



GROUP

MODEL

Product Improvement

See Model List
On Page 1

NUMBER

DATE

PI2002Y/Z (Rev 2, 09/23/2021)

April 2021

PRODUCT IMPROVEMENT CAMPAIGN

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS
FOR DTC P1326 (PI2002Y/Z) NOTICE

This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This bulletin provides information related to the Technical Service Bulletin previously published in (PI2002A, PI2002B and SC200**1) titled "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:

Year	Model	Engine	Production Date
2012-2013	Soul (AM)	Gamma 1.6L GDI	July 8, 2011 to October 2, 2013
2014-2016	Soul (PS)	Gamma 1.6L GDI	July 26, 2013 to August 11, 2016
2014-2016	Soul (PS)	NU 2.0L GDI	July 21, 2013 to August 11, 2016
2014-2015	Forte (YD)	NU 2.0L GDI	December 5, 2012 to April 8, 2015
2011-2013	Optima (TF HEV)	Theta 2.4L MPI	February 15, 2011 to December 12, 2013
2012	Sportage (SL)	Theta 2.4L MPI	May 17, 2011 to May 24, 2012
2012-2013	Forte (TD)	Theta 2.4L MPI	June 1, 2011 to March 22, 2013
2012-2013	Sorento (XMa)	Theta 2.4L MPI	April 26, 2011 to January 10, 2013

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 PI2002Y/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.

A printed copy is for reference only; publication information can be updated at any time.
Always refer to KGIS for the latest information. After logging in kdealer.com, the newest technical publications are listed in 'Service Releases' and has the latest service information that has been released.

Flowcharts A/B/C:

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

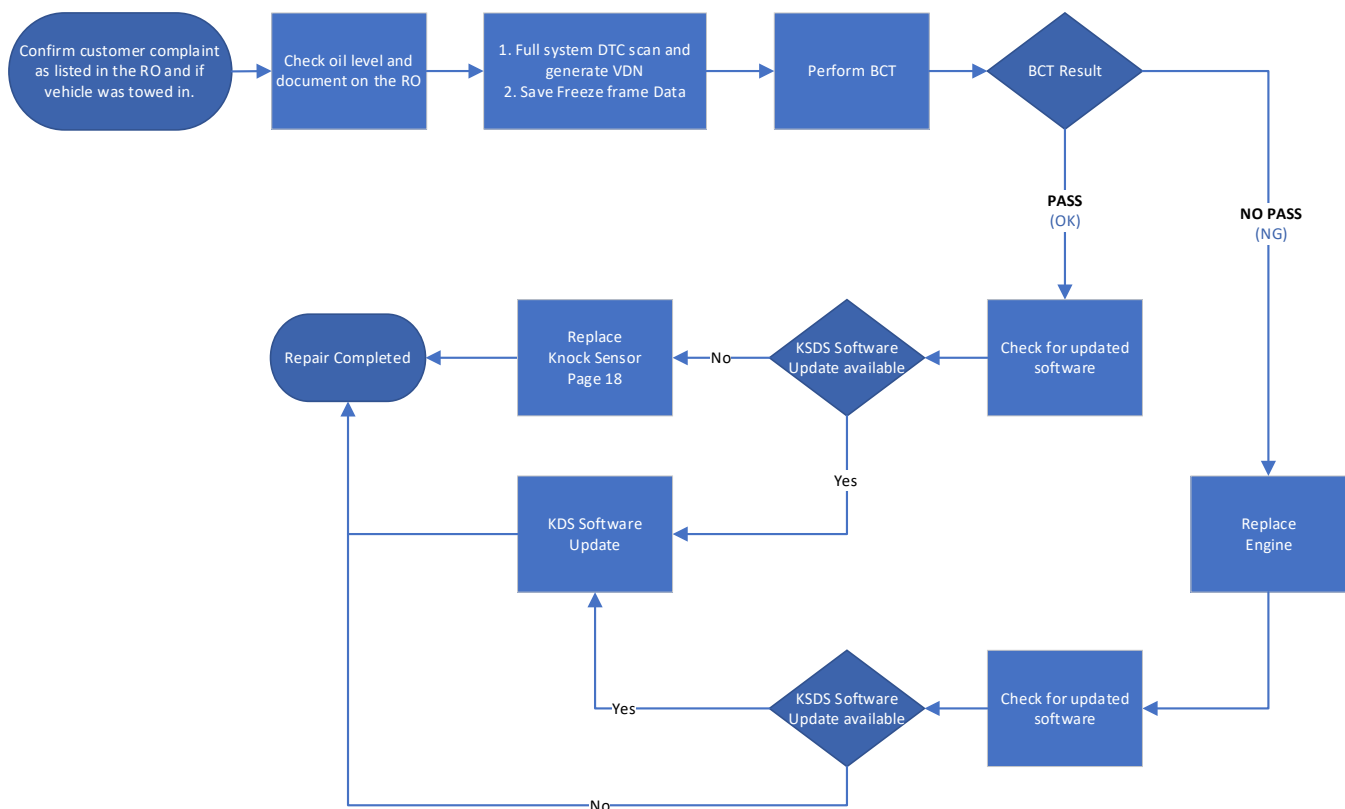
- A. DTC P1326 Stored... (Page 2)
- B. ENGINE NOISE... (Page 3)
- C. ENGINE, NO CRANK... (Page 4)

❗ IMPORTANT

Due to recent updates to KDS, the BCT procedure screenshots outlined in this bulletin may differ from current instructions outlined in KDS. Always follow the procedure in KDS to perform the BCT. This publication will be revised as new updates are provided.

A. DTC P1326 STORED

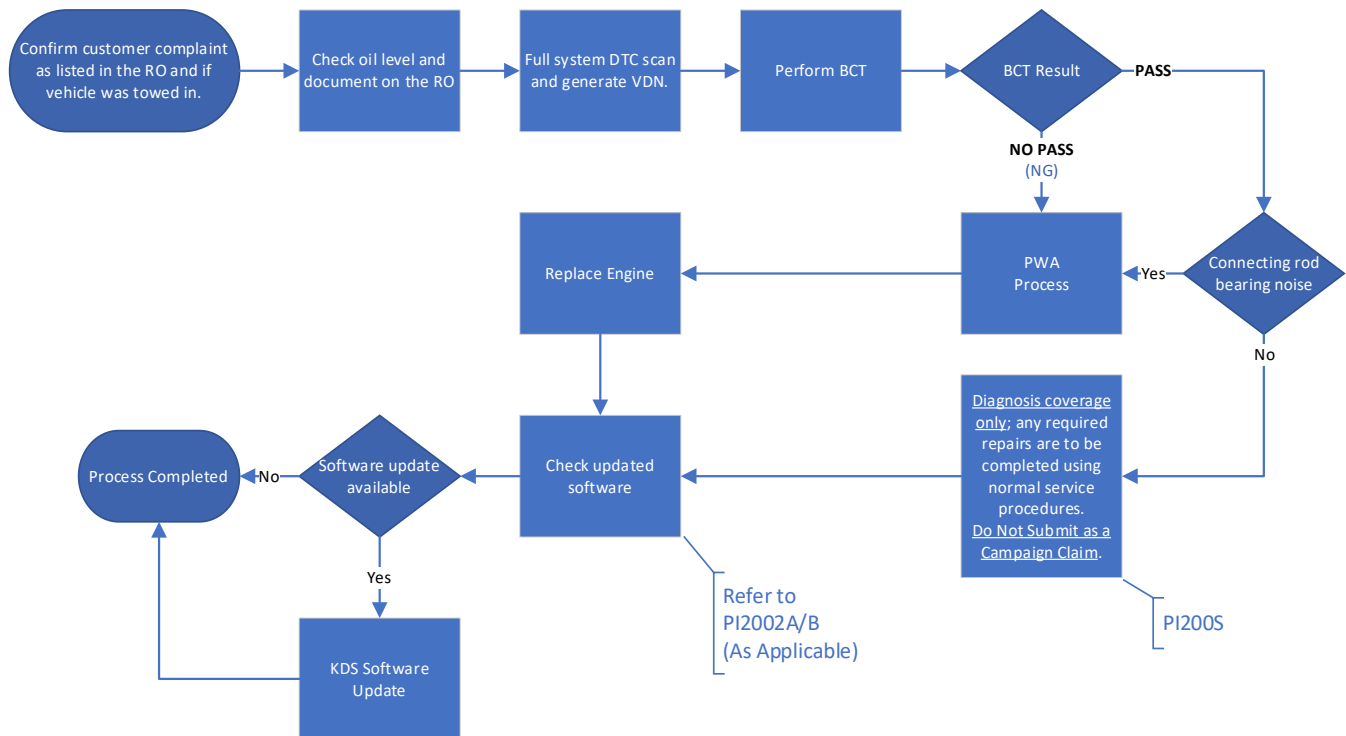
Create PI2002Y Claim – No Techline PWA Required



