	GROUP Safety Recall Campaign	MODEL 2011-2014MY Optima (QF/TF) 2012-2014MY Sorento (XMa) 2011-2013MY Sportage (SL)
	NUMBER SC172	DATE January 2019
SAFETY RECALL CAMPAIGN		
SUBJECT: HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)		

This bulletin provides the procedure to inspect the connections of the High Pressure Fuel Pipe to the fuel pump outlet for fuel leaking and, if necessary, replace the fuel pipe with a new one on certain 2011-2014 MY Kia Optima, 2012-2014 MY Kia Sorento, and 2011-2013 MY Kia Sportage vehicles **that received an engine replacement under Recall No. 17v224 (SC147)**. The remedy for the previous recall may not have been properly performed, and in some cases, the high pressure fuel pipe may have been damaged, misaligned, or improperly torqued during the engine replacement procedure, allowing fuel to leak. Leaking fuel increases the risk of fire.

Before conducting the procedure, verify the vehicle is included in the list of affected VINs.

*****IMPORTANT*****

The procedure outlined in this Technical Service Bulletin MUST be followed when performing the inspection and, if necessary, the repair.

*** NOTICE**

There is no charge to the vehicle owner for this repair. Under applicable law, you may not sell or otherwise deliver any affected vehicle until it has been repaired pursuant to the procedures set forth in this bulletin.

*** NOTICE**

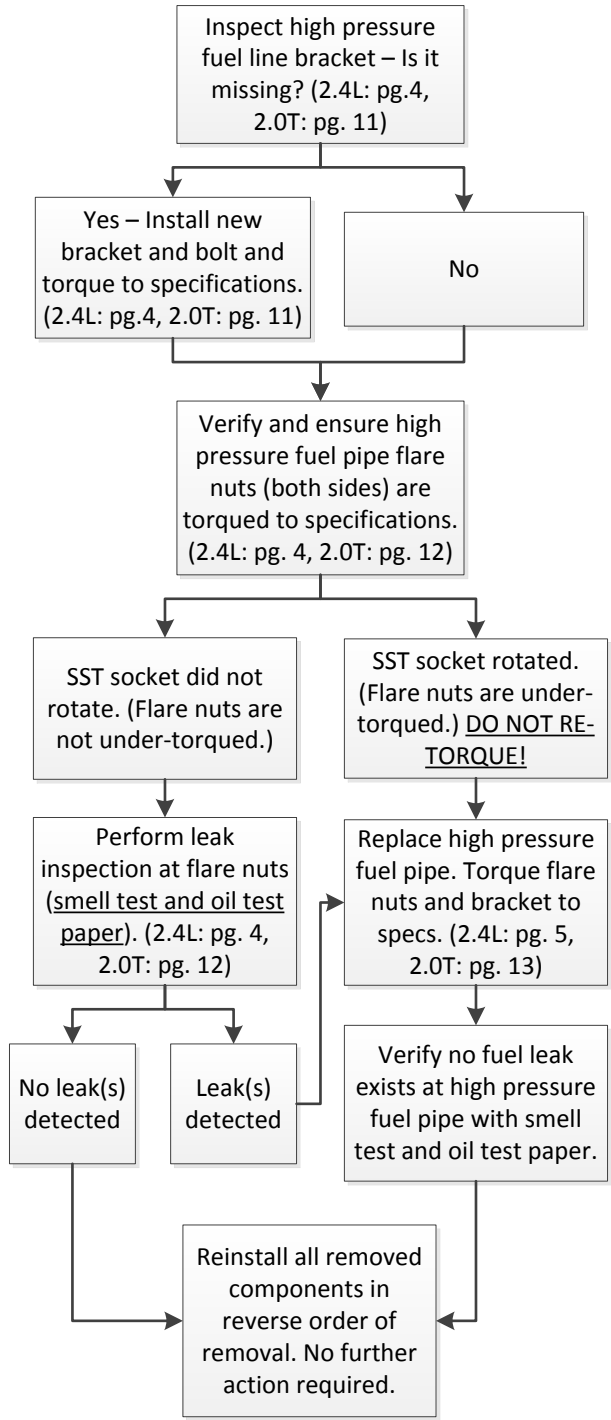
To assure complete customer satisfaction, always remember to refer to WebDCS Warranty Coverage (validation) Inquiry Screen (Service → Warranty Coverage → Warranty Coverage Inquiry) for a list of any additional campaigns that may need to be performed on the vehicle before returning it to the customer.

File Under: <Safety Recall Campaign>

- Circulate To:** General Manager Service Manager Parts Manager
 Service Advisors Technicians Body Shop Manager Fleet Repair

Flow Chart:

(Refer to the detailed procedure description on page 3 through 14.)



Tightening Torque Specifications:

High Pressure Fuel Pipe Flare Nuts: **19.5 – 23.9 lb.ft** (26.5 – 32.4 N.m, 2.7 – 3.3 kgf.m)

High Pressure Fuel Pipe Bracket: **5.8 – 8.7 lb.ft** (7.8 – 11.8 N.m, 0.8 – 1.2 kgf.m)

SUBJECT:

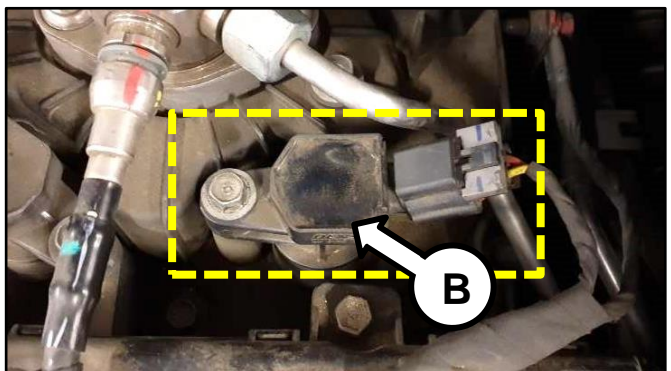
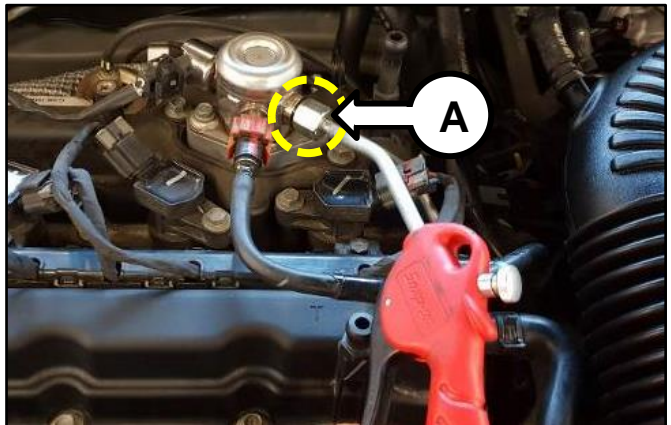
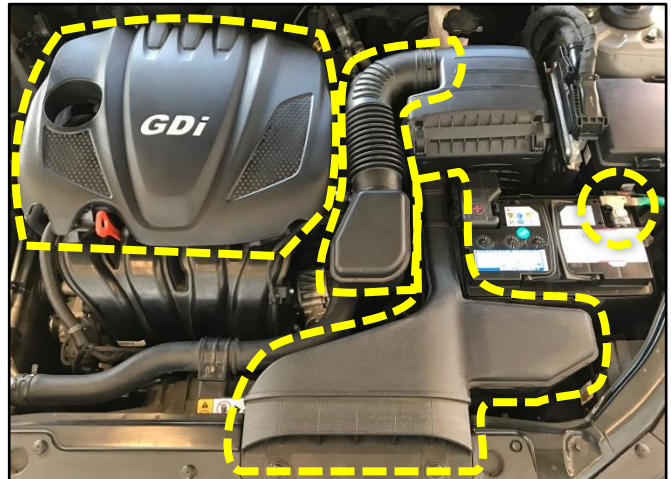
HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

