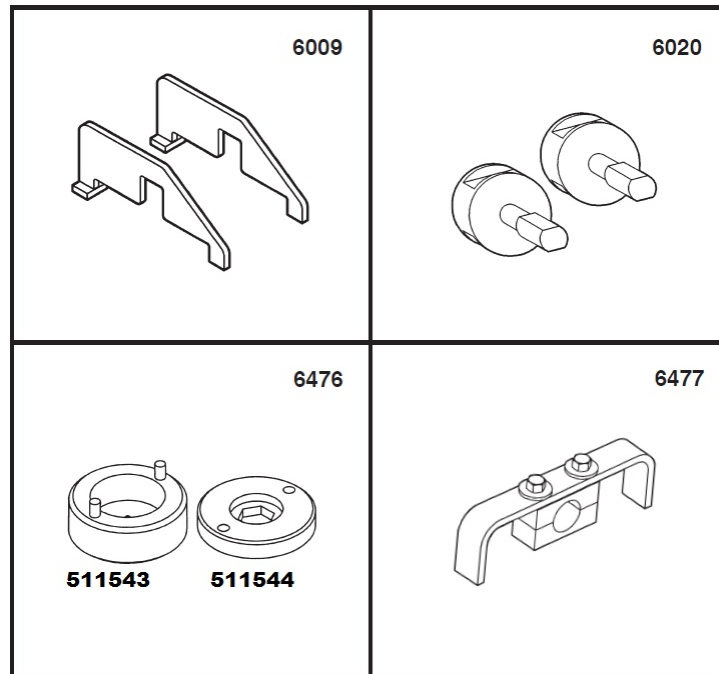


## Camshaft Service Set for Ford Modular V8 & V10 Engines

The AERA Technical Committee offers the following information regarding camshaft service sets for Ford modular V8 & V10 engines. These tools can be used to successfully time the camshafts during engine assembly.



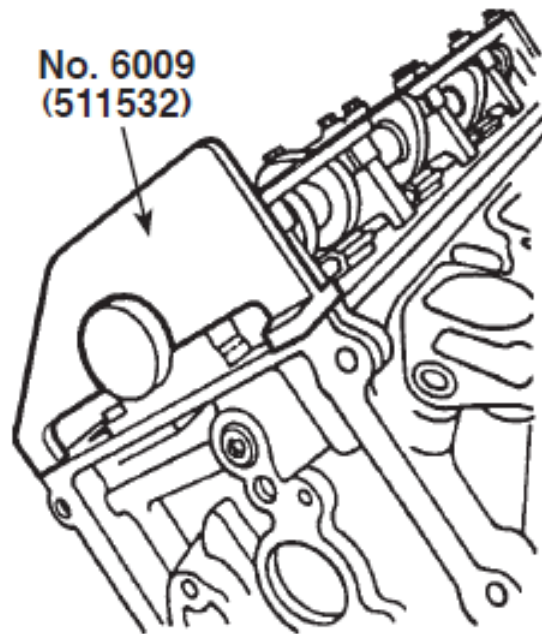
**CAUTION:** To prevent damage to valves and pistons, do NOT rotate the crankshaft and/or camshaft(s) when removing the timing chain(s) and installing the cylinder heads. Because these engines are not a free-wheeling, if it has “jumped time,” there will be damage to the valves and / or pistons which will require the removal of the cylinder heads. The cam sprocket should be disassembled from the camshaft only when one of the components must be replaced.

### 6009 Ford Camshaft Positioning Tool Applications

- 1991 – 1998 4.6L 2V V8 Crown Victoria, Grand Marquis
- 1997 – 1998 4.6L & 5.4L V8, 6.8L V10 Econoline
- 1997 – 1998 4.6L & 5.4L V8 F-Series Truck
- 1997 – 1998 5.4L V8 Expedition
- 1998 5.4L V8 Navigator

Same tool as Ford No. 303-380 (T91P-6256-A).

1. Remove all necessary components to access the timing chains.
2. Rotate the engine to number 1 cylinder to TDC.
3. Install #6009 (511532) on flats of the camshaft as shown to prevent accidental rotation of the camshafts.
4. Perform camshaft service as required.
5. Refer to the vehicle service manual for the correct camshaft-to-crankshaft timing procedure.

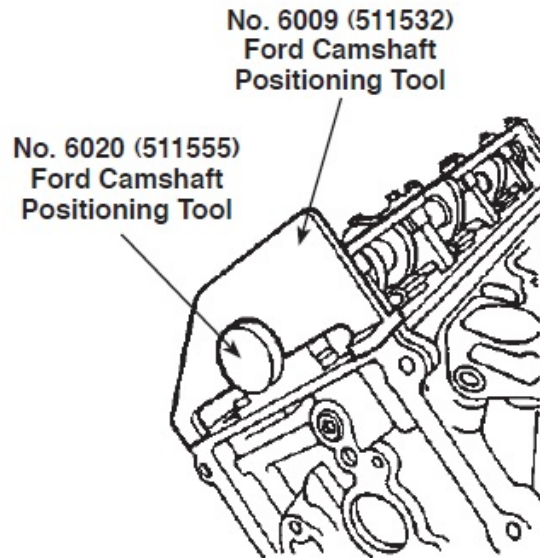


**Figure 2. Tool 6009 Installed**

#### **6020 Ford Camshaft Positioning Tool Applications**

- 1992 – 1998 4.6L 2V V8 Crown Victoria, Grand Marquis
- 1997 – 1998 4.6L & 5.4L V8, 6.8L V10 Econoline
- 1997 – 1998 4.6L & 5.4L V8 F-Series Truck
- 1997 – 1998 5.4L V8 Expedition
- 1998 5.4L V8 Navigator

Number 6020 (511555; same as Ford #303-413/T92P-6256-A) must be used with #6009 (511532; same as Ford #303-380/T91P-6256-A).



