

CRF/XR50

BBR BIG BORE KIT AND HIGH-PERFORMANCE CAMSHAFT INSTALLATION INSTRUCTIONS

Installation of this piston kit is identical to OEM installation. Please refer to the Honda shop manual or a qualified mechanic for assistance or questions. These instructions are not intended to be a replacement for the Honda shop manual. Read all instructions carefully before installation. Make sure that the motorcycle has cooled down and has been secured. Clean the motorcycle thoroughly to insure that no dirt or foreign objects can enter the engine.

Every effort has been made to insure the quality of this product. Because BBR cannot control the installation or use there is NO warrantee or guarantee with this product. Using quality motorcycle oil will help prolong engine life. Be sure to change it often.

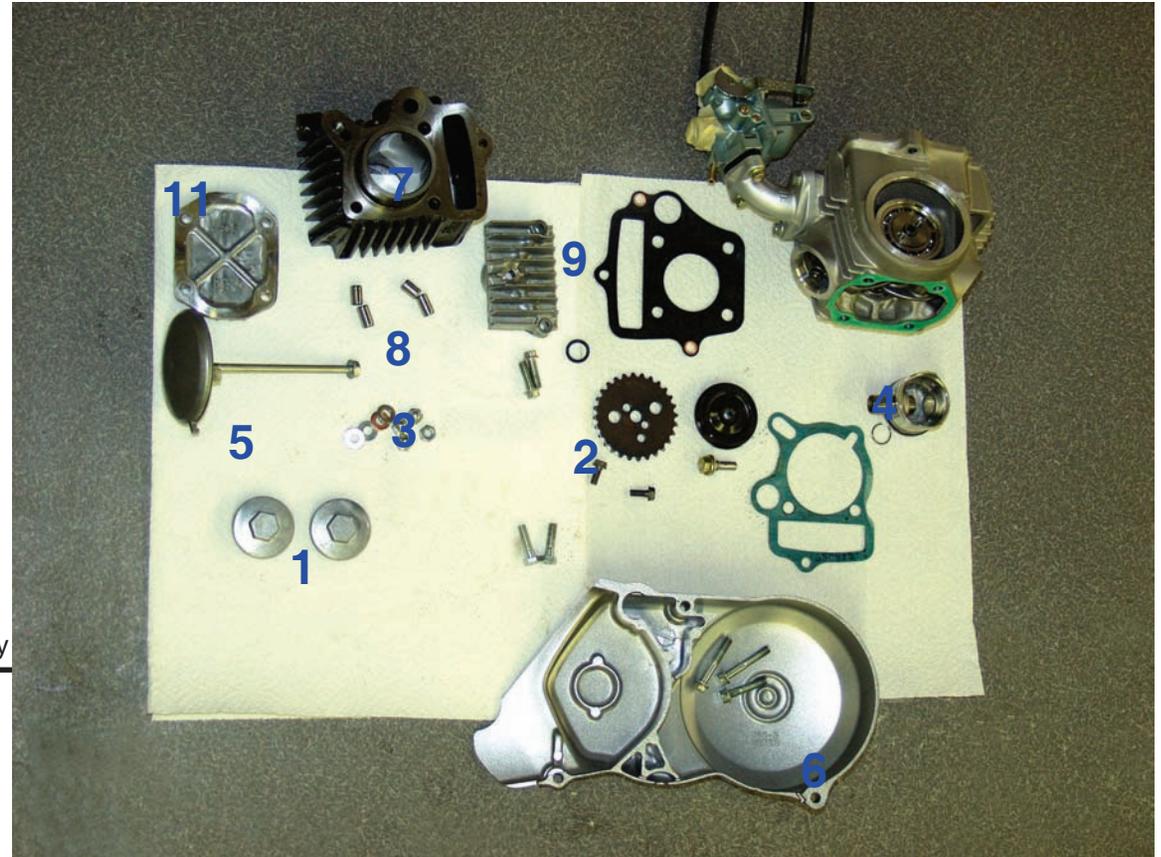
Required Tools:

- Service Manual
- 8mm socket or wrench
- 9mm socket or wrench
- 10mm socket or wrench
- Torque wrench
- Large flat head screwdriver or small pry bar

Torque Values:

- | | |
|-----------------|-------------------------------|
| 8mm nuts/bolts: | 9 N-m (0.9 kgf-m, 6.5 lbf-ft) |
| 9mm bolts: | 10 N-m (1.0 kgf-m, 7 lbf-ft) |
| 10mm bolts: | 11 N-m (1.1kgf-m, 8 lbf-ft) |

BBR Recommends using the stock 58 main jet with the stock carburetor. Included is a 62 main jet for colder weather or highly



