	GROUP	MODEL
	ENG	**2012-2013MY Soul (AM) and 2014-2019MY Soul (PS)**
	NUMBER	DATE
	222	**December 2020**

TECHNICAL SERVICE BULLETIN

SUBJECT: EXCESSIVE OIL CONSUMPTION - NU/GAMMA ENGINES

This bulletin provides information on diagnosing and/or repairing some 2012-2019MY Soul (AM/PS) vehicles (refer to table below for applicable engine), which may exhibit a symptom of excessive oil consumption. Follow the flowchart on page 2 and instructions outlined on page 3 in this procedure to repair a vehicle exhibiting excessive oil consumption.

MY	Model	Engine
2012-2013	Soul (AM)	Gamma 1.6L GDI
2012-2016	Soul (AM/PS)	Gamma 1.6L GDI
2014-2019	Soul (PS)	Nu 2.0L GDI

Key points regarding engine oil maintenance:

- Engine oil is responsible for lubrication, cooling, and operation of hydraulic components of the engine. Engine oil is expected to be consumed in normally operating engines. Therefore, regular oil level checking and oil changes are required as part of the factory maintenance schedule.
- The purpose of oil changes is to prevent oil deterioration. A separate requirement is to maintain the oil level, independent of the oil change interval. It is necessary to check the oil level at every fueling stop and replenish the oil, if necessary. This is one of several check items that the owner's manual recommends at every fueling stop.
- Operation with deteriorated or low engine oil causes reduced lubrication and cooling, as well as impaired operation of hydraulic components. This leads to abnormal wear of engine parts, oversaturation of carbon, and deposits of oil sludge. These can result in damage to multiple areas of the engine, ultimately requiring a costly, lengthy, and preventable repair.

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

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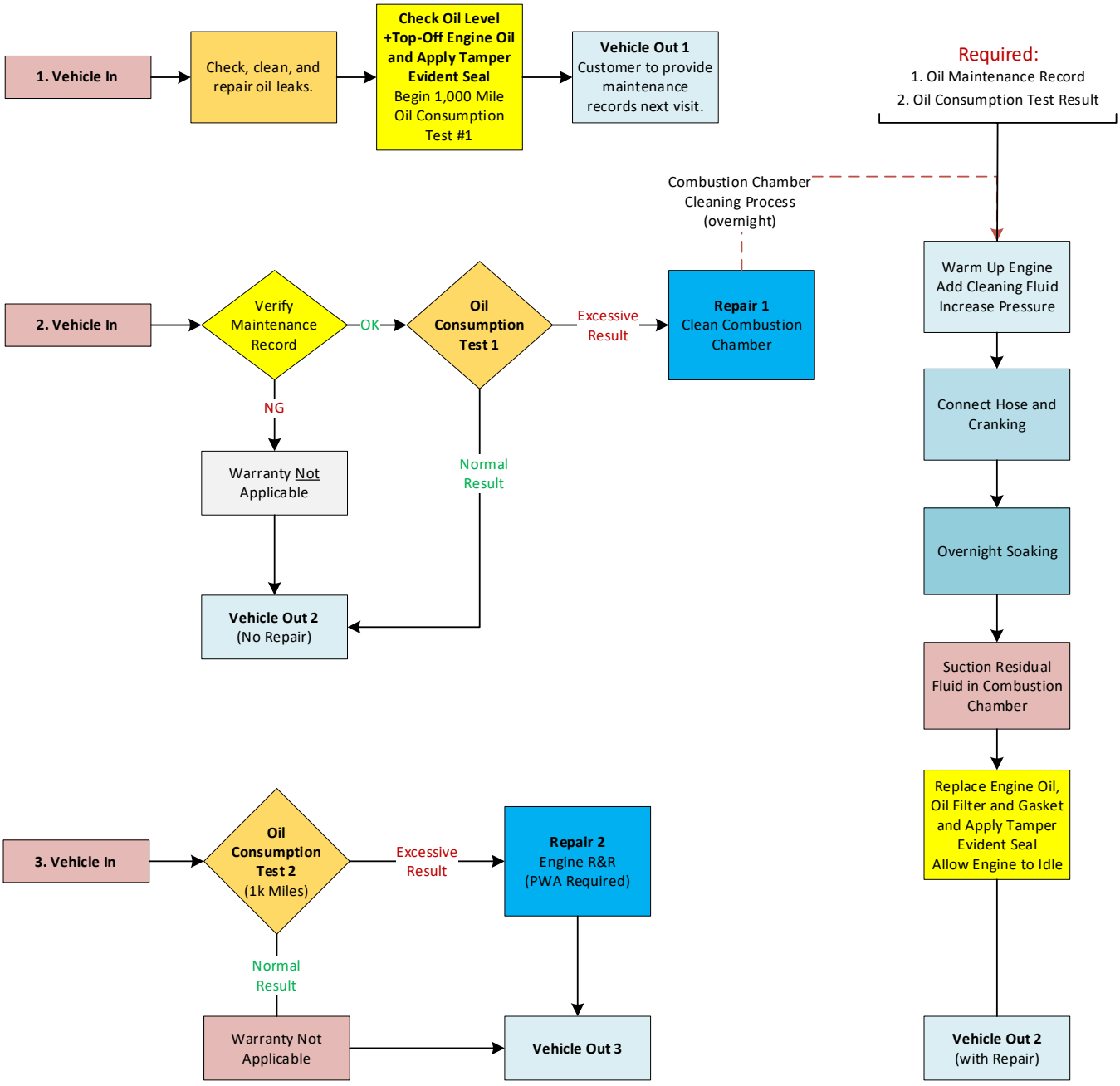
Flowchart:

Refer to page 3 for <u>additional</u> information and instructions.



ⓘ IMPORTANT

Following an oil and filter change, always set the next recommended service interval reminder per the owner's manual. Refer to TSB ENG219 for the applicable Service Reminder feature found on some 2014~ model vehicles.

Oil Consumption Test:

A. Engine Oil Inspection (Preparation for Test 1)

1. Check if an oil leak is present. (**Note**: If an oil leak if confirmed, the oil leak source needs to be repaired prior to performing the outlined procedure in this publication).
2. Turn the engine 'ON' for about 10-15 minutes until reaching normal operating temperature. Ensure the temperature gauge reads at the 1/2 mark.
3. Turn the engine 'OFF' and open the oil filler cap. (**Note**: Wait for the engine oil to drop to the oil pan for about 15 minutes).
4. Check the oil level using the oil level gauge/dipstick and document the reading in the RO.
5. If engine oil top off is required, fill the engine oil to the 'F' (Full) line on the level gauge/dipstick. Refer to page 6, step 10 for required oil type and viscosity.
6. Re-install the engine oil filler cap and oil level gauge and apply a tamper evident silicone seal to the drain plug, oil filter, dipstick and oil cap. **Vehicle Out 1**.

B. Engine Oil Inspection (After 1k Miles of Driving)

1. Repeat steps from section A. 1-4.
2. Calculate the oil consumption amount as follows (Result = Refer to Flowchart on page 2):

$$\text{Oil Consumption amounts (Mile/qt)} = \frac{\text{Driving Distance (Mile)}}{\text{Oil Replenishment amounts after driving (qt)}}$$

- If the oil consumption amount is less than 1qt/1,000 miles, **Normal** consumption, **No Repair**.
- If the oil consumption amount is over 1qt/1,000 miles, **Excessive** perform **Repair 1** (Clean Combustion Chamber, pages 4-6).
- Replace the engine oil, oil filter and gasket and apply a tamper evident silicone seal to the drain plug, oil filter, dipstick and oil cap.