**Figure 3. Tool 6009 & 6020 Installed**

1. Remove all necessary components to access the timing chains.
2. Rotate the engine to No. 1 top dead center.
3. Disassembly: Install No. 6020 Camshaft Positioning Tool (511555) and No. 6009 Cam Positioning Tool (511532) into each camshaft end, as shown, before removing timing chain tensioners and chains to prevent valve train damage.
4. Assembly: Install No. 6020 Camshaft Positioning Tool (511555) and #6009 Cam Positioning Tool (511532) into each camshaft end, as shown, before installing timing chains and tensioners to prevent valve train damage.

#### **6476 Ford Camshaft Positioning Tool Set Applications**

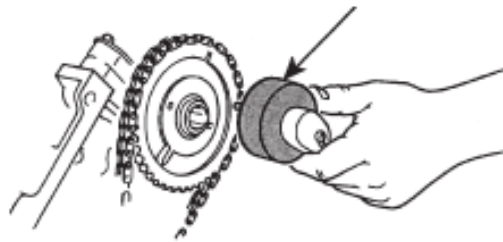
- 1997 – 2006 4.6L & 5.4L Econoline
- 1997 – 2004 4.6L & 5.4L F-Series Truck
- 1997 – 2004 5.4L V8 Ford Expedition
- 1998 – 2004 5.4L V8 Lincoln Navigator
- 1997 – 2006 6.8L V10 Econoline

511543 is the same as Ford #303-569 (T96T-6256-AR1); 511544 is the same as Ford #303-570 (T96T-6256-AR2). Use this tool set with #6477 (511545) Ford Camshaft Holding Tool.

1. **Two-hole Camshaft Sprocket:** Use #511543 to position the camshaft sprocket (2-hole) on the engine as shown. **18 mm Camshaft Sprocket:** Use #511543 with #511544 to position the camshaft sprocket (18 mm hex hd.) on the engine as shown.
2. Service the timing chain as required per procedures in the vehicle service manual.
3. Torque the fasteners to factory specifications.

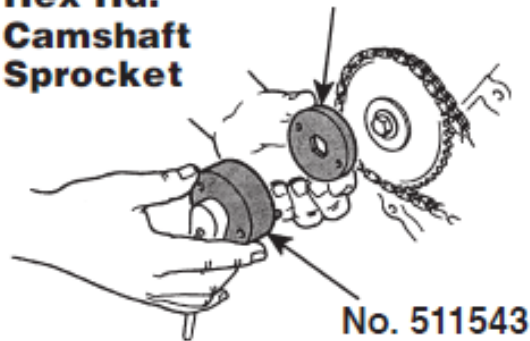
**2-Hole  
Camshaft  
Sprocket**

No. 511543



**18 mm  
Hex Hd.  
Camshaft  
Sprocket**

No. 511544



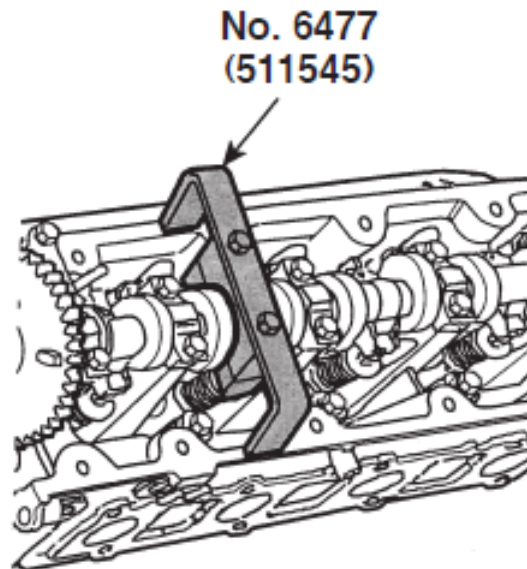
**Figure 4. Tolls 511543 & 511544 Installed**

**6477 Ford Camshaft Holding Tool Applications**

- 1997 – 2016 Windsor V8 Econoline
- 1997 – 2004 Windsor V8 F-Series Truck
- 1997 – 2004 5.4L V8 Expedition, F-Series Truck
- 1998 – 2004 5.4L V8 Lincoln Navigator
- 1997 – 2017 6.8L V10 Econoline

Same as Ford No. 303-557 (T96T-6256-B). Use this tool with #6476 (511543 and 511544) Ford Camshaft Positioning Tool Set.

1. Install #6477 (511545) on the camshaft as shown.
2. Torque hex head bolts to 20 FT/LBS to ensure correct clamping force. Important: Each bolt must be engaged by the same number of threads in the bottom clamp to ensure correct clamp alignment.
3. Repair the engine as required per instructions in the vehicle service manual.



**Figure 5. Tool 6744 Installed**