 <b>HYUNDAI</b> <b>Technical Service Bulletin</b>	GROUP <b>RECALL</b>	NUMBER <b>21-01-022H</b>
	DATE <b>MARCH 2021</b>	MODEL(S) <b>APPLICABLE VEHICLES BELOW</b>
<b>SUBJECT: ENGINE INSPECTION (RECALL CAMPAIGN 198)</b>		

**\* IMPORTANT**

**\*\*\* Retail Vehicles \*\*\***

Dealers must perform this Recall Campaign whenever an affected vehicle is in the shop for any maintenance or repair.

**Description:** Certain vehicles listed below may exhibit an abnormal knocking noise from the engine. Follow the procedure to inspect the vehicle to determine the applicable repair procedure based on the inspection results.

**Applicable Vehicles:**

Certain 2012 MY Santa Fe (CM) vehicles with Theta II 2.4L MPI engines  
 Certain 2011-2013 MY Sonata HEV (YFE) vehicles with Theta II 2.4L MPI Hybrid engines  
 Certain 2016 MY Sonata HEV (LFE) vehicles with Nu 2.0L GDI Hybrid engines  
 Certain 2015-2016 MY Veloster (FS) vehicles with Gamma 1.6L GDI engines

**Warranty Information:**

MODEL	OP CODE	OPERATION	OP TIME	CAUSAL P/N	NATURE CODE	CAUSE CODE
Santa Fe (CM)	11D020R0	ENGINE INSPECTION	0.6 M/H	21101-2G404FFF	E74	ZZ7
	11D020R1	UNABLE TO PERFORM ENGINE INSPECTION	0.1 M/H	21101-2G404FFF	E74	ZZ7
Sonata HEV (YFE)	11D020R2	ENGINE INSPECTION	0.6 M/H	77RT2-2GF00	E74	ZZ7
	11D020R3	UNABLE TO PERFORM ENGINE INSPECTION	0.1 M/H	77RT2-2GF00	E74	ZZ7

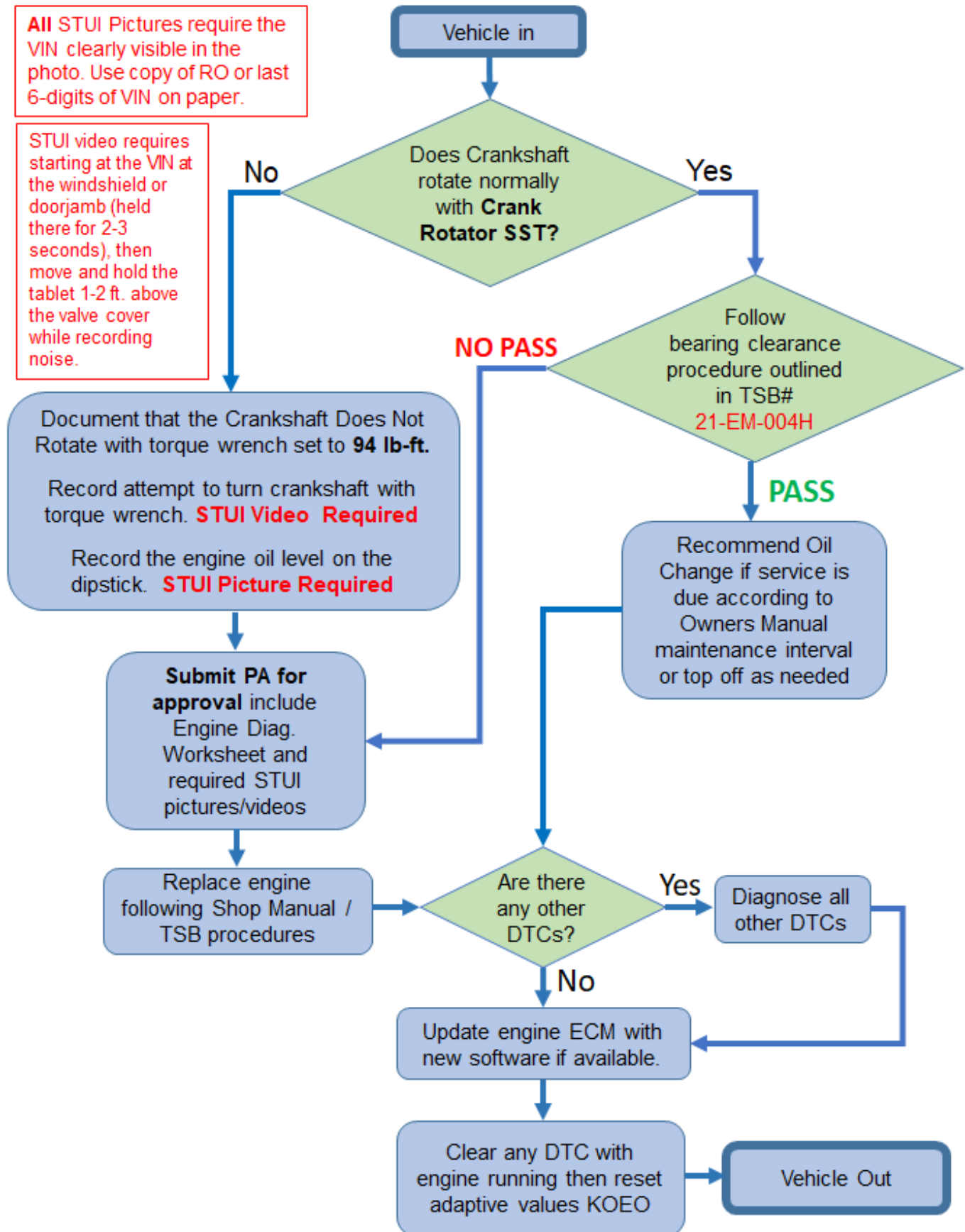
Sonata HEV (LFE)	11D020R4	ENGINE INSPECTION	<b>0.6 M/H</b>	<b>2D312-2EU02A</b>	<b>E74</b>	<b>ZZ7</b>
	11D020R5	UNABLE TO PERFORM ENGINE INSPECTION	<b>0.1 M/H</b>	<b>2D312-2EU02A</b>	<b>E74</b>	<b>ZZ7</b>
Veloster (FS)	11D020R6	ENGINE INSPECTION	<b>0.6 M/H</b>	<b>21101-2BK04FFF</b>	<b>E74</b>	<b>ZZ7</b>
	11D020R7	UNABLE TO PERFORM ENGINE INSPECTION	<b>0.1 M/H</b>	<b>21101-2BK04FFF</b>	<b>E74</b>	<b>ZZ7</b>

