

Service Campaign T3G & Warranty Extensions TXXC/TXXI - ENGINE BEARING INSPECTION / ENGINE REPLACEMENT- Dealer Best Practice

Revised publication April 15, 2022

Highlights

- A Warranty Prior Approval (PA) must be submitted on all applicable vehicles that exhibit the conditions outlined within
 this best practice document. PA will provide detailed confirmation of engine approval or denial based on all available
 case details and applicability of any related terms.
- The T3G Service Procedure TSB (# 22-01-033H or latest) Flowchart has been revised to remove KSDS prerequisite (Service Campaign 953) and includes conditions of Check Engine warning lamp illuminated with DTC P1326 and/or abnormal noise or no crank/no start condition related to connecting rod bearing wear or damage.
- Warranty Extension TXXC has been revised to include all models outlined in this Best Practice.
- Warranty Extension TXXI includes all models outlined in this Best Practice with exception of 2019MY Veloster N and clarifies PA submittal requirements.

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Overview

Description:

Certain vehicles with 2.0L T-GDI and 2.4L GDI engines may experience the Check Engine warning lamp illuminated with DTC P1326 and/or engine may exhibit abnormal noise or no crank/no start condition related to connecting rod bearing wear or damage. This Dealer Best Practice outlines the service procedure to inspect the vehicle and replace the engine or update the engine ECU software based on the inspection results, as well as related warranty coverage for the conditions outlined above.

Applicable Vehicles:

- Certain 2011-2014 MY Sonata (YF) Theta II vehicles with 2.0L Turbo and 2.4L GDI engines
- Certain 2015-2019 MY Sonata (LF) Theta II vehicles with 2.0L Turbo and 2.4L GDI engines
- Certain 2013-2018 MY Santa Fe Sport Theta II (AN) vehicles with 2.0L Turbo and 2.4L GDI engines
- Certain 2019 MY Santa Fe (TM) Theta II vehicles with 2.0L Turbo and 2.4L GDI engines
- Certain 2014-2015 MY Tucson (LM) Theta II vehicles with 2.4L GDI engines
- Certain 2018-2019 MY Tucson (TL) Theta II vehicles with 2.4L GDI engines
- Certain 2019 MY Veloster N (JSN) Theta II vehicles with 2.0L Turbo GDI engines

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.

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 (#SVCDENGVILTEXITW20_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 # 22-01-033H or latest revision).

Shop Requirements:

- o 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



- o 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 coverage for engine long block repair or replacement regarding engine damage or malfunction from connecting rod bearing wear has been extended under Warranty Extensions TXXC & TXXI. Certain conditions may apply to each; However, a Warranty Prior Approval (PA) must be submitted on all applicable vehicles that exhibit the conditions outlined within this best practice document.

NOTICE

A Warranty Prior Approval (PA) must be submitted on all applicable vehicles that exhibit the conditions outlined within this best practice document. PA will provide detailed confirmation of engine approval or denial based on all available case details and applicability of any related terms.

- Warranty Extension TXXC (TSB 22-EM-002H-1 or latest revision): 10 years or 120,000 miles
 - Includes all applicable models outlined in this Dealer Best Practice
- Warranty Extension TXXI (TSB 22-EM-001H-1 or latest revision): Limited Lifetime
 - Includes all applicable models outlined in this Dealer Best Practice except does <u>not</u> include 2019 MY Veloster N (JSN) Theta II vehicles





Before Proceeding with T3G, TXXC or TXXI:

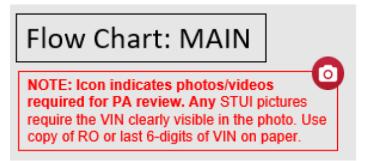
Make sure to confirm diagnosis meets warranty eligibility requirements relating to the conditions outlined within this document. If a vehicle is brought in for an engine condition unrelated to T3G (e.g. oil consumption), please follow the proper engine diagnosis procedures, and refer to standard warranty policies and procedures.