High Pressure Fuel System Table of Contents:

2.4L GDI High Pressure Fuel Pipe Inspection Procedure:	3
2.4L GDI High Pressure Fuel Pipe Replacement Procedure:	5
2.0T GDI High Pressure Fuel Pipe Inspection Procedure:	8
2.0T GDI High Pressure Fuel Pipe Replacement Procedure:	13

2.4L GDI High Pressure Fuel Pipe Inspection Procedure:

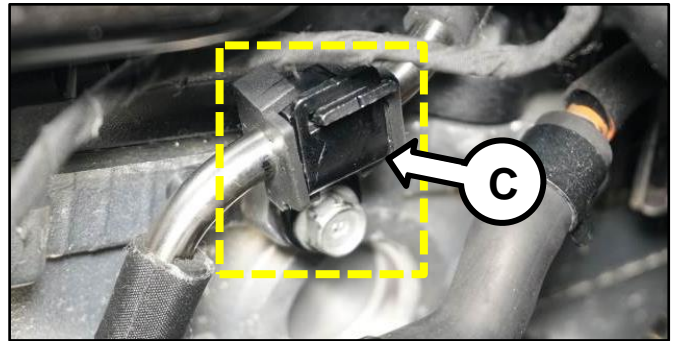
1. Record the customer's radio presets before proceeding to the next step.
2. Disconnect the negative (-) battery cable and then remove the engine cover, air duct, and air intake hose assembly.
3. Using regulated shop air, gently blow and clean the areas around the flare nut (A) at both ends of the high pressure fuel pipe to remove any debris or foreign substance.
4. Disconnect and remove cylinder 4's ignition coil (B). Use a clean shop rag to cover the spark plug tube and ensure no foreign substance falls into the tube.

**Tightening torque:**

7.2 – 8.7 lb.ft (9.8 – 11.8 N.m,
1.0 – 1.2 kgf.m)

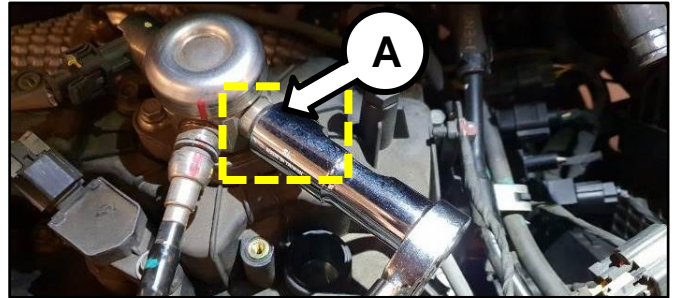
5. Ensure the high pressure fuel pipe retaining bracket (C) is torqued. If the bracket and bolt is missing, install a new bracket and bolt as necessary, prior to performing the next step.

Tightening torque (bracket):
5.8 – 8.7 lb.ft (7.8 –11.8 N.m,
0.8 – 1.2 kgf.m)



6. Using a click-type/electronic torque wrench and SST 09314-3Q100, verify and ensure the flare nuts (A) at both ends of the high pressure fuel pipe are torqued to specifications.

Tightening torque (flare nuts):
19.5 – 23.9 lb.ft (26.5 – 32.4 N.m,
2.7 – 3.3 kgf.m)

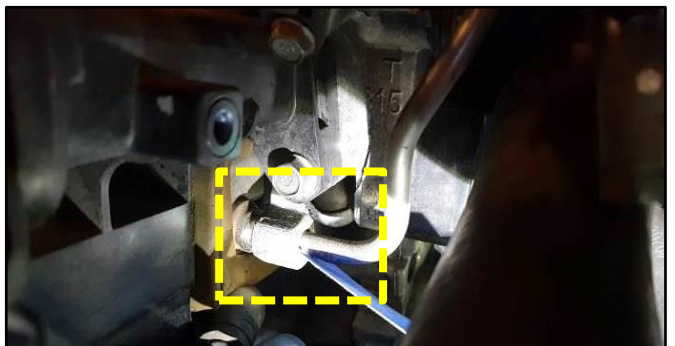
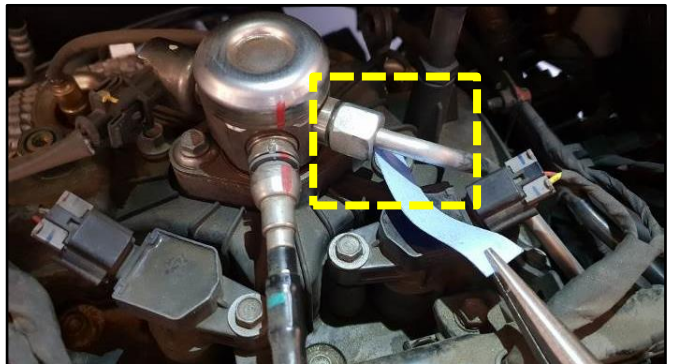




7. If the SST socket rotates, **DO NOT RE-TORQUE**. Proceed to the 2.4L GDI High Pressure Fuel Pipe Replacement procedure on page 5. If the SST socket did not rotate, proceed to the step 8.



8. Reinstall the ignition coil (B) and reconnect the negative (-) battery cable.
9. Start and accelerate the engine two to three (2-3) times, up to 5,000 RPM.
10. With the engine idling, use one strip of oil test paper and wipe the areas around the high pressure fuel pipe flare nuts and the gap between the flare nut and pipe.

