

Component Procedures: Variable Valve Timing Solenoid

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Component Procedures: Variable Valve Timing Solenoid

Parts and Labor (itype_189)

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Variable Valve Timing > Solenoid, R&R > One	B	0.5	0.4

Camshaft Position Actuator Valve Solenoid Replacement - Bank 1 (Right Side) Intake (Article 11402)

Removal Procedure

- Turn the ignition OFF.
- Remove the power brake booster auxiliary pump. Refer to Power Brake Booster Auxiliary Pump Replacement .
- Remove the camshaft position (CMP) actuator valve electrical connector (1) from the CMP sensor (2). Click for full-size image
- Remove the CMP actuator solenoid valve to engine front cover retaining bolt (1). Click for full-size image
- Remove the CMP actuator valve (2) from the engine front cover.
- Inspect the CMP actuator valve seal and replace as necessary.

Installation Procedure

- Inspect the CMP actuator valve seal for damage. Replace the seal if necessary.
- Install the CMP actuator valve (2) to the engine front cover . Click for full-size image
- Install the CMP actuator solenoid valve to engine front cover retaining bolt (1) and tighten to 9 Nm (80 lb in) .
- Install the CMP actuator valve electrical connector (1) to the CMP sensor (2). Click for full-size image
- Install the power brake booster auxiliary pump. Refer to Power Brake Booster Auxiliary Pump Replacement .

Camshaft Position Actuator Valve Solenoid Replacement - Bank 1 (Right Side) Exhaust (Article 11400)

Removal Procedure

- Turn the ignition OFF.
- Remove the power brake booster auxiliary pump. Refer to Power Brake Booster Auxiliary Pump Replacement .
- Remove the camshaft position (CMP) actuator valve electrical connector (1) from the CMP (2). Click for full-size image
- Remove the CMP actuator solenoid valve to engine front cover retaining bolt (1). Click for full-size image
- Remove the CMP actuator valve (2).
- Inspect the CMP actuator valve seal and replace as necessary.

Installation Procedure

- Inspect the CMP actuator valve seal for damage. Replace the seal if necessary.
- Install the CMP actuator valve (2) to the engine front cover. Click for full-size image
- Install the CMP actuator solenoid valve to engine front cover retaining bolt (1). Tighten Tighten the bolt to 9 Nm (80 lb in).
- Tighten the bolt to 9 Nm (80 lb in).
- Install the CMP valve electrical connector (1) to the CMP actuator valve. Click for full-size image
- Install the power brake booster auxiliary pump. Refer to Power Brake Booster Auxiliary Pump Replacement .

Camshaft Position Actuator Valve Solenoid Replacement - Bank 2 (Left Side) Intake (Article 11406)

Removal Procedure

- Turn the ignition OFF.
- Remove the power steering fluid reservoir bolts and reposition the power steering fluid reservoir in order to provide access. Refer to Power Steering Fluid Reservoir Replacement .
- Remove the camshaft position (CMP) actuator valve electrical connector (1) from the CMP actuator (2). Click for full-size image
- Remove the CMP actuator solenoid valve to engine front cover retaining bolt (1). Click for full-size image
- Remove the CMP actuator valve (2) from the engine front cover.
- Inspect the CMP actuator valve seal for damage and replace as necessary.

Installation Procedure

- Inspect the CMP actuator valve seal for damage. Replace the seal if necessary.
- Install the CMP actuator valve (2) to the engine front cover . Click for full-size image

- Install the CMP actuator solenoid valve to engine front cover retaining bolt (1) and tighten to 9 Nm (80 lb in) .
- Install the CMP actuator valve electrical connector (1) to the CMP actuator valve (2). Click for full-size image
- Install the power steering fluid reservoir. Refer to Power Steering Fluid Reservoir Replacement .

Camshaft Position Actuator Valve Solenoid Replacement - Bank 2 (Left Side) Exhaust (Article 11404)

Removal Procedure

- Ignition OFF.
- Remove the intake manifold cover . Refer to Intake Manifold Cover Replacement - Front .
- Use compressed air to remove debris from the camshaft position (CMP) actuator solenoid valve and surrounding cavities. Click for full-size image
- Remove the CMP actuator solenoid valve electrical connector (1) from the CMP actuator solenoid valve (2).
- Remove the CMP actuator solenoid valve to engine front cover retaining bolt (3).
- Remove the CMP actuator solenoid valve (2) from the engine.

Installation Procedure

- Inspect the CMP actuator solenoid valve seal for damage. Replace the CMP actuator solenoid valve seal if necessary. Refer Engine Front Cover Disassemble
- Install the CMP actuator solenoid valve (2) to the engine. Click for full-size image
- Install the CMP actuator solenoid valve to engine front cover retaining bolt (3) and tighten to 9 Nm (80 lb in) .
- Connect the CMP actuator solenoid valve electrical connector (1) to the CMP actuator solenoid valve (2).
- Install the intake manifold cover. Refer to Intake Manifold Cover Replacement - Front .