1981 Honda CB650 Starter Clutch Replacement

By Jacob Gamble, 2017

Honda part numbers:

Clutch: 28120-426-000
Clutch sprocket: 28111-426-000
Bolts: 90085-413-781
Spring: 28125-426-000
Spring Cap: 28126-323-000
Roller: 91101-377-000 or 91103-259-000
Clutch housing gasket: 11394-426-306
Oil pan gasket: 11398-426-000
Clutch lever gasket: 91201-148-005
Exhaust header gaskets: 18291-MN4-920

Tools I used:
8,10,12,14,17,24mm sockets, ¼" extensions & wobble extensions
12,14,17,19mm combination wrenches
Snap ring pliers (the kind to spread snap rings apart)
Needle nose pliers
GY6 clutch tool for castle nut
Spanner wrench + Breaker bar, OR ½" impact gun, or all 3 if you have them, why not!
T30 torx bit
¼" torque wrench (for torx bolts)
½" torque wrench (for castle nut)
Bench vise (or gear holder of some kind, I don't know, I used a vise)
Various picks
Magnet on a stick
Rubber mallet
Blue thread locker (Loctite)
Diagram at https://www.cmsnl.com/honda-cb650-1981-b-usa_model7224/partslist/E++15.html#results just in case photos here disappear

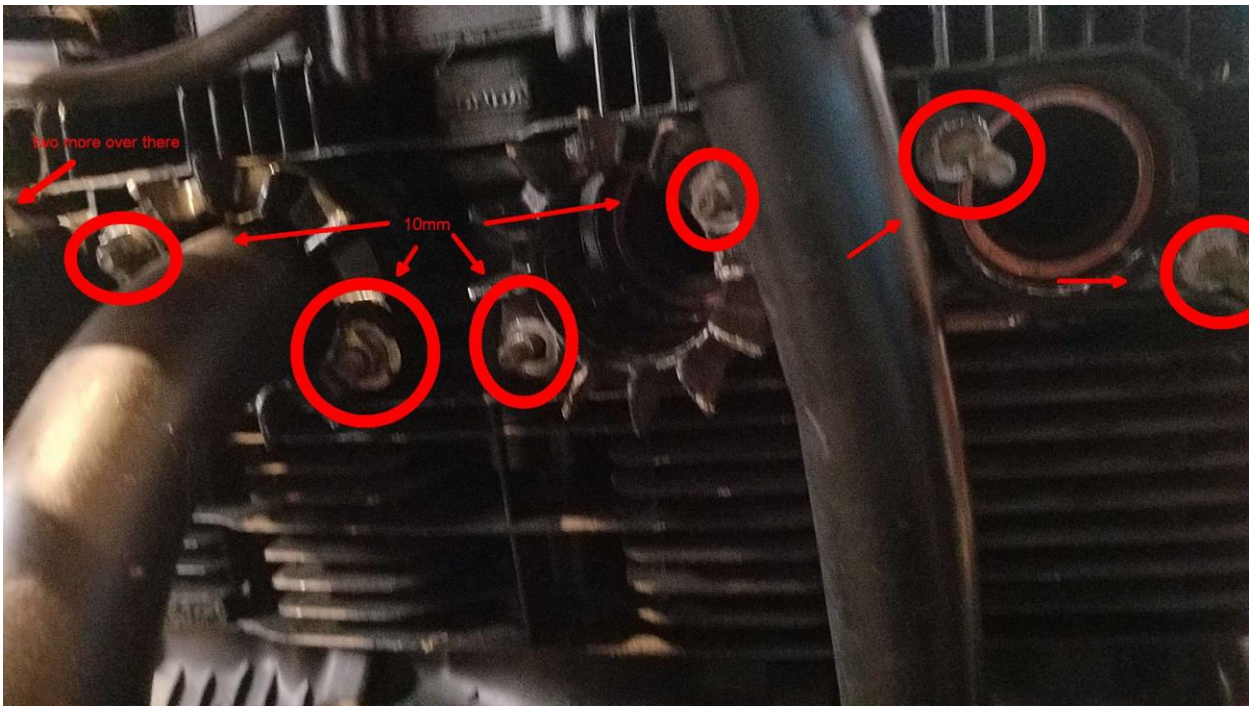
READ THESE DIRECTIONS ALL THE WAY THROUGH BEFORE BEGINNING AND PLAN FOR THIS TO TAKE A FEW HOURS IF NOT A COUPLE DAYS BECAUSE YOU FELT LIKE YOU DID ENOUGH FOR ONE DAY AND TOOK THE REST OF THE EVENING OFF.

Ladies and Gentlemen, there's a lot of words here, I've tried to make this tutorial as concise as possible. Some of the photos may not make sense in order with the steps, I will try to make note of any photo-to-tutorial discrepancies.

The bike depicted here is a 1981 cb650c, which was a barn find I collected in January. It was missing a lot of parts and as of April, with a lot of luck and scrounging, I was able to get it cranked and ride it around the neighborhood. However, as it had sat for likely over a decade (certainly hasn't been registered in the last decade), and it would appear that the previous owner had tried his hand at "custom restoration," there was a lot wrong/missing from this bike. Plus, for whatever reason (probably to hide rust), he spray-painted everything black, so please do not judge the included photos too harshly, it's what I got and I love it.

I had redone the starter clutch already, back in April, using a rebuild kit (rollers/springs/caps) and any/every online tutorial I could find. I suffered immense frustration and acquired a substantial injury (it was my fault) and I realized both could have been avoided by going a couple steps further in disassembly. I decided that, since it failed again, I would take some photos and type a disgustingly long and detailed tutorial on how a single person can do this job without taking the engine totally apart or even out of the bike frame, as safely as possible, using (mostly) common tools found in a garage, or if uncommon, where you can find them (eBay). I have listed all of the part numbers for gaskets and parts you could easily replace while you have the engine this much apart, and listed all of the tools I used to do this job, although you may find that you can get away with fewer/different/homemade tools, you clever devil! Without further rambling, here's the easiest way I could find to repair the starter clutch:

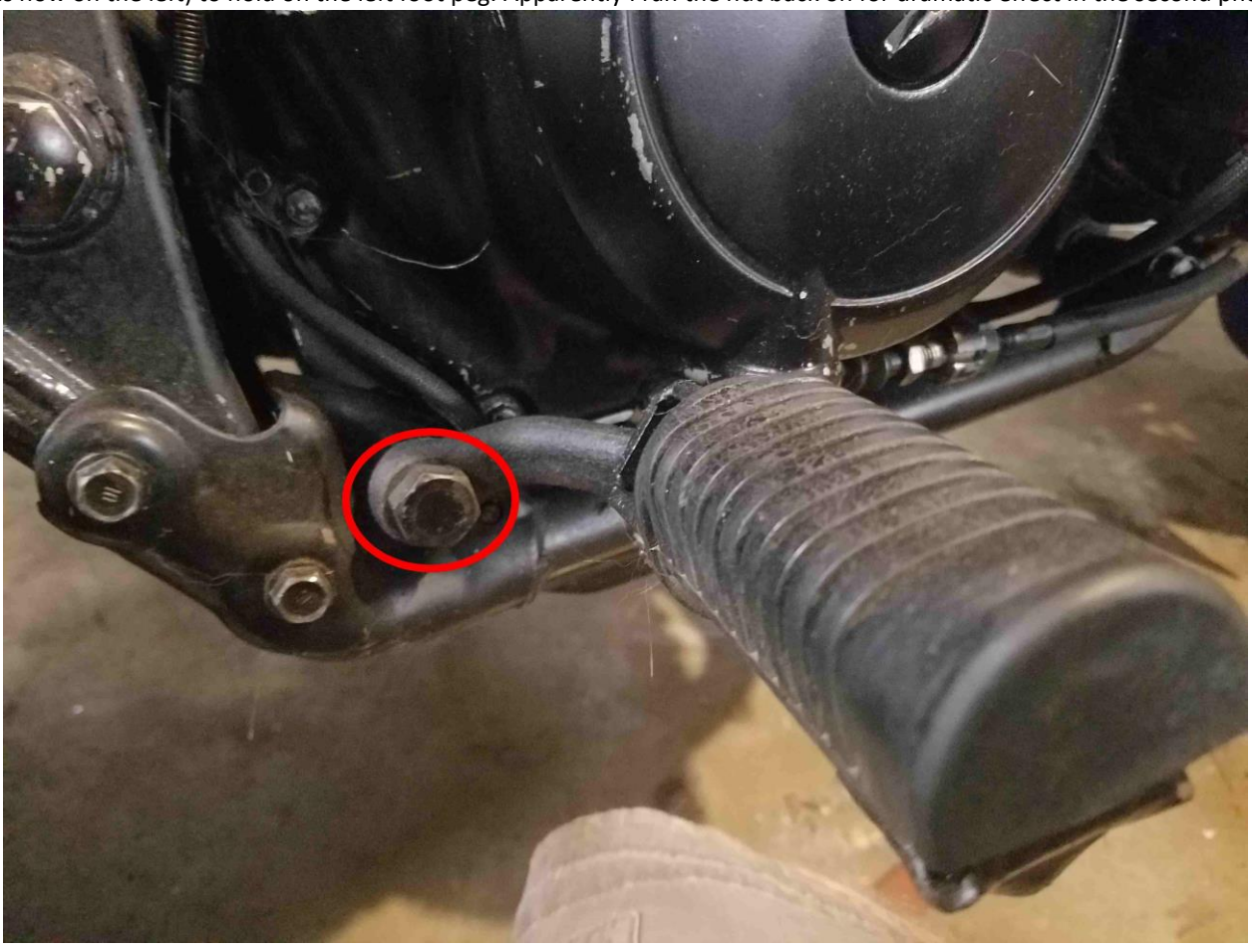
1. Support the bike in some way. I used two 1x4 boards stacked on each other under the kick stand. My gas tank is half full (or half empty) and a single 2x4 lifted it too high and it wanted to fall over. The previous owner took liberties to remove the larger stand in front of the rear wheel, so this tutorial will not be mentioning that. If yours is in the way, remove it maybe? I don't know how hard that is to do, I never had one. If it isn't in the way, use it.
2. Remove exhaust pipes. There are two 10mm bolts per pipe clamping a retainer and two shims to the head. Each set of pipes (2 per side on the custom, 2 into 1 per side on standard) has a 14mm bolt and nut holding it to the passenger foot peg mount. On the 650 custom, the left side is a bit trickier if you have the kickstand down, if you unbolt the pipes and drop them down you can rotate them to go around the kickstand. Check the exhaust gaskets while you're in there. Mine was missing one. I included the part number in case you need it.

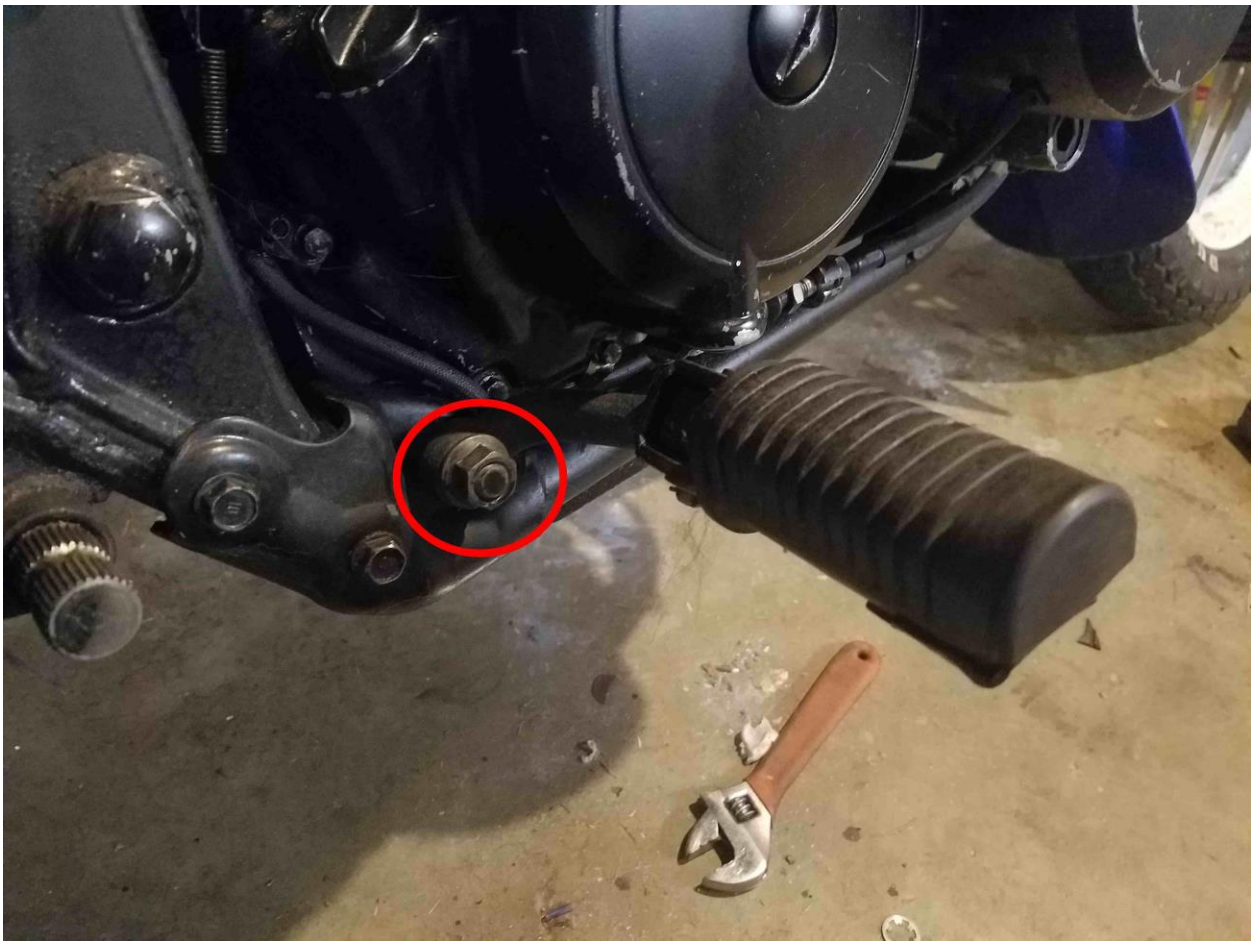


3. Drain the oil. The plug is a 17mm bolt in the middle of the oil pan. It's the big one sticking out of the bottom, you can't miss it. Do this first so it can drain while you're doing the other stuff, you want to get as much out as possible, in my experience these REALLY like to hang on to oil so when you're removing parts you'll start to see puddles form on the ground if you don't get as much of it out as possible. You likely will anyway, this was just a messy job for me. Keep kitty litter on standby.

4. Remove the rear brake foot lever. It is held on by a 12mm bolt that has to be removed entirely, as it rests in a channel in the splines.

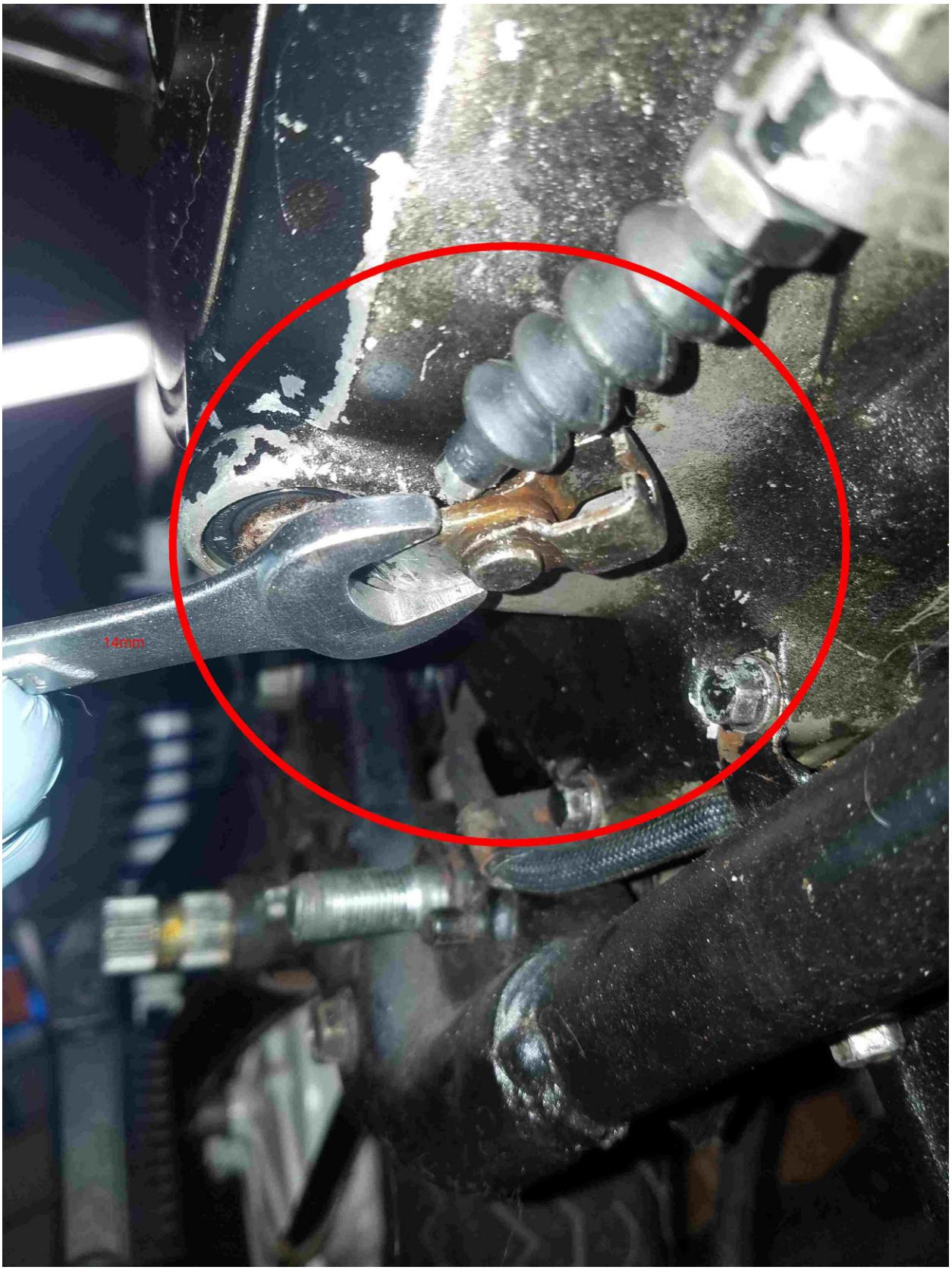
5. Remove the long bolt that goes underneath the engine and holds the front (drivers?) foot pegs in place. The bolt head is a 19mm, the nut is a 17mm. I'm not sure which part is on which side or if it matters, but the head on mine was on the right side and the nut on the left. If yours is like that, slide it all the way out so you can remove the foot peg from the right side- in the photos you'll notice I flipped mine (head is now on the left) to hold on the left foot peg. Apparently I ran the nut back on for dramatic effect in the second photo.





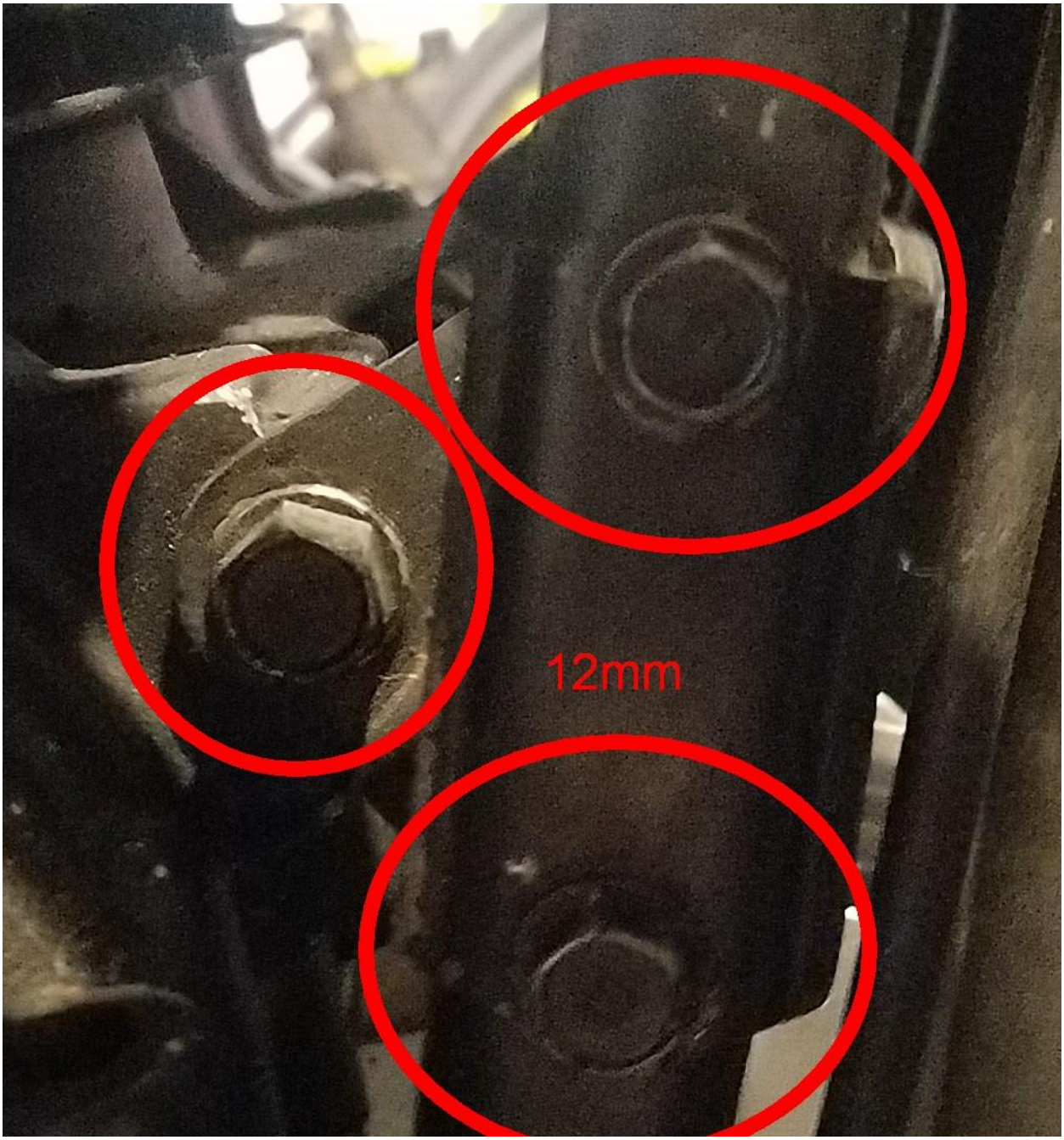
6. Remove the clutch cable. First use a 12mm and 14mm combination wrench to undo the nuts that hold the cable housing in place. Releasing the cable can be kind of tricky, but I found that the clutch release actuator fits perfectly inside the open end of a 14mm combination wrench, so you can rotate it and remove the cable end from the holder. IT MAY SLIP OUT OF THE WRENCH A BUNCH OF TIMES UNTIL YOU FIND THE SWEET SPOT. The first time I did this, I used a pair of channel-lock pliers, it worked ok but this was less effort and I wasn't as likely to snap them shut on my fingers. Remember, safety first.