- If the wiped section of the oil test paper becomes a darker shade, proceed to the 2.4L GDI High Pressure Fuel Pipe Replacement procedure.
- If the oil test paper color does not change, reinstall all removed components in the reverse order of removal and reprogram the customer's radio presets. No further action is required.



Fuel Leak	No Leak
	

SUBJECT:

HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

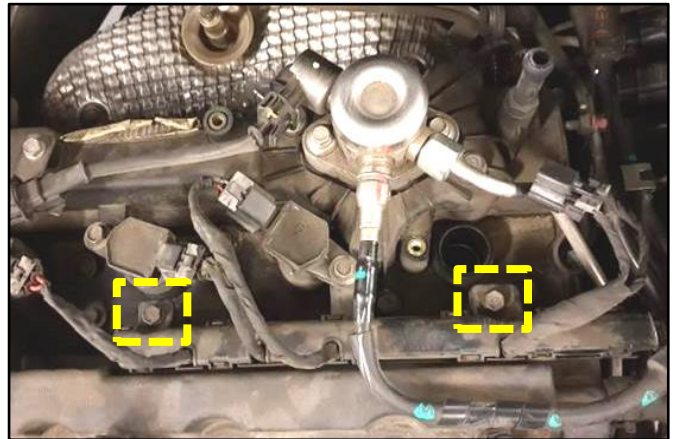
2.4L GDI High Pressure Fuel Pipe Replacement Procedure:

1. Perform the Residual Fuel Pressure Release procedure by referring to page 2 of [ENG083](#).

⚠ WARNING

Whenever the High Pressure Fuel Pipe (or any High Pressure Fuel component) is removed immediately after shutting off the engine, an injury may be caused by the release of highly pressurized fuel. Therefore, the residual pressure in the high pressure fuel pipe must be released prior to removal of the pipe.

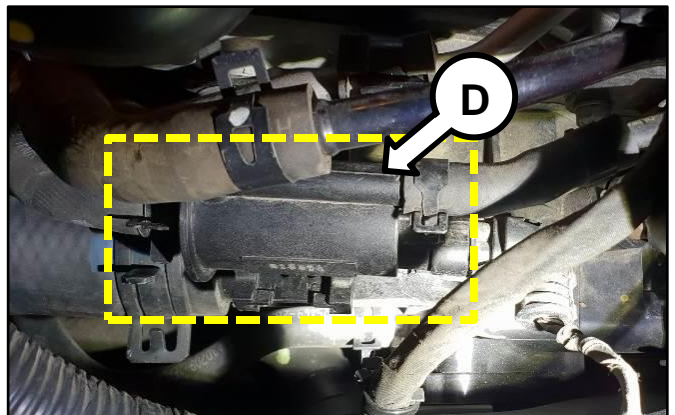
2. Perform steps 1 through 4 of the 2.4L High Pressure Fuel Pipe Inspection procedure as necessary and then remove the two (2) ignition wiring harness retaining bolts.



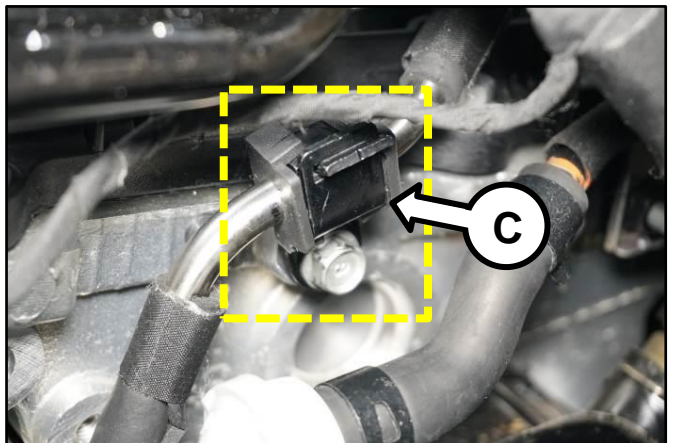
3. Disconnect the two (2) purge control solenoid valve (PCSV) hoses and one (1) connector and remove the PCSV assembly (D).

*** NOTICE**

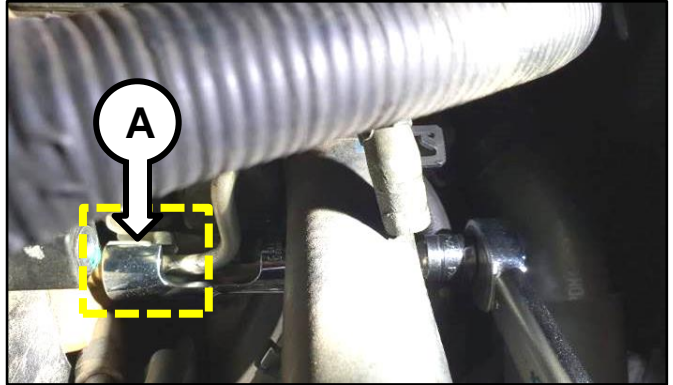
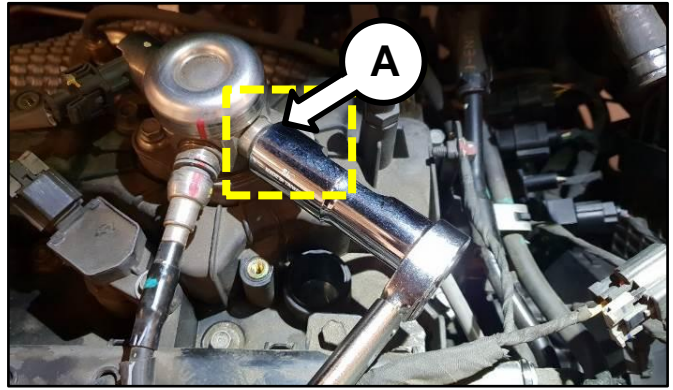
Mark the PCSV hoses prior to removal and ensure they are reinstalled correctly to prevent a repeat repair due to a malfunction indicator light (MIL) illumination.



4. Remove the high pressure fuel pipe retaining bracket bolt and bracket (C).

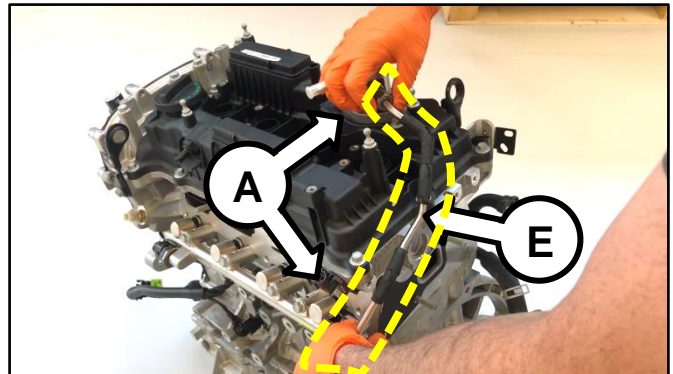


5. Using SST 09314-3Q100, carefully loosen the upper and lower high pressure pipe flare nuts (A). Remove and discard the high pressure fuel pipe.



