



**Hyundai**  
Assurance Car Care



# Service Campaign T6G DTC P1326 - ENGINE BEARING INSPECTION / ENGINE REPLACEMENT- Dealer Best Practice (TSB 22-01-023H-1)

April 28, 2022

| Updates to this Document                                                                                                                                       | Date       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <ul style="list-style-type: none"> <li>TSB 22-01-023H-1: Adding 2019-21MY Tucson (TL) &amp; 2020MY Elantra GT (PD) to 'Applicable Vehicles' section</li> </ul> | 04/28/2022 |

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## Campaign Overview

### Description

Certain vehicles that have completed Service Campaign 966 may experience the Check Engine warning lamp illuminated with DTC P1326 and/or an engine concern/noise related to connecting rod bearing wear or damage. Follow the procedure to inspect the vehicle and replace the engine and/or update the engine ECU software (if new ROM is available) based on the inspection results.

### Applicable Vehicles:

- Certain 2010-2012 MY Santa Fe (CM) vehicles with Theta II 2.4L MPI engines
- Certain 2010-2013 MY Tucson (LM) vehicles with Theta II 2.4L MPI engines
- Certain 2014-2015 MY Tucson (LM) vehicles with Nu 2.0L GDI engines
- Certain 2016-2021 MY Tucson (TL) vehicles with Nu 2.0L GDI engines
- Certain 2012-2017 MY Veloster (FS) vehicles with Gamma 1.6L GDI engines
- Certain 2011-2015 MY Sonata Hybrid (YF HEV) vehicles with Theta II 2.4L MPI Atkinson engines
- Certain 2016-2019 MY Sonata Hybrid/Plug-In (LF HEV/PHEV) vehicles with Nu 2.0L GDI engines
- Certain 2014MY Elantra Coupe (JK) vehicles with Nu 2.0L GDI engines
- Certain 2014-2016 MY Elantra (MD) vehicles with Nu 2.0L GDI engines
- Certain 2014-2017 MY Elantra GT (GD) vehicles with Nu 2.0L GDI engines
- Certain 2018-2020 MY Elantra GT (PD) vehicles with Nu 2.0L GDI engines

Hyundai is initiating this action to ensure the quality of its vehicles and the continued satisfaction of Hyundai customers.

### PLEASE NOTE:

- If a customer alleges to have experienced a fire related concern with their vehicle, please have them contact Consumer Affairs at 1-800-633-5151.
- If during the engine diagnosis, there is evidence of a fire or other components are in need of replacement due to fire, please disclose all affected parts to Warranty Prior Approval (PA) as part of the engine PA review process.

## Readiness Checklist

The following items should be completed prior to performing TSB work:

#### Training:

- Training requirements recommended for Level of Technician Certification and/or Completed Coursework to perform TSB work:
  - Minimum Certified Level Certification
  - Successful completion of the Engine Technology - Classroom (#SVCET28\_208) or the Engine Tech vILT Final Exam - Web (#SVCDENGVILTEXTW20\_865) Course
- Ensure the entire team completes the "Engine Support" training course on HLP.

#### Special Service Tools:

- Ensure your dealer has all necessary Special Service Tools to perform campaign (see TSB # 22-01-



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023H-1 or latest version).

#### Shop Requirements:

- Ensure your dealer's shop is configured properly to use SST bearing clearance tester.
- Confirm the following pressures meet requirements. The correct ranges for VC/AP air pressures are also indicated with red/blue decals on the gauges:
- Shop air supply: 0.36MPa (50psi) minimum
  - AP: 0.1 ~ 0.11 MPa
  - VC: -73 ~ -83Kpa
- Bearing Tool SST Power Check
  - Supply 12 volts (or an alternate external AC/DC 13.8 volt power supply with at least ~2 amp output) to the power cable connected to the bearing tool SST.

## Warranty Information

#### Warranty Extension

The warranty for engine connecting rod bearing wear or damage on the affected vehicles has been extended under Warranty Extension TXXM TSB 22-EM-006H-1 (or latest revision). Please refer to TXXM for specific terms and criteria.

#### Before Proceeding with T6G

Make sure to confirm diagnosis meets warranty eligibility requirements before proceeding with any repairs. If a vehicle is brought in for an engine condition unrelated to T6G (e.g. oil consumption), please follow the proper engine diagnosis procedures, and refer to standard warranty policies and procedures.

#### Prior Approval (PA)

If during the engine diagnosis or repair process, there is evidence of a fire or other components are in need of replacement due to fire, please disclose all affected parts to PA as part of the engine PA review process and await further direction prior to proceeding with repairs.

**PA Approval is required for any engine replacement.**

**Use STUI on the GDS to take and submit pictures and videos as required while following the steps outlined in the T6G TSB. The following documentation will be required as outlined in the T6G TSB:**



### Prior Approval Submission Documentation:

- ❖ Refer to chart below for items needed for submissions based on condition.

