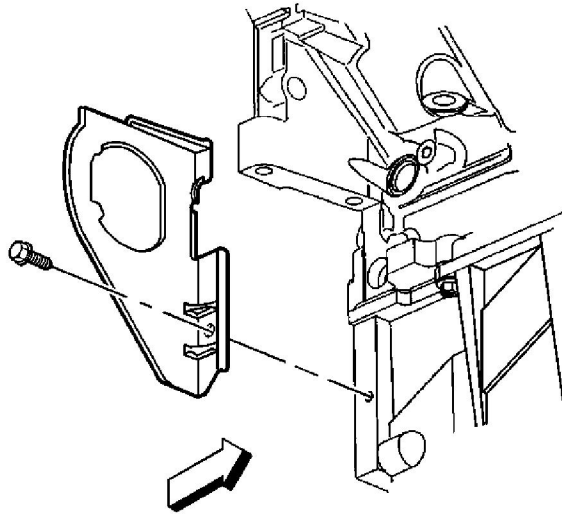


## Crankshaft Balancer Replacement

### Tools Required

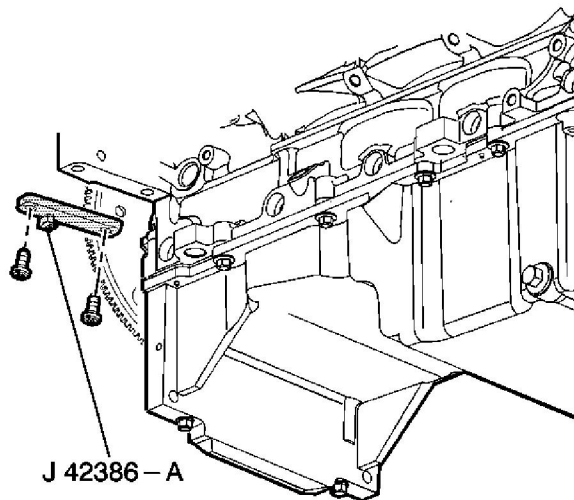
- [J 41816](#) Crankshaft Balancer Remover
- [J 41816-2](#) Crankshaft End Protector
- [J 42386-A](#) Flywheel Holding Tool
- [J 41665](#) Crankshaft Balancer and Sprocket Installer

### Removal Procedure



1. Remove the air conditioning (A/C) drive belt. Refer to [Air Conditioning Compressor Belt Replacement](#) ..
2. Remove the power steering gear. Refer to [Steering Gear Replacement](#) in Power Steering System.
3. Remove the starter motor. Refer to [Starter Motor Replacement](#) in Engine Electrical.
4. Remove the right transmission cover and bolt.

