

Rebuilding the Alternator for a 2007 Honda Accord 4CYL

Disclaimer: I have benefited greatly from others who have taken the time to post auto repair videos/tutorials online. To try and return the favor, I have documented a few of my recent repairs. I try to perform the work conscientiously in accordance with the Honda service manual, but I am not a professional technician by any stretch so please use this material at your own risk. I do hope this information might benefit others who are preparing to do this job.

Honda 2007 4CYL Alternator (Denso)

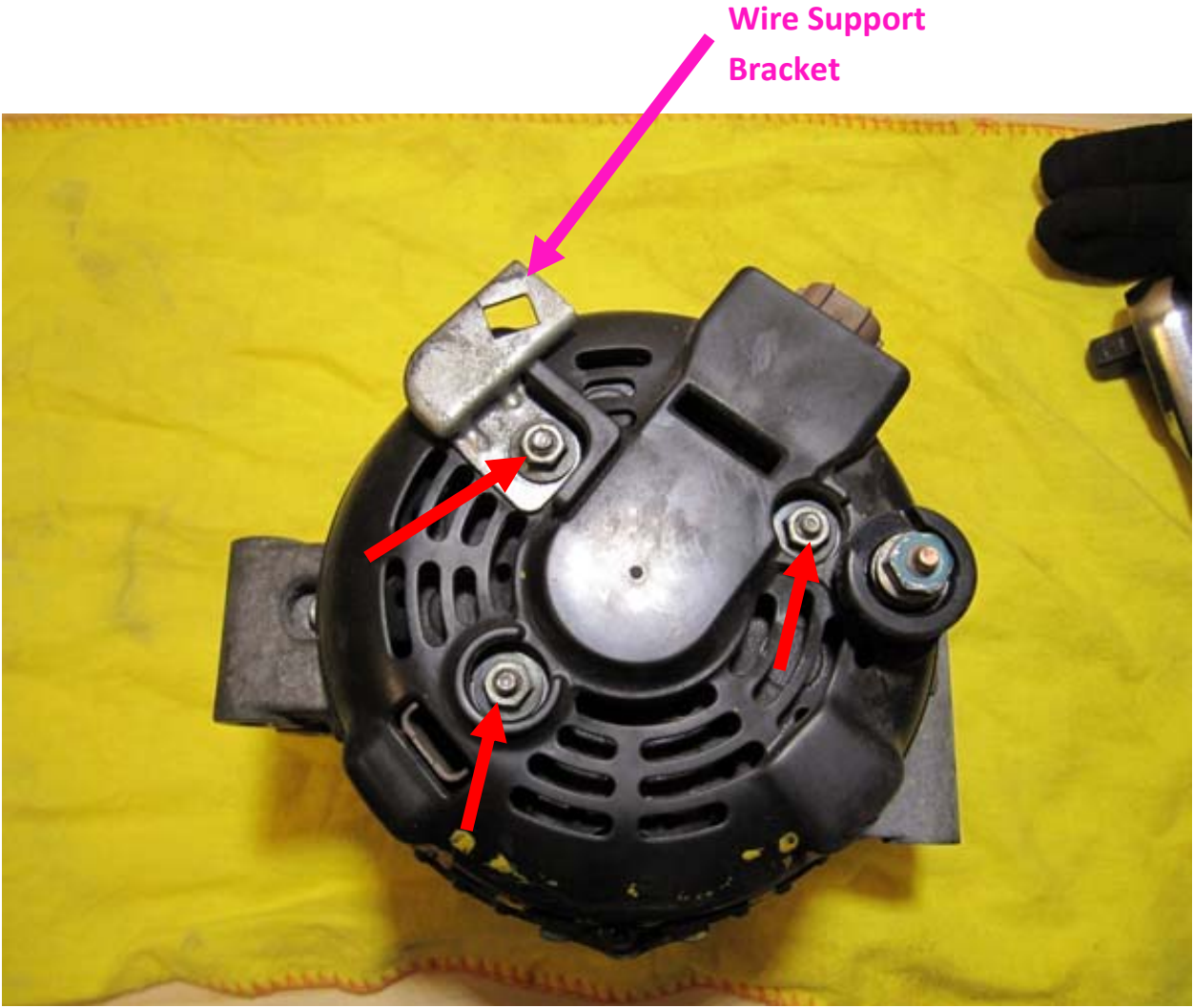


This alternator does not have any semiconductor components in it (no voltage regulator and not even any rectifier diodes). The only parts that are subject to wear are the brushes and the front and rear sealed bearings (I suppose eventually the slip rings on the rotor could wear out but this probably isn't very likely). The OEM brushes and bearings are available for purchase online. On my vehicle with ~240k miles, the brushes had worn down to approximately 1/3 of their original length. If you only need to replace the brushes, that is a very easy job. If you need to replace the front bearing, that is also quite straightforward. However, if the rear bearing is bad, the job is significantly more difficult because removing the rear bearing is a challenge. In this write-up I show the technique I used to replace all three.

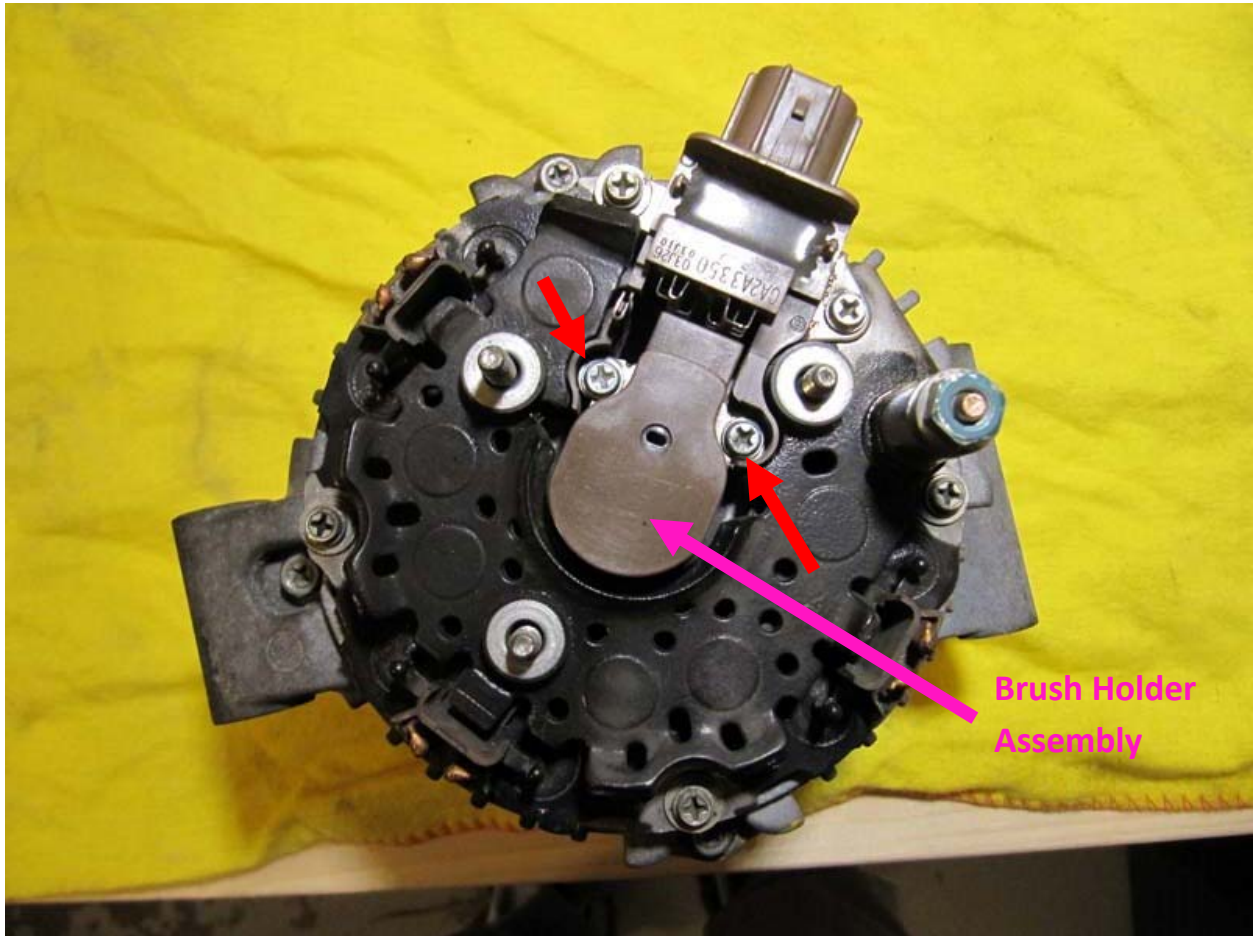
#1 – Remove the pulley locknut using a strap wrench and breaker bar or an impact wrench. (If you are only replacing the brushes then this step is not necessary). It is a standard thread (CCW to loosen).