12mm
14mm

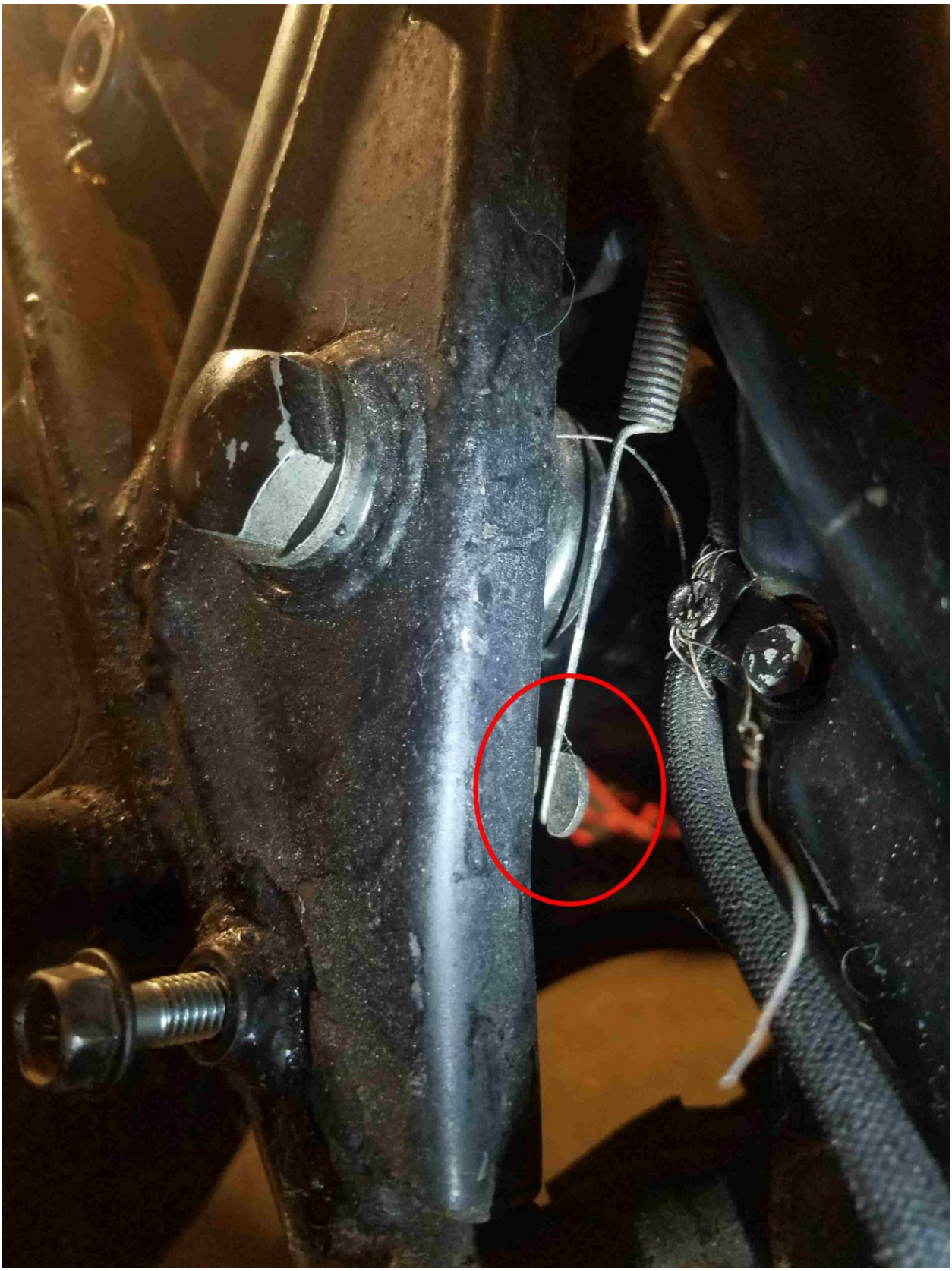


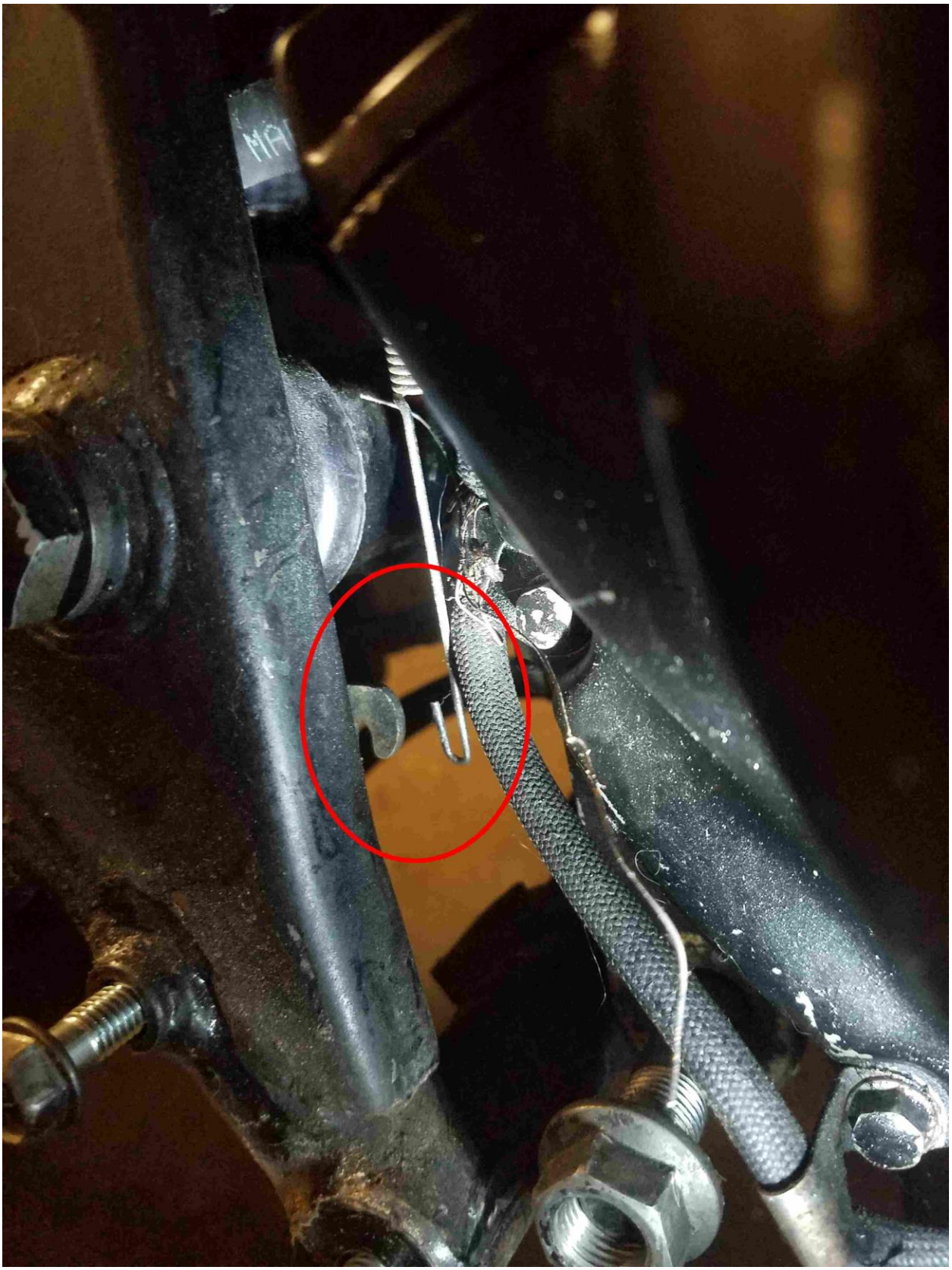
7. Remove the subframe (support tube) that goes along the front and bottom of the engine on the right side. This is not necessary per-se, but it makes removing and reinstalling the oil pan MUCH easier, as it is right in the way of three of the bolts. I did it without removing the subframe before, and it is possible with wobble sockets and pretty astute dexterity, but it was a huge waste of time when it has only 6 bolts. It is held in with (left to right) two 12mm bolts, a 14mm bolt, then three more 12mm bolts, arranged in a triangle, up towards the front. Pay attention to the length of the bolts for reinstallation (I like to put them back in where they came from after removing the subframe).

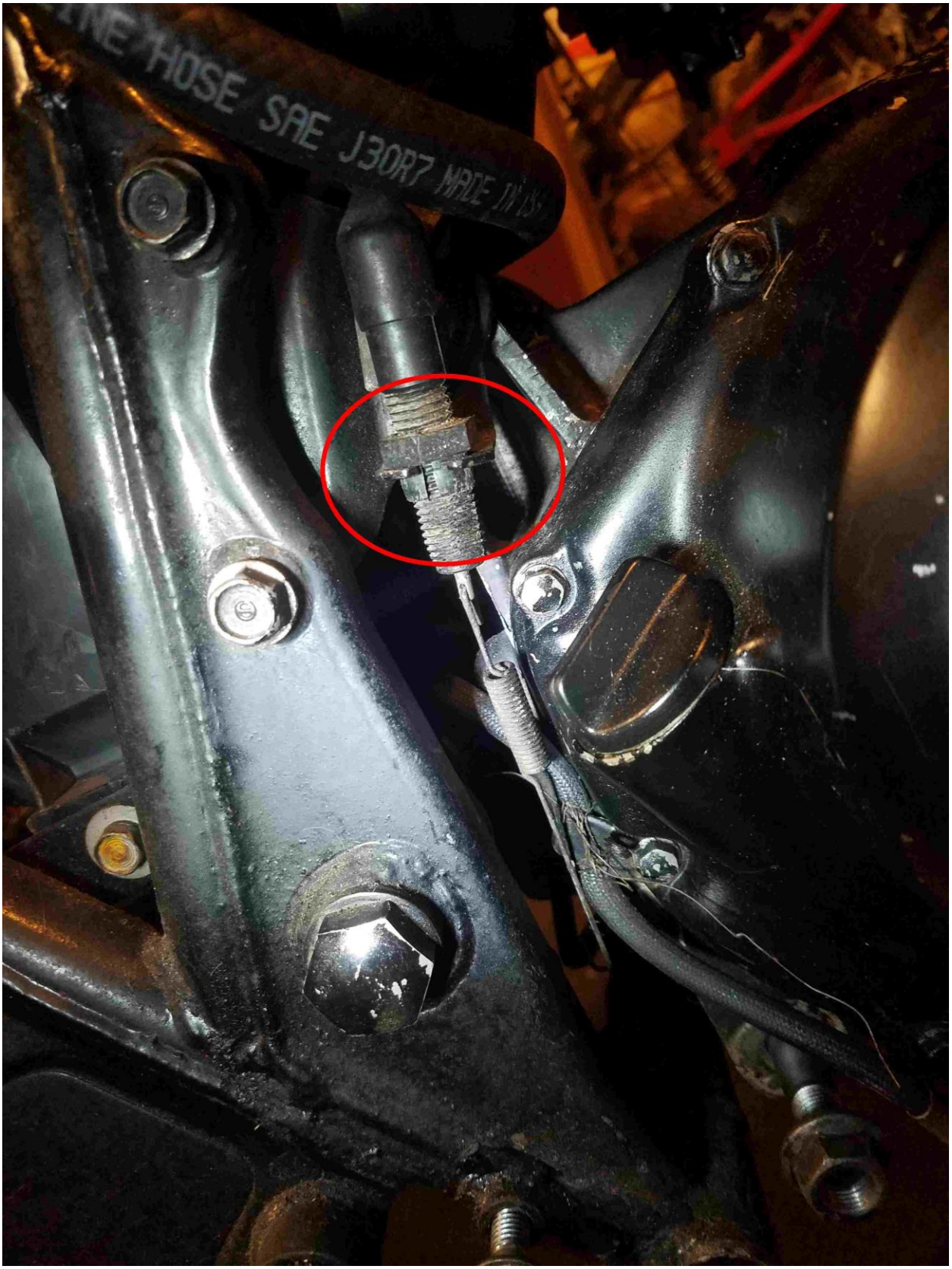

one's hiding here
12mm
HONDA
MADE IN JAPAN
12mm
14mm


12mm

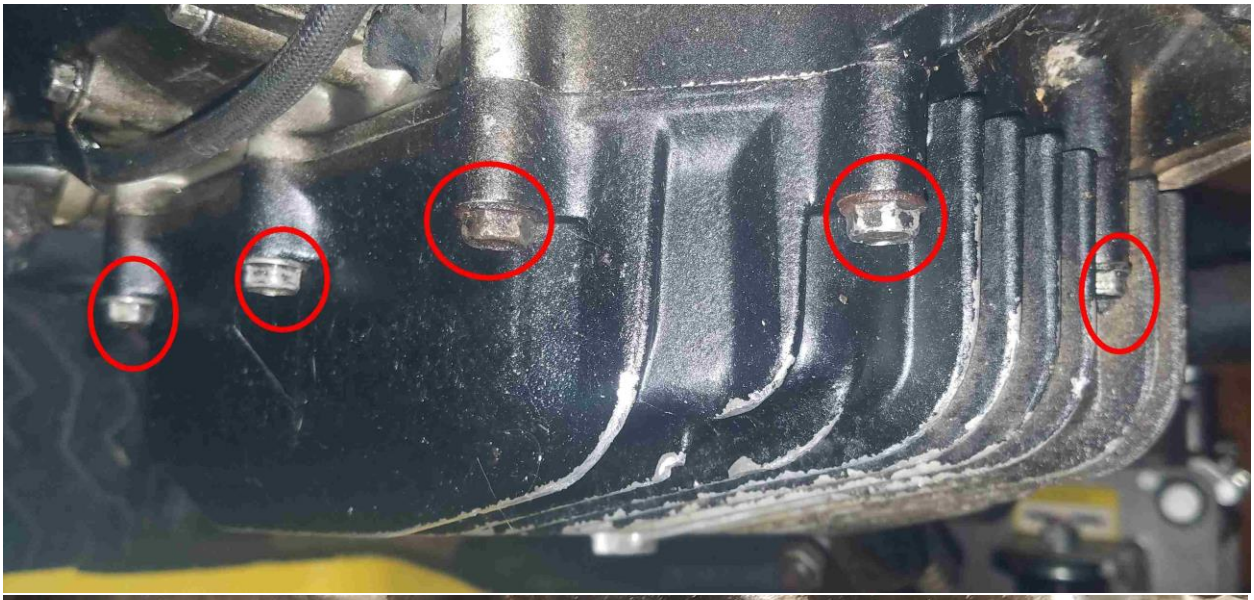
8. Remove the brake light switch. This is pretty straightforward, just grab it and pull down until the spring hook is free from the lever attached to the rear brake linkage. The switch slides up out of its mount, move it out of the way.



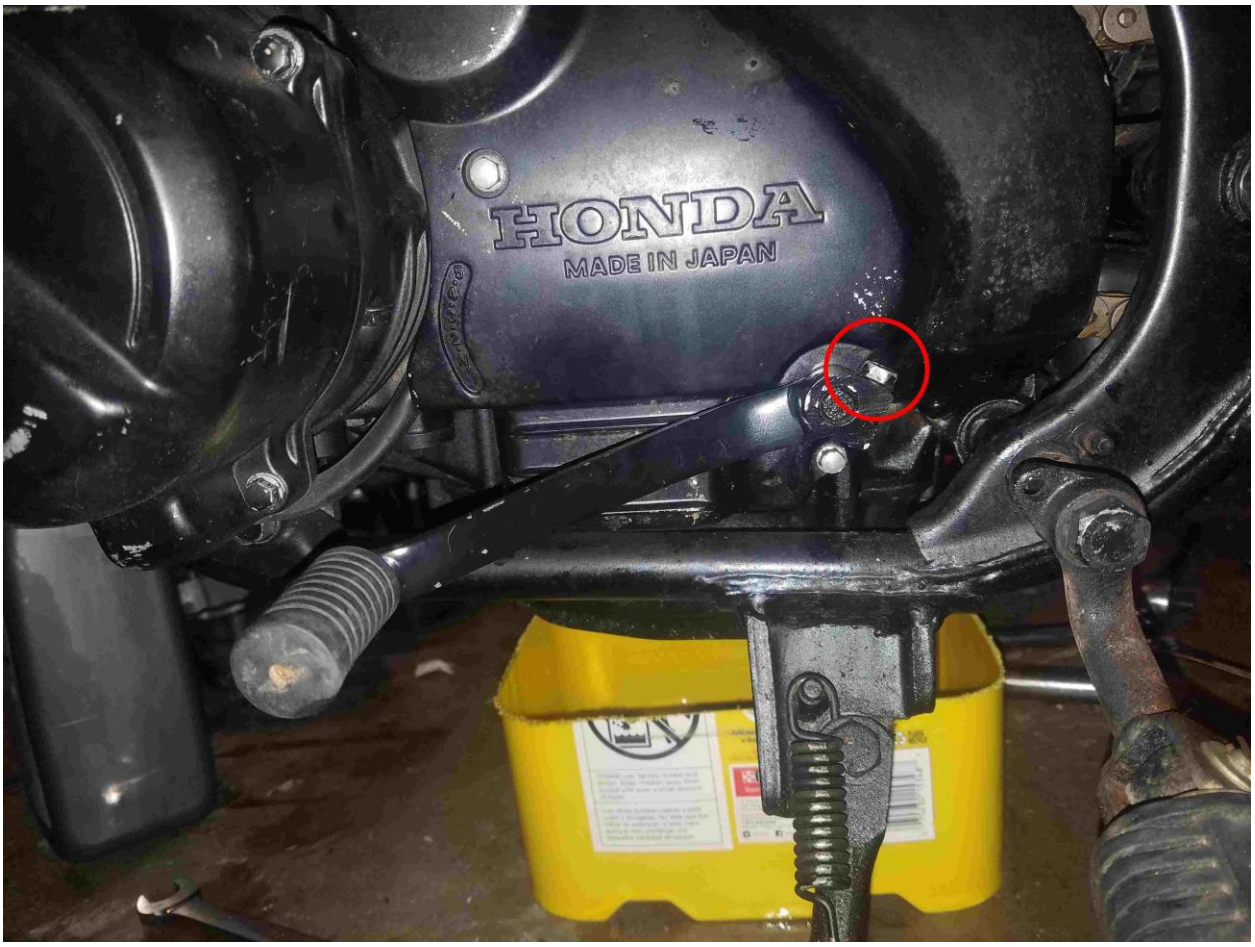




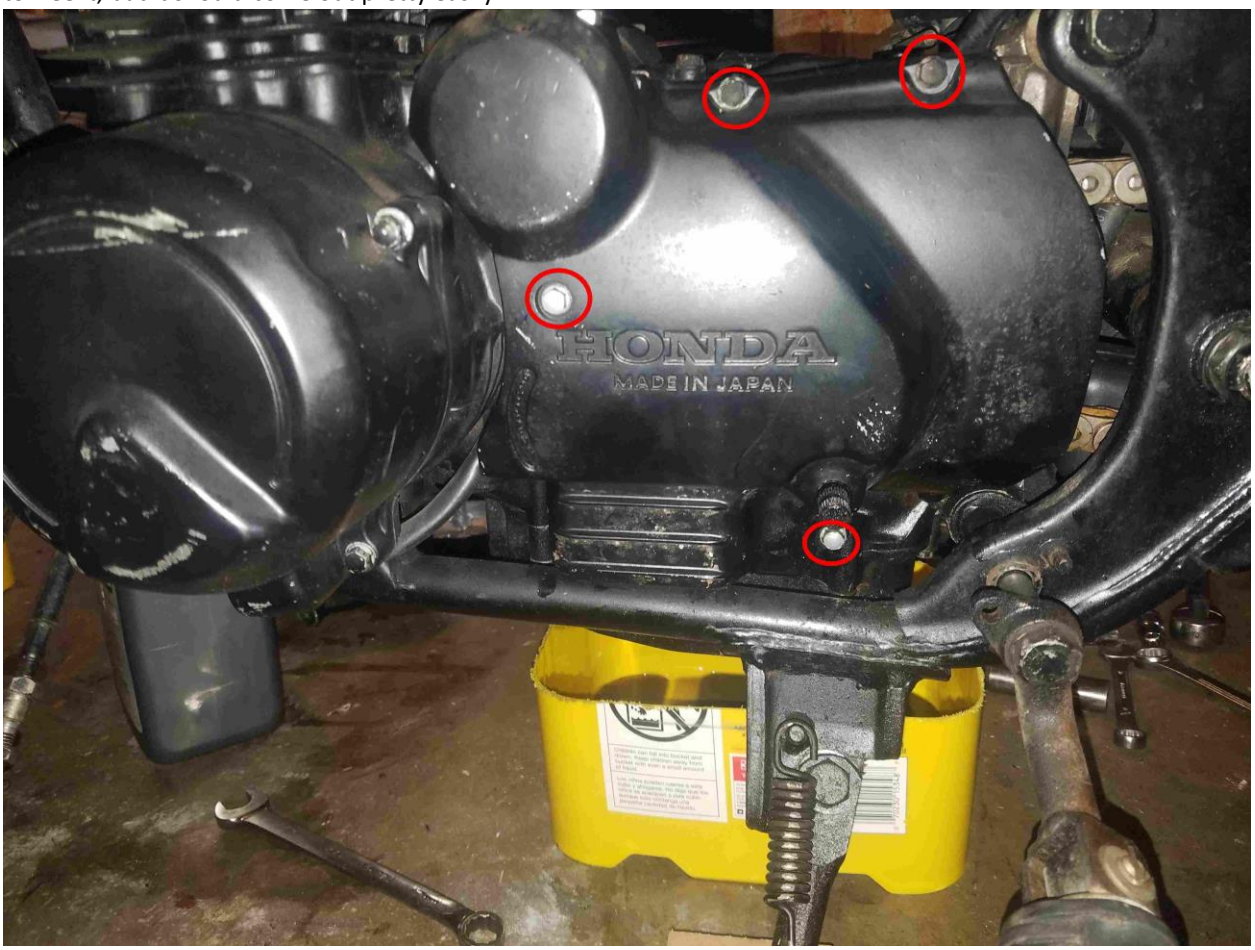
9. Remove the oil pan. This isn't too bad, ten 10mm bolts. It drops right down and makes a mess.



10. Remove the foot shift lever on the left side. It is held on by a 10mm bolt that needs to be removed completely for the same reason as the rear brake foot lever.



11. Remove the chain sprocket housing. This is held on by four 8mm bolts of varying length. Fairly straightforward. Might take a little prying to free it, but it should come out pretty easily.

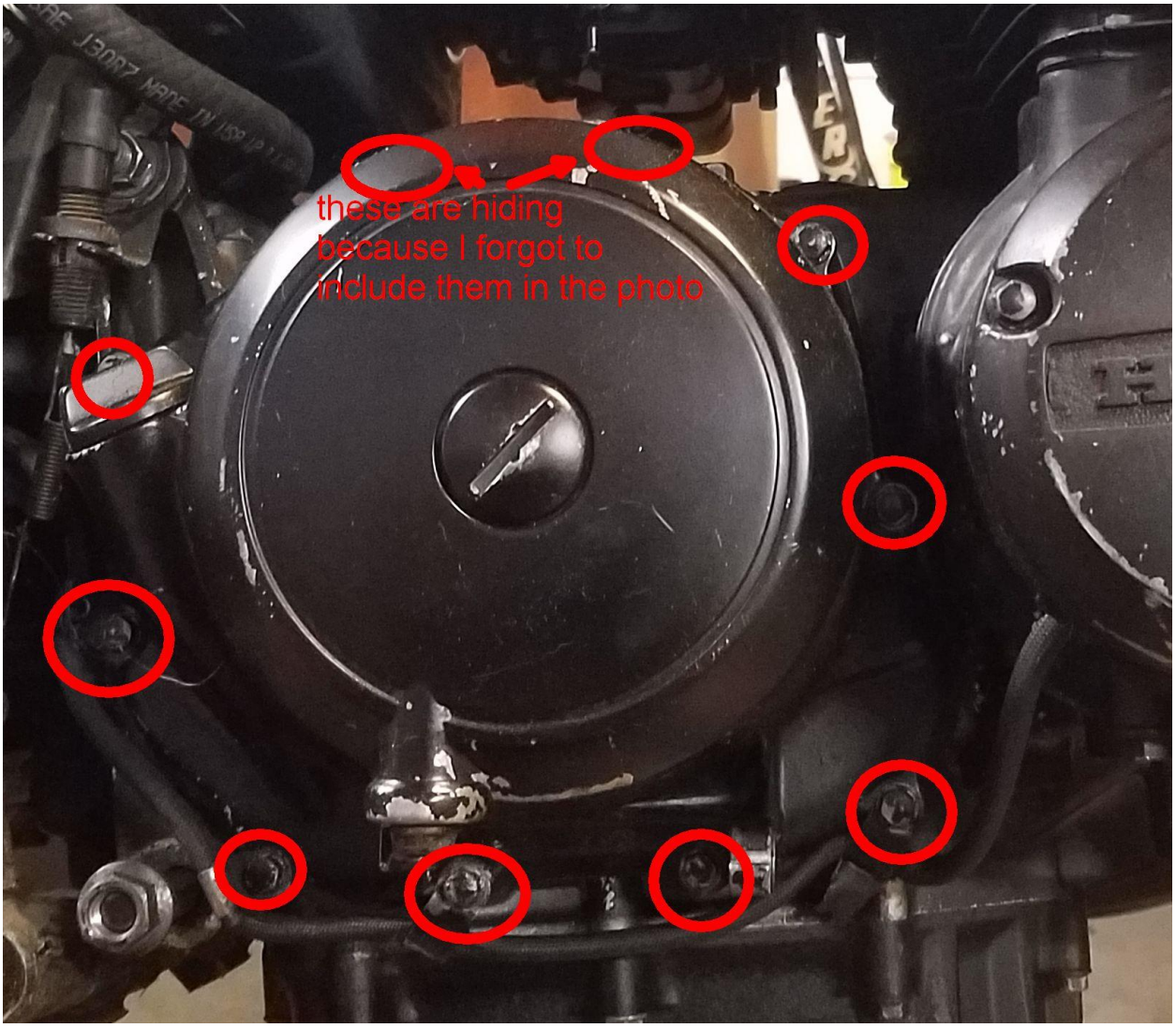


12. Remove the starter shield, it's held on by two 10mm bolts. You can try doing this from either side, but it is just slow going for the most part.

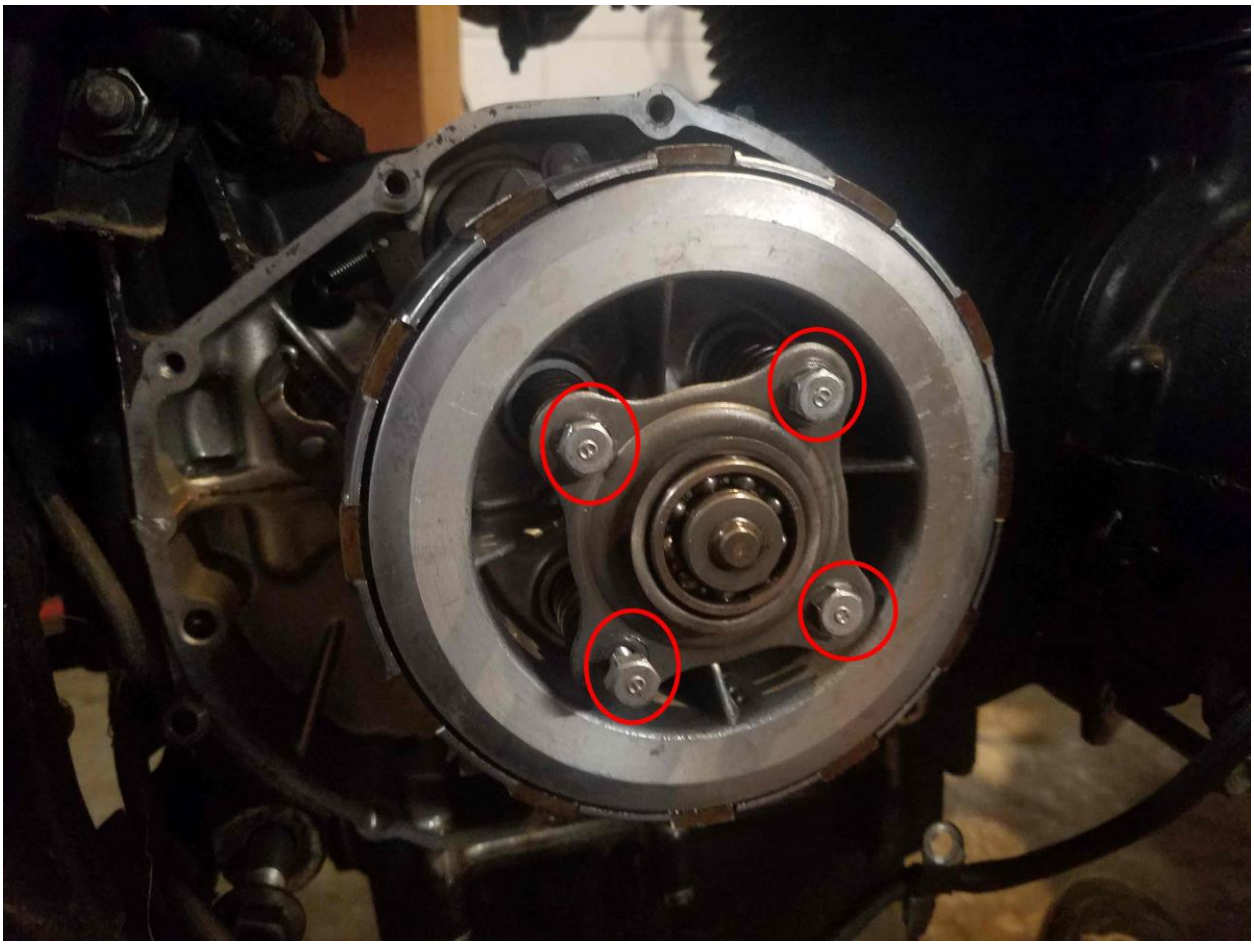
13. Remove the two longer 10mm bolts holding the starter to the block and pull the starter out of the crank case, just enough to get the splined shaft out of the case. It should just slide out, and it might need some motivating if it hasn't been removed in awhile.


