	GROUP	MODEL
	ENG	**2016-2017MY Optima (JF, JFa), Sorento (UMa) 2017MY Sportage (QL)**
	NUMBER	DATE
	175 (Rev 1, 09/20/2017)	**August 2017**

TECHNICAL SERVICE BULLETIN

SUBJECT: SERVICE ACTION: E-CVVT COVER INSPECTION AND MOTOR PLUG REPLACEMENT (SA305)

✶ 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 regarding the inspection and/or replacement of the E-CVVT cover or O-ring and replacement of the motor plug on some 2016-2017MY Optima (JF, JFa), 2016-2017MY Sorento (UMa), and 2017MY Sportage (QL) vehicles, equipped with 2.4L GDI or 2.0T-GDI, which may exhibit a malfunction indicator light (MIL) ON with DTC P001000 and/or oil leakage in the E-CVVT motor plug of applicable vehicles. Follow the procedure outlined in this bulletin to inspect and/or replace the E-CVVT cover or O-ring and replace the motor plug to correct the concern. Before conducting the procedure, verify that the vehicle is included in the list of affected VINs.

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

✶ NOTICE

A Service Action is a repair program without customer notification that is performed during the warranty period. Any dealer requesting to perform this repair outside the warranty period will require DPSM approval.

Repair status for a VIN is provided on WebDCS (Service → Warranty Coverage → Warranty Coverage Inquiry → Campaign Information). Not completed Recall / Service Action reports are available on WebDCS (Consumer Affairs → Not Completed Recall → Recall VIN → Select Report), which includes a list of affected vehicles.

This issue number is SA305.

File Under: <Engine>

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

SUBJECT: SERVICE ACTION: E-CVVT COVER INSPECTION AND MOTOR PLUG REPLACEMENT (SA305)

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.

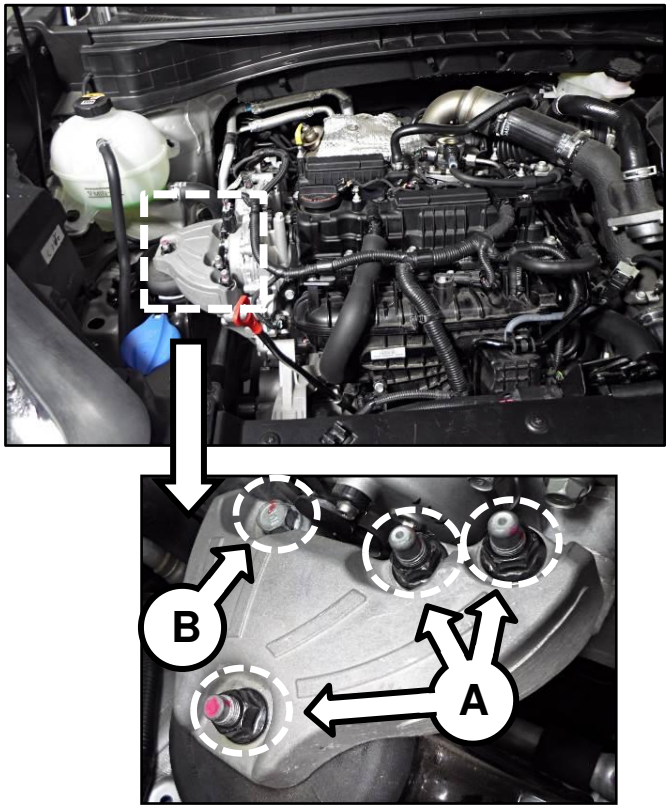
✶ NOTICE

Place a wooden or rubber block between the edge of the oil pan and the jack to prevent damaging the oil pan. Do not place block at the center of oil pan as damage can result.

✶ NOTICE

Allow sufficient time for the oil to drain from behind the motor plug before removal of the plug in step 8.

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

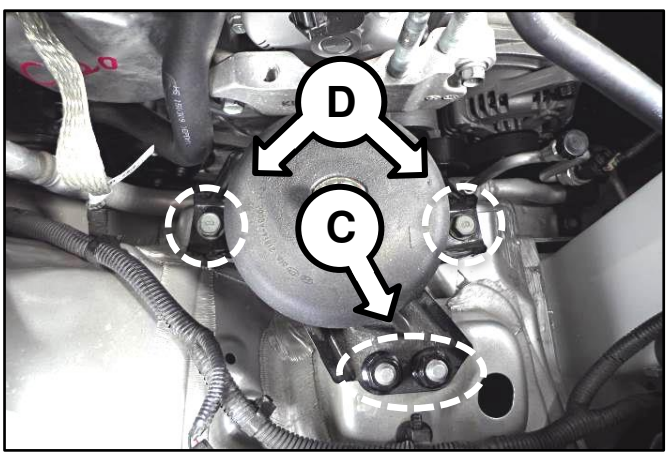


Tightening torque:
65.1 – 79.6 lb.ft (88. 3 – 107.9 N.m)

✶ NOTICE

Some engine support brackets may be different depending on vehicle configuration. Always refer to the "Engine Mechanical System → Engine and Transaxle Assembly → Engine Mounting → Repair procedures" chapter in the applicable Shop Manual on KGIS for proper removal and installation instructions.

