	GROUP	MODEL
	ENG	**2016MY Optima (JF/JFa)** **2017MY Sportage (QL)** **2016-2017MY Sorento (UMa)**
	NUMBER	DATE
	159 (Rev 1, 03/23/2017)	**September 2016**

TECHNICAL SERVICE BULLETIN

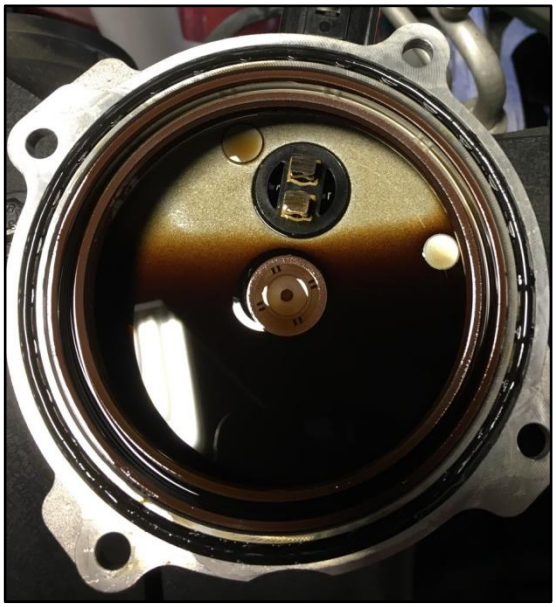
SUBJECT: E-CVVT COVER AND MOTOR PLUG REPLACEMENT

✶ NOTICE

This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This bulletin provides information about the replacement of the E-CVVT cover and motor plug on some 2016MY Optima (JF/JFa), produced from August 29, 2015 to June 14, 2016, 2017MY Sportage (QL) vehicles, produced from December 10, 2015 to June 15, 2016, and 2016-2017MY Sorento (UMa), produced from October 27, 2014 to June 14, 2016, which may exhibit a MIL ON with DTC P001000 and/or oil leakage in the E-CVVT motor plug of applicable vehicle models equipped with 2.4L GDI or 2.0 T-GDI engines. Follow the procedure outlined in this bulletin to replace the E-CVVT cover and motor plug to correct the concern.

P001000: 'A(Intake)' Camshaft Position Actuator Circuit (Bank 1)



File Under: <Engine>

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

SUBJECT: E-CVVT COVER AND MOTOR PLUG REPLACEMENT

Service Procedure:

1. Carefully place a jack at the bottom edge of the oil pan and support the engine for removal of the engine mounts.

⚠ CAUTION

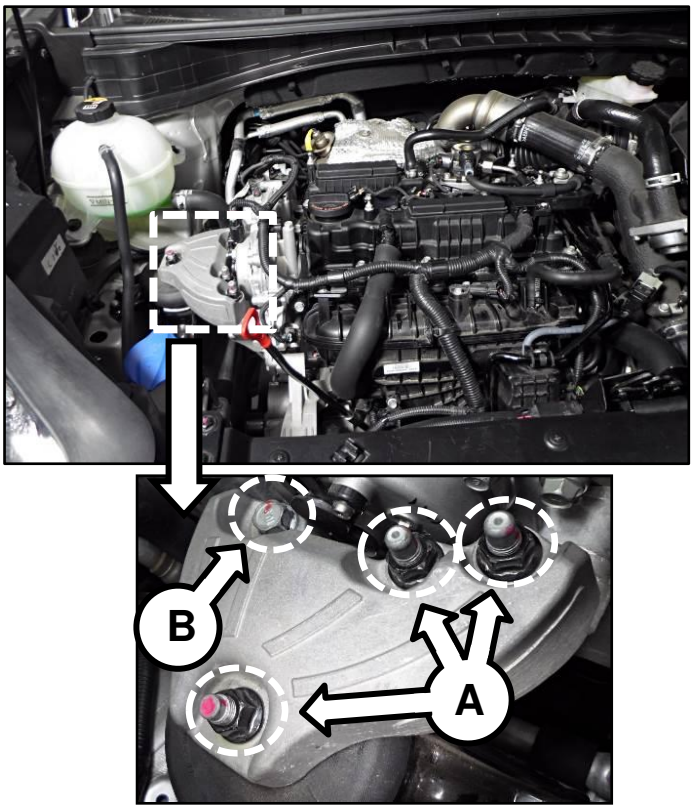
Place a wooden or rubber block between the oil pan and the jack to prevent damaging the oil pan.