3. Top-off the engine oil to the 'F' (Full) line of the oil level gauge/dipstick. Refer to page 6, step 10 for required oil type and viscosity.
4. Re-install the engine oil filler cap and oil level gauge/dipstick. **Vehicle Out 2**.

C. Engine Oil Inspection (After Repair 1 and 1,000 Miles of Driving)

1. Repeat steps from section B. 1-2.

- If the oil consumption amount is less than 1qt/1,000 miles, **Normal** consumption, **No Repair**
- If the oil consumption amount is over 1qt/1,000 miles, **Excessive** perform **Repair 2** (Engine R&R, page 7).

2. Top-off the engine oil to the 'F' (Full) fill line of the oil level gauge/dipstick. Refer to page 7, step 1 for required oil type and viscosity.
3. Re-install the engine oil filler cap and oil level gauge/dipstick. **Vehicle Out 3**.

Cleaning Procedure (Combustion Chamber):

✶ NOTICE

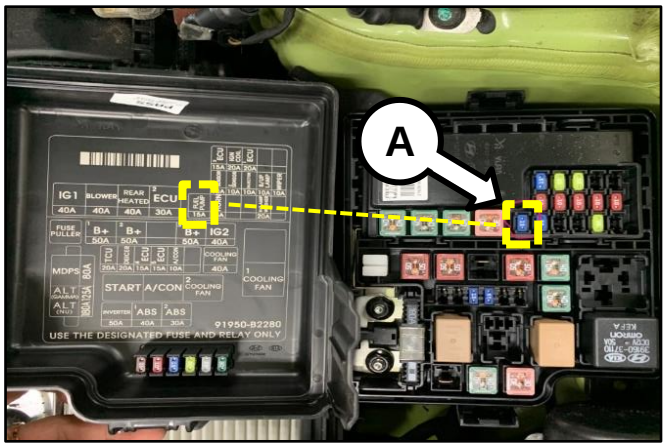
This procedure requires overnight soaking, place vehicle in an area with adequate

1a. Start the engine and allow it to reach operating temperature.

1b. Turn the engine 'OFF'.

1c. Remove the engine cover and disconnect the battery negative (-) terminal.

1d. Remove the engine junction box cover and remove the fuel pump relay (A).



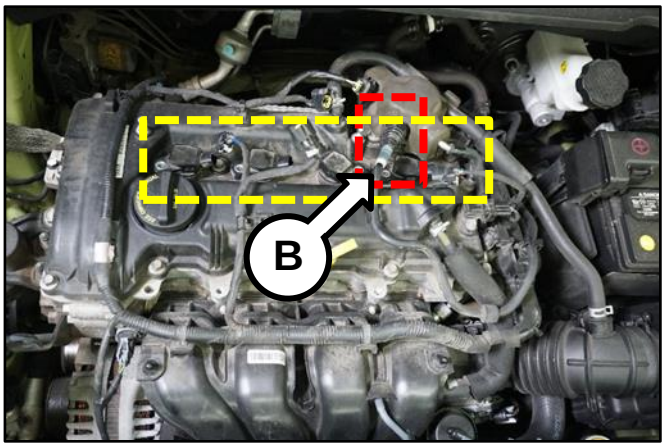
2a. Disconnect the fuel control connector (A).

2b. Disconnect the four (4) ignition coil connectors

2c. Remove the four (4) spark plugs.

Note: **High pressure fuel pipe needs to be detached before removing ignition coils**.

(Nu engine image shown for reference use only)



3. Inject the cleaning fluid into the cylinders through the spark plug holes.

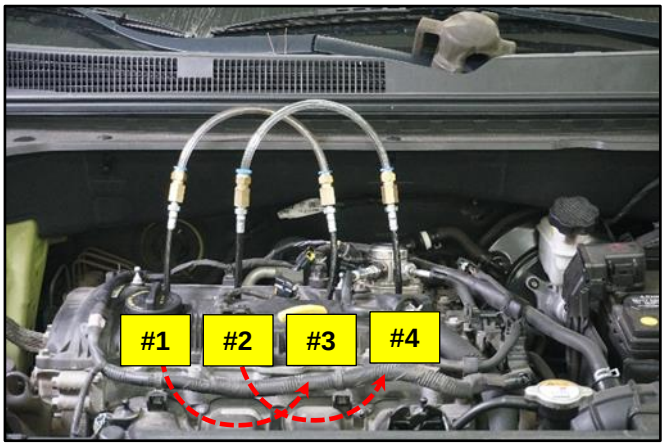
Using the supplied syringe add at least 1.7oz (50cc) to each cylinder.