Prior Approval (PA):

A Warranty Prior Approval (PA) must be submitted on all applicable vehicles that exhibit the conditions outlined within this best practice document. PA will provide detailed confirmation of engine approval or denial based on all available case details and applicability of any related terms.

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.

Use STUI on the GDS to take and submit pictures and videos as required while following the steps outlined in the T3G TSB. A camera icon within the TSB flowchart indicates photos/videos are required for PA review.



Prior Approval Submission Documentation:

Refer to chart on next page for items needed for submissions based on condition.



Prior Approval Submission Documentation

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

Proper Photos / Videos:

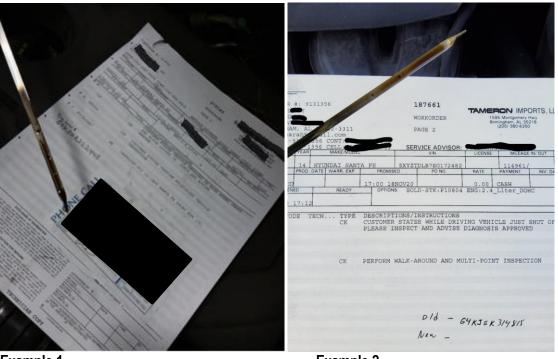
- ❖ VIN in view when photo is taken of the item in question. (Windshield or doorjamb VIN Plate)
 - o **Exception:** For oil Measurement photo, a Repair Order in photo will suffice.
- Photo taken with clear focus, showing the item being presented.
- * BCT Connection Calibration Test show connections and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



PA Submission Examples

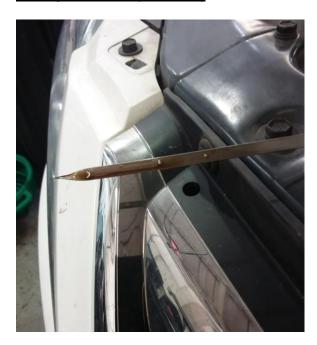
The following are good and bad examples of pictures and video PA documentation submissions.

Good Dipstick Photo (see below)



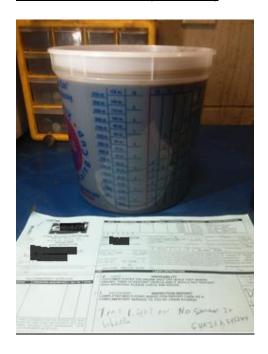
Example 1 Example 2

Bad Dipstick Photo (see below)





Good Oil Drain Photo (see below)



Bad Oil Drain Photo (see below)





Good Oil Cap and Valvetrain Photos (see below)



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



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/642066125/1aec30b26a



Note: OP Codes for engine replacement must only be used if engine replacement is deemed necessary by the service procedure in the T3G TSB, 22-01-033H or latest revision.

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 are available to help determine which Op Codes should be used
 - Look for the vehicle's model year, model, drive train (if applicable), and Smart Cruise Control (SCC) (if applicable)
 - Model year will determine submission on Campaign or Warranty screen in WEBDCS
 - Refer to TSB 22-01-034H for additional details on claim submission.

What else you should know:

- If a **part is in need of replacement** and the failure is directly caused by Campaign T3G related engine failure, or if **additional labor** is required while performing Campaign T3G:
 - Submit one compiled separate claim using the same Repair Order number AND
 - Submit with 21101NTT using the engine Causal Part number associated with the T3G 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 T3G**) 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.







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 # 22-01-033H work:
 - Minimum Certified Level Certification
 - Successful completion of the Engine Technology Classroom (#SVCET28_208) or the Engine Tech vILT Final Exam - Web (#SVCDENGVILTEXITW20_865) Course
- Make sure to have necessary Special Service Tools to perform campaign (see latest TSB # 22-01-033H 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.
- Print copies of the Service Process Results Worksheet available within the T3G TSB # 22-01-033H



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.