MITSUBA

14. Back to the right side, remove the clutch housing. Held on by ten 8mm bolts. One's longer than the others, you won't mistake it, and I doubt you could reinstall it in the wrong spot anyway. Don't lose the hollow dowel pins. If you are careful and lucky, you can reuse the large paper gasket. If you are unlucky or it still has the factory gasket, get the scraper out, there's a lot of nooks and crannies that are probably going to need your attention.



15. Remove the clutch spring plate/throw-out bearing. Pretty easy, four 10mm bolts, I would alternate like when you tighten lug nuts, but I can't think of a good reason why right off, just seems like the right way to do it. Lay the clutch housing down on its back like it's a bucket and place everything you just removed (not the housing bolts, just the parts not exposed to the elements) into the housing so you don't lose them or get them dirty. They are likely covered in oil and any form of collective or individual particulate will stick to them.



16. Next up is the castle nut. Fun story- I was apparently very lucky to have owned a (very temperamental) gy6 scooter before this bike which required disassembly all too frequently, and what I found is that the tool for this nut is so readily available it's not funny. A quick search on eBay for a gy6 clutch tool will yield results that are inexpensive and totally worth having just for this. I used a ½" impact gun on it, but you can use a breaker bar and spanner wrench if an impact gun isn't available/convenient. For that method, on the left side of the bike, undo the two 10mm bolts holding the chain gear lock plate on, rotate it until it aligns with the splines, remove the lock plate, then use the same bolts to bolt the spanner tool to the gear (the tabs on the end of that tool just unscrew, leaving holes you can run the bolts through. Jam the handle somewhere that it can't turn, you can see in the photo where I put it). Once jammed, use the breaker bar and the castle nut socket to remove the …castle nut. (The spanner tool is also available on eBay, for much less than an impact gun and an air compressor large enough to run it. The impact gun is a much more elegant and simple solution). Once removed, drop the castle nut and the washer behind it into the housing.

1 of 2

Chinese ATV Tool - Starter Clutch Nut Spanner - Deep Well - GY6 150

$11.20 FAST 'N FREE

FLYWHEEL VARIATOR CLUTCH REMOVER PULLER TOOL SCOOTER GY6 50-150CC TAOTAO VIP

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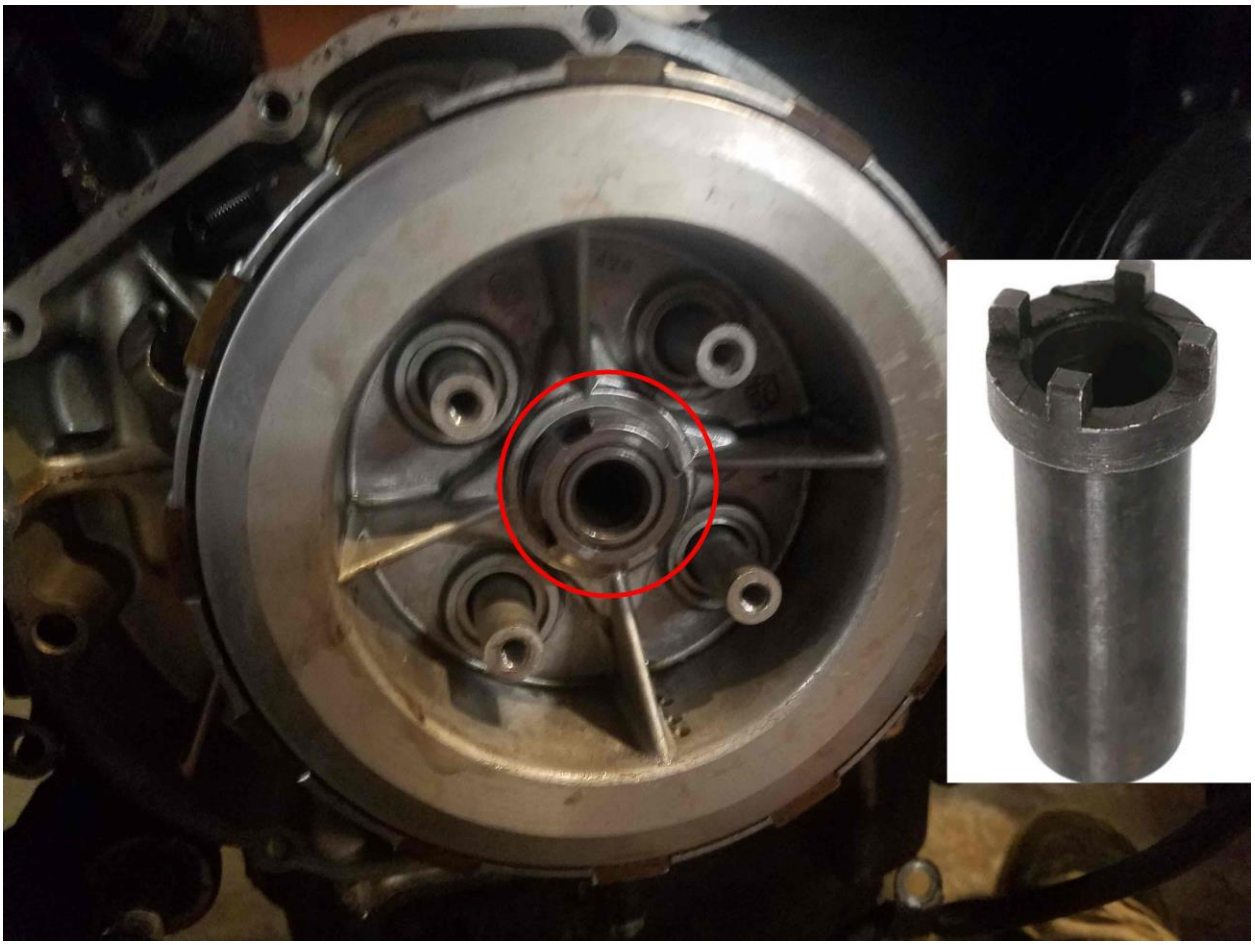
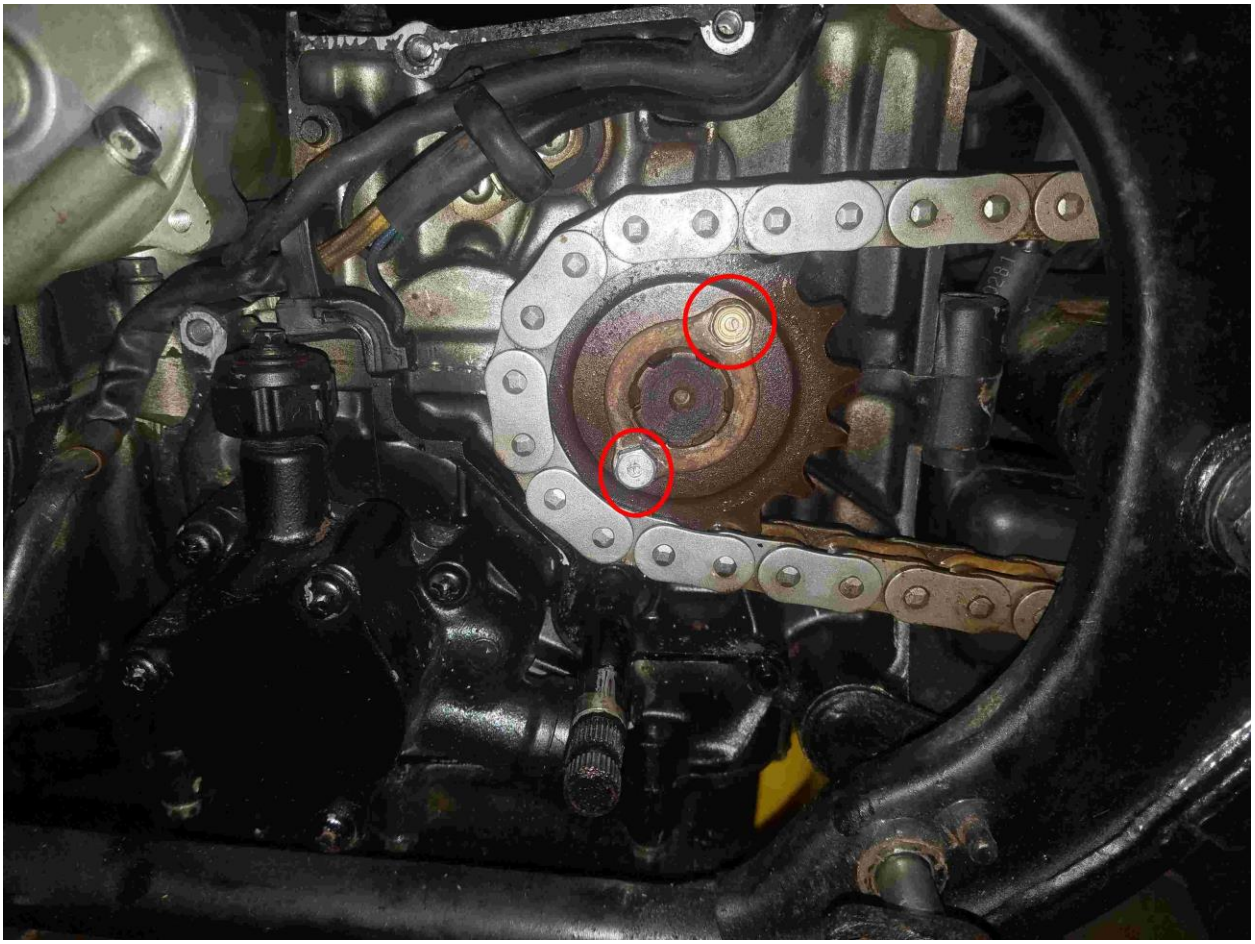
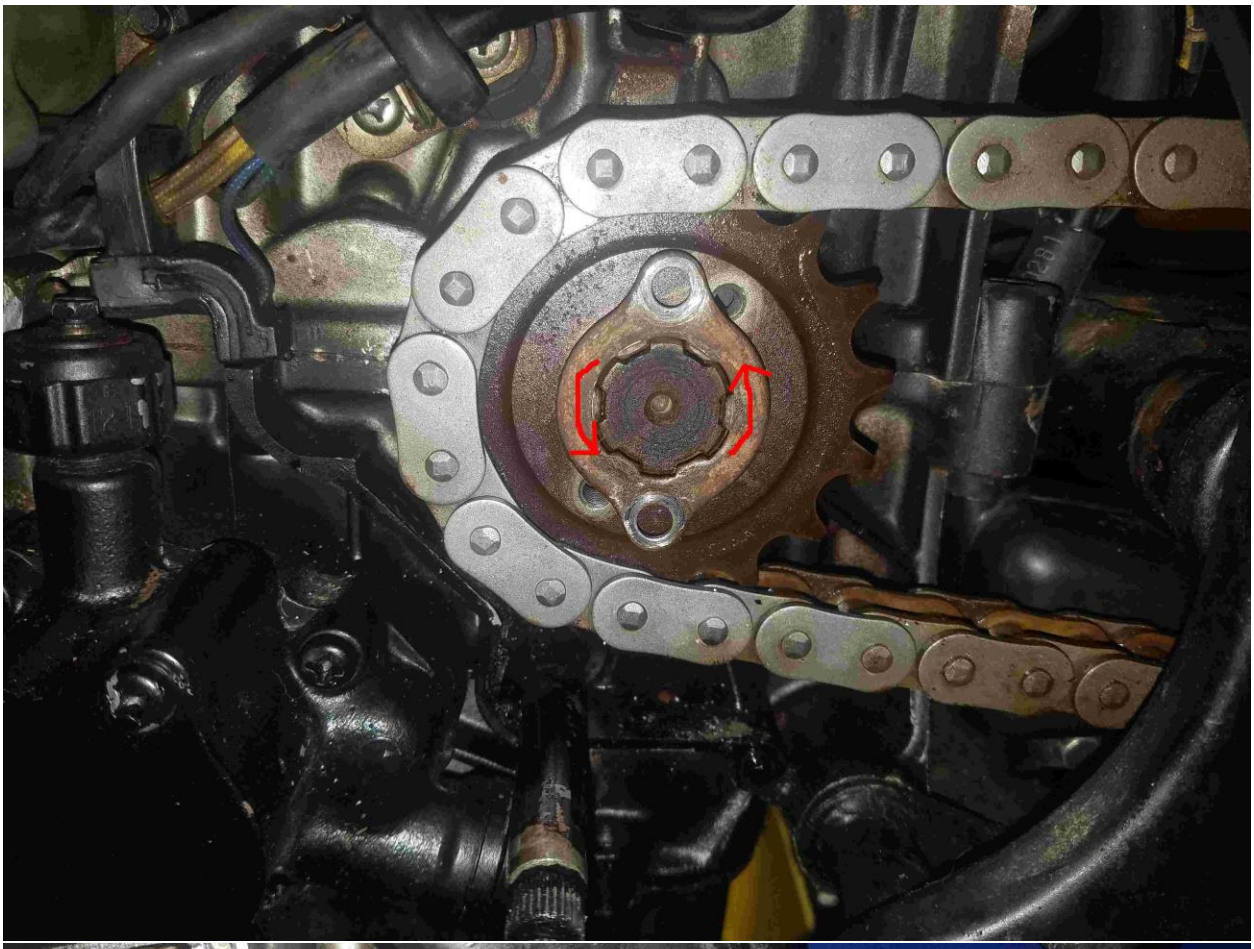
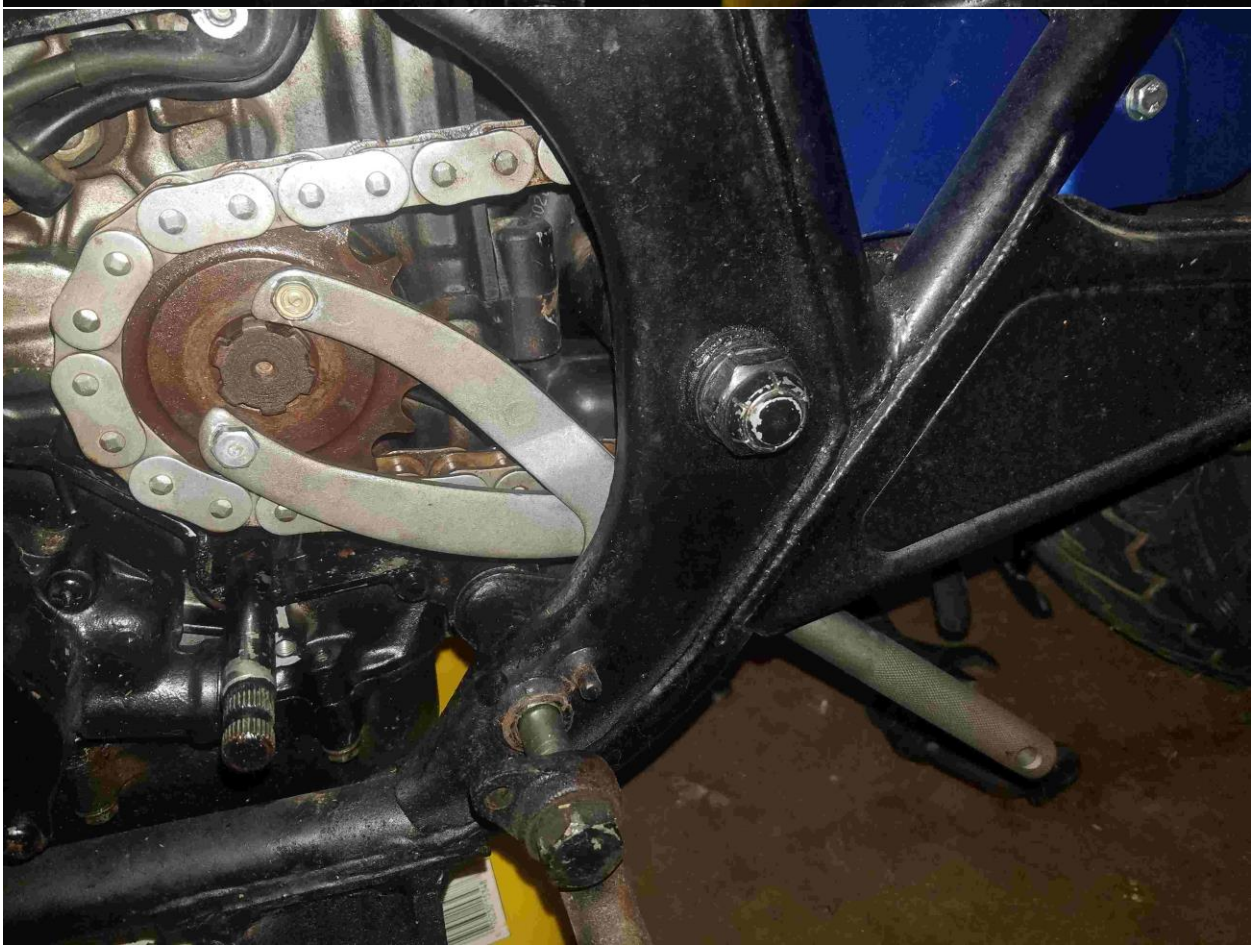


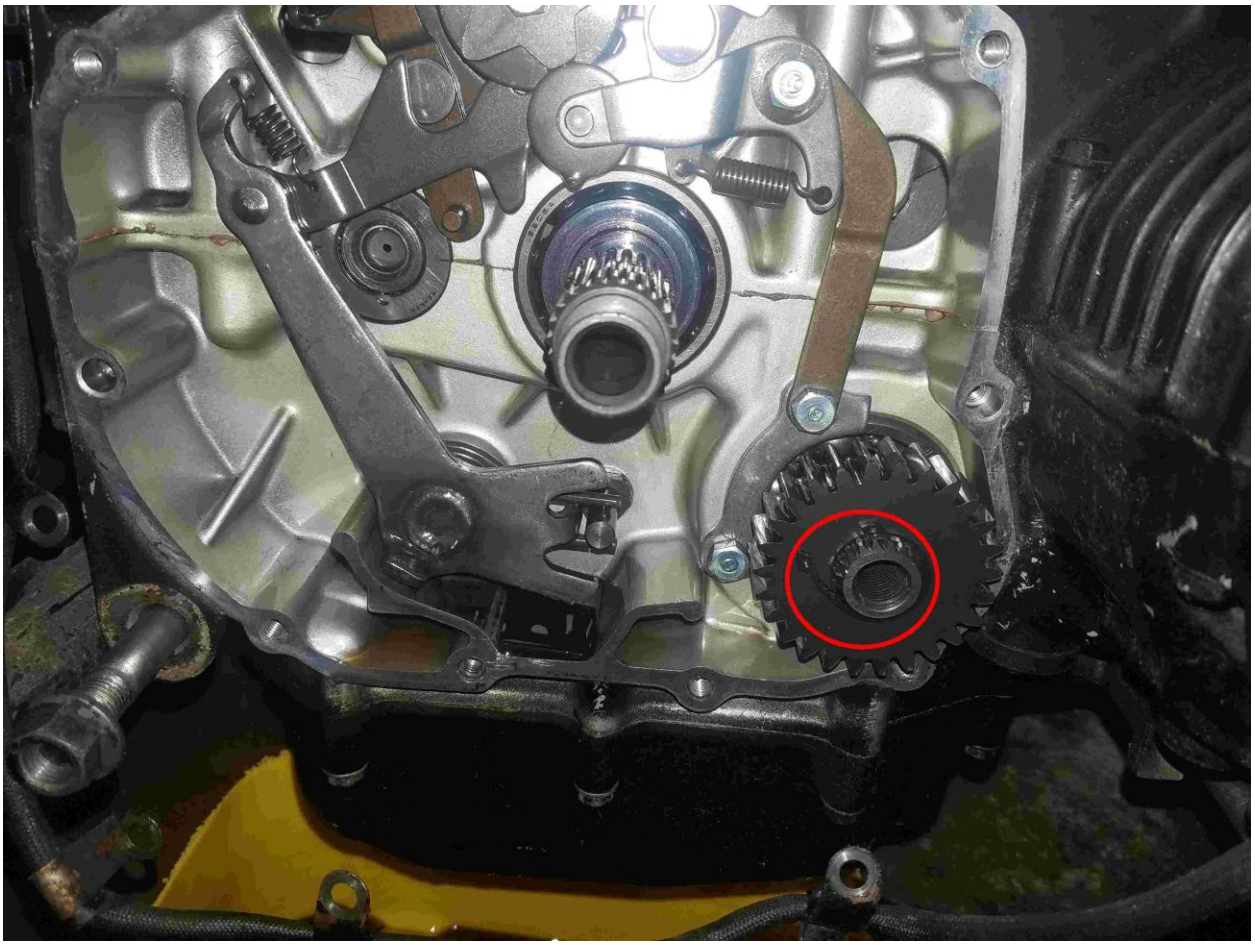
Left side (if needed):



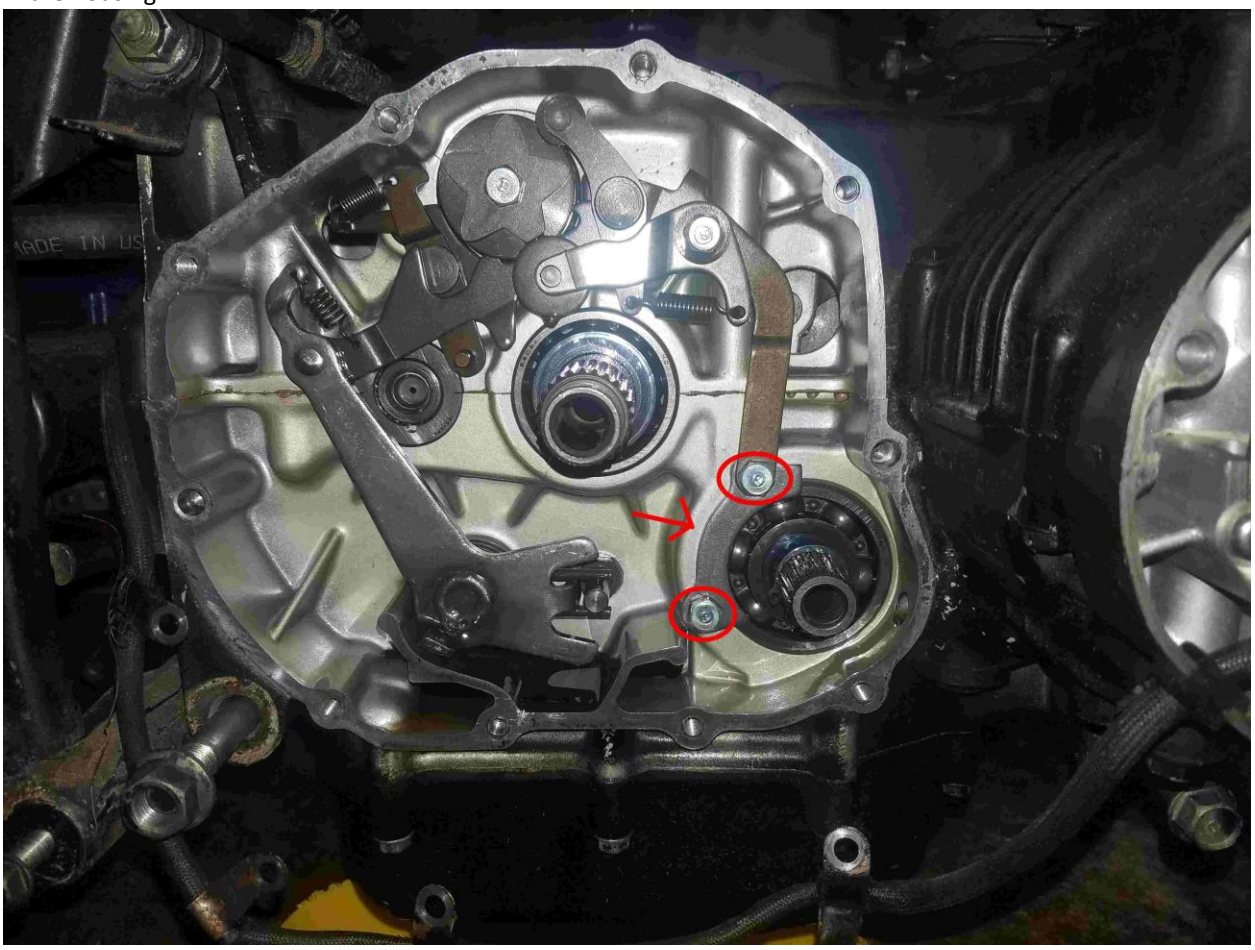




17. Remove the clutch pack from the back side towards the engine, it just slides off as one piece. Place it gently into the housing.
18. Remove the snap ring holding on the gear on the main shaft (bottom right of the clutch if you're facing it) and the gear will slide right off. Put it in the housing, maybe on top of the clutch if you have room. Mine is a bit bent in this photo, yours should look like a not-bent version of it.

