

	GROUP Safety Recall Campaign	MODEL 2014-2016MY Soul (PS) Soul (PS EV)
	NUMBER SC155	DATE November 2017
SAFETY RECALL CAMPAIGN		
SUBJECT: STEERING GEAR ASSEMBLY PINION PLUG INSPECTION/REPAIR/REPLACEMENT (SC155)		

This bulletin provides information related to inspection, repair, and, if necessary, the replacement of the steering gear assembly of some 2014-2016MY Kia Soul (PS) and Soul EV (PS EV) vehicles, produced from July 21, 2013 through September 30, 2015. The vehicles included in this recall were previously recalled under Recall SC108 (14v332) and SC125 (15v736). This recall is being conducted to confirm that the subject vehicles received a proper repair. In some cases, the pinion plug may not have been secured properly. As a result, the pinion gear may separate from the steering gear assembly, causing loss of steering and could increase the risk of a crash.

Dealers are to inspect the pinion plug to ensure the recall repair, if previously conducted, was properly done. Based upon the inspection results, the previous recall repairs will either be redone with an improved method or, if necessary, the steering gear assembly will be replaced. Vehicles that were not previously repaired under SC108 or SC125 should be repaired according to the procedures identified below. Before conducting the procedure, verify the vehicle is included in the list of affected VINs.

	Production Range	Action	Page
SC155A	July 21, 2013 through January 17, 2014	Tighten pinion plug and install new set screw.	2
SC155B	January 18, 2014 through September 30, 2015	Inspect the intermediate shaft. Tighten and torque pinion plug if found loose, and install new set screw. <u>Only if</u> pinion or pinion plug has separated from steering rack, replace steering gear assembly.	5

★ 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

STEERING GEAR ASSEMBLY PINION PLUG INSPECTION/REPAIR/REPLACEMENT (SC155)

★ NOTICE

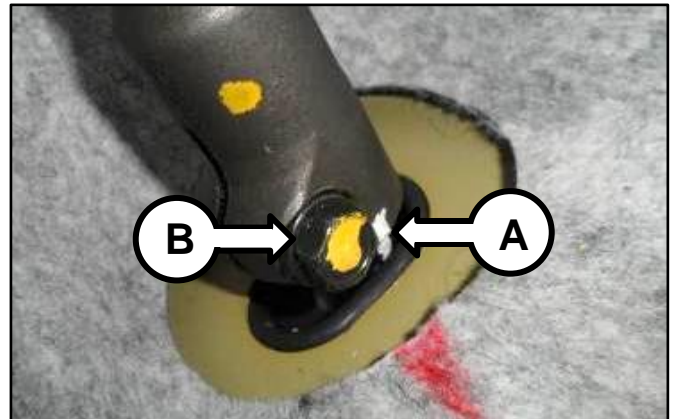
New tool kits are being provided for this Campaign.

Follow the instructions below to ensure the correct tools are used in any/all SC155 repairs.

- Retrieve both flexible extensions from the SC125 tool kit.
- Inspect remaining SC125 tool kit drill bits and save if in good condition.
- Retain the (SC125) plastic box and discard all other contents.
- Insert the new foam insert and contents of the new toolkit in the existing plastic box and add the flexible extensions.
- Discard all old (black) set screws. New set screws are gold in color.

SC155A Pinion Plug Tightening and Set Screw Installation Procedure:

1. With the steering wheel centered and the ignition off, place the vehicle on a lift.
2. Using a white marker, place a mark (A), as shown, on the universal joint and joint spline for ease of reinstallation and to prevent steering wheel dislocation (off-center).
3. Remove the universal joint and steering gear connecting bolt (B). Be sure to replace the connecting bolt.

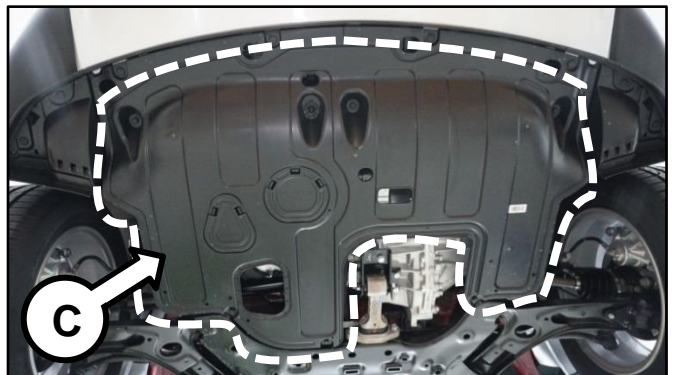


Tightening torque:
27.5 lb.ft (37.3 N.m, 3.8 kgf.m)

★ NOTICE

Be sure to secure and keep the steering wheel centered as the clock spring can be damaged if the steering wheel is moved while disconnected from the steering gear. If damaged, the clock spring is not warrantable.

