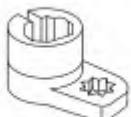


SECTION 303-14: Electronic Engine Controls
REMOVAL AND INSTALLATION

2014 F-150 Workshop Manual
Procedure revision date: 10/25/2013

Engine Control Components — Exploded View, 6.2L (2V)

Special Tool(s)

 ST1447-A	Socket, Exhaust Gas Oxygen Sensor 303-476 (T94P-9472-A)
 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool

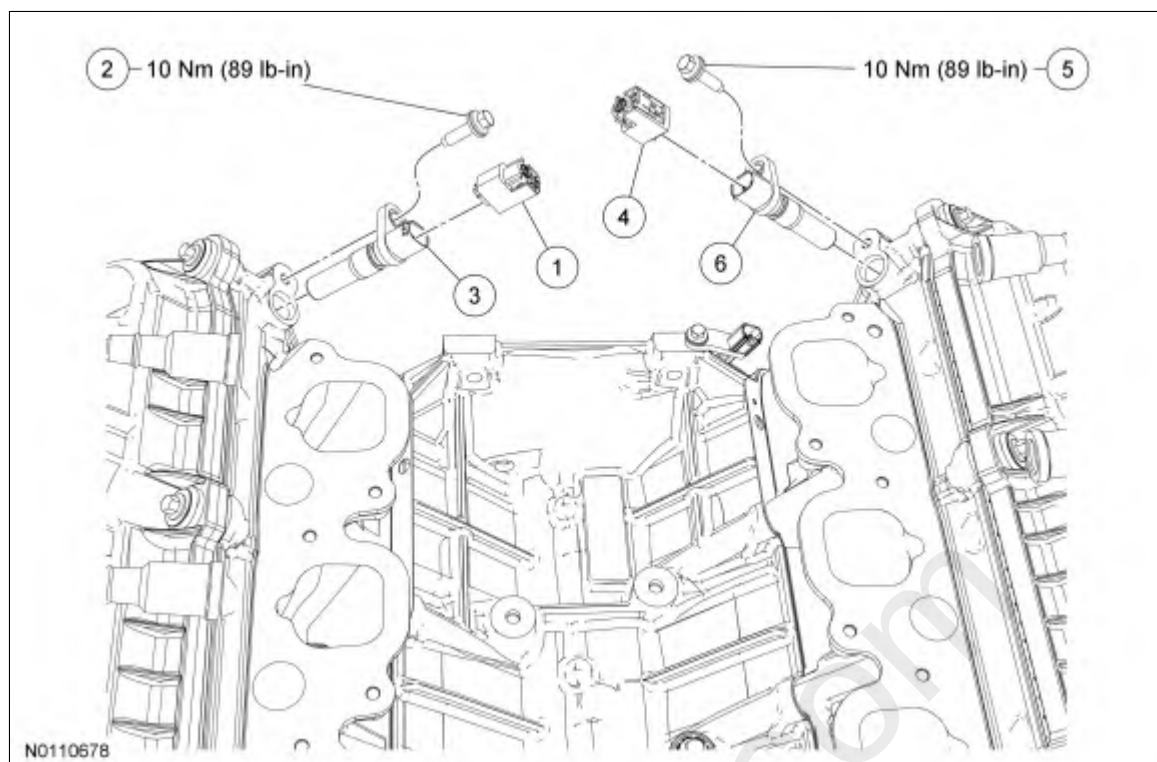
Material

Item	Specification
High Temperature Nickel Anti-Seize Lubricant XL-2	—
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil (US); Motorcraft® SAE 5W-20 Super Premium Motor Oil (Canada) XO-5W20-QSP (US); CXO-5W20-LSP12 (Canada)	WSS-M2C945-A
Penetrating and Lock Lubricant (US); Penetrating Fluid (Canada) XL-1 (US); CXC-51-A (Canada)	—

Camshaft Position (CMP) Sensor

NOTE: Intake manifold removed from graphic for clarity.

NOTE: Lubricate the CMP sensor O-ring seal with clean engine oil prior to installation.



