PRIMARY ISSUES

How to check and adjust the primary chain on a Big Twin

AT THE START OF EVERY RIDING SEASON, AS WELL AS DURING IT, I have a list of things that I check on my bike to make sure all is well in Evo-land. And though modern Harleys don't need a lot of attention, especially compared to the older models, they do need some maintenance, and, personally, I'd rather get the jump on a problem than let it blindside me during a trip.

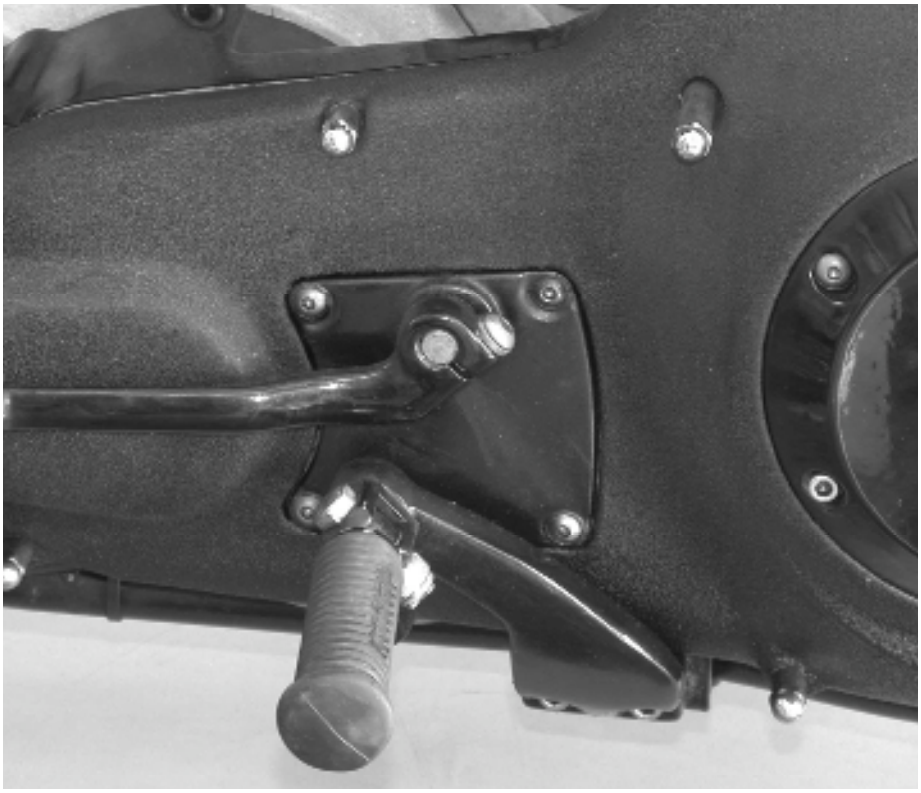
One of my regular checklist items is the primary chain. The manual calls out for a chain check every 2,500 miles of normal service. Many times, the chain's adjustment is fine. However, letting this vital piece of your drivetrain get out of whack can give you a fair amount of grief. Especially since the problems it causes slowly creep up on you, harassing you until you figure out the cause and its fix.

Telltale signs that the chain between your engine and clutch/transmission is in need of some attention is a bike that bucks when you're trying to cruise at a steady speed and/or a rap-rap-rapping sound from the primary case. Either or both of these symptoms means the chain is in serious need of adjustment.

To do this job easily, you need to get the rear wheel off the ground (the K&L bike jack reviewed in the July issue is perfect for this), so you can move the primary chain by rotating the rear wheel. Of course, you can also do it by just moving the entire bike, but then you're chasing the machine around your driveway. (Never check the chain with the enginerunning.)

The primary chain should have 5/8" to 7/8" of slack in its tightest section when the engine is cold, or 3/8" to 5/8" slack when the motor's hot. However, since you can't get a ruler inside the primary covers to measure this, it's a good idea to be familiar with how far your finger will be moving inside the primary to get 5/8" to 7/8" of slack.

