



GROUP

MODEL

Subsequent Repair Action

2017-18MY
Forte (YD, YDm)
w/Nu 2.0L GDI

NUMBER

DATE

PI2106Y/Z

April 2022

SUBSEQUENT REPAIR ACTION

ENGINE REPLACEMENT INSTRUCTIONS
FOR DTC P1326 (PI2106Y/Z)

SUBJECT:

This bulletin provides information related to the Technical Service Bulletin previously published (PI2106) titled "Nu 2.0L GDI - Knock Sensor Detection System ECU Logic Improvement". Specifically, this bulletin provides instructions on which procedures to follow if, after installation of the KSDS, any one of the subject vehicles below return to the dealer with Diagnostic Trouble Code (DTC) P1326 (Knock Signal Range/Performance).

Model List:

MY	Model	Engine	Production Date
2017-2018	Forte (YD, YDm)	Nu 2.0L GDI	May 19, 2016 to May 7, 2018

If DTC P1326 is present, first perform the bearing clearance inspection with the Engine Bearing Clearance Tester device (SST KQ231-2T110QQK). This device checks the rod bearing clearance by placing air and vacuum into the cylinder block. Measure the bearing clearance and follow the instructions in this bulletin. Refer to the flow chart found on pages 2-4, then follow the appropriate procedure as outlined in this bulletin. Before conducting the procedure, verify the vehicle is included in the list of affected VINs.

A **Vehicle Diagnosis Number (VDN)** must be created with or without DTC P1326, after scanning for DTCs, prior to performing PI2106Y/Z. If a VDN is not created, Warranty claim submission issues WILL occur.

NOTICE

To assure complete customer satisfaction, always remember to refer to WebDCS Warranty Coverage (validation) Inquiry Screen (Service → Warranty Coverage → Warranty Coverage Inquiry) for a list of any additional campaigns that may need to be performed on the vehicle before returning it to the customer.

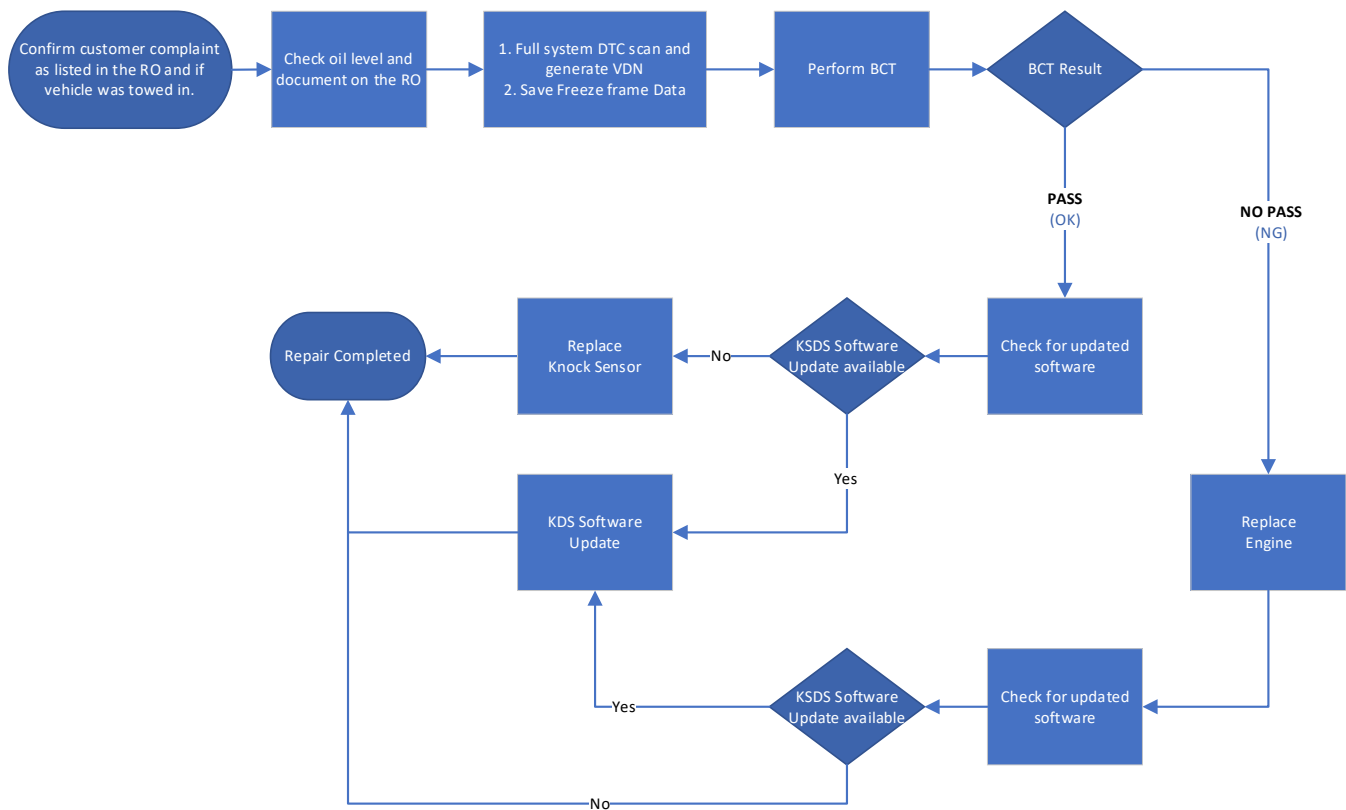
Flowcharts A/B/C:

Follow the applicable flowchart upon documenting customer complaint for one (1) of the three (3) following concerns:

- A. DTC P1326 Stored... (Page 2)
- B. ENGINE NOISE... (Page 3)
- C. ENGINE, NO CRANK... (Page 4)

A. DTC P1326 STORED

Create PI2106Y Claim – No Techline PWA Required



❶ IMPORTANT

Due to recent updates to KDS, always follow the BCT procedure instructions outlined in KDS. You may refer to [SST067 for BCT Procedure/Calibration information](#).

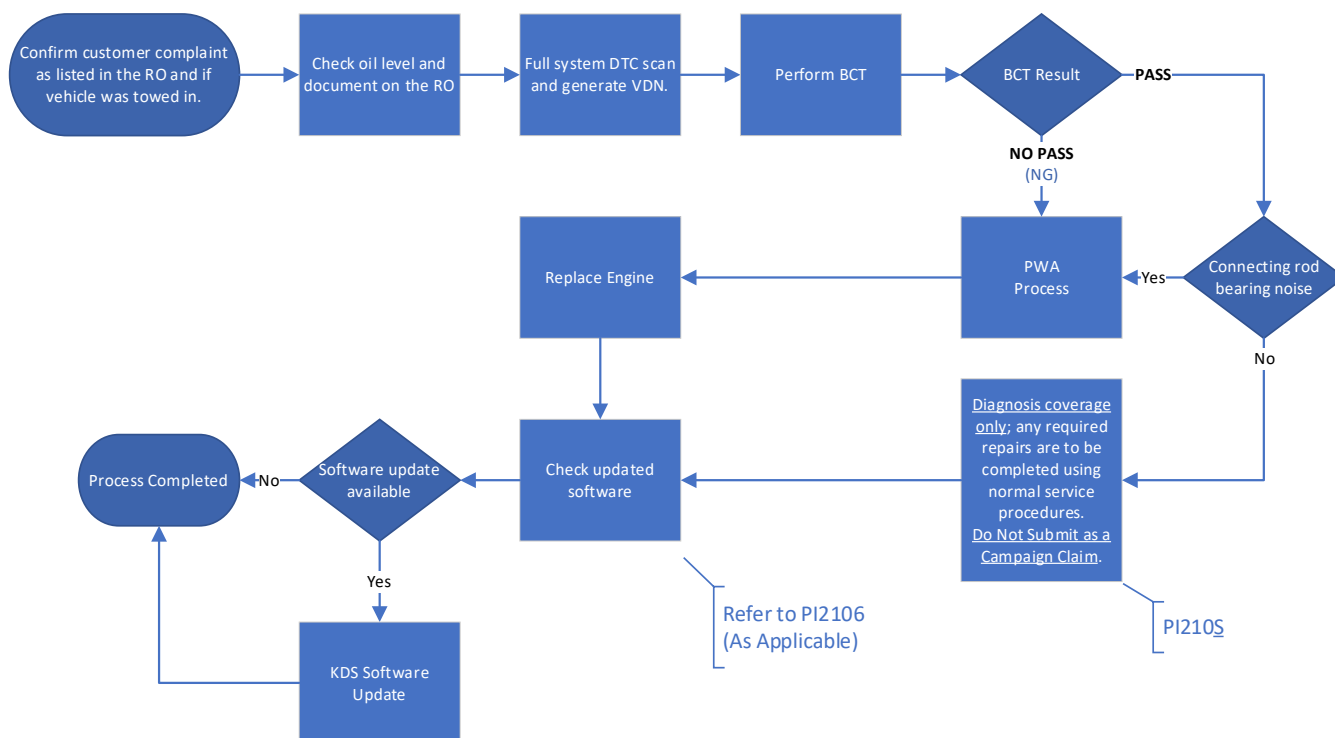


Note: If any concerns arise during/after completing the flow chart(s), open a Techline case online.