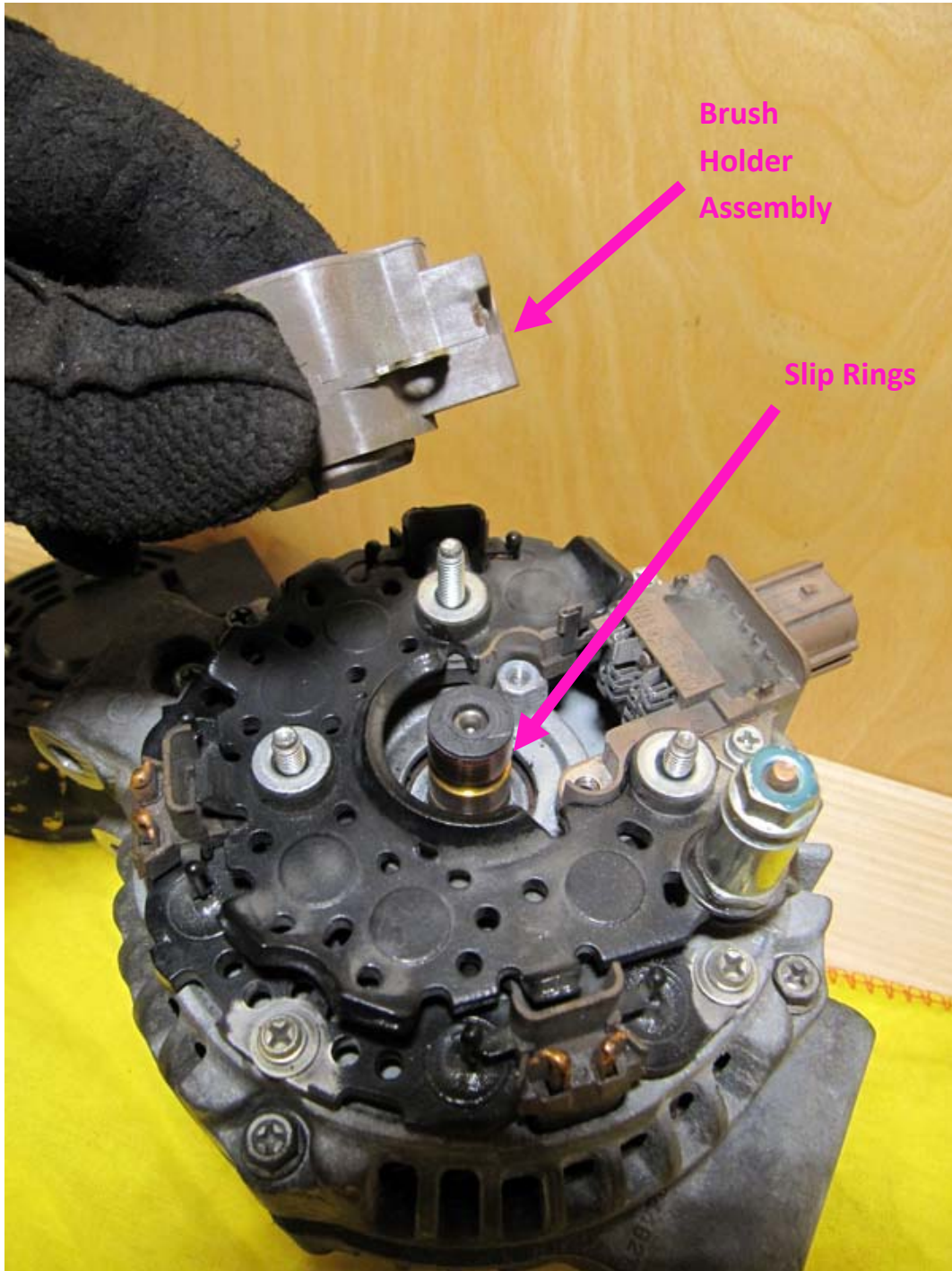
#2 – Remove the 4 nuts holding the end cover in place. There are two nuts on the wire support bracket (one to hold the bracket and another underneath to hold the cover).



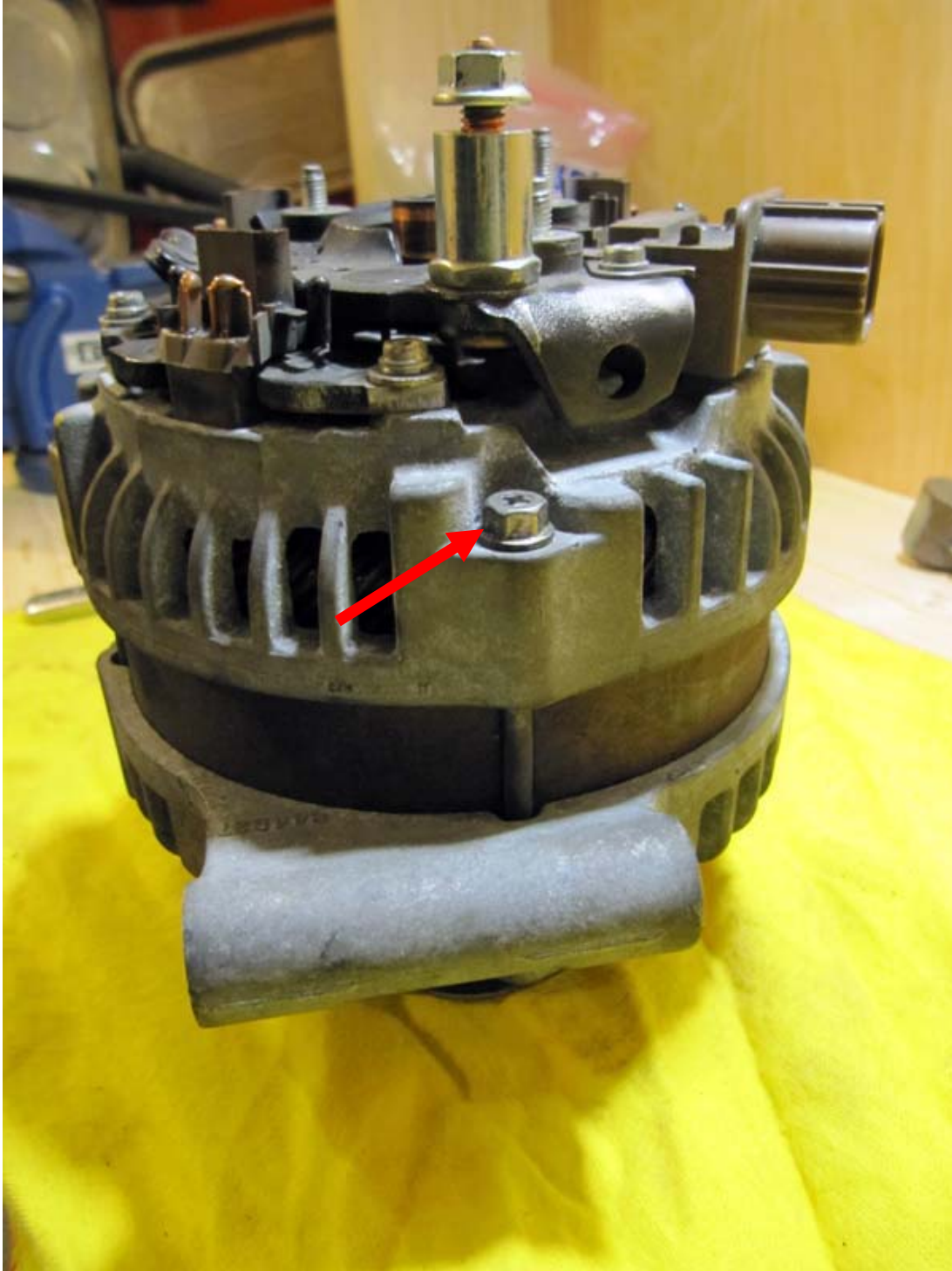
#3 – Remove the two screws holding the brush holder assembly in place.



#4 – Remove the Brush Holder Assembly.



#5 – Remove the four bolts holding the alternator casing together. (If you are only replacing the brushes then this step is not necessary)



#6 – Use a plastic hammer to drive off the front cover of the alternator by hammering alternately on each side.



#7 – And pull off the front cover.