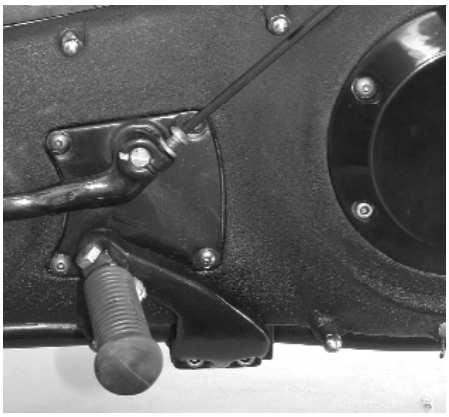
You'll also need a new inspection cover gasket for your model and year bike. And while you can reuse the old gasket, there's a good chance you'll get a little weep from the inspection cover, so why cheap out on a gasket? The accompanying photos show you the steps needed to do this simple bit of maintenance.



1 Our opening photo shows the left side of a 1986 FXR. However, the primary system on all Evo and Twin Cam Big Twins is basically the same.

PHOTOS BY BOB FEATHER

2 Begin by indexing the gear shifter lever and shifter shaft with a grease pencil. This way, you can easily put it right back where it was comfortable for you before.

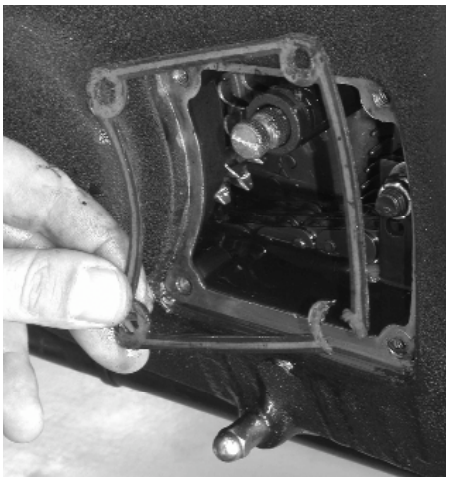


3 Next, remove the shifter lever by removing the 3/16" Allen bolt that tightens it to the shaft. Sometimes it's a 7/16" bolt and lock washer, depending on the model.

4 Since this bike has mid-controls, we need to remove the left foot peg by undoing the two 1/4" Allen bolts. Bikes with forward controls do not require this step.

5 You can then use a 5/32" Allen to remove the four primary inspection cover bolts.

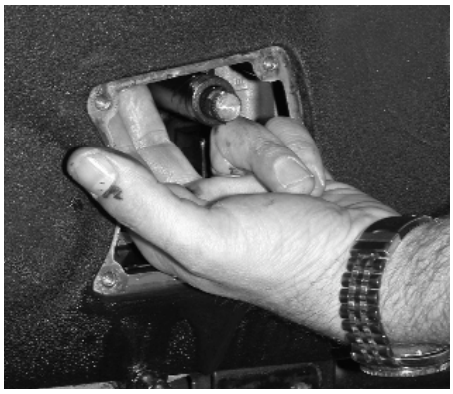
6 To avoid damaging the threads or the cover, use two small hook tools to pull the inspection cover off. Then, if so equipped, slip the cover off the shifter shaft.



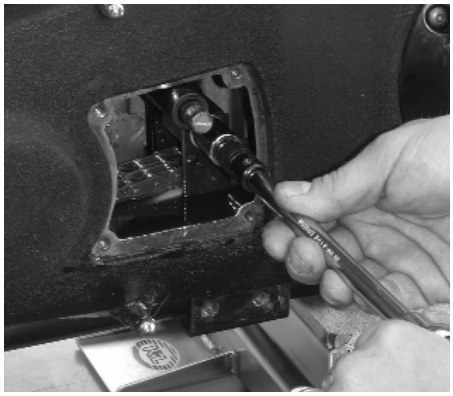
7 The gasket is then removed and thrown out, or cleaned up for later reinstallation, your call. Also clean the gasket surfaces of the inspection and primary covers.

8 Check the tension of the primary chain by lifting up on the chain with your finger. Note how much slack there is in the chain at this point.