6. Properly position the new fuel pipe (E) and then hand-tighten both flare nuts (A).

[Click here to see a video tutorial of high pressure fuel pipe install \(includes high pressure pump install\).](#)



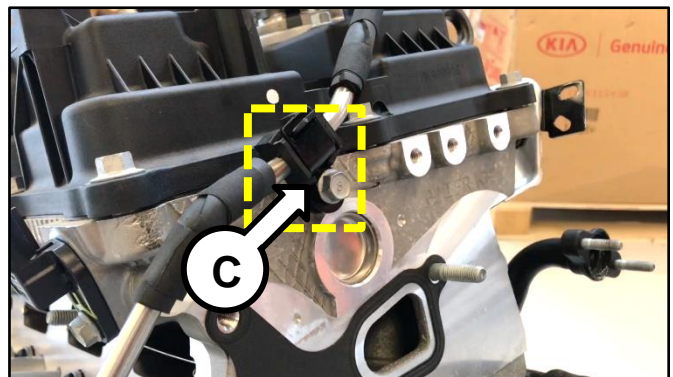
Installation of fuel pipe was performed on a removed engine for demonstration purposes only.

7. Install the pipe retaining bracket and bolt (C) and torque to specifications.

*** NOTICE**

If the bracket and bolt are missing, order and install a new bracket and bolt.

Tightening torque:
 5.8 – 8.7 lb.ft (7.8 –11.8 N.m,
 0.8 – 1.2 kgf.m)



SUBJECT:

HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

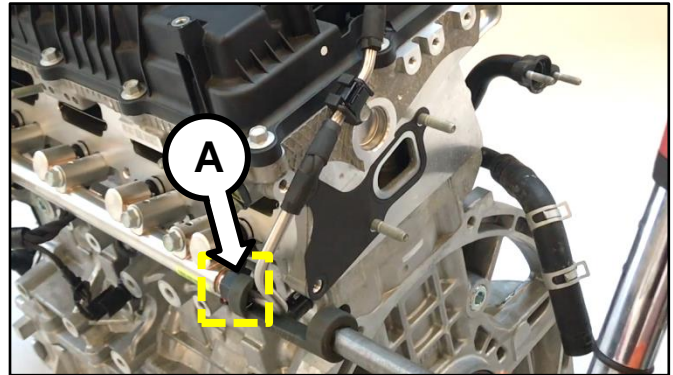
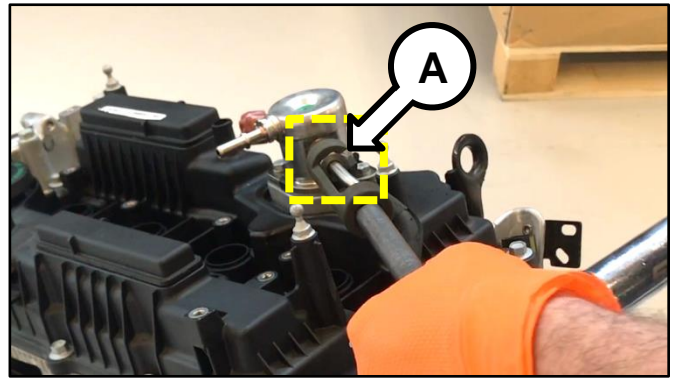
- Using a click-type/electronic torque wrench and SST 09314-3Q100, torque both flare nuts (A) to specifications.

Tightening torque:

19.5 – 23.9 lb.ft (26.5 – 32.4 N.m,
2.7 – 3.3 kgf.m)

*** IMPORTANT**

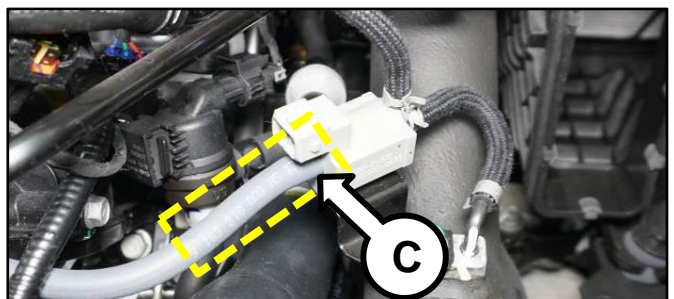
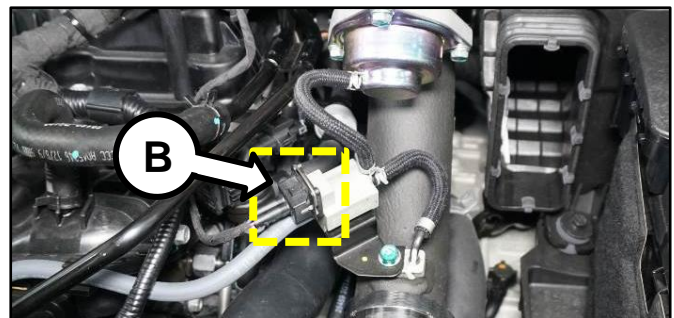
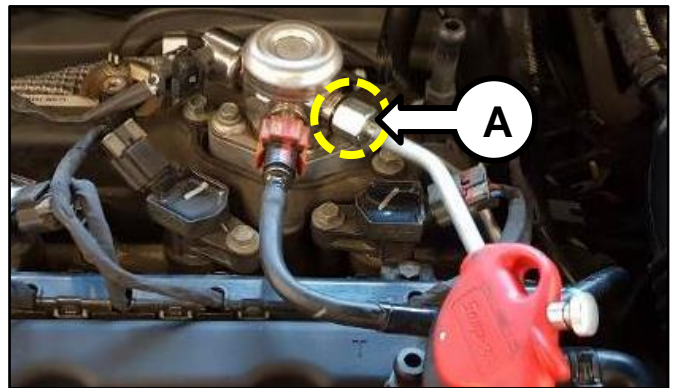
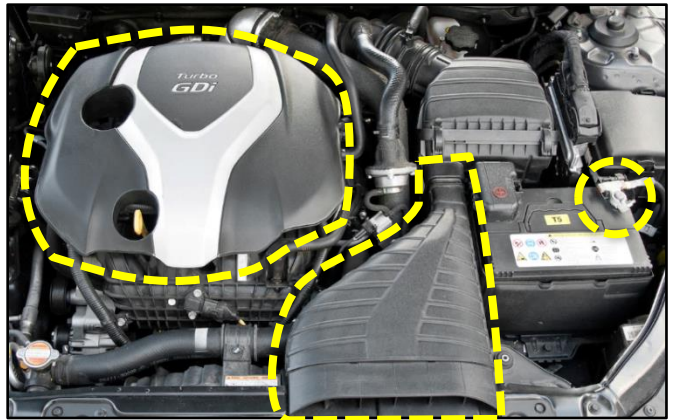
The high pressure fuel pipe bracket and bolt must be installed and properly torqued prior to torquing the high pressure fuel pipe flare nuts.



