



## 2010 43QGP Allegro Bus

3/12/2014

### **110- FYI – REPLACING THE POWERGLIDE CHASSIS ENGINE BELTS.**

While this is not a job easily performed by one individual it still doable, of course two workers make quicker work of this maintenance job. Tiffin when they began building the Powerglide chassis used belts that were not providing a long service life. When Tiffin began experiencing decreased belt life the belt maintenance change interval was 10,000 miles, later after Tiffin began using a different belt manufacturer the change interval was increased to 20,000 miles.

Tiffin based on the belt performance decided it was good company policy to supply the coach Powerglide chassis owners with a set of engine belts. One draw-back to the supplied belts, the serpentine belt was actually a by-pass belt in this case the spare belt bypassed the AC compressor. Tiffin decided the most often failure mode for the serpentine belt was due to a locked AC compressor when that occurred the belt was damaged leaving the coach stranded on the side of the road as the same belt also drove the engines water/coolant pump. Therefor Tiffin decided to furnish a by-pass belt as you could by-pass the AC compressor and drive the coach to a repair facility to have the AC compressor replaced or repaired. I decided to add one more belt to my spare belts that is a regular serpentine belt which does not by-pass the AC compressor giving me two options on the serpentine belt.

I decided to keep a good eye on the fan drive and serpentine belts on our coach finally deciding at 36 months to replace both belts. The removed belts look almost as good as the new belts I replaced them with. I think the OEM belts Tiffin was initially installing were wearing and needing replacing partially due to Tiffin programming the engine ECM to ENGAGE the fan drives high speed clutch every time the engine brake was engaged. When the fan drive clutch was energized the fan drive belt would slip causing a chirp to be heard by the driver after dozens or hundreds of these chirps the noise would finally develop into a fan drive belt squeal with each operation of the engine brake.

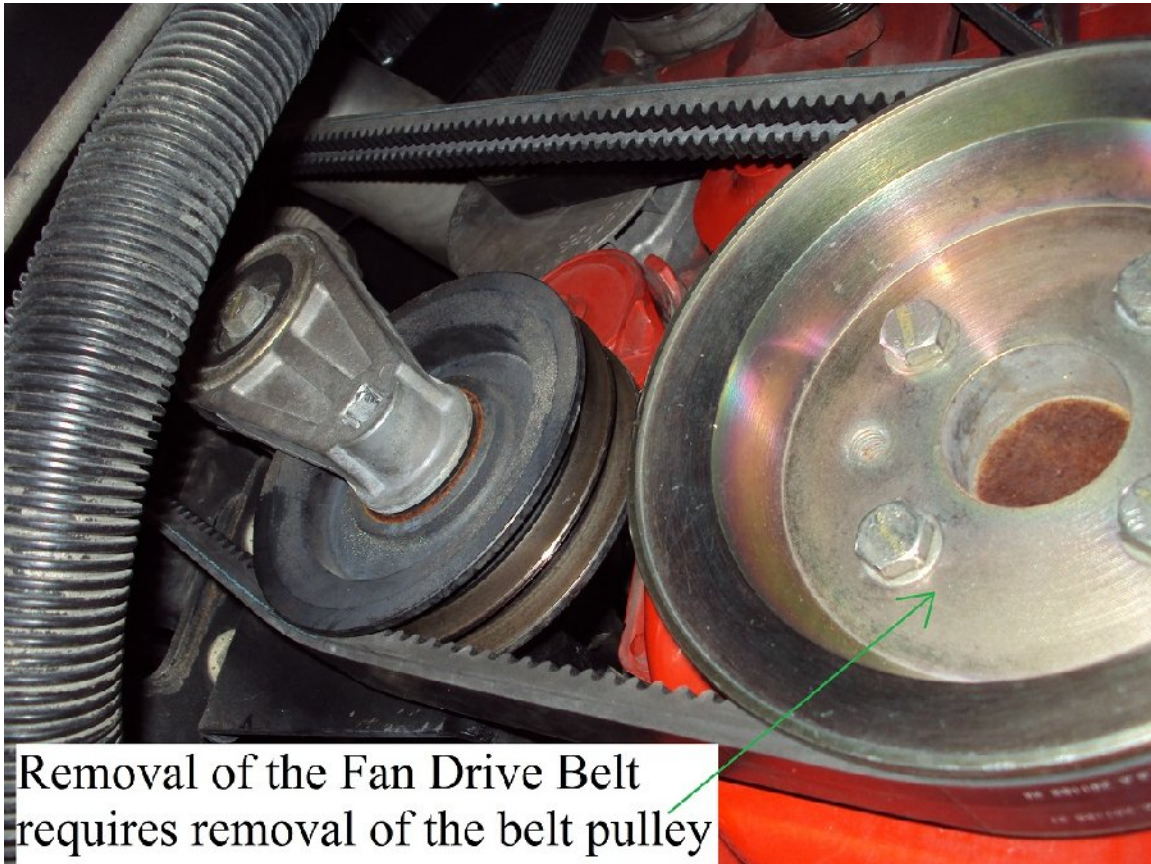
I opted to have the ECM reprogrammed to NO longer engage the fan drive clutch with engine braking. I posted this information on the forum which prompted many other owners to also have their coach ECM reprogrammed to no longer engage the fan drive clutch during engine braking. If you decide

to make this change you will forfeit or give up about 40 braking horsepower by making this change to not engage the fan drive during engine braking.

