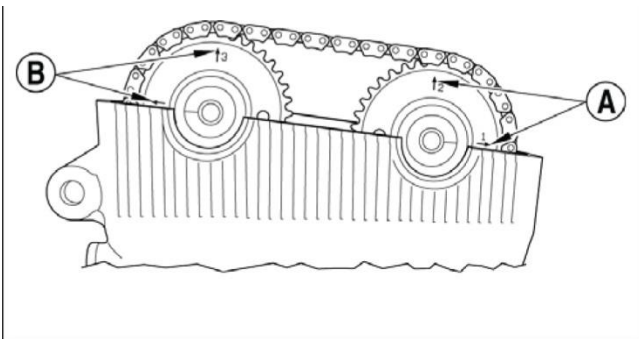




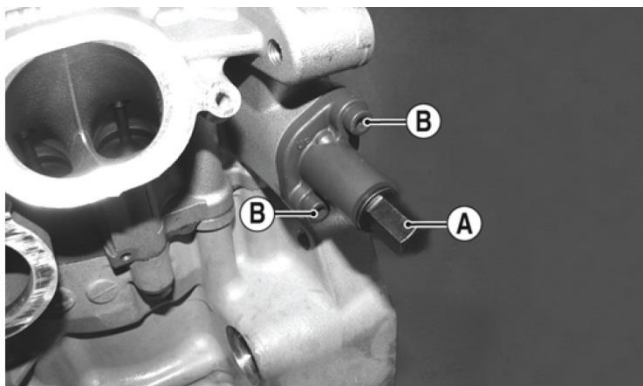
ProClimb/ProCross 1100T/Z1 HEAD STUD INSTALL INSTRUCTIONS

NOTE: THIS JOB REQUIRES MECHANICAL SKILL. IF YOU DO NOT HAVE THE MECHANICAL SKILL, LEAVE THIS JOB TO A PROFESSIONAL! SEVERE ENGINE DAMAGE WILL OCCUR IF YOU DO NOT KNOW PROPER MECHANICAL PROCEDURES! THESE INSTRUCTIONS ARE FOR REFERENCE ONLY. REFER TO THE ARCTIC CAT SHOP MANUAL FOR FURTHER INSTRUCTIONS!

1. Disassemble the chassis to facilitate clear access to the top of the engine
2. Remove the four cap screws securing the cylinder head cover to the cylinder head; then remove the cover.
3. Remove Spark Plugs (BE VERY CAREFUL NOT TO LET ANYTHING FALL INTO THE SPARK PLUG HOLES – USE A PAPER TOWEL TO BLOCK THE OPENINGS)
4. Obtain top-dead-center by rotating the crankshaft in the normal engine running direction (DO NOT rotate crankshaft in reverse or you will mess up the cam timing!) until the arrows on the exhaust camshaft face (A) are in the 12 o'clock and 9 o'clock positions and the arrows on the intake camshaft face (B) are in the 12 o'clock and 3 o'clock positions. See diagram below.
5. Mark a link and tooth on each gear with white out for indexing purposes



6. **Loosen but do not remove the tension adjuster bolt and washer (A)** from the chain tensioner assembly. Remove the two cap screws (B) securing the assembly to the engine. Remove the assembly.



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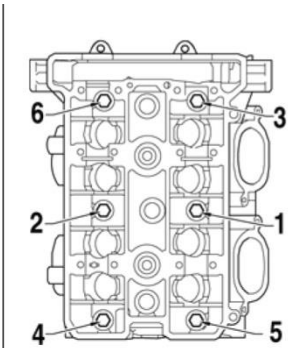
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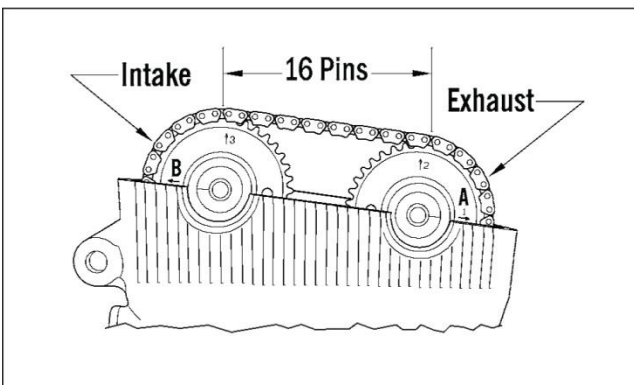
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7. Remove the cap screws securing the camshaft covers to the cylinder head; then remove the covers. Remove both camshafts. Account for the dowel pins. Secure the timing chain with a zip tie so that it does not drop down into the case.
8. Clean the lubricant off of the new head studs with brake or electrical cleaner. Make sure there is no lubricant on the threads as you will be using LOCKTITE in the next step.
9. **ACCORDING TO THE BELOW TORQUE PATTERN, REMOVE 1 BOLT & REPLACE WITH A STUD AT A TIME SO THAT THE CYLINDER HEAD NEVER HAS MORE THAN ONE BOLT/STUD LOOSE AT A TIME. EACH HEAD STUD REQUIRES RED LOCTITE ON THE THREADS THAT GO INTO THE CYLINDER HEAD/BLOCK. SCREW EACH STUD INTO THE BLOCK SO THERE IS 5/8" OF AN INCH OF STUD EXPOSED ABOVE THE HEAD - THIS MAY NOT BOTTOM OUT THE STUD. USE THE ENCLOSED LUBRICATION FOR THE THREADS ON THE TOP OF THE HEAD STUD EXPOSED. APPLY SUPPLIED LUBE TO BOTH SIDES OF A WASHER – SLIDE A WASHER AND NUT ONTO THE STUD. FINGER TIGHTEN THE NUT – WHEN THE NUT IS FINGER TIGHT, THE STUD SHOULD STICK UP OUT OF THE TOP OF THE NUT ABOUT 1MM. IF THE STUD THREADS ARE STICKING UP OUT OF THE NUT BEYOND THIS, SCREW THE STUD IN FURTHER. IF THE TOP OF THE STUD IS BELOW THE TOP OF THE NUT, BACK THE STUD OUT UNTIL 1 THREAD IS EXPOSED ABOVE THE NUT. TIGHTEN TO 40 FT LBS FOR NOW. Repeat according to the pattern below.**