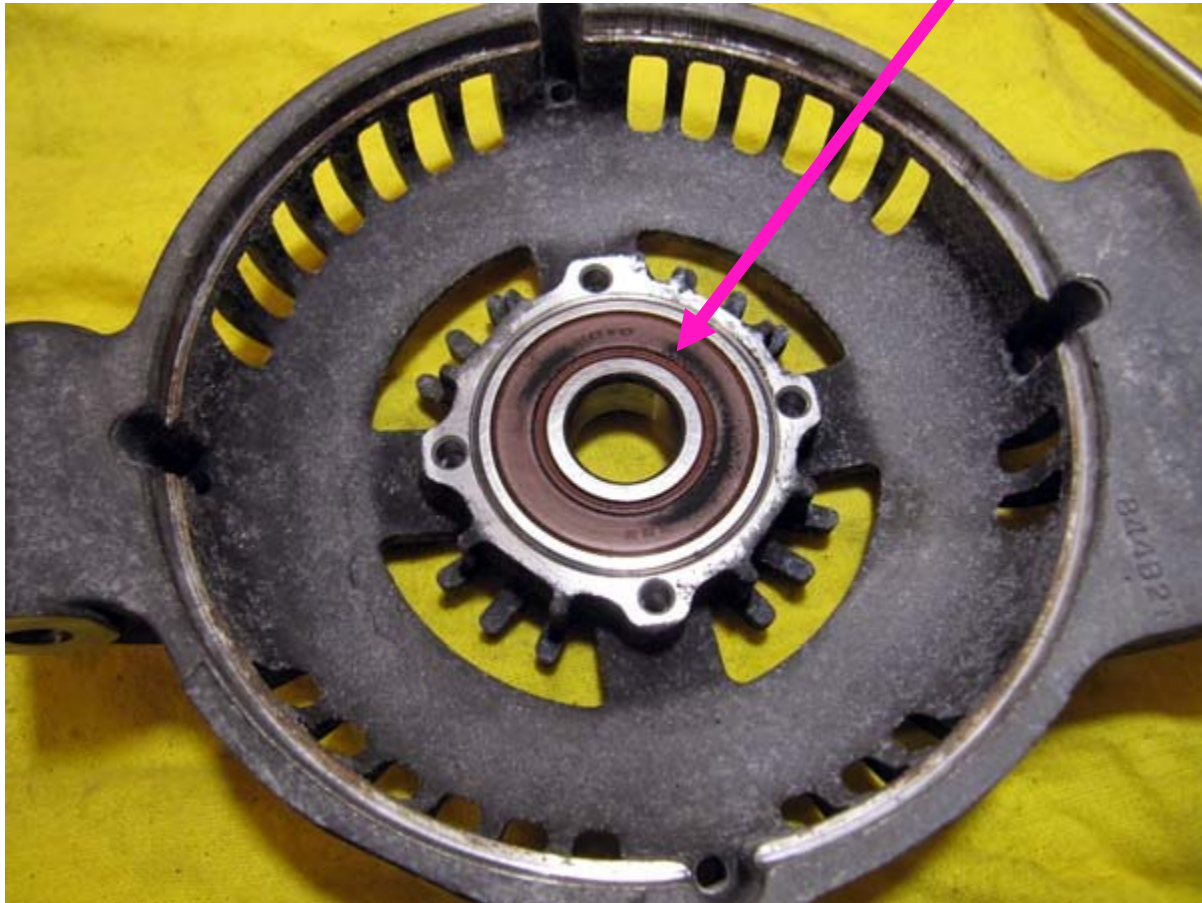


#8 – If the front bearing needs to be replaced, remove the four screws on the bearing retainer.

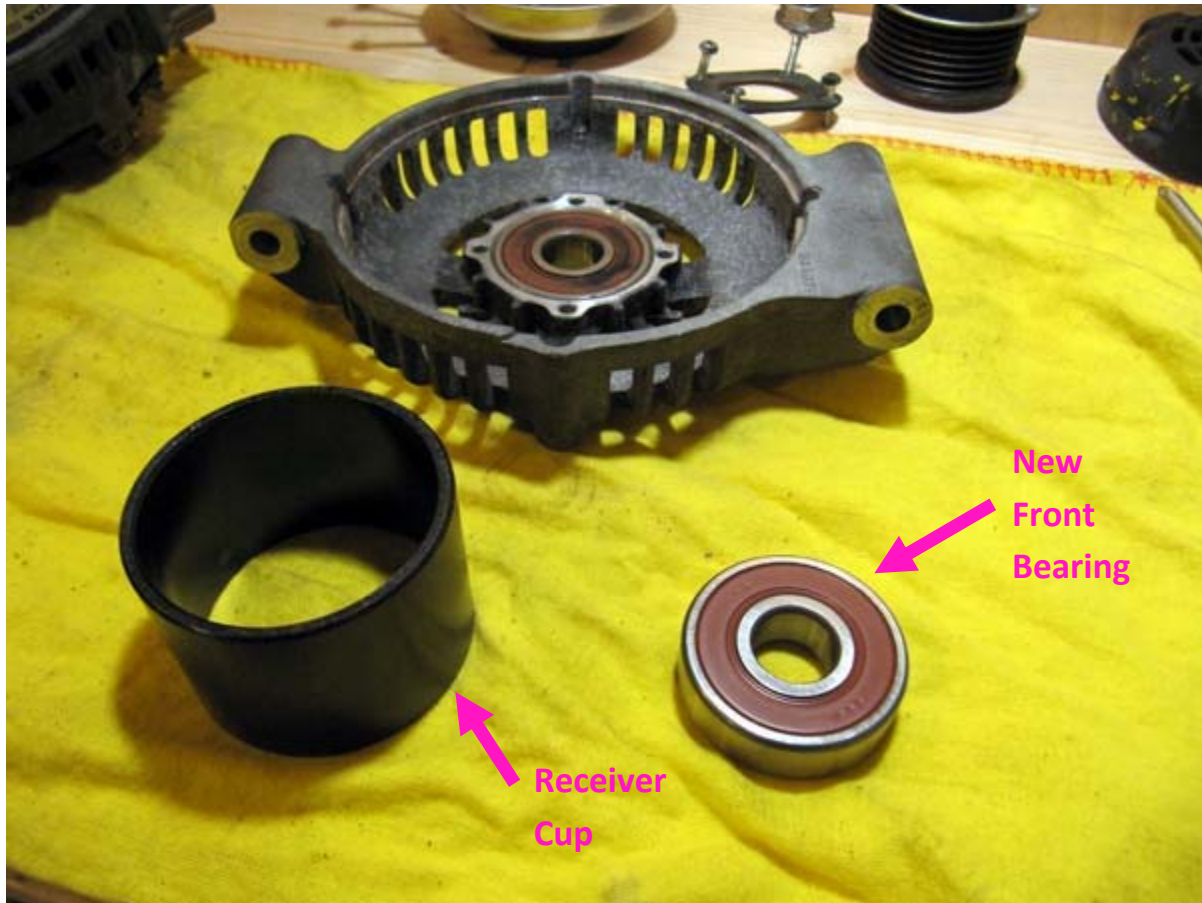


#9 – To expose the front bearing:

Front
Bearing



#10 – To drive out the front bearing you will need a receiver to support the front cover. I used a pipe-length from a ball joint remover kit.



#11 – And you will need something to force the bearing out with. I used a socket which fit inside the hole in the front cover to press down on the bearing as shown below.



#12 – I drove out the bearing with a 20 ton press. However, it came out very easily and I believe you could also drive out the bearing with a hammer instead.



#13 – Here is what it looks like with the front bearing removed. I cleaned up the bearing seat with a scotchbrite pad in preparation for installing the new front bearing.



#14 – To install the new bearing you will need something that has the same diameter as the bearing because when you press the new bearing in, you will want to only push on the outer race so as not to damage the bearing. I used a large socket as shown below.