If interested you can read the file which is uploaded at

<http://www.tiffinrvnetwork.com/crusingator/ABfyi/FYI-002.pdf>

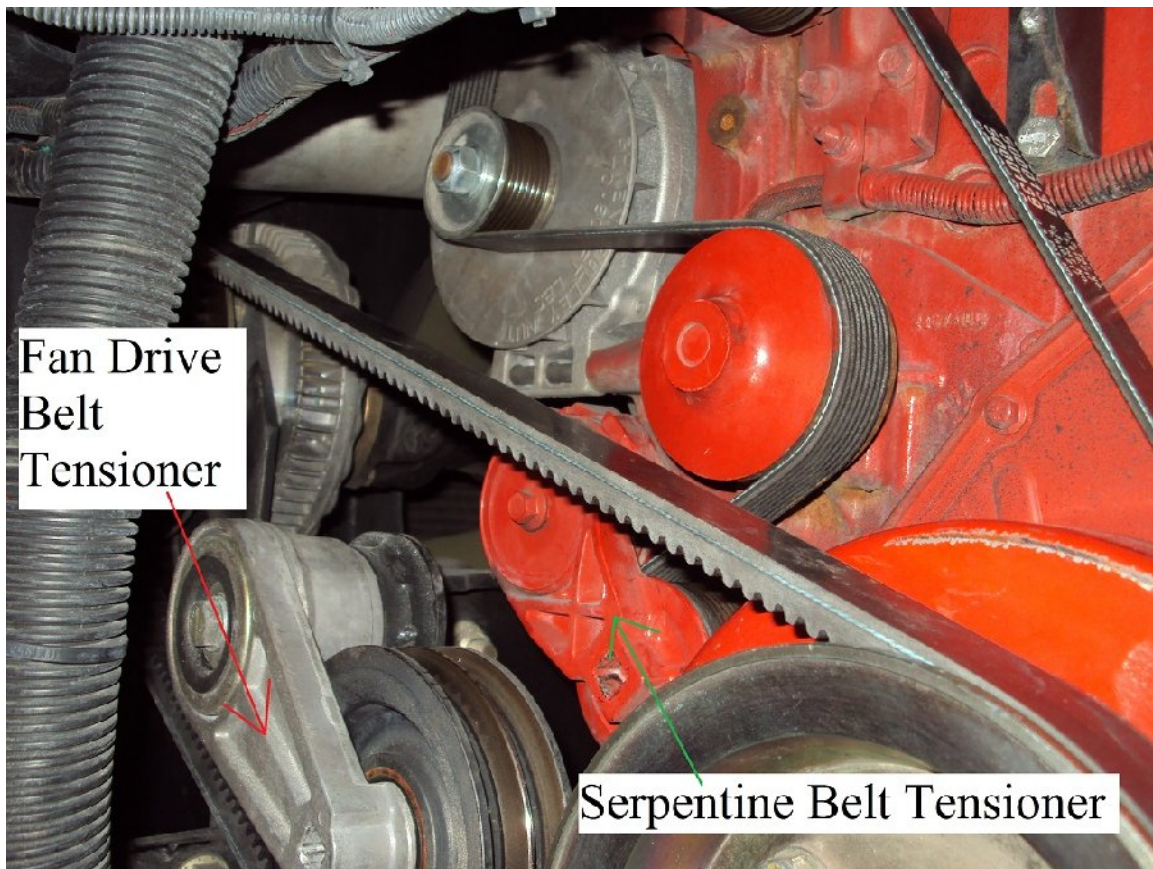
Getting on with what is necessary to replace the belts. I used a long  $\frac{1}{2}$ " pull handle along with a  $\frac{3}{4}$ " six point socket to remove the engine fan pulley bolts from the engine crankshaft.



As you can see in the photo using a  $\frac{1}{2}$  pull handle to release the fan drive belt tensioner will not allow the belt to be removed as the belt is too tight to slip over the fan drive clutch pulley or the engine pulley. The ONLY option is to remove the engine pulley from the crankshaft. Removing three of the four bolts and loosening the fourth bolt about  $\frac{1}{2}$  inch allows the pulley to slide off the end of the crankshaft and pivot thus allowing the belt to be removed. I opted to remove the fourth bolt to completely remove the pulley to make access easier and also make it less likely for the pulley to fall on my head as I was bouncing everything around under the coach.