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)**B. ENGINE NOISE**

Techline PWA Required; Diagnosis only Campaign Possible

**❗ IMPORTANT**

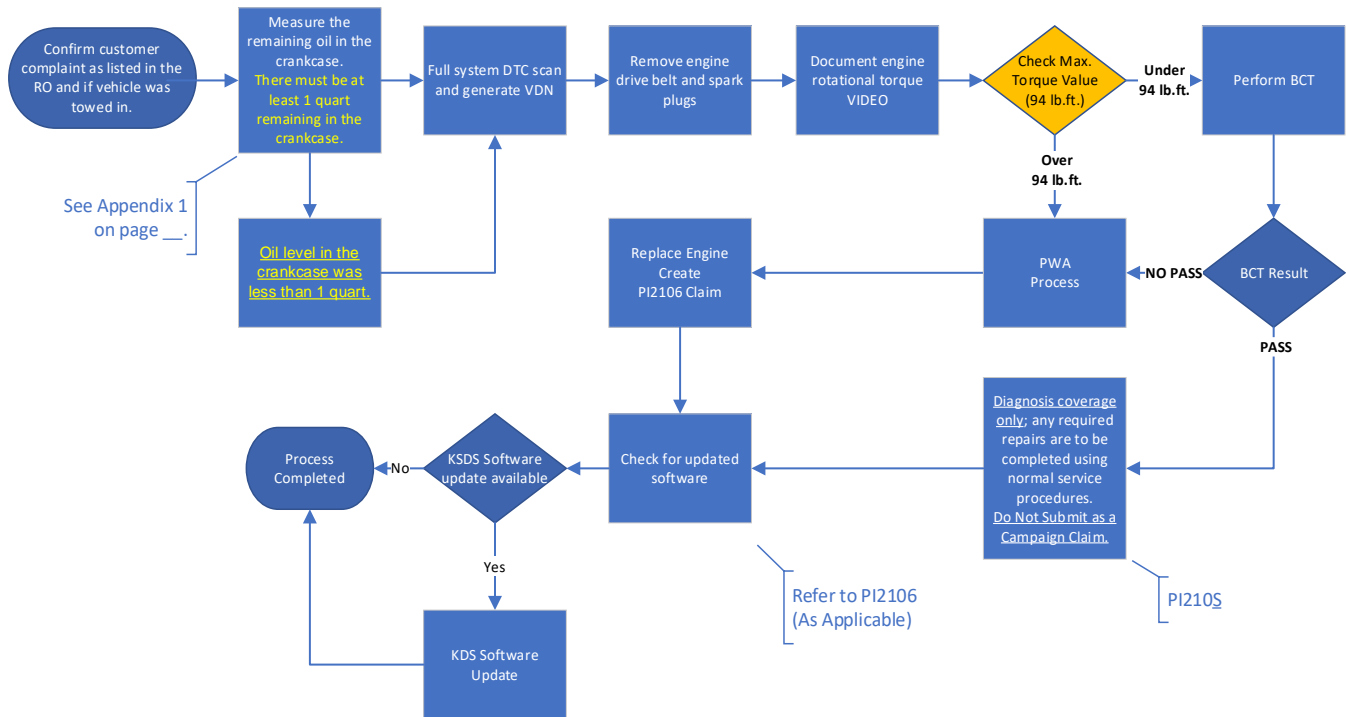
Due to recent updates to KDS, always follow the BCT procedure instructions outlined in KDS. You may refer to [SST067 for BCT Procedure/Calibration information](#).



Note: If any concerns arise during/after completing the flowchart(s), open a Techline case online.

C. ENGINE NO CRANK

Techline PWA Required; Diagnosis only Campaign Possible



❗ IMPORTANT

Due to recent updates to KDS, always follow the BCT procedure instructions outlined in KDS. You may refer to [SST067 for BCT Procedure/Calibration information](#).



Note: If any concerns arise during/after completing the flowchart(s), open a Techline case online.

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)**Engine Replacement Procedure:**

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

Refer to [TSB ENG190](#) for information regarding engine replacement practices.



2. After removal of the engine from the vehicle, remove all components that will need to be transferred by referring to the applicable Shop Manual on KGIS.
3. **Install all removed components from the old engine block onto the new engine block utilizing all parts from Service Kit(s).**

NOTICE

Refer to [TSB ENG083](#) for gasoline direct injection (GDI) specific information, including related warnings and cautions for handling high fuel pressure system components and combustion seals must be compressed after installation and before attempting to install into the cylinder head. Use SST 09353 2B000.

