



ROSSIER ENGINEERING

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Retarding YFZ Exhaust Cam

Yamaha has left some horsepower on the table with the way they time the YFZ cams. By simply re-timing the exhaust cam, you can expect a 1 to 1 1/2 HP increase across the board and a 2 HP increase at 10,000 RPM. Torque levels will increase as well. Here is what you need to do.

Tools Needed:

- 17mm Socket
- Large flat blade screwdriver
- 4mm + 5mm Allen wrenches
- 8mm 1/4" drive socket, extension and ratchet
- Small flat blade screwdriver
- 10mm wrench or socket
- #2 Phillips screwdriver
- Flashlight

Step 1

Make sure your quad is clean - spotlessly clean! You certainly don't want any dirt getting into your engine.

Step 2

Remove gas tank shroud and gas tank, exposing the cam cover. The side plastic can be removed, but is not necessary.

Step 3

If needed, label breather and vent hoses from top of motor when detaching.

Step 4

Loosen both of the 4mm Allen bolts on the carburetor boots. Also loosen the Phillips screw on the intake boot.

Step 5

Rotate the carburetor so you can remove the 10mm bolt from the end of the cam chain tensioner.

Step 6

Use a small flat blade screwdriver to turn the screw in the cam chain tensioner clockwise until it locks into the compressed position (shown removed from engine for clarity).





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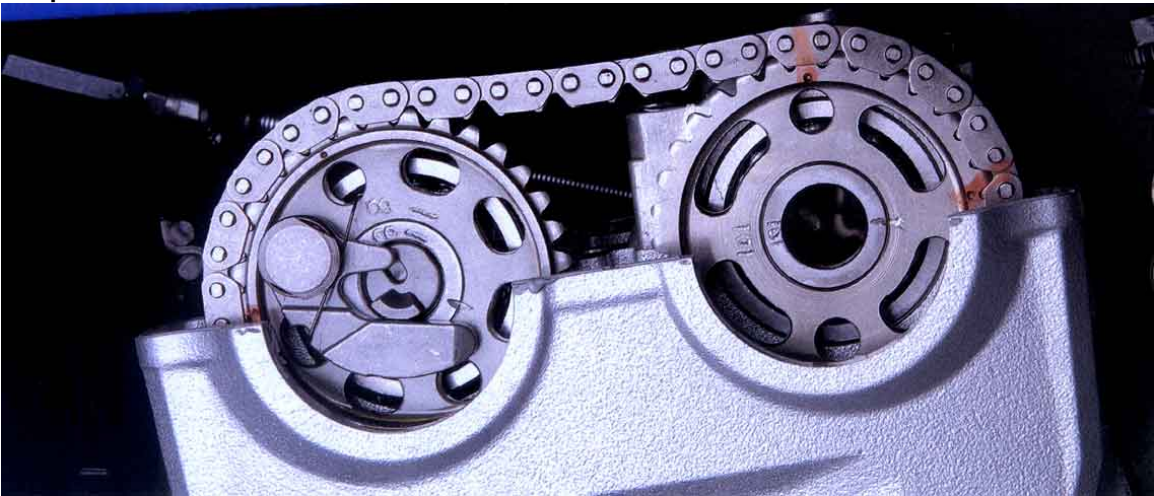
Step 7

Remove the cam chain tensioner from the cylinder by removing the two 8mm bolts.

Step 8

Remove the cam cover, and then remove the two plugs on the left case side cover, exposing the flywheel pointer and the 17mm nut on the end of the crankshaft. This is used to rotate the motor.

Step 9



Rotate the motor to establish TDC on the compression stroke. If the cam lobes are down and the heels are exposed and facing up, then you are at TDC on overlap - *this is not where you want to be*. The picture above illustrates stock cam timing at TDC.