- | | |
|-----------------------------------|--------------------------|
| 1. Valve covers/caps | 8. Dowels |
| 2. Cam sprocket | 9. Right side head cover |
| 3. Cylinder stud nuts and washers | 10. Camchain roller |
| 4. Piston assembly | 11. Top head cover |
| 5. Cam sprocket cover | 12. Head gasket |
| 6. Flywheel cover | 13. Base gasket |
| 7. Cylinder | 14. Oil passage O-rings |

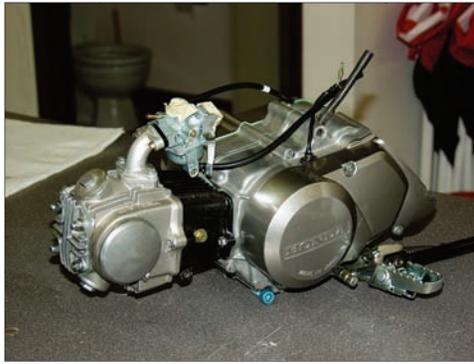
BBR
MOTORSPORTS

1028 4th St SW - A, Auburn, WA 98001 · Phone: (253) 631-8233 · Fax: (253) 631-8233 · www.bbrmotorsports.com

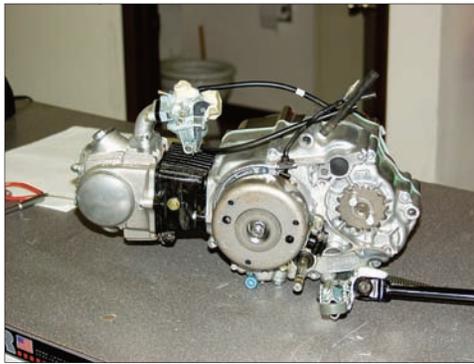
Disassembly instructions:

The installation can be done with or without the engine installed in the frame. To remove the engine from the frame remove the 2 large engine mounting bolts, throttle cable, air filter assembly, and chain.

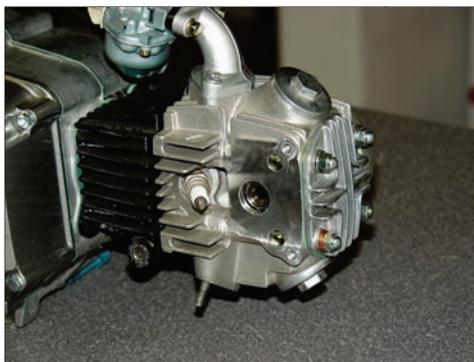
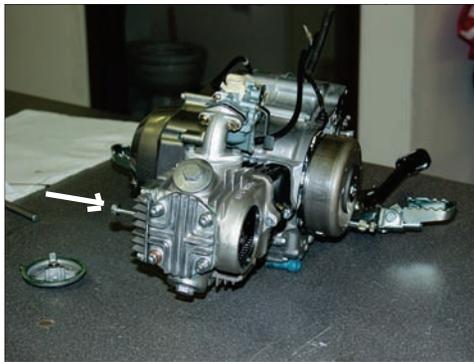
1. Remove the left side cover (wheel cover) from the motor (three 8mm bolts).



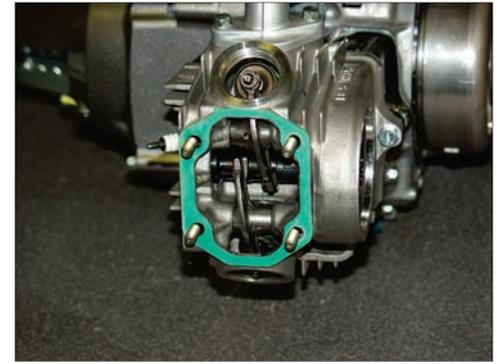
2. Remove the left side timing chain/camshaft cover by removing the 10mm bolt on the right side of the engine (shown with arrow). This bolt extends through the camshaft and secures the camshaft cover.



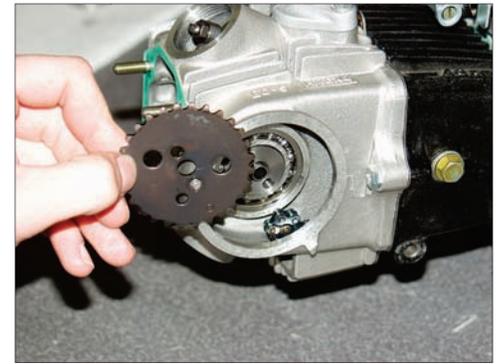
3. Remove the right side cylinder head cover by removing the remaining two 8mm bolts.



