

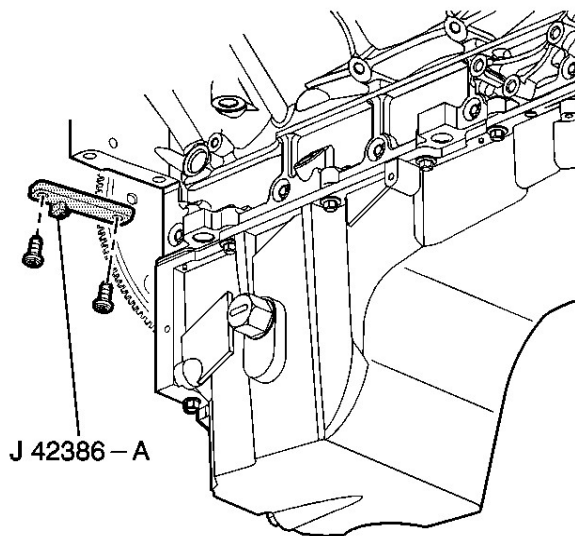
Crankshaft Balancer Replacement

Tools Required

- [J 41816](#) Crankshaft Balancer Remover
- [J 41816-2](#) Crankshaft End Protector
- [J 42386-A](#) Flywheel Holding Tool
- [J 41665](#) Crankshaft Balancer and Sprocket Installer
- [J 45059](#) Angle Meter

Removal Procedure

1. Remove the air conditioning (A/C) drive belt, if equipped. Refer to [Air Conditioning Compressor Belt Replacement](#) .
2. Remove the accessory drive belt, if not equipped with A/C. Refer to [Drive Belt Tensioner Replacement - Air Conditioning](#) .
3. Remove the fan shroud - lower. Refer to [Engine Coolant Fan Lower Shroud Replacement](#) in Engine Cooling.
4. Remove the starter motor. Refer to [Starter Motor Replacement](#) in Engine Electrical.



Important:

- Make sure that the teeth of the [J 42386-A](#) mesh with the teeth of the engine flywheel.
- The crankshaft balancer is balanced as an individual component. It is not necessary to mark the balancer prior to removal.

Notice: Use the correct fastener in the correct location. Replacement fasteners must be the correct part number for that application. Fasteners requiring replacement or fasteners

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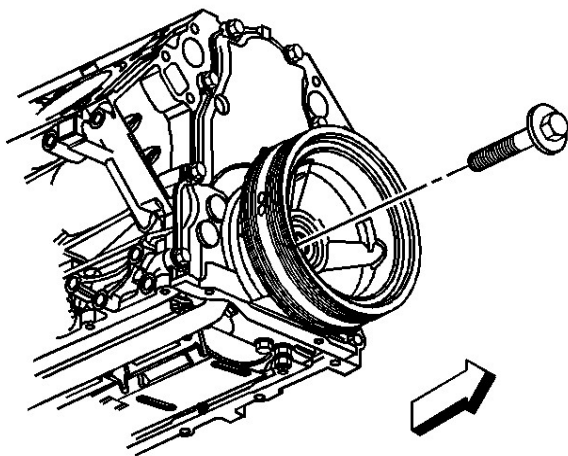
requiring the use of thread locking compound or sealant are identified in the service procedure. Do not use paints, lubricants, or corrosion inhibitors on fasteners or fastener joint surfaces unless specified. These coatings affect fastener torque and joint clamping force and may damage the fastener. Use the correct tightening sequence and specifications when installing fasteners in order to avoid damage to parts and systems.

5. Install the [J 42386-A](#) and bolts.

Use one M10-1.5 x 120 mm and one M10-1.5 x 45 mm bolt for proper tool operation.

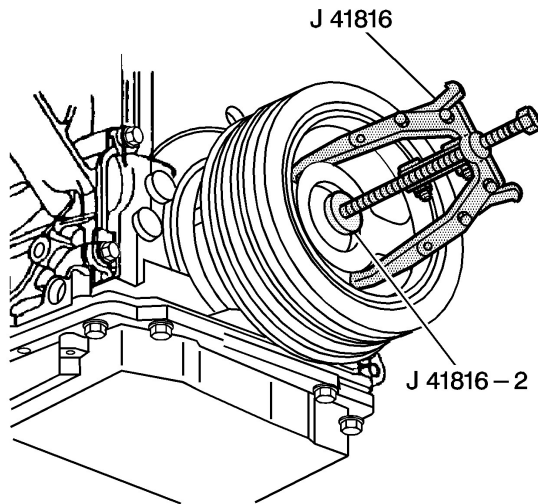
Tighten

Tighten the [J 42386-A](#) bolts to 50 N·m (37 lb ft).



6. Remove the crankshaft balancer bolt.

Do not discard the crankshaft balancer bolt. The balancer bolt will be used during the balancer installation procedure.