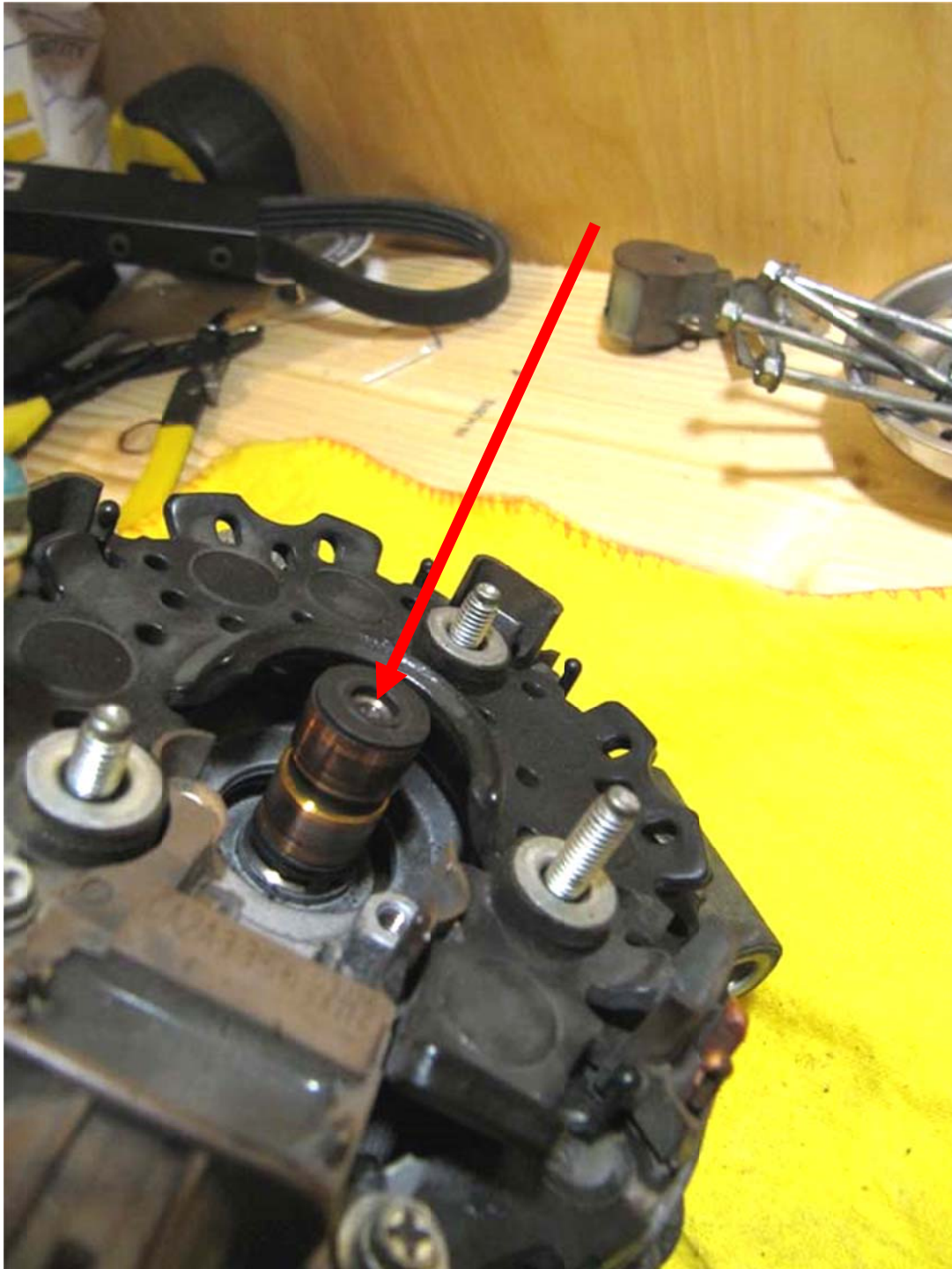
#15 – And press the new bearing into place. Again, this pressed in quite easily and I suspect that a hammer would accomplish the job just fine as well.



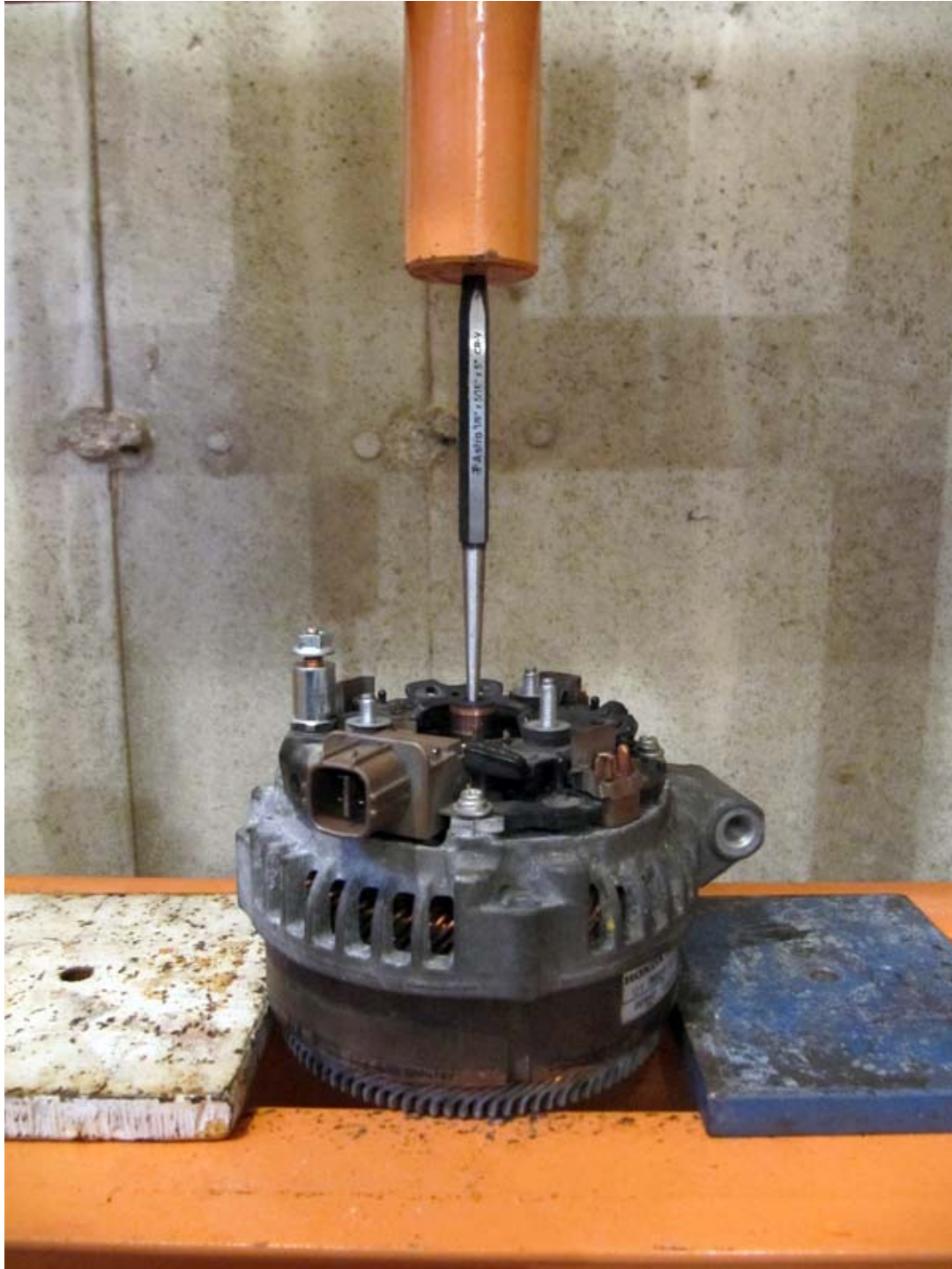
#16 – With the new front bearing installed, replace the bearing retainer and fasten it in with its four screws.



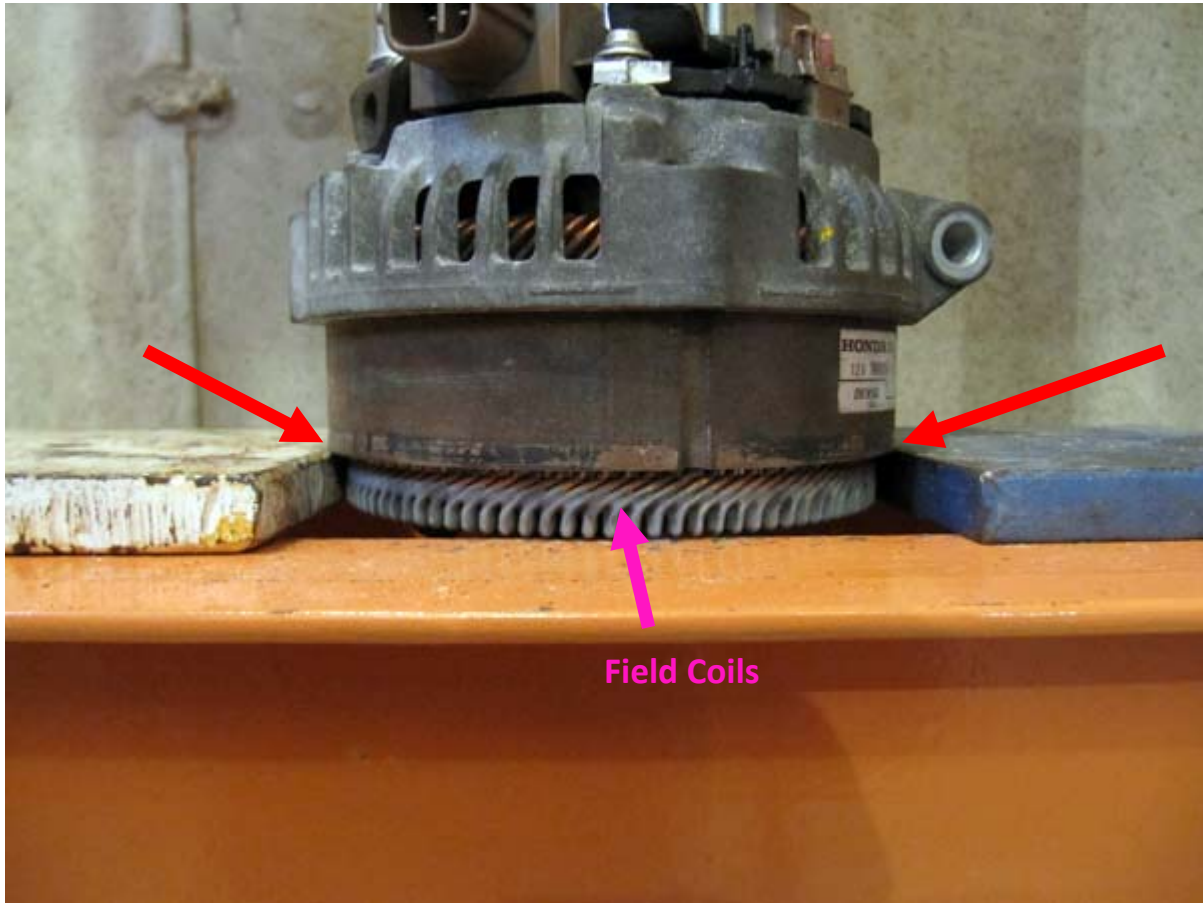
#17 – ***IF*** you need to replace the rear bearing, then you will have to remove the rotor. You need to be very careful to not damage the slip rings or their plastic holder! Do not hammer or press on the end of the rotor shaft directly. Instead, use a pointed punch to push only on the dimple in the end of the shaft (red arrow) which will allow you to put pressure directly on the rotor shaft and not the plastic slip ring assembly.