|                                        | No Oil On Dipstick<br>w/ Drained Engine<br><b>Oil Measured<br/>Less Than<br/>1.5 Quarts</b> | <b>External Damage<br/>or Cannot Rotate<br/>Crankshaft<br/>@94lb-ft</b> | Bearing<br>Clearance Test<br>(BCT)<br><b>"No Pass"</b> | Bearing<br>Clearance Test<br><b>"Pass"</b> with<br>Engine Knocking<br>Concern | Bearing<br>Clearance Test<br><b>"No BCT"</b> Result<br>w/ Additional<br>Steps |
|----------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Repair Order                           | ✓                                                                                           | ✓                                                                       | ✓                                                      | ✓                                                                             | ✓                                                                             |
| Engine Diagnosis<br>Worksheet          | ✓                                                                                           | ✓                                                                       | ✓                                                      | ✓                                                                             | ✓                                                                             |
| Towing Invoice                         | <i>If Applicable</i>                                                                        | <i>If Available</i>                                                     | <i>If Available</i>                                    | <i>If Applicable</i>                                                          | <i>If Applicable</i>                                                          |
| GDS DTC Freeze<br>Frame Screen Print   | ✓                                                                                           | ✓                                                                       | ✓                                                      | ✓                                                                             | ✓                                                                             |
| One Bearing Test<br>Result Uploaded    | N/A                                                                                         | N/A                                                                     | ✓                                                      | ✓                                                                             | ✓                                                                             |
| BCT Calibration<br>Photo               | N/A                                                                                         | N/A                                                                     | ✓                                                      | ✓                                                                             | ✓                                                                             |
| Photo of Oil Dipstick                  | ✓                                                                                           | ✓                                                                       | ✓                                                      | ✓                                                                             | ✓                                                                             |
| Photo of Oil Cap                       | ✓                                                                                           | ✓                                                                       | ✓                                                      | ✓                                                                             | ✓                                                                             |
| Photo of Oil Fill Hole                 | ✓                                                                                           | ✓                                                                       | ✓                                                      | ✓                                                                             | ✓                                                                             |
| Photo of Oil Drain<br>Measurement      | ✓                                                                                           | <i>If No External<br/>Damage and No<br/>Oil On Dipstick</i>             | <i>If No Oil On<br/>Dipstick</i>                       | <i>If No Oil On<br/>Dipstick</i>                                              | <i>If No Oil On<br/>Dipstick</i>                                              |
| Crank Rotation Video                   | N/A                                                                                         | <i>If Crankshaft<br/>Cannot Rotate</i>                                  | N/A                                                    | N/A                                                                           | N/A                                                                           |
| Engine Noise Video                     | N/A                                                                                         | N/A                                                                     | N/A                                                    | ✓                                                                             | N/A                                                                           |
| Photo of Cylinder<br>Block Damage      | N/A                                                                                         | <i>If Applicable</i>                                                    | N/A                                                    | N/A                                                                           | N/A                                                                           |
| "No BCT" Error Code                    | N/A                                                                                         | N/A                                                                     | N/A                                                    | N/A                                                                           | ✓                                                                             |
| STUI Video of<br>Skipped Cylinder Test | N/A                                                                                         | N/A                                                                     | N/A                                                    | N/A                                                                           | Per "No BCT"<br>Result → <b>AP/VC</b><br>or <b>Compression</b><br>measurement |
| Copy of Maintenance<br>Records         | <i>If Requested by<br/>PA</i>                                                               | <i>If Requested by<br/>PA</i>                                           | <i>If Requested by<br/>PA</i>                          | <i>If Requested by<br/>PA</i>                                                 | <i>If Requested by<br/>PA</i>                                                 |
| Photo of Valvetrain                    | <i>If Requested by<br/>PA</i>                                                               | <i>If Requested by<br/>PA</i>                                           | <i>If Requested by<br/>PA</i>                          | <i>If Requested by<br/>PA</i>                                                 | <i>If Requested by<br/>PA</i>                                                 |
| Photo of Accident<br>Damage            | <i>If Applicable</i>                                                                        | <i>If Applicable</i>                                                    | <i>If Applicable</i>                                   | <i>If Applicable</i>                                                          | <i>If Applicable</i>                                                          |

### Proper Photos / Videos:

- ❖ VIN in view when photo is taken of the item in question. (**Windshield or doorjamb VIN Plate**)
  - **Exception:** For oil Measurement photo, a Repair Order in photo will suffice.
- ❖ Photo taken with clear focus, showing the item being presented.
- ❖ BCT Connection Calibration Test - show connections and gauges clearly (up to two photos)
- ❖ Crank Rotation Video, Engine Noise Video, Skipped Cylinder AP/VC checking, or Skipped



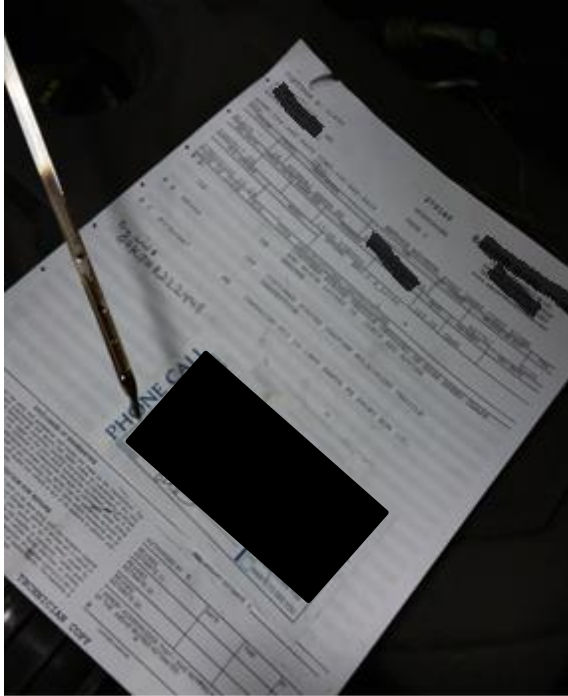
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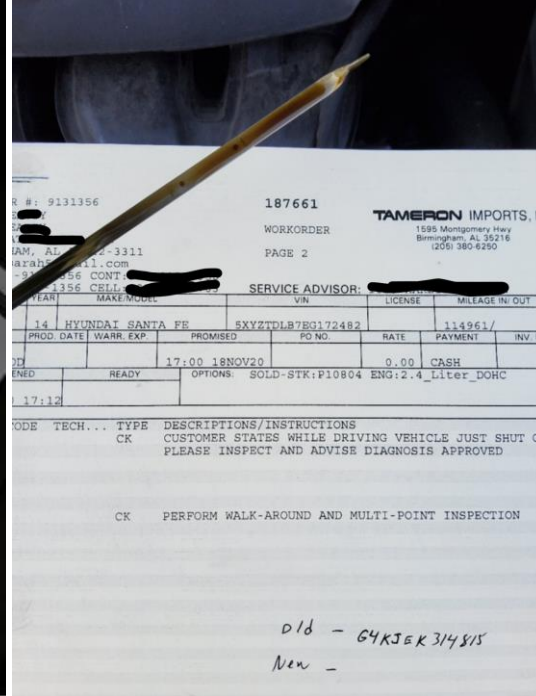
## PA Submission Examples

The following are good and bad examples of pictures and video PA documentation submissions.

