the specified torque reading is obtained.

Torque: 6.5 Nm (66 kpf-cm, 58 in-lbs)

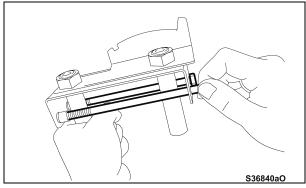
NOTE: If the torque specification has been exceeded, replace the sensor gasket with a NEW one and repeat Steps 1c to 1h.

h) Remove the tool from the sensor.



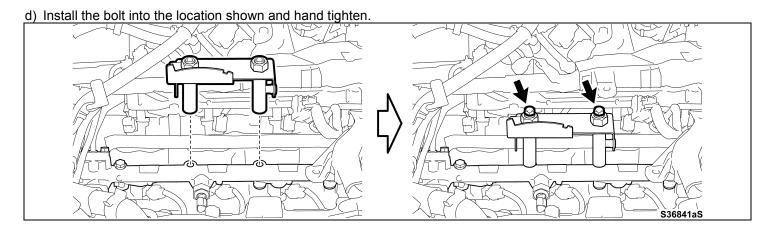
2. SENSOR TORQUE ANGLE

a) Remove the 2 bolts shown from the fuel delivery pipe.



b) Remove the 2 bolts from the supplied UR torque angle plate.

c) Place the UR torque angle plate onto the delivery pipe.



DO NOT skip the torque angle procedure it is the critical step in this repair.

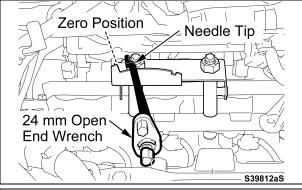


When preforming the torque angle procedure be aware of the following:

DO NOT rotate the sensor until ready.

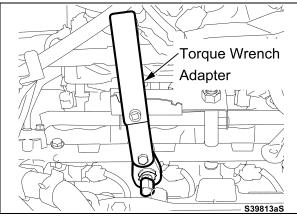
DO NOT rotate the sensor past the indicated notch on the torque angle plate.

If any of the above cautions are violated a NEW fuel pressure sensor gasket will need to be installed and restart the torqueing procedure again at step 1c.

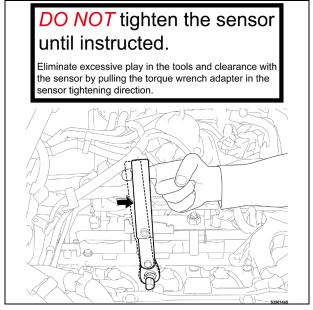


e) Place the 24 mm wrench onto the sensor with the needle as close as possible to the zero position of the torque plate.

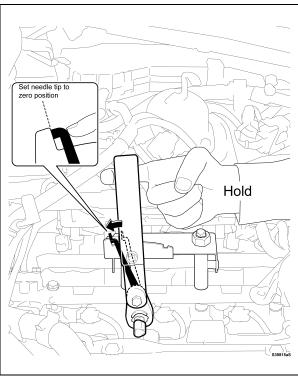
NOTE: Do not rotate the sensor while placing the wrench on the sensor. If the sensor is unintentionally rotated during steps 2e through 2g replace the sensor gasket with a new one and start again from step 1c.



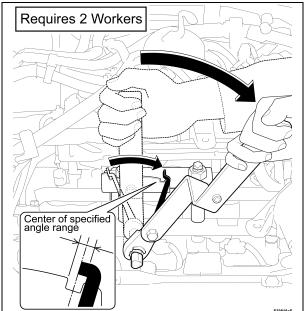
f) Attach the torque wrench adapter to the 24 mm wrench.



g) Lightly push and hold the torque adapter as shown to eliminate any play but do not rotate the sensor.



h) While holding the torque adaptor gently move the needle on the 24 mm wrench to the zero position on the plate.

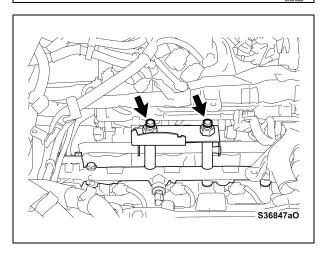


i) Tighten the sensor until the needle tip aligns with the center of the cut out in the plate as shown.