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

B. ENGINE NOISE

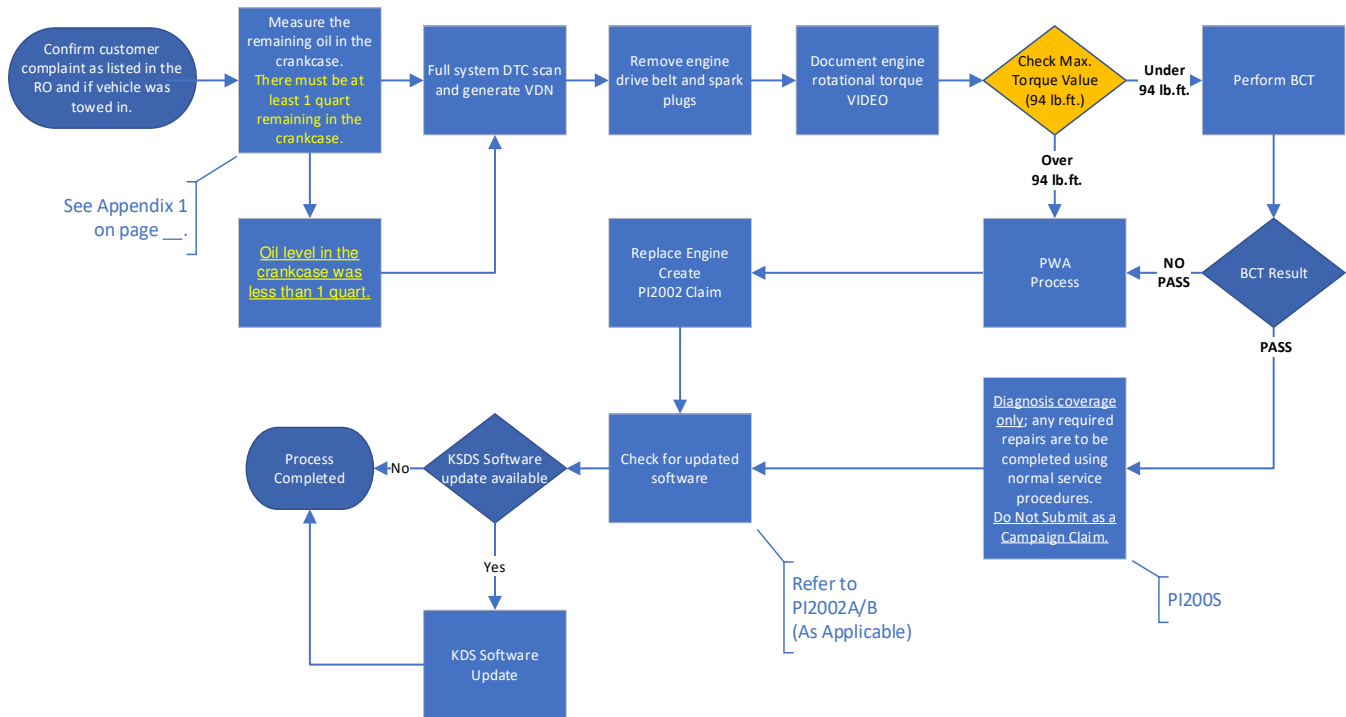
Techline PWA Required; Diagnosis only Campaign Possible



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

C. ENGINE NO CRANK

Techline PWA Required; Diagnosis only Campaign Possible



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

SUBJECT:

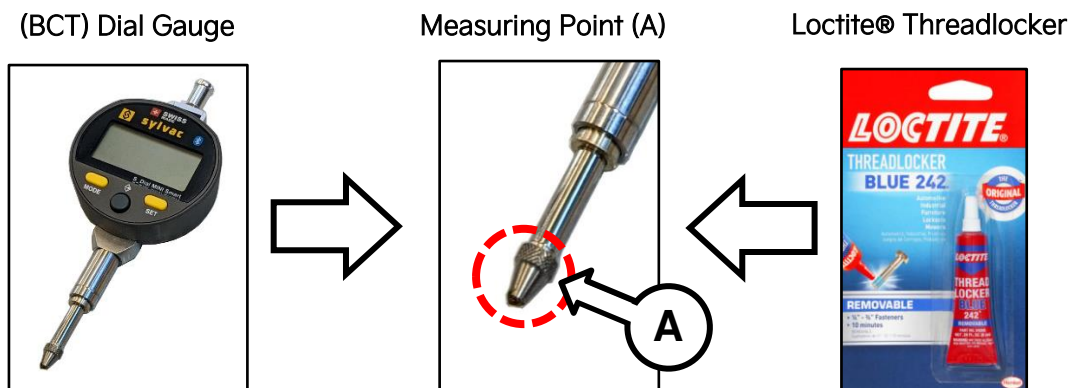
ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)**ADDITION OF BLUE LOCTITE TO BCT MEASURING POINT**

This outline provides information regarding the application of Loctite® Threadlocker Blue 242 to the dial gauge 'measuring point' end included in the Engine Bearing Clearance Tester (BCT) kit SST KQ231 2T110QQK. This extra step helps reduce the possibility of the measuring point tip loosening on the dial gauge due to repeated use. If measuring tip comes loose, inaccurate BCT measuring readings will result.

This tool remedy should only need to be performed once.

Instructions:

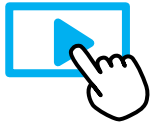
1. Unscrew the 'measuring point' end (A) from the base of the dial gauge.
2. Apply one drop of blue Loctite® to the threaded end of the 'measuring point'.
3. Reinstall the 'measuring point' end back onto the dial gauge finger tight.
4. Fully insert the dial gauge into the probe rod.
5. Secure the gauge to the probe rod by tightening the locking wing nut by hand.
6. Test gauge operation by pressing the lower bar of the probe rod inward and verify the gauge readings correspond with the movement



For replacement parts, contact Snap-On Tools at (888) 542-1011.

BCT Test Procedure:

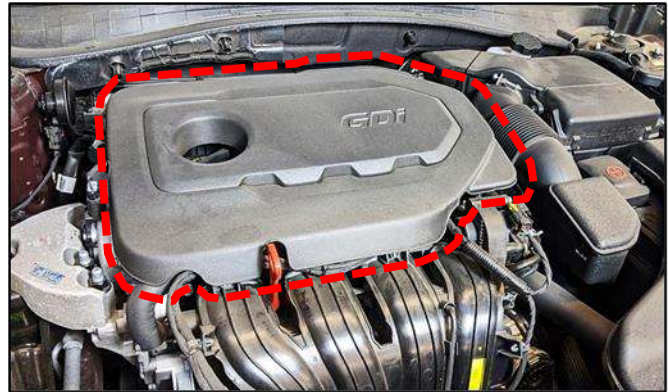
1. Open the hood and remove the cover.



[Bearing Clearance Test Video](#)

❗ IMPORTANT

Have the SST Engine Bearing Clearance kit ready. Place it on a table/cart next to the vehicle and use a fender cover. Use air gun to blow off any debris from the engine top area.

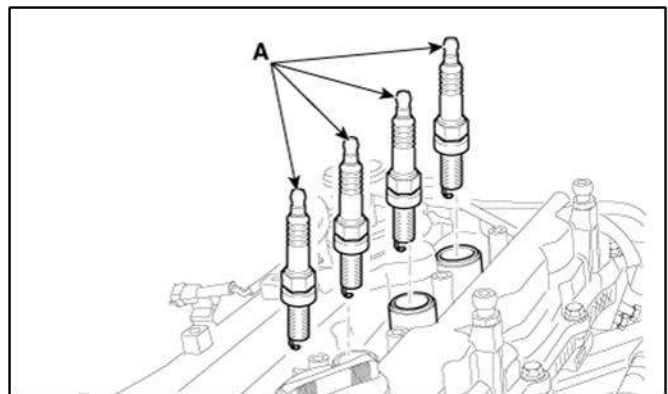


For troubleshooting assistance, contact the GITA Support Line at: (888) 542-4371.

2. Remove the four (4) spark plugs (A) by referring to the "Maintenance → Power Train → Spark Plug → Repair procedures (Replacement)" in the applicable Shop Manual on KGIS.



Tightening torque for Spark Plugs:
10.9 - 18.0 lb.ft (14.7 - 24.5 N.m,
1.5 - 2.5 kgf.m)



- 3a. Using KDS, connect the VCI-II to the vehicle's OBD-II port.
- 3b. Turn the ignition to 'ON'.
- 3c. On the KDS screen, select 'Special Inspection' on the bottom tab of the Home screen.
- 3d. Select the applicable vehicle model/year.



The VIN is recognized automatically and will populate the 'Model' and 'Year'.

- 4a. Enter the vehicle information: the vehicle mileage and RO number.
- 4b. Select 'Verify' to confirm the automatically detected VIN.



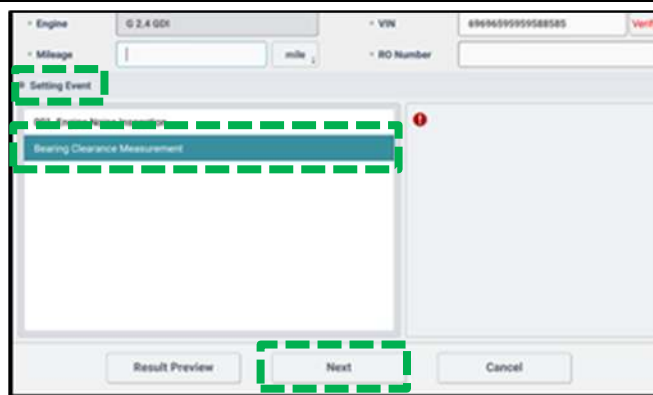
SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

- 5a. Under "Setting Event", select 'Bearing Clearance Measurement' and then select 'Next'.
- 5b. Turn the ignition to 'OFF' and remove the VCI-II after verifying the VIN on KDS.

CAUTION

DO NOT attempt to start the engine at any time as damage to the SST and/or engine may occur.



6. **STOP** on this screen, proceed to step 7 first before continuing to KDS.

IMPORTANT

DO NOT select 'Next' at this time. Proceed to steps 7 - 9 first and continue with KDS as instructed after installing the SST components.



7. Install the Dial Gauge fully into the Probe Rod and secure together by hand tightening the locking wingnut.



8. **Carefully**, insert the assembled SST Probe Rod and Dial Gauge into the Cylinder 1 spark plug hole and **carefully** turn the SST Crankshaft Rotator **by hand** clockwise until hand tight.

CAUTION

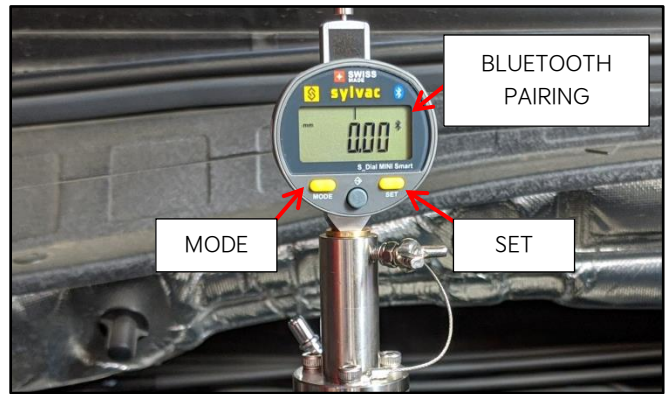
Damage to cylinder head can occur if spark plug hole is cross-threaded. DO NOT use a wrench to tighten the SST rod.