### Good Dipstick Photo (see below)



Example 1

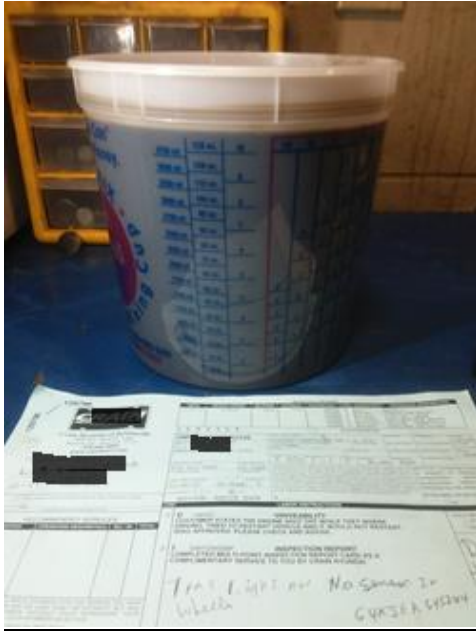


Example 2

### Bad Dipstick Photo (see below)



**Good Oil Drain Photo (see below)**



**Bad Oil Drain Photo (see below)**



### Example 1



### Example 2



### Example 3

**Good Oil Cap and Valvetrain Photos (see below)**

Oil filler cap: Clear view of cap underside



Oil filler opening: Clear view inside opening.



When submitting a picture of the oil cap, please include it with a picture of the repair order showing the last 6 digits of the VIN as seen below

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              |                                                                                                                                                            |  |                                                           |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------|-----------------------|
| <b>HYUNDAI MOTOR AMERICA</b><br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |              | SERVICE DEPARTMENT HOURS<br>7:30 a.m. to 6:00 p.m.<br>Monday - Friday<br>8:00 a.m. to 4:00 p.m. Saturday                                                   |  | R/O Open Date<br>11/05/20                                 | R/O Number<br>27877/1 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              |                                                                                                                                                            |  | R/O Close Date<br>11/06/20                                | Status<br>Reprint     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              |                                                                                                                                                            |  | Mileage In<br>1879                                        | Mileage Out<br>1880   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              |                                                                                                                                                            |  | Service Advisor / Tag #                                   |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              | Work Phone<br>Home Phone<br>657-265-3316                                                                                                                   |  | Vehicle Identification Number<br><b>KMHSA123456789871</b> |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              | Body<br>GRAY                                                                                                                                               |  | License Number                                            |                       |
| Year                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Make    | Model        |                                                                                                                                                            |  |                                                           |                       |
| 2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | HYUNDAI | SANTA FE HEV |                                                                                                                                                            |  |                                                           |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              | AMOUNT                                                                                                                                                     |  |                                                           |                       |
| Customer Concern:<br>#1 - Check Engine Light is on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |         |              |                                                                                                                                                            |  |                                                           |                       |
| Oil filler cap: Clear view of cap underside                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |              | Oil filler opening: Clear view inside opening.                                                                                                             |  |                                                           |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |              |                                                                                                                                                            |  |                                                           |                       |
| TERMS: STRICTLY CASH UNLESS ARRANGEMENTS ARE MADE. I hereby authorize the repair work hereinafter to be done along with the necessary material and agree that you are not responsible for loss or damage to vehicle or articles left in the vehicle in case of fire, theft, or any other cause beyond your control or for any delays caused by unavailability of parts or delays in parts shipments by the supplier or transporter. I hereby grant you or your employees permission to operate the vehicle herein described on streets, highways, or elsewhere for the purpose of testing and/or inspection. An express merchant's lien is hereby acknowledged on above vehicle to secure the amount of repairs hereinto. |         |              | LABOR<br>PARTS<br>DEDUCTIBLE<br>SUBLET<br>SHOP SUPPLIES<br>HAZARDOUS MATERIALS<br>SALES TAX OR TAX I.D.<br>SPECIAL ORDER DEPOSIT<br>DISCOUNTS<br>TOTAL DUE |  |                                                           |                       |
| DISCLAIMER OF WARRANTIES: Any warranties on the products sold hereby are those made by the manufacturer. The seller hereby expressly disclaims all warranties, either express or implied, including any implied warranty of merchantability or fitness for a particular purpose, and the seller neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of said products. Any limitations on this disclaimer does not apply where prohibited by law.                                                                                                                                                                                                                   |         |              | NO RETURN ON ELECTRICAL OR SAFETY ITEMS OR SPECIAL ORDERS.                                                                                                 |  |                                                           |                       |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |              |                                                                                                                                                            |  |                                                           |                       |

Make sure the last 6 digits of the VIN are visible in your submission photo

**Video Examples (click on link to watch)**

[Good Seized Engine Video 1](#)

[Good Seized Engine video 2](#)

[Bad Seized Engine Video 1](#)



## Warranty Claim Submission

- Claim Submission Training Video/QR code - <https://vimeo.com/678326494/1851c34869>
- Refer to TSB # 22-01-024H-1 (or latest revision) for Campaign T6G OP Codes
  - Note: OP Codes for engine replacement must only be used if engine replacement is deemed necessary by the service procedure in the T6G TSB, 22-01-023H-1 or latest revision.

## New Updates

- **2 claims** may be submitted for this campaign:
  - 1 for the inspection portion
  - 1 for engine replacement/knock sensor portion as needed
  - An Op Code TSB with tables will be available to help determine which Op Codes should be used (see examples below)
    - One table for inspection portion will be provided for ALL models (sample below)
    - Multiple tables with op codes for engine replacement/knock sensor replacement will be provided based upon model, model years, drive train, SCC (smart cruise control) and non-SCC criteria (sample below)
    - There may be special exception cases for certain models. Refer to page 2, #3 of TSB 22-01-024H-1 or latest revision for more details.