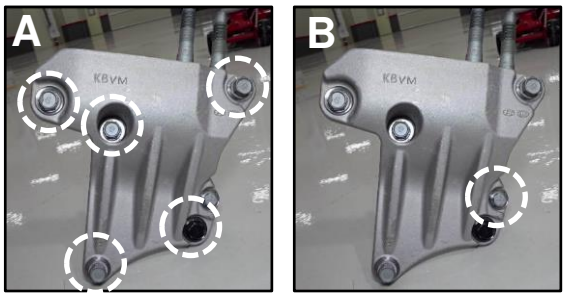
3. Loosen two (2) engine mounting bracket retaining nuts (C) and two (2) retaining bolts (D).

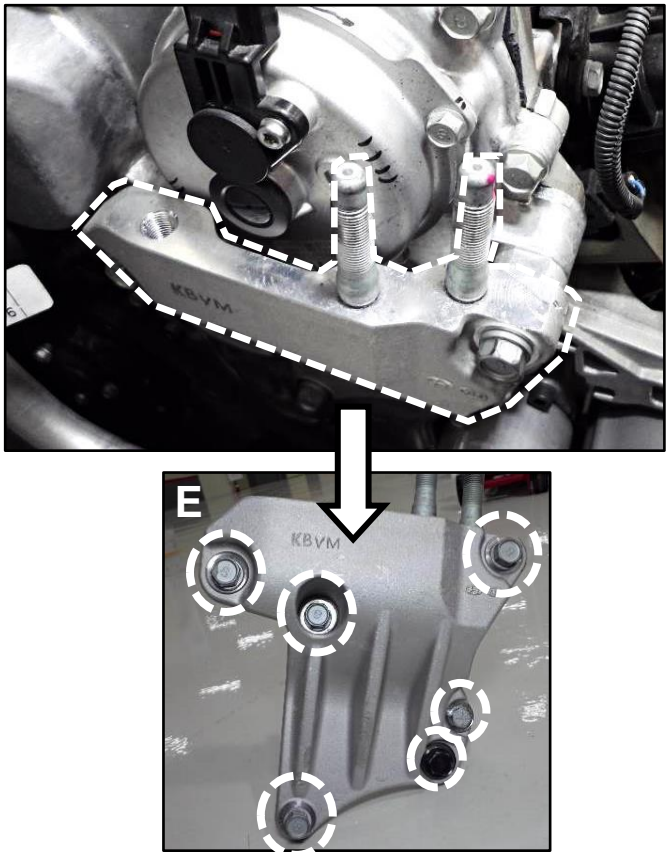


Tightening torque:
47.0 – 61.5 lb.ft (63.7 – 83.3 N.m)

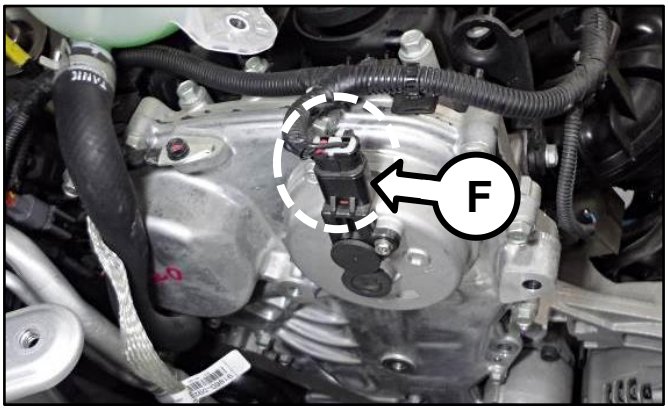
4. Loosen six (6) engine support bracket retaining bolts (E).

