



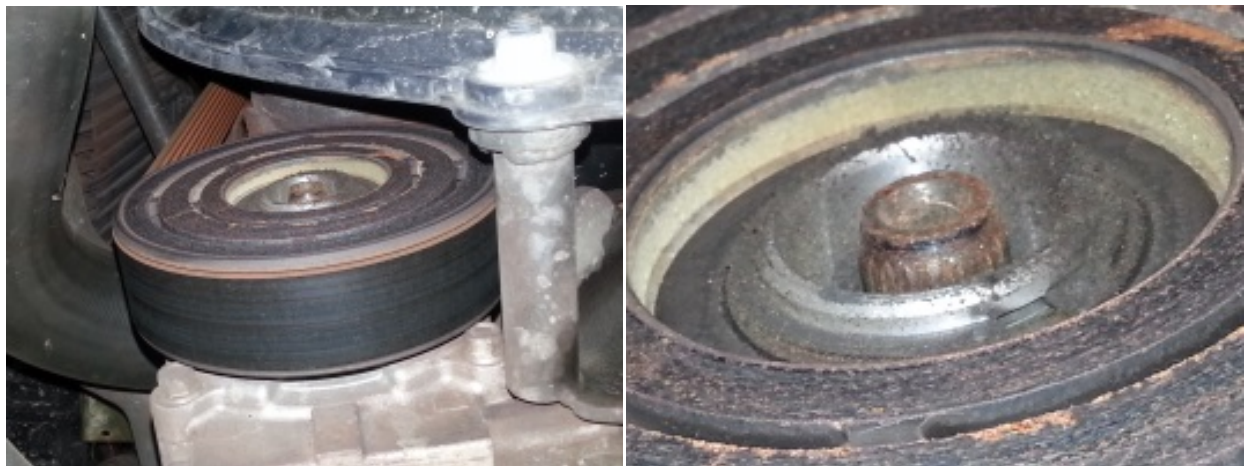
## Broken Air Conditioner Clutch Repair

by Flopster843

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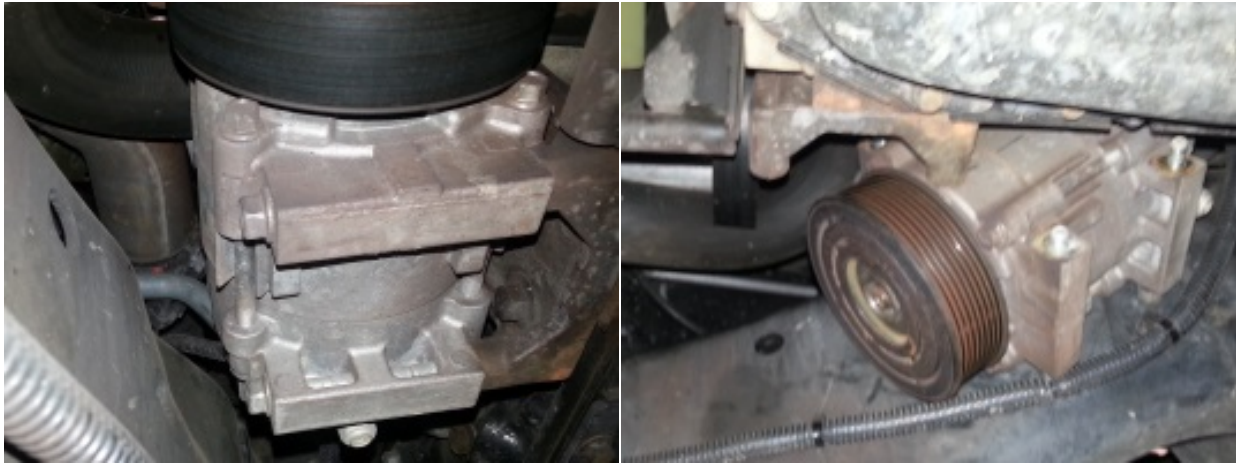
I'll start this by saying that if this hasn't happened to you yet, it probably will. It is fairly common for the bolt holding the A/C clutch to the compressor to break off. Usually it'll break when you're driving down the highway and you'll lose half of the clutch assembly. After the bolt breaks, the normal fix is to replace the entire A/C compressor. If you can catch it before it breaks, you can fix it significantly cheaper than you can after it breaks and you lose parts.

The main A/C clutch is held on the front of the compressor with a snap ring. The outside disk of the clutch (the part that actually engages the system) is held on with a single small bolt through the center. Like quite a bit of the hardware on a Dodge truck, it is nowhere near strong enough for the stress loads that are commonly placed on it. This results in that single bolt shearing off and usually ends with a complete compressor replacement. My bolt broke when I started my truck one early spring morning and left part of the clutch assembly lying in my driveway. It was still cold outside and I wasn't even using the air conditioner when it happened. A quick peek under the truck revealed that the bolt had sheared off inside the compressor shaft and it would need to be drilled.



In order to access the compressor to drill the bolt, the compressor must be partially removed from the engine. It is possible to pull the compressor down enough to drill it without disconnecting the refrigerant lines, so you do not have to evacuate and recharge the system. I started by pulling the accessory drive belt (fan belt) off of the compressor pulley. There is a 1/2 inch drive key hole in the belt tensioner that allows you to remove the tension from the belt. It's nearly impossible to access, but it's there. I released the tension just enough to get the belt off of the compressor, all the other pulleys were not touched.

Once the belt has been removed, the compressor can then be removed. There are four bolts that go through the side of the compressor to hold it to the engine bracket. All 4 bolts have to be removed and then the compressor can be rotated downwards in order to gain access to the broken bolt.



On a sensitive component like the A/C compressor, you've only got one shot to drill the bolt out. Any mistakes result in having to replace the entire compressor. To drill this bolt out, I utilized my Norseman left-handed drill bits. Read the transmission bolt fix article if you want some more information about this set. I highly recommend purchasing a quality set of left-hand drill bits if you attempt this yourself. I doubt an easy-out set would pull this bolt.

Through a slow and painstakingly long process, I was successful in removing the broken bolt from the compressor with minimal damage to the threads. All I had to do was to acquire a M6-1.0x25mm bolt to put back in it. The original bolt is supposed to be a grade 10.9, but it felt way too soft when I was drilling it to actually be a 10.9. I went to the local Fastenal store and was able to source a grade 12.9 bolt to replace it with. I reinstalled the clutch plate on the compressor using the new bolts covered in loctite thread locker. You will need to figure out a way to hold the clutch while you tighten the bolt. A long screw driver can be wedged across the front of the clutch to hold it still, but it requires an extra set of hands to hold in place. After the clutch is reinstalled, the compressor was bolted back to the engine bracket. Finally, the belt can be reinstalled to finish this project.



Like I said at the beginning, if you replace this bolt before it breaks you will save yourself a lot of work. The bolt can be removed and replaced without taking off the belt or dropping the compressor. You also don't have to worry about trying to drill a tiny screw out of a tiny hole. I highly recommend you pick up a replacement bolt and swap it out before your bolt breaks, which could possibly require a complete compressor replacement.