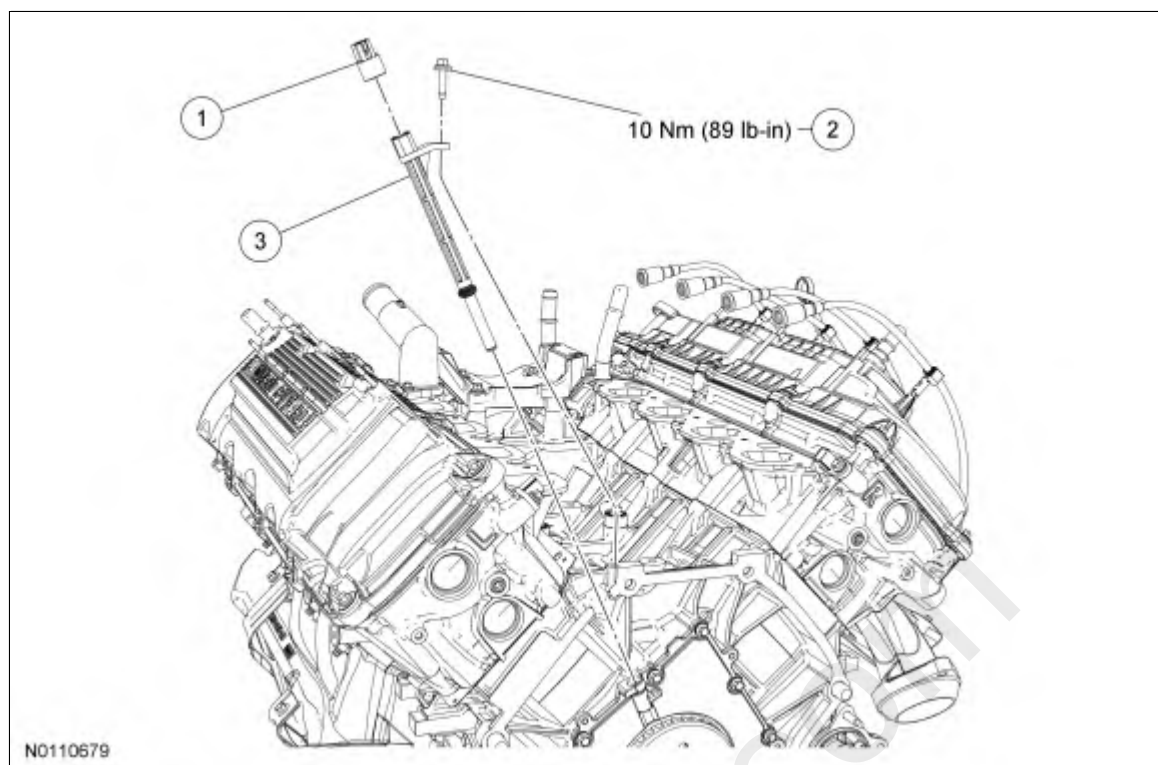
Item	Part Number	Description
1	—	RH Camshaft Position (CMP) sensor electrical connector (part of 12C508)
2	W503276	RH <u>CMP</u> sensor bolt
3	12K073	RH <u>CMP</u> sensor
4	—	LH <u>CMP</u> sensor electrical connector (part of 12C508)
5	W503276	LH <u>CMP</u> sensor bolt
6	12K073	LH <u>CMP</u> sensor

Crankshaft Position (CKP) Sensor

NOTICE: The Crankshaft Position (CKP) sensor must be positioned into the fitting on the crankshaft rear seal retainer plate and be flush against the boss on the engine block before the bolt is installed. If the CKP sensor is installed incorrectly, the CKP sensor can be damaged.

NOTE: The intake manifold must be removed to perform this procedure. For additional information, refer to [Section 303-01D](#).