4. Raise the vehicle and remove the under-cover (C).



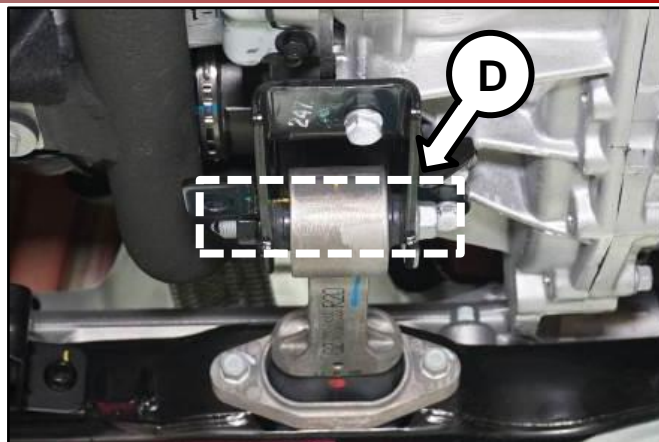
SUBJECT:

STEERING GEAR ASSEMBLY PINION PLUG INSPECTION/REPAIR/REPLACEMENT (SC155)

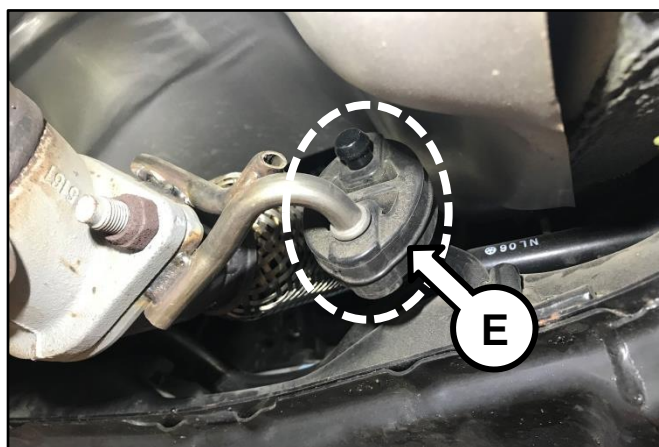
5. Detach the roll rod stopper retaining bolt (D).

Tightening torque:

94.0 lb.ft (125 N.m, 13.0 kgf.m)



6. Detach the exhaust pipe hanger (E) from the subframe.



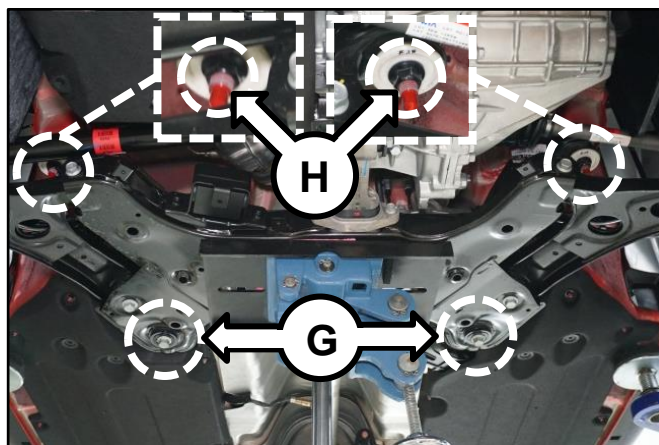
7. Support the subframe (F) with a suitable powertrain lift or equivalent.



8. Remove the two subframe retaining bolts (G) and two subframe retaining nuts (H) then carefully lower the subframe enough (8 to 12 inches) to allow space for the next step.

Tightening torque:

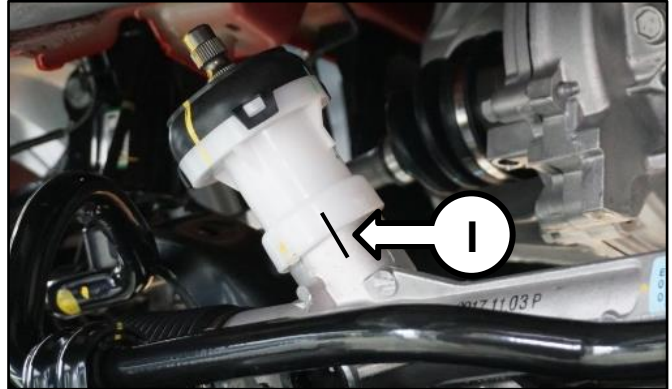
130 lb.ft (175 N.m, 18.0 kgf.m)



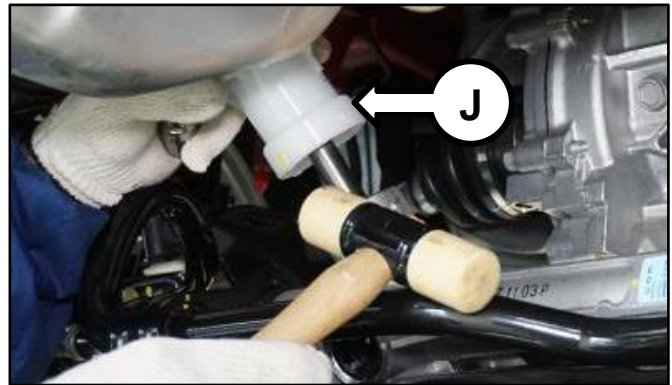
SUBJECT:

STEERING GEAR ASSEMBLY PINION PLUG
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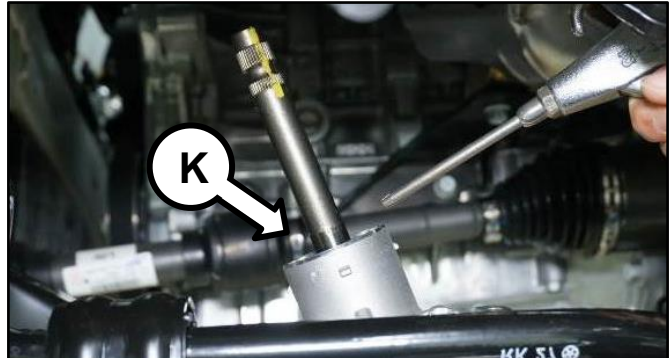
9. With a black marker, place a mark (I) on the dust cap and steering gear to ease reinstallation and to ensure centered alignment of dust cap to steering gear.