★ NOTICE

Allow sufficient time for the oil to drain from behind the motor plug before removal of the plug in step 7.

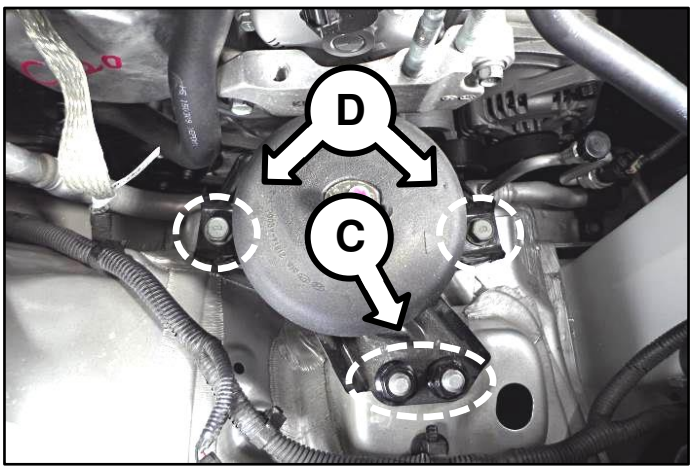
2. Loosen three (3) engine mounting support bracket retaining nuts (A) and one (1) retaining bolt (B).

Tightening torque:
65.1 - 79.6 lb·ft (88. 3 - 107.9 Nm)



3. Loose two (2) engine mounting bracket retaining nuts (C) and two (2) retaining bolts (D).

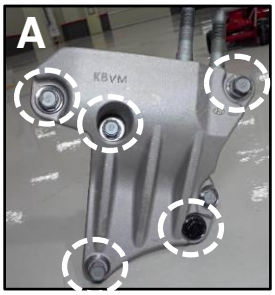
Tightening torque:
47.0 - 61.5 lb·ft (63.7 - 83.3 Nm)

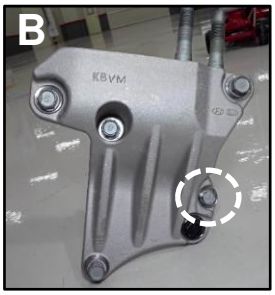


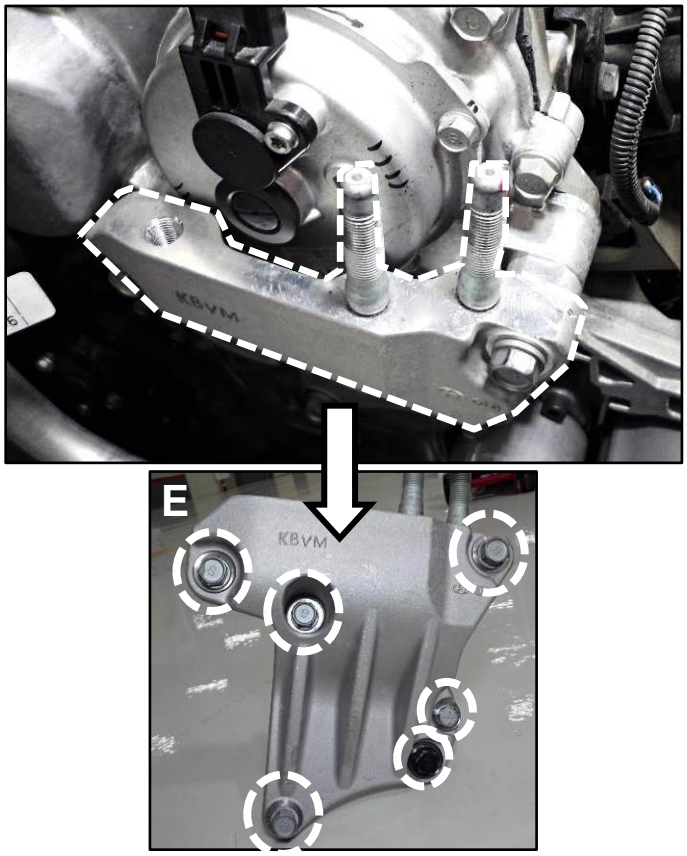
SUBJECT: E-CVVT COVER AND MOTOR PLUG REPLACEMENT

