

## How to change your governor gear

About 3 miles from the rally campground in Plain City, Ohio I stopped at a traffic light. When the light turned green, I accelerated normally and immediately noticed two symptoms that indicate a failed transmission governor gear - the transmission would not shift out of first gear and the speedometer was pegged at zero miles per hour. I patted myself on the back for being prepared since I had purchased a spare governor gear a couple years ago to carry just in case this was to ever happen. (See photo below) We set up camp and went to dinner with a plan to fix it the next day after breakfast.

Since my vehicle has headers, I needed to remove the driver's side header to be able to remove the governor from the transmission. This required removing the transmission fluid dipstick tube and disconnecting the engine oil dipstick tube at the service joint near the left side rocker cover. About as soon as I got started, John Koenig showed up to help. With John's help, things came apart quickly until it was time to remove the governor. The speedometer cable was disconnected from the governor by simply loosening a knurled nut. However, the bailing wire that holds the governor in place (much like a bailing wire holds on the master cylinder cover) was seized in the transmission housing by 40 years of corrosion. Fortunately, we were able to dislodge one end of the bailing wire and bend it out of the way to allow lifting the governor from the transmission.

With the governor removed, we were surprised to find exactly how the plastic governor gear had failed. I had expected to find a gear with worn teeth that would cause it to not rotate the governor shaft as intended. Instead, we discovered that the gear had sheared into two pieces right where it is weakened by a roll pin that attaches it to the governor shaft. Therefore, we had half of the gear in our hands but the other half was still in the transmission – out of reach about 4" down a narrow bore. How in the world to get out the broken part? For a couple hours, we experimented with things like dum-dum on the end of a long screwdriver trying to adhere to the broken gear so that we could lift it out of the transmission, but nothing worked. We decided to buy some 4" long construction screws with the hope of threading one into the broken plastic gear to then lift it out. Off to Home Depot John and I went.

When we returned from the store, we found someone in my GMC hunched over the engine – Joe Baumbarger. Joe’s comment was “I’m almost done”. As it turns out, Joe determined that we had knocked the partial gear out of position such that we would not have been able to lift it up out of the narrow bore in the transmission. Using a hammer and a long screwdriver, he was able to break it into smaller pieces and caused them to fall down into the oil pan where they were safely out of the way. Now, the relatively easy job of re-assembly could finally begin.

There was one more hurdle to overcome. The replacement plastic governor gear is made without a hole through it for the roll pin that holds it in the governor shaft . During assembly, you press the gear into the shaft then drill a 1/8” diameter hole through it using the existing holes in the steel shaft as guides. I had carried a 1/8” drill bit with my “spare parts” governor gear, but had never given a thought about a drill motor to make the drill bit useful. No problem – Jim Wagner was at the rally and volunteered that I could use his drill motor.

Once the gear was drilled and the roll pin pounded into place, the re-assembly was a simple case of reversing the dis-assembly process. Fortunately, the governor hold-down bailing wire that had to be bent to remove the governor was able to be bent back to its original shape and held the governor as intended. A quick test drive confirmed that the transmission shifted as good as ever.

Below are some photos that might come in handy.