5. Reinstall the assembled engine and transmission/transaxle into the vehicle.

Be sure to:

- Fill crankcase with 5W-30 oil (refer to KGIS for oil fill level requirements)
 - Recommended Product: QUARTZ 9000 FUTURE FGC 5W-30 **Full Synthetic** SN PLUS, QUARTZ 9000 FUTURE XT 5W30 **Full Synthetic** SN PLUS, Mobil Super Synthetic 5W30 or above.
If not available, use other brand 5W30 and **Full Synthetic** type with API SN/SN+/SP, ILSAC GF4/GF5 or higher service grade.
 - Fill and bleed the cooling system with 50/50 coolant or mixture appropriate for area.
 - Pressurize the fuel system before starting the vehicle.
 - Reset engine adaptive values and perform steering angle sensor calibration.
6. Confirm that the Rom ID is up-to-date. If not, reflash the ECU to the latest ROM ID available. Refer to PI2106 - Knock Sensor Detection System ECU Logic Improvement.
 7. Verify proper operation of the vehicle with road test, and **with the engine ON (running), erase any stored DTCs** (e.g., EPS, ESC, and TPMS) that may have been set by this procedure. Verify no leaks exist and ensure engine oil and coolant are at their proper level.

If any DTCs are still active, follow any related diagnosis and repair as needed.


SUBJECT: ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)
AFFECTED VEHICLE RANGE:

Model	Production Date Range
Forte (YD, YDm)	May 19, 2016 to May 7, 2018

REQUIRED TOOL:



Tool Name	Tool Part No.	Figure	Comments
Torque Wrench Socket	09314 3Q100		Refer to TSB ENG083 for detailed usage instructions
Injector Combustion Seal Ring Installer	09353 2B000		
Click-Type or Electronic Torque Wrench	N/A		Locally Sourced
Bearing Clearance Tester Kit	KQ231 2T110QQK		Auto-shipped to Dealers For troubleshooting assistance contact the GITA Support Line at: (888) 542-4371. For replacement parts, contact Snap-On Tools at: (888) 542-1011.

REQUIRED PARTS:

Part Name	MY	Model	Part Number	Figure
Engine Long Block (Nu 2.0L GDI)	17-18MY	YD	21101 2EG12FFFR	
		YDm	21101 2EG17FFFR	

***Note:** You may receive an engine with a part number ending in "FFF" when a part number ending in "FFFR" was ordered. Both part numbers are interchangeable and acceptable in the warranty claim.

Service Kits:

Models	Part Name	Engine	Part Number	Figure
YD	Service Kit	2.0L GDI	21111 2EG01FFF	
	Fuel Tube		35305 2E510FFF	
	Knock Sensor		39250 2E000	N/A

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)**WARRANTY INFORMATION - Flowchart "A" for DTC P1326 STORED:****N Code: N99 C Code: C99**

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
YD (17-18MY) Nu 2.0 GDI	R	23060 2E001	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2106Y)	212220BD	1.7 M/H	39250 2E000	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2106Y)	212220BE	1.0 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2106Y)	212220BF	7.1 M/H	21101 2EG12FFFR <u>and</u> 21111 2EG01FFF 35305 2E510FFF	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2106Y)	212220BG	7.3 M/H		
YDm (17-18MY) Nu 2.0 GDI	R	23060 2E013	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2106Y)	212M21R0	1.7 M/H	39250 2E000	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2106Y)	212M21R1	1.0 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2106Y)	212M21R2	7.1 M/H	21101 2EG17FFFR <u>and</u> 21111 2EG01FFF 35305 2E510FFF	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2106Y)	212M21R3	7.3 M/H		

NOTE: Refer to [Warranty Bulletin 2022-11](#) for details regarding coolant and substitute transportation reimbursement requirements.



WARRANTY INFORMATION - **FLOWCHART "B"** for Engine Noise:

N Code: N99 C Code: C99

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
YD (17-18MY) Nu 2.0 GDI	R	23060 2E001	0	Check Oil + BCT (PASS) + Check Engine Noise (PI210S)	212220BH	1.0 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2106Z)	212220BI	7.1 M/H	21101 2EG12FFFR and 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2106Z)	212220BJ	7.3 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2106Z)	212220BK	7.1 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2106Z)	212220BL	7.3 M/H		
YDm (17-18MY) Nu 2.0 GDI	R	23060 2E013	0	Check Oil + BCT (PASS) + Check Engine Noise (PI210S)	212M21R4	1.0 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2106Z)	212M21R5	7.1 M/H	21101 2EG17FFFR and 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2106Z)	212M21R6	7.3 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2106Z)	212M21R7	7.1 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2106Z)	212M21R8	7.3 M/H		

NOTE: Refer to [Warranty Bulletin 2022-11](#) for details regarding coolant and substitute transportation reimbursement requirements.

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)**WARRANTY INFORMATION - FLOWCHART "C" for No Crank:****N Code: N99 C Code: C99**

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
YD (17-18MY) Nu 2.0 GDI	R	23060 2E001	0	Check Oil + Rotate Crank (PI210S)	212220BM	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI210S)	212220BN	1.3 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2106Z)	212220BO	7.6 M/H	21101 2EG12FFFR <u>and</u> 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2106Z)	212220BP	7.8 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2106Z)	212220BQ	7.1 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2106Z)	212220BR	7.3 M/H		

NOTE: Refer to [Warranty Bulletin 2022-11](#) for details regarding coolant and substitute transportation reimbursement requirements.



SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
YDm (17-18MY) Nu 2.0 GDI	R	23060 2E013	0	Check Oil + Rotate Crank (PI210S)	212M21R9	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI210S)	212M21RA	1.3 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2106Z)	212M21RB	7.6 M/H	21101 2EG17FFFR and 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2106Z)	212M21RC	7.8 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2106Z)	212M21RD	7.1 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2106Z)	212M21RE	7.3 M/H		

NOTE: Refer to [Warranty Bulletin 2022-11](#) for details regarding coolant and substitute transportation reimbursement requirements.

NOTICE

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference PI2106* when accessing the WebDCS system.

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)**WARRANTY CLAIM INFORMATION FOR:****PI2106 Y1, PI2106 Z1 and PI210S (DIAGNOSIS ONLY CLAIMS):****❗ IMPORTANT**

REFER TO WARRANTY BULLETIN 2022-11 (PI2106Y, Z OR PI210S) FOR MODEL-SPECIFIC LABOR OPERATIONS AND TIMES, AS WELL AS SPECIFIC CLAIM SUBMISSION PROCEDURES. NOTE: SEE APPENDIX 1 & 2 ON PAGE 10, AND PAGE 13 FOR ADDITIONAL TECHLINE PWA INFORMATION REQUIRED.

Flow Chart Symptom #A	Diagnostics	Repairs
PI2106<u>Y</u> DTC P1326 (No TL PWA Required)	BCT Pass	R&R Knock Sensor
		ECU Upgrade
	BCT No Pass	Engine R&R
		Engine R&R + ECU Software Update
Flow Chart Symptom #B	Diagnostics	Repairs
PI2106<u>Z</u> Engine Noise (TL PWA <u>Required</u>)	Check Oil + BCT Pass	Inspection + Noise Check (N) (PI210<u>S</u> Claim) Repairs under normal warranty coverage MAY apply. Separate TL PWA case required
		Noise Check + TL PWA + Engine R&R
		Noise Check + TL PWA + Engine R&R + ECU Software Update
	Check Oil + BCT No Pass	Engine R&R with TL PWA
		Engine R&R with TL PWA + ECU Software Update
Flow Chart Symptom #C	Diagnostics	Repairs
PI2106<u>Z</u> Engine No Crank (TL PWA <u>Required</u>)	Check Oil Amount + Check Crank Rotation (+ 94lb.ft)	Inspection Only (PI210<u>S</u> Claim) - Repairs under normal warranty coverage MAY apply - separate TL PWA case required
	Check Oil Amount + Crank Rotation (- 94lb.ft) + BCT Pass	Diagnosis Only (PI210<u>S</u> Claim) - Repairs under normal warranty coverage MAY apply - separate TL PWA case required
	Check Oil Amount + Crank Rotation (-94lb.ft) + BCT No Pass	Engine R&R with TL PWA
		Engine R&R + ECU Software Update with TL PWA
	Check Oil Amount + Crank Rotation (+94lb.ft) (no BCT)	Engine R&R with TL PWA
		Engine R&R + ECU Software Update with TL PWA



Appendix 1 (Techline Prior Work Authorization)

Scenario	Description	Action Required
Flowchart A	DTC P1326 Stored	TL PWA required for all dealers - Video of condition Video requirement examples below are for illustration purposes, individual requirements will vary based upon the condition reported: <ul style="list-style-type: none"> • Video should be continuous and show the VIN (most convenient VIN plate) and pan to show the engine condition. • For engine seizures, attempt to turn over engine with torque wrench in video and exceeding 94 lb.ft. • For hole in engine block, show hole in video. • For severe engine noise demonstrate severity of the noise without over accelerating (to RPM redline) the engine in video.
Flowchart B	Engine Noise	
Flowchart C	Engine Seized Bearing Clearance Test <u>or</u> No Test	

Note: Additional information may be requested by the Techline agent, including but not limited to screenshot of the stored DTC(s), ROM ID and Bearing Clearance Test (BCT) results.