Tightening torque:
(A): 28.9 – 32.5 lb.ft (39.2 – 44.1 N.m)
(B): 14.5 – 18.1 lb.ft (19.6 – 24.5 N.m)



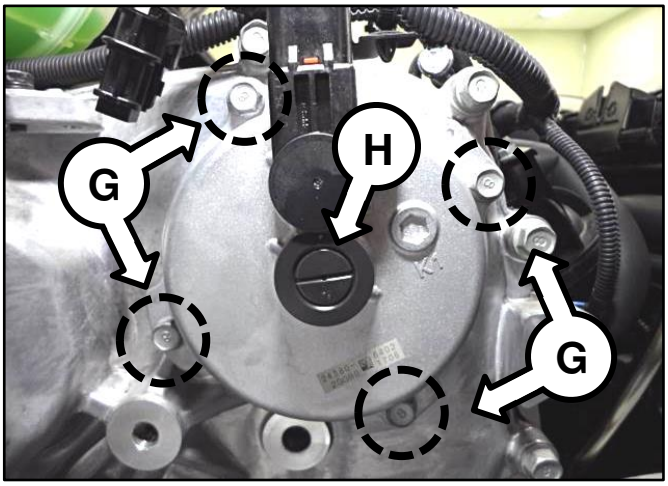


5. Disconnect the E-CVVT cover connector (F).



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 cover plug will be reused).

Tightening torque:
7.2 – 8.7 lb.ft (9.8 – 11.8 N.m)



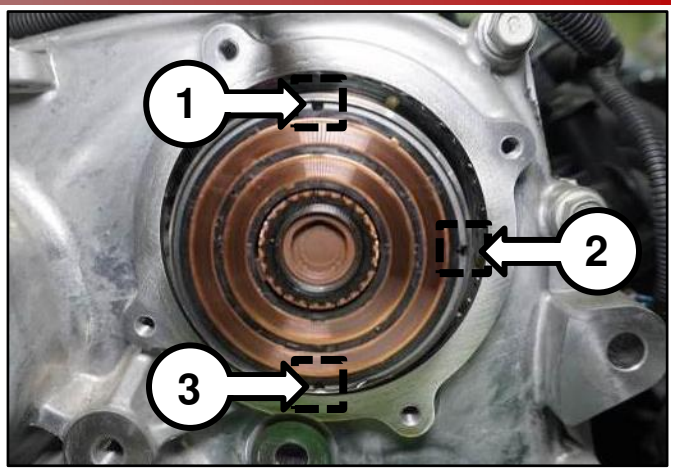
✶ NOTICE

Use a non-marring trim removal tool (such as Snap-on® Part Number PBN5 or equivalent) to avoid damaging trim pieces.

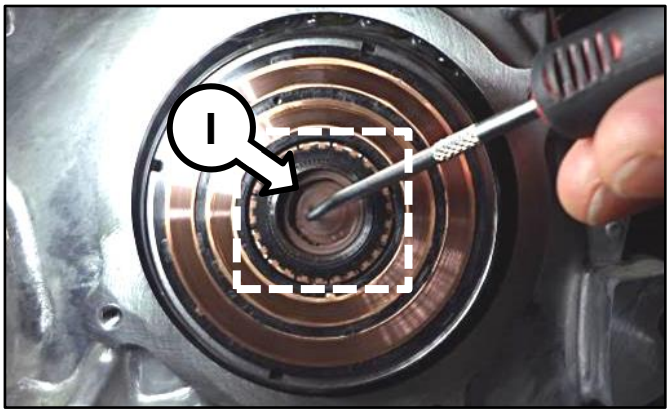
7. Rotate the E-CVVT assembly by hand until the three holes are aligned as shown.

   - Hole 1 at the top (12 o'clock)
   - Hole 2 at 45 degrees of Hole 1
   - Hole 3 at 90 degrees Hole 1

   Place a clean shop towel at the bottom of Hole 3. Then using brake cleaner with a straw attachment, insert the straw into Hole 1 and carefully spray for approximately thirty (30) seconds.



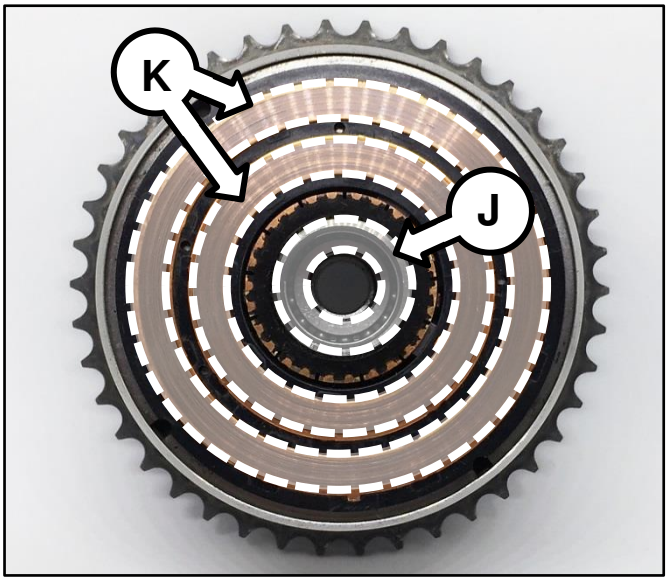
8. Remove the motor plug (I) by carefully breaking the center with a straight pick.