**Inspection OP Code Table**

| MY/MODEL/ENGINE | DESCRIPTION                                                                                                      | OP CODE  | OP TIME |
|-----------------|------------------------------------------------------------------------------------------------------------------|----------|---------|
| ALL MODELS      | EXTERNAL DAMAGE (NO) + OIL DIPSTICK (NO) + OIL DRAIN ≥ 1.5QT (NO) + SUBMIT PA                                    |          |         |
|                 | <b>OR</b>                                                                                                        |          |         |
|                 | EXTERNAL DAMAGE (YES) + SUBMIT PA                                                                                | 10D02210 | 0.3     |
|                 | (SEIZED): EXTERNAL DAMAGE (NO) + OIL DIPSTICK (NO) + OIL DRAIN ≥ 1.5QT (YES) + CRANK ROTATION (NO) + SUBMIT PA   | 10D02211 | 0.5     |
|                 | EXTERNAL DAMAGE (NO) + OIL DIPSTICK (NO) + OIL DRAIN ≥ 1.5QT (YES) + CRANK ROTATION (YES) + BCT RESULT (NO PASS) | 10D02212 | 1.4     |
|                 | EXTERNAL DAMAGE (NO) + OIL DIPSTICK (NO) + OIL DRAIN ≥ 1.5QT (YES) + CRANK ROTATION (YES) + BCT RESULT (PASS)    | 10D02213 | 1.1     |
|                 | EXTERNAL DAMAGE (NO) + OIL DIPSTICK (NO) + OIL DRAIN ≥ 1.5QT (YES) + CRANK ROTATION (YES) + BCT RESULT (NO BCT)  | 10D02214 | 1.7     |
|                 | EXTERNAL DAMAGE (NO) + OIL DIPSTICK (YES) + CRANK ROTATION (YES) + BCT RESULT (NO PASS)                          | 10D02215 | 1.1     |
|                 | EXTERNAL DAMAGE (NO) + OIL DIPSTICK (YES) + CRANK ROTATION (YES) + BCT RESULT (PASS)                             | 10D02216 | 0.8     |
|                 | EXTERNAL DAMAGE (NO) + OIL DIPSTICK (YES) + CRANK ROTATION (YES) + BCT RESULT (NO BCT)                           | 10D02217 | 1.4     |
|                 | (SEIZED): EXTERNAL DAMAGE (NO) + OIL DIPSTICK (YES) + CRANK ROTATION (NO) + SUBMIT PA                            | 10D02218 | 0.2     |

## Replacement Op Code Tables

### 1) 2010-12MY Santa Fe (CM) 2.4L, FWD

| DESCRIPTION                                                                                                                         | OP CODE  | TIME | ENGINE        | SVC KIT 1     | KNOCK SENSOR |
|-------------------------------------------------------------------------------------------------------------------------------------|----------|------|---------------|---------------|--------------|
| REPLACE ENGINE (OE) + NEW ECM S/W AVAILABLE (NO)                                                                                    | 10D223AA | 4.8  | 211012G404FFF | 211112G4S2FFF | N/A          |
| REPLACE ENGINE (OE) + NEW ECM S/W AVAILABLE (YES) + ECM UPDATE (YES)*                                                               | 10D223AB | 4.7  | 211012G404FFF | 211112G4S2FFF | N/A          |
| ABNORMAL ENGINE NOISE (NO) + REPLACE KNOCK SENSOR + ECM UPDATE (NO)                                                                 | 10D223AE | 0.6  | N/A           | N/A           | 392502G100   |
| ABNORMAL ENGINE NOISE (YES) + REFER TO HTSS (YES)/SUBMIT PA + ECM UPDATE (NO)                                                       | 10D223AF | 0.6  | N/A           | N/A           | N/A          |
| ABNORMAL ENGINE NOISE (YES) + REFER TO HTSS (YES)/SUBMIT PA + ECM UPDATE (YES)*                                                     | 10D223AG | 0.5  | N/A           | N/A           | N/A          |
| ABNORMAL ENGINE NOISE (YES) + REFER TO HTSS (YES)/SUBMIT PA + REPLACE ENGINE (OE) + NEW ECM S/W AVAILABLE (NO)                      | 10D223AH | 5.4  | 211012G404FFF | 211112G4S2FFF | N/A          |
| ABNORMAL ENGINE NOISE (YES) + REFER TO HTSS (YES)/SUBMIT PA + REPLACE ENGINE (OE) + NEW ECM S/W AVAILABLE (YES) + ECM UPDATE (YES)* | 10D223AI | 5.3  | 211012G404FFF | 211112G4S2FFF | N/A          |
| CRANK ROTATION (NO) + SUBMIT PA + REPLACE ENGINE (OE) + NEW ECM S/W AVAILABLE (NO) (SEIZED)                                         | 10D223AL | 6.0  | 211012G404FFF | 211112G4S2FFF | N/A          |
| CRANK ROTATION (NO) + SUBMIT PA + REPLACE ENGINE (OE) + NEW ECM S/W AVAILABLE (YES) + ECM UPDATE (YES)* (SEIZED)                    | 10D223AM | 5.9  | 211012G404FFF | 211112G4S2FFF | N/A          |

\*Please submit an additional campaign claim under service campaign 966 for performing software update if new software is available.