Oil Level Check: (Applies to all Flowcharts B and C)

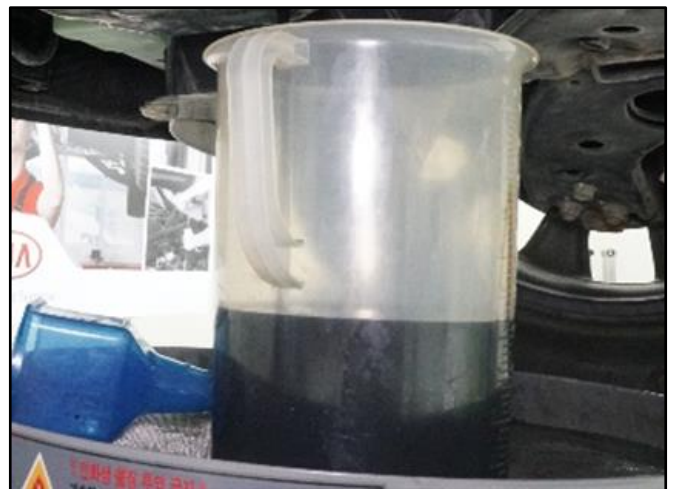
1. Measure and record oil dip stick level.
2. Note oil dip stick reading on the RO.
3. If no oil is showing on dipstick, proceed to Oil Level Measurement.



Oil Level Measurement: (Flowchart C)

1. Remove oil filler cap, remove oil drain plug and drain oil into the supplied measuring container SST067BUCK and check oil level.
2. Record oil level reading.
3. Take photo of the oil level using KDS. Attach to Warranty Claim.

Note: Claim may be subject to charge back if oil measurement photo is not provided with claim submission.



SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)

Video Instructions for Seized Engine Inspection: (Flowchart C)

Prepare the vehicle prior to the video by removing the spark plugs and drive belt as well as setting the torque wrench to 94 lb.ft.

1. Start video showing the dash VIN tag.



2. Show the removed spark plugs.



3. Show the empty spark plug holes from the engine.



4. Show the removed drive belt and attached torque wrench to crank bolt.




5. Show the engine being cranked and torque specification exceeding 94 lb.ft. torque.



6. Submit video with Techline PWA case.

Appendix 2 (Video Capture & Upload)

Note: Additional information required to open a Techline case including but not limited to screenshot of the stored DTC(s), ROM ID and Bearing Clearance Test (BCT) results.

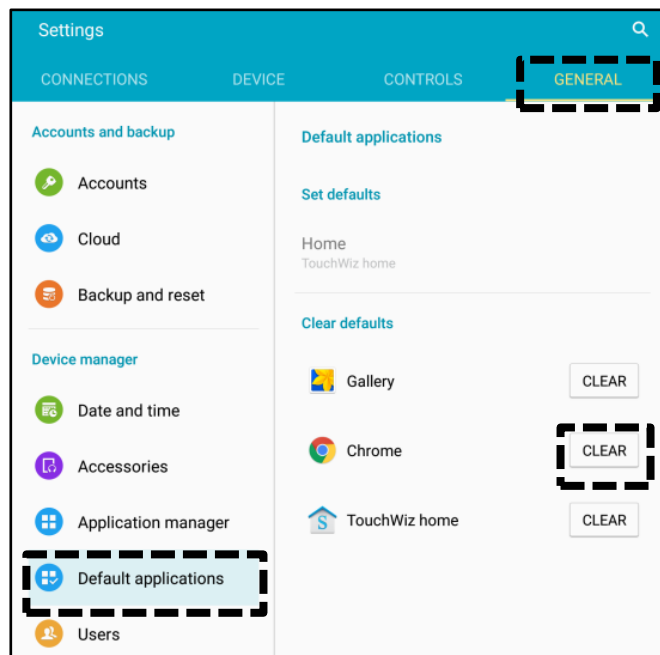
The Chrome™  browser should be used to access the Techline portal. Follow the steps below to clear the default browser if it is other than Chrome™.

For KDS Tab 10.1 Tablets:

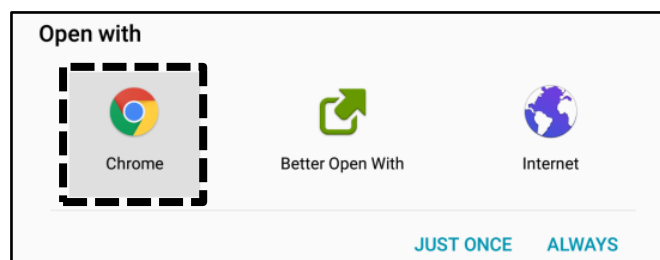
1. Select "Settings" from the App Screen.
2. Select the "General" tab at the top.
3. Select "Default Applications".

4. If "Internet" is the default browser, select the CLEAR button.

If "Chrome" is the default browser, further action is not required.