10. Using a plastic hammer or rubber mallet, remove the dust cap (J) and set aside. Do not discard the dust cap.



11. Using compressed shop air, remove any foreign materials/debris around the steering gear shaft and pinion plug area (K).



12. With a torque wrench and the provided SST socket, tighten and torque the steering gear pinion plug to the specified torque.

Tightening torque:
57.56 lb.ft (78 N.m, 7.95 kgf.m)

*** NOTICE**

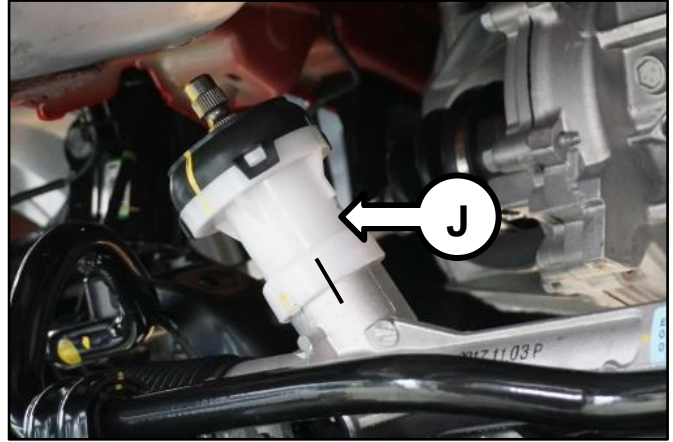
Use a reliable and calibrated torque wrench and confirm that proper torque is applied regardless of wrench type ("click" style, digital, or other.). Improperly torqued pinion plug will invalidate the entire repair.



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13. Reinstall the dust cap (J), aligning the marks made prior to removal. Then proceed to the **Set Screw Installation Procedure** on page 7.



SC155B Inspection Procedure:

1. Open the driver's door, start the engine, and center the steering wheel as shown.

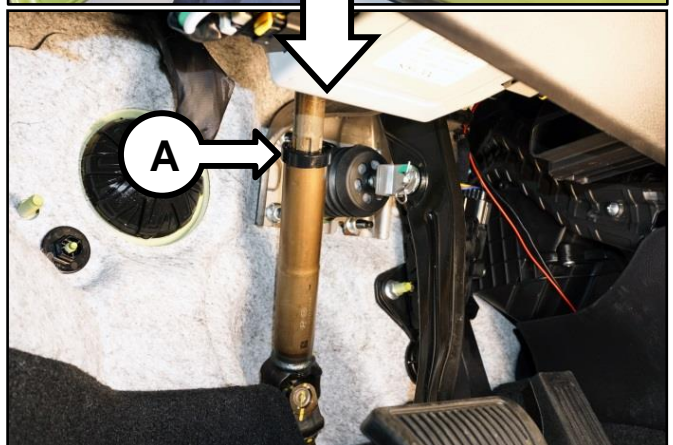
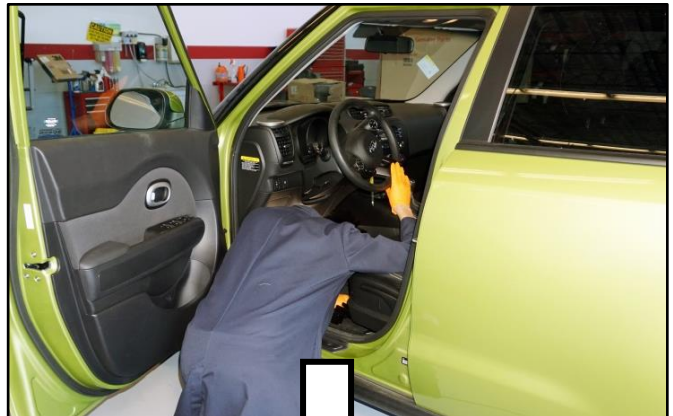


2. Turn the steering wheel from right to left, multiple times, while observing the intermediate shaft (A) for up and down movement.

More detail on abnormal/normal intermediate shaft (A) can be found in the video below.

* NOTICE

[Click here to watch a video of an abnormal and normal intermediate shaft movement.](#)



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- If the intermediate shaft does not move up and down when the steering wheel is turned, proceed to the Set Screw Inspection/Repair Procedure below.
- If the intermediate shaft moves up and down (indicating that the pinion plug has backed off) when the steering wheel is turned, perform the SC155A Pinion Plug Tightening and Set Screw Installation procedure on page 2.
- If one (1) or more of the three (3) conditions listed below exists, replace the steering gear assembly by referring to the “Steering System → Electric Power Steering → Steering Gear Box → Repair procedures” chapter in the applicable Shop Manual on KGIS.
 - Pinion shaft has separated from the steering gear assembly.
 - It is impossible to properly secure the pinion plug for any reason.
 - There is physical damage to the steering gear.