## **Special Exception Cases**

- **2019-21MY Tucson (TL) 2.0L & 2016-19MY Sonata Hybrid/Plug-in (LF HEV/PHEV) 2.0L:**
  - If replacement op code(s) are **not** listed in the table of contents below, please submit in WEBDCS under the Warranty claim screen using LTS related op codes:
  - If op code involves engine or knock sensor replacement along with additional diagnosis for engine noise and/or Referring to HTSS/Submit PA, please submit as follows:
    - **Primary labor op:** Use the applicable LTS labor for replacement
    - **Secondary labor op:** Any additional work (not including 966 software update if applicable) with 'ATT' labor op (i.e. ABNORMAL ENGINE NOISE (YES) AND/OR REFER TO HTSS (YES)/SUBMIT PA).
- **2010-12MY Santa Fe (CM) 2.4L & 2010-13MY Tucson 2.4L engines ONLY:**
  - There are specific replacement op codes for seized cases due to engine replacement from the front. These have '**Seized**' in their description.
  - An additional 1.2 M/H has been given for these specific models/model years due to additional labor needed to remove both engine **AND** transmission on seized cases.
  - All other models listed on the TSB have engine replacement from the bottom (regular pull down method).

## **What else you should know:**

- If a **part is in need of replacement** and the failure is directly caused by Campaign T6G related engine failure, or if **additional labor** is required while performing Campaign T6G:
  - Submit one compiled separate claim using the same Repair Order number AND
  - Submit with 21101NTT using the engine Causal Part number associated with the T6G OP Code AND
  - Ensure part replacement and punch times are accurate and that they match the labor performed along with the service manager's signature approving the TT time.
    - For TT time best practices, refer to Hyundaidealer.com > Service Tab > Documents Library > Warranty > ATT-NTT Documentation and Claim Submission Guide
  - Note: If the part replacement does not require additional labor, follow the above steps and use the system minimum of .1 labor time with a quantity of 1.
- If a **part is found in need of replacement** while performing this campaign and the affected part (**failure not directly caused by Campaign T6G**) is still under warranty, submit a separate claim using the same Repair Order. If the affected part(s) are out of warranty, submit a Prior Approval request for goodwill consideration prior to completing the Campaign.

## **Campaign Claim 966 Submission**

**For op codes with an asterisk (\*), please submit a separate campaign claim under 966 for software update.**

- The Campaign 966 Engine ECM update is only required if new software is available. These particular op codes are identified in the tables below with an asterisk (\*).



## Service Actions



**Reservation** – Always check the Vehicle Information Screen in WebDCS for open campaigns and recalls, and advise the customer on time requirements.

- Make sure to check your appointment reservation settings and verify customer information. This will help reduce unplanned work and speed up the customer check in process.
- Make sure to review Blue Link alerts with DTC P1326 and reach out accordingly.
- Provide customer with transportation options such as SRC or alternative vehicle.



**Readiness** – Review this announcement and the accompanying FAQs with all Service and Parts staff including Reservationist/BDC. Also, complete all applicable training, check your reservation capacity settings (you can set separate capacities for every recall/campaign), confirm email addresses for campaign appointments, and that you have all necessary tools, campaign parts and shop equipment as needed.

- **Recommended Level of Technician Certification and/or Completed Coursework to perform TSB work:**
  - **Minimum Certified Level Certification**
  - **Successful completion of the Engine Technology - Classroom (#SVCET28\_208) or the Engine Tech vILT Final Exam - Web (#SVCDENGVILTEXTW20\_865) Course**
- Make sure to have necessary Special Service Tools to perform campaign (see latest TSB for more details).
- This campaign can possibly require additional repairs after initial inspection; make sure to prepare for unplanned work and maintain sufficient staff to keep vehicles moving through the shop.



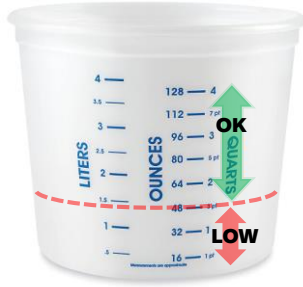
**Reception** – Always check the Vehicle Information Screen in WebDCS for open campaigns and recalls, and print a copy for technicians. Provide SRC or an alternative vehicle, as needed. If a customer has declined the campaign, note this on the repair order and request the customer's signature next to the statement.

- It is important to explain to each customer during the reception step of the service process what happens if their vehicle requires additional repairs after the inspection process.
- Make sure to advise customers of potential vehicle down time and provide alternative transportation such as an SRC or 3<sup>rd</sup> party rental.
  - All customers that come in with P1326 or "Engine Protection Mode" should be provided an SRC or alternative 3<sup>rd</sup> Party Rental. **All SRC or Rental claims will be reimbursed regardless of PA's decision to cover the engine replacement.**
- Do not charge diagnosis for vehicles that previously had campaign 966 performed and return to the dealership in "Engine Protection Mode" or with DTC P1326.



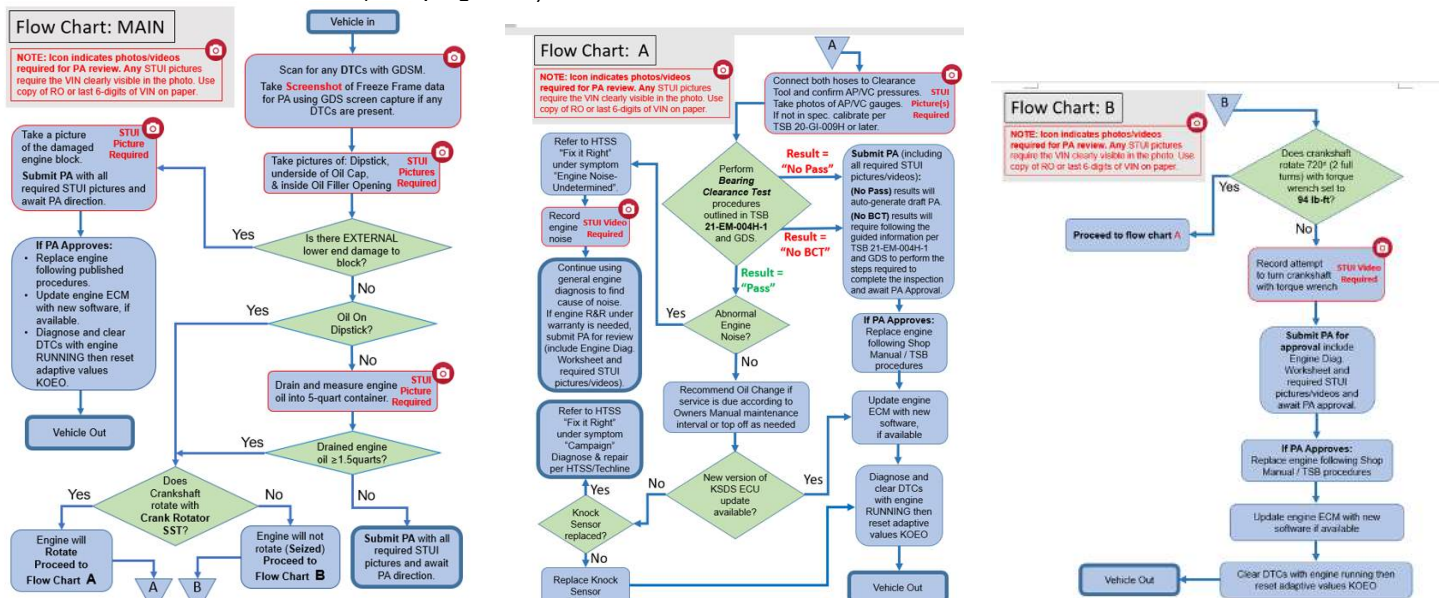
**Repair** – Always plug in the GDS before starting the repair. Make sure to complete an MPI on all vehicles and Quality Control your work.