4. Loosen six (6) engine support bracket retaining bolts (E).

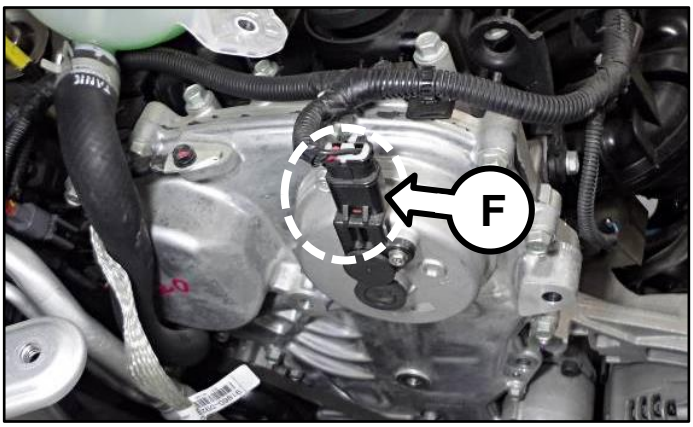
Tightening torque:
(A): 28.9 - 32.5 lb·ft (39.2 - 44.1 Nm)
(B): 14.5 - 18.1 lb·ft (19.6 - 24.5 Nm)





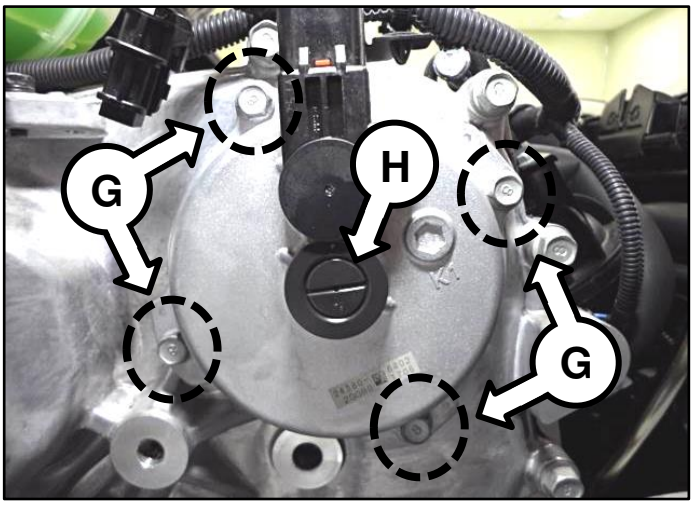


5. Disconnect the E-CVVT cover connector (F).



6. Loosen and remove the four (4) E-CVVT cover retaining bolts (G) and then remove the E-CVVT cover. Remove the cover plug (H) using a non-marring trim tool (this plug will be reused).

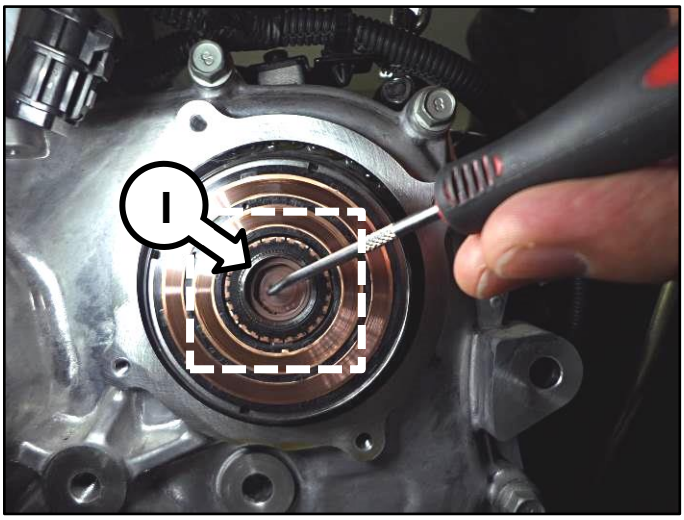
Tightening torque:
7.2 - 8.7 lb·ft (9.8 - 11.8 Nm)



⚠ CAUTION

Use a non-marring trim removal tool (Such as Snap-on® Part Number PBN5 or equivalent) to avoid damaging the cover plug.

