


Camshaft Synchronizer**Special Tool(s)**

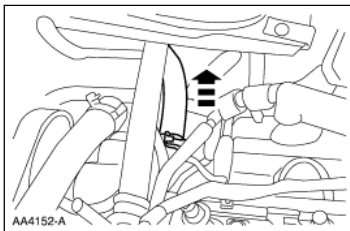
 ST2362-A	Synchronizer Alignment Gauge 303-630
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Material

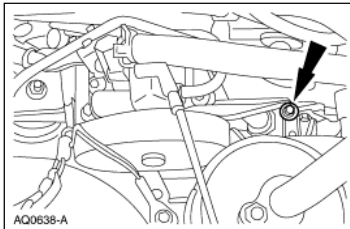
Item	Specification
Super Premium SAE 5W-20 Motor Oil XO-5W20-QSP	WSS-M2C153-H

Removal

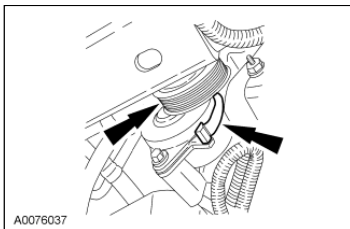
1. Disconnect the battery ground cable. For additional information, refer to [Section 414-01](#).
2. Drain the cooling system. For additional information, refer to [Section 303-03](#).
3. Remove the camshaft position (CMP) sensor. For additional information, refer to [Camshaft Position \(CMP\) Sensor](#) in this section.
4. Disconnect the hose from the coolant pump outlet tube.



5. Remove the two (one shown) coolant pump outlet tube bolts and position the tube assembly aside.

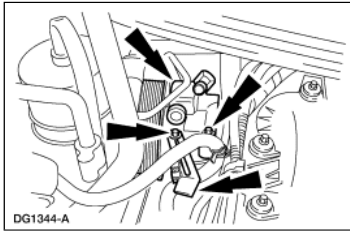


6. Remove the accessory drive belt.
 - Rotate the accessory drive belt tensioner counterclockwise.
 - Push the spring clip toward the belt tensioner to lock the accessory drive belt tensioner in place.



7. **NOTE:** The bolt that is positioned under the power steering pressure tube fitting will remain with the pump.

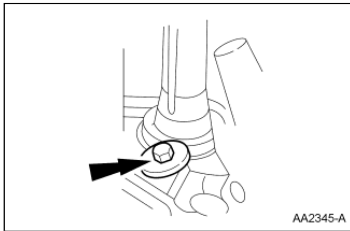
Remove the four power steering pump bolts and position the power steering pump aside.



8. **CAUTION:** Do not turn the crankshaft or the camshaft during the removal and installation procedure or the fuel system timing will be out of time with the engine and possibly cause engine damage.

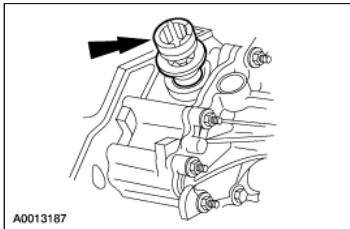
Rotate the crankshaft until the No. 1 cylinder is at top dead center (TDC) of the compression stroke.

9. Remove the bolt.



10. **NOTE:** The oil pump driveshaft might not come out with the camshaft synchronizer. If so, retrieve the oil pump drive shaft before proceeding.

Remove the camshaft synchronizer.

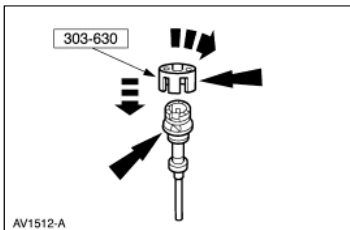


Installation

CAUTION: After installation, do not loosen the synchronizer bolt and rotate the synchronizer assembly. The synchronizer assembly is not adjustable. Do not loosen the synchronizer bolt after the alignment tool has been removed in order to align the CMP electrical connector for any reason. If the electrical connector is not in the correct position, the synchronizer assembly must be removed, the alignment tool and the assembly reinstalled if the engine has not been rotated from TDC of the compression on the No. 1 cylinder.

1. **CAUTION:** A special tool must be used during the installation of the replacement synchronizer assembly. Failure to follow this procedure will result in the fuel system being out of time with the engine, possibly causing engine damage.

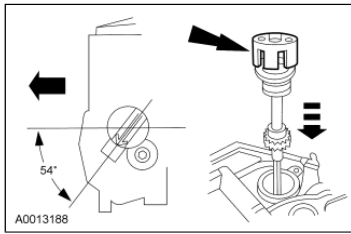
Install the special tool on the camshaft synchronizer by rotating the tool until it engages the notch in the camshaft synchronizer housing and the armature.



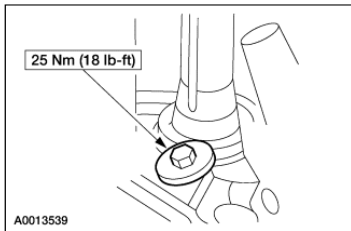
2. **CAUTION:** It is very important to coat the gear on the camshaft synchronizer with clean engine oil prior to installation. Failure to do so could result in gear failure.

NOTE: During installation, the arrow on the special tool will rotate clockwise until oil pump intermediate shaft and camshaft gear engages.

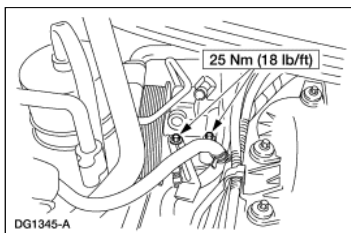
Install the camshaft synchronizer housing assembly so the arrow on the special tool is 54 degrees from the centerline of the engine.



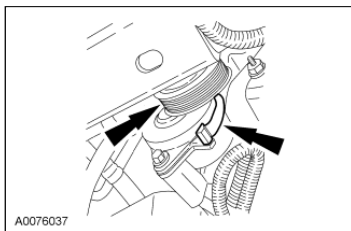
3. Install the bolt.



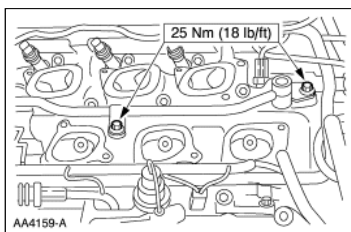
4. Position the power steering pump and install the four bolts.



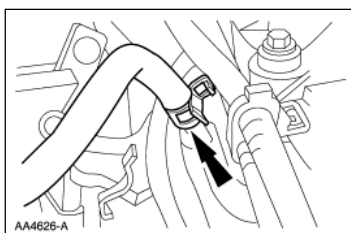
5. Install the accessory drive belt.
- Position the accessory drive belt onto the engine.
 - Rotate the accessory drive belt tensioner counterclockwise until the spring clip releases.



6. Position the coolant pump outlet tube and install the bolts.



7. Connect the hose to the coolant pump outlet tube.



8. Install the camshaft position (CMP) sensor. For additional information, refer to [Camshaft Position \(CMP\) Sensor](#) in this section.
 9. Fill and bleed the cooling system. For additional information, refer to [Section 303-03](#).
 10. Connect the battery ground cable. For additional information, refer to [Section 414-01](#).
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