- Reinstall all removed components in the reverse order of removal. Reprogram the customer's radio presets.
- Start and accelerate the engine two to three (2-3) times, up to 5,000 RPM and ensure no fuel leaks exist using smell test and a new strip of oil test paper.

2.0T GDI High Pressure Fuel Pipe Inspection Procedure:

1. Record the customer's radio presets before proceeding to the next step.
2. With the vehicle raised on a lift, remove the engine under cover.
3. Disconnect the negative (-) battery cable and then remove the engine cover and air duct.
4. Using regulated shop air, gently blow and clean the areas around the flare nut (A) at both ends of the high pressure fuel pipe to remove any debris or foreign substance.
5. Disconnect the recirculation solenoid valve connector (B) and hose (C).

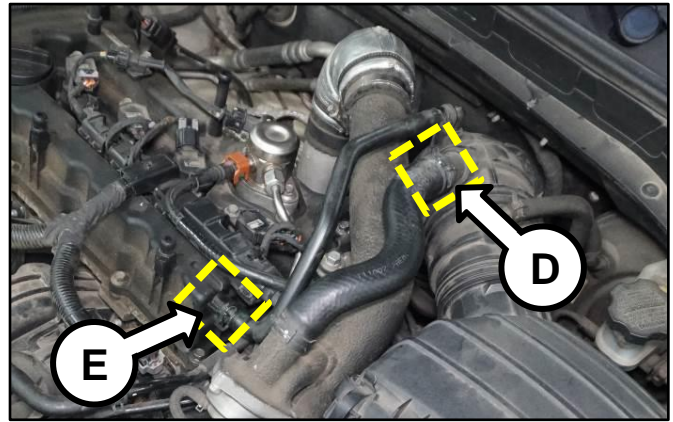
*** NOTICE**

Ensure the recirculation solenoid valve connector (B) and hose (C) are reinstalled correctly to prevent a repeat repair due to a malfunction indicator light (MIL) illumination.

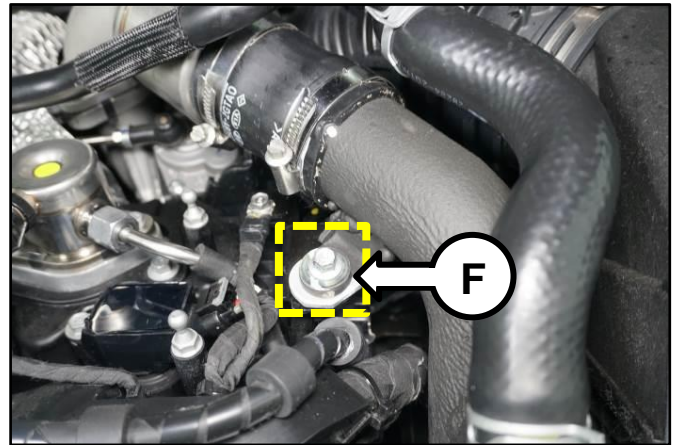
SUBJECT:

HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

6. Detach the recirculation hose (D) and bleeder hose (E).



7. Remove the intercooler inlet hose retaining bolt (F).



8. Loosen the two intercooler inlet hose retaining clamps and then remove the intercooler inlet hose (G).

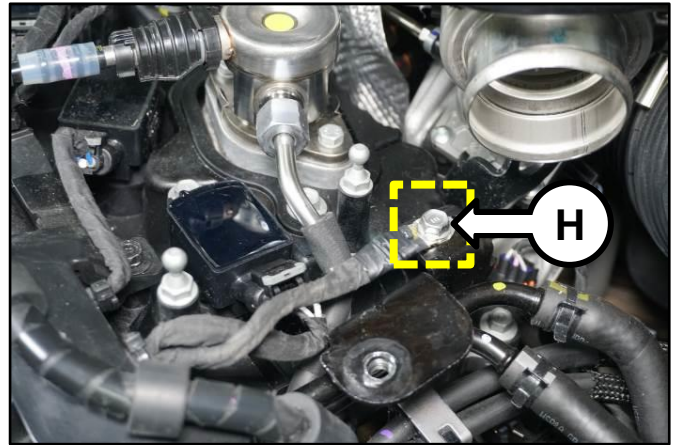
*** NOTICE**

Ensure the recirculation hose (D), bleed hose (E), and intercooler inlet hose (G) are reinstalled correctly to prevent a repeat repair due to a malfunction indicator light (MIL) illumination.



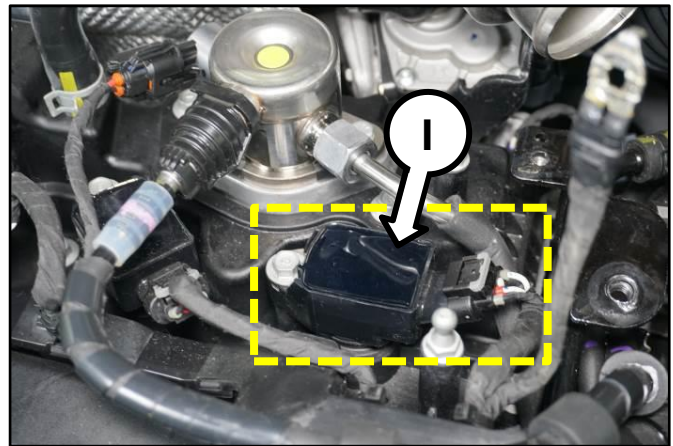
SUBJECT: HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

- 9. Detach the ground cable (H).



- 10. Disconnect and remove cylinder 4's ignition coil (I). Use a clean shop rag to cover the spark plug tube and ensure no foreign substance falls into the tube.