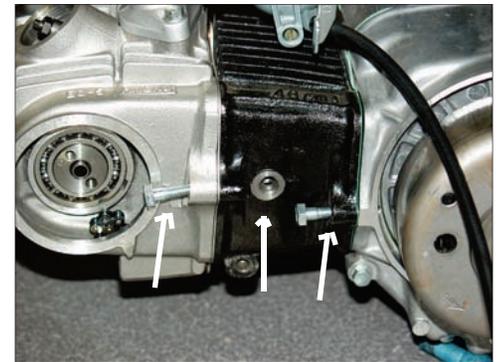
4. Remove the 2 large round 17mm valve cover caps. Remove the four 10mm nuts from the top cylinder head cover and remove the cover (shown at right with caps and cover already removed).



5. Remove the cam sprocket from inside the left of the cylinder head by removing its two 8mm bolts.



6. Remove the 10mm cam chain roller bolt from the cylinder (shown with the middle arrow). Remove the 2 left side cylinder bolts (10mm with Phillips heads - shown with the outside arrows).



7. Remove the cylinder head, gasket, and 2 alignment dowels. A well used motor may require some force to get the base gasket to release the cylinder. A rubber hammer may be helpful - but be very careful! Do NOT use a screw driver to pry it up, or you will destroy the cases!



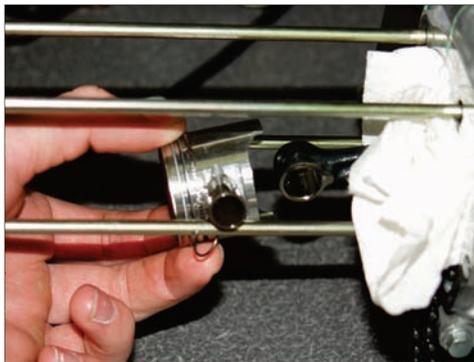
8. Remove the cam chain roller from inside the cylinder. Needle nose pliers may be helpful.



9. Remove the cylinder by sliding it up off of the piston. Next remove the 2 dowels, gasket, and o-ring.



10. Remove one of the small piston clips from inside the piston (use a small screwdriver or needle-nose pliers). Push out the piston pin, and remove the piston from the shaft.



11.* Cam Removal & Installation: Loosen the valve adjusters all the way and the cam may pull out. If it does not, remove the cam by compressing the exhaust valve with a large screwdriver or other prying object and slide the cam out. Next compress the intake valve and continue sliding the cam out of the cylinder head. Use care not to bend the valves or damage the cylinder head.



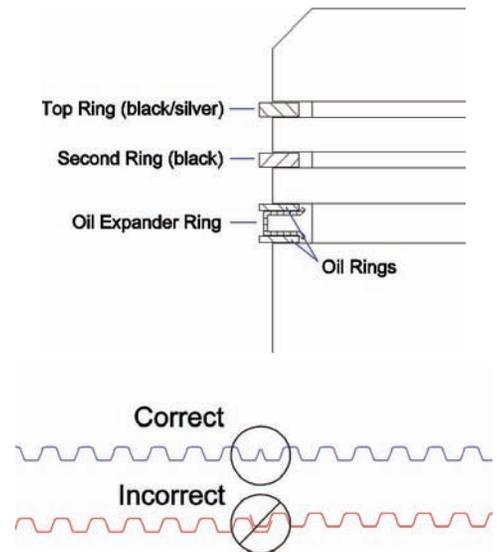
12. Install the new BBR cam in reverse order making sure that the cam lobes are facing down (in towards the engine). The bare camshaft is pictured at the right. Notice the lobes facing down.



13. Piston Ring Installation: Using your fingers and a minimal amount of force, pry each ring over the piston and slide it into the groove. Apply a thin coat of motor oil onto each ring before installing.



- Install the oil expander ring (the wavy ring) onto the bottom groove. See bottom drawing.
- Install the two thin rings: one below the oil expander ring and one above, in the same groove.
- Install the black ring onto the center groove making sure any letters face up.
- Install the black and silver ring onto the top groove making sure any letters face up.
- Rotate all gaps in rings approximately 90 degrees from each other so they do not line up. Also make sure that the oil expander ring does not overlap itself.

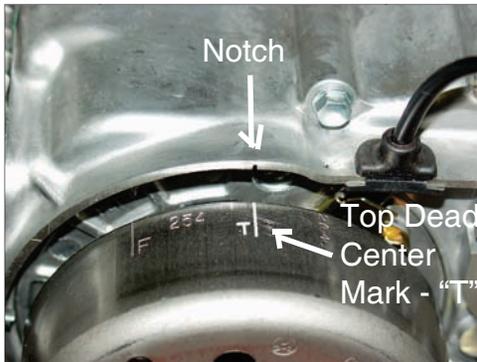


*This step is not necessary if you are installing the stroker kit.