- **Please review the TSB and service procedure flow chart thoroughly.**
- **Make sure to check through GDS that the vehicle has the latest software installed.**
- Confirm the GDS-M has the latest software update prior to plugging it in to the vehicle.
- This campaign can possibly require additional repairs. Make sure to refer to the most current TSB for all necessary steps of the repair process and the **Service Procedure Flowchart**.
- Make sure to quality control work after repair is complete and confirm condition is resolved.
- Record the audio station presets (XM, AM, FM, etc) prior to disconnecting the battery.
- Clear DTC P1326 with engine **ON**. P1326 may reset if not cleared with the Engine **ON**.
- If an engine replacement is required, PA may request dealers to perform additional steps before approving replacement. Dealers will be compensated for this additional time and such steps may include connecting the GDS to retrieve additional information from the vehicle.
- Use the **Service Process Results Worksheet** (reference latest repair TSB) as a guide to help diagnose the vehicle. This should be used as a tool to assist.



|                                                          |                                                                               |    |    |                                              |    |  |
|----------------------------------------------------------|-------------------------------------------------------------------------------|----|----|----------------------------------------------|----|--|
| 6-Digit VIN:                                             | Repair Order #:                                                               |    |    |                                              |    |  |
| Options / Tests / Procedures                             | (Circle ALL Vehicle Options / Test Results / Performed Procedures That Apply) |    |    |                                              |    |  |
| Vehicle Model Year                                       | 10                                                                            | 11 | 12 | 13                                           | 14 |  |
|                                                          | 15                                                                            | 16 | 17 | 18                                           | 19 |  |
| Vehicle Model Type                                       |                                                                               |    |    |                                              |    |  |
| Vehicle Engine Size                                      |                                                                               |    |    |                                              |    |  |
| Smart Cruise Control (SCC)                               | Yes                                                                           |    |    | No                                           |    |  |
| All Wheel Drive (AWD)                                    | Yes                                                                           |    |    | No                                           |    |  |
| ECU already has KSDS Update and/or CEL ON w/ P1326       | Yes                                                                           |    |    | No                                           |    |  |
| External Lower End Damage To the Block                   | Yes                                                                           |    |    | No                                           |    |  |
| Oil On Dipstick                                          | Yes                                                                           |    |    | No                                           |    |  |
| No Oil Found on Dipstick: Oil Drain Procedure Required → |                                                                               |    |    | Drained Engine Oil at 1.5 Quarts (or higher) |    |  |
|                                                          |                                                                               |    |    | Yes No                                       |    |  |
| Crank Rotation (w/ 94 lb-ft. or less)                    | Yes                                                                           |    |    | No                                           |    |  |
| Bearing Clearance Test Performed                         | Yes No                                                                        |    |    |                                              |    |  |
| Bearing Clearance Test Result                            | BCT PASS BCT NO PASS NO BCT                                                   |    |    |                                              |    |  |
| Abnormal Engine Noise                                    | Yes                                                                           |    |    | No                                           |    |  |
| Knock Sensor Replaced (in this Repair Order)             | Yes                                                                           |    |    | No                                           |    |  |
| Replaced Engine (in this Repair Order)                   | Yes                                                                           |    |    | NEW REMAN No                                 |    |  |
| ECM Newly Updated* (in this Repair Order)                | Yes                                                                           |    |    | No                                           |    |  |
| *Submit separate 966 campaign claim                      |                                                                               |    |    |                                              |    |  |
| Referred to HTSS Diagnostics                             | Yes                                                                           |    |    | No                                           |    |  |

- Follow the Service Procedure Flowchart found in the latest TSB and update the Engine ECM if new version is available (Campaign 966).



- Important: If a vehicle passes the bearing inspection test, but DTC P1326 comes back on after the code is cleared, contact Techline for further assistance on diagnosing the vehicle.**

### REMINDER - PLEASE NOTE:

- If a customer alleges to have experienced a fire related concern with their vehicle, please have them contact 1-800-633-5151.
- If during the engine diagnosis, there is evidence of a fire or other components are in need of replacement due to fire, please disclose all affected parts to PA as part of the engine PA review process.



**Return** – Review all completed campaign and repairs to answer any customer questions. Also, schedule the customer's next service.

- It's important to explain to each customer during the return step of the service process that the 966 Engine Improvement Campaign is still active and they should contact the dealership if any Check Engine Light is illuminated or Engine Protection Mode is activated.
- If a vehicle passes the bearing inspection test, ask your technician to print a copy of the results and present to the customer. Also, remember to inform the customer whose vehicle passed the bearing inspection test, that the vehicle has received the latest software update to monitor the health of their vehicle.