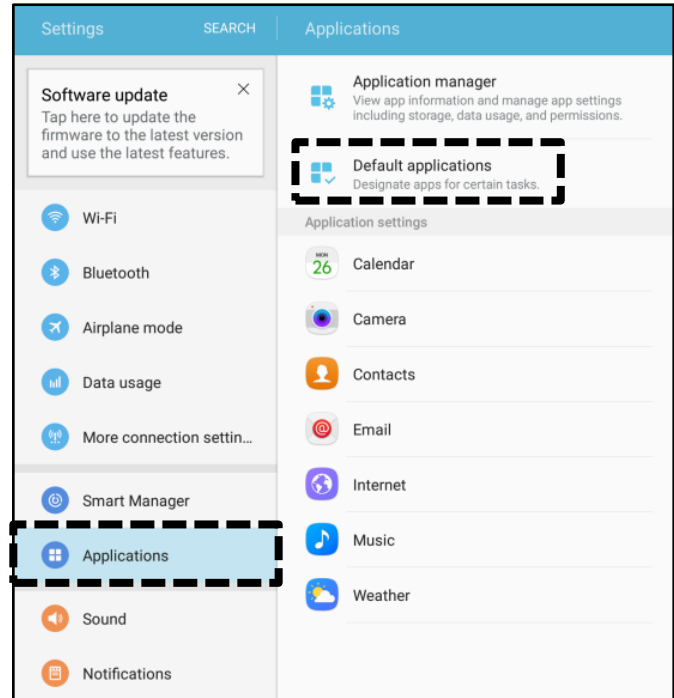


5. When opening the Techline portal, select "Chrome" and select Always".

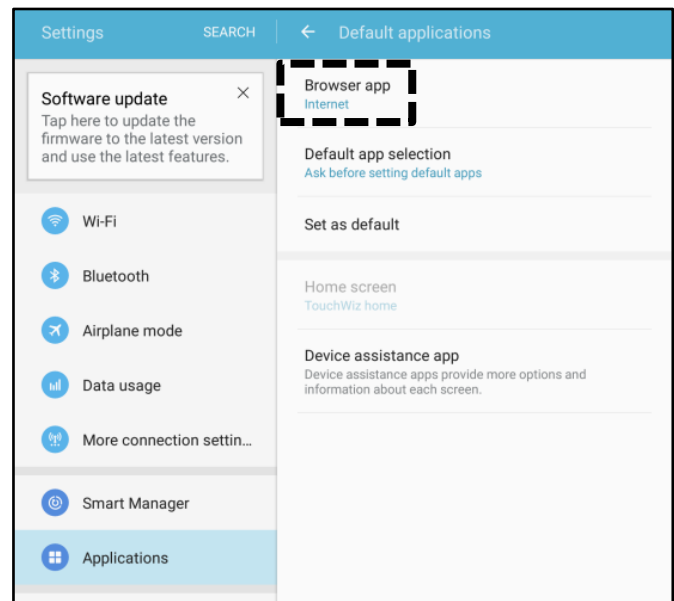


For KDS Tab S2 Tablets:

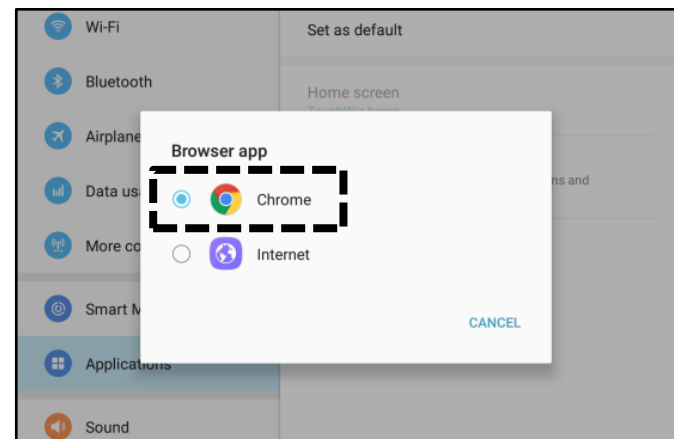
1. Select "Settings" from the App Screen.
2. Select "Applications".
3. Select "Default Applications".



4. Select "Browser app".



5. Ensure "Chrome" is selected.



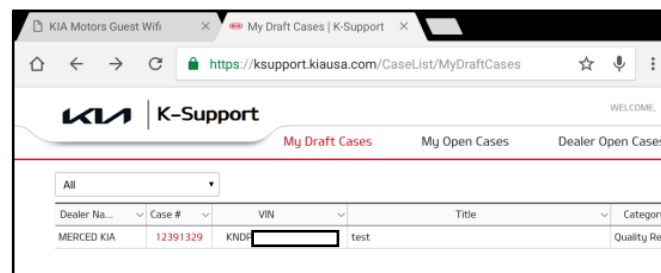
SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)**Attaching Video to a Techline Case:**