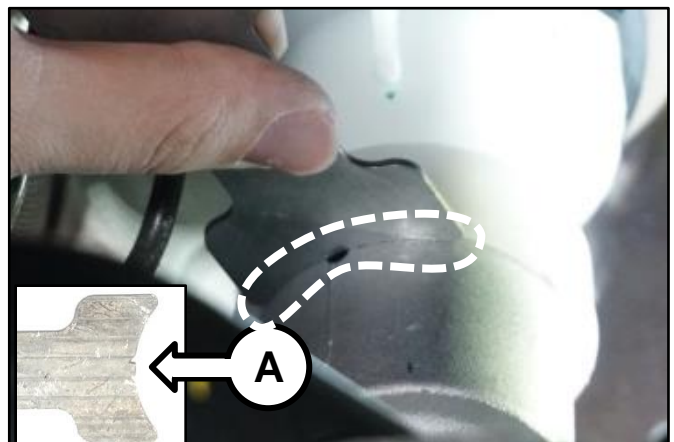
SC155B Steering Gear Inspection/Repair Procedure:

1. With the ignition off, vehicle raised on a lift, and the engine under-cover (PS) or front battery cover splash shield (PS EV) removed, check to see if a set screw was previously installed.
 - If so, remove the silicone previously applied during the SC125 repair.
 - If there is no set screw installed, proceed with the **Set Screw Installation Procedure** on page 7.



Soul (PS EV) Front Battery Cover shown

2. Verify that the previously installed set screw is installed properly and not protruding by using the provided 0.01in (0.3mm) depth gauge. Insert the notch (A) of the depth gauge into the screw hole, as shown, and ensure there is no gap between the gauge and the steering gear. See examples of gap/no gap below.



SUBJECT:

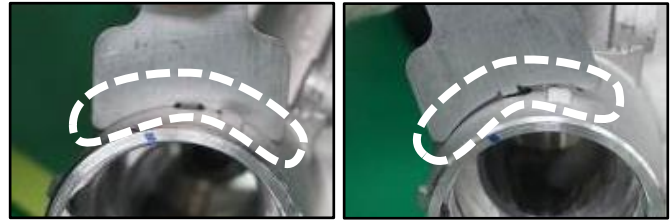
STEERING GEAR ASSEMBLY PINION PLUG INSPECTION/REPAIR/REPLACEMENT (SC155)

- If there is no gap and the set screw is installed correctly, take one (1) photo of the correctly installed set screw (using KVID, refer to page 19 of [KVID User Guide](#)) and attach them to the warranty claim (attachment type "XX: Other" in WebDCS). Then reapply silicone over the set screw and reinstall the engine under-cover. No further action is required.

If there is a gap and the set screw is protruding, proceed to the Set Screw Installation procedure below.

★ NOTICE

Ensure the photo is bright and clear and displays no gap between the gear assembly and set screw depth gauge. Photo of the repair order is not required.

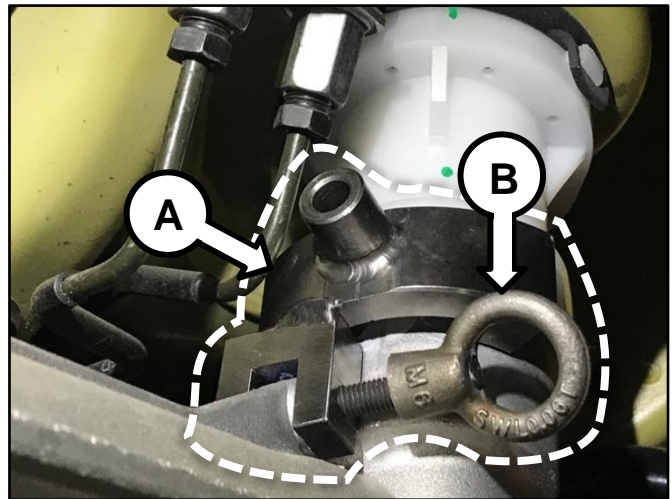


No Gap Shown

Gap Shown

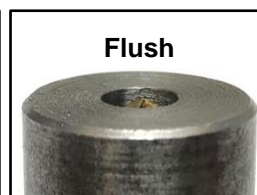
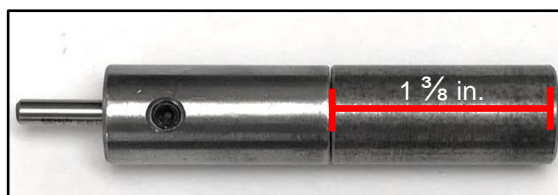
Set Screw Installation Procedure:

- Install the drill-guide (A) onto the steering gear as shown, and tighten the Eye bolt (B) by hand. Confirm that drill-guide is secure and positioned properly.



★ NOTICE

Prior to performing the next step, check the drill-stop depth ($1\frac{3}{8}$ in / 35.1mm) using the drill-bit stop and setting gauge as shown below. Ensure the drill-bit is flush with the gauge. Click [here](#) for video of drill-stop depth setting.