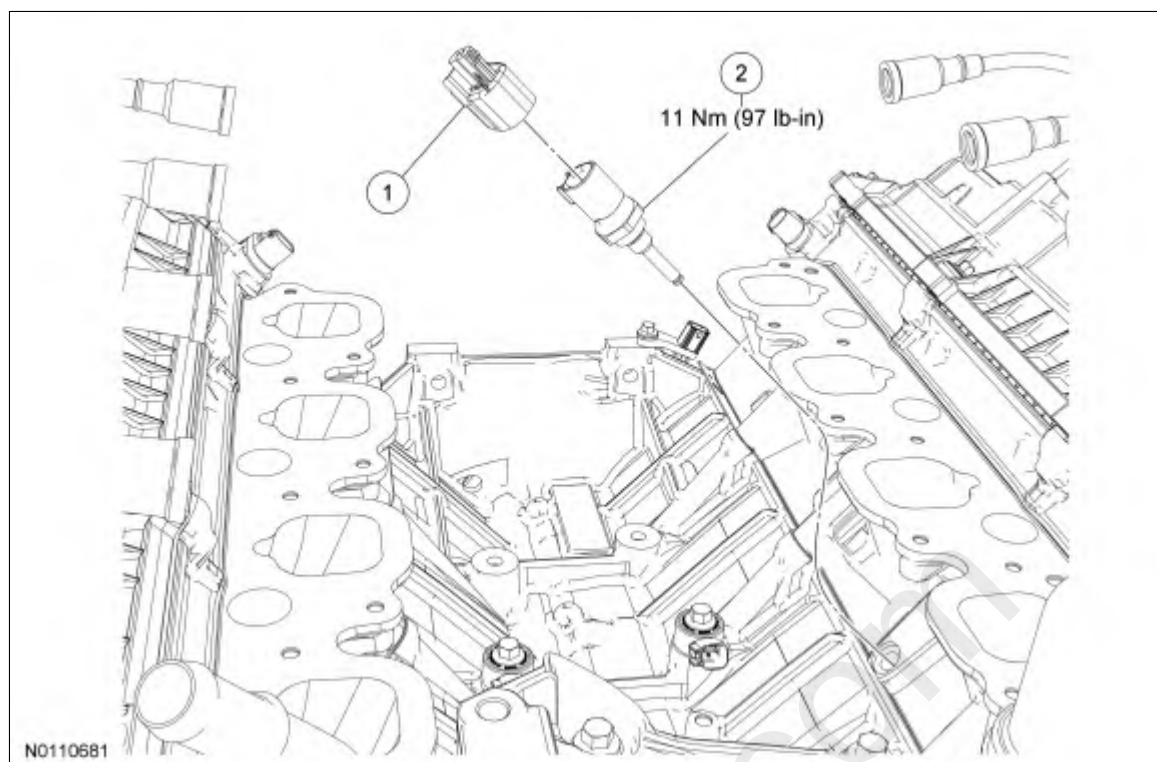
NOTE: After installing the CKP sensor, use the scan tool to perform the Misfire Monitor Neutral Profile Correction procedure, following the on-screen instructions.



Item	Part Number	Description
1	—	Crankshaft Position (CKP) sensor electrical connector
2	W503276	CKP sensor bolt
3	6C315	CKP sensor

Cylinder Head Temperature (CHT) Sensor

NOTE: The intake manifold must be removed to perform this procedure. For additional information, refer to [Section 303-01D](#).



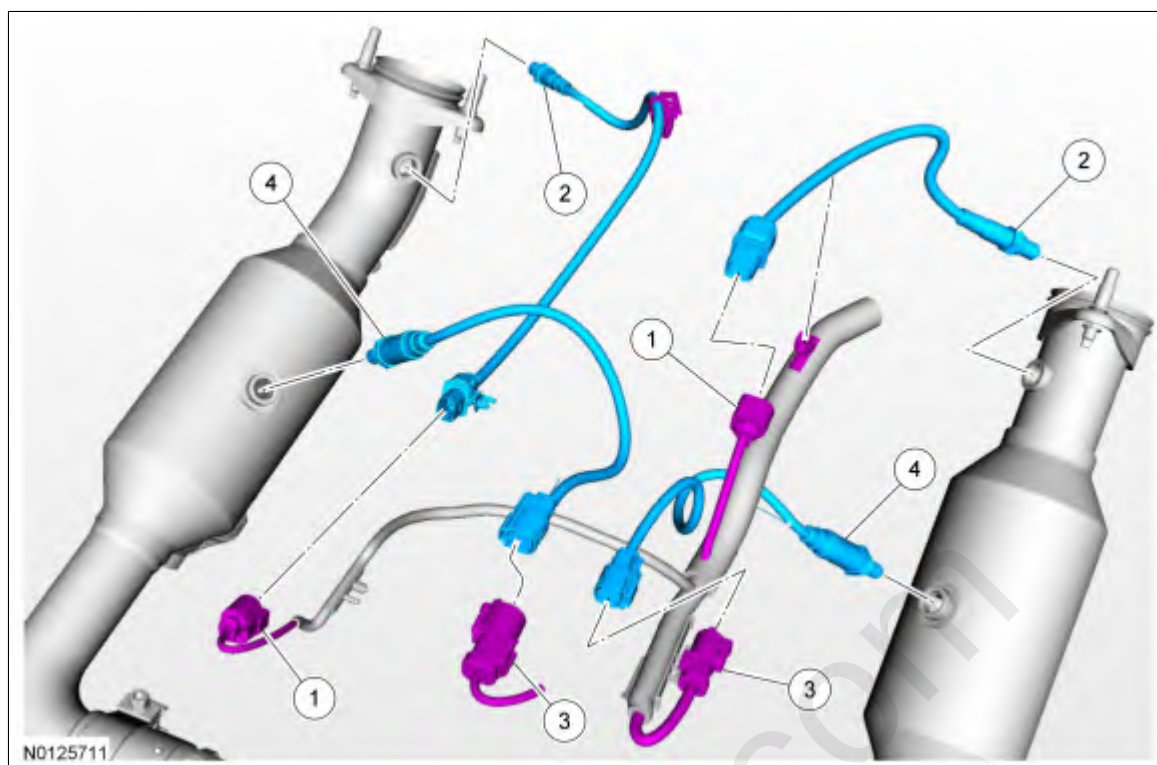
Item	Part Number	Description
1	—	Cylinder Head Temperature (CHT) sensor electrical connector (part of 14B485)
2	6G004	<u>CHT</u> sensor