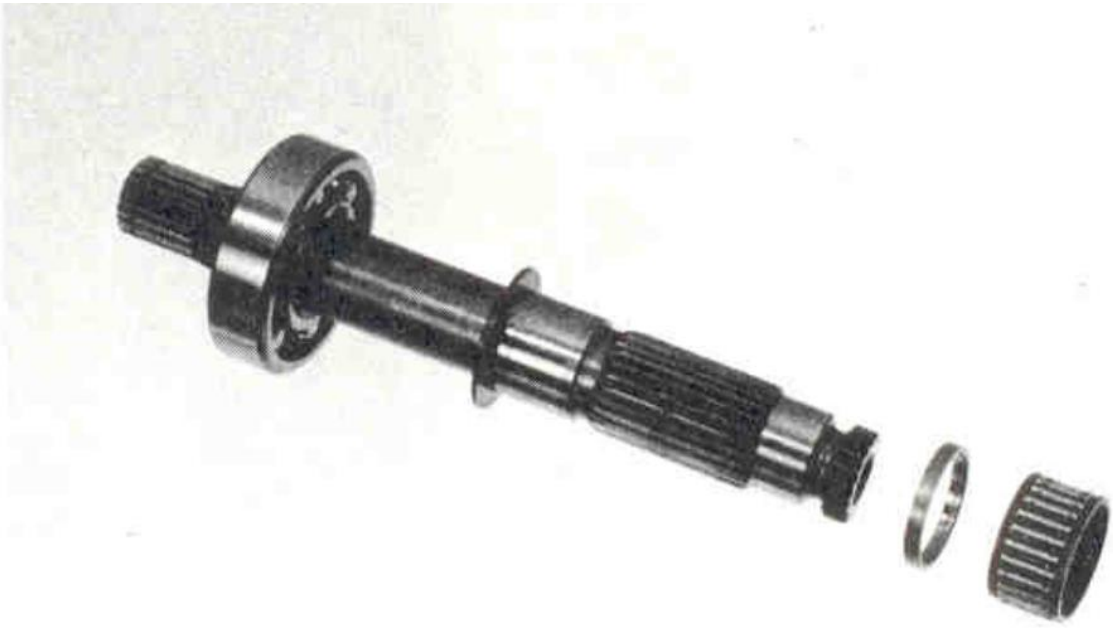


19. Remove the weird-shaped retaining bracket from the main shaft, it's held in place by two 10mm bolts. Stack the bracket on top of the gear in the housing.



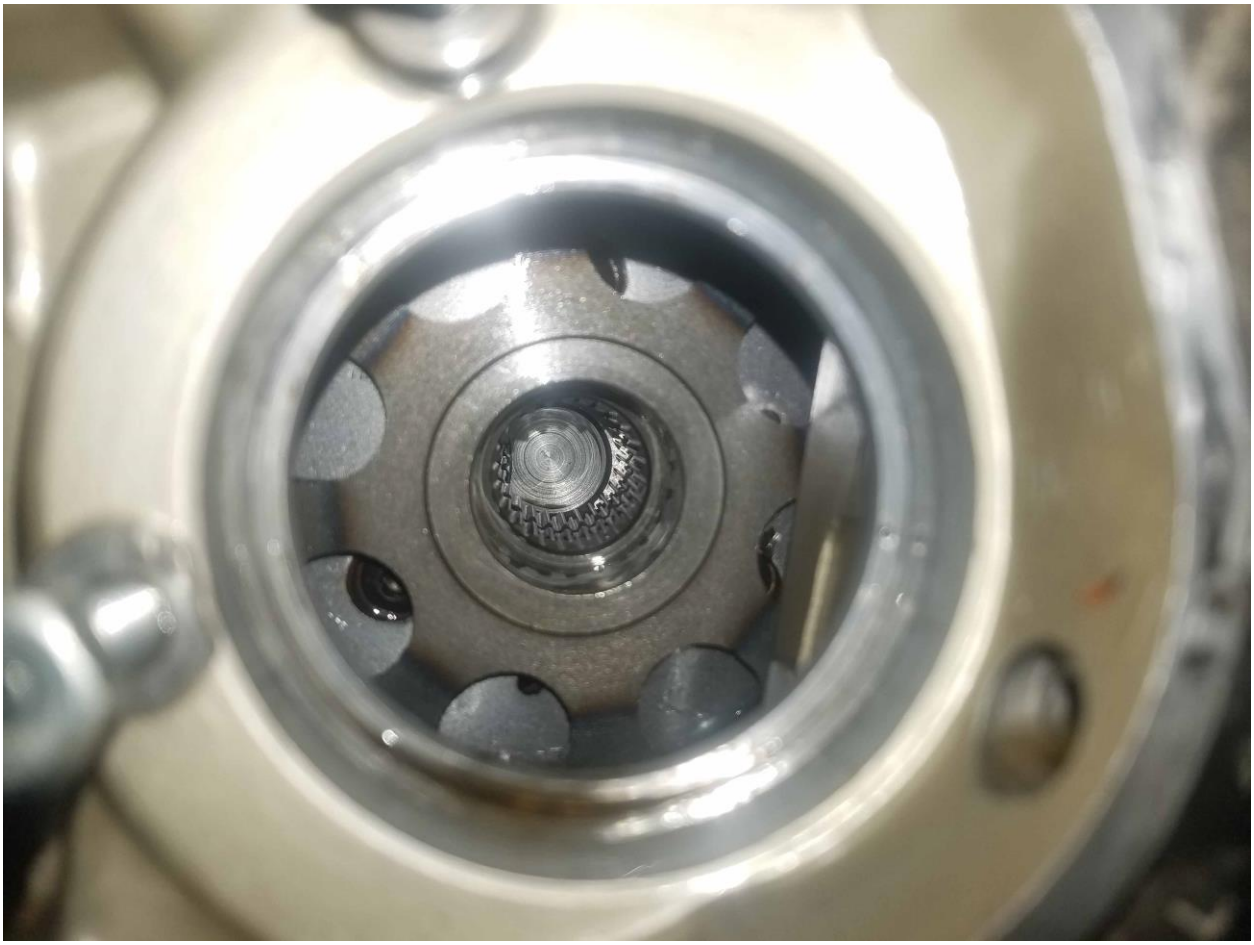
20. Remove the main shaft. This is pretty difficult, and there's no simple trick or anything, it just slides out. However, it doesn't want to just slide out. My solution was to use a piece of threaded rod, I believe it's 12mm diameter 1.50mm pitch, which threads nicely into the center

of the main shaft. Put on some work gloves, support the bike, and start tugging- it will take some (a lot of) effort but you'll get it. I have faith in you!

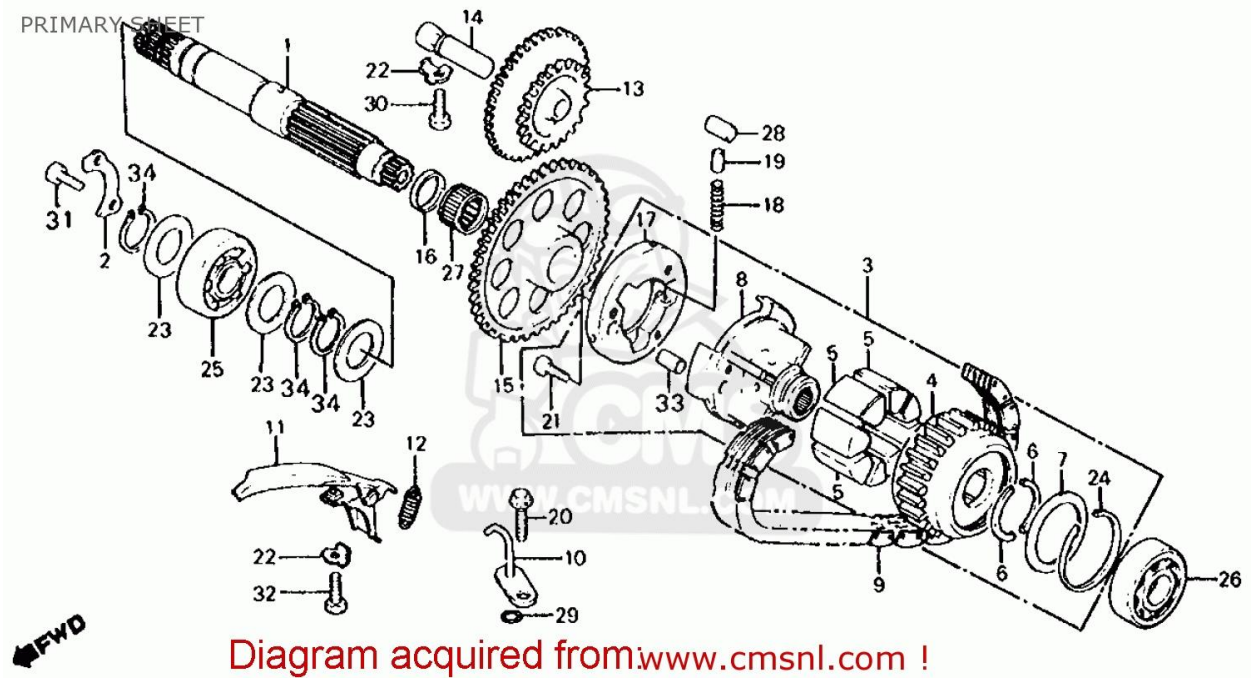


21a- Storytime again- I was using the guide from slagheap (excellent guide up until this point, where things went sour for me anyway) and couldn't remove the main shaft. I could get it to wiggle a little, but I was afraid I'd break something, so I tried to remove the torx bolts with the shaft still in. I can tell you, it is possible, unless any of the bolts is seized, as one was my case. I discovered this when the head of the bolt stripped- my hand hit the exposed sharp edge of the crank case so hard it split my knuckle open and splintered a bone in my finger. Once the shock subsided, it was kinda cool, I could wiggle the bone splinters around inside the knuckle. It is still a little sensitive to pressure and that was about two months before writing this. My point is that either way, you'll need to remove the shaft and those bolts, and this is where I found a couple of disassembly tactics that deviate from the other tutorials on this job. Safety first!

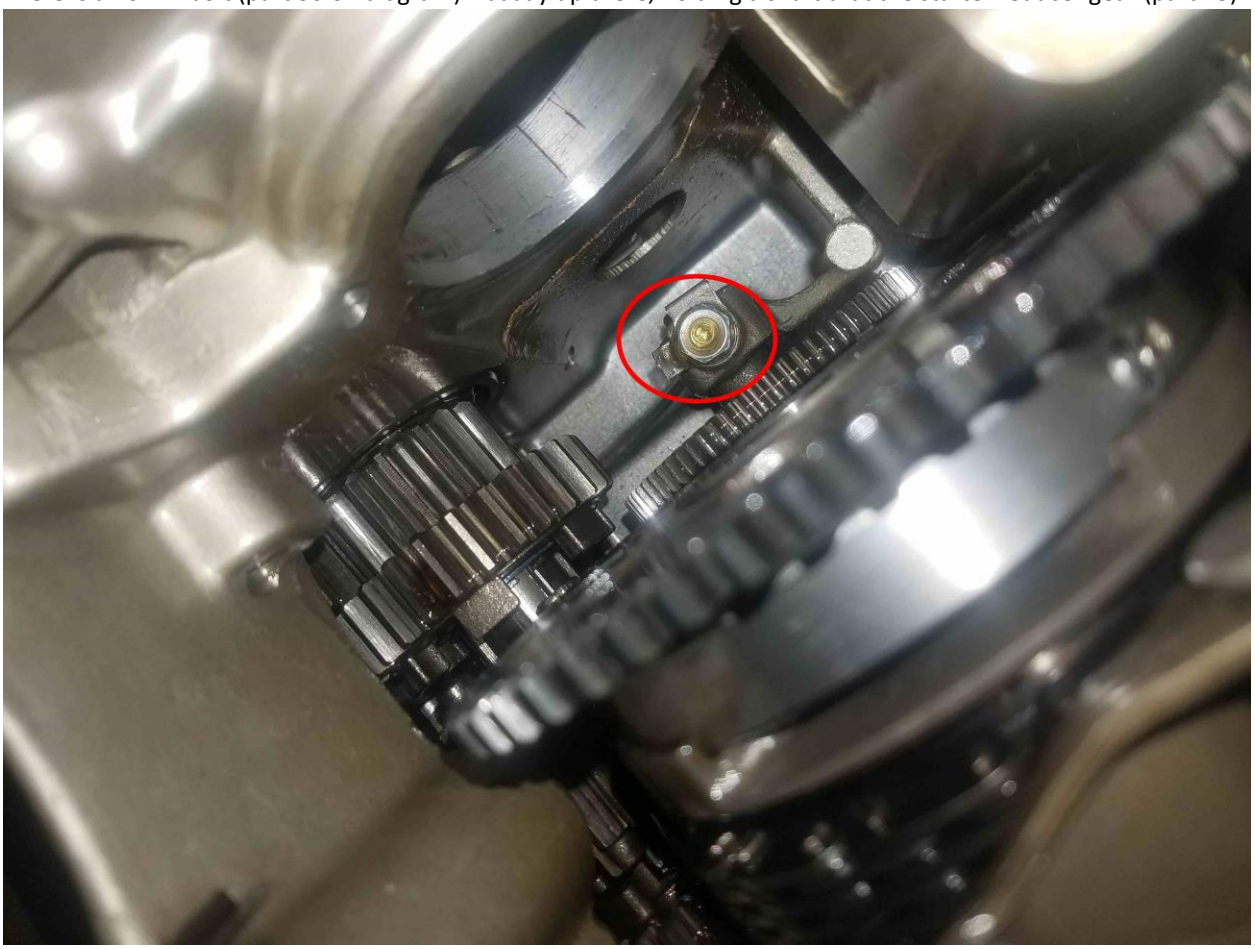
21. Congratulations! You did it champ! Now you can see that commie bastard starter clutch through the gaping hole you've created.



Or you could have looked up from the bottom where the pan was to see it before. Might as well get down there anyway, this next part is going to simplify things a lot.

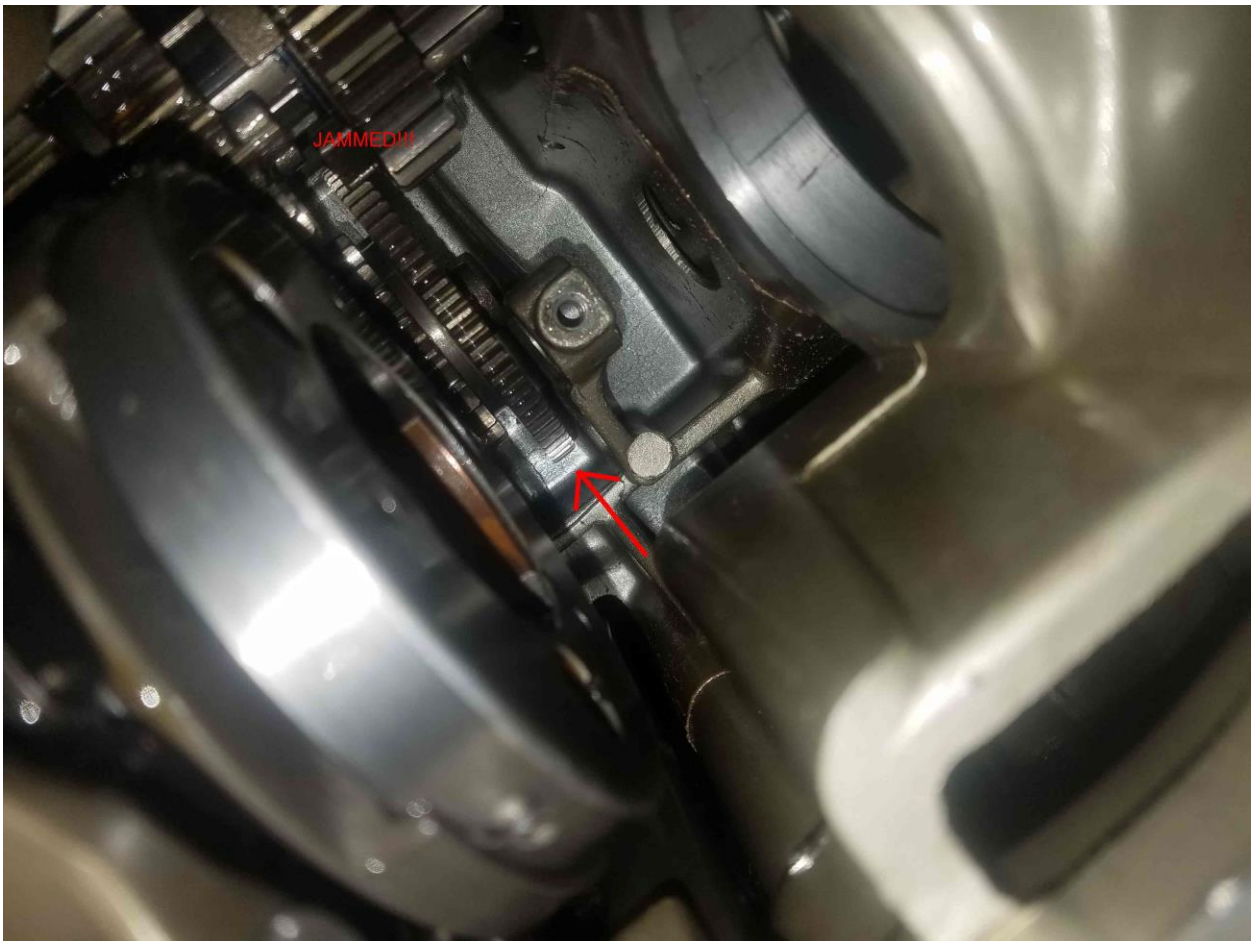


There is a 10mm bolt (part 30 on diagram) waaaay up there, holding a shaft that the starter reducer gear (part 13) rides on.



You’re gonna wanna get out your extensions and set that bad boy free. There is a washer with a tab on it (part 22) you’ll have to twist first to get a socket around that bolt, I think I used a long flat head screwdriver to lift up the tab. Set the bolt and tabbed washer somewhere you won’t lose it.

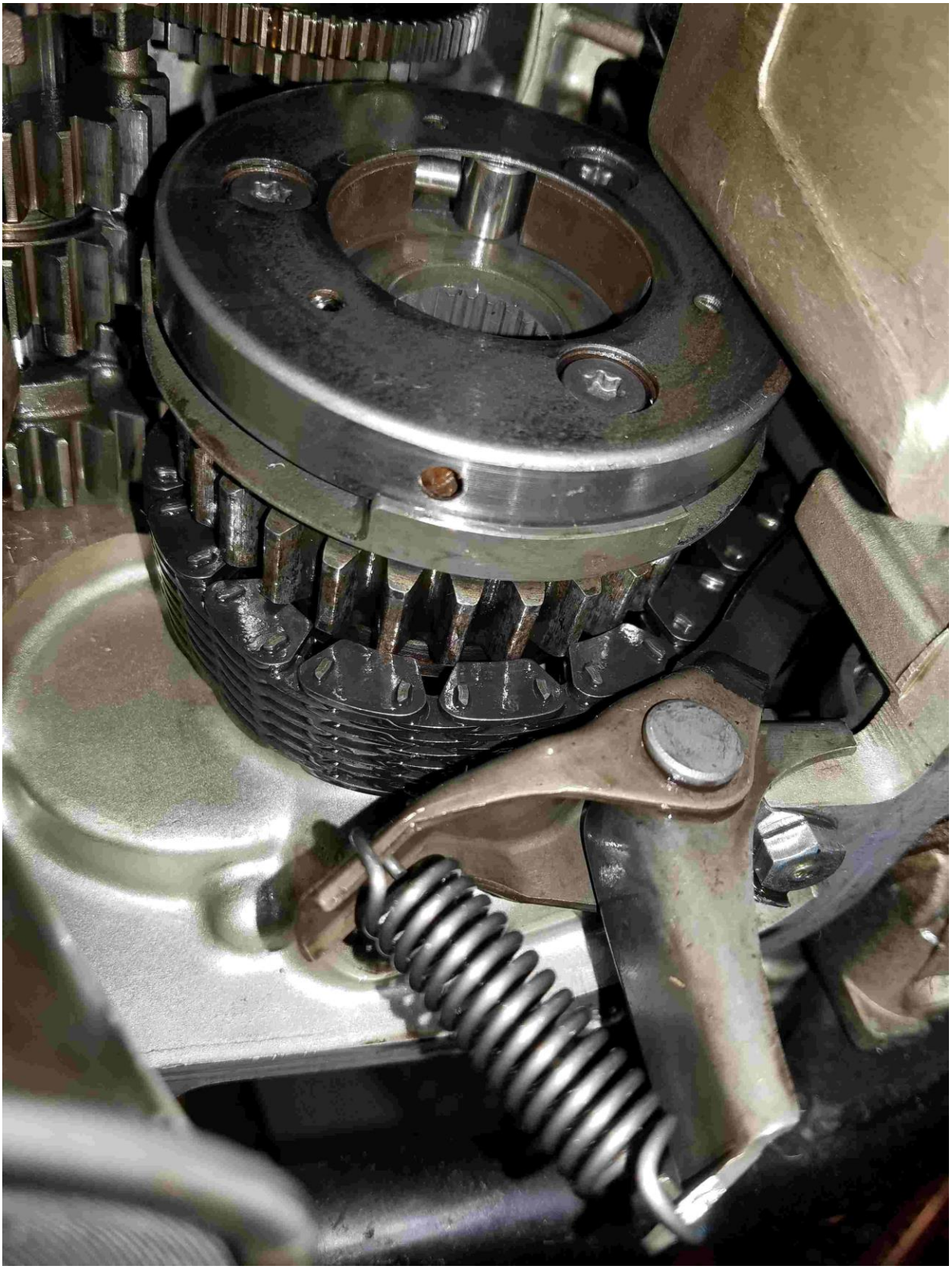
22. Put your left hand up in the case and hold the reducer gear in place. Remove the reducer gear shaft (part 14) with needle nose pliers through the peep hole so conveniently placed right where it needs to be to remove that shaft easily. Move the gear up into any cavity you can find where it will stay put, but that you can also retrieve it later. Alternately you can just remove it and set it in the stack, but it's got to go back up in there anyway, might as well jam it up in there somewhere it can hang out for a while.

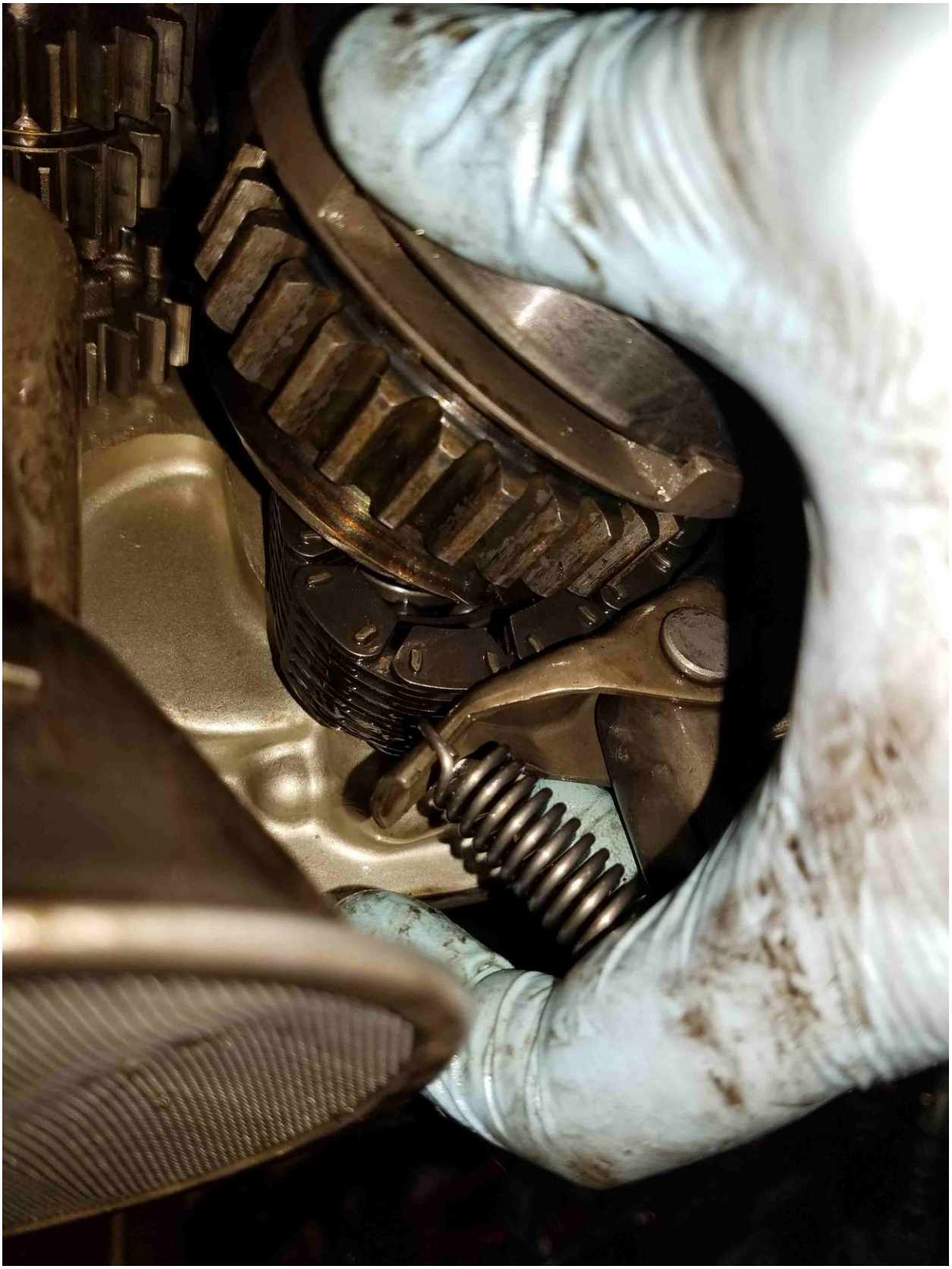


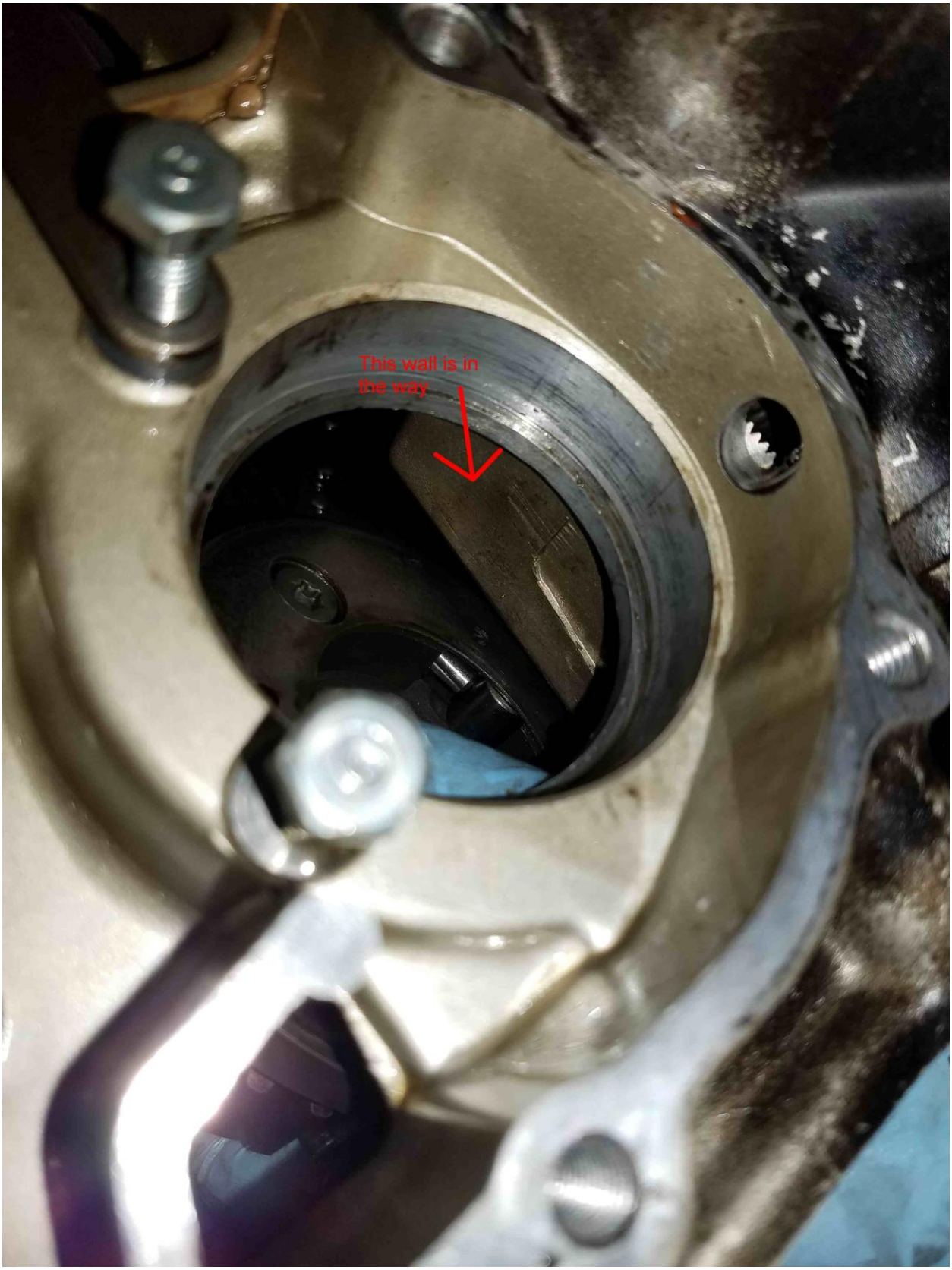
23. With the reducer gear out of the way, you can wiggle the starter clutch gear (part 15) out of the clutch itself (part 17). If you are having difficulty, keep in mind that the starter clutch assembly is now only held in by a large chain (part 9), you'll find you can move and even twist it limitedly, which makes the gear a lot easier to remove. Tilt the whole assembly inside the chain however you find works best so that you can slide that gear straight out from the clutch; trying to tilt the gear inside the clutch will cause it to bind and get stuck. I don't know how to clarify this anymore, I keep reading over it and it sounds confusing, but hopefully it will make sense when you get your hands in there.