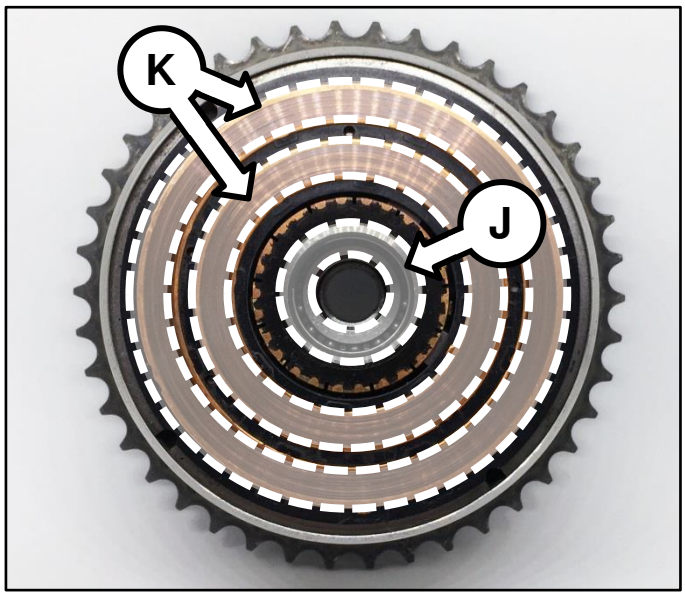
7. Remove the motor plug (I) by carefully breaking the center with a straight pick.



★ NOTICE

Wipe off any oil leakage when removing the motor plug.
Cover the motor shaft inlet with a clean shop towel.

8. Using brake cleaner, spray directly on the motor plug assembly seat inside the motor shaft and clean. Spray brake cleaner on a shop towel to wipe and clean the commutators (K).



★ NOTICE

Remove any residual oil or fluid in the motor shaft to prevent plug from becoming displaced.

★ NOTICE

Protect the E-CVVT as necessary to prevent oil contamination when spraying brake cleaner.

9. Apply oil to the oil seal lip of the new E-CVVT cover and install the SST "B" to the E-CVVT motor as shown.



★ NOTICE

When installing the cover, correctly insert the end of the SST to the motor shaft as shown below. Ensure that the SST hole faces towards the motor shaft.

⚠ CAUTION

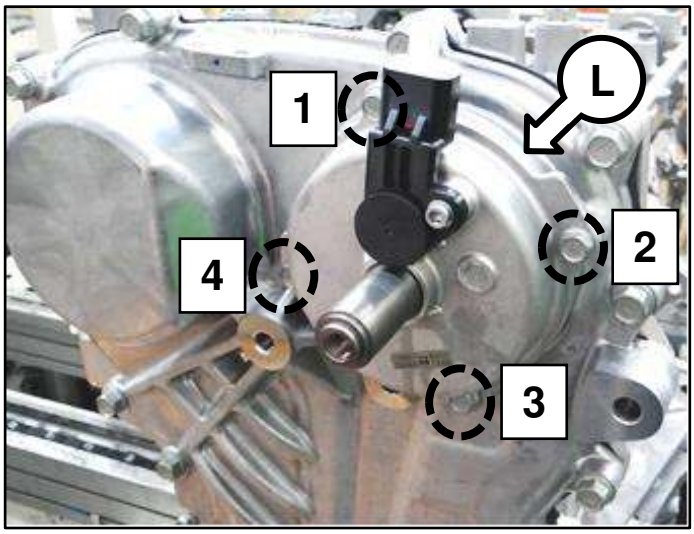
Use caution not to fold the oil seal when installing the cover.

SST INSERTED INCORRECTLY	SST INSERTED CORRECTLY
	

E-CVVT removed from vehicle for demonstration only purposes.

10. Install the new E-CVVT cover and perform initial tightening sequence of the E-CVVT cover to the specified torque in the sequence below.

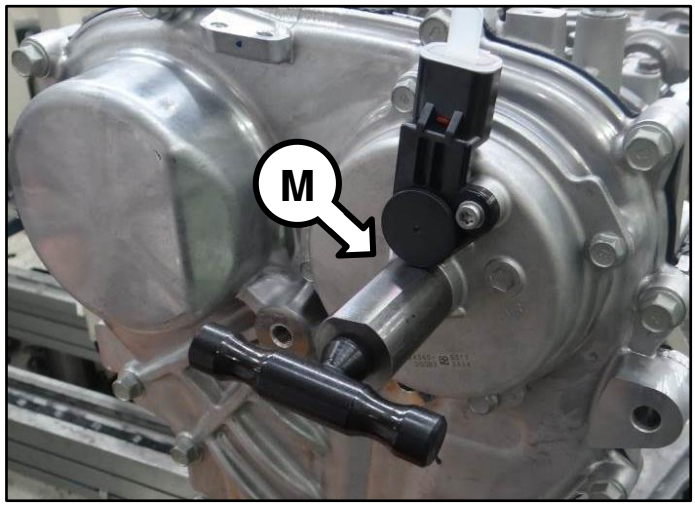
Tightening torque:
8.4 – 16.8 in·lb (1.0 - 2.0 Nm)



