

2003 Ford Mustang V8-4.6L SOHC VIN X

Vehicle > Technical Service Bulletins

ENGINE CONTROLS - ENGINE SURGE/ROLLING IDLE/DTC'S SET

Related Links

Service Procedure

Article No.

02-22-1

11/11/02

^ DRIVEABILITY - SURGE/ROLLING IDLE - GEAR
DRIVEN SYNCHRONIZERS - INCORRECT
INSTALLATION - CAMSHAFT POSITION
SYNCHRONIZER (CMP) INSTALLATION TOOL
CORRECT APPLICATION

^ ENGINE - GEAR DRIVEN SYNCHRONIZERS -
INCORRECT INSTALLATION - CAMSHAFT POSITION
SYNCHRONIZER (CMP) INSTALLATION TOOL
CORRECT APPLICATION

FORD:

1994-1997 THUNDERBIRD

1995-2003 TAURUS

1996-2003 MUSTANG

1995-1997 AEROSTAR

1995-2003 RANGER, WINDSTAR

1996-2000 EXPLORER

1997-2003 E SERIES, F-150

MERCURY:

1994-1997 COUGAR

1995-2003 SABLE

1997-2000 MOUNTAINEER

ISSUE

Incorrectly installed gear driven camshaft position (CMP) sensor synchronizer assemblies may be hard to diagnose. Vehicle may exhibit poor fuel economy, driveability Diagnostic Trouble Codes (DTCs) P1336, P1309, P0340 with MIL light on. Loss of power, surge, hesitation and runs rough on acceleration may also be present.

ACTION

New diagnostics have been developed for WDS to diagnose incorrectly installed gear driven camshaft position (CMP) synchronizer assemblies. Refer to the following Service Procedure to diagnose a possible mis-installed synchronizer assembly and proper installation procedure.

SERVICE INFORMATION

Items Covered In This Article

- ^ "Hall" vs. "VRS" sensor function
- ^ Vehicle history scrutiny for past service of the synchronizer assembly
- ^ WDS - Power balance test
- ^ WDS - CMP and CKP wave signal comparison
- ^ Wave Comparison chart - CMP vs. CKP
- ^ Correct (CMP) synchronizer installation tool application & installation procedure
- ^ "Top Dead Center" (TDC) alignment
- ^ Synchronizer installation tool application chart

Hall - Effect (Hall) and Variable Reluctance (VRS) CMP Sensors

CMP sensors are used on all current model year engines, regardless of fuel system or ignition system type. The CMP sensor provides the Powertrain Control Module (PCM) with cam position information to indicate # 1 cylinder, on the compression stroke

There are two different types of CMP sensors:

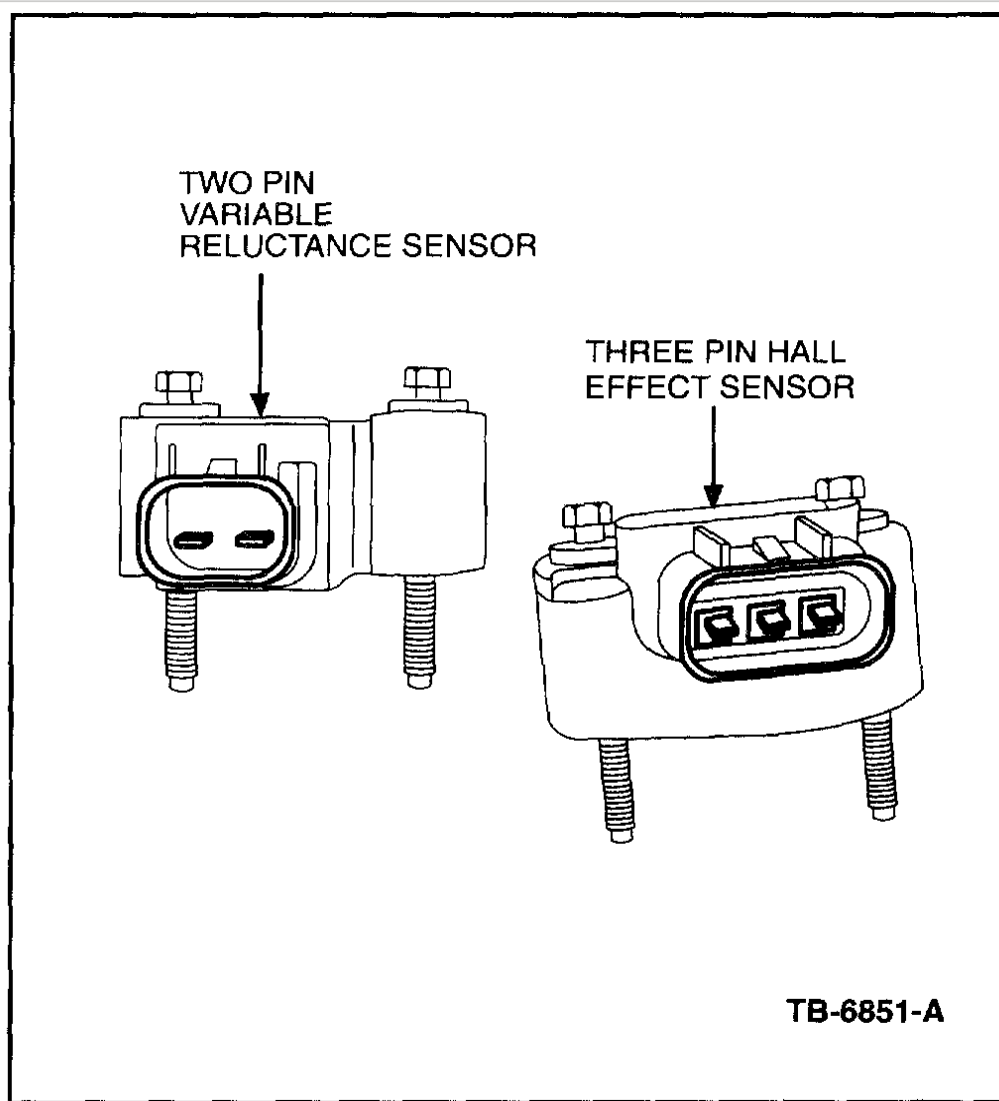


Figure 1

^ The three-pin, Hall-effect sensor (Figure 1)