Specification: Min. 1.7oz (50cc) / Max 2.2oz (66.5cc)

4. Using SST 09580 3D100 pressurize each cylinder under pneumatic pressure (-2~3 bar) for three (3) minutes.

Note: Before pressurizing, set the associated cylinder to TDC.

5a. Connect the four (4) hoses & adaptors to each cylinder as shown.



Note: Connect Cyl. #1 to #3 and #2 to #4.

5b. Crank the engine for 3 seconds / 3 times.

6. Disconnect the hose and inject 1.7oz (50cc) min. of the cleaning fluid to each cylinder (1-4).

Specification: Min. 1.7oz (50cc) / Max 2.2oz (66.5cc)

7. Allow the vehicle to sit overnight (at least 8 hours).

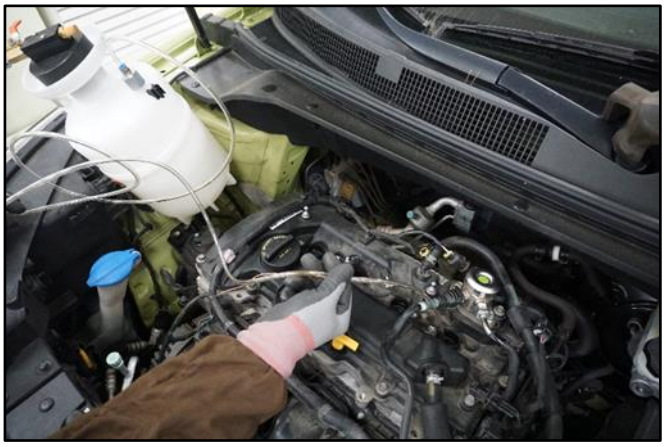
CAUTION: **Do Not** turn the engine 'ON' until completion of the cleaning procedure.

Proceed to step 8 **after** overnight soaking.

CONTINUED AFTER 8 HOURS (OVERNIGHT SOAKING):

8. Remove the residual washing liquid in combustion chamber using the syringe or suction tool.

   Note: For best results, a pneumatic suction tool is recommended.



9. Place a clean towel/shop rag over the spark holes and crank the engine for 3-5 seconds, 3 times.

   Note: If spark plug holes are not sufficiently covered, fluid may spray into the air, potentially causing injury.

10. Replace the engine oil and filter and apply a tamper evident silicone seal to the drain plug, oil filter dipstick and oil filler cap.

    Engine crankcase oil specification and fill capacity: 5W-30 engine oil
    Nu: ~4.23 US qt).
    Gamma: ~3.80 US qt).

    Required Product: QUARTZ 9000 FUTURE FGC 5W-30 Full Synthetic SN PLUS, QUARTZ 9000 FUTURE XT 5W30 Full Synthetic SN PLUS, Mobil Super Synthetic 5W30 or above. **If not available**, use other brand 5W30 and Full synthetic type with API SN/SN+/SP, ILSAC GF4/GF5 or higher service grade.

11. Reinstall all removed parts in the reverse order of removal.

12. Re-connect the fuel pump relay in the fuse box.

13. Allow the engine to idle for 10 minutes and accelerate the engine to 3,000rpm, 3 times.

Engine Replacement Procedure: (2.0L Nu GDI or 1.6L GDI Gamma Engines)

1. Replace the engine by referring to the "Engine Mechanical System → Engine and Transaxle Assembly → Engine and Transaxle Assembly → Repair procedures" chapter in the applicable Shop Manual on KGIS.