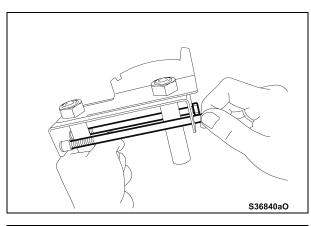
NOTE: A second technician may be required to watch the needle position as it moves across the torque angle gage.

If the sensor is tightened beyond the specified range, replace the sensor gasket with a new one and start again on Step 1c.

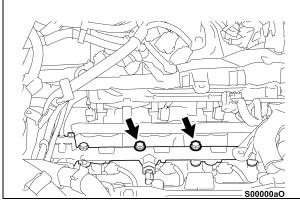
j) Remove the tools from the sensor.



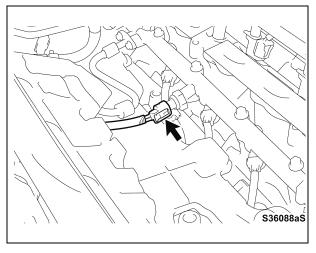
k) Remove the 2 bolts shown and remove the plate.



I) Return the 2 bolts to the storage location on the plate.

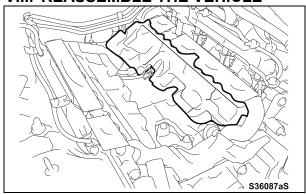


m) Reinstall the bolt and nut for the right fuel delivery pipe.Torque: 21 Nm (214 kpf-cm, 15 ft-lbs)

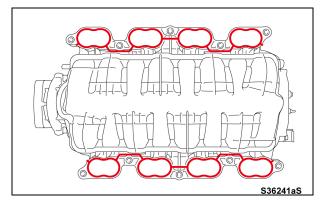


n) Reconnect the sensor connector.





1. REINSTALL THE No. 2 ENGINE COVER



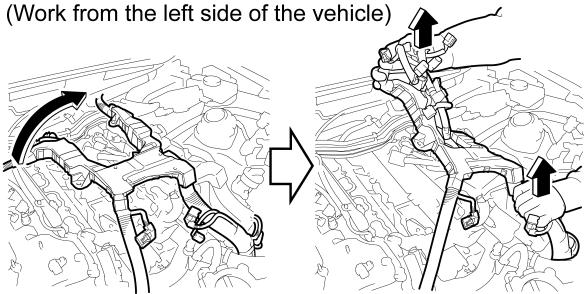
2. REINSTALL THE INTAKE MANIFOLD

- a) Remove the protective tape from the cylinder head.
- b) Clean the gasket surface of the cylinder head.
- c) Install 2 NEW intake manifold gaskets onto the cylinder heads.

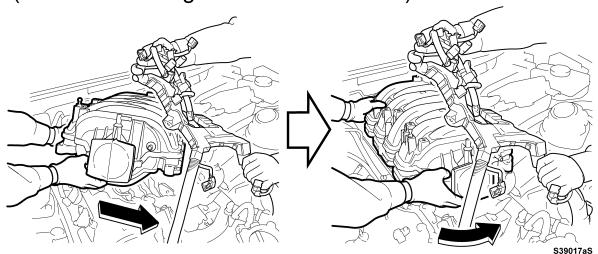
d) Reinstall the intake manifold as shown.

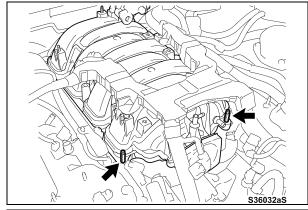
Requires 2 Workers

1. The assisting worker must lift the wire harnesses.



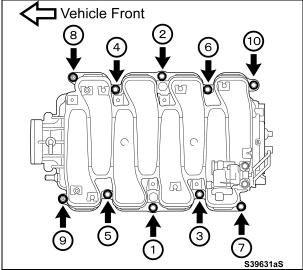
2. The main worker must temporarily install the manifold while the assisting worker is lifting the wire harnesses. (Work from the right side of the vehicle)





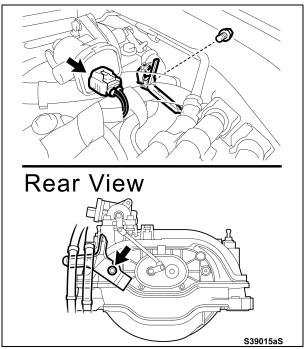
e) Reinstall the 2 studs.

