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Title: Adding a Shim to Certain Crankshaft Position Sensors (CKP) on A26B Engines

Applies To: Low mileage A26B engines

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

09/20/2024 - Initial Article Release

DESCRIPTION

Certain newly built vehicles equipped with the A26B engines were built with a 0.50mm thick shim under the crankshaft position sensor (CKP). This was done due to an issue found after production with the TDC stamp on certain flywheels which could result in a DTC, or a rough idle condition without a DTC. Primary application are vehicles equipped with the Allison automatic transmissions.
This article will call out those VINs that are equipped with the shim, and if and when the shim should be used as a field repair solution.

SYMPTOM(s)

Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

DTC/Light	Description
SPN 157 FMI 31	FRP: Condition Exists
SPN 637 FMI 8	Engine Timing Sensor: Abnormal Frequency or Pulse Width or Period

Customer Observations or Concerns:

The engine may have a very rough idle, to the point it may shut down without any DTC setting at all. This affected engines primarily with very low miles (less than 50K). It is possible as well to set the 637-8 CKP fault along with the rough idle condition. One other failure mode seen, was the 157-31 FRP fault setting with a rough running or stumble complaint right before the trans would make a shift.

SPECIAL TOOL(s) / SOFTWARE

None

SERVICE PARTS INFORMATION

Kit Description	Part Number	Quantity Required	Notes
Washer (Shim) 6.4 ID x 0.5 Thick	7108581C1	1	Only as needed

DIAGNOSTIC STEP(s)

Step	Action	Decision
#1	**DIAGNOSTIC: Has GUIDE diagnostics been completed on any active DTC's without finding root cause?** **NOTE:** If diagnosing the 157-31, do NOT replace the HP Fuel Pump as it will not resolve this issue.	**Yes**. Go to Step 2
		No. Complete any applicable GUIDE diagnostic procedures first, retest for the condition.

Step	Action	Decision
#2	**DIAGNOSTIC: Inspect the TDC stamping on the Flywheel** **Remove the inspection cover from the bottom of the flywheel housing, bar the engine over to TDC.** Visually inspect the TDC stamp and compare to **Figure #1** below. If required, measure the depth and the width to see if it is within specifications. Maximum Width: 0.55mm Maximum Depth: 0.275mm **Is the TDC mark within specifications?**	**Yes.** Continue through published diagnostics for any DTC's that are present. If no resolution is found consider opening a tech service case file for further assistance.
		No. Continue to step 3