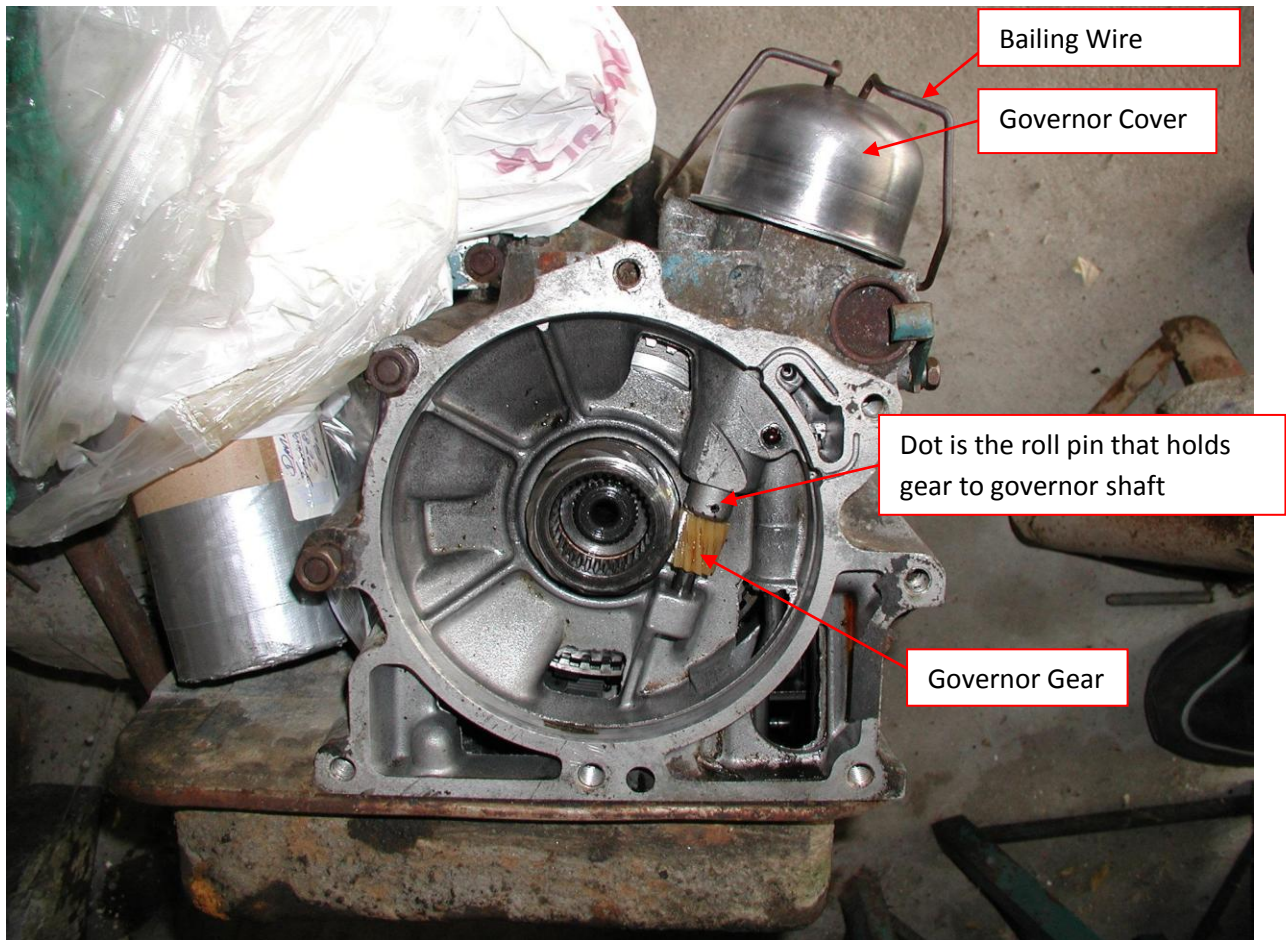
Steve Johnson 8/7/19



Governor gear repair kit - \$9.99 with free shipping on eBay. Original GM part number 8624939 = K34411A manufactured in USA by Southeast Industries. Includes 2 nails (to pound out old roll pin and install new one – I used a punch instead) and a replacement roll pin. Don't forget to carry a 1/8" diameter drill bit too so that you can drill the hole through this gear for the roll pin installation.



To the left of the penny is the shank of the gear that was still in the governor shaft when we removed the governor assembly from the transmission. To the right are the only pieces of the broken governor gear that I found in the transmission pan after I got home. Perhaps the others were captured in the filter or have not made it to the pan yet.



You won't see this view of the inside of the transmission but the photo might help understanding of how things fit together. The bailing wire swivels to the front or rear so that the complete governor assembly from the cover down to the plastic gear can be lifted up and out of the transmission housing.