9. Turn the Dial Gauge 'ON' by pressing the 'SET' button.

Reset the Bluetooth connection by pressing both the 'MODE' and 'SET' buttons simultaneously and holding for two (2) seconds.

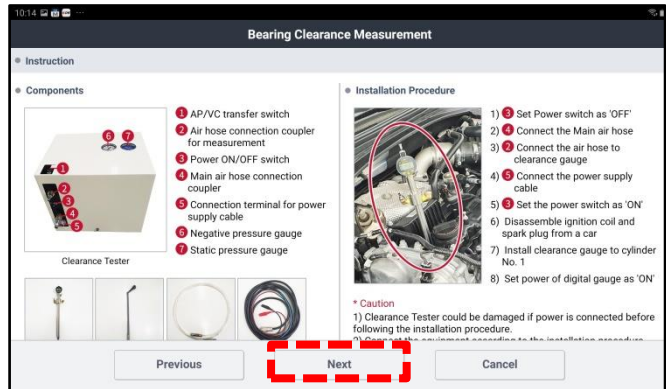
- Bluetooth icon will blink to indicate pairing mode 



10. Using the KDS, select 'Next' on the screen to proceed and begin Top Dead Center (TDC) setup on the KDS.

NOTICE

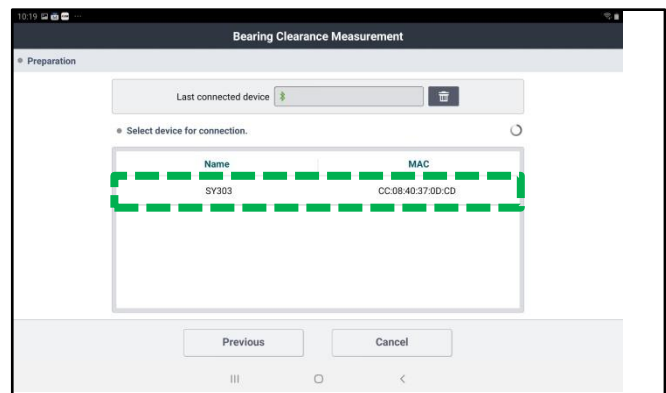
Follow the test procedure and sequence as outlined in this bulletin. DO NOT skip any steps.



11. Pair the Dial Gauge Bluetooth by selecting the device displayed on the screen:
Device name is SY303.

IMPORTANT

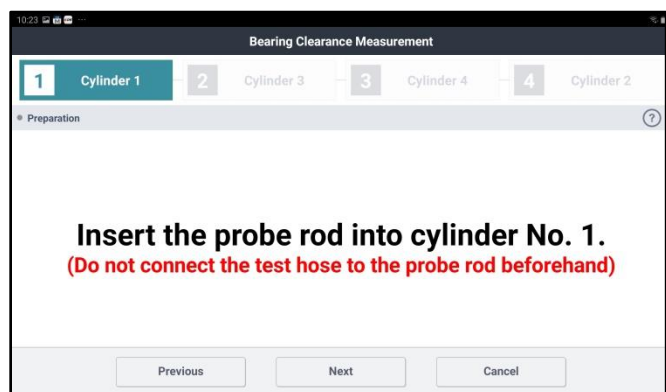
If the KDS is unable to locate the Dial Indicator Bluetooth device, select 'Previous' and reset/repeat steps 9 - 10. Ensure no other Bluetooth devices are near the KDS and Dial Gauge.



12. Once the Dial Gauge is paired to the KDS, the shown screen will appear instructing to insert probe rod into Cylinder 1.

NOTICE

If the probe rod is already inserted into Cylinder 1 from step 8, disregard this message.



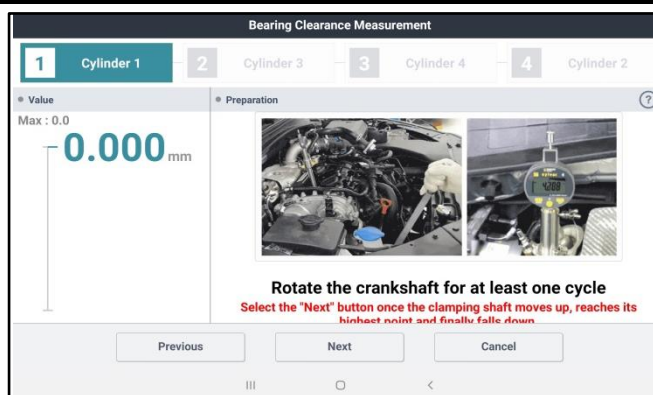
SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

13. Insert the SST Crankshaft Rotator and turn the crankshaft clockwise as instructed on the KDS screen.

NOTICE

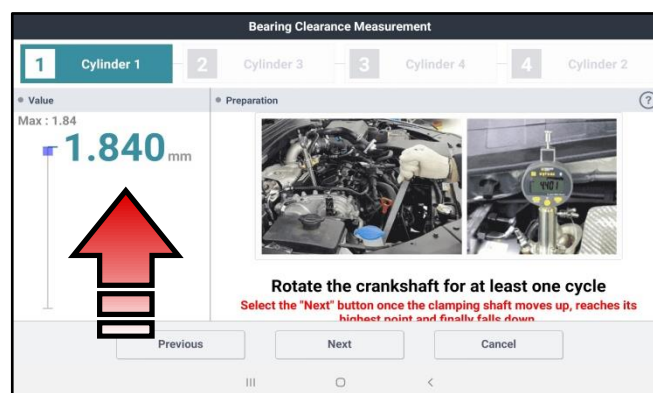
Removal of inner wheel liner and the use of general tools may be required to access and rotate the crank bolt on some 2.0L T-GDI engine models.



14. Initially, the "Value" 'Max' reading may not register when rotating crankshaft. Continue to rotate the crankshaft slowly.

IMPORTANT

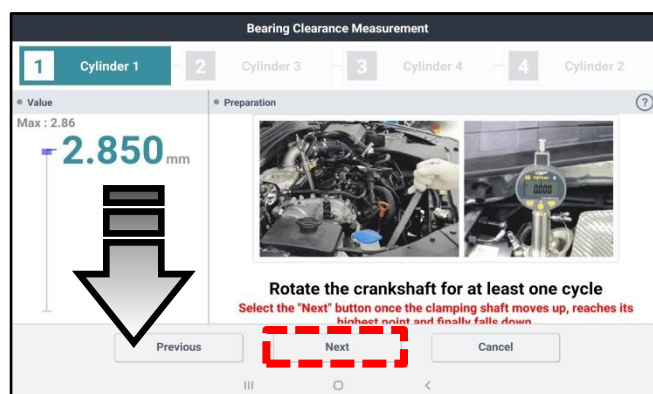
Monitor the displayed reading on the KDS screen/gauge. Turn the crankshaft slowly as the value starts to increase.



15. Once the 'Max' value is reached (sample shows Max: 2.86mm), continue to turn just past the 'Max' value reading and STOP rotating the crankshaft (sample shows 2.850mm value decreasing).

Note: The KDS may prompt to rotate the crankshaft 'counterclockwise' if needed.

Select 'Next'.



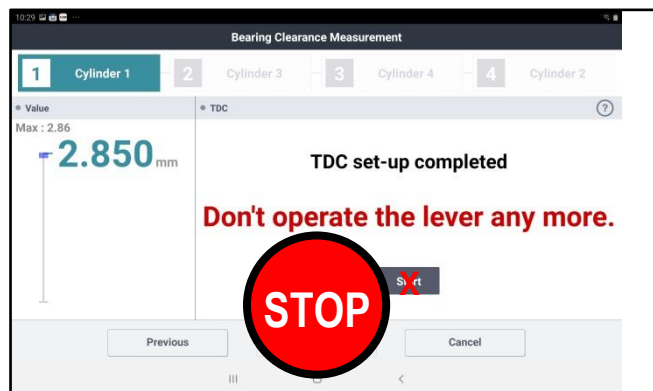
16. If TDC setup is completed successfully:

- DO NOT turn the crankshaft rotator.
- DO NOT select Start at this time.

STOP on this screen, proceed to step 17 to setup and connect the Engine Bearing Clearance Tester before continuing to the KDS.

NOTICE

If TDC is NOT found, the KDS may display a message that the cylinder was on the exhaust stroke. If so, repeat steps 13-16.



17. Prepare to setup the Engine Bearing Clearance Tester and components.

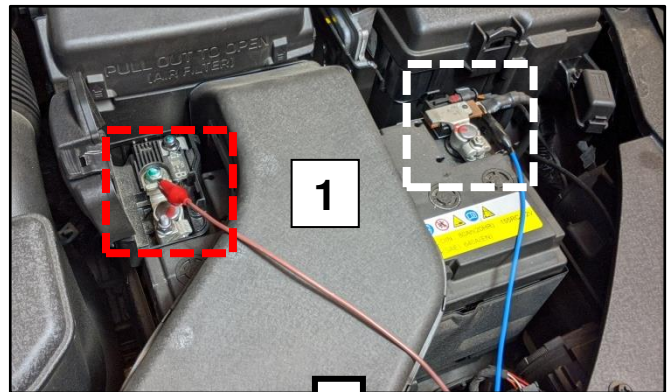
❗ IMPORTANT

DO NOT place the SST box over any paper work (ex. RO) as there is a water drain hole located underneath the box. Ensure that the compressed air supply provides consistent adequate air pressure. **DO NOT** use a portable compressor. Always handle the SST box with care, DO NOT hit, drop, and expose to high heat sources or moisture. Do not remove the cover (unless calibration is necessary).

Connect the following three (3) items to the SST Bearing Tester Box:

1. Power Cable (12V)
2. Air Compressor Hose
3. Test Hose

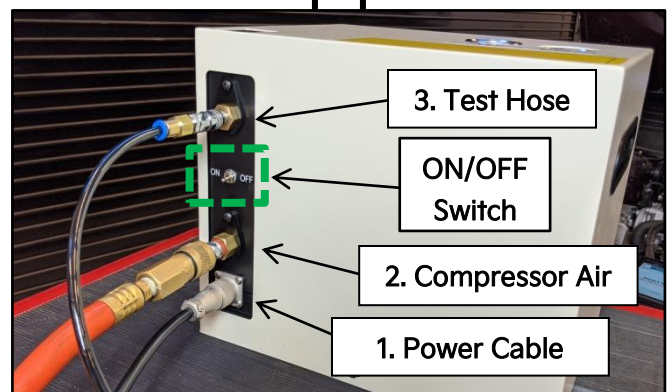
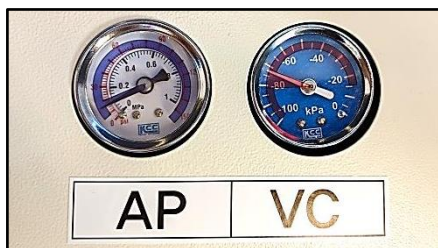
Note: The 12V power cable has red (+) and black (-) connector clamp ends.