   Replace the engine oil, oil filter and oil plug gasket.
   Engine crankcase oil specification and fill capacity: 5W-30 engine oil.
   Nu: ~4.23 US qt).
   Gamma: ~3.80 US qt).

   Required Product: QUARTZ 9000 FUTURE FGC 5W-30 Full Synthetic SN PLUS, QUARTZ 9000 FUTURE XT 5W30 Full Synthetic SN PLUS, Mobil Super Synthetic 5W30 or above. **If not available**, use other brand 5W30 and Full synthetic type with API SN/SN+/SP, ILSAC GF4/GF5 or higher service grade.

AFFECTED VEHICLE RANGE:

Model	Model Year
Soul (AM)	2012 to 2013
Soul (PS)	2014 to 2019

REQUIRED TOOL:

Tool Name		Figure	Comments
Cleaning Fluid	UM020 CH265		For each engine, utilize initial supply of 99F00 AQ019FFF (qty. 4 per vehicle) Once depleted, use 1 bottle of (Valvoline #884526) per vehicle Additional chemical can be ordered through Kia Chemicals
Cleaning Kit	KQ234 C6100FFF		All Components For replacement kits and/or components, contact Snap-On Business Solutions
Adaptor	KQ234 C6101FFF		4
Hose	KQ234 C6102FFF		2
Syringe and hose	KQ234 C6103FFF		2
Pressurization Adapter	KQ234 C6104FFF		1
Kit Case	KQ234 C6105FFF		1

SUBJECT: EXCESSIVE OIL CONSUMPTION - NU/GAMMA ENGINES

REQUIRED PART: **(NU 2.0L GDI ENGINE)**

Part Name	Part Number (Non-ISG)	Part Number (ISG)	Figure	Qty.
Engine Long Block (14-16MY)	21101 2EG01FFF	21101 2EG02FFF		1
Engine Long Block (17-19MY)	21101 2EG03FFF	21101 2EG04FFF		
Fuel Tube	35305 2E510FFF			1

Part Name	Kit Part Number	Part Number	Description	Qty.
Engine Service Kit	 21111 2EG01FFF	26611 2E022	Rod Assy – Oil Level	1
		28521 2E000	Gasket – Exhaust Manifold	1
		28313 2E000	Gasket – Intake Manifold	1
		35312 2G750	Injector O-ring Kit (Combustion Seal Ring) 35312 2B110 (Support Disc) 35312 2B111 (O-Ring) 35312 2B112	4
		35309 2B110	Injector Clip	4
		35313 2B110	Injector Washer	4
		35322 2G700	High-Press. Pump O-ring	1
		11405 06206K	High-Press. Pump Bolt	2
		28751 2B300	Gasket - Front Muffler	1
		13183 12000	Nut - Front Muffler	2
		39250 2E000	Knock Sensor	1
		11403 08306K	Bolt - Flange	1
		25460 2E006	Pipe Assembly – Heater	1
		25480 2E000	Hose Assembly – Heater	1
		25456 2E100	Bolt – Washer Assembly	2

SUBJECT: EXCESSIVE OIL CONSUMPTION - NU/GAMMA ENGINES

REQUIRED PART: **(GAMMA 1.6L GDI ENGINE)**

Part Name	Part Number (Non-ISG)	Part Number (ISG)	Figure	Qty.
Engine Long Block (12-13MY)	21101 2BK01FFF	21101 2BK02FFF		1
Engine Long Block (14-16MY)	21101 2BK03FFF			
Fuel Tube	35305 2B000FFF			1