- 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 3rd party rental.
 - All customers that come in with P1326 or "Engine Protection Mode" or those with 2.0L T-GDI and 2.4L GDI engines experiencing the Check Engine warning lamp illuminated with DTC P1326 and/or an engine concern/noise related to connecting rod bearing wear or damage. Additionally for those engines exhibiting Abnormal Noise or No Crank/No Start conditions should be provided an SRC or alternative 3rd 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 953 performed and return to the dealership in "Engine Protection Mode" or with DTC P1326.



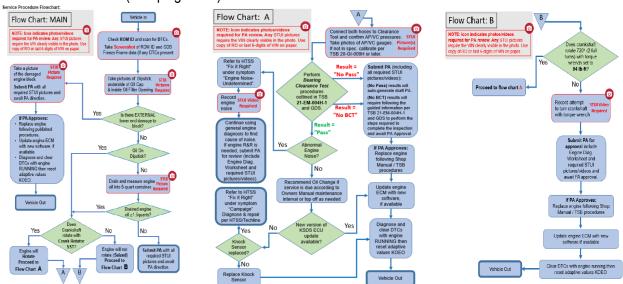
Repair – Always plug in the GDS before starting the repair. Make sure to complete an MPI on all vehicles and Quality Control your work.

- Please review the TSB # 22-01-033H 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.
- 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.
 NOTE: Not all vehicles will have a Check Engine light luminate or DTCs set.
- 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.

 Follow the Service Procedure Flowchart found in the latest TSB and update the Engine ECM if new version is available (Campaign T3G).



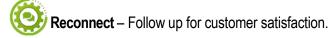
- Important: If a vehicle passes the bearing inspection test, but DTC P1326 comes back on after the code is cleared, contact Techline for further assistance on diagnosing the vehicle.
- Use the Service Process Results Worksheet (reference latest repair TSB) as a guide to help diagnose the
 vehicle. This should be used as a tool to assist.

6-Digit VIN:	Repair Or	der#	h				
Options / Tests / Procedures	(Circle A Perfe			Option cedure			
Vehicle Model Year	11	12		13	14		15
Venicie Model rear	16	17		18	19		
Vehicle Model Type	SOI	ATA		SA	SANTA FE SPORT		
venicie Model Type	TUC	SON	ı	1	VELOSTER N		
Vehicle Engine Size	2.	.4L			2.0T		
Smart Cruise Control (SCC)	Υ	es			No		
All Wheel Drive (AWD)	Y	es			No		
ECU already has KSDS Update and/or CEL ON w/ P1326	Y	es			No		
External Lower End Damage To the Block	Yes			No			
Oil On Dipstick	Yes				No		
No Oil Found On Dipstick: Oil Drain	Procedure	Requi	red -				ne Oil a highe
				Y	es		No
Crank Rotation (w/ 94 lb-ft. or less)	Y	es			No		
Bearing Clearance Test	Yes		Νo				
Performed							
Performed Bearing Clearance Test Result	вст <u>РА</u>	SS	вст	NO PA	SS	N	BCT
renomied		SS es	вст	NO PA		N(lo	BCT
Bearing Clearance Test Result	Y	_	вст	NO PA	N		DBCT
Bearing Clearance Test Result Abnormal Engine Noise Knock Sensor Replaced	Y	es es	BC1		N	lo	O BCT
Bearing Clearance Test Result Abnormal Engine Noise Knock Sensor Replaced (in this Repair Order) Replaced Engine	Yes	es es	IEW		N	lo lo	OBCT



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 953 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.