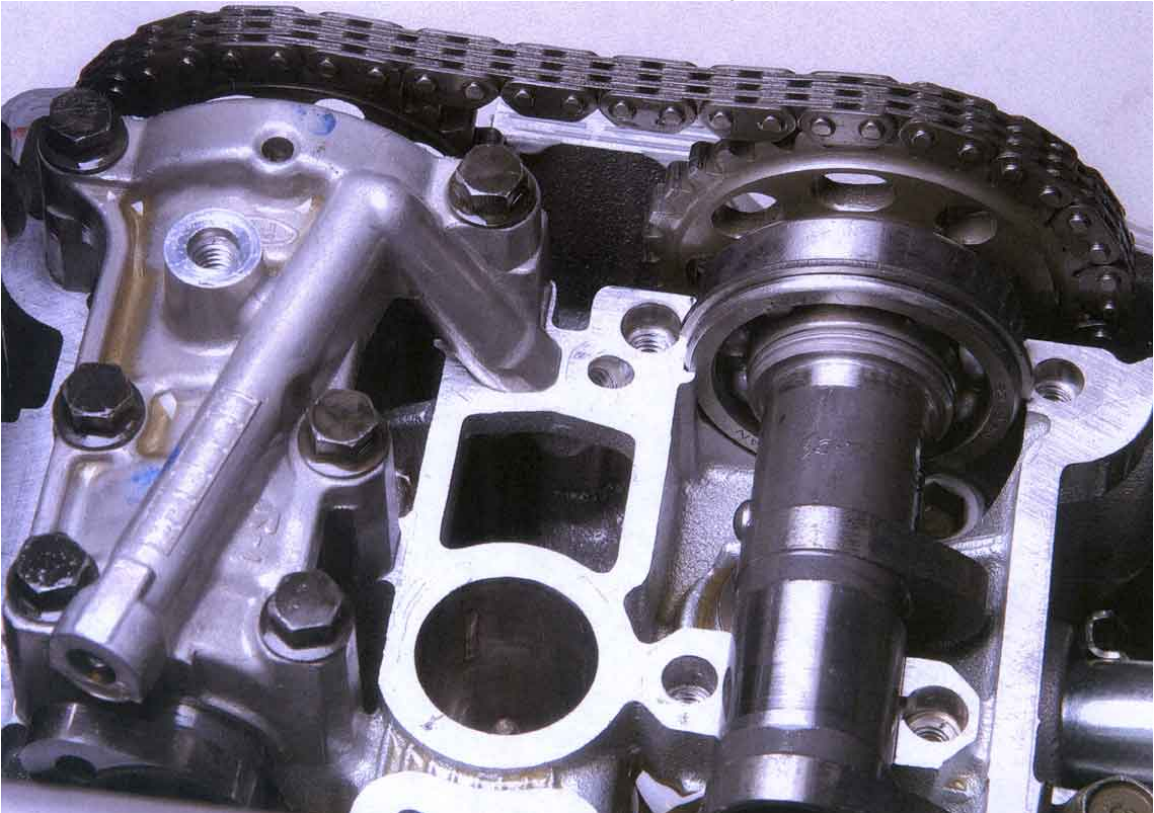


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There are two marks on the flywheel - the one for timing is marked with an 'H'. The line to the right of that H is TDC.

Step 10

Remove the four 8mm bolts in the exhaust cam hold down. When removing the cam hold down, be careful to not let the steel half moon clip fall into the engine.



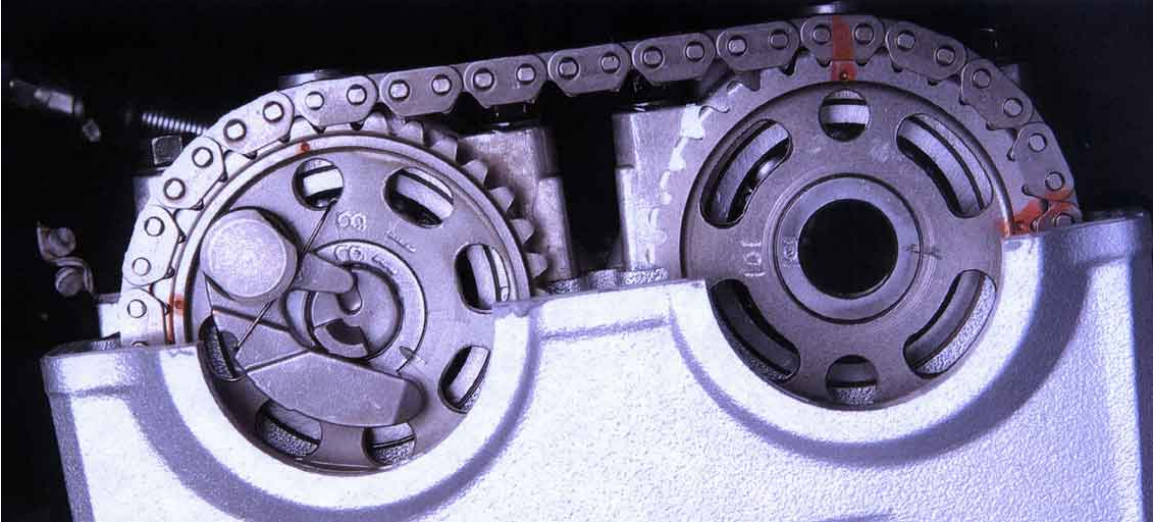
Step 11

Remove the exhaust cam from the cylinder head and turn it one tooth clockwise. Install the cam back in the head to line up marks (see picture below) with the engine still at TDC.

Line up marks with TDC on the flywheel and put pressure on the cam chain slide by sticking your finger in the cam chain tensioner hole. If you measure from the top edge of the head to the dot on the exhaust cam it should be approximately $\frac{1}{4}$ " or .220".



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THIS IS THE POINT IN THE PROJECT TO BE METICULOUS!

Double and triple check all your marks - this is critical. One tooth counter clockwise and the engine will run poorly. Or, if you are two teeth counter clockwise instead of one, your valves will touch your pistons (no explanation needed there). Remember, if you measure from the top edge of the head to the dot on the cam, it will be $\frac{1}{4}$ " above the top surface of the head.

Step 12

Reinstall the half moon clip in the cam bearing, install cam hold down and tighten bolts to 108 inch pounds.

Step 13

Install the cam chain tensioner on the cylinder and tighten the two 8mm bolts. Use a small flat blade screwdriver to release the cam chain tension by turning the screw $\frac{1}{4}$ turn counter clockwise. The tensioner will self-adjust.

Step 14

Install the 10mm bolt into the end of the cam chain tensioner.

Step 16

Slowly rotate the engine counter clockwise several times making sure nothing is wrong. Check your marks one more time.

Step 17

Install cam cover and both plugs in left case side cover.

Step 18

Turn carburetor back to position and tighten boot clamps. Reattach breather hoses and spark plug cap.

Step 19

Reinstall body work and go enjoy your free power increase!