★ NOTICE

Tighten the retaining bolts in this sequence: 1 → 3 → 4 → 2

11. Install the new motor plug (M) by using the SST "A" of Required Tools.



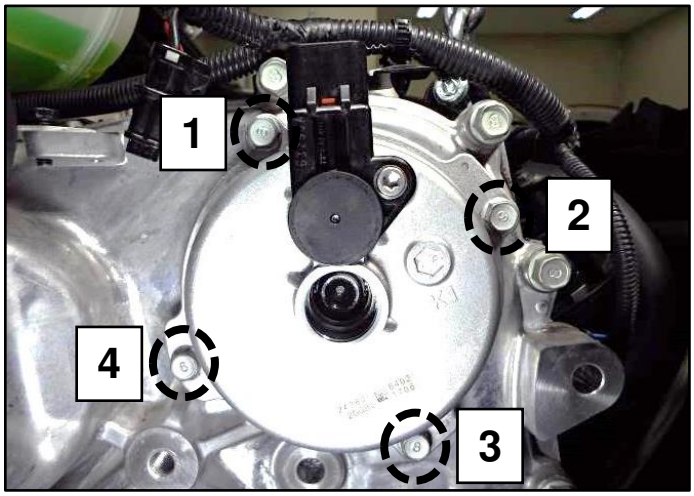
★ NOTICE

Insert the plug onto the SST and then insert the SST into the E-CVVT cover opening.

⚠ CAUTION

Do not apply impurities (oil, cleaners) on the motor plug.

12. Remove the SST and perform final tightening sequence of the E-CVVT cover retaining bolts to the specified torque in the sequence below.



Tightening torque:
7.2 - 8.7 lb·ft (9.8 - 11.8 Nm)

★ NOTICE

Tighten the retaining bolts in this sequence: 1 → 3 → 4 → 2

13. Reinstall all removed components by reversing the order of removal.

    Start and run the engine to confirm proper operation, no oil leakage, and clear any related DTC(s).

★ NOTICE

A video clip is available to aid technicians in completing this repair. Access the Tech Videos in the Publication section of KGIS and look under Engine Mechanical System for "[VID012]2016 Sorento (UMa), Optima (JFa), Sportage (QL) – E-CVVT Cover & Motor Plug Installer".

SUBJECT: E-CVVT COVER AND MOTOR PLUG REPLACEMENT

AFFECTED VEHICLE RANGE:

Model	Production Date Range
Sorento (UMa)	From October 27, 2014 to June 14, 2016
Optima (JF, JFa)	From August 29, 2015 to June 14, 2016
Sportage (QL)	From December 10, 2015 to June 15, 2016

REQUIRED TOOLS:

Part	Part Number	Figure			Remarks
		A	B	C	
SST	09243 C1000			N/A	**A**: E-CVVT Plug Installer **B**: E-CVVT Cover Installer
SST	09243 C2000				**A**: E-CVVT Plug Installer **B**: E-CVVT Cover Installer **C**: Handle
Brake Cleaner	UM040 CH018				Order through Kia Chemicals

★ NOTICE

SST 09243 C1000 or 09243 C2000 can be used for this repair.

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PARTS INFORMATION:

Part Name	Part Number & Figure		Remarks
	Previous	New	
Motor Plug			Brown → Black
	24351 2GGA0	24351 2GGA1	
E-CVVT Cover			Center boss height tolerance changed
	24360 2GGA0	24360 2GGB0	

WARRANTY INFORMATION:

N CODE: E74 C CODE: ZZ2

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
QL, UMa	W	24351 2GGA0	0	(ENG 159) E-CVVT Cover & Motor Plug Replacement	24360F01	0.7 M/H	24351 2GGA1	1
							24360 2GGB0	1
JF, JFa					24360F02	0.8 M/H	24351 2GGA1	1
							24360 2GGB0	1