    Good people, I regret to admit that I somehow was unable to get any photos of this, possibly because it required both hands to twist the clutch assembly inside the chain and then slide it out. The photo in step 22 already has the clutch starter gear removed, but the clutch itself is not twisted in that photo.

24. Once the gear is free from the clutch, the rest of the clutch assembly can be removed by hopping it out of the large chain and wiggling it free, then you'll be able to drop it right out of the bottom around the oil sucker. Set it somewhere clean.



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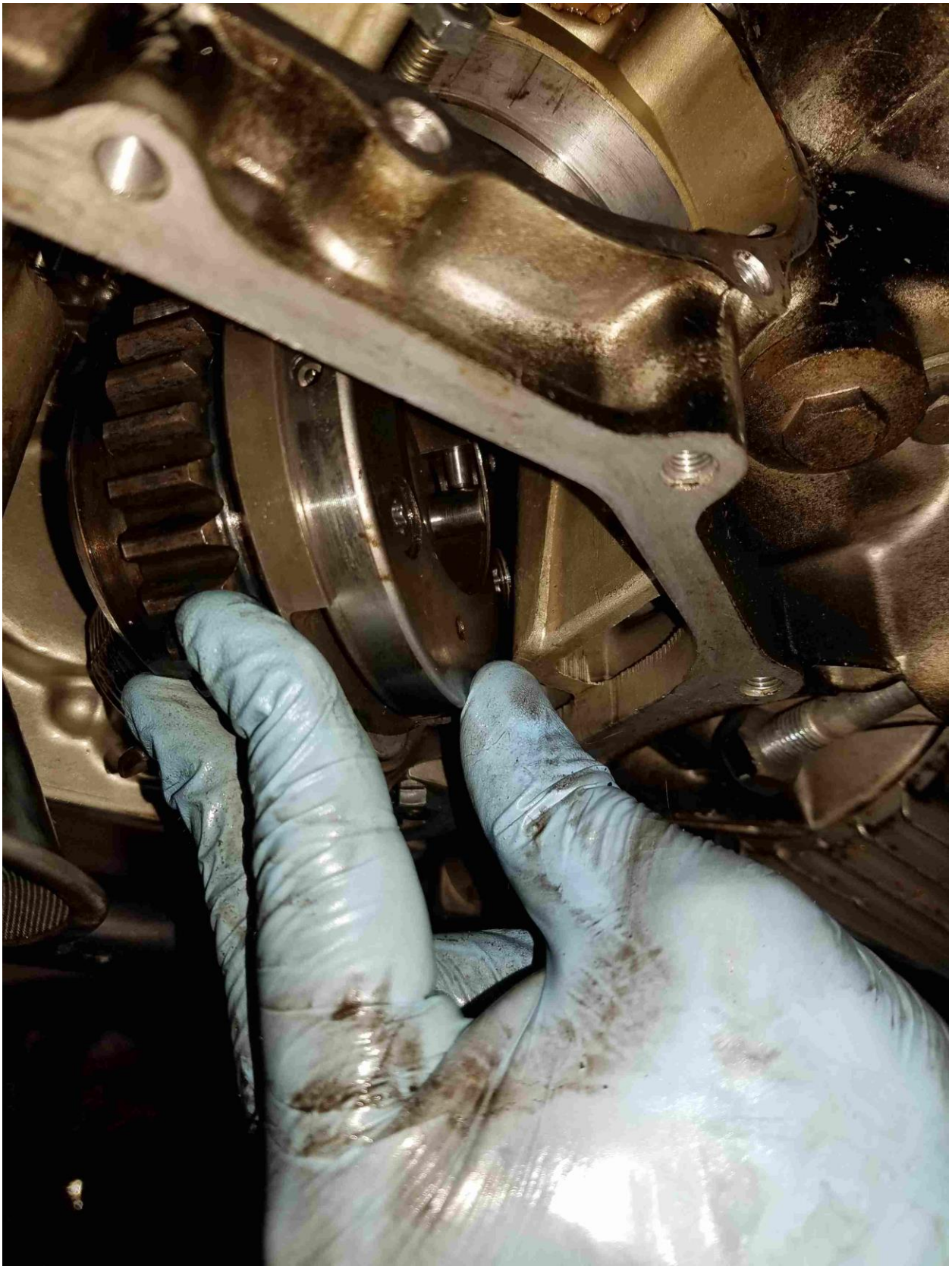
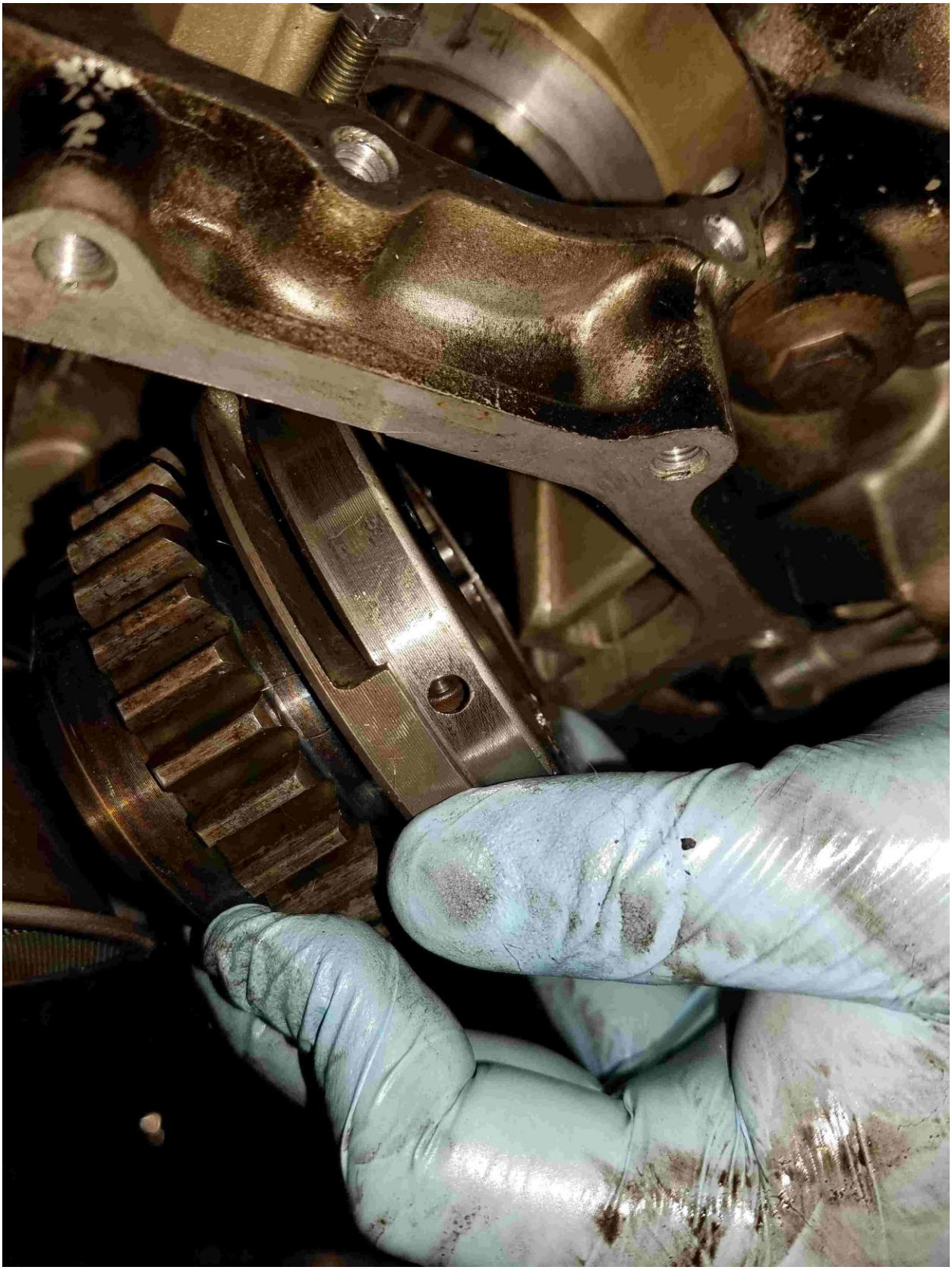




Intermission-
Take a break. Seriously. Take a nice long hot shower, get the oil and dirt off of your skin, dress any wounds, have a warm meal, rest your back, have a cold one with the boys. You might even feel inclined to take a nap, who knows. You're halfway there. I feel like the hardest parts are over at this point. Everything else is just kind of tedious.

Toilet reading for during your break-
Cw/tw: parts of this are redundant.
So the reason I'm writing this is because this isn't my first time doing this. I just did the exact same thing a couple of months ago, using a rebuild kit with new rollers/caps/springs, and I had fantastic results. It engaged perfectly and I was even able to ride it around the

neighborhood! However, the biggest issue with the starter clutch on these bikes is that they just aren't tough enough to withstand tons of repeated starts and occasional hard starts, say if it's cold out or after it has sat awhile or maybe you forgot to set it to "run" or turn on the fuel. I don't judge. Anyway, the common consensus is that if your battery is weak or springs are weak or the collar on the gear has become ridged, the little rollers are going to jam and want to kick back up, against the springs, into the clutch housing. It's an unmistakable noise, a loud clattering and banging sound followed by the constant and even whirr of the starter, and possibly taps playing quietly in the distance, signaling the complete failure of the starting system. Typically, what's happened is that the springs and caps get jammed up in the housing, sometimes (usually?) so badly that the springs and caps can exceed their mechanical limit and push outwards into the clutch housing, creating bulges in the outer area of the clutch. Apparently, there were quite a number of customer complaints, as the design was no longer used on the cb650 after 1982.

Nevertheless, the design was not a bad one, and that exact clutch went on to serve extremely well in some of the 1982-1986 ATC and TRX 125 and 200cc models.

This Honda 28120-426-000 CLUTCH, STARTER is used on these models and components:

1982 ATC200E A LEFT CRANKCASE COVER + ALTERNATOR
1983 ATC200E A LEFT CRANKCASE COVER + ALTERNATOR
1984 ATC125M A LEFT CRANKCASE COVER + ALTERNATOR
1984 ATC200ES A LEFT CRANKCASE COVER + ALTERNATOR
1984 ATC200M A LEFT CRANKCASE COVER + ALTERNATOR
1984 TRX200 A LEFT CRANKCASE COVER + ALTERNATOR
1985 ATC125M A LEFT CRANKCASE COVER + ALTERNATOR
1985 ATC200M A LEFT CRANKCASE COVER + ALTERNATOR
1985 TRX125 A LEFT CRANKCASE COVER + ALTERNATOR + SUB-TRANSMISSION COVER
1986 TRX125 A LEFT CRANKCASE COVER + ALTERNATOR + SUB-TRANSMISSION COVER
1979 CB650 A PRIMARY SHAFT
1980 CB650 A PRIMARY SHEET
1980 CB650C A PRIMARY SHEET
1981 CB650 A PRIMARY SHEET
1981 CB650C A PRIMARY SHEET
1982 CB650 A PRIMARY SHEET
1982 CB650SC A PRIMARY SHAFT

Good news is that these are pretty available on ebay, for peanuts compared to the cb650 ones, and they are all FREAKING PRISTINE.

'82-84 85 86 '83 Honda TRX ATC 200 A M 125 Starter Clutch Driven Gear Start

$22.00

+ $11.95 shipping

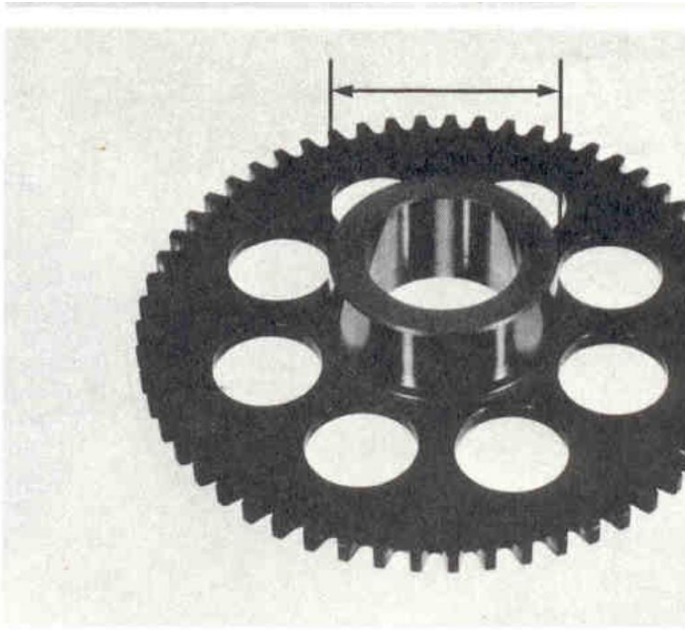
Also they are a lot easier to get to than in the cb650, so trying to convince the guy on craigslist doing a part-out to hook you up with one is a lot easier than the cb650 partout guy. The bad news is that the gear on those is just a few teeth smaller, which means you'll have to use your original gear, and it likely has ridges in it, since you wouldn't be reading this if yours worked great.

I recommend measuring the gear collar with a micrometer/digital caliper of some kind, if it is still within spec (>1.650”), take it to a machine shop and get them to make that collar perfectly smooth.

Inspect the drive gear for damage or excessive wear.

Measure the O. D.

SERVICE LIMIT: 41.93 mm (1.650 in)



I didn’t do that, I just used 220 grit and got it smoother than it was. We’ll see how it works out. And hey, thanks for spending this time with me. I really think we’re both growing from it. And that’s special. I’ll treasure this time we’ve spent together. Anyway, once you decide your break is over, here’s the next step:

25. Since your clutch/fat gear (assembly 3 in diagram) is free, it’s time to liberate the clutch from the fat gear. There are three T30 torx head bolts holding these parts together. If you notice in the pictures, I used allen bolts last time, which was a very stupid idea, as the heads pretty much stripped as soon as I gave them any pressure. Turns out loc-tite is pretty effective. However, it was all I had available at the time, as I didn’t know where to find the part number but I somehow found the thread count, these were available locally, other excuses, etc, and to be honest they were really effective until the moment I went to undo them. Anyway you don’t have that problem, so what you need to do is get a ¼” socket to put your T30 bit in so you can use a ratchet to get some torque on that bolt.

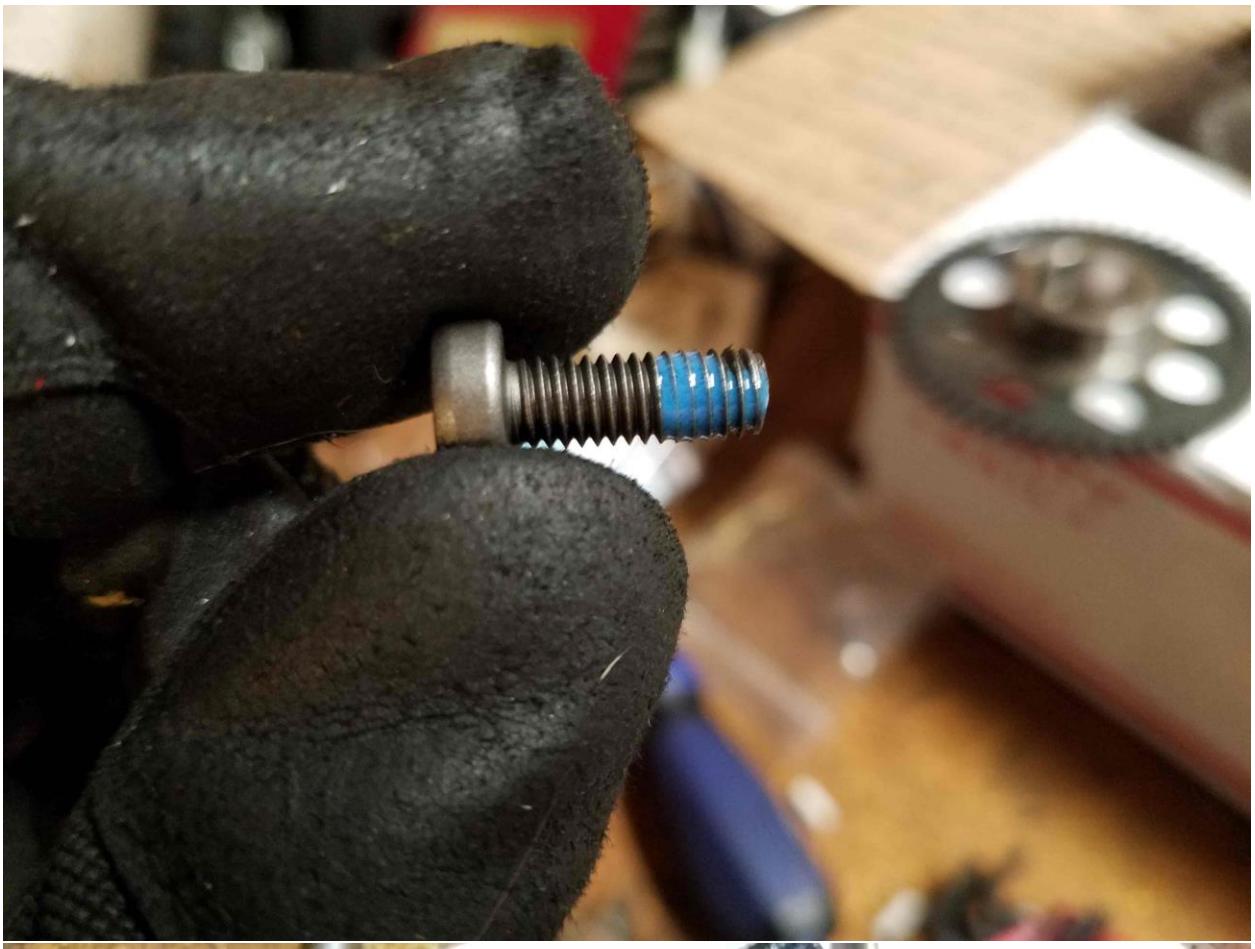
The factory used loc-tite, and you will too when you install the new bolts. Put the gear into a vise (or gear holder, I don't know what kind you'd use, I used a vise) between teeth on each side so it doesn't slip, but don't tighten it much, as you'll damage the teeth. You just need it to stay still when you're loosening the bolts.

25a. If you have a new gear from one of the atc or trx models, which for the rest of the tutorial I will assume you do, the same steps apply to remove it from the alternator piece, but you don't have to be as careful with the alternator unless you plan on selling it or something.

26. Remove the clutch from the gear (or alternator), I had to jam a pick down in one of the cavities and pry outward to conclude the liberation process, it should not be very difficult to remove but with age and rust your mileage may vary.

27. Take the pristine looking clutch from the 82-86 atc or trx, remove the springs and rollers from it, install the new ones you purchased- I found it easiest to do the spring and cap, then hold the cap flush with the hole using a pick, then slip the roller up in there. It will hold in place even though it looks like it won't.

Then mount that to the fat gear. Don't forget the dowel pin (part 33). Apply a dab of blue Loctite to threads and tighten the NEW bolts you purchased (DO NOT REUSE THESE BOLTS, they are tty bolts or something, Honda designed them to be disposable, don't be cheap, they're $3 and some change on amazon, if you're doing all this just spend the few extra bucks).

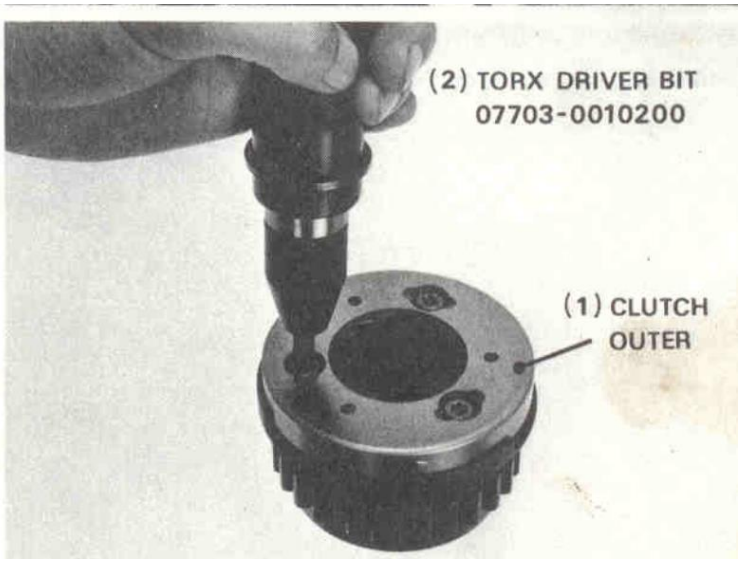


Again I used the vise to hold the fat gear in place, you want to torque the bolts to 8-12 ft/lb (96-144 in/lb) using a torque wrench, get one from harbor freight, they are not expensive, you can find coupons, no more excuses. You don't want to do this again. Don't forget Loctite.