✶ NOTICE

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

9. Using brake cleaner, spray directly on the motor plug assembly seat (J) 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.

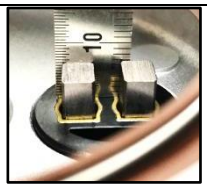
✶ NOTICE

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

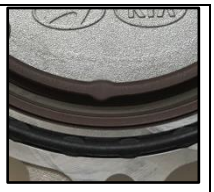
10. Inspect the E-CVVT cover.
    - If there is no sign of oil leakage, contamination, and/or damage, replace only the cover O-ring.
    - If there is an oil leak, contamination, and/or damage, replace the cover.



Contaminated

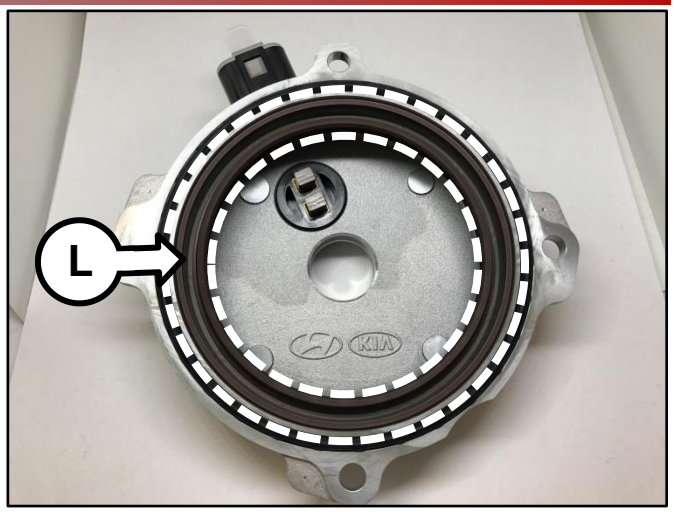


Brushes worn Or damaged



Oil seal damaged

11. Apply oil to the oil seal lip (L) of the 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.



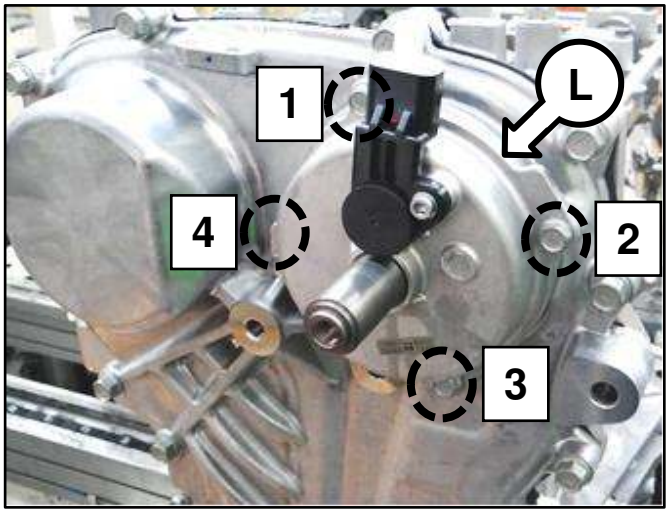
★ NOTICE

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.	

12. Install the E-CVVT cover (L) and perform initial tightening sequence of the E-CVVT cover to the specified torque in the sequence below.

