

Appendix A

Replacing the Timing Belt Tensioner (including making a tensioner jig)

The timing belt tensioner roller (**Figure A1**) should be replaced every other time the timing belt is replaced, or if the roller is stiff and/or makes noise when spun. A good roller spins easily and quietly. Taking the tensioner assembly off the engine is straightforward. Just squeeze the tensioner spring (**Figure A2**) and pin the guide rod in place (**Figure A3**). Mark front of pivot cylinder, as it has a different depth, front to back. (Install same way.) Pull tensioner assembly off engine.

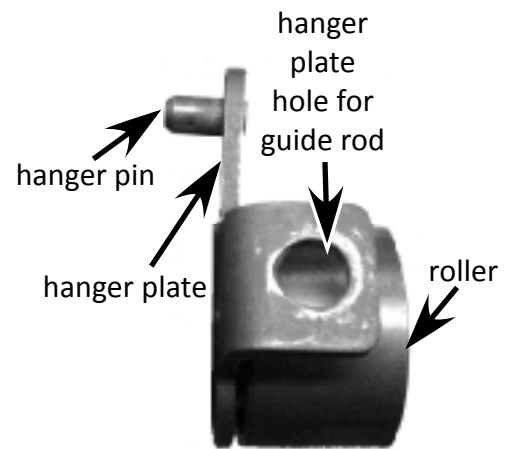


Figure A1.

Figure A2.



Figure A3.

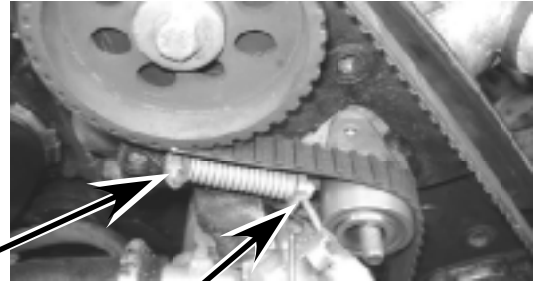
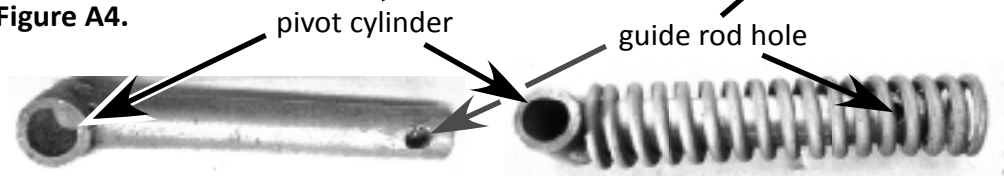


Figure A4.



(a) Photo of guide rod alone.

(b) Photo of guide rod and spring. To attach new tensioner roller, we need to compress spring, push guide rod through hanger plate hole, and insert a pin (or nail) through guide rod hole on roller side of hanger plate.

Once the tensioner assembly is off the engine, pull the pin and remove the old roller. In most cases, you can reuse the old guide rod and spring (**Figure A4**) with the new roller.

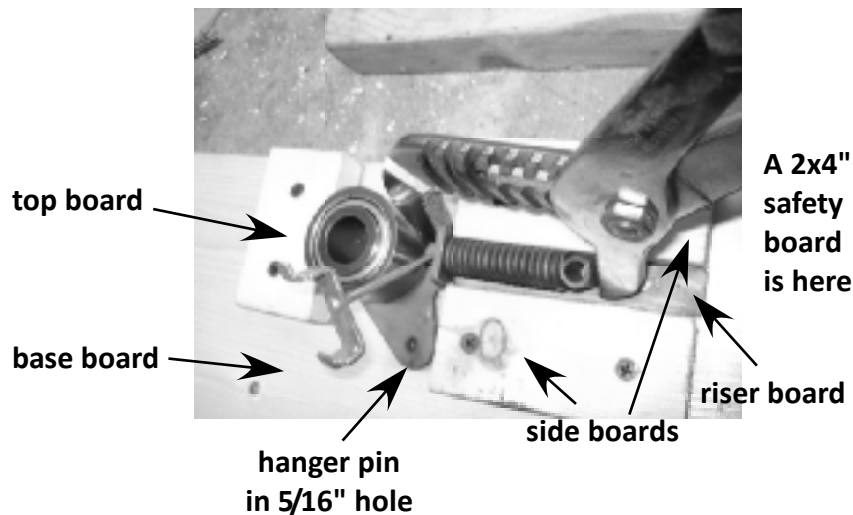
But pinning the guide rod to the new roller is not easy. You need to compress the spring and pin the guide rod in place on other side of hanger plate of new roller, as in **Figure A5**. The spring tends fly off into space, making this task one of life's little frustrations.

Life is made easier by creating your own jig to hold the whole assembly in place. Use scrap pieces from your workshop. Time: about 20 minutes.

Everything is $\frac{3}{4}$ " pine, except for the riser board. Lay out the top and side boards around the tensioner assembly as shown (**Figure A5**) and screw or nail in place. Mark and drill a $\frac{5}{16}$ " hole in the base board where the hanger pin imprints. Use a $\frac{5}{16}$ " thick x $\frac{3}{4}$ " wide x 4" long riser board under the guide rod/spring assembly. Fasten riser board in place, making sure the fastener holes are countersunk.

A frustrating task is now straightforward! Wearing safety glasses, squeeze the spring (as shown in **Figure A5**) with large pliers and push the guide rod through hanger plate hole (**Figure A1**). Insert pin (bent pin works best) in guide rod hole on other side of hanger plate. [Use a 2x4" safety board at the spring end of the jig to protect yourself if the spring flies loose! Oh, I sometimes find a popsicle stick on top of the riser board (underneath the spring) useful for aligning the guide rod to the hanger plate hole.]

Figure A5.



Once pinned in place, pull tensioner assembly from jig and slide it into place on front of engine. Make sure marked front of pivot cylinder faces front. (This may or may not affect how the belt slides over the roller in **Step 6** of the timing belt guide. That is, the belt has to stay on the pulleys and the tensioner roller when you rotate the crankshaft 720° clockwise, and the protrusion of the pivot cylinder may play a part.)

Done! Return to main guide.