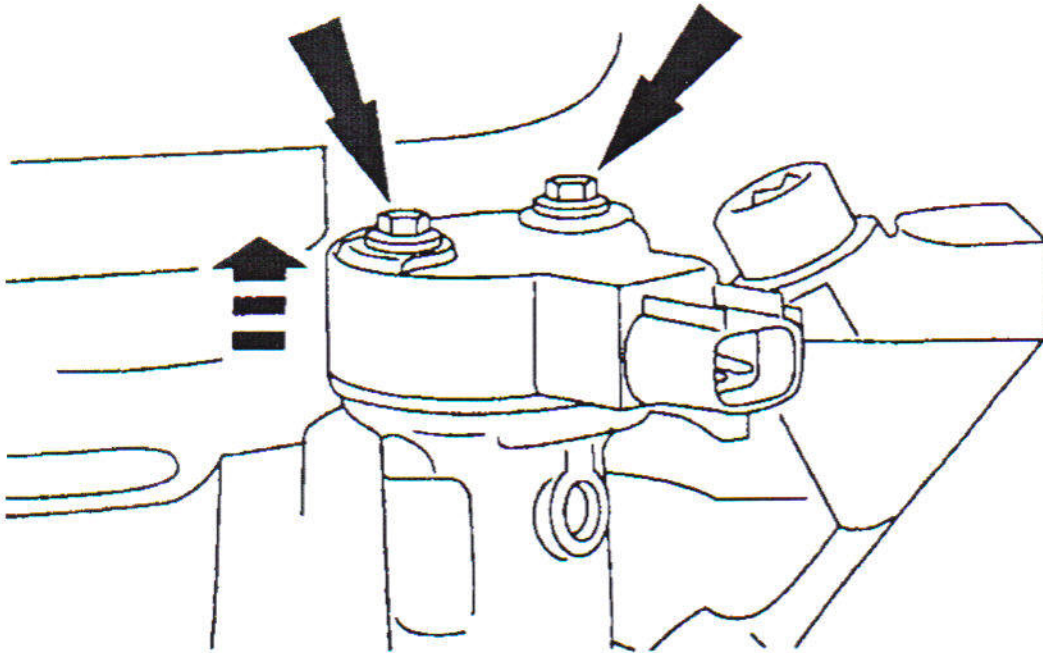


## Removal &amp; Installation (3.0L, 3.8L, 4.0L &amp; 5.0L)

1. CMP sensor is located on top of engine, near intake manifold. See [Fig. 3](#) .



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**Fig. 3: Locating Camshaft Position (CMP) Sensor (3.0L, 3.8L, 4.0L & 5.0L; 4.2L Similar)**

Courtesy of FORD MOTOR CO.

2. Disconnect negative battery cable.
3. Before removing, note position of electrical connector on CMP sensor. Disconnect CMP sensor electrical connector.

**NOTE:** For Explorer models with 4.0L push rod engine, remove the upper intake manifold. See [REMOVAL & INSTALLATION \(4.0L VIN X\)](#) under UPPER INTAKE MANIFOLD.

4. Remove CMP sensor screws and CMP sensor. To install, reverse removal procedure. Ensure CMP sensor electrical connector is pointing in original direction. Tighten CMP sensor to specification. See [TORQUE SPECIFICATIONS](#) .

**NOTE:** If the synchronizer is turned while removing the CMP sensor, it must be re-aligned before CMP sensor is installed. See [CMP](#)

**SYNCHRONIZER .**

## Removal (4.0L)

**CAUTION: Do NOT turn crankshaft or camshaft during removal and installation procedure or fuel system control will be out of time. This could possibly cause engine damage.**