Heated Oxygen Sensor (HO2S) and Catalyst Monitor Sensor (CMS)

NOTE: If necessary, lubricate the Heated Oxygen Sensor (HO2S) and/or Catalyst Monitor Sensor (CMS) with penetrating and lock lubricant to assist in removal.

NOTE: Apply anti-seize to the threads of the HO2S and/or CMS prior to installing.

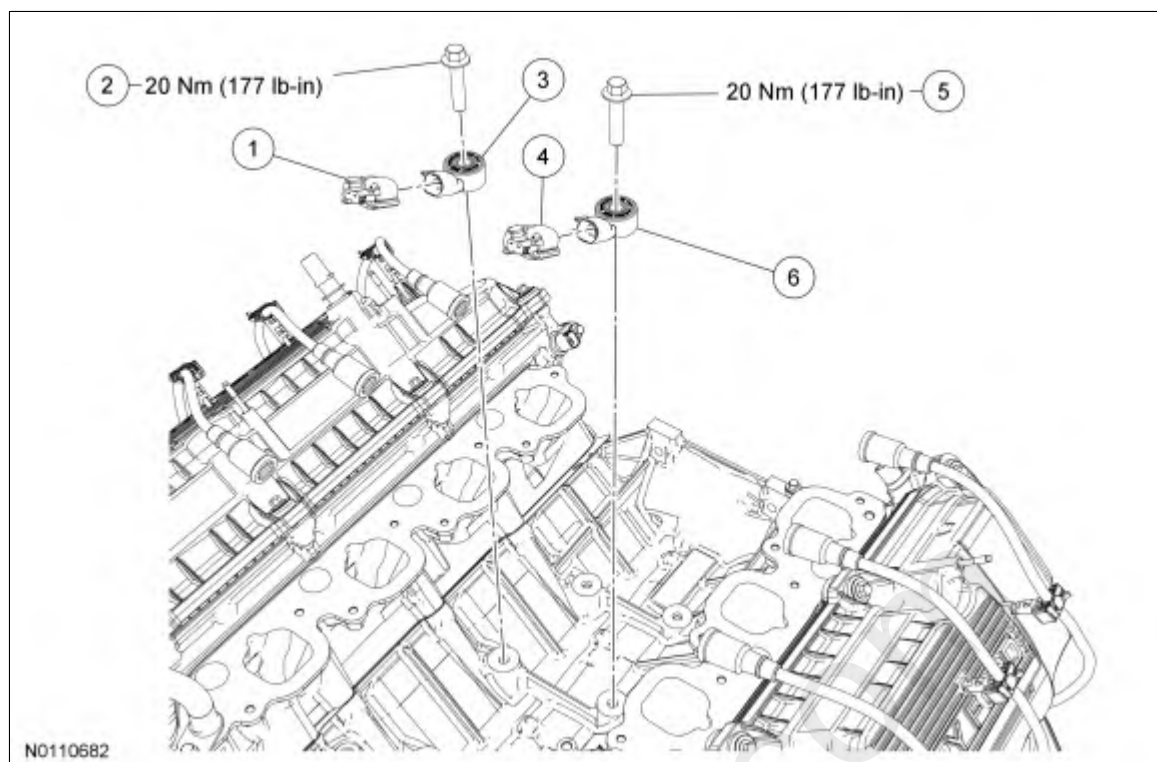
NOTE: The correct torque wrench setting must be calculated when using the Exhaust Gas Oxygen Sensor Socket to install the HO2S and/or CMS. [Refer to the Torque Wrench Adapter Formulas in the Appendix.](#)



Item	Part Number	Description
1	—	Heated Oxygen Sensor (HO2S) electrical connectors (part of 15525)
2	9F472	<u>HO2S</u>
3	—	Catalyst Monitor Sensor (CMS) electrical connectors (part of 15525)
4	9G444	<u>CMS</u>

Knock Sensor (KS)

NOTE: The intake manifold must be removed to perform this procedure. For additional information, refer to [Section 303-01D](#).