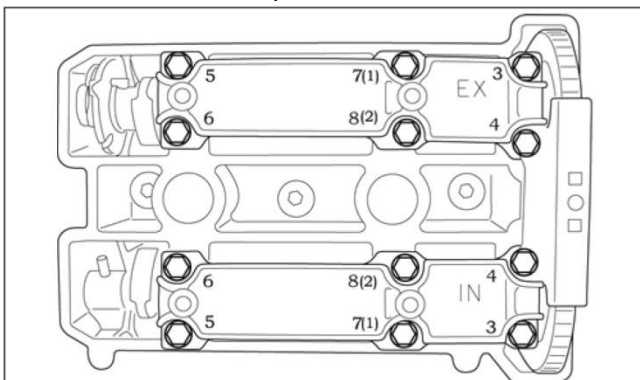
10. Once all head bolts have been replaced with studs, nuts and washers, tighten all nuts to 55 ft lbs according to the pattern above, then repeat to a final torque of 70 ft lbs according to the pattern above
11. With the timing marks (A) on the face of the camshaft gear properly aligned, place the camshaft into position on the cylinder head.
12. With the cam chain properly seated to the gears of the crankshaft and exhaust camshaft, install the intake camshaft noting the timing marks (B) and index marks are properly aligned.

NOTE: With the camshafts and cam chain in place, there should be exactly 16 pins from intake cam mark 3 to exhaust cam mark 2.

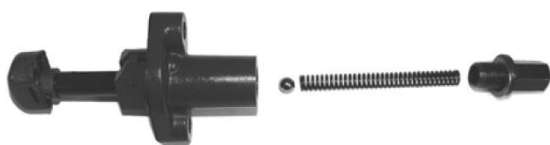


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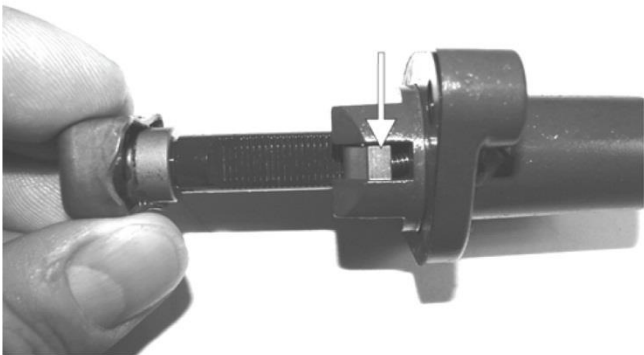
13. With the camshafts in position and properly timed and the dowel pins in place, install the camshaft covers along with cam chain tensioner guide number two; then using the pattern shown below, tighten the twelve cap screws to **84 in-lb**—this requires a very fine torque wrench.



14. Remove the tensioner ball, spring, and bolt. Be careful not to lose the ball!



15. Install the cam chain tensioner adjuster by first compressing the locking clip; then by pushing in the tensioner shaft until completely compressed. See Picture



16. Install the tensioner and secure with two Allen-head cap screws; then tighten to 84 in.-lb. Install the ball, spring, and tensioner bolt and tighten to 18 ft-lb.

17. Install the engine cover alignment pins; then install the engine cover and secure with four cap screws and plastic washers. Tighten the cap screws to 120 in-lb.

18. Reinstall spark plugs and caps

19. Reassemble chassis

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