Torque: 9.0 Nm (92 kpf-cm, 80 in-lbs)



f) Reinstall the 8 bolts and the 2 nuts and torque in the sequence shown

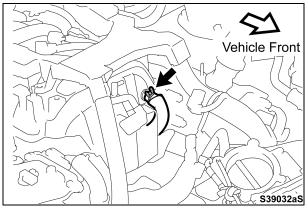
Torque: 21 Nm (214 kpf-cm, 15 ft-lbs)



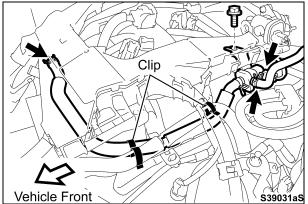
g) Reinstall the bolt for the harness bracket at the rear of the manifold.

Torque: 12 Nm (122 kpf-cm, 9 ft-lbs)

h) Reconnect the connector.

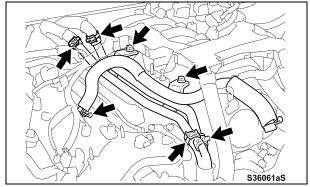


i) Reconnect the vent hose.



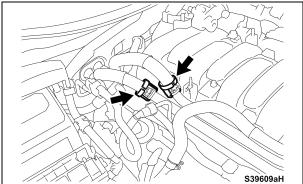
3. REINSTALL THE No. 1 VACUUM SWITCHING VALVE

- a) Reinstall the bolt for the No. 1 vacuum switching valve. **Torque: 21 Nm (214 kpf-cm,15 ft-lbs)**
- b) Reconnect the 2 hoses and the connector.
- c) Reinstall the 2 clips.

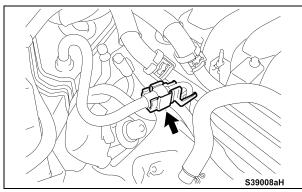


4. REINSTALL THE WATER BY-PASS PIPE

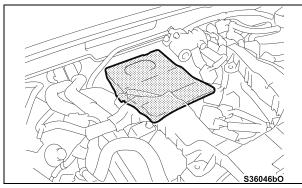
- a) Reconnect the hoses at the 5 locations.
- b) Reinstall the 2 bolts for the water by-pass pipe. **Torque: 10 Nm (102 kpf-cm, 7 ft-lbs)**
- c) Reinstall the vent hose.



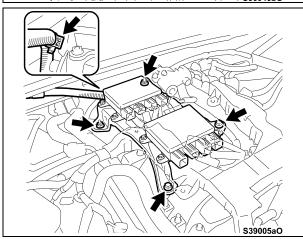
d) Reinstall the 2 water hose sets.



5. REINSTALL THE No. 1 FUEL PIPE CLAMP

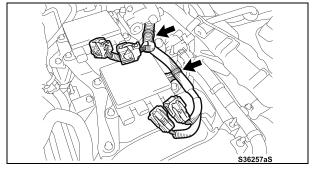


6. REINSTALL THE No. 1 ENGINE COVER



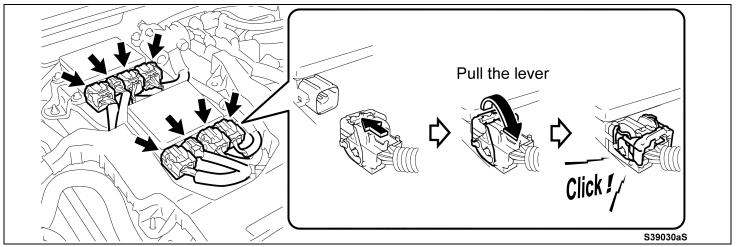
7. REINSTALL THE INJECTOR DRIVER

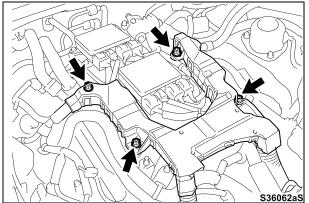
- a) Reinstall the injector driver with the 2 bolts and 2 nuts. **Torque: 10 Nm (102 kpf-cm, 7 ft-lbs)**
- b) Reengage the harness clamp.



c) Re-engage the 2 harness clamps.

d) Reconnect the 8 connectors.