#18 – I used a punch and hydraulic press to push out the rotor. It came out quite easily and I suspect a hammer would have worked fine to accomplish the task. (I know it looks a little precarious! Fortunately not much pressure was needed!). Be sure to catch the rotor as it drops out of the bottom! If it lands on the floor it will likely be damaged!



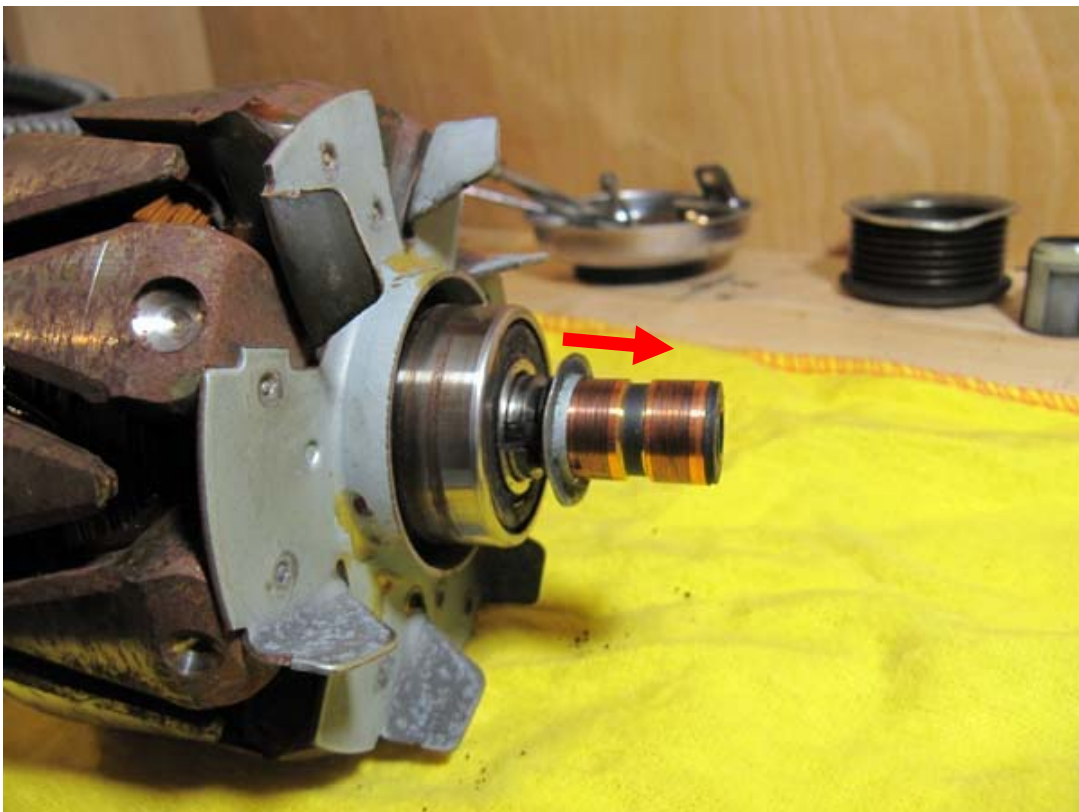
#19 – By the way, when pressing out the rotor, support the housing of the alternator as shown by the red arrows (do not support it by the field coils which could get damaged).



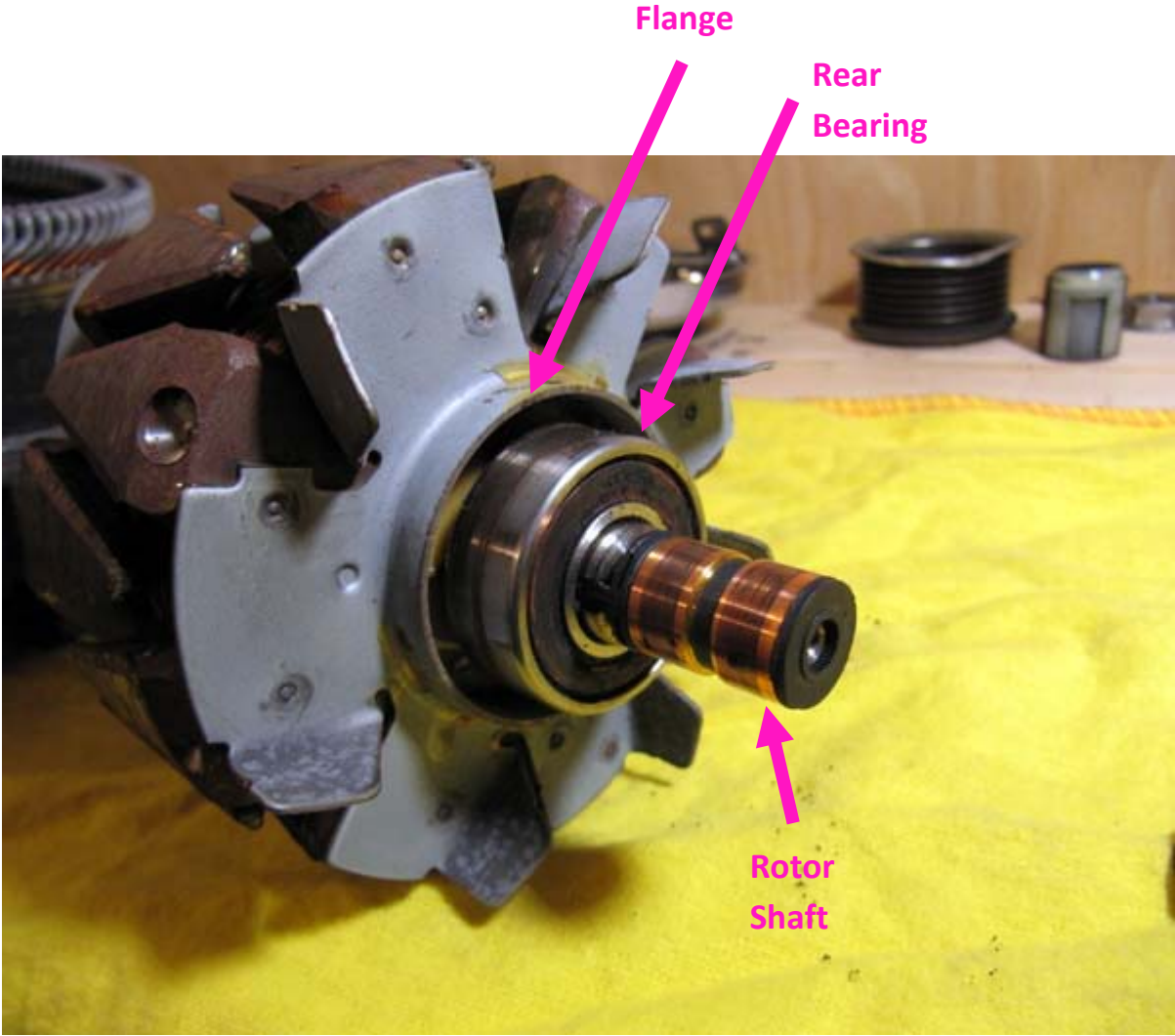
#20 – The rear bearing came out attached to the rotor. Notice that there is a spacer washer between the bearing and the rear housing. It is all bendy (don't worry, you didn't mash it up, it is supposed to be this way!).



