

How To Install New Valve Springs and Set Valve Lash

1. Remove the spark plug and bring the piston to almost TDC on compression stroke leaving about 1" between the top of piston and the valves.
2. (The compression stroke is after the intake valve closes and before the exhaust opens.)
3. Fill the cylinder with 1/4" or 3/16" rope through the spark plug hole keeping some outside so the rope can be removed. Using a vise grip pliers on the heavy duty collar on the clutch, bring the piston tight against the rope which then pushes the valves closed. Now pinch the clutch with your fingers to keep pressure on the rope and reposition the vise grip so that after its locked onto the clutch collar is rests against the steering tower of the belly pan. (This keeps the valves from dropping in the cylinder.) Optionally, if you do this in a shop there is an air device you can purchase that screws into the spark plug hole and connects to an air compressor and the air pressure will hold the valves closed just like the rope does.
4. Remove the valve cover to expose the rocker arms and valve springs.
POLARIS: Use a 10mm wrench to loosen the jam nut located under the rocker arm. This allows the pivot bolt to be loosened or tightened.
ARCTIC CAT SUZUKI: Loosen the 14mm nut on top of the pivot bolt. This allows the pivot bolt to be loosened or tightened.
5. Loosen the pivot bolt until the rocker can be rotated to the side exposing the valve spring retainers. (Do not allow the push rods to fall into the crankcase.)
6. Using a shop rag place it around the valve spring area so it prevents anything from falling past the push rods and into the crankcase.
7. Make sure the piston and rope are still snug against the top of the cylinder and push down on one of the valve spring retainers. (Sometimes they are stuck and will pop free with some effort or a small tap with a rubber mallet.) With the help of a second person and a magnet the collets (1/2 moon shaped keepers) located in the center of the valve spring retainers can be removed.
8. Slowly remove the pressure of the valve springs until the valve spring retainer and valve springs can be removed.
9. Replace the valve spring with a new spring and place the valve spring retainer on the new spring and place back in place in the cylinder head.
10. Using your thumbs or fingers, push down on the retainers until a second person can get both collets back into the center hole of the valve

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spring retainer and into their locked position. **WARNING:** If the collets are not locked in correctly, they can burst out of place and fly out quickly either causing injury or being lost.

11. Repeat steps 7 to 10 for the other valve spring.
12. Remove the vise grip pliers and back the piston off so you can remove the rope from the cylinder.
13. Rotate the rocker arms back into position aligning them with the valves and push rods and lightly snug up the pivot bolts.
14. Watching the rocker arms, rotate the engine until one rocker is all the way down (valve wide open).
15. On the opposite rocker arm that's loose, using a feeler gauge, place the .004" gauge between the valve stem and rocker arm. Tighten or loosen the pivot bolt until the feeler gauge has pressure on it but can still move.
16. Tighten the 10mm jam nut or 14mm nut, depending on brand, and recheck clearance for .004". Most of the time, once the feeler gauge is snug you may have to loosen the pivot bolt an 1/8 to 1/4 turn before tightening the nut as that will cause the valve lash (gap) to tighten slightly. Repeat until the valve lash is a snug .004" gap.
17. Once you are satisfied that the first valve lash is set correctly, rotate the engine until the opposite rocker is all the way down (valve wide open).
18. Repeat steps 15 to 16 for the other rocker arm.
19. Replace valve cover.
20. Replace spark plug.
21. You have now installed new valve springs and set the valve lash.