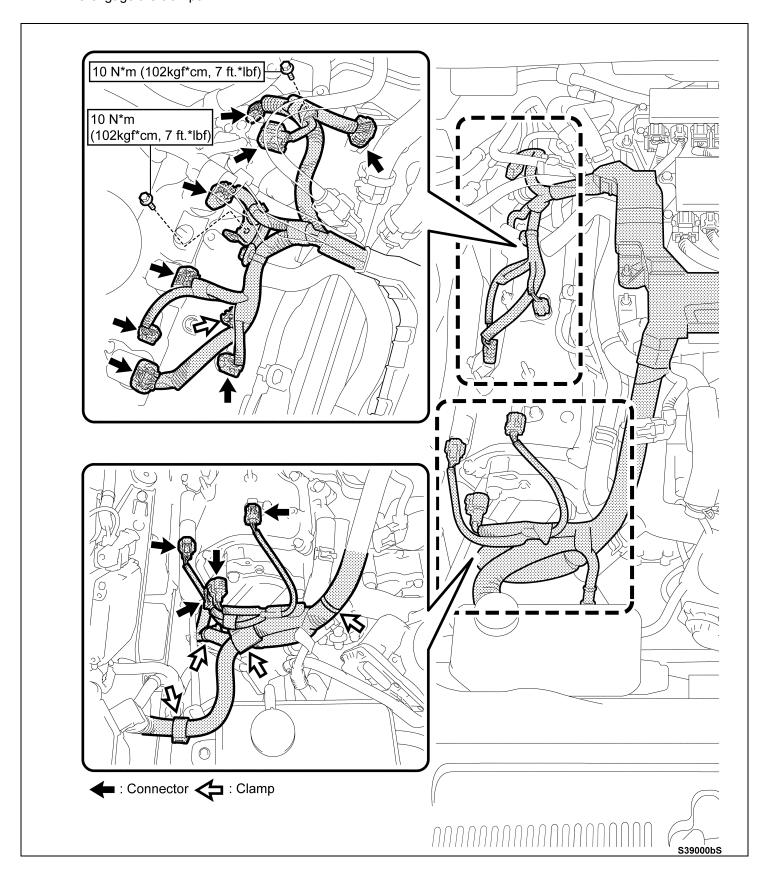


8. REINSTALL THE ENGINE WIRE HARNESS

a) Reinstall the No. 4 lower wiring harness cover with the 4 nuts. **Torque: 10 Nm (102 kpf-cm, 7 ft-lbs)**

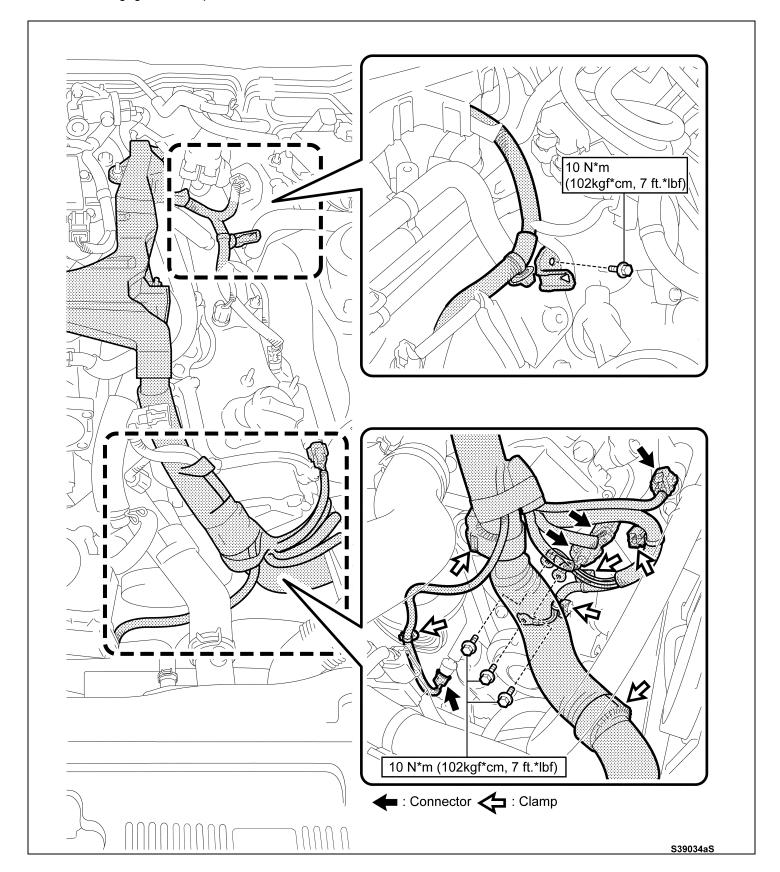
- b) On the right side of the engineReinstall the 2 bolts.