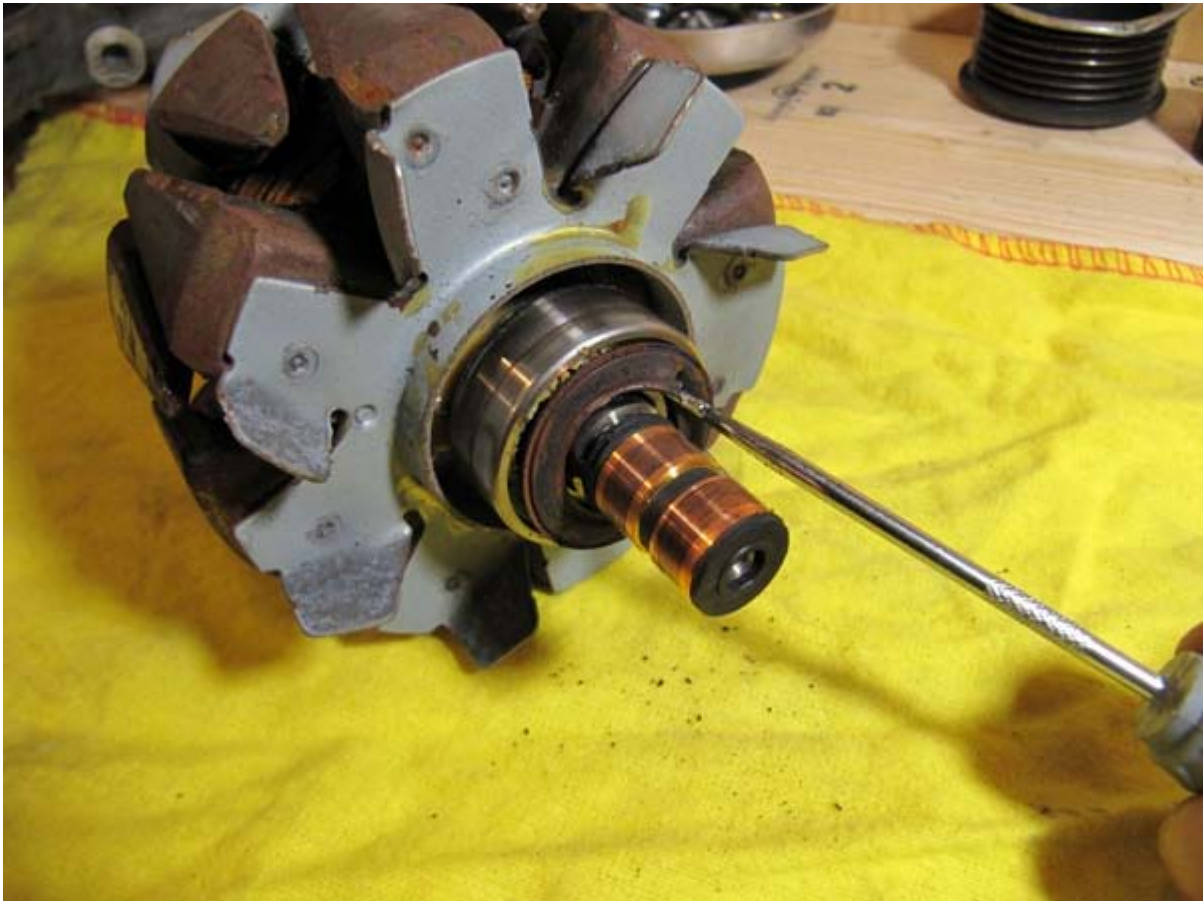
#21 – Use a screwdriver to remove the flange washer by evenly prying all around it.



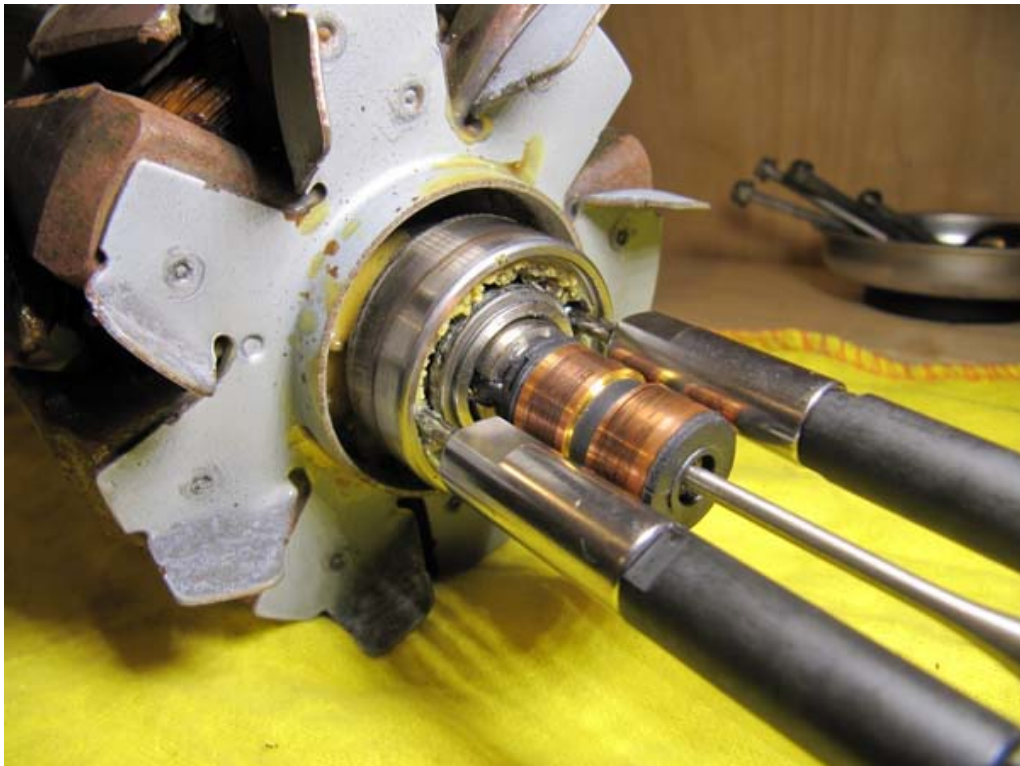
#22 – Now here's the real kicker! How do you get that rear bearing off the rotor shaft? The problem is that the flange from the rotor comes out beyond the end of the bearing and the remaining gap is too small to get most pullers into.



#23 – I couldn't figure out a clever way to do this (I'd love to hear if you have any other techniques!), so I ended up using a blind bearing puller. I began by removing the bearing seal using a pick.



#24 – The blind bearing puller has a rounded end with two shaved off sides. It is inserted into the bearing and then rotated 90 degrees. Once rotated it is locked in place between the inner and outer bearing races and it can be used to extract the bearing.



#25 – The bearing can then be pulled off by tightening the puller bolts shown by the red arrows (and occasionally lengthening the stationary arms to get more reach).



