

Component Procedures: Valve Spring

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Component Procedures: Valve Spring

Parts and Labor (itype_189)

Parts

Qualifier	Part #	Name	Price	Note
Valve Springs	12616671	8 - Valve Springs	6.56	

Labor

Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Cylinder Head & Valves > Valve Springs, R&R >?	B	4.6	3.1
Remove & Replace	Cylinder Head & Valves > Valve Springs, R&R >?	B	0.5	0.4
Remove & Replace	Cylinder Head & Valves > Valve Springs, R&R >?	B	5.8	4.1
Remove & Replace	Cylinder Head & Valves > Valve Springs, R&R >?	B	4.3	2.9
Remove & Replace	Cylinder Head & Valves > Valve Springs, R&R >?	B	0.5	0.4
Remove & Replace	Cylinder Head & Valves > Valve Springs, R&R >?	B	5.5	3.9

Valve Stem Oil Seal and Valve Spring Replacement - Left Side (Article 12213)

Special Tools

- EN 46106 - Flywheel Holding Tool
- EN 46110 - On-Vehicle Valve Spring Compressor
- EN 46116 - Valve Stem Seal Remover/Installer
- EN-48313 - Timing Chain Retention Tool
- J 39313 - Spark Plug Port Adapter

For equivalent regional tools, refer to Special Tools .

Removal Procedure

- Remove the starter motor. Refer to Starter Replacement .
- Remove the camshafts and rocker arms. Refer to Camshaft Replacement - Left Side and Valve Rocker Arm Replacement - Left Side .
- Install the EN 46106 - Flywheel Holding Tool in order to prevent crankshaft rotation. Click for full-size image
- Remove the spark plug from the applicable cylinder. Refer to Gas Engine Ignition Spark Plug Replacement .
- Install the J 39313 - Spark Plug Port Adapter to the applicable cylinder.
- Connect the J 39313 - Spark Plug Port Adapter to a compressed air source.
- Install the EN 46110 - On-Vehicle Valve Spring Compressor above the applicable cylinder as shown. Click for full-size image
- Tighten the EN 46110 - On-Vehicle Valve Spring Compressor nut (2).
- Remove the valve keepers. Click for full-size image
- Loosen the EN 46110 - On-Vehicle Valve Spring Compressor nut.
- Remove the valve spring retainer .
- Remove the valve spring. Click for full-size image
- Use the EN 46116 - Valve Stem Seal Remover/Installer (1) in order to remove the valve stem seal (2). Click for full-size image

Installation Procedure

- Use the EN 46116 - Valve Stem Seal Remover/Installer (1) in order to install the valve stem seal (2). Click for full-size image
- Install the valve spring. Click for full-size image
- Install the valve spring retainer.
- Install the EN 46110 - On-Vehicle Valve Spring Compressor above the applicable valve spring as shown. Tighten the EN 46110 - On-Vehicle Valve Spring Compressor nut (2). Click for full-size image
- Install the valve spring keepers. Click for full-size image
- Remove the EN 46110 - On-Vehicle Valve Spring Compressor .
- Disconnect the J 39313 - Spark Plug Port Adapter from the compressed air source.
- Remove the J 39313 - Spark Plug Port Adapter .
- Install the spark plugs . Refer to Gas Engine Ignition Spark Plug Replacement .
- Install the rocker arms and camshafts. Refer to Valve Rocker Arm Replacement - Left Side and Camshaft Replacement - Left Side .
- Remove the EN 46106 - Flywheel Holding Tool .

- Install the starter motor. Refer to Starter Replacement .

Valve Stem Oil Seal and Valve Spring Replacement - Right Side (Article 12214)

Special Tools

- EN 46106 - Flywheel Holding Tool
- EN 46110 - On-Vehicle Valve Spring Compressor
- EN 46116 - Valve Stem Seal Remover/Installer
- EN-48313 - Timing Chain Retention Tool
- J 39313 - Spark Plug Port Adapter

For equivalent regional tools, refer to Special Tools .

Removal Procedure

- Remove the starter motor. Refer to Starter Replacement .
- Remove the camshafts and rocker arms. Refer to Camshaft Replacement - Right Side and Valve Rocker Arm Replacement - Right Side .
- Install the EN 46106 - Flywheel Holding Tool in order to prevent crankshaft rotation. Click for full-size image
- Remove the spark plug from the applicable cylinder. Refer to Gas Engine Ignition Spark Plug Replacement .
- Install the J 39313 - Spark Plug Port Adapter to the applicable cylinder.
- Connect the J 39313 - Spark Plug Port Adapter to a compressed air source.
- Install the EN 46110 - On-Vehicle Valve Spring Compressor above the applicable cylinder as shown. Click for full-size image
- Tighten the EN 46110 - On-Vehicle Valve Spring Compressor nut (2).
- Remove the valve keepers. Click for full-size image
- Loosen the EN 46110 - On-Vehicle Valve Spring Compressor nut.
- Remove the valve spring retainer .
- Remove the valve springs. Click for full-size image
- Use the EN 46116 - Valve Stem Seal Remover/Installer (1) in order to remove the valve stem seal (2). Click for full-size image

Installation Procedure

- Use the EN 46116 - Valve Stem Seal Remover/Installer (1) in order to install the valve stem seals (2). Click for full-size image
- Install the valve spring. Click for full-size image
- Install the valve spring retainer.
- Install the EN 46110 - On-Vehicle Valve Spring Compressor above the applicable valve spring as shown. Tighten the EN 46110 - On-Vehicle Valve Spring Compressor nut (2). Click for full-size image
- Install the valve spring keepers. Click for full-size image
- Remove the EN 46110 - On-Vehicle Valve Spring Compressor .
- Disconnect the J 39313 - Spark Plug Port Adapter from the compressed air source.
- Remove the J 39313 - Spark Plug Port Adapter .
- Install the spark plugs . Refer to Gas Engine Ignition Spark Plug Replacement .
- Install the rocker arms and camshafts. Refer to Valve Rocker Arm Replacement - Right Side and Camshaft Replacement - Right Side .
- Remove the EN 46106 - Flywheel Holding Tool .
- Install the starter motor. Refer to Starter Replacement .