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

6-Digit VIN:	Repair O	rder#	::				
Options / Tests / Procedures				Option edure:		t Results / Apply)	
v I' I w I I v	11	12		13	14	15	
Vehicle Model Year	16	17		18	19		
Vehicle Model Type	so	NATA		SANTA FE SPORT			
venicie model Type	TU	CSON		,	VELOSTER N		
Vehicle Engine Size	7	2.4L			2.0	T	
Smart Cruise Control (SCC)	,	Yes			No		
All Wheel Drive (AWD)	,	Yes			N	o	
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	Requi	red →	1		gine Oil at or higher)	
				Y	es	No	
Crank Rotation (w/ 94 lb-ft. or less)	Yes		No				
Bearing Clearance Test Performed	Yes		No				
Bearing Clearance Test Result	вст <i>Р</i> /	ASS	ВСТ	NO PA	SS	NO BCT	
Abnormal Engine Noise	Yes		No		o		
Knock Sensor Replaced (in this Repair Order)	Yes		No		0		
Replaced Engine (in this Repair Order)	Yes NEW REMAN		No		0		
ECM Newly Updated* (in this Repair Order) *Submit separate 953 campaign claim	Yes			N	o		
Referred to HTSS Diagnostics	Yes		No				



Special Service Tools (SST)

Review the Special Service Tools required starting on page 2 of TSB 22-01-033H (or latest revision).

□ 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 T3G TSB. Refer to TSB 21-GI-009H (or latest revision) for the calibration procedure as needed.
- For Bearing Clearance Tester <u>software</u> related issues, contact GIT 1-888-437-0308
- For Bearing Clearance Tester <u>hardware</u> 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 T3G TSB
 - 3. Submit the warranty claim in Sublet as follows:
 - Use the related T3G VIN (or recent T3G 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

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□ 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	1
Spark Plug Rod (Connection for Clearance Gauge)	KQ231-2T101QQH (M12 type) KQ231-2T107QQH (M14 type)	
Crankshaft Rotator Tool	KQ231-2T102QQH	
Clearance Gauge	KQ231-2T103QQH	9
Power Supply Cable	KQ231-2T104QQH	0
Test Hose (Air Hose for Clearance Gauge)	KQ231-2T105QQH	0

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	For unfastening torque converter bolts to separate engine/trans between bellhousing if engine cannot rotate.

Parts

Refer to TSB #22-01-033H (or latest revision) 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 # 22-01-034H (or latest revision) 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.



Key Contact Information

Key Contact Information						
Dealer Support	Contact Information	Description				
Parts	HyundaiPartsHotline@MobisUSA.	Parts ordering hotline				
	com1-800-545-4515					
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	Assistance with Car Care Scheduling:				
	1-866-984-6355					
AutoLoop Technical Support	Support@autoloop.com	Assistance with Car Care Scheduling:				
	1-877-850-2010					
CDK Technical Support	https://serviceconnect.support.cdk.com/	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</u> <u>service campaigns</u>				
Hyundai Recall /Campaign Website	www.hyundaiusa.com/recall	Updated information related to the specific recall or servicecampaign				
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 Referenc Information					
Name		Source				
Campaign Central	Consolidated repository of recall and service campaign dealer best practices. Located on the service tab homepage in www.HyundaiDealer.com					
Parts – Campaign Parts Management (CPM) Procedure	As applicable; <u>www.HyundaiDealer.com</u> > Parts > Documents Library > Campaign Parts Management					
	Rental Car					
	TSD: <u>www.HyundaiDealer.com</u> > Service tab > SRC Fleet Mgmt Software					
Technical Service Bulletin (TSB)	Insurance: www.HyundaiDealer.com Service tab > SRC Insurance www.HyundaiDealer.com > Service tab > Hyundai Tech Info					
Uncompleted Campaign VIN		,				
Listing	LISTING	DCS> SERVICE tab> select UNCOMPLETED CAMPAIGN VIN				
	– Dealer Stock (New, SRC, CPO, etc.) ar	nd Retailed.				
Recall Campaign Website	www.hyundaiusa.com/recall					
NHTSA Website	www.safercar.gov					