

Replacing 2-stroke engine Crankshaft Seals

An often overlooked item on 2-stroke motorcycles is the crankshaft seal/s. Located on either end of the crankshaft, their task on one side is to provide a seal between the gearbox and crankcase and on the other side a seal between the atmosphere and the crankcase. **Why would these seals need replacing?** Like any mechanical component crankshaft seals have a limited service life and whilst a worn seal will not always show any visible sign of leakage, the effect of a worn seal/s is critical to the performance of a 2-stroke motorcycle. Optimal crankcase pressure is a major factor of a 2-stroke engine's design and any deviation from specs will upset performance. I won't go into the theory behind the operation of a 2-stroke engine (there are plenty of books and web pages about that). Here are some photos to show you what the job can be like to replace them. Note that this is not a comprehensive step-by-step guide. Only the major steps are shown. If you have any doubts re your mechanical aptitude you should seek expert help from a trained technician. TRIALTECH does not recommend you perform this repair yourself unless you have the correct tools and experience/expertise/training.

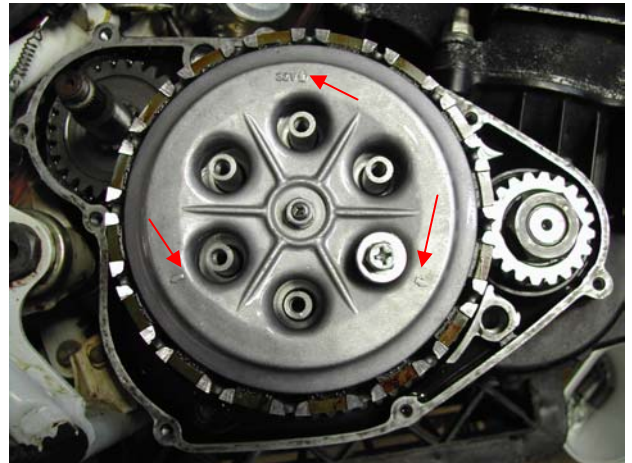
CRANKSHAFT SEAL - CLUTCH SIDE

- 1.** If the vehicle is due for an oil change drain gearbox oil. If the oil is OK simply lay the bike flat (level) and the oil will generally stay within the gearbox cases.
- 2.** If crankshaft seal will foul on clutch housing during removal, it will be necessary to remove the clutch assembly. Remove clutch cover, clutch spring retaining bolts and springs.

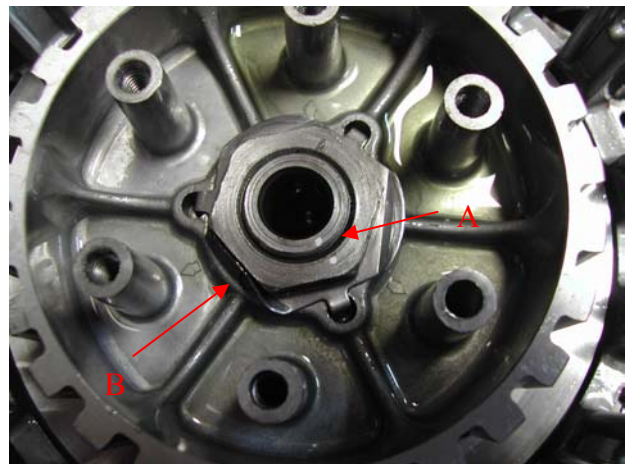


- 3.** If not already marked, mark the clutch cover assembly so it goes back together the same way. A white paint pen is useful for this. In the following image, the manufacturer has been kind enough to

mould fitment arrows into the castings but I still suggest you use your own.

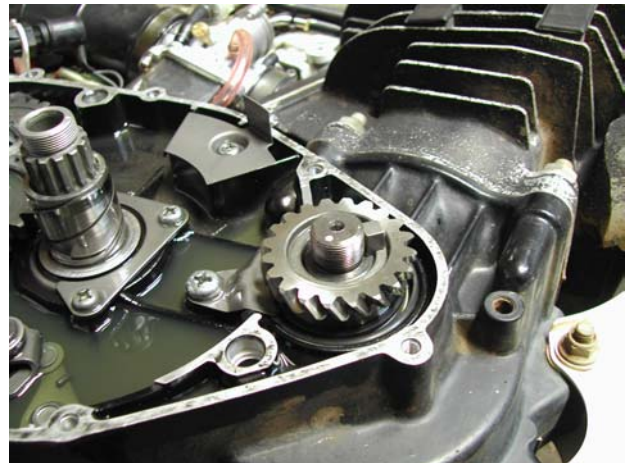


- 4.** Once the clutch cover is off, remove the fibre and steel plates as a 'pack' if possible, wrap with rubber bands to keep it together and place inside a clean plastic bag and seal it.
- 5.** Mark the position of the clutch boss nut (A) and if a pneumatic wrench is available undo the nut (C) after peening over the lock tab (B). Use a rag to prevent the boss from spinning. If pneumatic wrench not available, you'll need to purchase or make a clutch holding tool.