Part Name	Kit Part Number	Part Number	Description	Qty.
Engine Service Kit 1	 21111 2BS01FFF	26611 2B611	Rod Assy – Oil Level	1
		26612 2G601	Guide Assy – Oil Level	
		28521 2B400	Gasket – Exhaust Manifold	1
		28411 2B600	Gasket – Intake Manifold	1
		35312 2G750	Injector O-ring Kit (Combustion Seal Ring) 35312 2B110 (Support Disc) 35312 2B111 (O-Ring) 35312 2B112	4
		23124 2B020	Pulley - Damper	1
		23127 2B700	Bolt – Crank Pulley	1
		35313 2B110	Injector Washer	4
		35322 2G700	High-Press. Pump O-ring	1
		11405 06206K	High-Press. Pump Bolt	2
		26614 2B000	O-RING (OIL LEVEL GUIDE)	1
Engine Service Kit 2	 21112 2BS01FFF	25452 2B000	Gasket – Heater Pipe	1
		25457 2B000	Pipe – Heater	1
		11403 08126K	Bolt – Flange	1
		13396 06007K	Nut – Flange	2
		21516 35010	Bolt – Flange (6X12)	1
		25500 2B000	Thermostat Assy	1
		25600 2B600	Control Assy – Water Temp	1
		25631 2B051	Fitting Assy – Water Inlet	1
		11403 06207S	Bolt – Flange	3
		13386 08007C	Nut – Flange	2
		26300 35505	Filter Assy – Oil	1
		39250 2B000	Knock Sensor	1
		11403 08306K	Bolt - Flange	1
		28751 2B200	Gasket – Front Muffler	1
		13183 12000	Nut – Front Muffler	2

WARRANTY INFORMATION: NU 2.0L GDI (PS)

N Code: E74 C Code: ZZ1

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
W	Valve Stem Seal (Refer to EPC)	0	Vehicle In (1) Engine Oil Top-Off (Request Svc Record)	21101F71	0.6 M/H	*Engine Oil Allowance	0
			Vehicle In (2) Oil Consumption Test #1 (Normal Consumption)	21101F73	0.6 M/H	N/A	0
			Vehicle In (2) Oil Consumption Test #1 (Excessive Consumption) +Combustion Chamber Cleaning + Vehicle In (2) Engine Oil Replacement (Request Svc Record)	21101F72	2.7 M/H	*UM020 CH265	0
						*Engine Oil Allowance	
			Vehicle In (3) Oil Consumption Test #2 (Normal Consumption) **(PS) 14-16MY**	21101F73	0.6 M/H	N/A	0
			Vehicle In (3) Oil Consumption Test #2 (Normal Consumption) **(PS) 17-19MY**				
	Piston Ring (Refer to EPC)		Vehicle In (3) Oil Consumption Test #2 + Engine R&R **(PS) 14-16MY**	21101F74	7.2 M/H	21101 2EG01FFF or 21101 2EG02FFF	1
						35305 2E510FFF	1
						21111 2EG01FFF	1
			Vehicle In (3) Oil Consumption Test #2 + Engine R&R **(PS) 17-19MY**			21101 2EG03FFF or 21101 2EG04FFF	1
						35305 2E510FFF	1
						21111 2EG01FFF	1
						26300 35505	1
						21513 23001	1