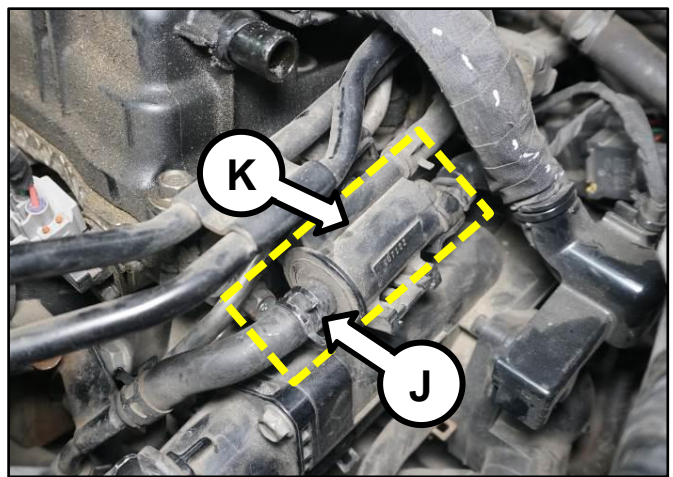
Tightening Torque:
2.9 – 4.3 lb.ft (3.9 – 5.9 N.m,
0.4 – 0.6 kgf.m)



- 11. Detach the front hose (J) from the PCSV (K) and then remove the PCSV from the bracket and set aside.

*** NOTICE**

Mark the PCSV hoses prior to removal and ensure they are reinstalled correctly to prevent a repeat repair due to a malfunction indicator light (MIL) illumination.



SUBJECT:

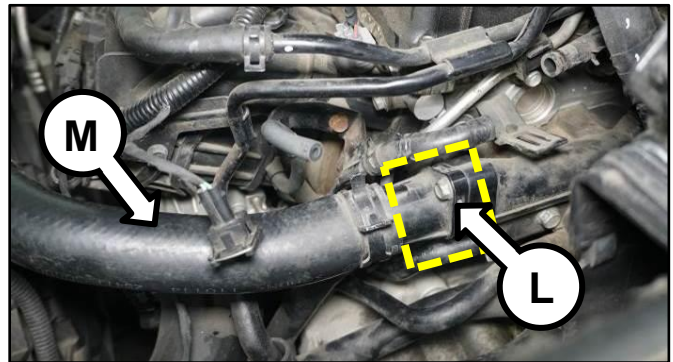
HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

12. Place a catch container underneath the vehicle and drain approximately half ($\frac{1}{2}$) a gallon of coolant from the radiator.

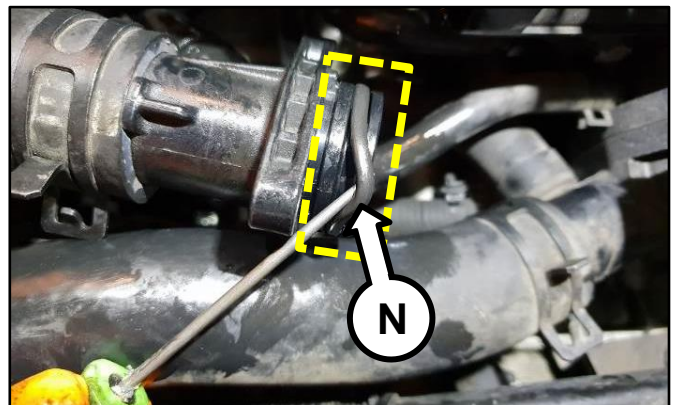


13. Remove the two (2) upper radiator hose retaining bolts (L) from the water temperature control assembly and detach the hose (M) with flange.

Be sure to replace the housing O-ring (pre-lubricated) (N) with a new one prior to reinstallation.



Tightening torque:
 3.6 – 5.8 lb.ft (4.9 – 7.8 N.m,
 0.5 – 0.8 kgf.m)

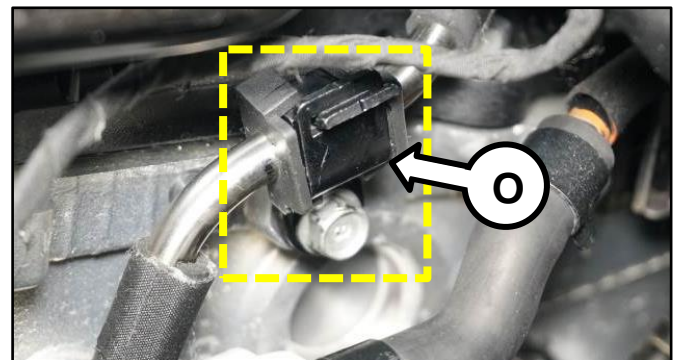


14. Ensure the high pressure fuel pipe retaining bracket (O) is torqued.

*** NOTICE**

If the bracket and bolt are missing, order and install a new bracket and bolt.

Tightening torque:
 5.8 – 8.7 lb.ft (7.8 –11.8 N.m,
 0.8 – 1.2 kgf.m)



SUBJECT: HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

15. Using a click-type/electronic torque wrench and SST 09314-3Q100, verify and ensure the flare nuts (A) at both ends of the high pressure fuel pipe are torqued to specifications.

Tightening torque:

**19.5 – 23.9 lb.ft (26.5 – 32.4 N.m,
2.7 – 3.3 kgf.m)**

16. If the SST socket rotates, **DO NOT RE-TORQUE**. Proceed to the 2.0T GDI High Pressure Fuel Pipe Replacement procedure on page 13.
If the SST socket did not rotate, proceed to the next step.

17. Reinstall the ignition coil (I), reinstall the upper radiator hose (with new pre-lubricated O-ring), top off coolant level, and reconnect the negative (-) battery cable.



Tightening Torque (ignition coil):

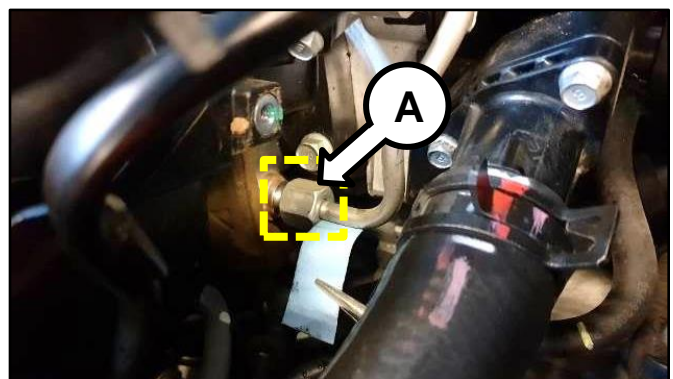
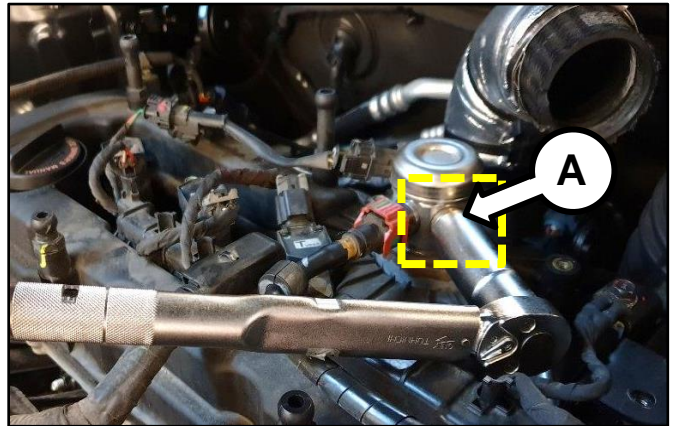
**2.9 – 4.3 lb.ft (3.9 – 5.9 N.m,
0.4 – 0.6 kgf.m)**

18. Start and accelerate the engine two to three (2-3) times, up to 5,000 RPM.

19. With the engine idling, use one strip of oil test paper and wipe the areas around the high pressure fuel pipe flare nuts (A) and the gap between the flare nut and pipe.