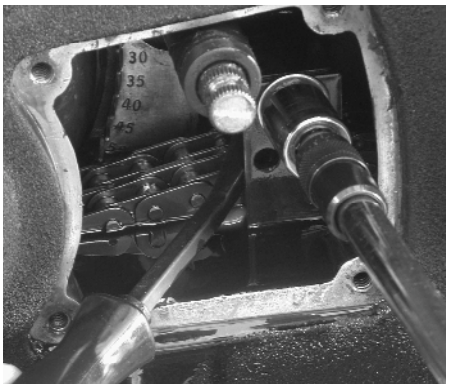
9 After putting the tranny in second gear, use a bike lift to raise the rear end of the motorcycle, so you can move the primary chain by rotating the rear wheel.



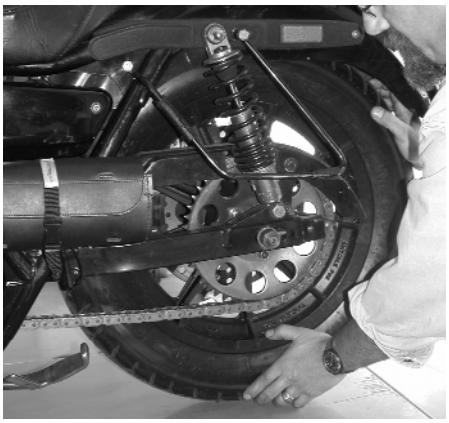
10 Then recheck the tension in the primary chain. Check each section of chain for loose and tight sections. As per the service manual, there should be 5/8" to 7/8" of slack in the tightest section of the chain when the engine is cold, or 3/8" to 5/8" when hot.



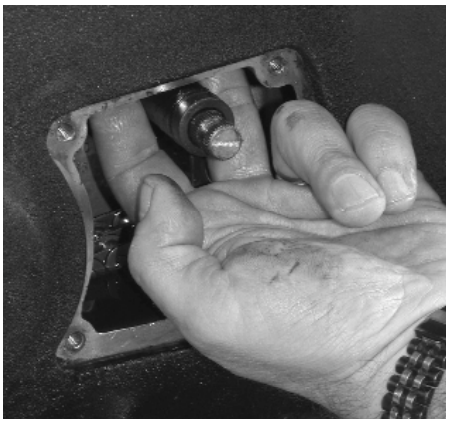
11 If needed, adjust the chain at its tightest point by loosening the center bolt on the shoe adjusting bracket using a 9/16" socket. Note: Don't remove the bolt; only loosen it, so the bracket can be moved.



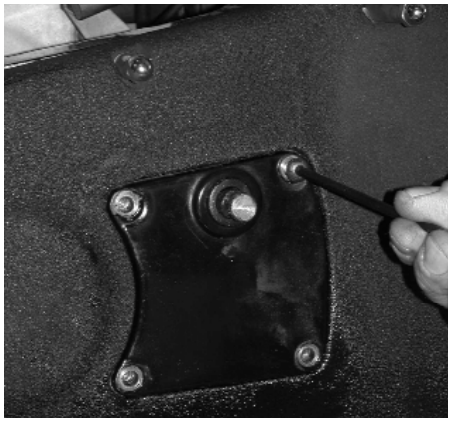
12 With the bolt loosened, the primary shoe adjuster can be raised, if needed, using a small pry bar. Once the adjustment is made, lock the shoe into position by retightening the center bolt.



13 Now recheck the chain tension by again rotating the rear tire while the bike is in gear. This is done to move the primary chain through any loose or tight spots.



14 One final check of the primary chain's slack confirms we are within factory limits.



15 Reinstall the inspection cover, with its gasket, and tighten the four bolts to factory specs using a 5/32" Allen.

16 Noting the index marks on the shifter lever and rod, install the lever and tighten the 3/16" Allen bolt, which should have a little blue Loctite on the threads.

17 Reinstalling the left footpeg using the two stock 1/4" Allen bolts and a little blue Loctite finishes the job. You can now drop the bike from the lift and go for a ride. AIM