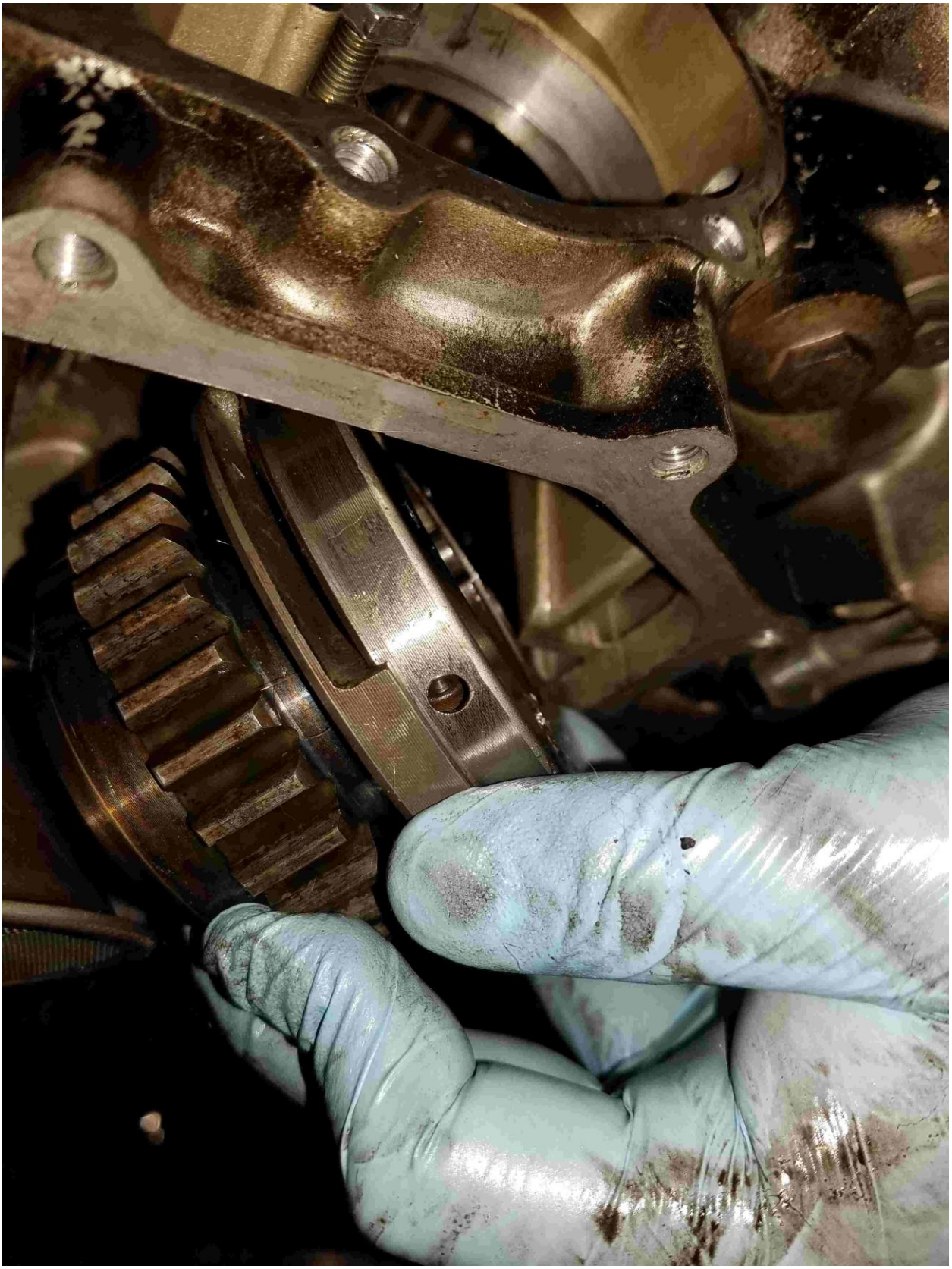
STARTER CLUTCH ASSEMBLY

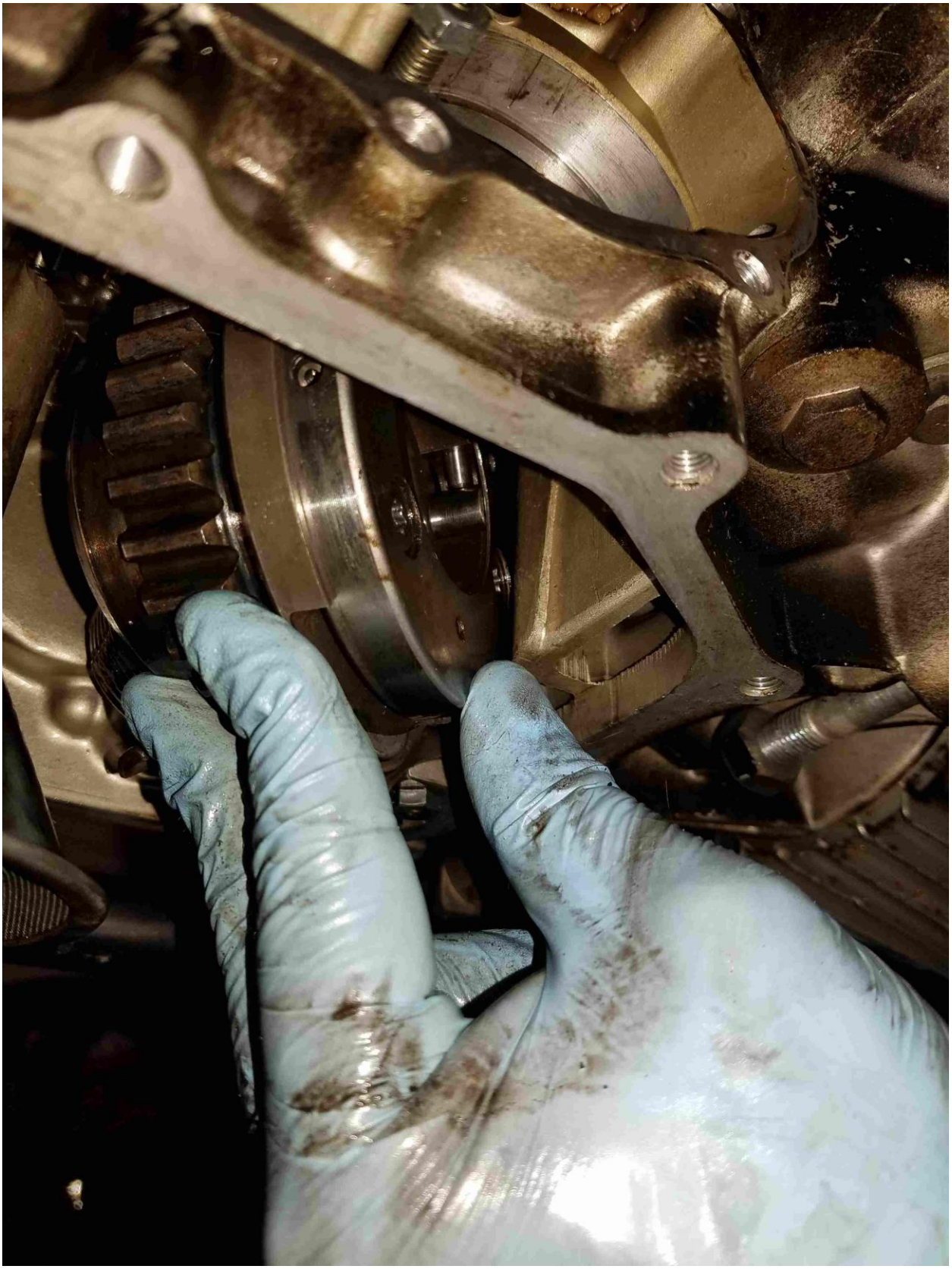
Install the starter clutch outer.

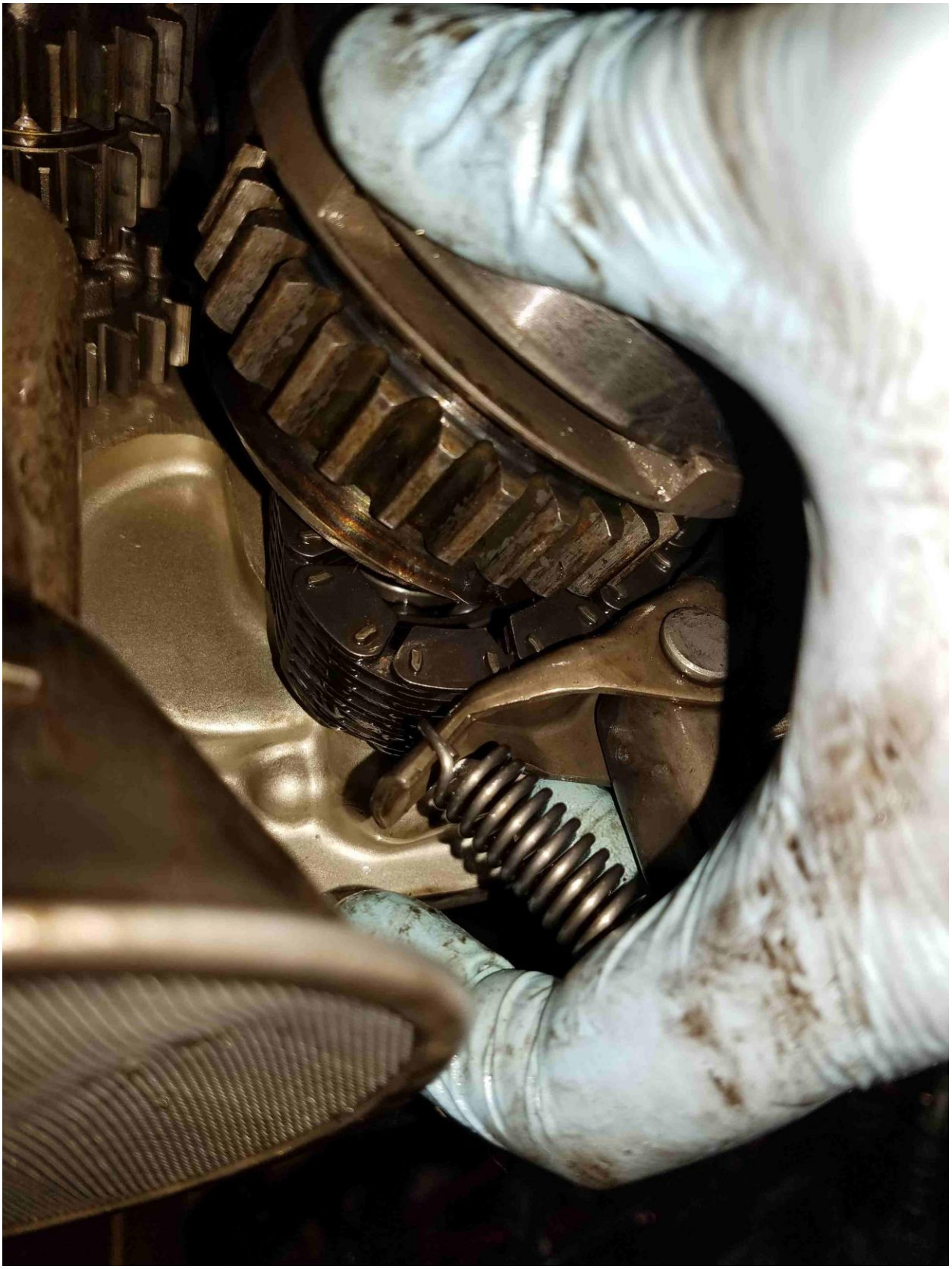
TORQUE: 12–16 N·m (1.2–1.6 kg-m, 9–12 ft-lb)

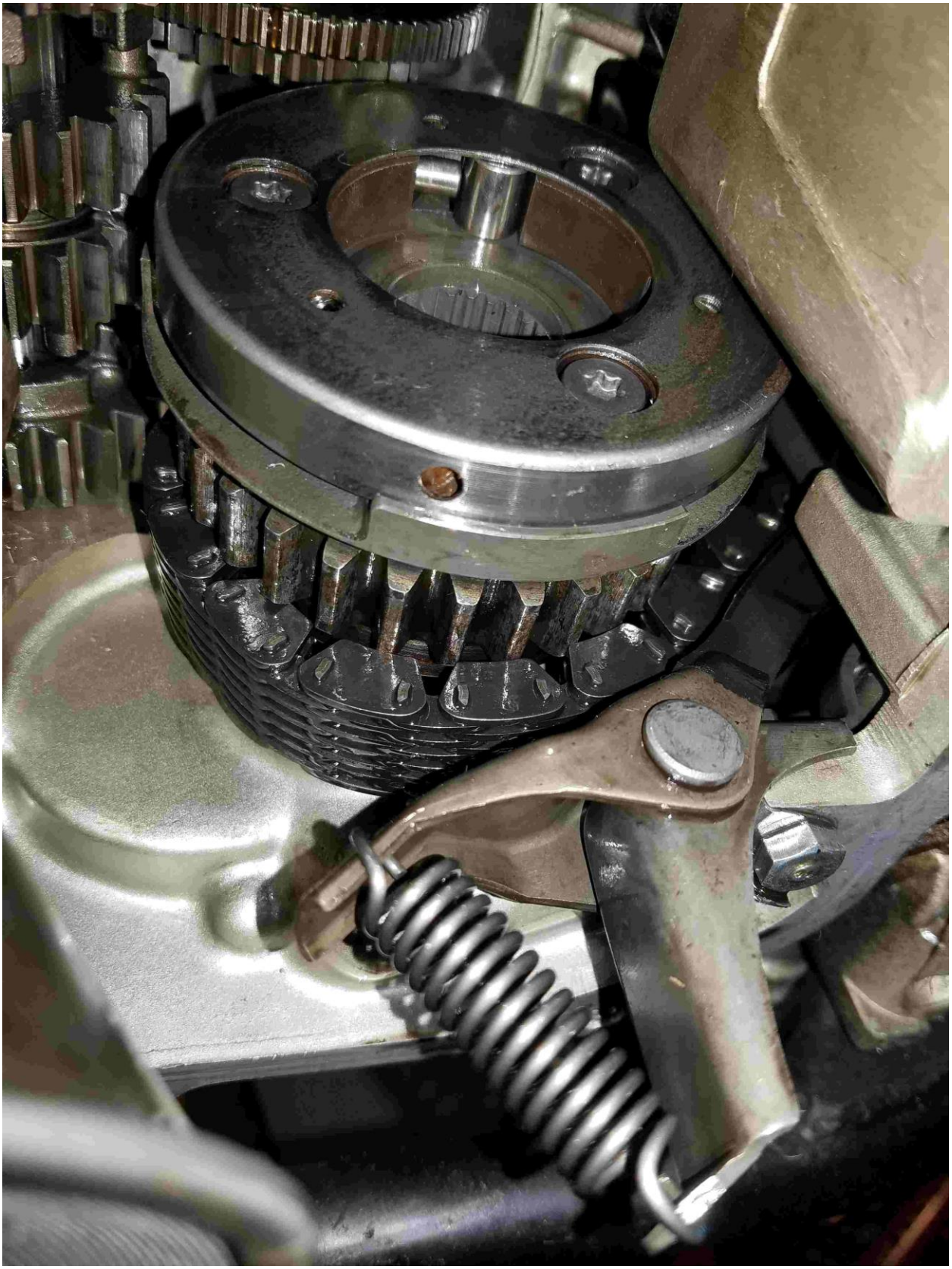


28. To reassemble, just do everything you did but backwards!! Hahahahaha I'm THAT kind of asshole! …In reality, I am a very different kind of asshole, but I do hate when instructions stop here, things rarely go back together the same way they came apart. Moving along.
29. Put the clutch/fat gear assembly back into the crank case. This can be kind of tricky. You'll be tempted to angle it from the bottom of the case upwards but that won't work. The only way I found to do this is to put it in at an angle so it clears that one edge (see photos) and work the tapered edge up into the chain, then slip the chain over the gear. It really isn't terrible to do once you figure out the motion required to get it back into place, but figuring that out can be hard. Refer to photos, I had to take that gear out and put it back in like a porn star to get those shots, man I hope they help someone.

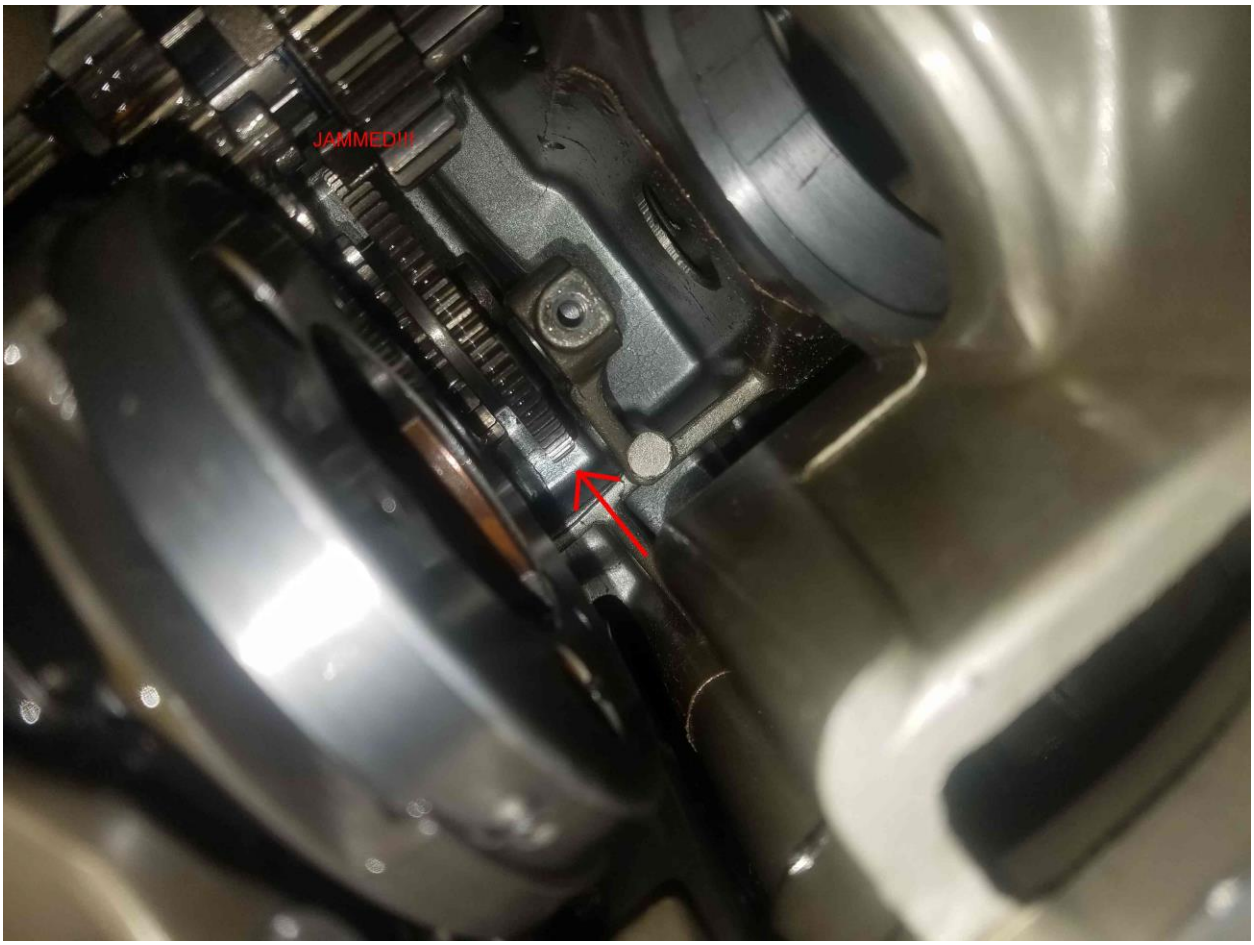




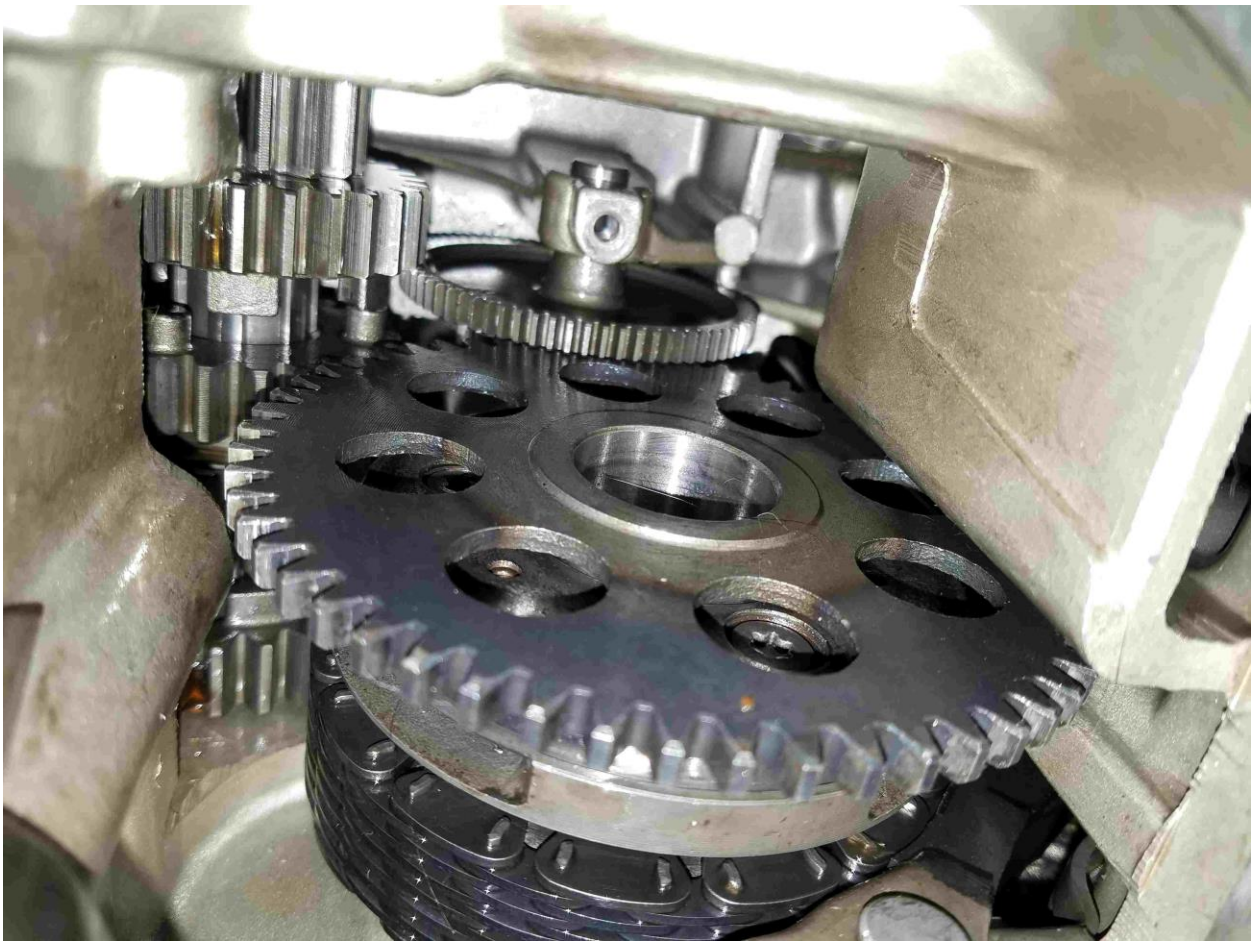




30. If you removed the reducer gear altogether, now is the time to put it up into the crank case, preferably where it won't fall down, but you're able to free it after the next step. There's a cavity I found that fits the need perfectly. See photo.

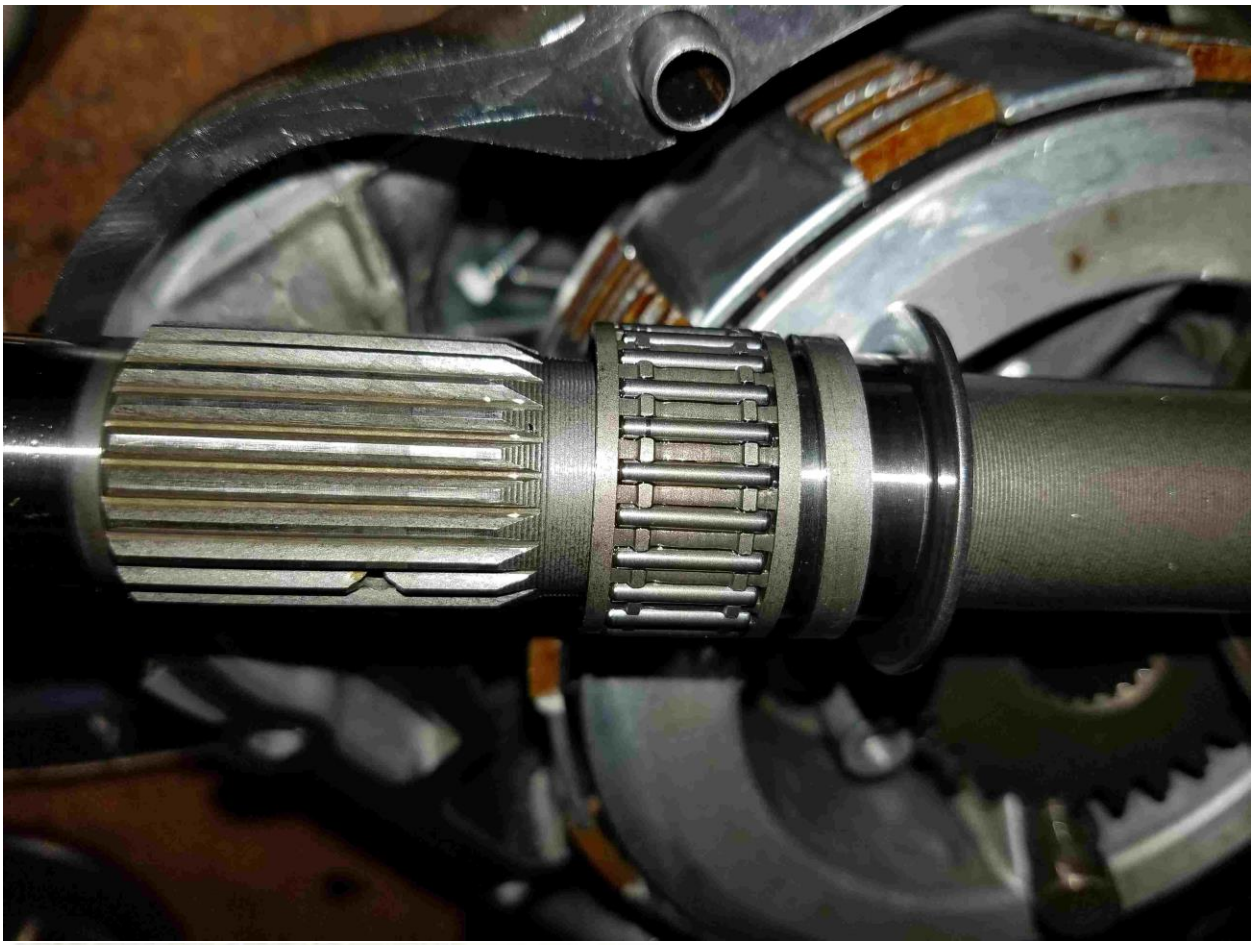


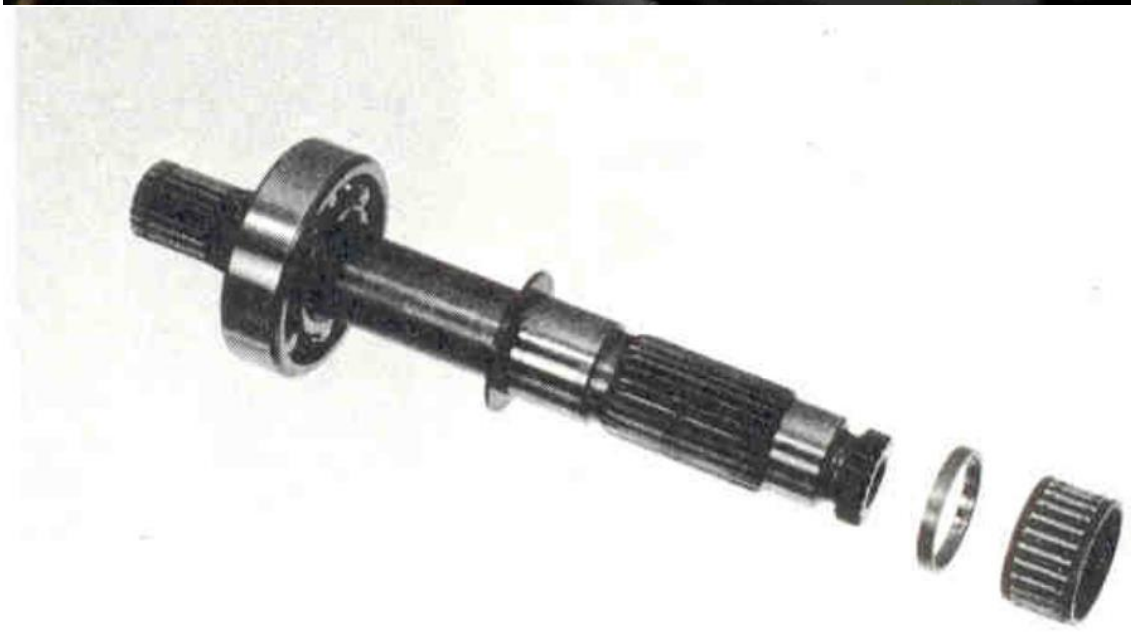
31. Slip the gear with the collar (starter clutch gear) back into the clutch. Same thing as removing it, it's easiest to kind of tilt the clutch so you can put the collar-gear back on it evenly, then give the collar-gear a spin to the left, it will move the rollers up just a bit and slip right into place. You can see how this works before you install it if you want so you kind of understand the physics of it before doing it on your side or back up into a crank case with a wall in the way. Aren't you glad you read everything first?
32. Drop the reducer gear from wherever you jammed it back into its home. Run the axle through it.