***Note: For fluids and other expenses refer to page 13.**

SUBJECT: EXCESSIVE OIL CONSUMPTION - NU/GAMMA ENGINES

WARRANTY INFORMATION: **GAMMA 1.6L GDI (AM)**
N Code: E74 C Code: ZZ1

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
W	Valve Stem Seal (Refer to EPC)	0	Vehicle In (1) Engine Oil Top-Off (Request Svc Record)	21101F75	0.6 M/H	*Engine Oil Allowance	0
			Vehicle In (2) Oil Consumption Test #1 (Normal Consumption)	21101F77	0.6 M/H	N/A	0
			Vehicle In (2) Oil Consumption Test #1 (Excessive Consumption) +Combustion Chamber Cleaning + Vehicle In (2) Engine Oil Replacement (Request Svc Record)	21101F76	2.5 M/H	*UM020 CH265	0
						*Engine Oil Allowance	
			Vehicle In (3) Oil Consumption Test #2 (Normal Consumption) **(AM) 12-13MY**	21101F77	0.6 M/H	N/A	0
	Piston Ring (Refer to EPC)		Vehicle In (3) Oil Consumption Test #2 + Engine R&R **(AM) 12-13MY**	21101F78	7.2 M/H	21101 2BK01FFF or 21101 2BK02FFF	1
						35305 2B000FFF	1
						21111 2BS01FFF	1
						21112 2BS01FFF	1
						26300 35505	1
						21513 23001	1

***Note: For fluids and other expenses refer to page 13.**

SUBJECT: EXCESSIVE OIL CONSUMPTION - NU/GAMMA ENGINES

WARRANTY INFORMATION: **GAMMA 1.6L GDI (PS)**

N Code: E74 C Code: ZZ1

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
W	Valve Stem Seal (Refer to EPC)	0	Vehicle In (1) Engine Oil Top-Off (Request Svc Record)	21101F79	0.6 M/H	*Engine Oil Allowance	0
			Vehicle In (2) Oil Consumption Test #1 (Normal Consumption)	21101F81	0.6 M/H	N/A	0
			Vehicle In (2) Oil Consumption Test #1 (Excessive Consumption) +Combustion Chamber Cleaning	21101F80	2.5 M/H	*UM020 CH265	0
						*Engine Oil Allowance	
			Vehicle In (3) Oil Consumption Test #2 (Normal Consumption) **(PS) 12-13MY**	21101F81	0.6 M/H	N/A	0
	Piston Ring (Refer to EPC)		Vehicle In (3) Oil Consumption Test #2 + Engine R&R **(PS) 12-13MY**	21101F82	7.2 M/H	21101 2BK03FFF	1
						35305 2B000FFF	1
						21111 2BS01FFF	1
						21112 2BS01FFF	1
						26300 35505	1
						21513 23001	1

***Note: For fluids and other expenses refer to page 13.**

WARRANTY CLAIM INFORMATION APPENDIX

Expense Description	Sublet code / Part Number	Expense policies and requirements	Sublet Limit/Quantity
Engine Oil	Refer to Kia chemicals program for synthetic oil part numbers provided by Kia.	Refer to page 6-7 of TSB for recommended TOTAL engine oil products. Charge quantity needed for "Oil Top-Off" or Oil change for engine replacement according to technician repair comments.	5 QT max.
Cleaning Fluid	UM020 CH265	Refer to page 7 of TSB. After provided supply is depleted, use 1 bottle of Valvoline #884526 per vehicle	1 max.
Engine Oil Reimbursement	Sublet Code "X1"	Refer to page 6-7 of TSB. If recommended product is not used charge for other brand (see page 6-7) up to maximum allowance. For "Oil Top-Off", charge up to $7.50 per quart.	a. **$50.00** for engine R&R b. **$7.50** per quart for engine oil top-off
Substitute Transportation	Sublet Code "RX"	If necessary, for combustion cleaning and engine R&R, follow normal service procedures according to WCPM section 2.2.12 for rental/rideshare expense reimbursement.	Refer to section 6.11 of SPPM

Note: Attach a copy of the entire RO using attachment type "XX-Other".

IMPORTANT: Claim Submission Information

- Confirm Warranty Coverage Validation (WebDCS).
- Engine replacement requires TL PWA with Oil Consumption results.
- Dealer repair order documentation must support the repair sequence per flowchart
  - ✓ First visit
  - ✓ Second visit
  - ✓ Third visit
- Manually enter all warranty claim entries and expenses into each claim
- Provide clear and concise notes i.e. customer concern, cause, correction
- A copy of the entire RO is necessary for claim submission. Use attachment code "XX-Other".
- Confirm claim totals prior to claim submission

For any questions pertaining to claim entry, please create a warranty web case for assistance prior to claim submission.