**Notice:** Refer to [Fastener Notice](#) in the Preface section.

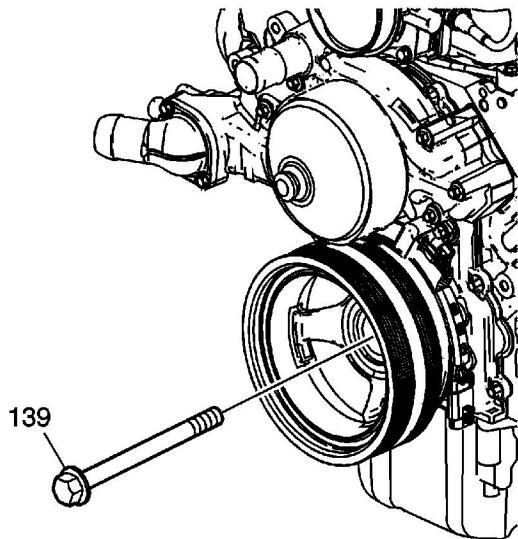


5. Install the [J 42386-A](#) and bolts.

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

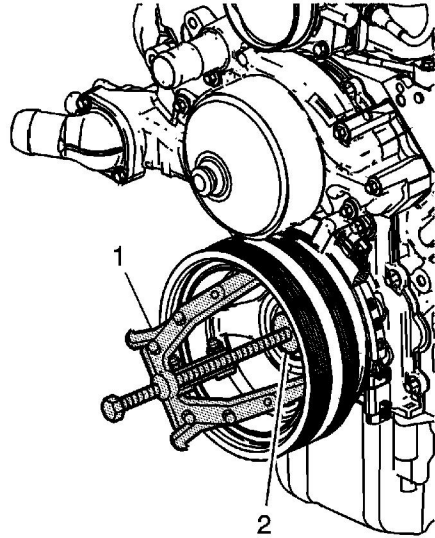
#### **Tighten**

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

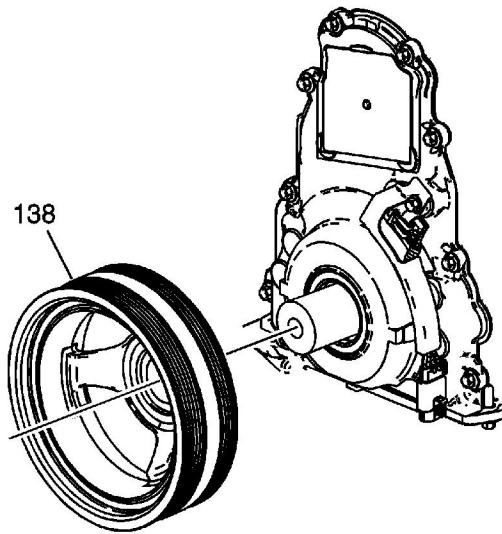


**Important:** Do not discard the crankshaft balancer bolt. The balancer bolt will be used during the first pass only of the balancer installation procedure. Install a NEW crankshaft balancer bolt at second pass, during final assembly.

6. Remove the crankshaft balancer bolt (139).



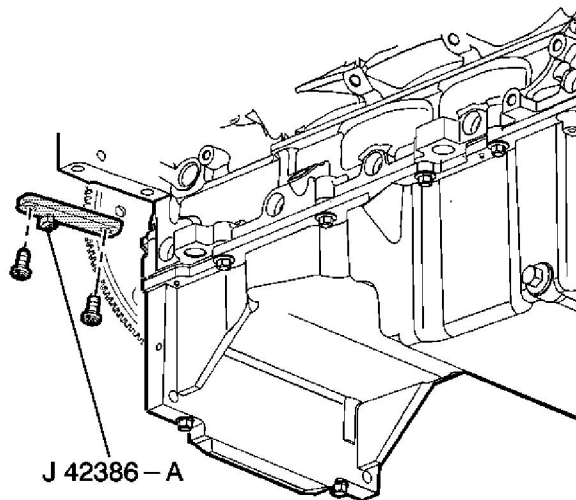
7. Use the [J 41816](#) (1) and the [J 41816-2](#) (2) in order to remove the crankshaft balancer.



8. Remove the crankshaft balancer (138).

## Installation Procedure

**Notice:** Refer to [Fastener Notice](#) in the Preface section.

**Important:**

- The crankshaft balancer installation and bolt tightening involves a 4 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.
- The used crankshaft balancer bolt is used only during the first pass of the balancer installation procedure. Install a NEW crankshaft balancer bolt and tighten as described in the second, third and fourth passes of the balancer bolt tightening procedure.

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

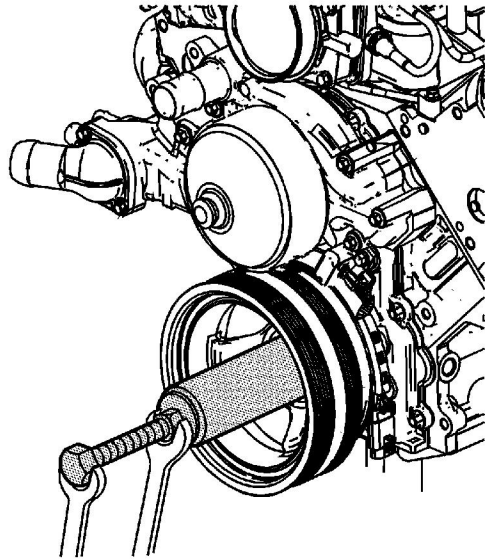
Use one M10 - 1.5 x 120 mm and one M10 - 1.5 x 45 mm bolt for proper tool operation.