- If the wiped section of the oil test paper becomes a darker shade, proceed to the 2.0T GDI High Pressure Fuel Pipe Replacement procedure on page 13.
- If the oil test paper color does not change, reinstall all removed components in the reverse order of removal, refill and bleed the cooling system, and then reprogram the customer's radio presets. No further action is required.

Fuel Leak	No Leak
	



SUBJECT:

HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

2.0T GDI High Pressure Fuel Pipe Replacement Procedure:

1. Perform the Residual Fuel Pressure Release procedure by referring to page 2 of [ENG083](#).

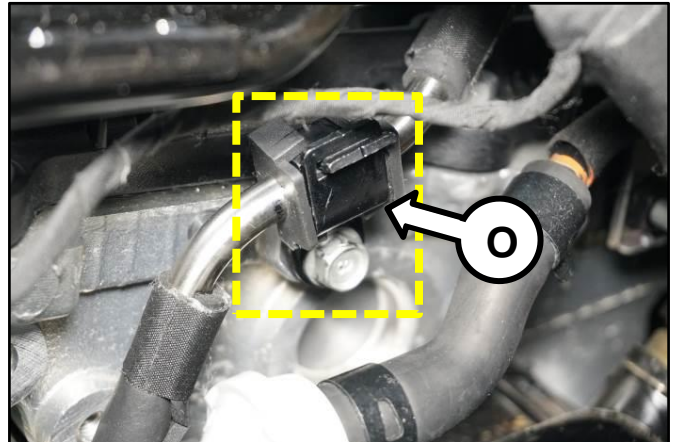
⚠ WARNING

Whenever the High Pressure Fuel Pipe (or any High Pressure Fuel component is removed immediately after shutting off the engine, an injury may be caused by the release of highly pressurized fuel. Therefore, the residual pressure in the high pressure fuel pipe must be released prior to removal of the pipe.

2. Perform steps 2 through 13 of the 2.0T High Pressure Fuel Pipe Inspection procedure as necessary and then remove the high pressure fuel pipe retaining bracket bolt and bracket (O).

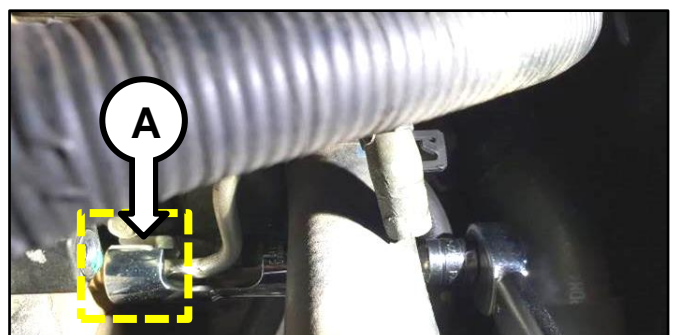
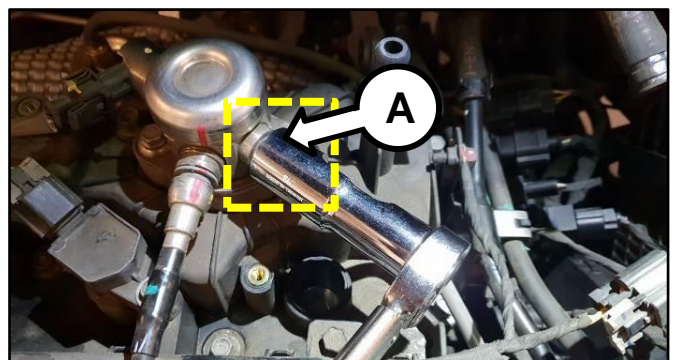
*** NOTICE**

The radiator hose O-ring (N) does not need to be replaced again after performing step 11 of the 2.0T High Pressure Fuel Pipe Inspection procedure.

**Tightening torque:**

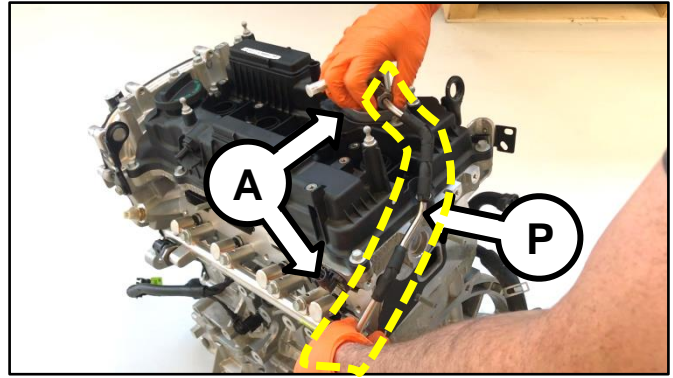
**5.8 – 8.7 lb.ft (7.8 –11.8 N.m,
0.8 – 1.2 kgf.m)**

3. Using SST 09314-3Q100, carefully loosen the upper and lower high pressure fuel pipe flare nuts (A). Remove and discard the high pressure fuel pipe.



- Properly position the new fuel pipe (P) and then hand-tighten both flare nuts (A).

[Click here to see a video tutorial of high pressure fuel pipe install \(includes high pressure pump install\).](#)



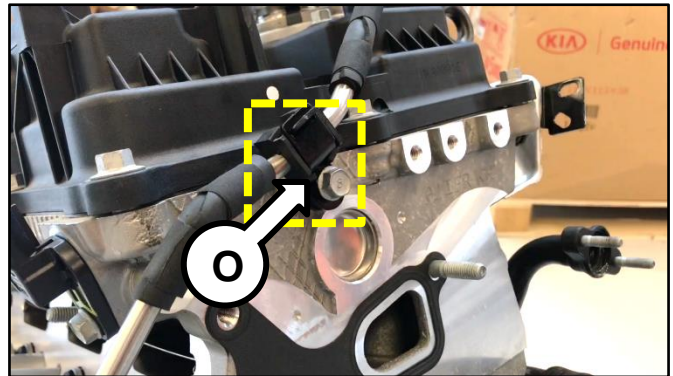
Installation of fuel pipe was performed on a removed engine for demonstration purposes only.