After the fan drive belt has been removed from the crankshaft it is easier to gain access to the serpentine belt and its tensioner. This is a case for long

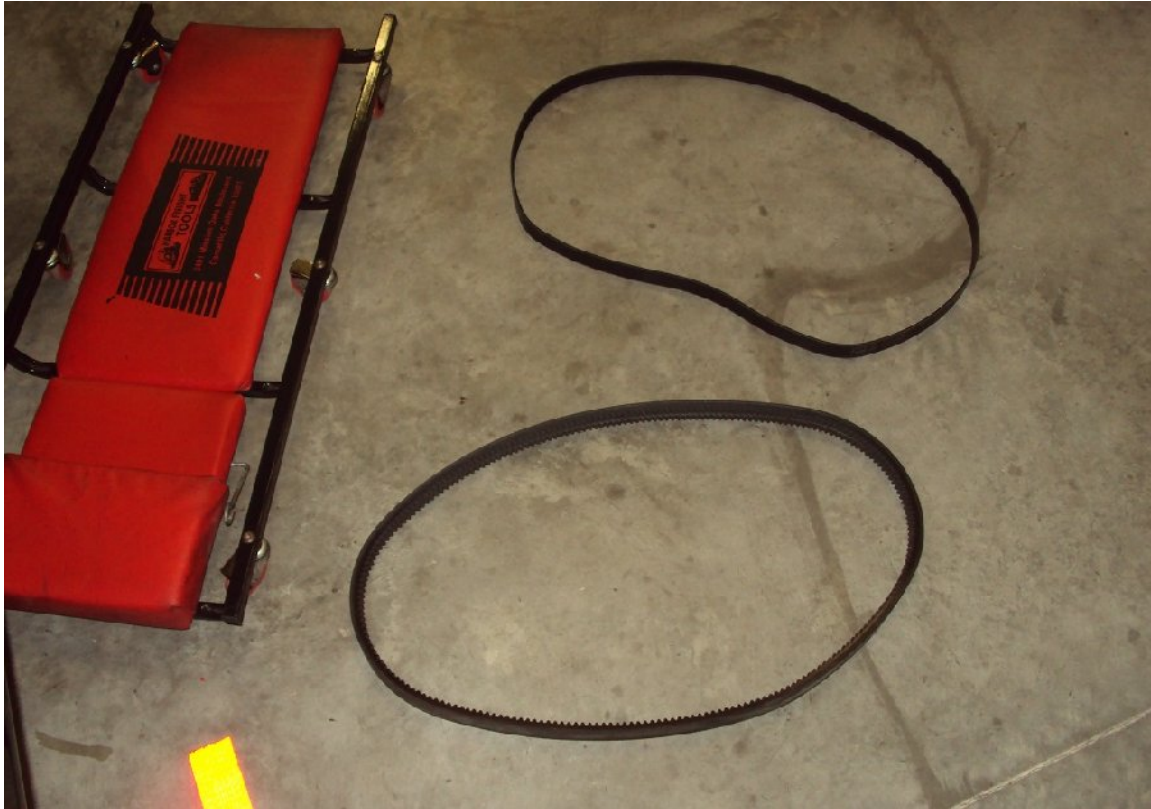
arms as the belt needs to be removed from several pulleys on the rear of the engine.



The ½" drive bar was again used to release the tension on the belt tensioner once the tension has been removed the belt can be slid off a pulley I used the

alternator pulley above then released the tensioner as the belt can be easily removed after removal from one pulley. Several months ago I uploaded a file to the TRVN forum showing the belt routing for the EPA 2010 Cummins ISL9 engine at this link.

<http://www.tiffinrvnetwork.com/crusingator/ABfyi/FYI-057.pdf> The above belt routing link will not help you UNLESS you coach is powered by a EPA 2010 Cummins ISL9 engine in a Powerglide chassis.



One installation item needs to be performed EXACTLY RIGHT, there are eight (8) ribs on the serpentine belt unless the belt is installed correctly on EACH of the 8 rib pulleys the new belt will SOON be damaged or broken if the engine is operated and even ONE pulley does not have the belt installed correctly. After installing the serpentine belt the fan drive belt was installed putting the belt around the crankshaft pulley prior to installing any of the crankshaft bolts, the torque on the crankshaft pulley bolts is 70 ft. lbs.

As seen in the above photo the removed belts are not in bad shape for having over 30,000 miles on them. Those two belts are now part of my spares kit along with the Tiffin supplied AC Compressor by-pass belt.

The removed belts were shown to Gary Harris a few months after they were removed this past winter, there are no missing pieces or cracks in either belt.