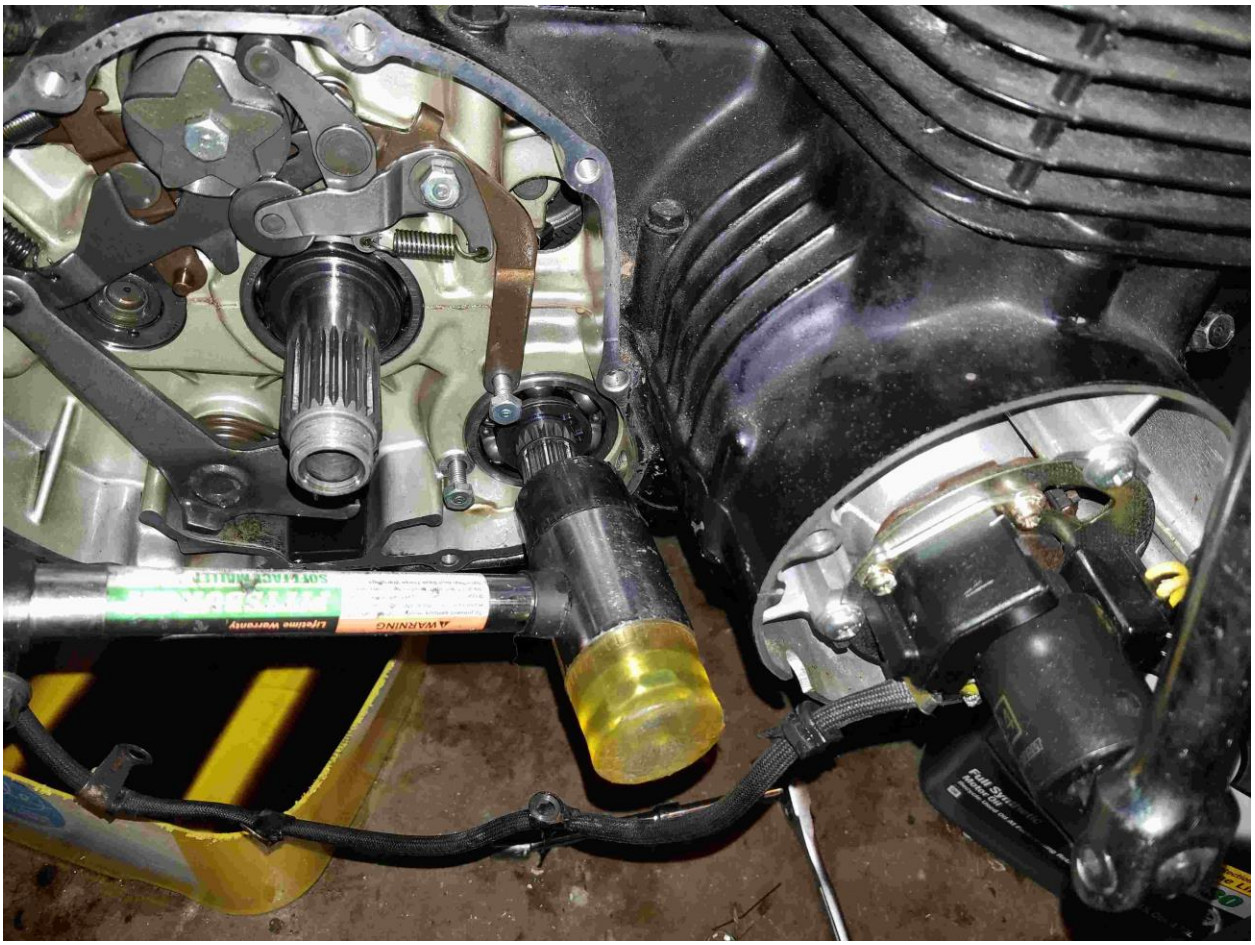
then replace the screw with the tabbed washer. I used an extendable magnet-on-a-stick to get it started, then finished it with the 10mm with extensions. I didn’t put the tab back down, but you may want to. Good luck if you do.

33. Time to re-insert the main shaft. Notice the order of the spacer and needle bearings that the clutch rides on.

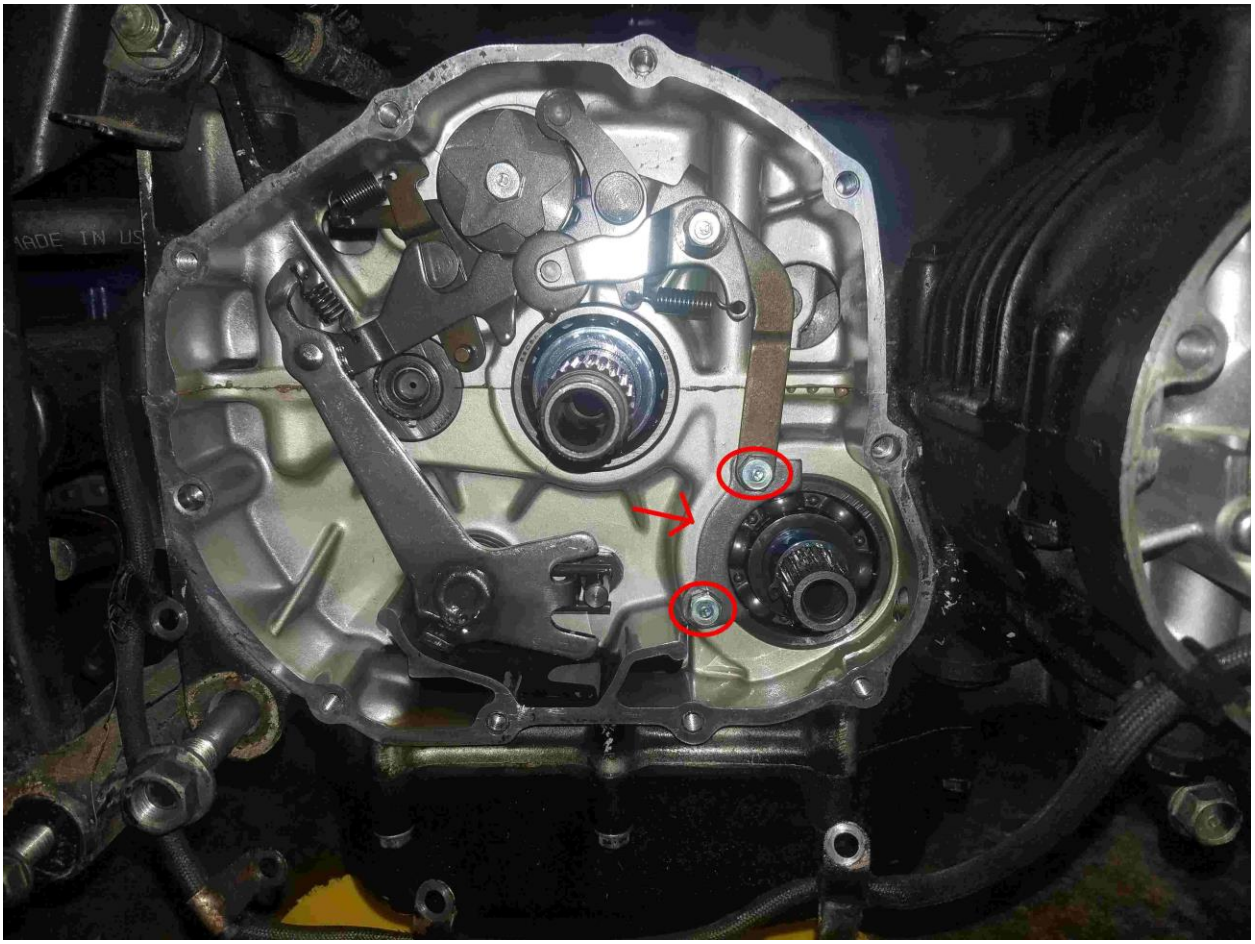




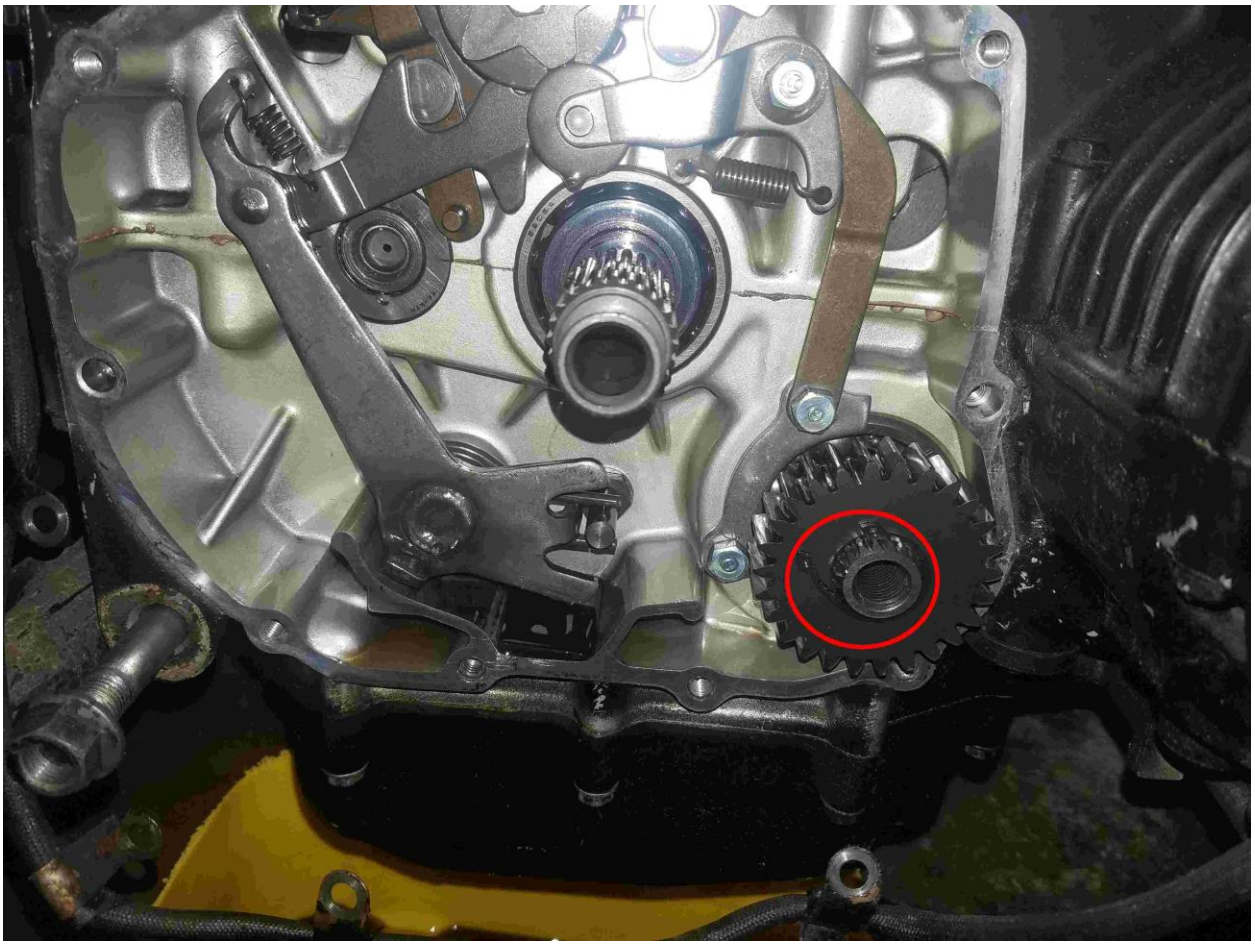
It isn't terribly difficult to get back in if you use a rubber mallet and gently tap it into place. I took the cover off the magneto and there's a 24mm bolt there that is attached directly to the crank, using that to turn the crank will turn the main shaft (via the chain) to help align the splines if necessary. Keep in mind that the oil pump is also driven by the main shaft, if the shaft appears to not go in the last like ½", the splines aren't aligned with the pump, turn the crank shaft until it slides in. giggity.



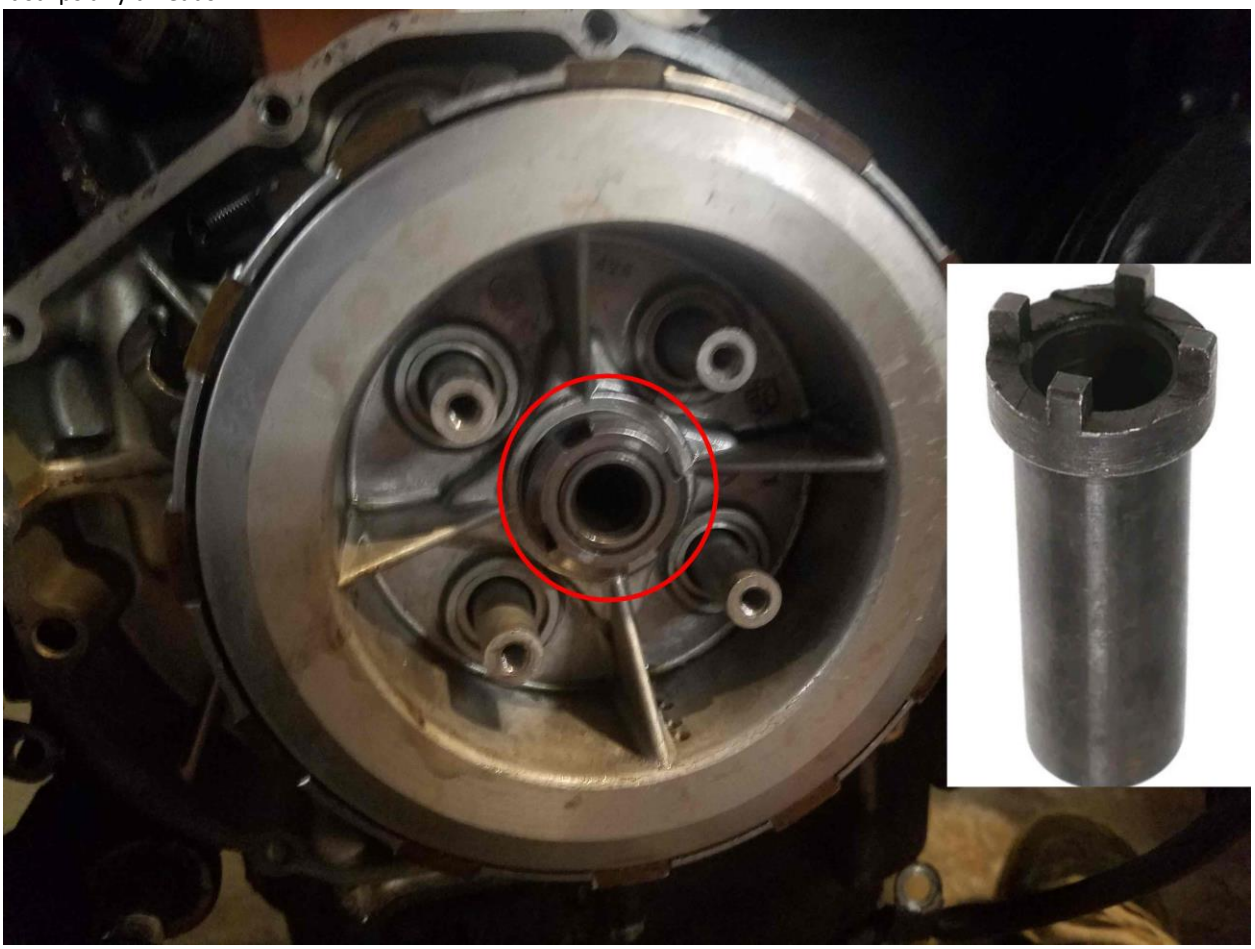
34. Reinstall the weird retaining bracket from step 19. Two 10mm bolts.



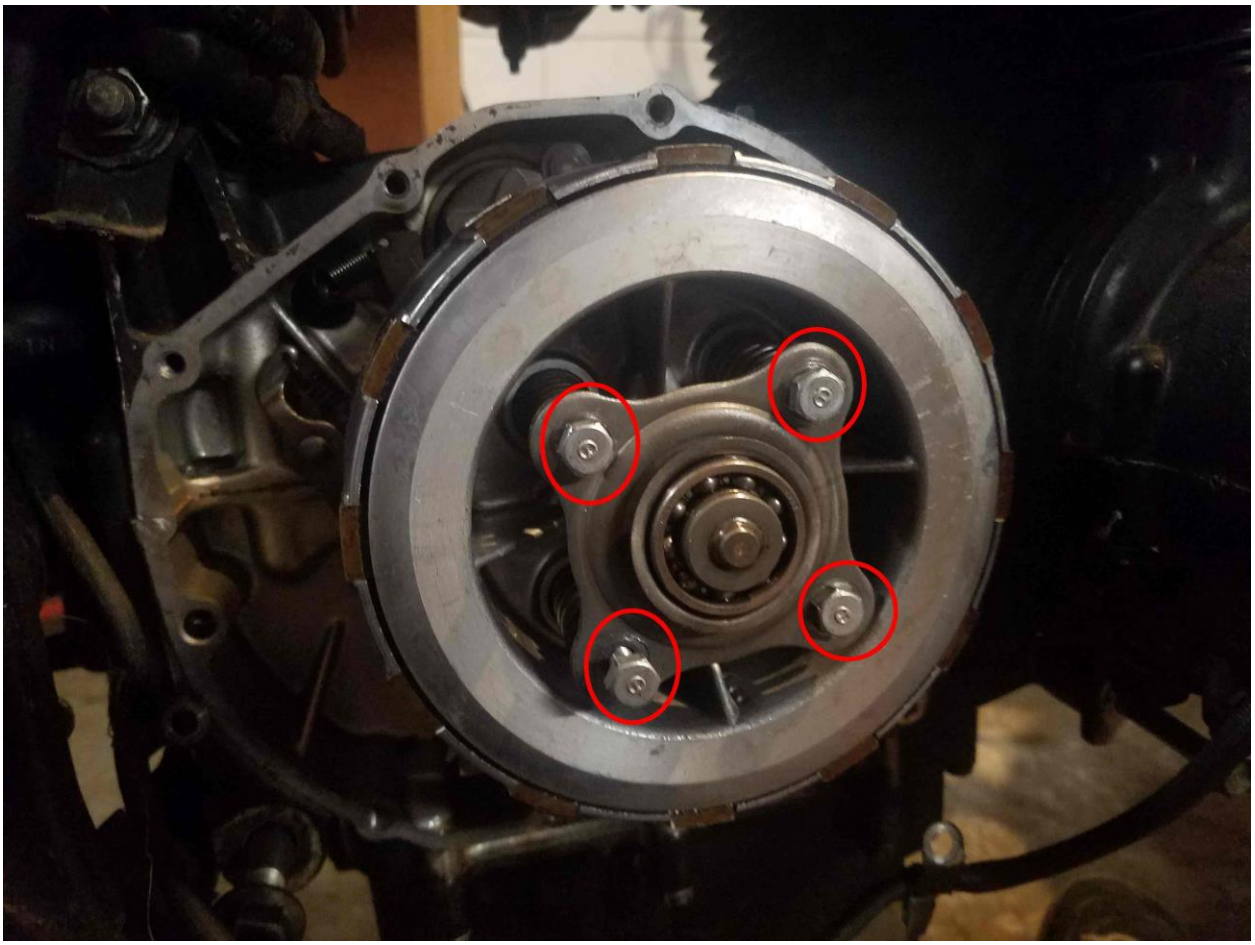
35. Reinstall the gear on the main shaft, and the snap ring to hold it in place.



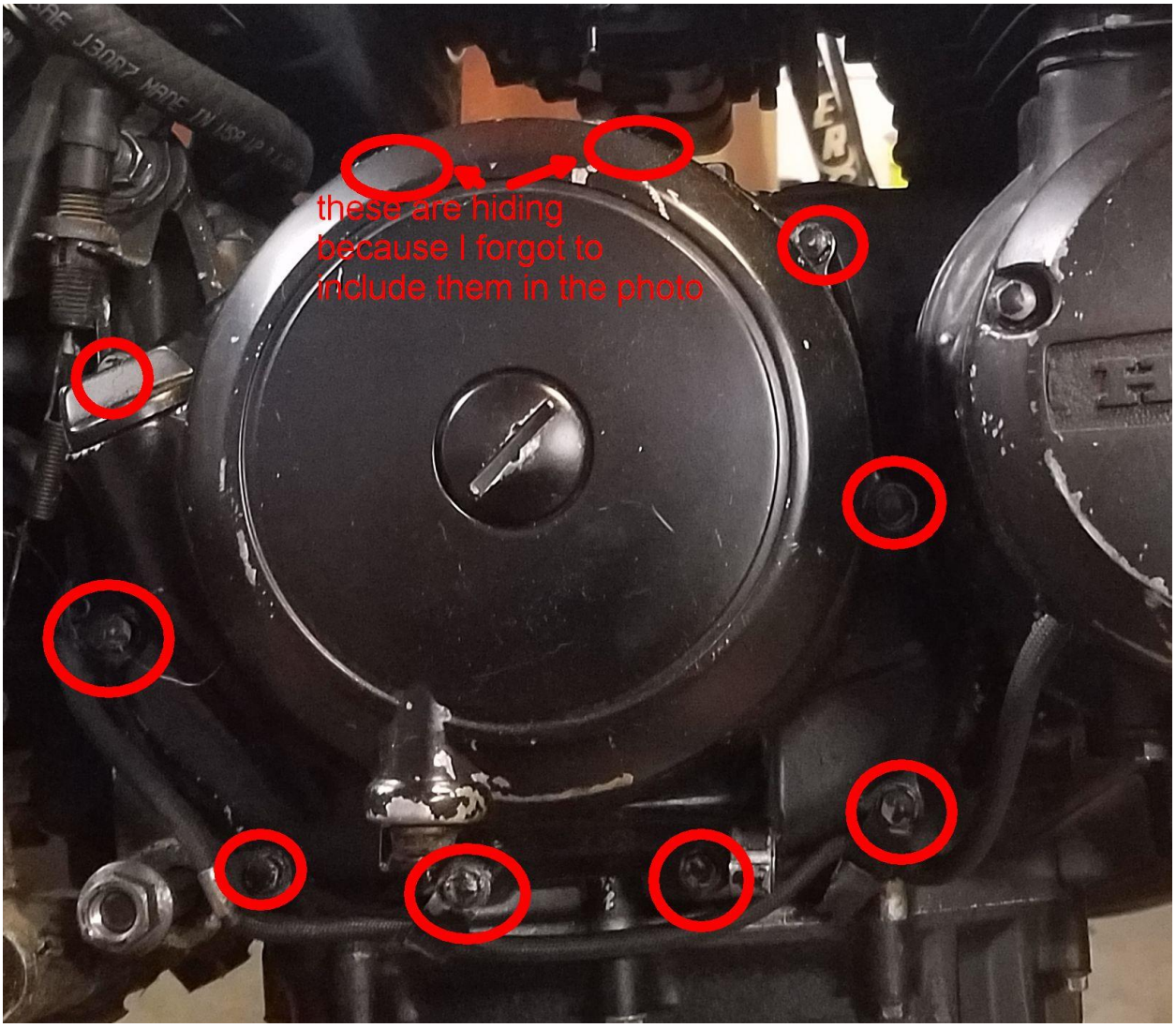
36. Reinstall the clutch basket assembly. Put the washer on and the castle nut. 34-38 lb/ft. If using an impact gun, don't forget to stop before it strips any threads.