- Install the pipe retaining bracket and bolt (O) and torque to specifications.

*** NOTICE**

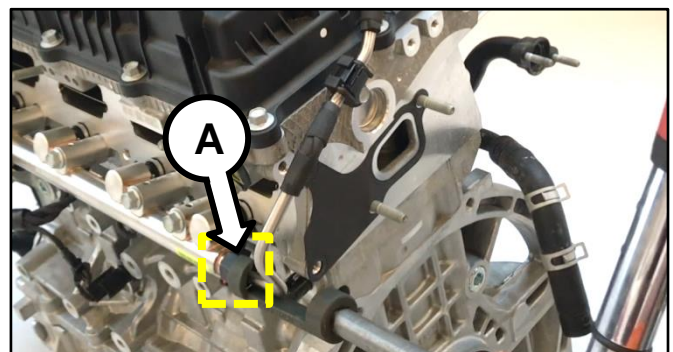
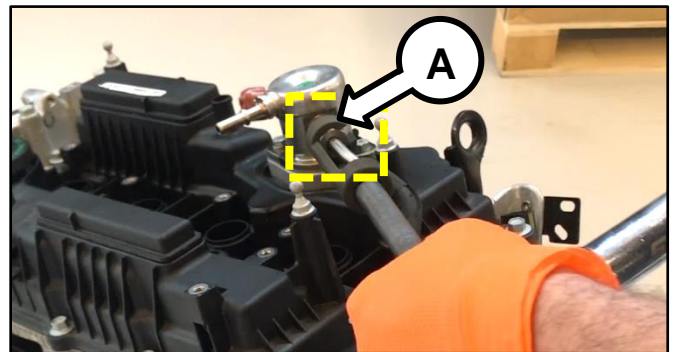
If the bracket and bolt are missing, order and install a new bracket and bolt.

Tightening torque:
 5.8 – 8.7 lb.ft (7.8 – 11.8 N.m,
 0.8 – 1.2 kgf.m)



- Using a click-type/electronic torque wrench and SST 09314-3Q100, torque both flare nuts (A) to specifications.

Tightening torque:
 19.5 – 23.9 lb.ft (26.5 – 32.4 N.m,
 2.7 – 3.3 kgf.m)






- Reinstall all removed components in the reverse order of removal, refill and bleed the cooling system, and reprogram the customer's radio presets.
- Start and accelerate the engine two to three (2-3) times, up to 5,000 RPM and ensure no fuel leaks exist using smell test and a new strip of oil test paper.



SUBJECT: HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)**AFFECTED VEHICLE RANGE:**

Model	Production Date Range
11-13MY Optima (QF/TF)	August 12, 2010 through September 27, 2013
14MY Optima (QF)	August 28, 2013 through May 15, 2014
12-14MY Sorento (XMa)	April 19, 2011 through February 10, 2014
11-13MY Sportage (SL)	December 30, 2010 through August 30, 2013



REQUIRED TOOL:

Tool Name	Tool Number	Figure	Comments
Flare Nut Socket	09314 3Q100		Auto-shipped to Dealers. For order or replacement, contact Snap-on Business Solutions at (888) 542-1011.
Oil Test Paper	NWPGEN180		
Click-Type or Electronic Torque Wrench	N/A		Locally Sourced

REQUIRED PART:

Part Name	Part Number	Figure
High Pressure Fuel Pipe	35305 2G700QQK	
Upper Radiator Hose O-Ring (Only applies to 2.0T TF, QF, & SL)	25649 2G540QQK	

RELATED PART:

Part Name	Part Number	Figure
High Pressure Fuel Pipe Retaining Bracket (Only claim if missing)	35321 2G000	
High Pressure Fuel Pipe Retaining Bracket Bolt (Only claim if missing)	11403 06146K	

SUBJECT:

HIGH PRESSURE FUEL PUMP OUTLET INSPECTION (SC172)

WARRANTY INFORMATION:

N Code: N99 C Code: C99

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
TF 2.4L	R	35305 2G700	0	(SC172) High Pressure Fuel Pipe Torque & Inspect	191005R0	0.3 M/H	N/A	0
				(SC172) High Pressure Fuel Pipe Torque, Inspect, & Replace	191005R1	0.6 M/H	35305 2G700QQK	1
TF 2.0T	R	35305 2G700	0	(SC172) High Pressure Fuel Pipe Torque & Inspect	191005R2	0.7 M/H	25649 2G540QQK	1
				(SC172) High Pressure Fuel Pipe Torque, Inspect, & Replace	191005R3	0.9 M/H	35305 2G700QQK	1
						25649 2G540QQK	1	
QF 2.4L	R	35305 2G700	0	(SC172) High Pressure Fuel Pipe Torque & Inspect	191A05I0	0.3 M/H	N/A	0
				(SC172) High Pressure Fuel Pipe Torque, Inspect, & Replace	191A05R0	0.6 M/H	35305 2G700QQK	1
QF 2.0T	R	35305 2G700	0	(SC172) High Pressure Fuel Pipe Torque & Inspect	191A05I1	0.7 M/H	25649 2G540QQK	1
				(SC172) High Pressure Fuel Pipe Torque, Inspect, & Replace	191A05R1	0.9 M/H	35305 2G700QQK	1
						25649 2G540QQK	1	
XMa 2.4	R	35305 2G700	0	(SC172) High Pressure Fuel Pipe Torque & Inspect	191A06I0	0.3 M/H	N/A	0
				(SC172) High Pressure Fuel Pipe Torque, Inspect, & Replace	191A06R0	0.6 M/H	35305 2G700QQK	1
SL 2.0T	R	35305 2G700	0	(SC172) High Pressure Fuel Pipe Torque & Inspect	191006R0	0.7 M/H	25649 2G540QQK	1
				(SC172) High Pressure Fuel Pipe Torque, Inspect, & Replace	191006R1	0.9 M/H	35305 2G700QQK	1
						25649 2G540QQK	1	

Notes: Use sublet code 'X1' with a maximum allowed amount of \$12.15 for coolant reimbursement. If necessary, use sublet code 'X2' for rental expense reimbursement. During inspection, if the vehicle is missing the High Pressure Fuel Pipe Retaining Bracket and/or the High Pressure Fuel Pipe Retaining Bracket Bolt, please enter the corresponding part numbers found under the Related Parts section.

The repair procedures to replace the high pressure fuel pipe has been modified from the original repair procedures outlined in KGIS (removal of certain parts as currently shown in the service procedures on KGIS is not necessary to complete the replacement of the high pressure fuel pipe). As a result, the labor time for this repair has been adjusted as listed in the Warranty Information table above.

* NOTICE

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference SC172 when accessing the WebDCS system.
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