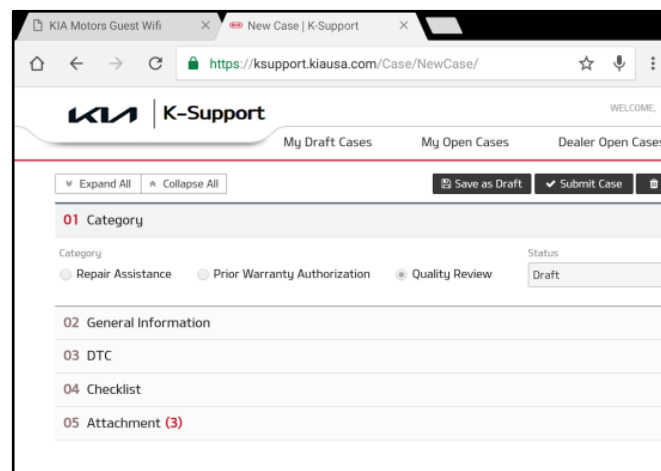
1. Open K-Support in the device Chrome™ browser or select the “Techline” button on KDS home page.

<https://ksupport.kiausa.com>

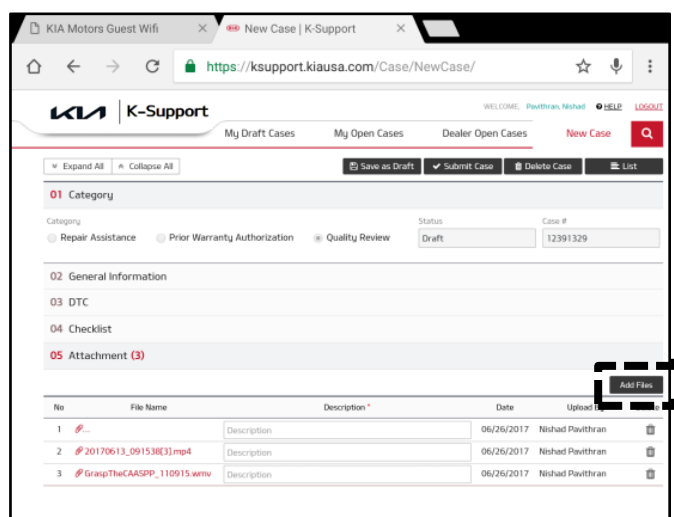
2. Open your existing Techline case for the vehicle requiring a video capture by selecting the case number.



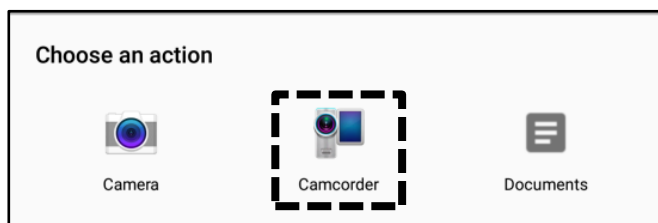
3. Select “Attachment”.



4. Select “Add Files”.



5. Select “Camcorder” and the video camera will open.



SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2106Y/Z)

6. Start by recording the VIN. Ensure sun glare is not reflecting off windows or other objects.

Without stopping the recording, capture the area of the vehicle displaying the issue. i.e.;

- Engine Noise - record the engine.
- Hole In Block - record the side of the engine with the damage.
- Seized Engine - record a technician trying to turn the engine over with a torque wrench.

**NOTICE**

NOTE: Ensure the video size is set to "Limit to email". Only record the VIN and the engine exhibiting the concern. Any additional information will increase the size of the video and make it difficult to upload or download.

7. Stop the video when you captured what is needed. Select "OK" to use this capture or "RETRY" to capture the video again.
8. Ensure a description of the recording. For example, engine knock or smoke from exhaust.
9. Select "Submit Case".

The screenshot shows the K-Support web portal at <https://ksupport.kiausa.com/Case/NewCase/>. The page has a navigation bar with 'My Draft Cases', 'My Open Cases', and 'Dealer Open Cases'. Below the navigation bar, there are tabs for 'Expand All', 'Collapse All', 'Save as Draft', 'Submit Case' (highlighted with a dashed box), 'Delete Case', and 'List'. The main form area includes sections for '01 Category', '02 General Information', '03 DTC', '04 Checklist', and '05 Attachment (3)'. The '05 Attachment (3)' section shows a table with three rows of attachments.

No	File Name	Description	Date	Upload By	Delete
1		Description	06/26/2017	Nishad Pavithran	
2	20170613_091538[3].mp4	Description	06/26/2017	Nishad Pavithran	
3	GraspTheCAASPP_110915.xamv	Description	06/26/2017	Nishad Pavithran	

10. Select "Yes" when the confirmation message below appears.

Note: Selecting anything other than "Yes" will not save the video capture.

The confirmation dialog box has a title 'Confirm' and a close button 'x'. Below the title, there is a warning icon and the text 'Do you want to update case?'. At the bottom, there are two buttons: 'Yes' (highlighted with a dashed box) and 'No'.