18. Turn the Bearing Clearance Tester power switch to the 'ON' position. Gauges should read as follows:

AP (Pressure) Gauge: (0.1 ~ .011MPa)

VC (Vacuum) Gauge: (-73 ~ -83kPa)

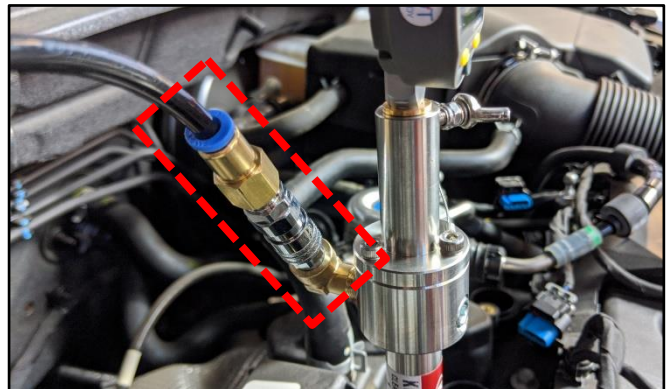


If the gauges do not read within specification, calibration of the SST box is required. Refer to [TSB SST067](#) for details.

19. Carefully, insert and connect the other end of the Test Hose to the Probe Rod fitting.

❗ IMPORTANT

DO NOT touch or turn the Crank Rotator in any direction until instructed to do so on the KDS.



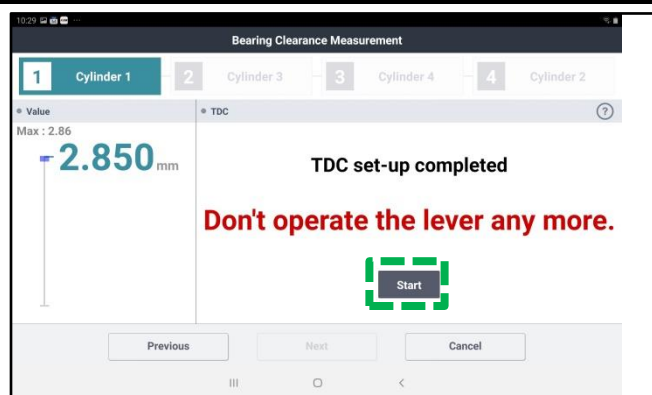
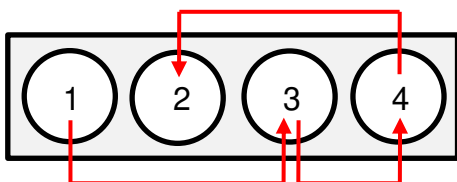
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ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

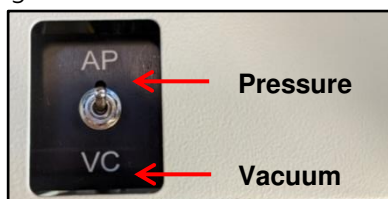
20. Select 'Start'.

NOTICE

The procedure outlined in this bulletin follows the engine's firing order sequence (1, 3, 4, 2).



21. Locate the 'AP/VC' switch on top of the Bearing Clearance Tester Box and switch it to the 'AP' position. Select 'Next' to begin Cylinder 1 bearing clearance test.

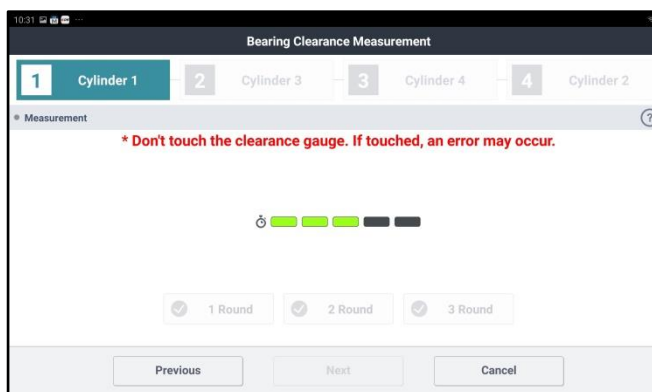
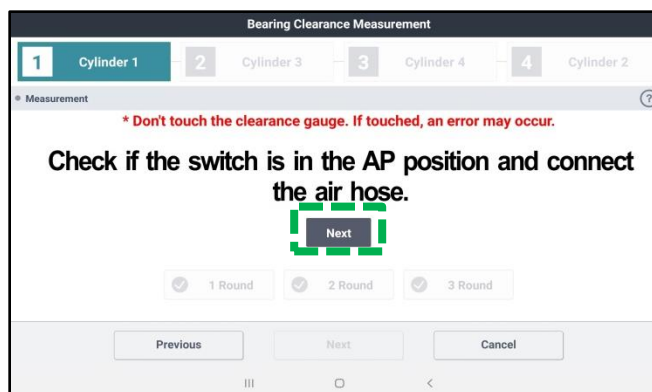


NOTICE

The toggle switch has a 3-way operation. The center is neutral. Always toggle past neutral.

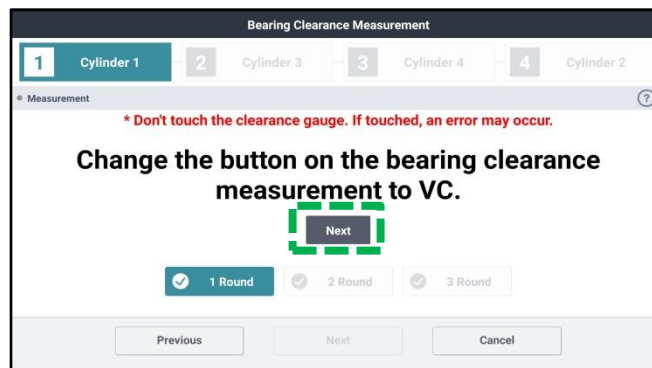
IMPORTANT

DO NOT touch or turn the Crankshaft Rotator in any direction until instructed to do so via KDS. DO NOT touch the clearance gauge, if touched, an error may occur.

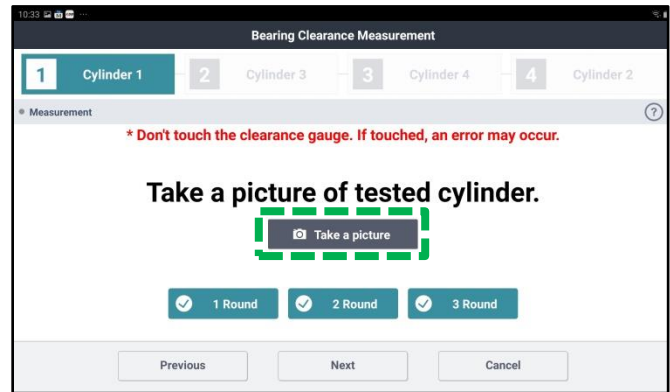


22. The KDS screen will prompt to change the 'AP/VC' switch to the 'VC' position.

Select 'Next' to complete. There are three (3x) rounds per cylinder to complete.



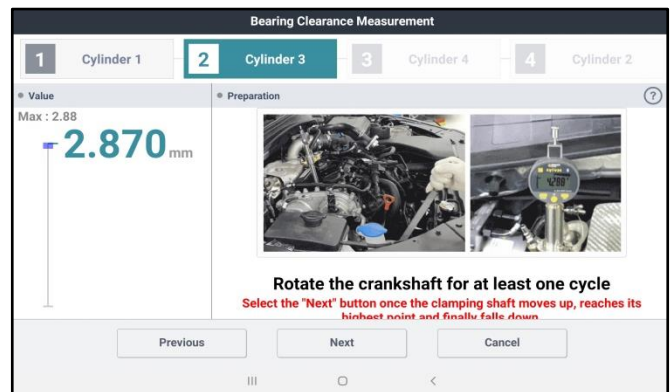
23. Once Cylinder 1 test is completed, the KDS will prompt to take a picture of the tested cylinder. Select 'Take a picture'.



24. Carefully remove the Test Hose and the Probe Rod from Cylinder 1.

The KDS will request to insert the Probe Rod into Cylinder 3 and prompt to find TDC again. Repeat steps 13-16.

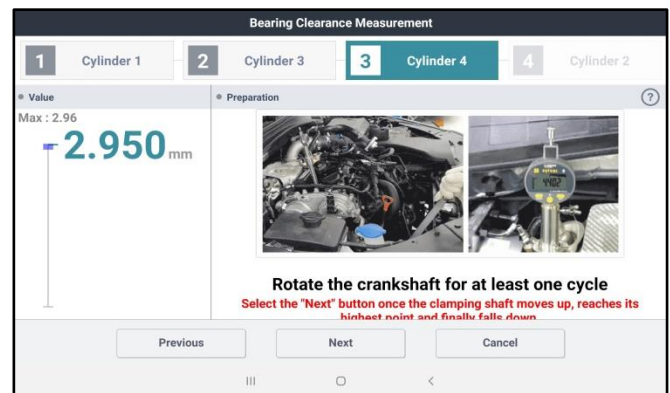
Repeat steps 19-23 to test Cylinder 3 and switching from 'AP → VC' and take cylinder photo.



25. Carefully remove the Test Hose and the Probe Rod from Cylinder 3.

The KDS will request to insert the Probe Rod into Cylinder 4 and prompt to find TDC again. Repeat steps 13-16.