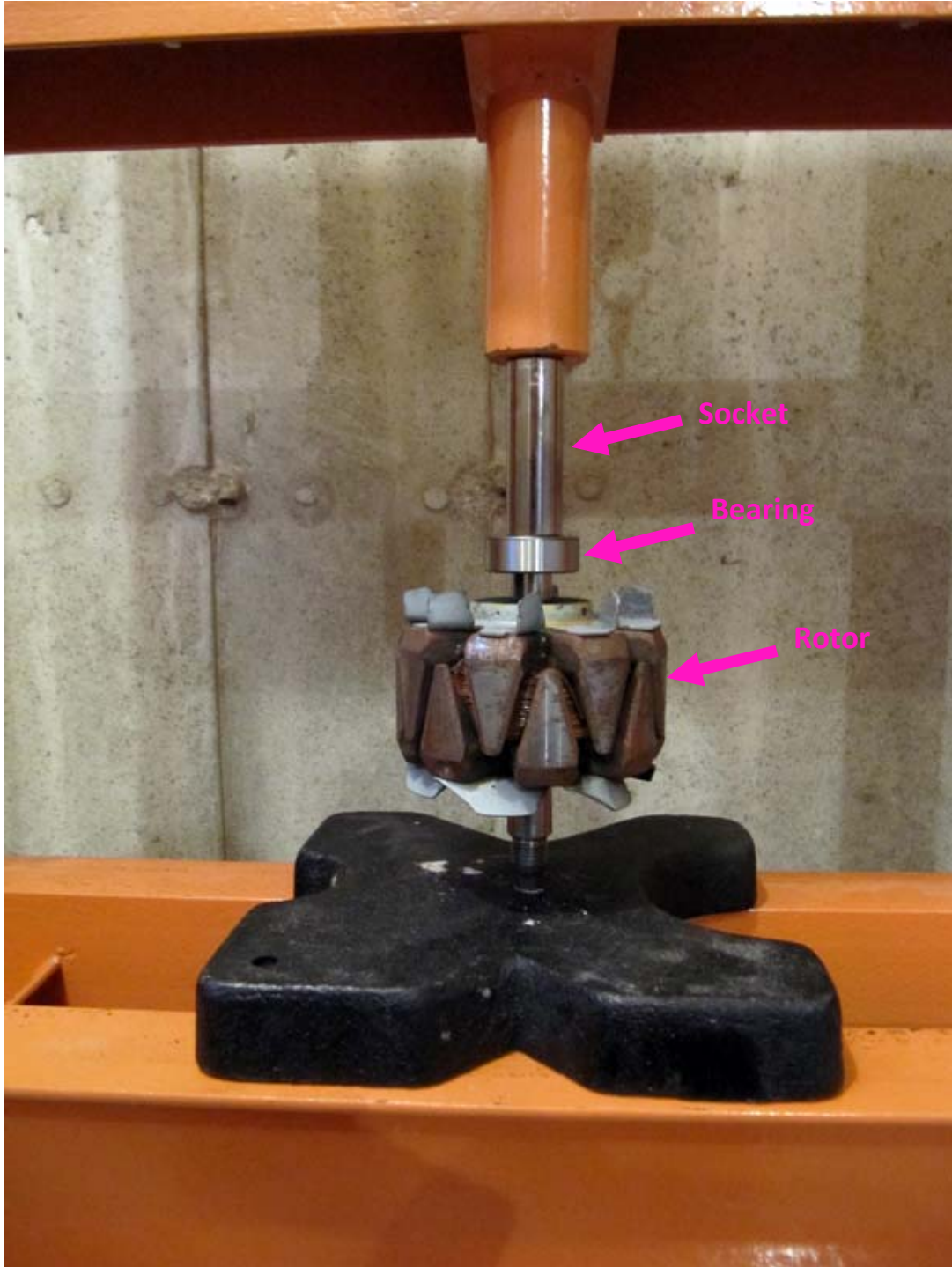
#26 – And here is what it looks like with the rear bearing removed from the shaft.



#27 – To press the new rear bearing onto the rotor shaft, find a socket that fits only on the inner race of the bearing as shown below. Make sure the inside of the socket is large enough that it fits freely over the rotor shaft (and slip rings).



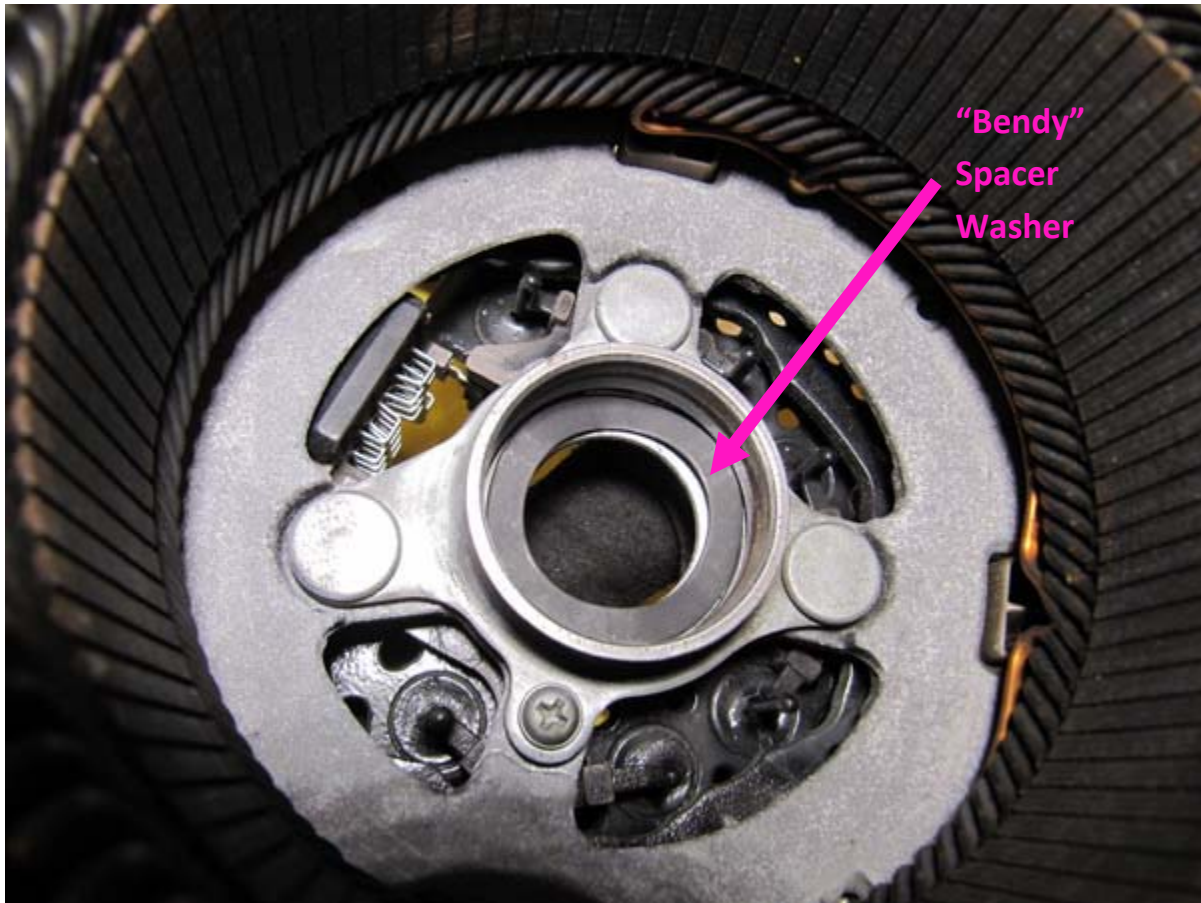
#28 – And press the new bearing onto the rotor shaft.



#29 – Don't forget to re-install the flange washer!



#30 – Clean out the rear bearing seat with some scotchbrite and insert the “bendy” spacer washer into the bearing seat before installing the rotor.



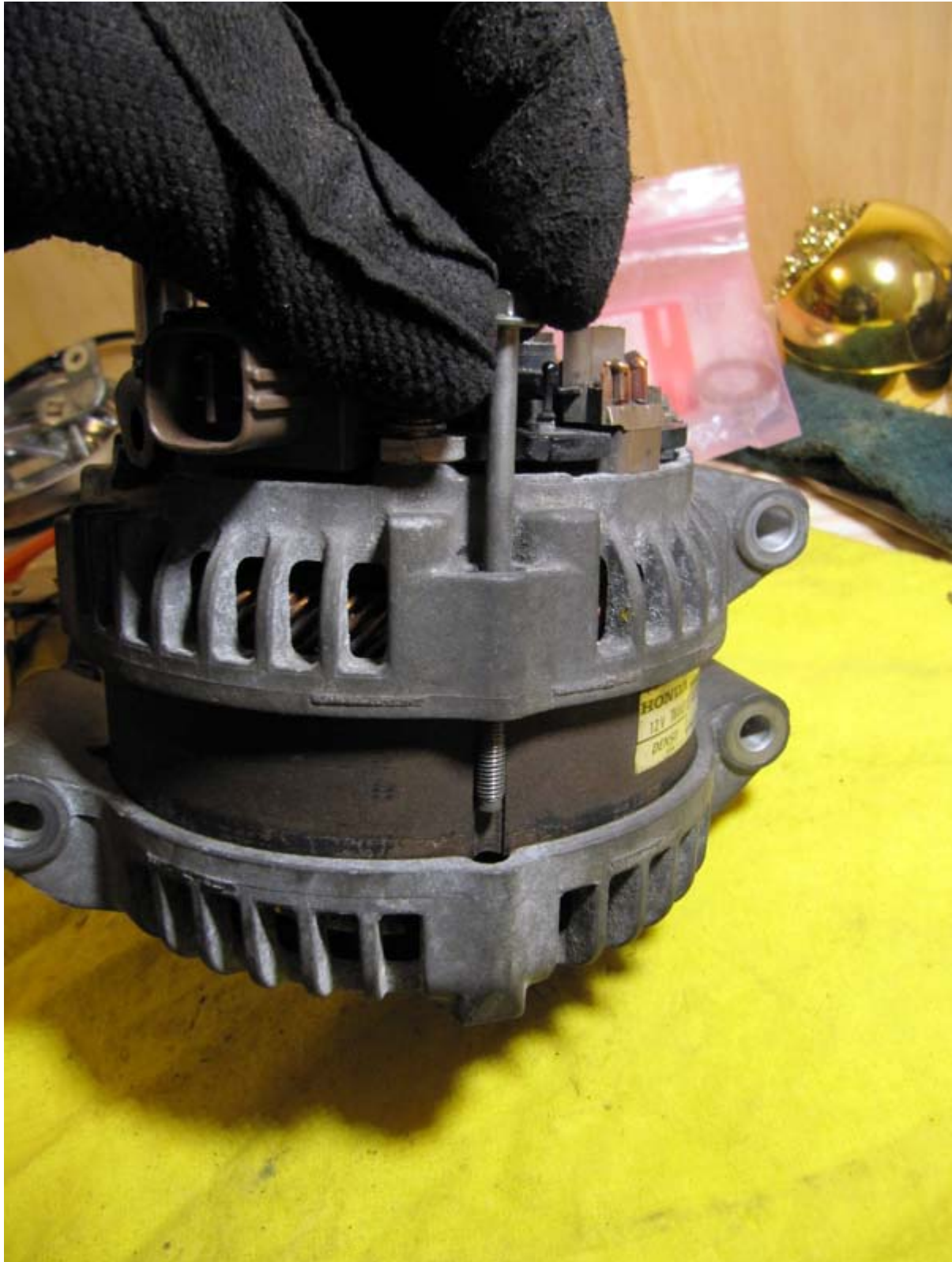
#31 – Insert the rotor into the rear alternator casing (hand pressure was all I needed).