**Reconnect** – Follow up for customer satisfaction.



**Service Process Results Worksheet:** (Print copies of the form below in this page for multiple uses.)

|                                                                 |                        |                                                                                      |                                                     |           |                      |
|-----------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------|-----------|----------------------|
| <b>6-Digit VIN:</b>                                             |                        | <b>Repair Order #:</b>                                                               |                                                     |           |                      |
| <b>Options / Tests / Procedures</b>                             |                        | <b>(Circle ALL Vehicle Options / Test Results / Performed Procedures That Apply)</b> |                                                     |           |                      |
| <b>Vehicle Model Year</b>                                       | <b>10</b>              | <b>11</b>                                                                            | <b>12</b>                                           | <b>13</b> | <b>14</b>            |
|                                                                 | <b>15</b>              | <b>16</b>                                                                            | <b>17</b>                                           | <b>18</b> | <b>19</b>            |
| <b>Vehicle Model Type</b>                                       |                        |                                                                                      |                                                     |           |                      |
| <b>Vehicle Engine Size</b>                                      |                        |                                                                                      |                                                     |           |                      |
| <b>Smart Cruise Control (SCC)</b>                               | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>All Wheel Drive (AWD)</b>                                    | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>ECU already has KSDS Update and/or CEL ON w/ P1326</b>       | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>External Lower End Damage To the Block</b>                   | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>Oil On Dipstick</b>                                          | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>No Oil Found On Dipstick: Oil Drain Procedure Required →</b> |                        |                                                                                      | <b>Drained Engine Oil at 1.5 Quarts (or higher)</b> |           |                      |
|                                                                 |                        |                                                                                      | <b>Yes</b>                                          |           | <b>No</b>            |
| <b>Crank Rotation (w/ 94 lb-ft. or less)</b>                    | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>Bearing Clearance Test Performed</b>                         | <b>Yes</b>             | <b>No</b>                                                                            |                                                     |           |                      |
| <b>Bearing Clearance Test Result</b>                            | <b>BCT <u>PASS</u></b> |                                                                                      | <b>BCT <u>NO PASS</u></b>                           |           | <b><u>NO BCT</u></b> |
| <b>Abnormal Engine Noise</b>                                    | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>Knock Sensor Replaced (in this Repair Order)</b>             | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>Replaced Engine (in this Repair Order)</b>                   | <b>Yes</b>             | <b>NEW</b>                                                                           | <b>No</b>                                           |           |                      |
|                                                                 |                        | <b>REMAN</b>                                                                         |                                                     |           |                      |
| <b>ECM Newly Updated* (in this Repair Order)</b>                | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |
| <b>*Submit separate 966 campaign claim</b>                      |                        |                                                                                      |                                                     |           |                      |
| <b>Referred to HTSS Diagnostics</b>                             | <b>Yes</b>             |                                                                                      | <b>No</b>                                           |           |                      |



## Special Service Tools (SST)

**Review the Special Service Tools required starting on page 2 of TSB 22-01-023H-1 (or latest version).**

- ☐ Engine Bearing Clearance Tester set (bearing tool)



- **Note:** the bearing tool must be accurately calibrated prior to performing the engine inspection procedure outlined in the T6G TSB. Refer to TSB 21-GI-009H (or latest revision) for the calibration procedure as needed.
- For Bearing Clearance Tester **software** related issues, contact GIT 1-888-437-0308
- For Bearing Clearance Tester **hardware** related issues, refer to HTSS: "Fix it Right" Under Symptom "SST – Other"
- **Bearing tool warranty:**
  - 12 month warranty (does not include damage or abuse)
  - If defective:
    1. Utilize published resources to determine part needed
    2. Order applicable part listed in the T6G TSB
    3. Submit the warranty claim in Sublet as follows:
      - Use the related T6G VIN (or recent T6G VIN) in the claim
      - Use the bearing tester tool replacement part as the Causal Part
      - Use the first 5 digits of the part plus "AZZ" as the Labor Op
      - Use X1 Sublet Code
      - Attach parts invoice
      - Claim will be paid at dealer cost, no part markup and no labor
    4. Follow standard Warranty Procedure for parts retention
    5. Return the replaced/defective part to the Warranty Technical Center (WTC) by following the WTC part callback request instructions
    6. Please note: If the part failure is determined to be caused by damage or abuse, the warranty claim is subject to chargeback
- ☐ Torque Wrench Socket
- ☐ Injector Combustion Seal Ring Installer (Only needed if engine replacement is required. Refer to TSB# 19-FL-001H for detailed usage instructions)
- ☐ 5 quart container





### Individual Components of Engine Bearing Set

Please refer to TSB # 21-EM-004H-1 (or latest revision) – Bearing Clearance Test Service Procedure for Bearing Clearance Test SST components.

| TOOL NAME                                       | PART NUMBER                                            | FIGURE |
|-------------------------------------------------|--------------------------------------------------------|--------|
| Engine Bearing Clearance Tester (Main Body)     | KQ231-2T100QQH                                         |        |
| Spark Plug Rod (Connection for Clearance Gauge) | KQ231-2T101QQH (M12 type)<br>KQ231-2T107QQH (M14 type) |        |
| Crankshaft Rotator Tool                         | KQ231-2T102QQH                                         |        |
| Clearance Gauge                                 | KQ231-2T103QQH                                         |        |
| Power Supply Cable                              | KQ231-2T104QQH                                         |        |
| Test Hose (Air Hose for Clearance Gauge)        | KQ231-2T105QQH                                         |        |

**NOTE:** Normal Warranty Applies.

### Optional Tool:

| Part Name                                                                                       | Part Number / Figure  | Note                                                                                                         |
|-------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------|
| 17 mm 12-Point Metric Flank Drive® Reversible Ratcheting Box/ Speed Open-End Combination Wrench | (Snap-on) SRXRM17<br> | For unfastening torque converter bolts to separate engine/trans between bellhousing if engine cannot rotate. |

## Parts

Refer to TSB #22-01-023H-1 (or latest version) for the parts required based on the vehicle inspection results.

