Automatic Compression Release

PRINT

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This modification applies to year models 1997-200? as I don't know when they changed the part number/design. The work should also be done by a competent mechanic/machinist. You may borrow the tooling I made and send it on to anyone else that wants it. If you have any questions, feel free to call or e-mail me; Pat Dexter, 805-646-0737(leave message), jpdexter@dock.net

Background => Over the past couple years, the KLX-300 has experienced it fair share of broken idler gears, often resulting in excessive damage to the engine, and oftentimes at great expense to the owner. Two factors appear to contribute to this hardware failure:

- The timing of the ACR is incorrect. This is addressed by the repair procedure outlined below, based on the ACR not being properly timed. This results in the idler gear being subject to overloading during the starting procedure, causing the gear to break.
- The idler gear provided on the Kawasaki KLX-300 is rather loose fitting on it's shaft, and has a heat treatment that is rather shallow and results in a rather brittle gear, resulting in a catastrophic failure of the gear when overloaded.

As a side note, while you are doing this modification, you may as well check the valve clearances, as you will have the valve cover off. Also, if the manual didn't mention it, use a wire to tie up the cam chain so that it doesn't drop down into the case.

ACR Mod Procedure

1. Remove the valve cover, the side cover access plates (crankshaft and timing mark covers), and the spark plug to allow you to properly position the crankshaft. Cover the sparkplug hole so nothing falls into the cylinder.

2. Position the crankshaft at TDC. Note the markings on the cam sprocket. SLOWLY rotate the crank through a complete engine cycle (from TDC, both valves closed) power, exhaust, intake, compression to note what happens when – not that this step is absolutely necessary, but allows you the chance to understand why you are repositioning the ACR mechanism.

3. Check the valve clearances now.

4. Remove the exhaust cam (make sure your crank is at TDC and note the markings on the cam sprocket) and look at how the ACR works and notice the valve decompressor lobe. Just for your own curiosity, put the cam back in its place and rotate the cam to its TDC position. This is where the "EX mark" on the sprocket lines up with the top of the cylinder head. Now rotate the cam CCW (looking at the sprocket end) until the decompressor lobe just touches the valve lifter and you can roughly see(or measure) that this is about 25° before TDC. This equals 50° BTDC on the crank which is why there is too much compression for the idler gear.

5. You must mark the original location of the ACR before it is removed. Here is one way of marking the existing ACR location before its removal. Clean the left cam surface with a solvent and wrap the cam with duct tape. Using a ballpoint pen or marker, mark where the ACR lobe recess edges are for reference on the duct tape.

6. Now, make new marks 3mm ±0.5mm (CW looking at the ACR end of the cam) from the first marks. These will be the new locations for the ACR when you reinstall it. Make sure you don't wipe them off accidentally like I did the first time.

7. Using my fixture or your own (see drawings), press off the ACR. NOTE: Make sure to catch it from falling to the ground.

8. Remove the fragile spring from the ACR.

9. Clean the mating surfaces of both the ACR mechanism and the camshaft prior to reassembly. Put a thin layer of blue or red Loctite on the mating surfaces and reassemble the ACR and cam with the new alignment marks lined up. Use the special pushing tool to press the parts together, making sure that the ACR doesn't get cocked too much and double check the alignment mark location. Make sure the parts are seated all the way. Clean off any excess Loctite from the outside and deep inside the cam.

10. If you made a mistake on the location, just go back to step 5.

11. Reinstall the ACR spring and you're ready to put the cam back in.