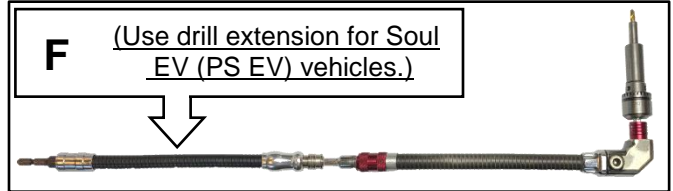
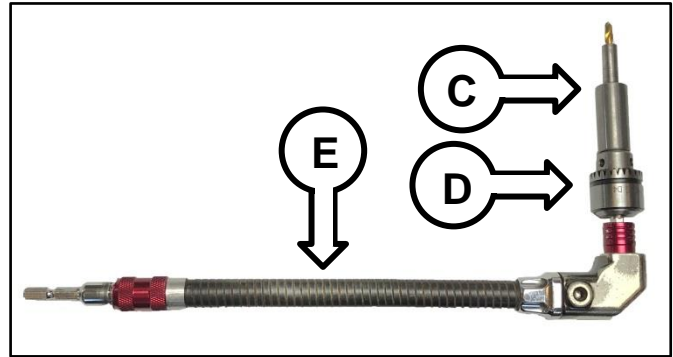
SUBJECT:

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2. Assemble the drill-bit and stop (C), chuck (D), and right angle drive (E), as shown. The extension (F) is to be used with Soul EV (PS EV) vehicles. Tighten the chuck securely to avoid drill bit or drill-head from moving deeper in the chuck.

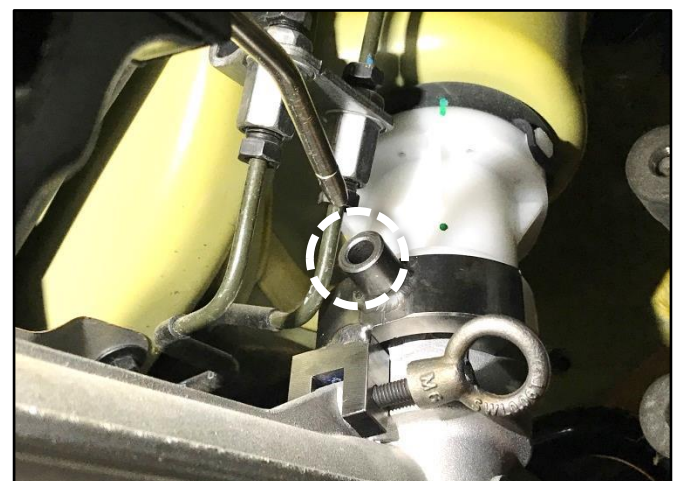
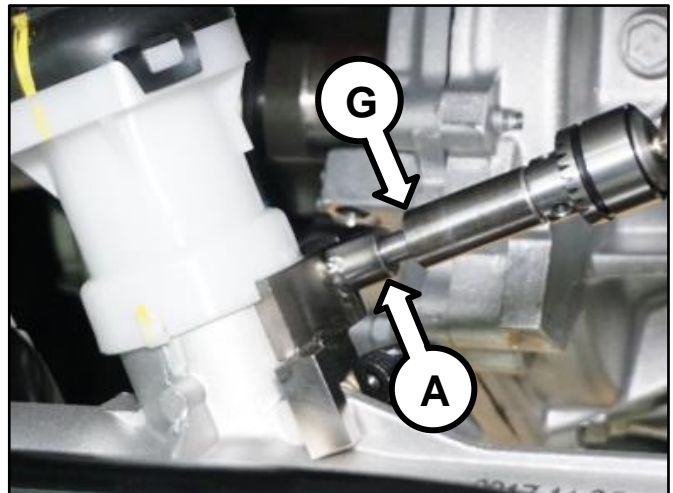
NOTE: during/after installing the drill-head on the chuck, make sure there is no gap between the drill-head and the chuck, then loosen the set screw on the drill-stop.

Failure to loosen the set screw on the drill-stop will cause premature tool wear. Excessive drill-stop/guide wear is the result of the drill-stop spinning in the guide. Additionally, verify the 1 $\frac{3}{8}$ in. / 35.1mm drill-bit depth, prior to each drill operation (see second Notice at bottom of page 7).



[Click here to watch a video of the drill-head assembly process.](#)

3. Install the assembled drill-head, chuck, and drive onto a drill then insert the drill-bit into the opening of the drill-guide. Use the provided extension as appropriate if drilling without the subframe lowered.
4. With the drill set properly aligned with the drill-guide, apply even pressure to the drill-set to drill a hole into the steering gear. At a low drill speed, continue to drill until the shoulder of the drill-stop collar (G) sits flush against the body of the drill-guide (A).
5. Use compressed shop air to remove any debris from inside the drilled hole.