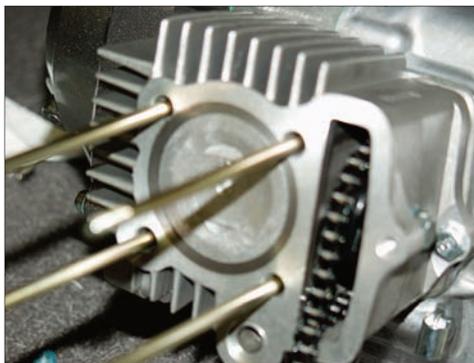
14. Piston Installation: Install one of the provided piston clips onto the piston. Push the piston into the cylinder making sure that the "IN" is facing the front of the cylinder (towards the top of the engine). Use your fingers to compress the rings and slide inside the cylinder.



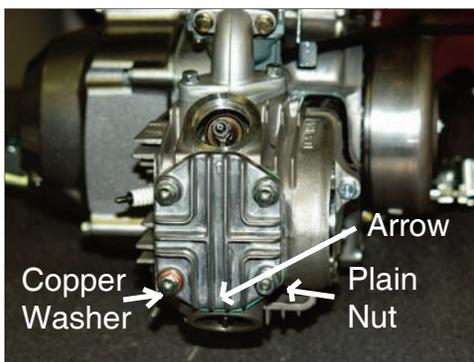
15. Make sure that the crank is at top dead center (at the top of its stroke or TDC). This is indicated by the "T" on the flywheel lining up with the notch on the case. If it is not, turn the flywheel until it is in this position.



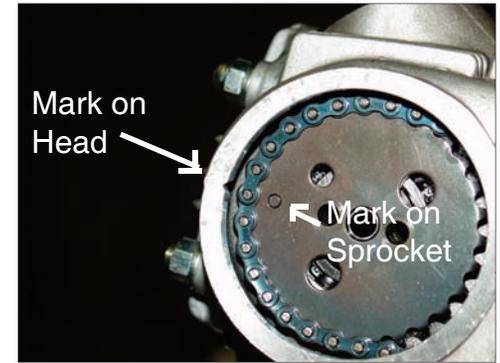
16. Slide the cylinder onto the engine after placing the gasket, O-ring, and dowels onto engine cases. Once the piston has reached the connecting rod install the wrist pin through the piston and install the 2nd circlip to secure the piston pin.



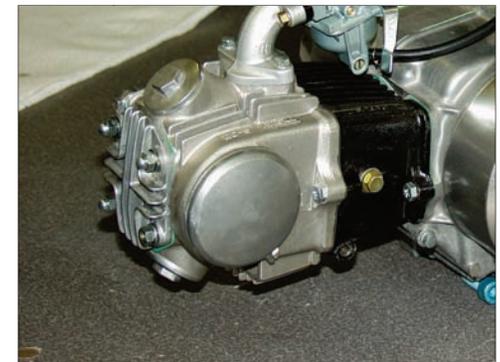
17. When installing the top cylinder head cover make sure the arrow on the cover is pointing down. Place the copper washer onto the bottom left bolt. Place the plain nut onto the bottom right bolt.



18. Cam Sprocket Installation: When installing the cam sprocket make sure that the "T" on the flywheel is still lined up with the mark on the engine case. Make sure the circle on the cam sprocket is lined up with the mark on the cylinder head.

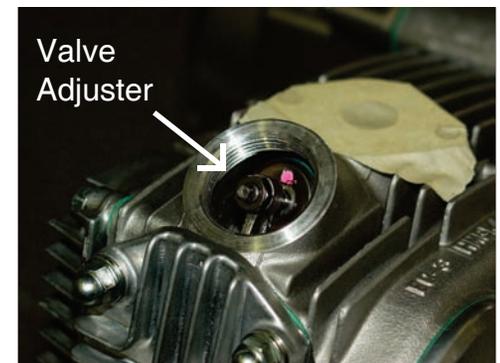


19. When installing the round left side cam sprocket cover make sure that the tab on the cover is lined up with the tab on the case.



Setting the valve clearance:

With the piston still at TDC, Loosen the 9mm bolt on the valve adjuster. Using a feeler gauge slide it between the valve and the threaded pin. Thread the pin in or out until the feeler gauge fits snugly but slides easily. Retighten the 9mm bolt at this position and install the valve cover. Repeat with the other valve.



Valve clearance: Intake: .002 in (.05mm)
Exhaust: .003 in (.07mm)

Continue installing any other parts you have not installed yet and reassemble the motorcycle (if you took the motor out of the engine). Be sure to check the oil level before running the motorcycle.