

# Gearcase, oil-pump, R&R

## Tips and tricks for removing and replacing the gearcase, oil pump, and sprocket cover.

### The tips and tricks:

1. **Take notes on what is missing or broken.**
2. **Buy the factory service and parts manual.**
3. **Use number-3 Philips for screws.**
4. **Never pry the cover off.**
5. **Use marks on camshafts to time the valves.**
6. **Don't glue the gasket on or use silicon or Loctite.**
7. **Oil pump comes off with four cap-head 1/4-20 bolts.**
8. **You can polish the covers just like you polish rocker boxes.**
9. **Have a bin or tray for all the parts.**
10. **As always, return the tools to the toolbox as you work.**
11. **Clean clean clean.**



Getting the gearcase, or cam cover off is easy. Timing the cams and setting up end-play is harder. (Click for video.)

The engine in this video is pretty dirty from sitting around for years. I am taking it completely apart, so some exterior dirt getting on the inside is not too serious. But when you are just doing a service, you should wash and blow off the engine. Think of an open engine like a patient on an operation table, you want to keep things that clean. I like to use plastic bags to keep the parts from getting more dirty than they are. Once I wash and clean and inspect things, I use fresh plastic bags.

Lithium grease is fine to lube the cams and oil pump, it will dissolve in engine oil and is easier to work with. Make sure all the marks line up on the cams so the timing will be right. The cams take thin shims to remove side-to-side end play. You can bump the electric starter or rock the bike in gear to rotate the engine so the crank mark aligns to the cam.