^ The two-pin Variable Reluctance sensor (Figure 1)

Although the Hall-effect (three-pin) and the Variable Reluctance (two-pin) CMP sensors perform the same function, their signal appearance is quite different and they are not interchangeable.

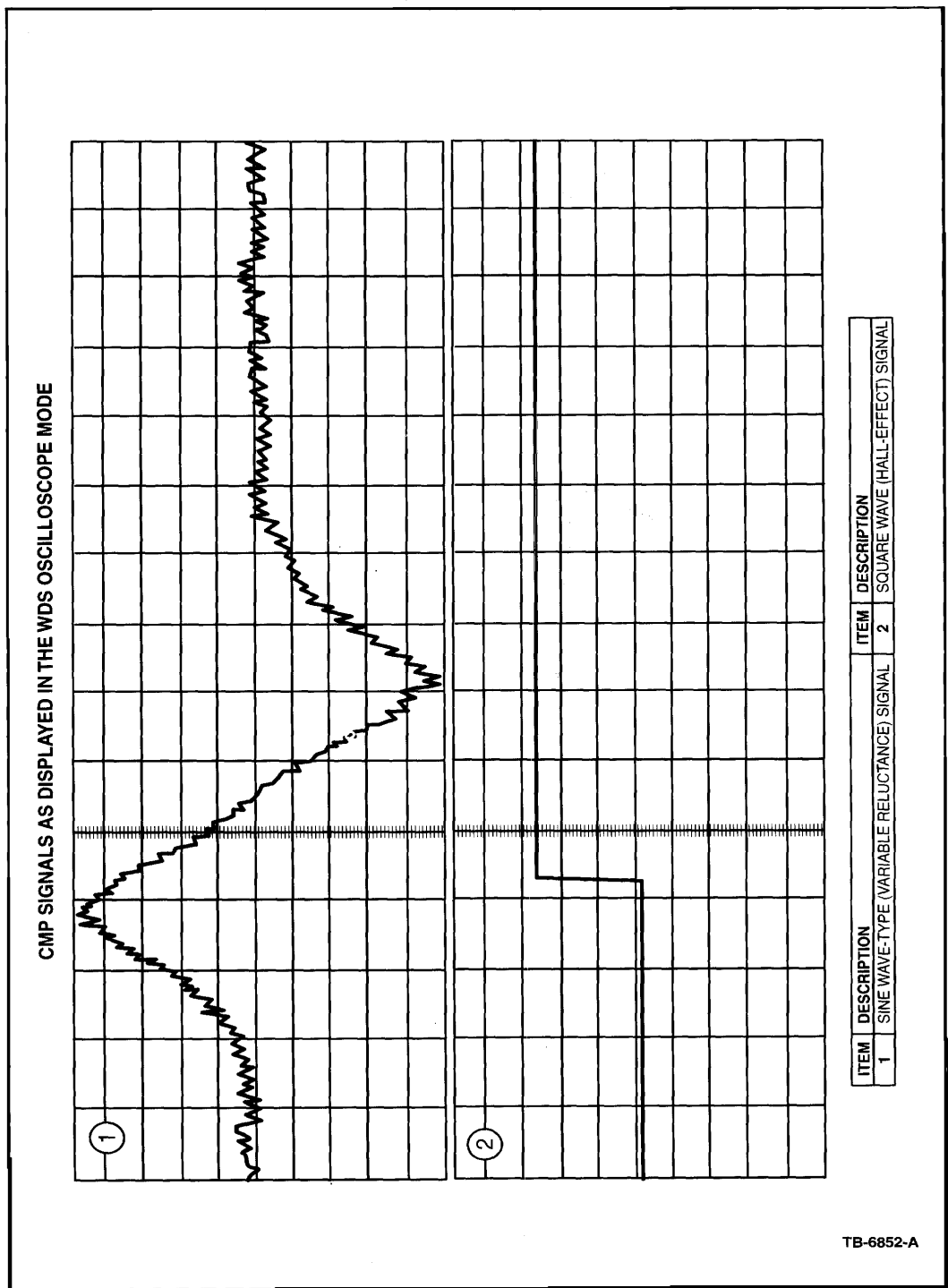


Figure 2

^ The three-pin Hall-effect sensor uses a Hall effect device and a magnet to generate a digital square wave signal (Figure 2)

^ The two-pin Variable Reluctance sensor is a magnetic transducer, which uses differential voltage across windings to generate a voltage waveform that is similar to a sine wave (Figure 2)

Both sensors provide a switching voltage as the engine rotates.

NOTE: The information in Technical Service Bulletins is intended for use by trained, professional technicians with the knowledge, tools, and equipment to do the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by "do-it-yourselfers". Do not assume that a condition described affects your car or truck. Contact a Ford, Lincoln, or Mercury dealership to determine whether the Bulletin applies to your vehicle.

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