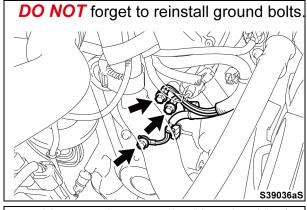
 - Reconnect the connectors.
 - Re-engage the clamps.



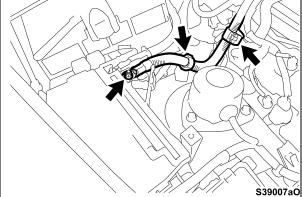
c) On the left side of the engine

- Reinstall the 4 bolts.
- Reconnect the connectors.
- Re-engage the clamps.





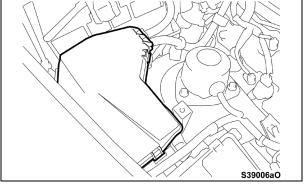
d) Ensure that the ground wires and bolts are reinstalled.



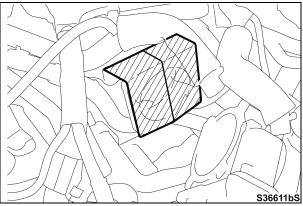
e) Re-engage the 2 claws and reconnect the wire harness.

f) Reinstall the nut.

Torque: 8.0 Nm (82 kpf-cm, 71 in-lbs)

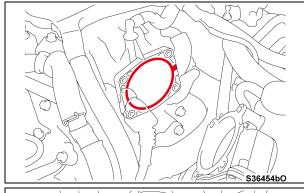


g) Reinstall the No. 1 relay block cover.

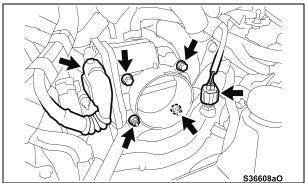


9. REINSTALL THE THROTTLE BODY

- a) Remove the tape from the throttle body port.
- b) Clean the gasket surface.



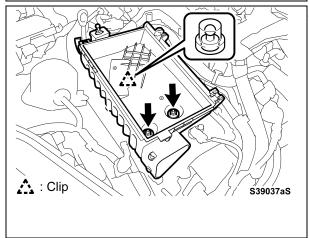
c) Reinstall the throttle body with a NEW gasket.



d) Reinstall the 4 bolts.

Torque: 10 Nm (102 kpf-cm, 7 ft-lbs)

e) Reconnect the 2 connectors.



10. REINSTALL THE LEFT AND RIGHT AIR CLEANER CASES

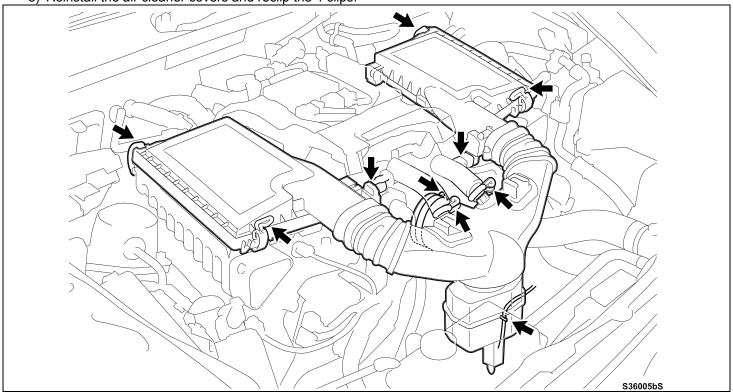
- a) Reinstall the air cleaner case.
- b) Reinstall the 2 nuts and the clip.