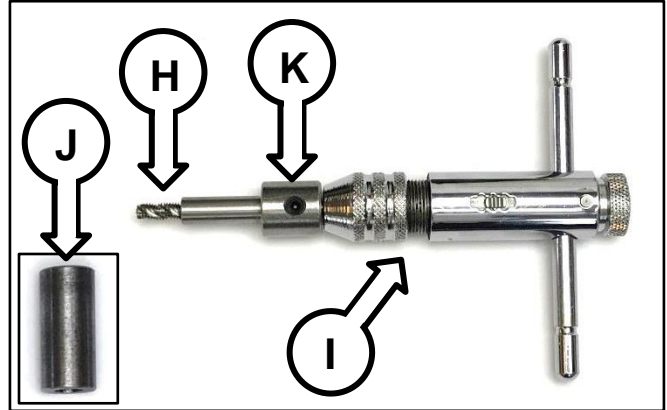
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6. Insert the pre-assembled tap-head (H) into the tapping tool body (I), as shown.

NOTE: prior to tapping the hole, check the tap-stop collar depth setting ($1\frac{3}{8}$ in. / 35.1mm) using the tap-stop and setting gauge (J) as shown below. Additionally, tighten the set screw (K) on the tap-head, periodically.

NOTE: to adjust the tap-head in the tap-collar, loosen the set screw (K) and turn the tap-collar as the collar is threaded.



[Click here to watch a video of the tap tool assembly process.](#)

7. Insert the assembled tapping tool (L) into the opening of the drill-guide, as shown.

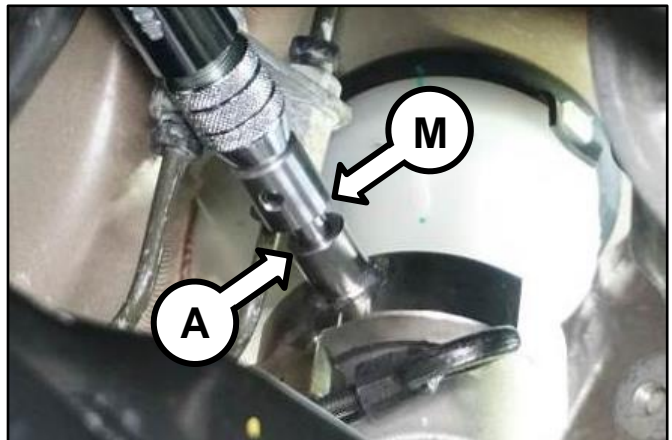
NOTE: due to working space restrictions, the tapping tool cannot be turned through full rotations. However, the tool can be ratcheted in place. Additionally, when tapping the hole, make sure to back the tap out $\frac{1}{4}$ to $\frac{1}{2}$ turn, after approximately every 1-1 $\frac{1}{2}$ turns, then continue the tapping operation.



8. Continue turning the tapping tool until the shoulder on the collar (M) is flush against the body of the drill-guide (A). When flush, do not continue to turn as damage to the thread and/or tool may result.

* NOTICE

To avoid tap-breakage, carefully and fully extract the tap along the drill-guide axis and avoid applying sideways pressure to the tap.



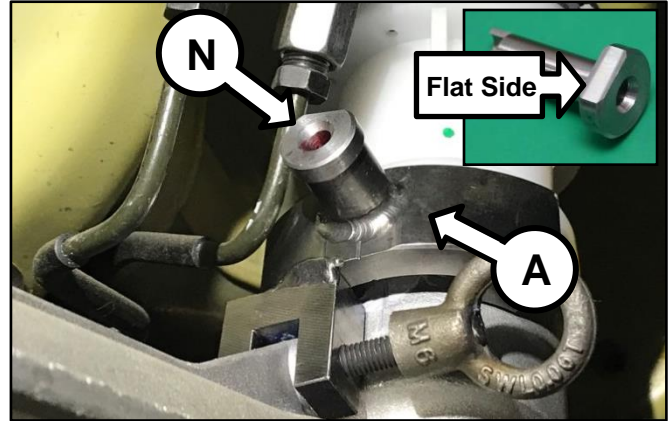
9. Use compressed shop air to remove any debris from inside the drilled hole.



SUBJECT:

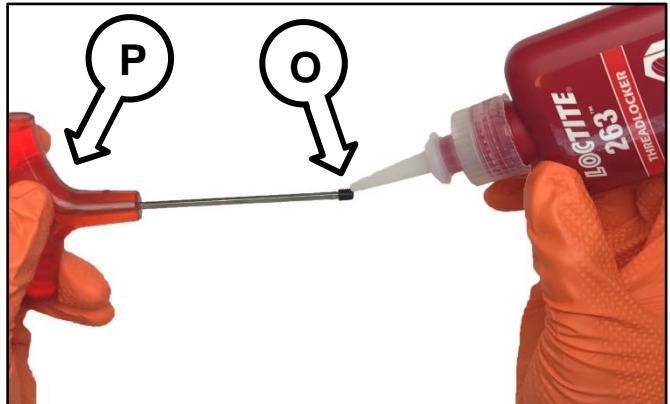
STEERING GEAR ASSEMBLY PINION PLUG INSPECTION/REPAIR/REPLACEMENT (SC155)

10. Install the set screw guide (N) into the drill-guide (A) with the flat side of the set screw guide facing upwards and ensure the set screw guide is flush with the drill-guide.