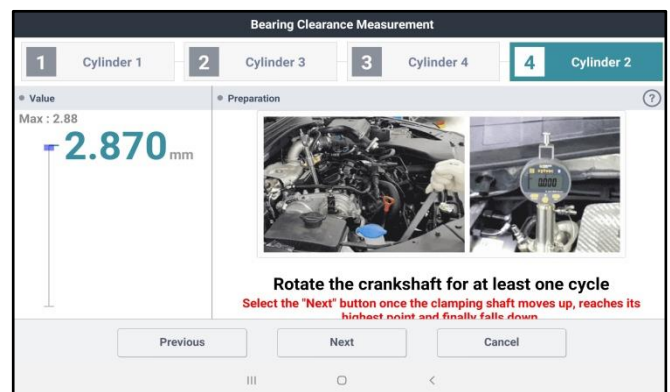
Repeat steps 19-23 to test Cylinder 4 and switching from 'AP → VC' and take cylinder photo.



26. Carefully remove the Test Hose and the Probe Rod from Cylinder 4.

The KDS will request to insert the Probe Rod into Cylinder 2 and prompt to find TDC again. Repeat steps 13-16.

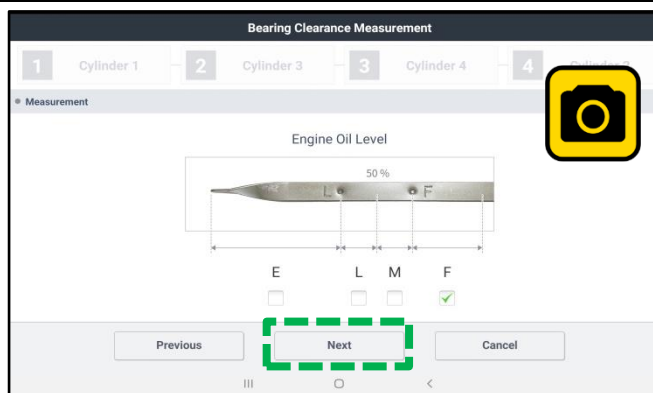
Repeat steps 19-23 to test Cylinder 2 and switching from 'AP → VC' and take cylinder photo.



SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

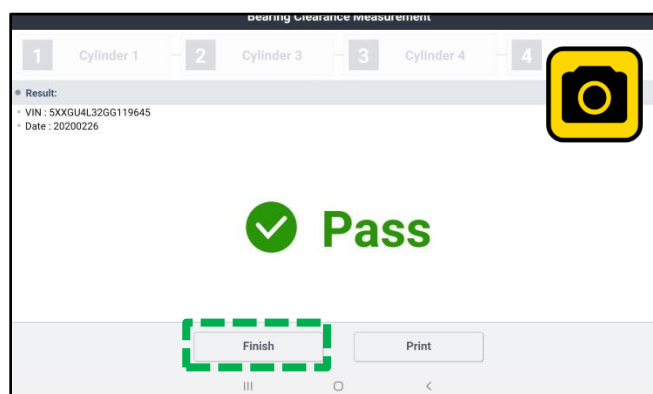
27. After completing the test of all four (4) cylinders, the KDS will prompt to check the crankcase oil level and to select the appropriate check box on the screen. Select 'Next'.



28. If the test result displays **"PASS"**, capture the screen image/screenshot for record keeping.

Select 'Finish'.

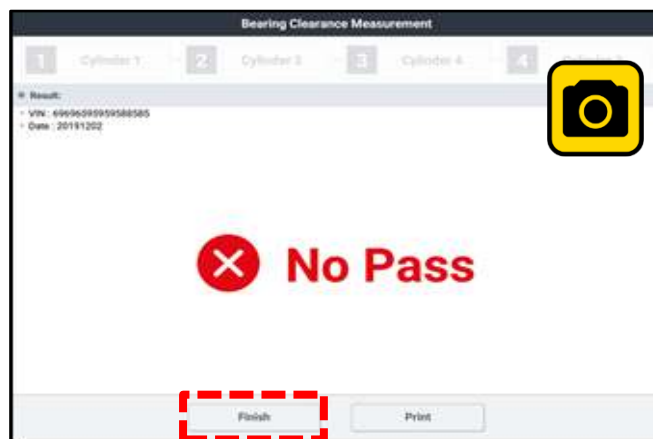
- Re-install all removed parts in the reverse order of removal
- No further action is required



If the test result displays **"NO PASS"**, capture the screen image/screenshot for record keeping. Then proceed to replace the engine assembly per the instructions.

Select 'Finish'.

- Proceed to **page 14** to replace the engine assembly as outlined in this bulletin

**❗ IMPORTANT**

Save a copy of the screenshot for your records. **It may be required to submit with a PWA. Attach to the RO hard copy.**

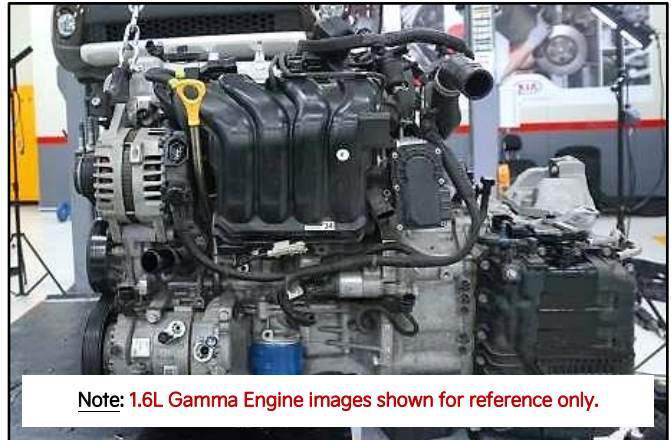
📄 NOTICE

If the KDS is not connected to the internet, up to five (5) results will stay pending in the queue until the KDS is reconnected with the "Special Inspection" application open, before a sixth (6th) test can be conducted.

Engine Replacement Procedure:

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

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



Note: 1.6L Gamma Engine images shown for reference only.

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 PI2002A/B - 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 (PI2002Y/Z)**AFFECTED VEHICLE RANGE:**

Model	Production Date Range
Soul (AM)	July 8, 2011 to October 2, 2013
Soul (PS)	July 26, 2013 to August 11, 2016
	July 21, 2013 to August 11, 2016
Forte (YD)	December 5, 2012 to April 8, 2015
Optima (TF HEV)	February 15, 2011 to December 12, 2013
Sportage (SL)	May 17, 2011 to May 24, 2012
Forte (TD)	June 1, 2011 to March 22, 2013
Sorento (XMa)	April 26, 2011 to January 10, 2013

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.

SUBJECT: ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)
REQUIRED PARTS:

Part Name	MY	Model	Part Number	Figure
			Gamma 1.6L GDI	
Engine Long Block	12-13MY	AM	21101 2BK01FFFR*	
		AM (Soul Eco ISG Only)	21101 2BK02FFFR*	
	14-16MY	PS	21101 2BK03FFFR*	

Part Name	MY	Model	Part Number	Figure
			Nu 2.0L GDI	
Engine Long Block	14-16MY	PS	21101 2EG01FFFR*	
		PS (Soul Eco ISG Only)	21101 2EG02FFFR*	
	14MY	YD	21101 2EG10FFF 21101 2EG10FFFR	
	15MY		21101 2EG11FFF 21101 2EG11FFFR	

***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. (add under AM/PS)

Part Name	MY	Model	Part Number	Figure
			Theta 2.4L MPI	
Engine Long Block	11-12MY	TF HEV	21101 2G406FFF	
	13MY		21101 2G407FFF	
	12-13MY	XMa	21101 2G404FFF	
	12MY	SL	21101 2G401FFF	
	12-13MY	TD	21101 2G402FFF	

ULEV/SULEV Long Block applications: The cylinder head exhaust manifold stud bolt(s) location of newly supplied engine long block must be re-arranged to match the exhaust manifold stud bolt location of the old engine's cylinder head. [Refer to the table/diagrams on page 19.](#)

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)**Service Kits (Gamma 1.6L GDI):**

Models	Part Name	Engine	Part Number	Figure
AM, PS	Service Kit I	1.6L GDI	21111 2BS01FFF	
	Service Kit II		21112 2BS01FFF	
	Fuel Tube	1.6L GDI	35305 2B000FFF	
	Knock Sensor		39250 2B000	N/A

Service Kits (Nu 2.0L GDI):

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

Service Kit (Theta 2.4L MPI):

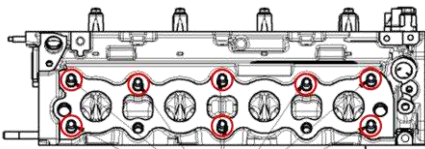
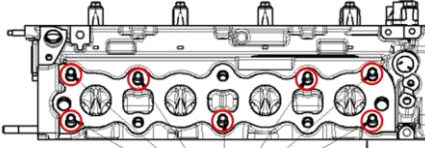
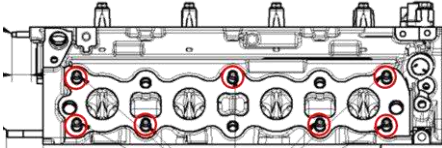
Models	Part Name	Engine	Part Number	Figure
TF HEV	Service Kit	2.4L MPI	21111 2G4S3FFF	
	Flywheel Bolt		23231 25200FFF	*Do Not reuse bolts.
	Knock Sensor		39250 2C500	N/A

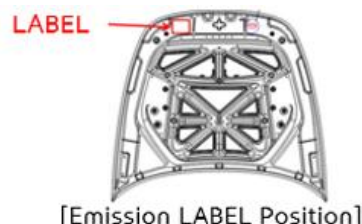
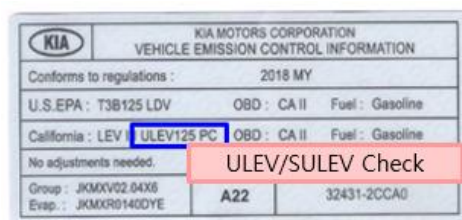
Continued page 19.