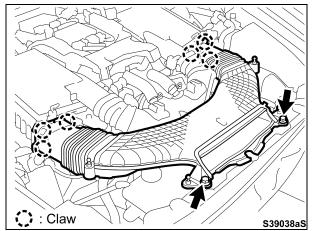
 Torque: 5.0 Nm (51 kpf-cm, 44 in-lbs)
- c) Reinstall the air filter element.
- d) Repeat on opposite side.

11. REINSTALL THE AIR INTAKE CONNECTOR PIPE AND AIR CLEANER COVERS

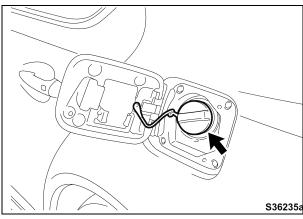
- a) Reconnect the harness.
- b) Reconnect connect the hose.
- c) Reconnect the 2 connectors.
- d) Reinstall the clamp for the throttle body.

e) Reinstall the air cleaner covers and reclip the 4 clips.

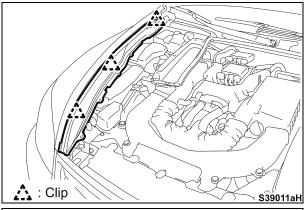




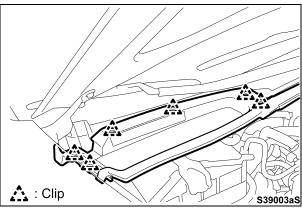
- e) Reinstall the 6 claws.
 f) Reinstall the air cleaner inlet and the 2 bolts.
 Torque: 5.0 Nm (51 kpf-cm, 44 in-lbs)



g) Reinstall the fuel cap.



12. REINSTALL THE UPPER FENDER PROTECTOR



13. REINSTALL THE TOP COWL COVER

a) Reinstall the cover and the 6 clips.

14. RECONNECT THE NEGATIVE BATTERY CABLE

a) Restore any memory settings and initialize any system needed (i.e. power windows, moonroof, etc.).

15. CHECK AND CLEAR DTC's

16. INSPECT THROTTLE BODY OPERATION

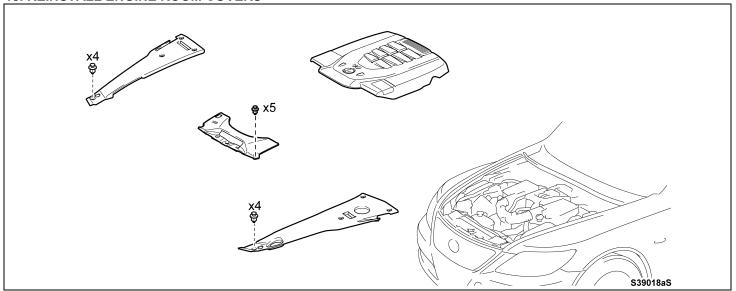
- a) Start the engine and check that the Check engine light is off.
- b) Allow the engine reach operating temperature.
- c) Make sure climate control system is off.
- d) Check that the idle is within specifications 700-800 RPM.

NOTE: All accessories, climate control and cooling fans must be off, and the transmission in P or N when preforming this check.

e) Quickly open the throttle to WOT and check that the Throttle Sensor Position reading is a minimum of 60 %.

17. TEST DRIVE VEHICLE

18. REINSTALL ENGINE ROOM COVERS



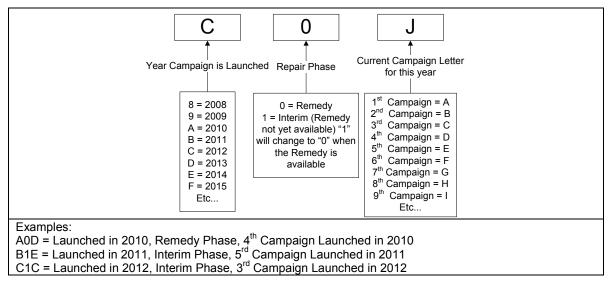
◄ VERIFY REPAIR QUALITY ►

- Clear DTC's
- No fuel leaks or fuel smell

If you have any questions regarding this recall, please contact your area representative.

IX. APPENDIX

CAMPAIGN DESIGNATION DECODER



X. REMOVED PARTS

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*.