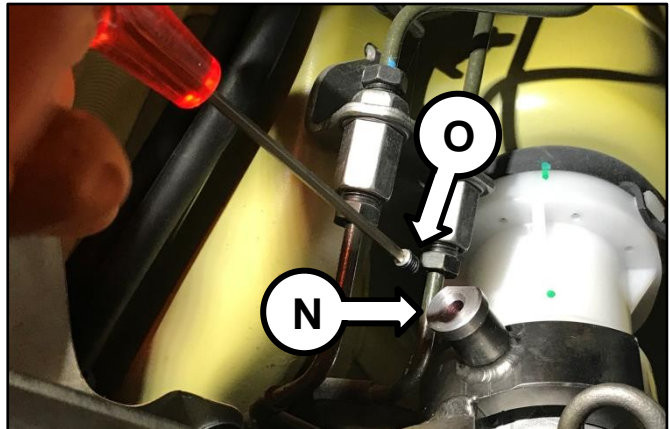


11. Place the provided set screw (O) on the end of the provided hex key wrench (P), as shown, and apply LOCTITE® 263 or equivalent high strength threadlocker.

NOTE: Avoid delay! Perform next steps immediately to avoid having LOCTITE harden, in case the set screw needs to be removed after checking depth.



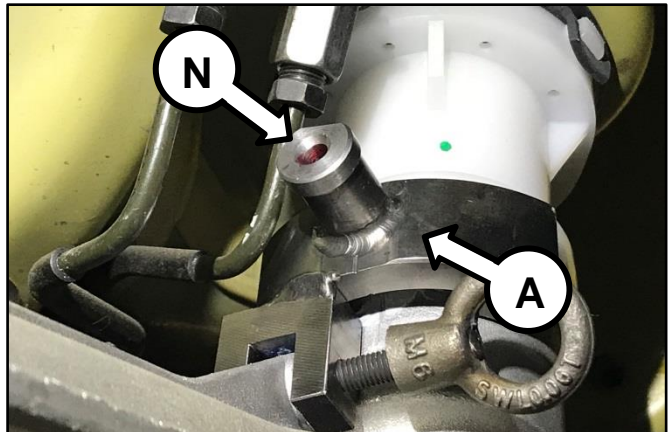
12. Install the set screw (O) through the set screw guide (N) as shown and tighten by hand.



13. Once tight, remove the set screw guide (N) and drill-guide (A).

★ NOTICE

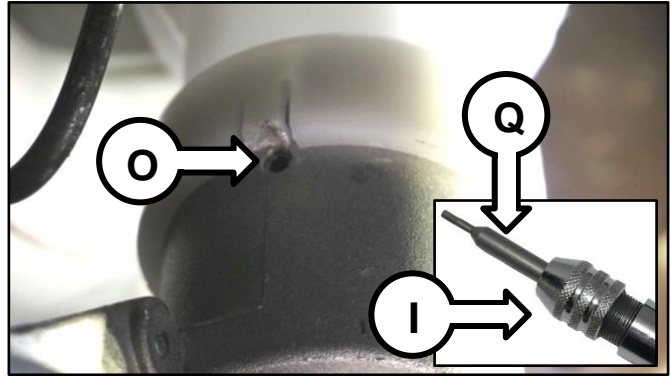
Proper installation of the set screw is critical! Improper installation may result in the pinion plug not being properly secured.



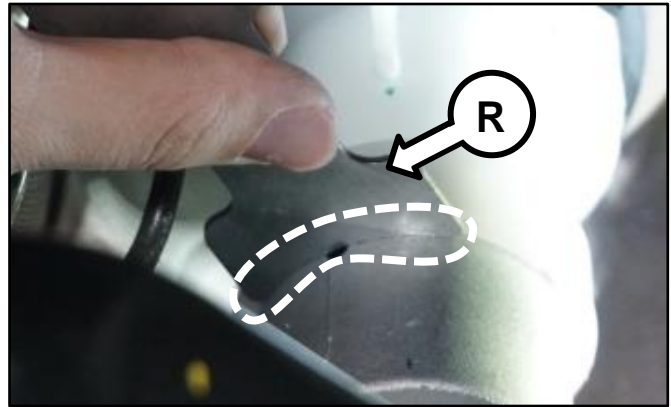
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14. Once again, secure the set screw (O) with the wrench head (Q) attached to the tapping tool body (I). Ensure a thread of the tapped opening in the steering gear is shown. If a thread is not visible, uninstall the set screw, tap additional required thread (do not drill), and reinstall the set screw.



15. Using the side of the set screw depth gauge (R) without the notch, ensure the set screw is not protruding. Tighten the set screw using the hex key wrench, if necessary, and verify that the set screw is not protruding.



16. Take two (2) photos of the new installed set screw (using KVID, refer to page 19 of [KVID User Guide](#)) and attach them to the warranty claim (attachment type "XX: Other" in WebDCS).

★ NOTICE

Ensure the photos are bright and clear enough to distinguish an exposed thread (photo 1) and no gap between the gear assembly and side of the set screw depth gauge without the notch (photo 2). Photo of the repair order is not required.



Photo 1



Photo 2

17. Seal the set screw opening with RTV, as shown.
18. Reinstall all other removed components in the reverse order of removal.
19. Verify proper operation of the steering wheel and ensure no abnormal noise is heard.