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)**Service Kit (Theta 2.4L MPI):**

Models	Part Name	Engine	Part Number	Figure
XMa	Service Kit	2.4L MPI	21111 2G4S2FFF	
	Flywheel Bolt		23231 25200FFF	M/T *Do Not reuse bolts. (Qty. 7)
			23311 25050	A/T *Do Not reuse bolts. (Qty. 7)
	Knock Sensor		39250 2C500	N/A
	O-Ring		47354 39300	Optional (4WD): only if damaged.
SL	Service Kit	2.4L MPI	21111 2G4S1FFF	For ULEV models
TD, SL	Service Kit		21111 2G4S2FFF	For SULEV models
TD/SL	Flywheel Bolt		23231 25200FFF	M/T *Do Not reuse bolts. (Qty. 7)
			23311 25050	A/T *Do Not reuse bolts. (Qty. 7)
TD	Knock Sensor		39250 2G200	N/A
SL			39250 2G100	

Theta 2.4L MPI	DESCRIPTION	REMARK
ULEV		8 STUDS
		7 STUDS
SULEV		7 STUDS

Note: For SL & TD (Open the hood and check the emissions label)

SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/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.
AM (12-13MY) Gamma 1.6L	R	23060 2B002	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212221R5	1.5 M/H	39250 2B000	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212221R6	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212221R7	7.2 M/H	21101 2BK01FFFF or 21101 2BK02FFFF (Soul Eco ISG Only)	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212221R8	7.4 M/H	35305 2B000FFF 21111 2BS01FFF 21112 2BS01FFF	
PS (14-16MY) Gamma 1.6L	R	23060 2B002	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212221RH	1.5 M/H	39250 2B000	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212221RI	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212221RJ	7.2 M/H	21101 2BK03FFFF 35305 2B000FFF 21111 2BS01FFF 21112 2BS01FFF	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212221RK	7.4 M/H		
PS (14-16MY) Nu. 2.0L	R	23060 2E013	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212220R5	1.5 M/H	39250 2E000	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212220R6	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212220R7	7.2 M/H	21101 2EG01FFFF or 21101 2EG02FFFF (Soul Eco ISG Only)	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212220R8	7.4 M/H	21111 2EG01FFF 35305 2E510FFF	
XMa (12-13MY) Theta 2.4L MPI (2WD)	R	23060 2G401	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212A05R0	1.2 M/H	39250 2C500	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212A05R1	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212A05E0	5.4 M/H	21101 2G404FFF and 21111 2G4S2FFF and 23231 25200FFF or 23311 25050 (Requires Qty.7)	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212A05E1	5.6 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
XMα (12-13MY) Theta 2.4L MPI (4WD)	R	23060 2G401	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212A05R0	1.2 M/H	39250 2C500	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212A05R1	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212A05E2	5.8 M/H	21101 2G404FFF and 21111 2G4S2FFF and 23231 25200FFF or 23311 25050 (Requires Qty.7)	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212A05E3	6.0 M/H	Optional 47354 39300	
YD (14MY) Nu 2.0 GDI	R	23060 2E001	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212220RH	1.7 M/H	39250 2E000	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212220RI	1.0 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212220RJ	7.1 M/H	21101 2EG10FFF or 21101 2EG10FFFR	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212220RK	7.3 M/H	21111 2EG01FFF and 35305 2E510FFF	
YD (15MY) Nu 2.0 GDI	R	23060 2E001	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212220RV	1.7 M/H	39250 2E000	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212220RW	1.0 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212220RX	7.1 M/H	21101 2EG11FFF or 21101 2EG11FFFR	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212220RY	7.3 M/H	21111 2EG01FFF and 35305 2E510FFF	

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
TF HEV (11-12MY) Theta 2.4L MPI	R	23060 2G400	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212017AF	1.1 M/H	39250 2C500	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212017AG	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212017AH	8.2 M/H	(11-12MY) 21101 2G406FFF and 21111 2G4S3FFF 23231 25200FFF (Requires Qty.7)	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212017AI	8.4 M/H		
DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)				212017AF	1.1 M/H	39250 2C500	1	
DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)				212017AG	0.8 M/H	N/A	0	
DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)				212017BC	8.2 M/H	(13 MY) 21101 2G407FFF and 21111 2G4S3FFF 23231 25200FFF (Requires Qty.7)	1	
DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)				212017BD	8.4 M/H			
TD (12-13MY) Theta 2.4L MPI	R	23060 2G400	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212017RV	1.0 M/H	39250 2G200	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212017RW	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212017RX	5.6 M/H	21101 2G402FFF and 21111 2G4S2FFF and 23231 25200FFF or 23311 25050 (Requires Qty.7)	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212017RY	5.8 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
SL (12MY) Theta 2.4L (2WD)	R	23060 2G400	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212017R1	1.1 M/H	39250 2G100	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212017R2	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212017R3	5.3 M/H	21101 2G401FFF <u>and</u> 21111 2G4S1FFF (ULEV) <u>or</u> 21111 2G4S2FFF (SULEV) <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7)	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212017R4	5.5 M/H		
SL (12MY) Theta 2.4L (4WD)	R	23060 2G400	0	DTC P1326 + BCT (PASS) + Knock Sensor R&R (PI2002Y)	212017RG	1.1 M/H	39250 2G100	1
				DTC P1326 + BCT (PASS) + ECU Software Update (PI2002Y)	212017RH	0.8 M/H	N/A	0
				DTC P1326 + BCT (NO PASS) + Engine R&R (PI2002Y)	212017RI	5.7 M/H	21101 2G401FFF <u>and</u> 21111 2G4S1FFF (ULEV) <u>or</u> 21111 2G4S2FFF (SULEV) <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7)	1
				DTC P1326 + BCT (NO PASS) + Engine R&R + ECU Software Update (PI2002Y)	212017RJ	5.9 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)**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.
AM (12-13MY) Gamma 1.6L	R	23060 2B002	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212221RP	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212221R9	7.2 M/H	21101 2BK01FFFF or 21101 2BK02FFFF (Soul Eco ISG Only) 35305 2B000FFF 21111 2BS01FFF 21112 2BS01FFF	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212221RA	7.4 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212221RB	7.2 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212221RC	7.4 M/H		
PS (14-16MY) Gamma 1.6L	R	23060 2B002	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212221RQ	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212221RL	7.2 M/H	21101 2BK03FFFF 35305 2B000FFF 21111 2BS01FFF 21112 2BS01FFF	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212221RM	7.4 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212221RN	7.2 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212221RO	7.4 M/H		
PS (14-16MY) Nu. 2.0L	R	23060 2E013	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212220RP	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212220R9	7.2 M/H	21101 2EG01FFFF or 21101 2EG02FFFF (Soul Eco ISG Only) 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212220RA	7.4 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212220RB	7.2 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212220RC	7.4 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
YD (14MY) Nu 2.0L GDI	R	23060 2E001	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212220RQ	1.0 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212220RL	7.1 M/H	21101 2EG10FFF or 21101 2EG10FFFR and 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212220RM	7.3 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212220RN	7.1 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212220RO	7.3 M/H		
YD (15MY) Nu 2.0L GDI	R	23060 2E001	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212220RQ	1.0 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212220AD	7.1 M/H	21101 2EG11FFF or 21101 2EG11FFFR and 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212220AE	7.3 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212220AF	7.1 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212220AG	7.3 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
TF HEV (11-12MY) Theta 2.4L MPI	R	23060 2G400	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212017AJ	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212017AK	8.2 M/H	(11-12MY) 21101 2G406FFF and 21111 2G4S3FFF 23231 25200FFF (Requires Qty.7)	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017AL	8.4 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212017AM	8.2 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212017AN	8.4 M/H		
TF HEV (13MY) Theta 2.4L MPI	R	23060 2G400	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212017AJ	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212017AO	8.2 M/H	(13 MY) 21101 2G407FFF and 21111 2G4S3FFF 23231 25200FFF (Requires Qty.7)	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017AP	8.4 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212017AQ	8.2 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212017AR	8.4 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
XMa (12MY) Theta 2.4L MPI (2WD)	R	23060 2G401	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212A05P0	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212A05P1	5.4 M/H	21101 2G404FFF <u>and</u> 21111 2G4S2FFF <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7)	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212A05P2	5.6 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212A05P3	5.4 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212A05P4	5.6 M/H		
XMa (12MY) Theta 2.4L MPI (4WD)	R	23060 2G401	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212A05P0	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212A05P5	5.8 M/H	21101 2G404FFF <u>and</u> 21111 2G4S2FFF <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7) <u>Optional</u> 47354 39300	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212A05P6	6.0 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212A05P7	5.8 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212A05P8	6.0 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
SL (12MY) Theta 2.4L MPI (2WD)	R	23060 2G400	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212017R5	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212017R6	5.3 M/H	21101 2G401FFF <u>and</u>	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017R7	5.5 M/H	21111 2G4S1FFF (ULEV) <u>or</u> 21111 2G4S2FFF (SULEV)	
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212017R8	5.3 M/H	<u>and</u> 23231 25200FFF	
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212017R9	5.5 M/H	<u>or</u> 23311 25050 (Requires Qty.7)	
SL (12MY) Theta 2.4L MPI (4WD)	R	23060 2G400	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212017RK	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212017RL	5.7 M/H	21101 2G401FFF <u>and</u>	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017RM	5.9 M/H	21111 2G4S1FFF (ULEV) <u>or</u> 21111 2G4S2FFF (SULEV)	
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212017RN	5.7 M/H	<u>and</u> 23231 25200FFF	
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212017RO	5.9 M/H	<u>or</u> 23311 25050 (Requires Qty.7)	
TD (12- 13MY) Theta 2.4L MPI	R	23060 2G400	0	Check Oil + BCT (PASS) + Check Engine Noise (PI200S)	212017RZ	0.8 M/H	Diagnosis Only	0
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R (PI2002Z)	212017AA	5.6 M/H	21101 2G402FFF <u>and</u> 21111 2G4S2FFF <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7)	1
				Check Oil + BCT (NO PASS) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017AB	5.8 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA Engine R&R (PI2002Z)	212017AC	5.6 M/H		
				Check Oil + BCT (PASS) + Check for Noise + TL PWA for Engine R&R + ECU Software Update (PI2002Z)	212017AD	5.8 M/H		