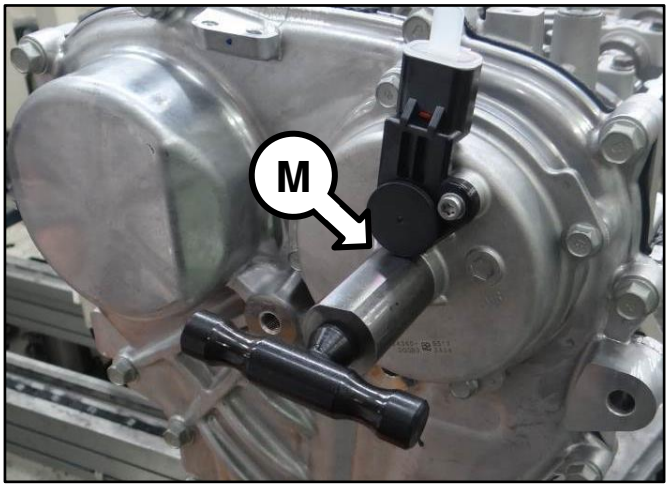
Tightening torque:
8.4 – 16.8 lb.in (1.0 – 2.0 N.m)



★ NOTICE

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

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



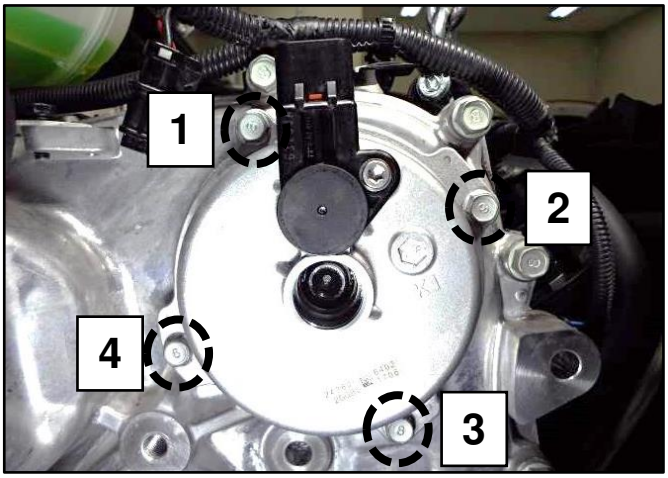
✶ NOTICE

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

✶ NOTICE

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

14. Remove the SST and perform final tightening sequence of the E-CVVT cover retaining bolts to the specified torque in the sequence below. Reinstall the cover plug (H) removed in step 6.



Tightening torque:
7.2 – 8.7 lb.ft (9.8 – 11.8 N.m)

✶ NOTICE

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

15. 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: SERVICE ACTION: E-CVVT COVER INSPECTION AND MOTOR PLUG REPLACEMENT (SA305)

AFFECTED VEHICLE RANGE:

Model	Production Date Range
Optima (JF)	February 2, 2016 through December 20, 2016
Optima (JFa)	September 4, 2015 through March 6, 2017
Sportage (QL)	December 10, 2015 through September 12, 2016
Sorento (UMa)	October 29, 2014 through October 11, 2016

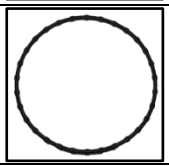
REQUIRED TOOL:

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.

REQUIRED PART:

Part Name	Part Number	Figure	Remarks
Motor Plug	24351 2GGA1QQK		Brown → Black
E-CVVT Cover	24360 2GGB0QQK		Center boss height tolerance changed Replace only if necessary
O-Ring	24365 2GGA0QQK		-

SUBJECT: SERVICE ACTION: E-CVVT COVER INSPECTION AND MOTOR PLUG REPLACEMENT (SA305)

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.
QL	V	24351 2GGA0	0	(SA305) Motor Plug & O-Ring Replacement	170026R0	0.7 M/H	24351 2GGA1QQK	1
							24365 2GGA0QQK	1
				(SA305) Motor Plug & E-CVVT Cover Replacement	170026R2	0.7 M/H	24351 2GGA1QQK	1
							24360 2GGB0QQK	1
JF				(SA305) Motor Plug & O-Ring Replacement	170026R1	0.8 M/H	24351 2GGA1QQK	1
							24365 2GGA0QQK	1
				(SA305) Motor Plug & E-CVVT Cover Replacement	170026R3	0.8 M/H	24351 2GGA1QQK	1
							24360 2GGB0QQK	1
JFa				(SA305) Motor Plug & O-Ring Replacement	170A39R1	0.8 M/H	24351 2GGA1QQK	1
							24365 2GGA0QQK	1
				(SA305) Motor Plug & E-CVVT Cover Replacement	170A39R3	0.8 M/H	24351 2GGA1QQK	1
							24360 2GGB0QQK	1
UMa				(SA305) Motor Plug & O-Ring Replacement	170A39R0	0.7 M/H	24351 2GGA1QQK	1
							24365 2GGA0QQK	1
				(SA305) Motor Plug & E-CVVT Cover Replacement	170A39R2	0.7 M/H	24351 2GGA1QQK	1
							24360 2GGB0QQK	1

✶ NOTICE

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference SA305 when accessing the WebDCS system.