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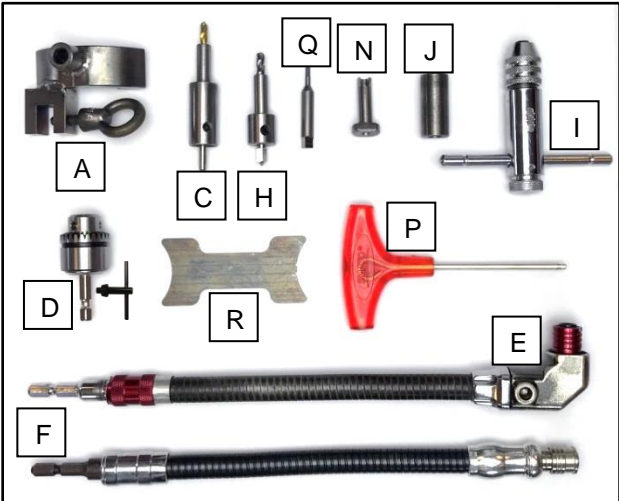
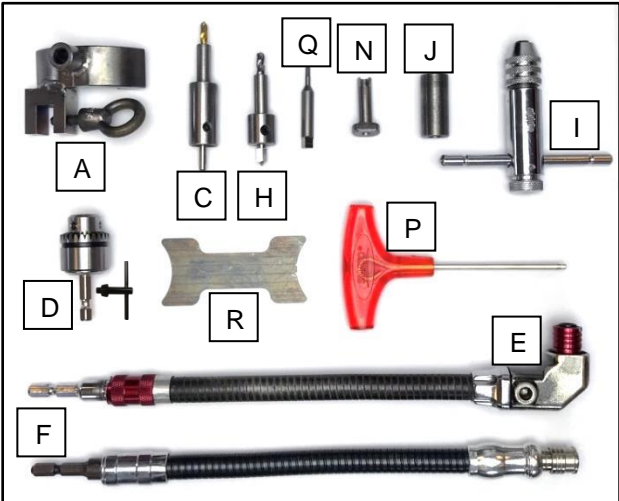
AFFECTED VEHICLE RANGE:

Model	Production Date Range
Soul (PS) & Soul EV (PS EV)	July 21, 2013 through September 30, 2015



REQUIRED TOOL:

Tool Name	Tool Number	Figure	Comments
SC155 Steering Campaign Tool Kit	KQ577 B2400QQK		Auto-shipped to Dealer. Number of kits provided is based on affected vehicles. For replacement tools, contact Snap-on Business Solutions at 888-542-1011.
Pinion Plug Socket	0K577 B2100QQK		Provided to dealers as part of campaign SC108. For replacement tools, contact Snap-on Business Solutions at 888-542-1011.

Steering Campaign Tool Kit




Tool Figure	Tool Name
	A Drill-Guide
	C Drill-Bit & Stop
	H Tap-Head
	Q Wrench Head
	N Set Screw Insert Guide
	J Drill-Bit Stop/Setting Gauge
	I Tapping Tool Body
	D Chuck & Key
	R Set Screw Depth Gauge
	P Hex Key Wrench
	E Right Angle Drive
	F Extension for EV Vehicles

REQUIRED PART:

Part Name	Part Number	Figure	Comments
Set Screw (Gold-Colored)	56502 B2100QQK		Initial qty. of 100 included in tool kit. Only use when performing Set Screw Installation Procedure
LOCTITE® 263 or Equivalent high strength threadlocker	LOCTITE SKU: 1330585		Sourced locally

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Part Name	Part Number	Figure	Comments
Universal Joint Bolt	56415 1M000QQK		Initial qty. of 10 included in tool kit. Only replace when performing Pinion Plug Tightening Procedure
Steering Gear Assembly	56500 E4000QQK		Only replace if required (See 3 rd bullet point on page 6)
RTV Silicone Gasket Maker	UM010 CH046		Kia Chemicals

SC155A 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.
PS	R	56512 B2000	0	(SC155A) Pinion Plug Tightening & Set Screw Installation	171111R2	0.7 M/H	56502 B2100QQK	1
							56415 1M000QQK	1

SC155A & SC155B NOTE: Use sublet code X1 for use of LOCTITE® 263 or equivalent high strength threadlocker and Kia RTV Silicone Gasket Maker (maximum allowance of \$2.00).

For photo attachment(s), use attachment type 'XX'.

If necessary, use sublet code X2 for rental expense reimbursement.

SC155B 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.
PS & PS EV	R	56512 B2000	0	(SC155B) Steering Gear Inspection	171111R0	0.3 M/H	N/A	0
				(SC155B) Steering Gear Inspection, Pinion Plug Tightening, & Set Screw Installation	171111R4	0.7 M/H	56502 B2100QQK	1
							56415 1M000QQK	1
				(SC155B) Steering Gear Inspection & Set Screw Installation	171111R1	0.5 M/H	56502 B2100QQK	1
							56415 1M000QQK	1
				(SC155B) Steering Gear Inspection & Replacement (Includes Alignment)	171111R3	1.6 M/H	56500 E4000QQK	1

SC155A & SC155B NOTE: Use sublet code X1 for use of LOCTITE® 263 or equivalent high strength threadlocker and Kia RTV Silicone Gasket Maker (maximum allowance of \$2.00).

For photo attachment(s), use attachment type 'XX'.

If necessary, use sublet code X2 for rental expense reimbursement.

★ NOTICE

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference **SC155** when accessing the WebDCS system.