Item	Part Number	Description
1	—	RH Knock Sensor (KS) electrical connector (part of 14B485)
2	W710119	RH <u>KS</u> bolt
3	12A699	RH <u>KS</u>
4	—	LH <u>KS</u> electrical connector (part of 14B485)
5	W710119	LH <u>KS</u> bolt
6	12A699	LH <u>KS</u>

Variable Camshaft Timing (VCT) Variable Force Solenoid

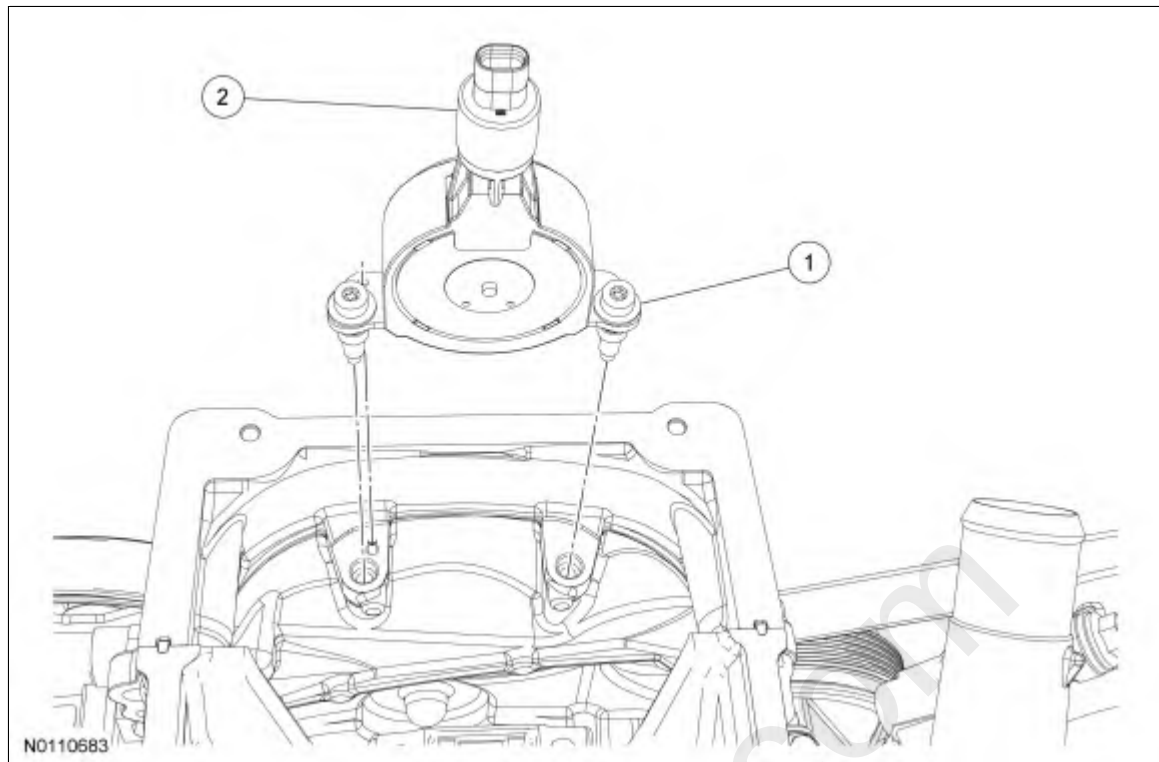
NOTICE: The Variable Camshaft Timing (VCT) variable force solenoid pins must be fully depressed to avoid interference with the VCT valve tips when installing the solenoids. Failure to follow these instructions can result in damage to the engine.

NOTE: The LH or RH valve cover must be removed to perform this procedure. For additional information, refer to [Section 303-01D](#).

NOTE: The bolts are part of the VCT variable force solenoid and cannot be removed.

NOTE: Position the VCT variable force solenoid and tighten the bolts in 2 stages.

- Stage 1: Tighten to 10 Nm (89 lb-in).
- Stage 2: Tighten an additional 45 degrees.



Item	Part Number	Description
1	W700005	Variable Camshaft Timing (VCT) variable force solenoid bolt (part of 6B297) (2 required)
2	6M280	<u>VCT</u> variable force solenoid

Removal and Installation

1. Refer to the procedures and/or exploded views in this section for any Warnings, Notices, Notes, Materials, Specifications, and Special Tools. Items in the exploded views may not be listed in order of removal.

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