

Your Current Vehicle: 2000 Ford Ranger

Synchronizer — Camshaft, 3.0L

SECTION 303-14: Electronic Engine Controls	2000 Ranger Workshop Manual
REMOVAL AND INSTALLATION	Procedure revision date: 02/13/2003

Synchronizer —Camshaft, 3.0L

Special Tool(s)

 ST2362-A	Synchronizer Alignment Gauge 303-589
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Material

Item	Specification
Super Premium SAE-5W20 Motor Oil XO-5W20-QSP or equivalent	WSS-M2C153-4

Removal

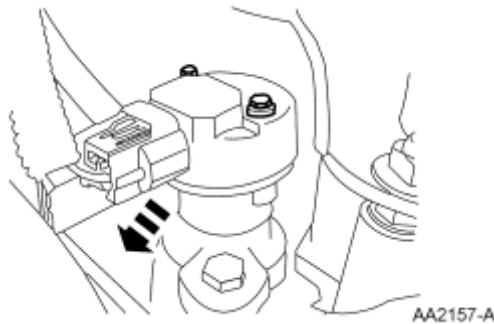
1. Disconnect the battery ground cable. For additional information, refer to Battery, Mounting and Cables (?a=0&t=29).
2. CAUTION
CAUTION: The No. 1 cylinder must be set on top dead center (TDC) of the compression stroke or the synchronizer assembly will not be installed correctly.

CAUTION

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 TDC of the compression stroke and the TDC mark lines up with the timing mark.

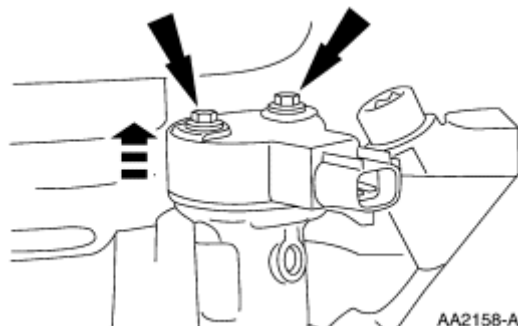
3. Disconnect the camshaft position (CMP) sensor electrical connector.



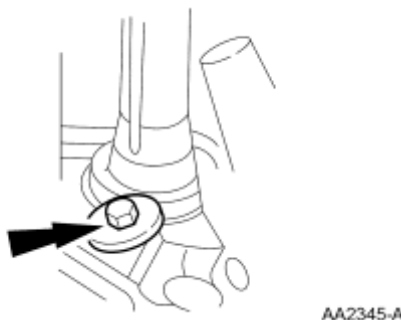
4. **NOTE**

NOTE: Prior to the removal of the CMP sensor, note the position of the CMP sensor electrical connector. The installation procedure requires that the electrical connector be located in the same position.

Remove the screws and the CMP sensor.



5. Remove the bolt.

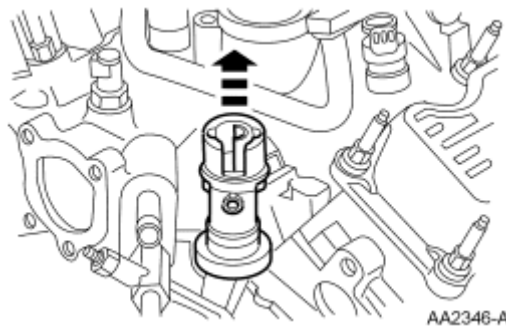


6. **NOTE**

NOTE: The oil pump driveshaft might not come out with the camshaft synchronizer. If

so, retrieve the oil pump driveshaft before proceeding.

Remove the camshaft synchronizer.



Installation

1. CAUTION

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 top dead center (TDC) of the compression stroke on the No. 1 cylinder.

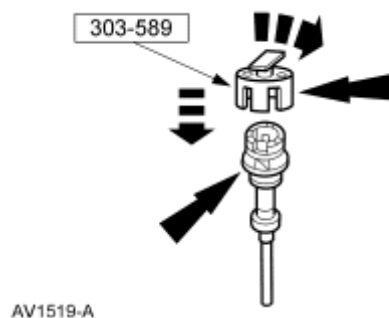
CAUTION

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

CAUTION

CAUTION: A special tool must be used during the installation of the new 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

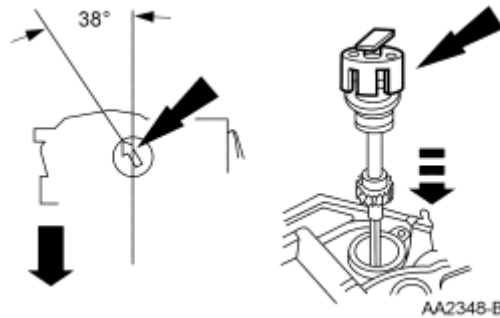
CAUTION: It is very important to coat the gear on the camshaft synchronizer with

engine oil prior to installation. Failure to do so could result in gear failure.

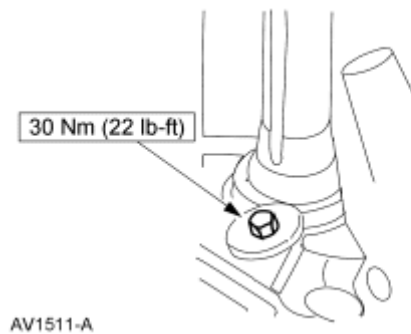
NOTE

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

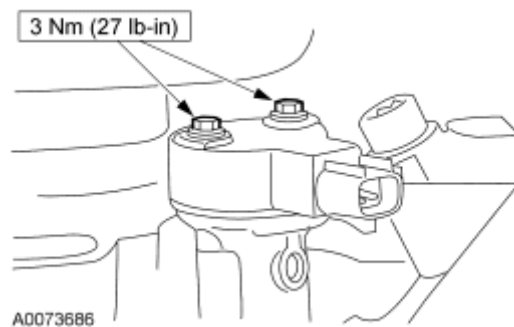
Install the camshaft synchronizer housing assembly so the arrow on the special tool is 38 degrees from the centerline of the engine.



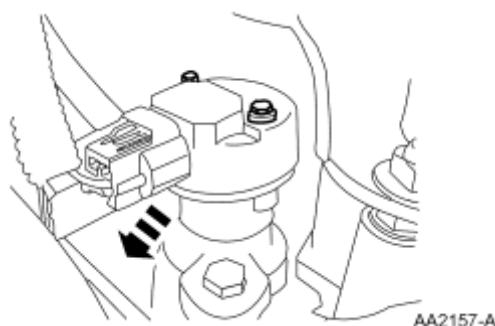
3. Install the bolt.



4. Install the camshaft position (CMP) sensor.



5. Connect the CMP sensor electrical connector.



6. Connect the battery ground cable. For additional information, refer to Battery, Mounting and Cables (?a=0&t=29).