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.
AM (12-13MY) Gamma 1.6L	R	23060 2B002	0	Check Oil + Rotate Crank (PI200S)	212221RR	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI200S)	212221RS	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212221R1	7.7 M/H	21101 2BK01FFFR or 21101 2BK02FFFR (Soul Eco ISG Only) 35305 2B000FFF 21111 2BS01FFF 21112 2BS01FFF	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212221R2	7.9 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212221R3	7.4 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2002Z)	212221R4	7.6 M/H		
PS (14-16MY) Gamma 1.6L	R	23060 2B002	0	Check Oil + Rotate Crank (PI200S)	212221RT	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI200S)	212221RU	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212221RD	7.7 M/H	21101 2BK03FFFR 35305 2B000FFF 21111 2BS01FFF 21112 2BS01FFF	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212221RE	7.9 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212221RF	7.4 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2002Z)	212221RG	7.6 M/H		
PS (14-16MY) Nu 2.0L	R	23060 2E013	0	Check Oil + Rotate Crank (PI200S)	212220RR	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI200S)	212220RS	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212220R1	7.7 M/H	21101 2EG01FFFR or 21101 2EG02FFFR (Soul Eco ISG Only) 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212220R2	7.9 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212220R3	7.4 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2002Z)	212220R4	7.6/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
YD (14MY) Nu 2.0L GDI	R	23060 2E001	0	Check Oil + Rotate Crank (PI200S)	212220RT	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI200S)	212220RU	1.3 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212220RD	7.6 M/H	21101 2EG10FFF or 21101 2EG10FFFR and 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212220RE	7.8 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212220RF	7.1 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2002Z)	212220RG	7.3 M/H		
YD (15MY) Nu 2.0L GDI	R	23060 2E001	0	Check Oil + Rotate Crank (PI200S)	212220RT	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI200S)	212220RU	1.3 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212220AL	7.6 M/H	21101 2EG11FFF or 21101 2EG11FFFR and 21111 2EG01FFF 35305 2E510FFF	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212220AM	7.8 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212220AN	7.1 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2002Z)	212220AO	7.3 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
TF HEV (11-12MY) Theta 2.4L MPI	R	23060 2G400	0	Check Oil + Rotate Crank (PI200S)	212017AS	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI180S)	212017AT	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212017AU	8.7 M/H	(11-12MY) 21101 2G406FFF and 21111 2G4S3FFF 23231 25200FFF (Requires Qty.7)	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017AV	8.9 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212017AW	8.1 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI200Z)	212017AX	8.3 M/H		
TF HEV (13MY) Theta 2.4L MPI	R	23060 2G400	0	Check Oil + Rotate Crank (PI200S)	212017AS	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI200S)	212017AT	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212017AY	8.7 M/H	(13 MY) 21101 2G407FFF and 21111 2G4S3FFF 23231 25200FFF (Requires Qty.7)	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017AZ	8.9 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212017BA	8.1 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2002Z)	212017BB	8.3 M/H		

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ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
XMa (12-13MY) Theta 2.4L MPI (2WD)	R	23060 2G401	0	Check Oil + Rotate Crank (PI200S)	212A05K0	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI180S)	212A05K1	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212A05R2	5.9 M/H	21101 2G404FFF <u>and</u> 21111 2G4S2FFF <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7)	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212A05R3	6.1 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212A05R4	6.5 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI200Z)	212A05R5	6.7 M/H		
XMa (12-13MY) Theta 2.4L MPI (4WD)	R	23060 2G401	0	Check Oil + Rotate Crank (PI200S)	212A05K0	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI200S)	212A05K1	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212A05R6	6.3 M/H	21101 2G404FFF <u>and</u> 21111 2G4S2FFF <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7) <u>Optional</u> 47354 39300	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212A05R7	6.5 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212A05R8	6.9 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2002Z)	212A05R9	7.1 M/H		

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SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
SL (12MY) Theta 2.4L MPI (2WD)	R	23030 2G400	0	Check Oil + Rotate Crank (PI200S)	212017RA	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI180S)	212017RB	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212017RC	5.8 M/H	21101 2G401FFF <u>and</u> 21111 2G4S1FFF (ULEV) <u>or</u> 21111 2G4S2FFF (SULEV) <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7)	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017RD	6.0 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212017RE	6.4 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI200Z)	212017RF	6.6 M/H		
SL (12MY) Theta 2.4L MPI (4WD)	R	23030 2G400	0	Check Oil + Rotate Crank (PI200S)	212017RP	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI200S)	212017RQ	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212017RR	6.2 M/H	21101 2G401FFF <u>and</u> 21111 2G4S1FFF (ULEV) <u>or</u> 21111 2G4S2FFF (SULEV) <u>and</u> 23231 25200FFF <u>or</u> 23311 25050 (Requires Qty.7)	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017RS	6.4 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212017RT	6.8 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI2002Z)	212017RU	7.0 M/H		

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ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	OP Time	Replacement P/N	Qty.
TD (12-13MY) Theta 2.4L MPI	R	23060 2G400	0	Check Oil + Rotate Crank (PI200S)	212017BE	0.5 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (Pass) (PI180S)	212017BF	1.1 M/H	Diagnosis Only	0
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R (PI2002Z)	212017BG	6.1 M/H	21101 2G402FFF and 21111 2G4S2FFF and 23231 25200FFF or 23311 25050 (Requires Qty.7)	1
				Check Oil + Rotate Crank (Pass) + BCT (NO Pass) + TL PWA for Engine R&R + Software Update (PI2002Z)	212017BH	6.3 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R (PI2002Z)	212017BI	6.7 M/H		
				Check Oil + No Crank + TL PWA for Engine R&R + Software Update (PI200Z)	212017BJ	6.9 M/H		

NOTE: Refer to [Warranty Bulletin 2021-07](#) 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 **PI12002*** when accessing the WebDCS system.



WARRANTY CLAIM INFORMATION FOR:

PI2002 **Y1**, PI2002 **Z1** and PI200**S** (DIAGNOSIS ONLY CLAIMS):**❗ IMPORTANT**

REFER TO WARRANTY BULLETIN 2021-07 (PI2002Y, Z OR PI200S) FOR MODEL-SPECIFIC LABOR OPERATIONS AND TIMES, AS WELL AS SPECIFIC CLAIM SUBMISSION PROCEDURES. **NOTE:** SEE APPENDIX 1 & 2 ON PAGE 27 AND 30 FOR ADDITIONAL TECHLINE PWA INFORMATION REQUIRED.

Flow Chart Symptom #A	Diagnostics	Repairs
PI2002<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
PI2002<u>Z</u> Engine Noise (TL PWA Required)	Check Oil + BCT Pass	Inspection + Noise Check (N) (PI200S 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
PI2002<u>Z</u> Engine No Crank (TL PWA Required)	Check Oil Amount + Check Crank Rotation (+ 94lb.ft)	Inspection Only (PI200S Claim) - Repairs under normal warranty coverage MAY apply - separate TL PWA case required)
	Check Oil Amount + Crank Rotation (- 94lb.ft) + BCT Pass	Diagnosis Only (PI200S 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

SUBJECT:

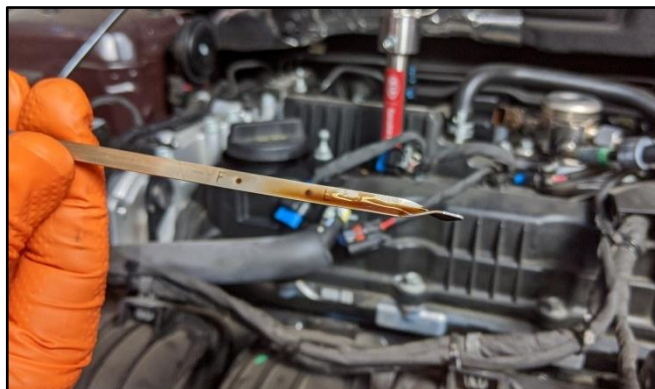
ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)**Appendix 1 (Techline Prior Work Authorization)**

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: • 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	

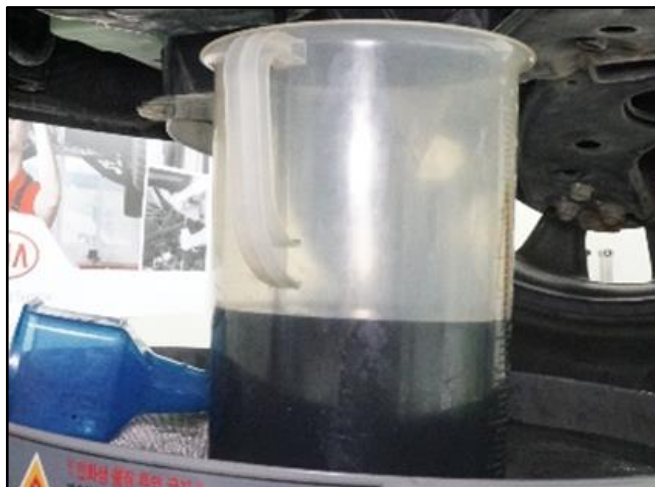
Note: Additional information may be requested by the Techline agent, including but not limited to screenshot of the stored DTC(s), ROM ID and Bearing Clearance Test (BCT) results.

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.

**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.



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 vehicle and move in towards the dash VIN tag.



2. Show the removed spark plugs.



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



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ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

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.

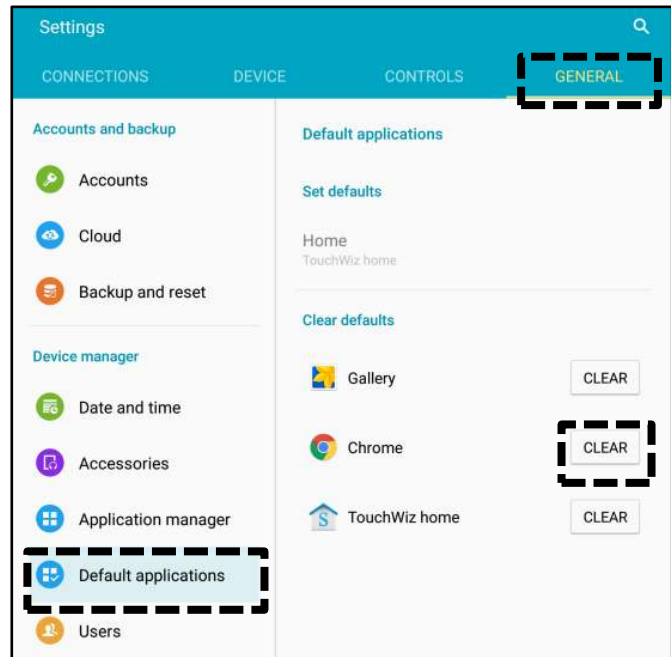
Appendix 2 (Video Capture & Upload)

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:

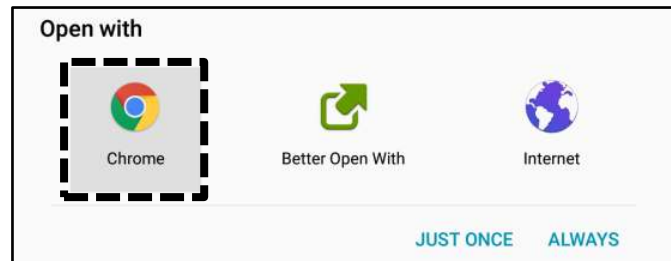
1. Select "Settings" from the App Screen.
 2. Select the "General" tab at the top.
 3. Select "Default Applications".
 4. If "Internet" is the default browser, select the CLEAR button.
- If "Chrome" is the default browser, further action is not required.