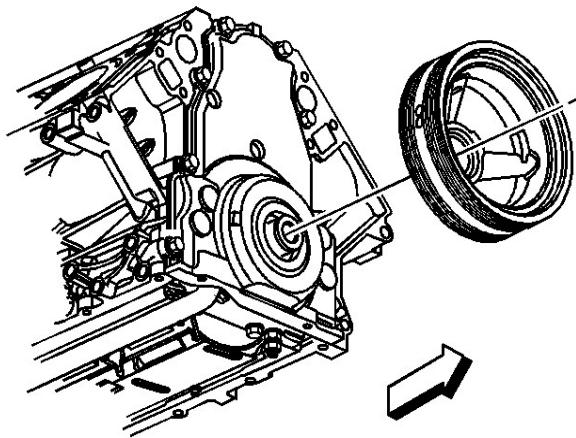
7. Install the [J 41816](#) and [J 41816-2](#) in order to remove the crankshaft balancer.
8. Remove the [J 41816](#) and the [J 41816-2](#) from the crankshaft balancer.
9. If required, clean and inspect the crankshaft balancer. Refer to [Crankshaft Balancer Cleaning and Inspection](#) .

Installation Procedure

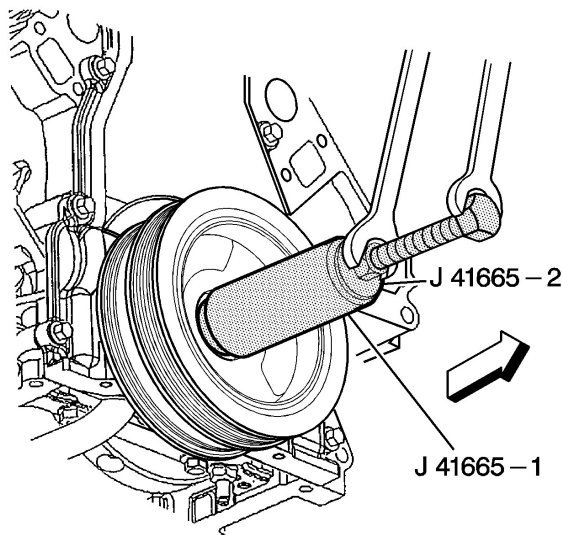
Important:

- Make sure that the teeth of [J 42386-A](#) mesh with the teeth of the engine flywheel.
- The used crankshaft balancer bolt will be used only during the first pass of the balancer installation procedure. Install a NEW bolt and tighten as described in the second, third and fourth passes of the balancer bolt tightening procedure.
- The crankshaft balancer installation and bolt tightening involves a four stage tightening process. The first pass ensures that the balancer is installed completely onto the crankshaft. The second, third, and fourth passes tighten the new bolt to the proper torque.

Important: The balancer should be positioned onto the end of the crankshaft as straight as possible prior to tool installation.



1. Install the crankshaft balancer onto the end of the crankshaft.



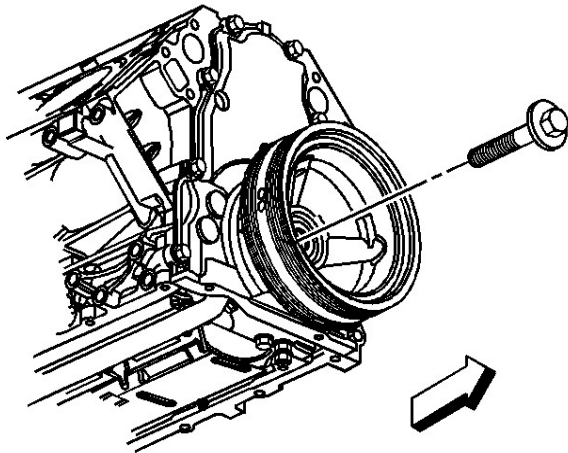
2. Use the [J 41665](#) in order to install the crankshaft balancer.
 - 2.1. Assemble the threaded rod, nut, washer and installer.

Insert the smaller end of the installer into the front of the balancer.

- 2.2. Use a wrench and hold the hex end of the threaded rod.
- 2.3. Use a second wrench and rotate the installation tool nut clockwise until the balancer is started onto the crankshaft.
- 2.4. Remove the tool and reverse the installation tool.

Position the larger end of the installer against the front of the balancer.

- 2.5. Use a wrench and hold the hex end of the threaded rod.
- 2.6. Use a second wrench and rotate the installation tool nut clockwise until the balancer is installed onto the crankshaft.
- 2.7. Remove the balancer installation tool.



3. Install the used crankshaft balancer bolt.

Tighten

Tighten the USED bolt to 330 N·m (240 lb ft).

4. Remove the used crankshaft balancer bolt.

Important: The nose of the crankshaft should be recessed 2.4-4.48 mm (0.094-0.176 in) into the balancer bore.

5. Measure for a correctly installed balancer.

If the balancer is not installed to the proper dimensions, install the [J 41665](#) and repeat the installation procedure.

6. Install a NEW crankshaft balancer bolt.

Tighten

1. Tighten the bolt a first pass to 50 N·m (37 lb ft).
2. Tighten the bolt a second pass to 140 degrees using [J 45059](#) .
7. Remove the [J 42386-A](#) and bolts.
8. Install the starter motor. Refer to [Starter Motor Replacement](#) in Engine Electrical.
9. Install the fan shroud - lower. Refer to [Engine Coolant Fan Lower Shroud Replacement](#) in Engine Cooling.
10. Install the accessory drive belt (if not equipped with A/C). Refer to [Drive Belt Replacement - Accessory](#) .
11. Install the A/C drive belt (if equipped). Refer to [Air Conditioning Compressor Belt](#)

[Replacement](#) .

12. Perform the crankshaft position (CKP) system variation learn procedure. Refer to [Crankshaft Position System Variation Learn](#) in Engine Controls - 4.8L, 5.3L, and 6.0L.