**NOTE 1:** Use appropriate op code for 'UNABLE TO PERFORM ENGINE INSPECTION' if the engine cannot be rotated to perform the Bearing Clearance Test.

**NOTE 2:** Submit claim on Campaign Claim Entry Screen

**NOTE 3:** If a part is found in need of replacement while performing this Recall and the affected part is still under warranty, submit a separate claim using the Same Repair Order. If the affected part is out of warranty, submit a Prior Approval Request for goodwill consideration prior to performing the work.

## Service Procedure Flowchart:



**Service Procedure:****Engine Inspection - (Engine Rotation Check)**

1. Rotate the crankshaft with the crank rotator SST.
  - If the crankshaft cannot be turned with a moderate force, then measure the force required to turn the crankshaft with a torque wrench.
  - If the SST or shop tools do not fit the specific vehicle type, remove the front passenger wheel and wheel liner or underbody tray as needed to rotate the crankshaft.

**NOTICE**

**If other engine accessory components are seized, remove the engine accessory belt prior to completing the engine rotation check.**

❖ **If the crankshaft rotates normally:**

- Perform Bearing Inspection per TSB 21-EM-004H “BEARING CLEARANCE TEST SERVICE PROCEDURE”.

❖ **If the force required for rotating the crankshaft is greater than 94 lb-ft., documentation through STUI video is required.**

- Bearing Clearance Test is not possible.
- **Take a STUI picture of the engine oil level on the dipstick** with the VIN clearly visible in the photo using a copy of the RO or last 6-digits of VIN on paper.
- Use appropriate Op Code for “UNABLE TO PERFORM ENGINE INSPECTION” and then submit PA for engine replacement.
  - Use appropriate Op Code for the engine replacement operation.

**Engine Inspection - (Bearing Clearance Test)**

2. Refer to TSB # 21-EM-004H to complete the Service Procedure for Bearing Clearance Test.

❖ **If the test result is “PASS”:**

- Follow the remaining steps of the inspection TSB.
- Use appropriate Op Code for “ENGINE INSPECTION” to complete the inspection procedure.

❖ **If the test result is “NO PASS”:**

- Follow the remaining steps of the inspection TSB.
- Use appropriate Op Code for “ENGINE INSPECTION” to complete the inspection procedure and then submit PA for engine replacement.
  - Use appropriate Op Code for the engine replacement operation.

**NOTICE**

**PA Approval is required for engine replacement. Submit PA and refer to the Dealer Best Practices guide for the latest requirements for engine approval.**

- 1) **If engine does not rotate normally, a STUI video including the following is required:**
  - **VIN Plate (at windshield or on door jamb)**
  - **Attempt to rotate the crankshaft**
- 2) **Save the crankshaft rotation torque value**
- 3) **A picture of the lower end damage is required if present**
- 4) **Use STUI feature on the GDS to take and submit pictures and videos.**

**\*\*\* IF ENGINE REPLACEMENT IS REQUIRED AND APPROVED BY PA \*\*\***

Follow the published Service Information from the applicable **Shop Manual** to remove and replace the Engine Assembly.

**Shop Manual Section Location:** Engine Mechanical > Engine And Transaxle Assembly > Engine And Transaxle Assembly > **Repair Procedures**

- a) Be sure to connect the (2) oil coolant hoses between the oil cooler and the water temperature control assembly (if equipped).
  - o Fill the cooling system with 50/50 ~ 70/30 (Water/Anti-Freeze) coolant mixture.
- b) Fill the engine crankcase:
  - o Add engine oil amount specified for the engine for the **initial dry fill** of the crankcase.
  - o With the fuel system disabled temporarily, crank the engine for several seconds to prime the lubrication system prior to starting the engine.
  - o **Recommended Oil Specifications:**
    - o 5W-30 Full Synthetic type with API SN/SN+/SP, ILSAC GF4/GF5 or higher service grade
- c) Start the engine to warm it up and begin the cooling system air bleeding process.
  - o Check for any leaks during this time.
  - o After the engine has warmed up to normal operating temperature, turn the engine off, wait a few minutes, and then **adjust the engine oil level up the “F” mark as shown.**
- d) Check for additional TSB to update the Engine ECM if new software is available.
- e) When all fluids have been fully filled and all work quality checks are completed:
  - o Set the customer’s audio station presets.
  - o Relearn the Steering Angle Sensor using the GDS.
  - o **Clear any DTC’s (if present) with engine ON.**
    - o Certain DTC’s may reset if it’s not cleared with the engine running.
    - o Perform the appropriate diagnostic service for any DTC’s.
    - o Ensure no warning lights are present.
  - o **Reset the engine adaptive values** using the GDS.
  - o Perform a short road test to confirm normal vehicle drivability.

**NOTICE**

- **Clear any DTC’s (if present) with engine ON. Certain DTC’s may reset if not cleared with the engine running.**
- **Reset engine adaptive values.**