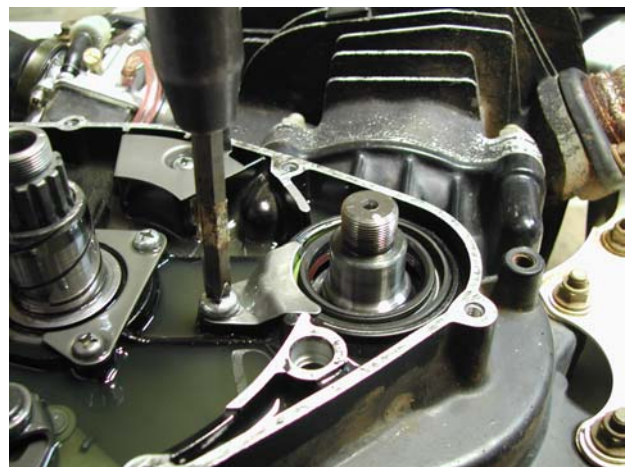




6. Mark the primary drive gear and shaft and remove nut.



7. Again, more fitting marks are required to ensure parts are reassembled as they were. Remove clutch driven hub. Ensure thrust washer behind it and any bushes, spacers or bearings are not lost or damaged.



9. Remove crankshaft seal with seal pick tool being careful not to mark or damage any surfaces.



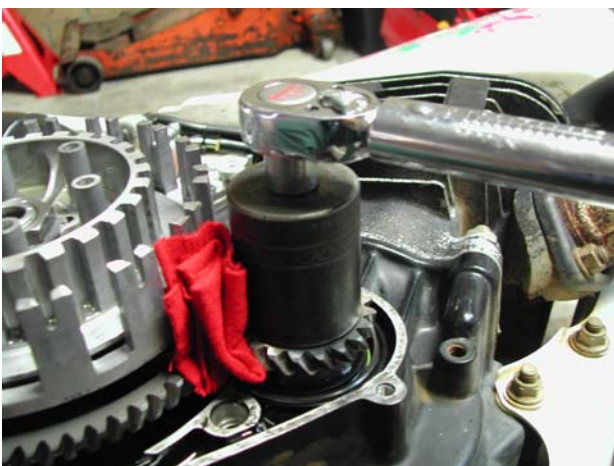
8. Now you can remove the primary drive gear, primary drive gear key and then undo crankshaft seal retaining tab bolt/s.



10. Install new seal with a suitable seal driver. Ensure seal is 'driven' in uniformly and seats to where the position of the worn seal was.



11. Lubricate the seal lightly with the same 2-stroke oil you use in your fuel/oil mix. Now assemble in reverse order steps 9-1. Make sure you use a torque wrench to tension the nuts. If torque wrench not available, tension until the marks you have made re-align. A folded rag is useful for 'jamming' the primary drive gear teeth. A two cent piece (if you can find one) is also useful as the material won't damage the drive teeth.



12. Refit clutch cover with a new gasket.

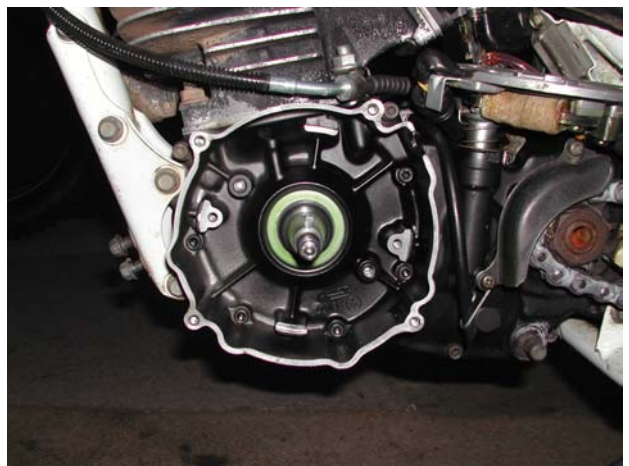
CRANKSHAFT SEAL - IGNITION SIDE.

13. This side is a bit different as there is usually no oil or moving parts to worry about which makes the procedure very simple. Start by removing rotor nut,

then the rotor (you'll need a flywheel puller), and then remove stator/ignition assembly.



14. Remove and replace crankshaft seal.



Reassemble in reverse order using a torque wrench to tension rotor nut. Please contact TRIALTECH if you have any questions - 0437 213 550.

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