**NOTE:** Use the Service Process Results Worksheet in the following page as a guide to determine the appropriate Part Number(s).

1. Order the required parts based on the vehicle inspection results outlined in the Service Procedure Flowchart. (Use the Service Process Results Worksheet found on page 4 of the latest TSB as a guide to determine the appropriate part numbers.)

2. Refer to TSB #22-01-024H-1 (or latest version) for parts information.

3. Consult the Hyundai Warranty Policy & Procedure to determine OE or Reman Engine usage. Please note there may not be a Reman or OE engine available in some cases.

- In some cases, a Reman engine may not be available for certain vehicle models/model years listed in the TSB. Thus, an OE part would be used by default.
- In some cases, a new 'OE' engine may not be available. Therefore, HMA Warranty Policy special exception applies for PA approved engine replacements in vehicles under 5 years and 60,000 miles. The FFHRM remanufactured engines P/Ns meet OE standards.



## Key Contact Information

| Key Contact Information                                    |                                                                                                                                                                                                                                                                                                                                                                                               |                                                                              |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Dealer Support                                             | Contact Information                                                                                                                                                                                                                                                                                                                                                                           | Description                                                                  |
| Parts                                                      | HyundaiPartsHotline@MobisUSA.com<br>1-800-545-4515                                                                                                                                                                                                                                                                                                                                            | Parts ordering hotline                                                       |
| Techline                                                   | 1-800-325-6604                                                                                                                                                                                                                                                                                                                                                                                | Vehicle Technical Support for Hyundai Dealer Technicians                     |
| Warranty HELPREP Line                                      | 1-877-446-2922                                                                                                                                                                                                                                                                                                                                                                                | Warranty Claim questions for Hyundai Dealers                                 |
| Warranty Prior Approval (PA) Center                        | PA@hmausa.com                                                                                                                                                                                                                                                                                                                                                                                 | Warranty Prior Approval (PA) Center for Hyundai Dealers                      |
| Xtime Technical Support                                    | Support@xtime.com<br>1-866-984-6355                                                                                                                                                                                                                                                                                                                                                           | Assistance with Car Care Scheduling:                                         |
| AutoLoop Technical Support                                 | <a href="mailto:Support@autoloop.com">Support@autoloop.com</a><br>1-877-850-2010                                                                                                                                                                                                                                                                                                              | Assistance with Car Care Scheduling:                                         |
| CDK Technical Support                                      | <a href="https://serviceconnect.support.cdk.com/">https://serviceconnect.support.cdk.com/</a>                                                                                                                                                                                                                                                                                                 | Assistance with Car Care Scheduling:                                         |
| Customer Support                                           | Contact Information                                                                                                                                                                                                                                                                                                                                                                           | Description                                                                  |
| Hyundai Customer Care Center (Recall / Campaign Questions) | 1-855-671-3059                                                                                                                                                                                                                                                                                                                                                                                | Customer questions or concerns related to <u>recall or service campaigns</u> |
| Hyundai Recall / Campaign Website                          | <a href="http://www.hyundaiusa.com/recall">www.hyundaiusa.com/recall</a>                                                                                                                                                                                                                                                                                                                      | Updated information related to the specific recall or service campaign       |
| Hyundai Customer Care Center (General Questions)           | 1-800-633-5151                                                                                                                                                                                                                                                                                                                                                                                | Customers general questions, <u>non-campaign related</u>                     |
| Hyundai Roadside Assistance                                | 1-800-243-7766                                                                                                                                                                                                                                                                                                                                                                                | Hyundai Roadside Assistance                                                  |
| Key Reference Information                                  |                                                                                                                                                                                                                                                                                                                                                                                               |                                                                              |
| Name                                                       | Source                                                                                                                                                                                                                                                                                                                                                                                        |                                                                              |
| Campaign Central                                           | Consolidated repository of recall and service campaign dealer best practices. Located on the service tab homepage in <a href="http://www.HyundaiDealer.com">www.HyundaiDealer.com</a>                                                                                                                                                                                                         |                                                                              |
| Parts – Campaign Parts Management (CPM) Procedure          | As applicable; <a href="http://www.HyundaiDealer.com">www.HyundaiDealer.com</a> > Parts > Documents Library > Campaign Parts Management                                                                                                                                                                                                                                                       |                                                                              |
| Service Rental Car (SRC) Program                           | <b>SRC Documentation:</b> <a href="http://www.HyundaiDealer.com">www.HyundaiDealer.com</a> > Service tab > Documents Library > Service Rental Car<br><b>TSD:</b> <a href="http://www.HyundaiDealer.com">www.HyundaiDealer.com</a> > Service tab > SRC Fleet Mgmt Software<br><b>Insurance:</b> <a href="http://www.HyundaiDealer.com">www.HyundaiDealer.com</a> > Service tab > SRC Insurance |                                                                              |
| Technical Service Bulletin (TSB)                           | <a href="http://www.HyundaiDealer.com">www.HyundaiDealer.com</a> > Service tab > Hyundai Tech Info                                                                                                                                                                                                                                                                                            |                                                                              |
| Uncompleted Campaign VIN Listing                           | A listing of vehicles is located on WEBDCS> SERVICE tab> select UNCOMPLETED CAMPAIGN VIN LISTING<br>– Dealer Stock (New, SRC, CPO, etc.) and Retailed.                                                                                                                                                                                                                                        |                                                                              |
| Recall Campaign Website                                    | <a href="http://www.hyundaiusa.com/recall">www.hyundaiusa.com/recall</a>                                                                                                                                                                                                                                                                                                                      |                                                                              |
| NHTSA Website                                              | <a href="http://www.safercar.gov">www.safercar.gov</a>                                                                                                                                                                                                                                                                                                                                        |                                                                              |