**Tighten**

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

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

2. Position the balancer (138) onto the end of the crankshaft.



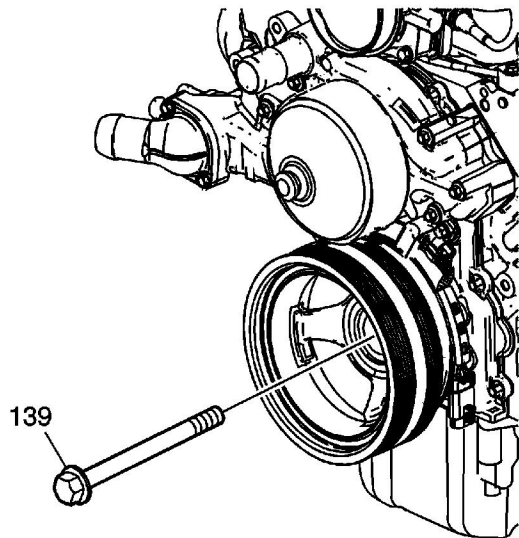
3. Use the [J 41665](#) in order to install the balancer.
  - 3.1. Assemble the threaded rod, nut, washer and installer.

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

- 3.2. Use a wrench and hold the hex end of the threaded rod.
- 3.3. Use a second wrench and rotate the installation tool nut clockwise, until the balancer is started onto the crankshaft.
- 3.4. Remove the tool and reverse the installation tool.

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

- 3.5. Use a wrench and hold the hex end of the threaded rod.
- 3.6. Use a second wrench and rotate the installation tool nut clockwise, until the balancer is installed onto the crankshaft.
- 3.7. Remove the balancer installation tool.

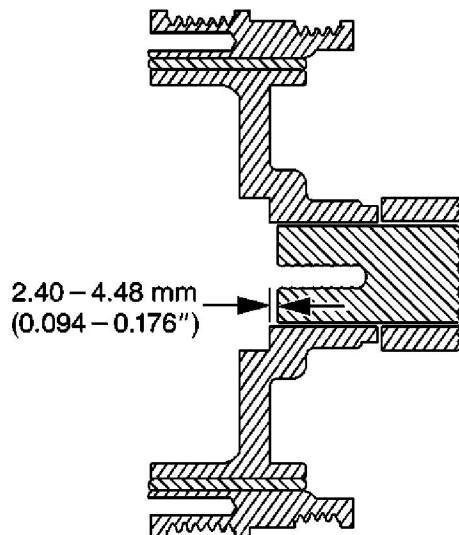


4. Install the used crankshaft balancer bolt (139).

#### Tighten

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

5. Remove the used crankshaft balancer bolt.

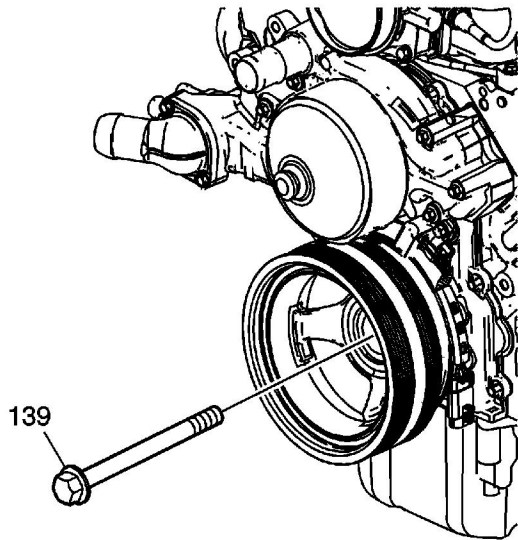


**Important:** The nose of the crankshaft should be recessed 2.4-4.48 mm (0.094-0.176 in) into the balancer bore.

6. 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.



7. Install the NEW crankshaft balancer bolt (139).

#### **Tighten**

1. Tighten the crankshaft balancer bolt a first pass to 50 N·m (37 lb ft).
2. Tighten the crankshaft balancer bolt a second pass to 140 degrees using the [J 45059](#) .
8. Remove the [J 42386-A](#) .
9. Install the starter motor. Refer to [Starter Motor Replacement](#) in Engine Electrical.
10. Install the power steering gear. Refer to [Steering Gear Replacement](#) in Power Steering System.
11. Install the A/C drive belt. 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 - 6.0L.