#32 – Re-install the alternator front cover.



#33 – Insert the four bolts that hold the alternator casing together and tighten them down alternating between them so that the cover is tightened down uniformly.

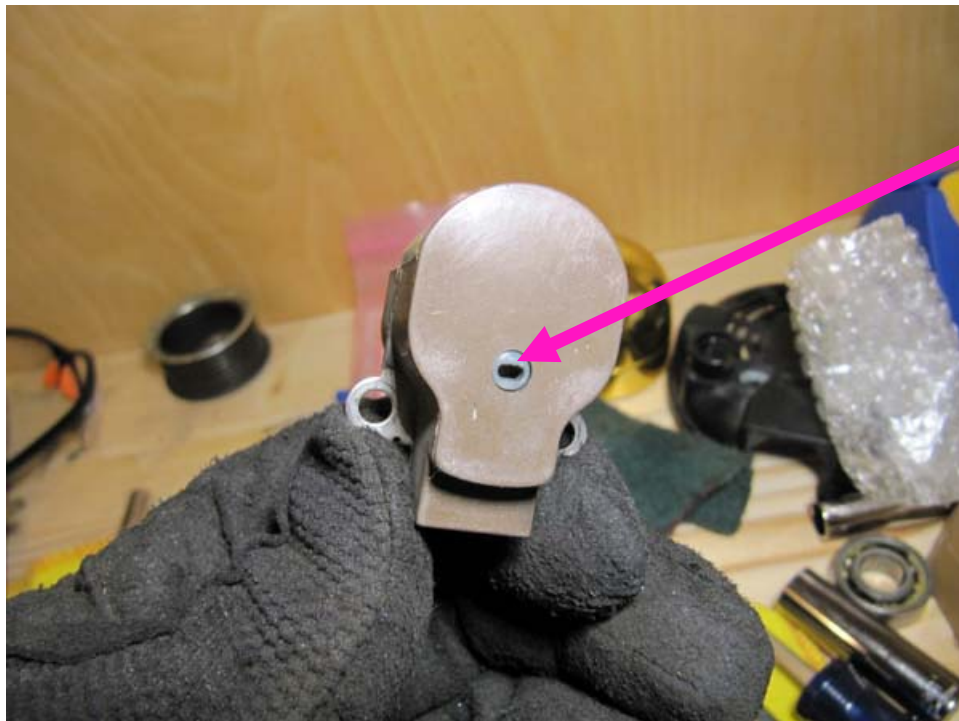


#34 – If you are re-installing the original brushes, press down on the spring loaded brushes with your finger while inserting an unfolded paper clip or wire through the hole in the back of the brush holder assembly. This will keep the brushes retracted and allow you to put the brush assembly back in place (once in place the paper clip will be pulled out to allow the brushes to push out and contact the slip rings on the rotor).



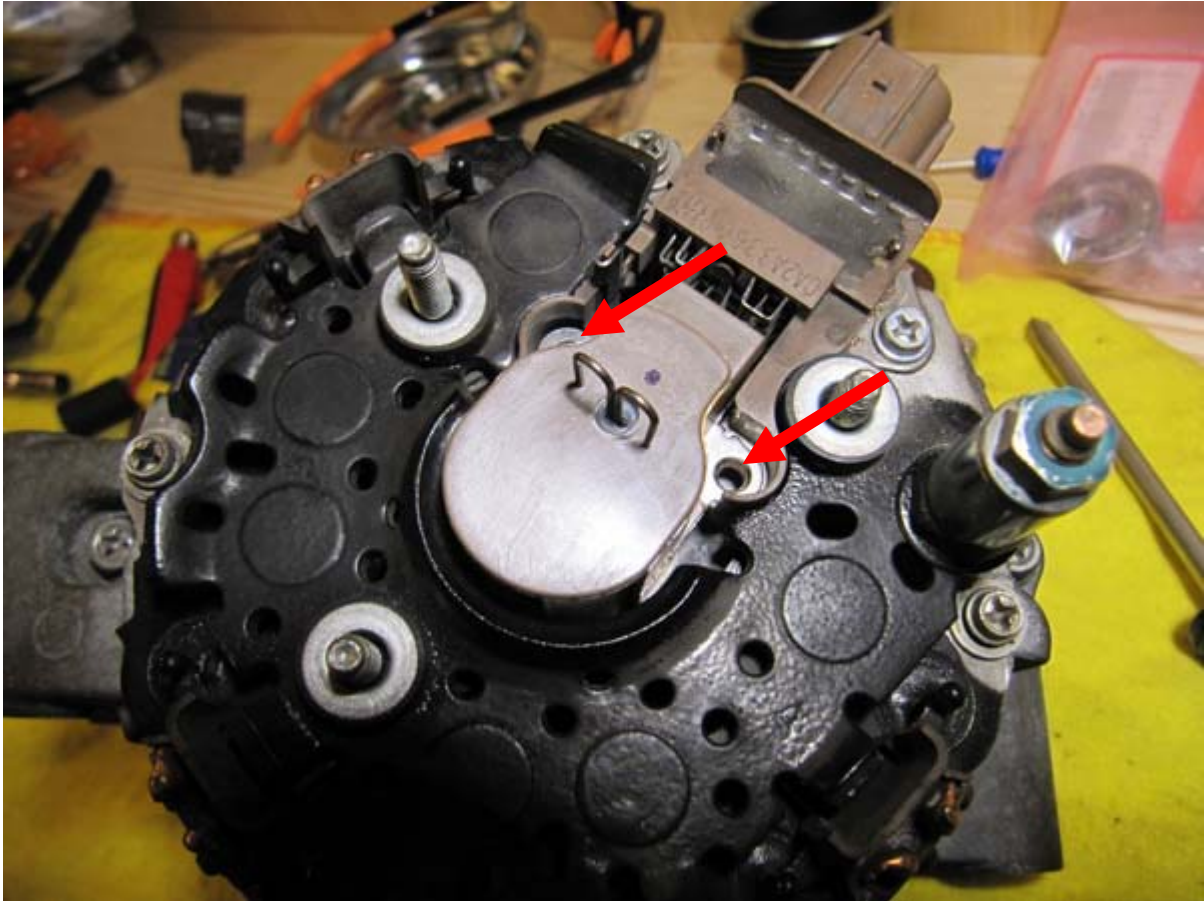
1. Push brushes down with your finger

3. The front of the paper clip should go through this hole.



2. Insert a paper clip through this hole to keep brushes retracted.

#35 – Position the brush holder assembly in place, and fasten it down with the two screws.



#36 – Once the brush assembly is fastened down, pull out the paper clip to allow the brushes to expand outward and contact the slip rings. (If you are installing a new brush assembly it will come with a metal retaining pin holding the brushes retracted as shown).



#37 – Install the back cover and fasten down the nuts. Don't forget to re-attach the wire mounting bracket.



#38 – Install the pulley and tighten down the pulley locknut to 81 ft-lb. Turn the pulley by hand for a while until the rotor spins freely without noise (per the Honda service manual – it seems that it takes a bit of turning the rotor to get it to position correctly, perhaps as the spacer washer expands to correctly position the rotor from front to back?)



Problems you may encounter:

As you can probably tell, removing the rear bearing is not easy and likely requires some kind of specialized tool (blind bearing puller or puller with very fine arms). However, if you only have to replace the brushes and/or front bearing, the job is quite straightforward and you might be able to save yourself some money by repairing your alternator rather than purchasing a rebuilt unit. I suspect also that it is probably more common for the front bearing to go bad than the back given that the front bearing has most of the loading of the serpentine belt tension on it.

Hope this was helpful!

John C.