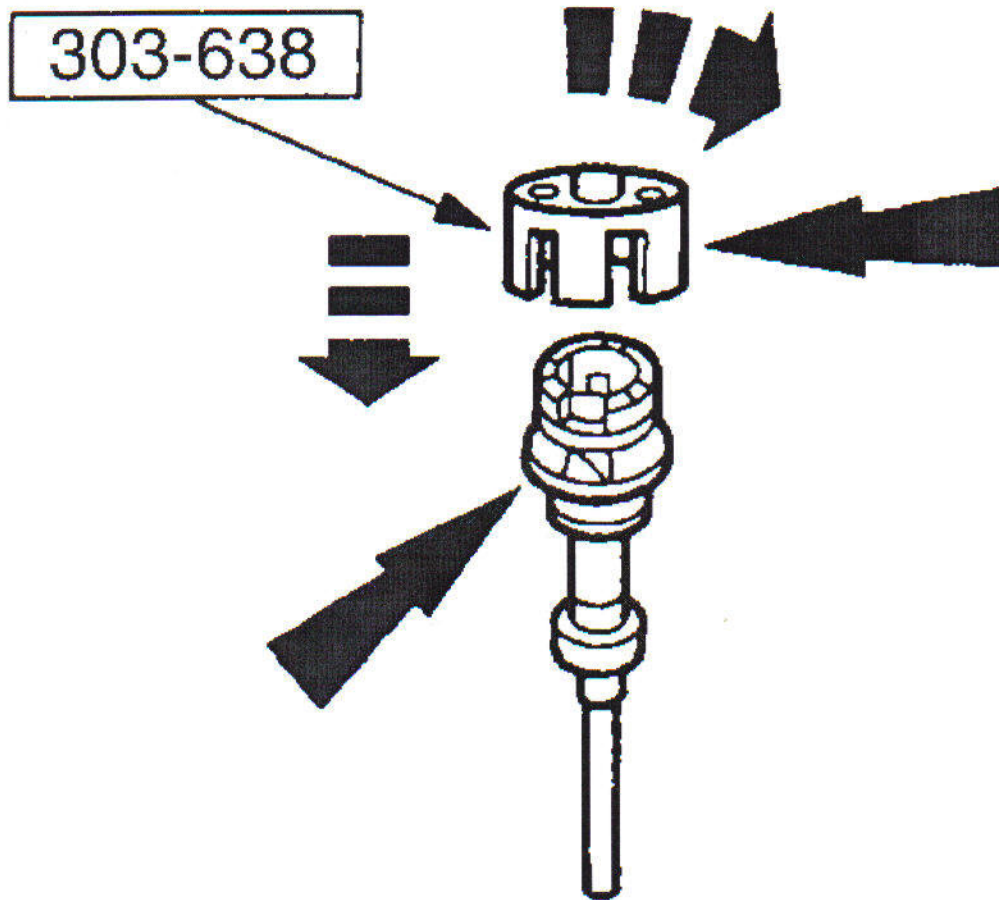
1. Position crankshaft to TDC of cylinder No. 1 compression stroke. Note position of electrical connector on CMP sensor. Installation requires that the connector be located in the same position.
2. Disconnect negative battery cable.
3. On Explorer models only, remove upper intake manifold. See **REMOVAL & INSTALLATION (4.0L VIN X)** under UPPER INTAKE MANIFOLD.
4. On all models, remove CMP sensor. See **REMOVAL & INSTALLATION (3.0L, 3.8L, 4.0L & 5.0L)**.
5. Remove camshaft synchronizer hold-down bolt. Lift camshaft synchronizer from engine block.

**CAUTION: DO NOT rotate crankshaft while synchronizer is removed from engine.**

## Installation (4.0L)

**CAUTION: Synchro Positioning Tool (303-638) MUST be used during installation of synchronizer assembly. Failure to follow this procedure could cause fuel system control to be out of time. This could possibly cause engine damage.**

1. It is very important to coat the gear on the camshaft synchronizer with engine oil prior to installation. Failure to do so could result in gear failure upon engine start up.
2. Install Synchro Positioning Tool (303-638) on camshaft synchronizer by rotating the tool until it engages into notch in camshaft synchronizer housing and the armature. See **Fig. 9**.