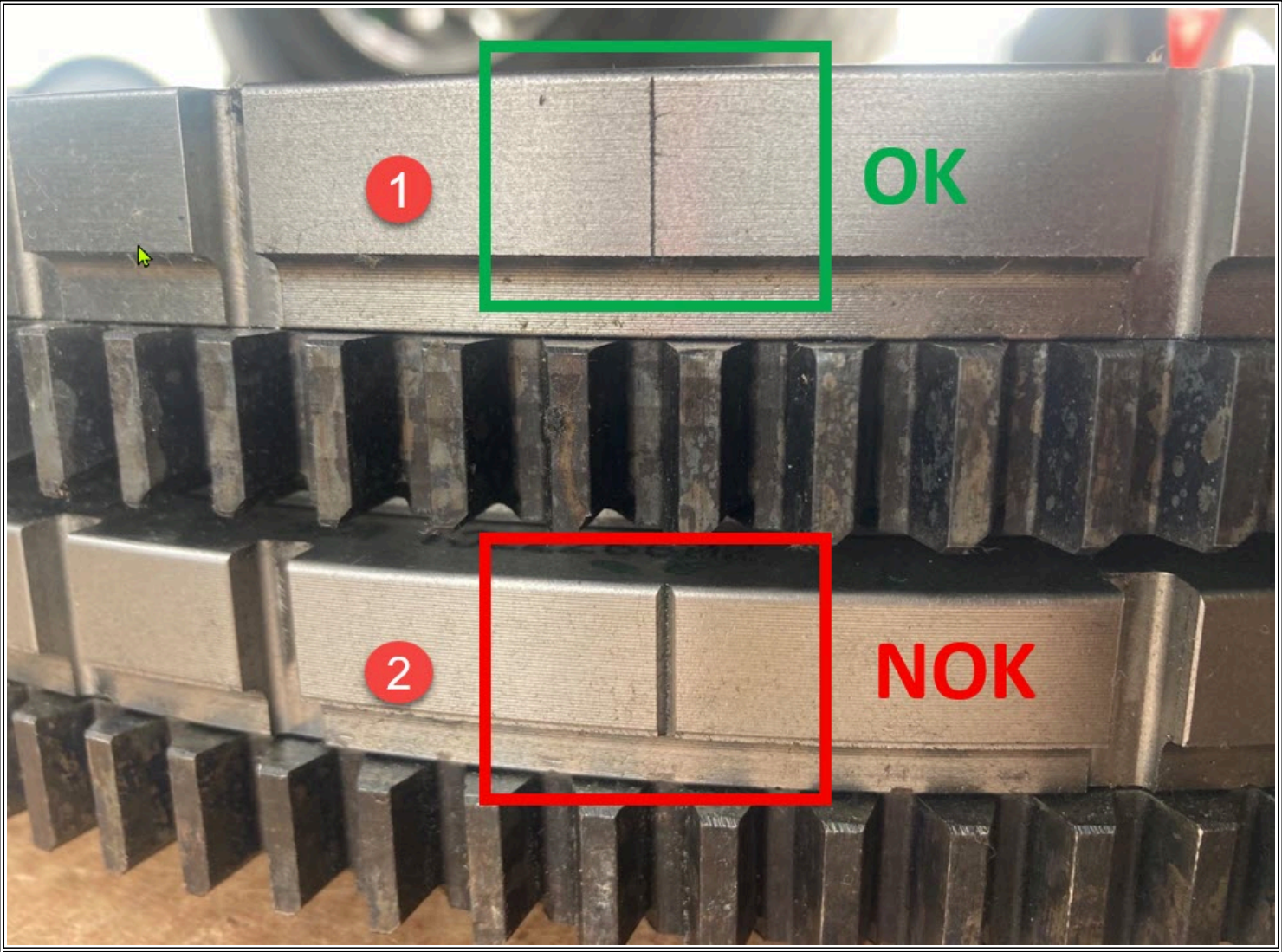

Figure #1: Flywheel TDC Stamp

Item 1: OK, mark is very light and narrow. Slightly more than a simple scribe marking
Item 2: NOT OK, mark is very deep and wide, when measured is out of specification listed in step 2

Step	Action	Decision
#3	**DIAGNOSTIC: Verify if the engine was built with a timing sensor shim, or is a shim already in place around the CKP sensor hold down bolt?** Review the VIN list HERE to see if the engine was built with a timing sensor shim. **Was the engine built with a timing sensor shim, or does it have a shim already installed?**	**Yes.** Replace the flywheel, verify the TDC mark is within specifications before installation. **NOTE:** remove the shim from under the timing sensor hold down bolt once the new flywheel is installed. Once back together, retest for the condition.
		No. Proceed to step 4.

Step	Action	Decision
#4	**DIAGNOSTIC: Install a 0.50mm shim under the crankshaft position sensor hold down bolt.** Remove the crankshaft position sensor from the flywheel housing. Insure the sensor tip is clean and undamaged. Install the 7108581C1 shim under the sensor and around the hold down bolt **(Figure #2 Item 1)**. This will lift the sensor from the housing 0.50mm. Install the shimmed sensor and torque the bolt to 13 +/- 1.3 Nm then retest for the condition. **Did installing the shim resolve the operational complaint?**	**Yes.** Clear any DTC's and return the unit to service. **No.** Consider opening a tech service case file for further assistance.

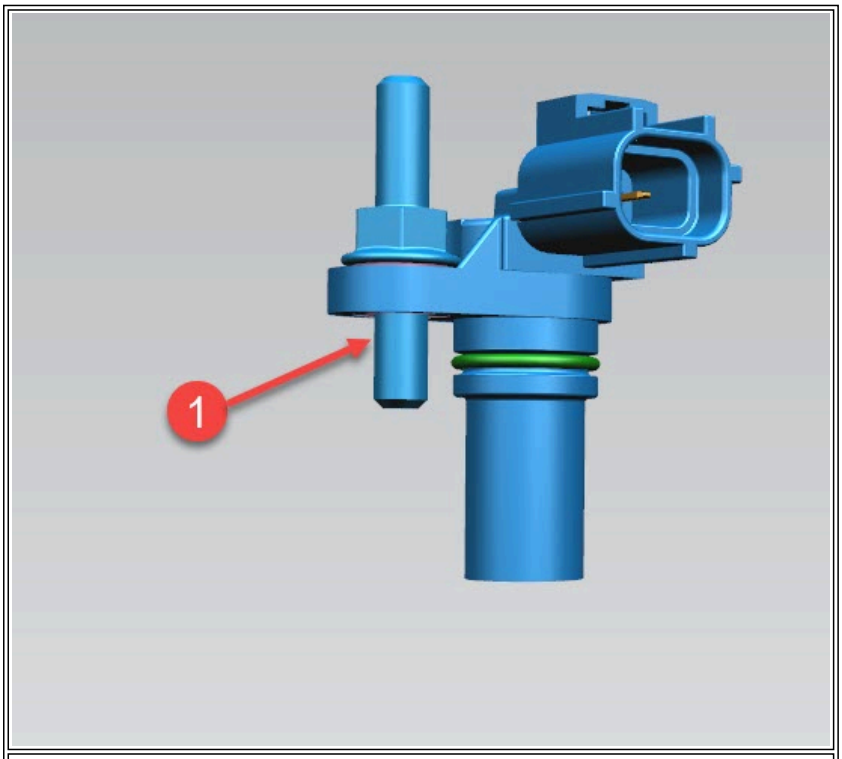

Figure #2: Timing Sensor Shim Location

Item 1: Shim to be installed here, around the sensor hold down bolt

WARRANTY INFORMATION

Warranty Claim Coding:

Refer to the Warranty Coding Manual for Group and Noun Codes.

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