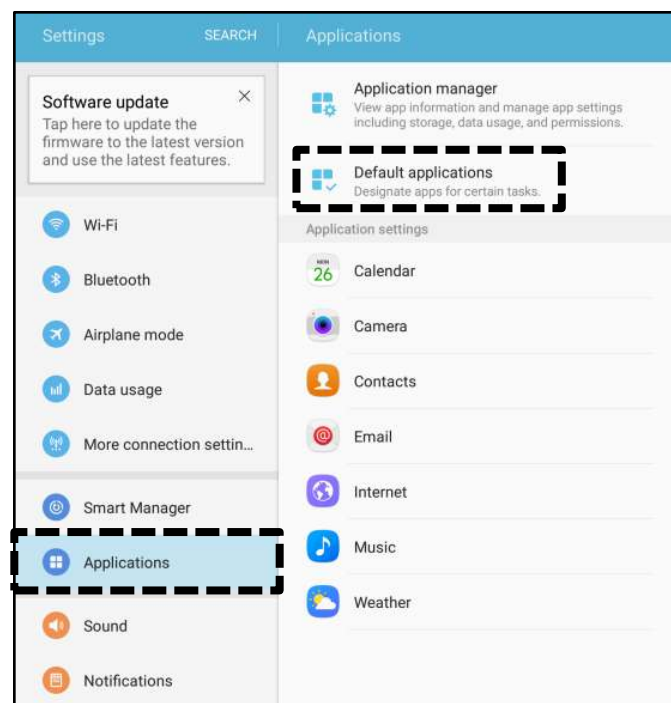
SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

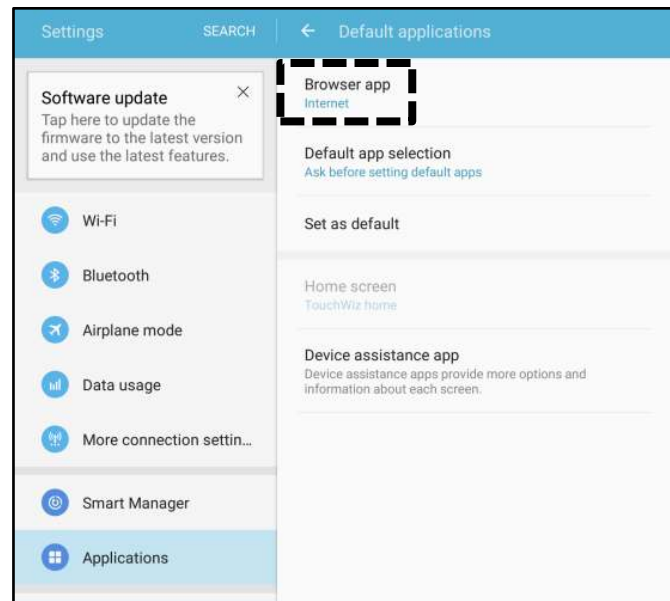
- When opening the Techline portal, select "Chrome" and select Always".

**For KDS Tab S2 Tablets:**

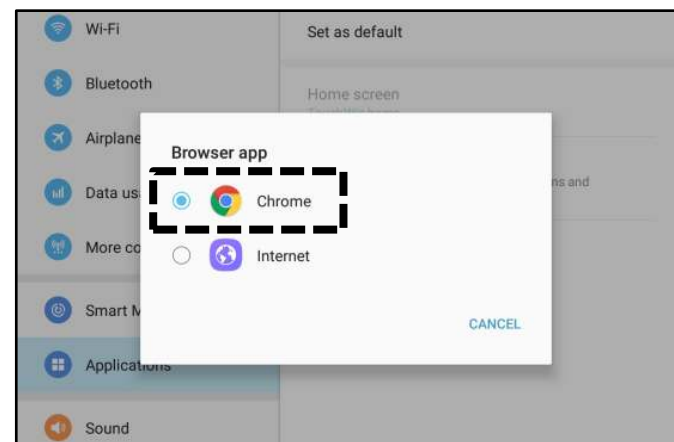
- Select "Settings" from the App Screen.
- Select "Applications".
- Select "Default Applications".



4. Select "Browser app".



5. Ensure "Chrome" is selected.



Attaching Video to a Techline Case:

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

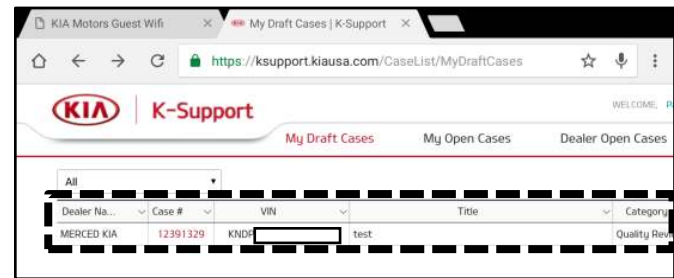
<https://ksupport.kiausa.com>



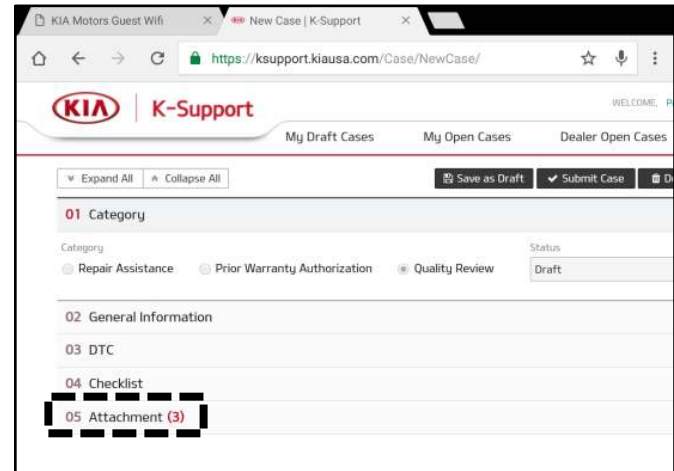
SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

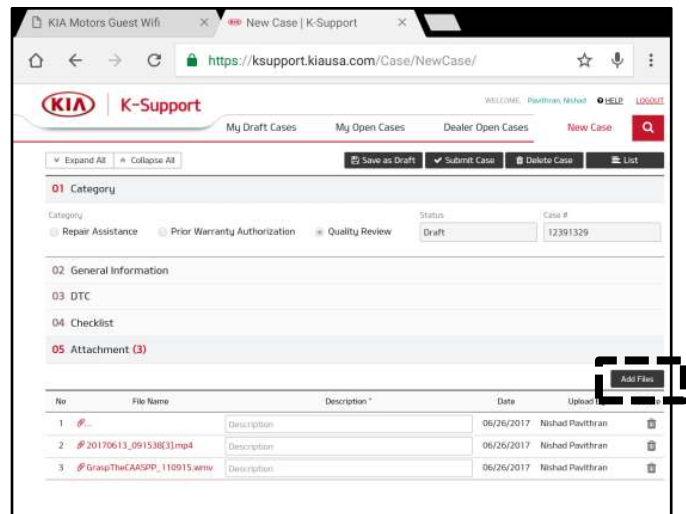
- Open your existing Techline case for the vehicle requiring a video capture by selecting the case number.



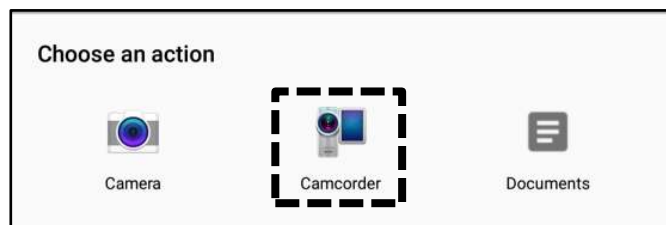
- Select "Attachment".



- Select "Add Files".



- Select "Camcorder" and the video camera will open.



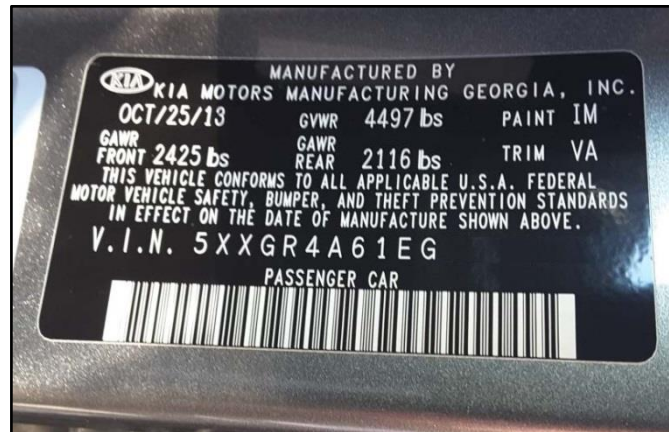
SUBJECT:

ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/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”.

No	File Name	Description	Date	Uploaded By	Delete
1		Description	06/26/2017	Nichad Pavithran	
2	20170613_091538E1.mp4	Description	06/26/2017	Nichad Pavithran	
3	GraspTheCAASPP_110915.xrmv	Description	06/26/2017	Nichad Pavithran	

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ENGINE REPLACEMENT INSTRUCTIONS FOR DTC P1326 (PI2002Y/Z)

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

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