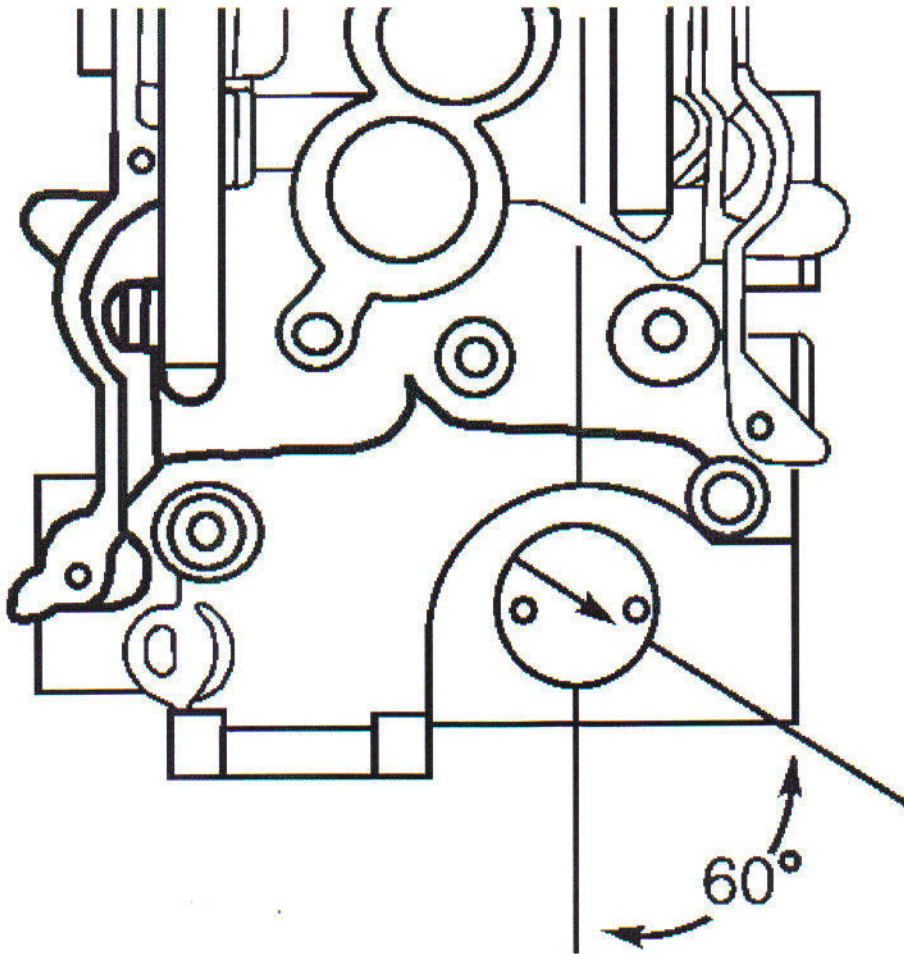


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**Fig. 9: Installing Synchro Positioning Tool (303-638) On Camshaft Synchronizer (4.0L)**

Courtesy of FORD MOTOR CO.

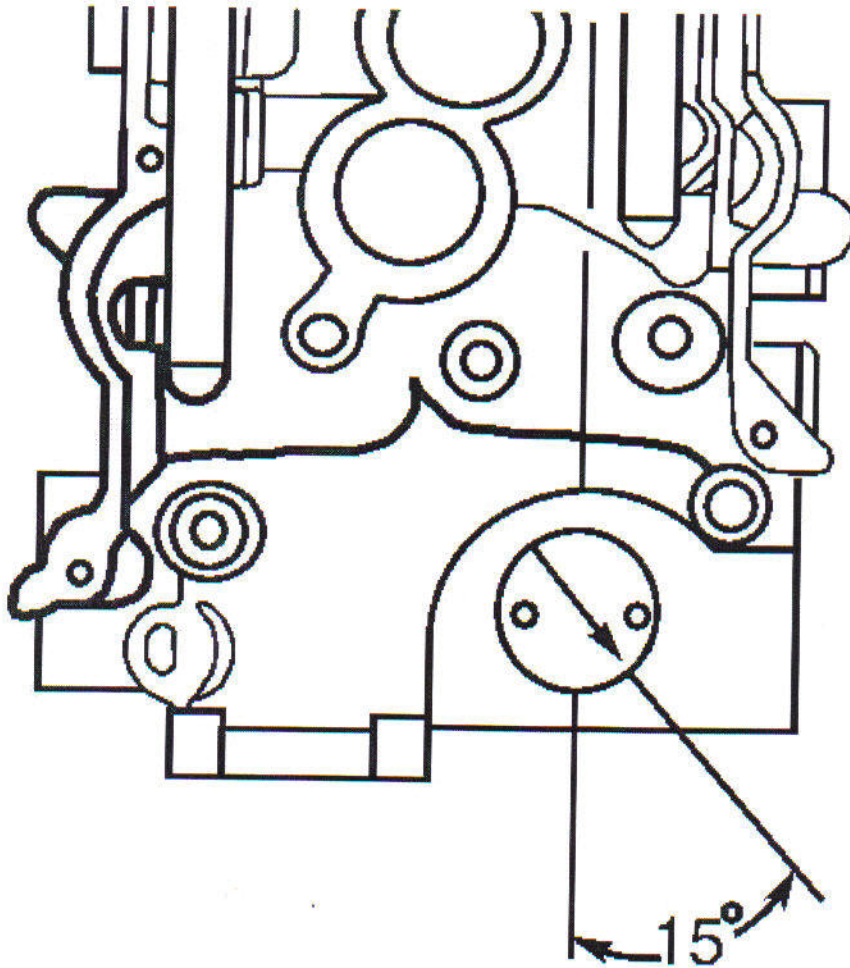
3. Install camshaft synchronizer into engine block with Synchro Positioning Tool (303-638) attached. The arrow on the special tool should be pointing to 60 degrees off the engine centerline. See **Fig. 10**.



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**Fig. 10: Installing Camshaft Synchronizer - 1st Step (4.0L)**  
Courtesy of FORD MOTOR CO.

4. Rotate Synchro Positioning Tool (303-638) clockwise slightly to engage the oil pump the oil pump intermediate shaft. Continue downward motion, twisting the tool lightly until the synchronizer gear engages the camshaft gear.
5. With the synchronizer clamp flange seated against the engine block, the arrow on the Synchro Positioning Tool (303-638) points 15 degrees from centerline of engine. See **Fig. 11**.



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**Fig. 11: Installing Camshaft Synchronizer - 2nd Step (4.0L)**  
Courtesy of FORD MOTOR CO.

6. Install hold-down. Tighten bolt to specification. See **TORQUE SPECIFICATIONS**.
7. Remove Synchro Positioning Tool (303-638) from camshaft synchronizer. Install CMP sensor to synchronizer. See **REMOVAL & INSTALLATION (3.0L, 3.8L, 4.0L & 5.0L)**. Connect negative battery cable.
8. On Explorer models, install upper intake manifold. See **REMOVAL & INSTALLATION (4.0L VIN X)** under UPPER INTAKE MANIFOLD.