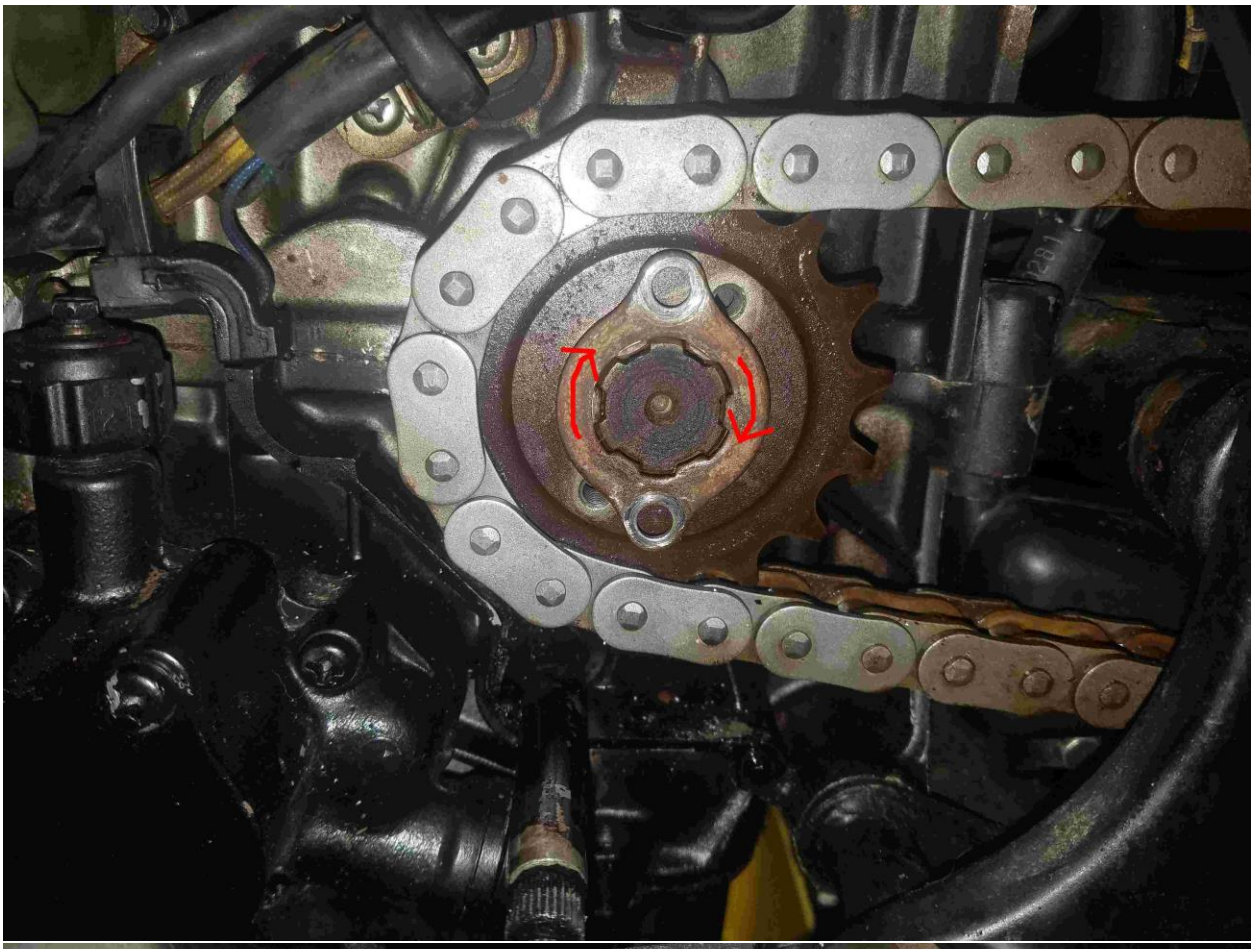
37. Replace the four clutch springs, the clutch spring plate, and the throwout bearing using the four 10mm bolts. The throwout bearing just kinda slides in there, don't worry because it will be held into place by the clutch release cam mechanism in the clutch housing.

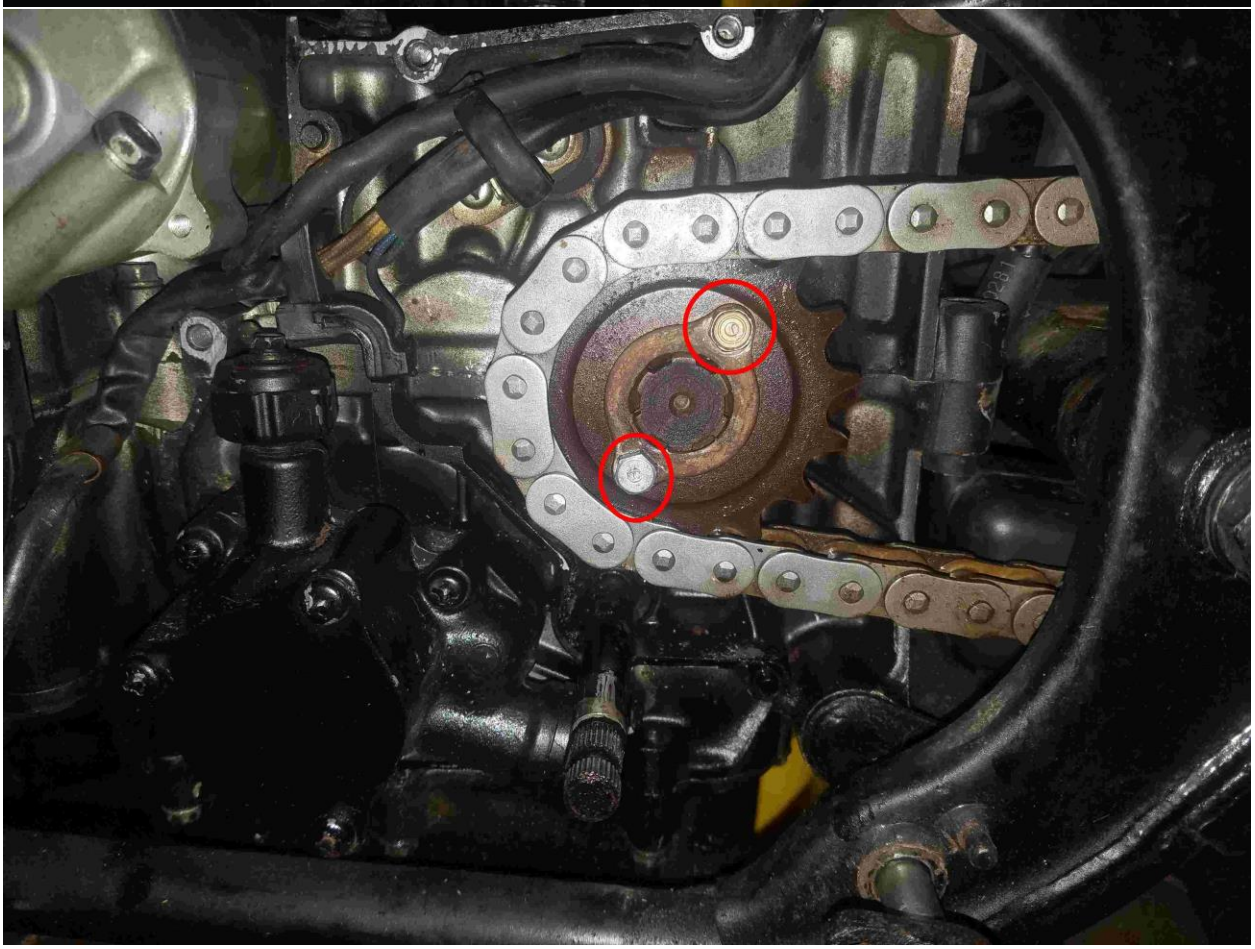


38. Optionally, now is the time you could replace the clutch lever oil seal in the clutch housing. I won't write a tutorial on how to do this here, but the part is a 12x22x5mm oil seal, it's not very difficult to do and you've already got it apart anyway, so….
39. Wipe down the side of the crank case where the gasket will go and replace the clutch housing. Use the old gasket if you want to risk it, or the new one if you bought it already. Don't forget the hollow dowel pins for alignment. Ten 8mm bolts, note the long one, it goes towards the front of the bike, but again I don't think you can put it in the wrong spot without knowing it. Be sure to put the ignitor wire retainers on the bolts before putting the bolts through the housing.



40. On the left side, remove the two 10mm bolts holding the spanner tool to the chain gear if you used it. Replace the gear retainer plate and the two 10mm bolts.

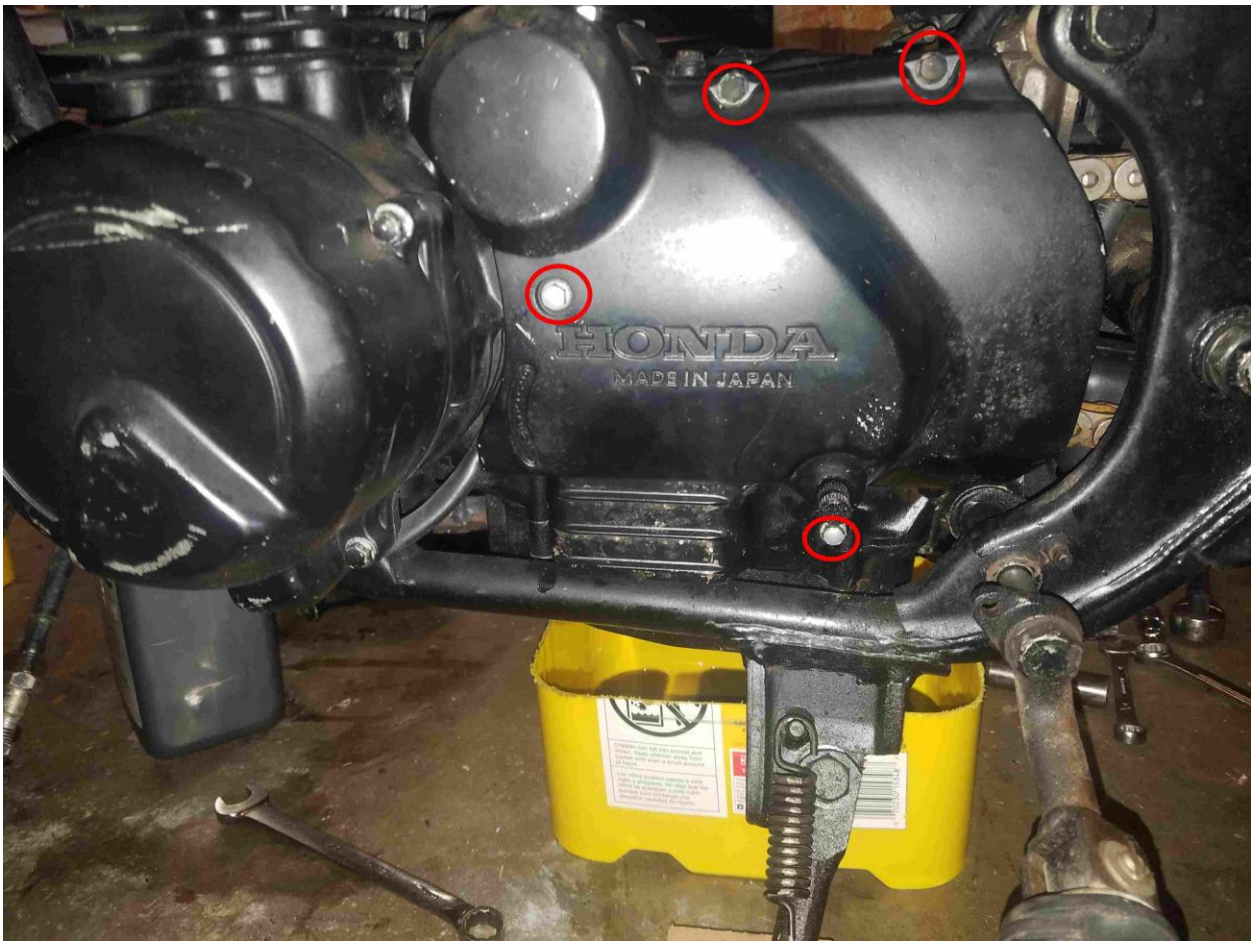




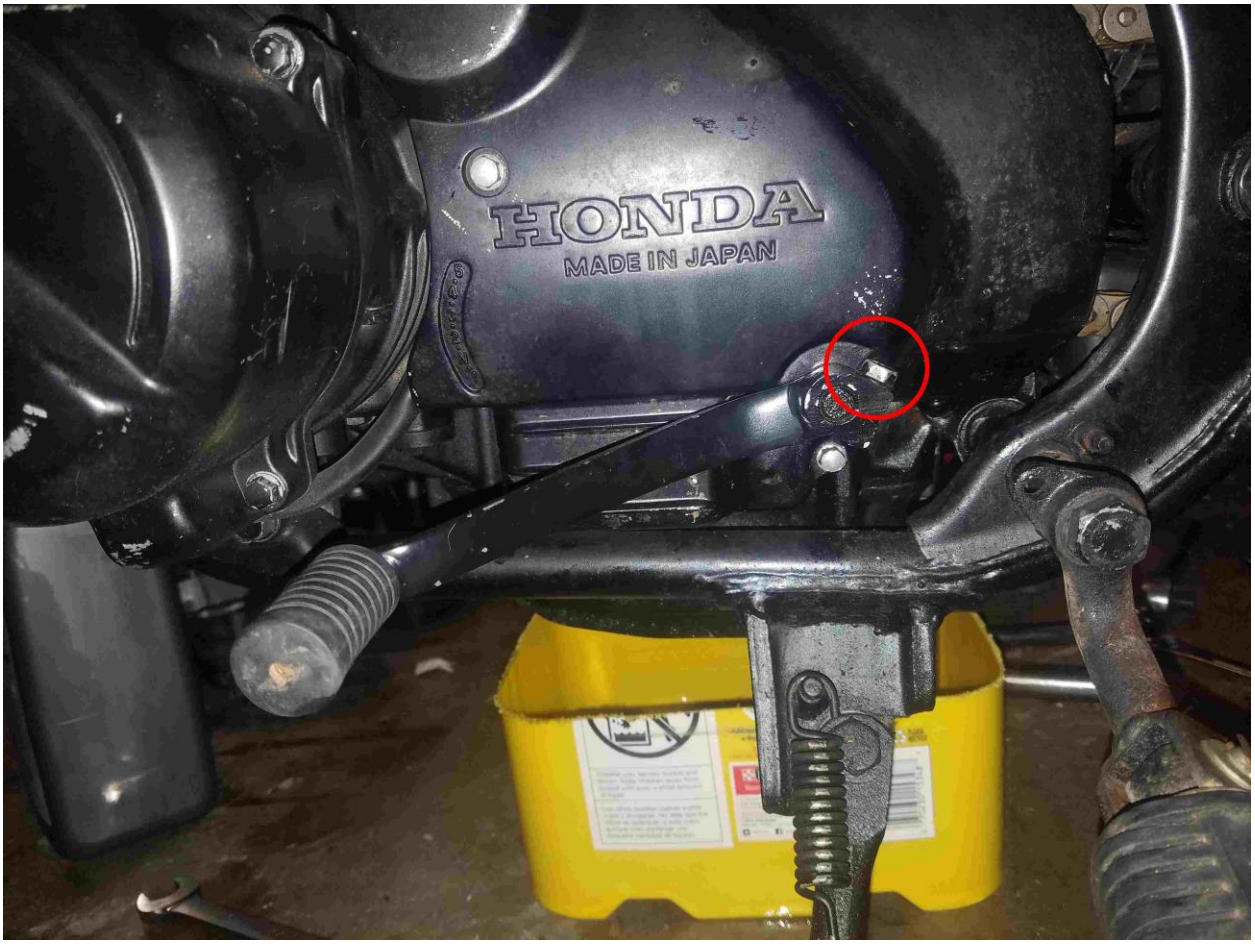
41. Replace the starter, bolt in the two long 10mm bolts that hold it to the crank case.

42. Tuck in the wires if necessary (there's a path they go on that goes through various channels and holders etc, to keep them from getting caught in the moving parts).
43. You can try the starter at this point, so you don't get it all the way together and realize it doesn't work for some reason. Just don't put the switch next to the throttle to "run" and it will crank all day and never fire. MAKE SURE YOU'RE IN NEUTRAL. You can slip the shift lever back on to do this if necessary, but you haven't installed the clutch release cable yet. Or maybe you have, I don't know you personally.
44. Replace the starter cover plate using the two 10mm bolts.

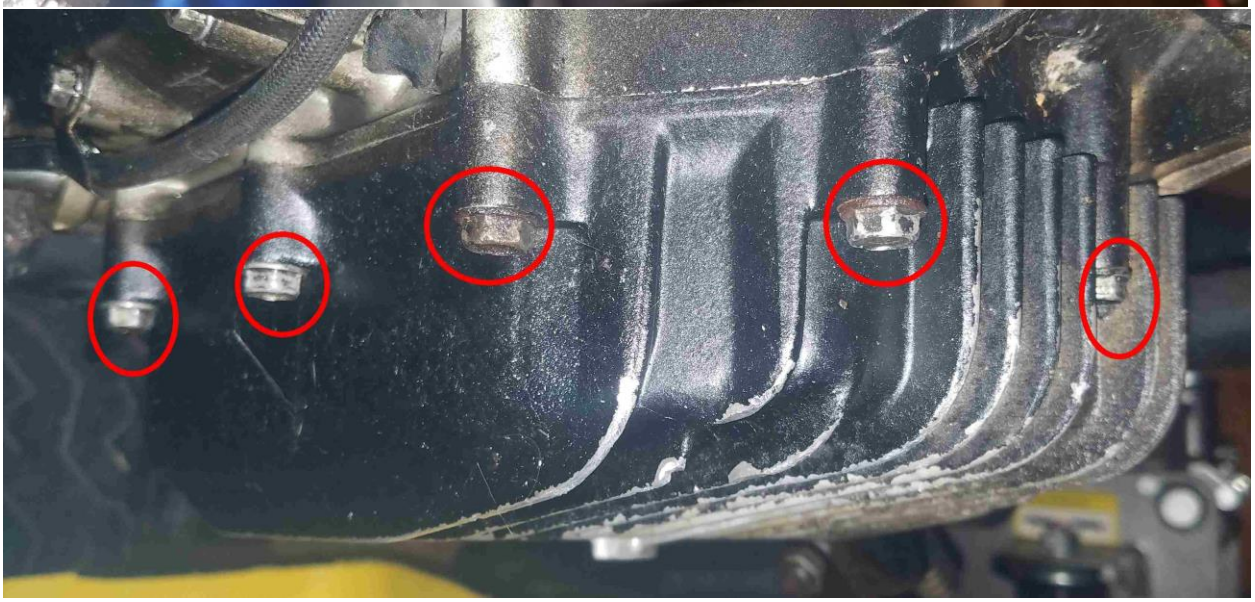
45. Replace the chain gear cover using the four 8mm bolts.



46. Replace the foot shift lever, slide it on the splined shaft before putting the 10mm bolt through it.

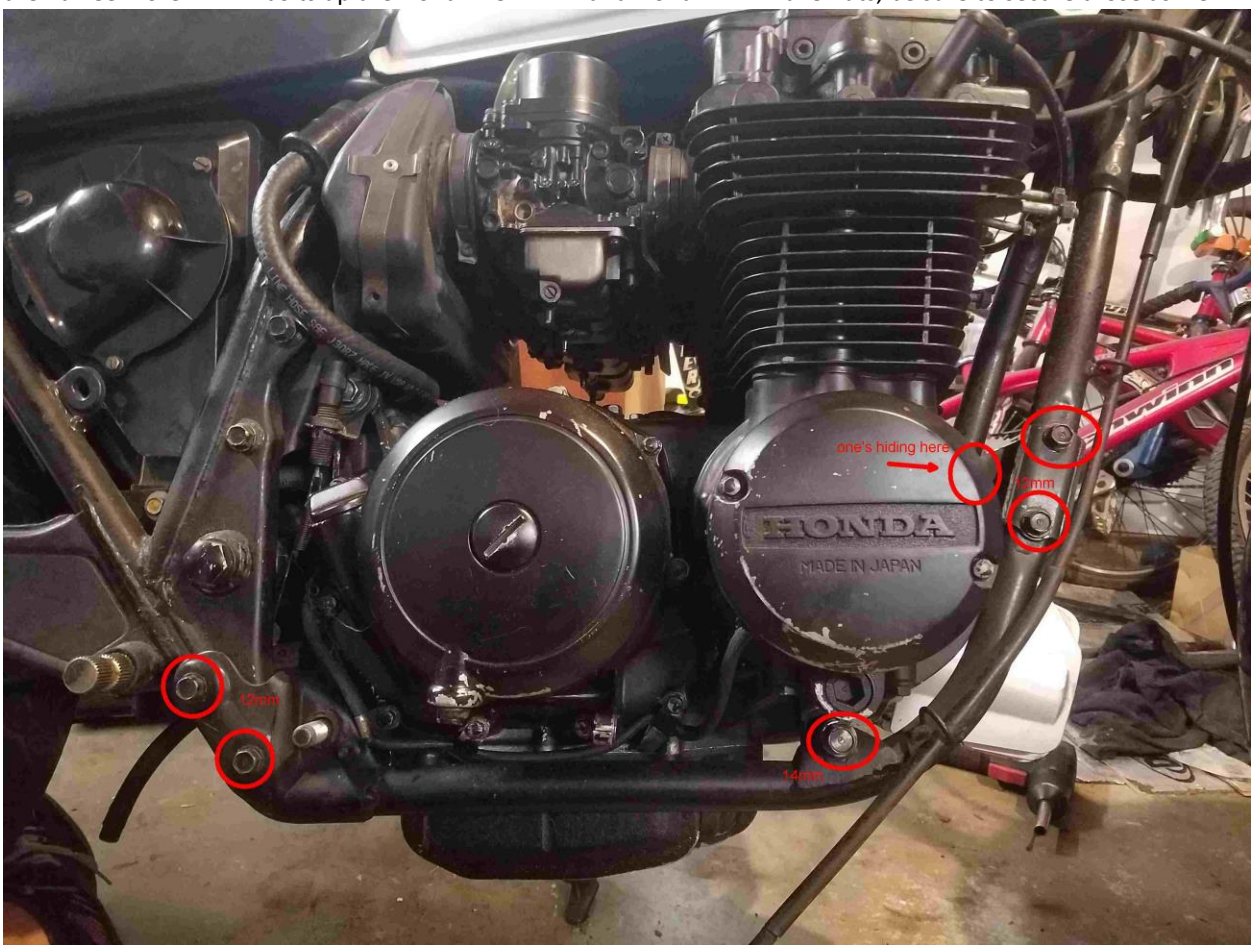


47. Replace the oil pan, use a new gasket if you don't know how old yours is. It is held on by ten 10mm bolts.

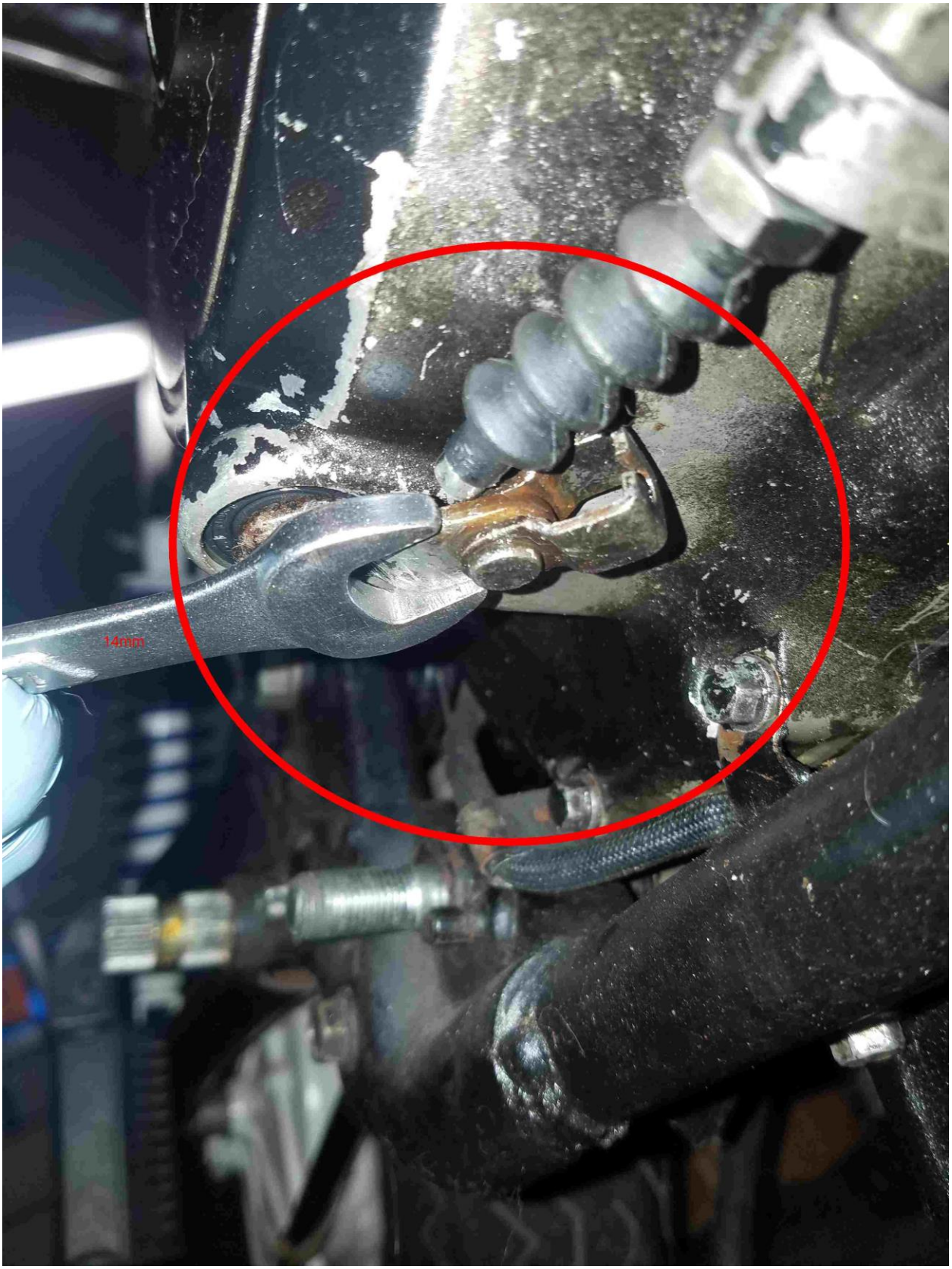


48. Put the 17mm drain plug back in if you haven’t already.

49. Replace the subframe (support tube) on the right side. From back to front, there are two (different length!) 12mm bolts, a 14mm bolt, then three more 12mm bolts up the front. The 14mm and front 12mm have nuts, be sure to secure those as well.



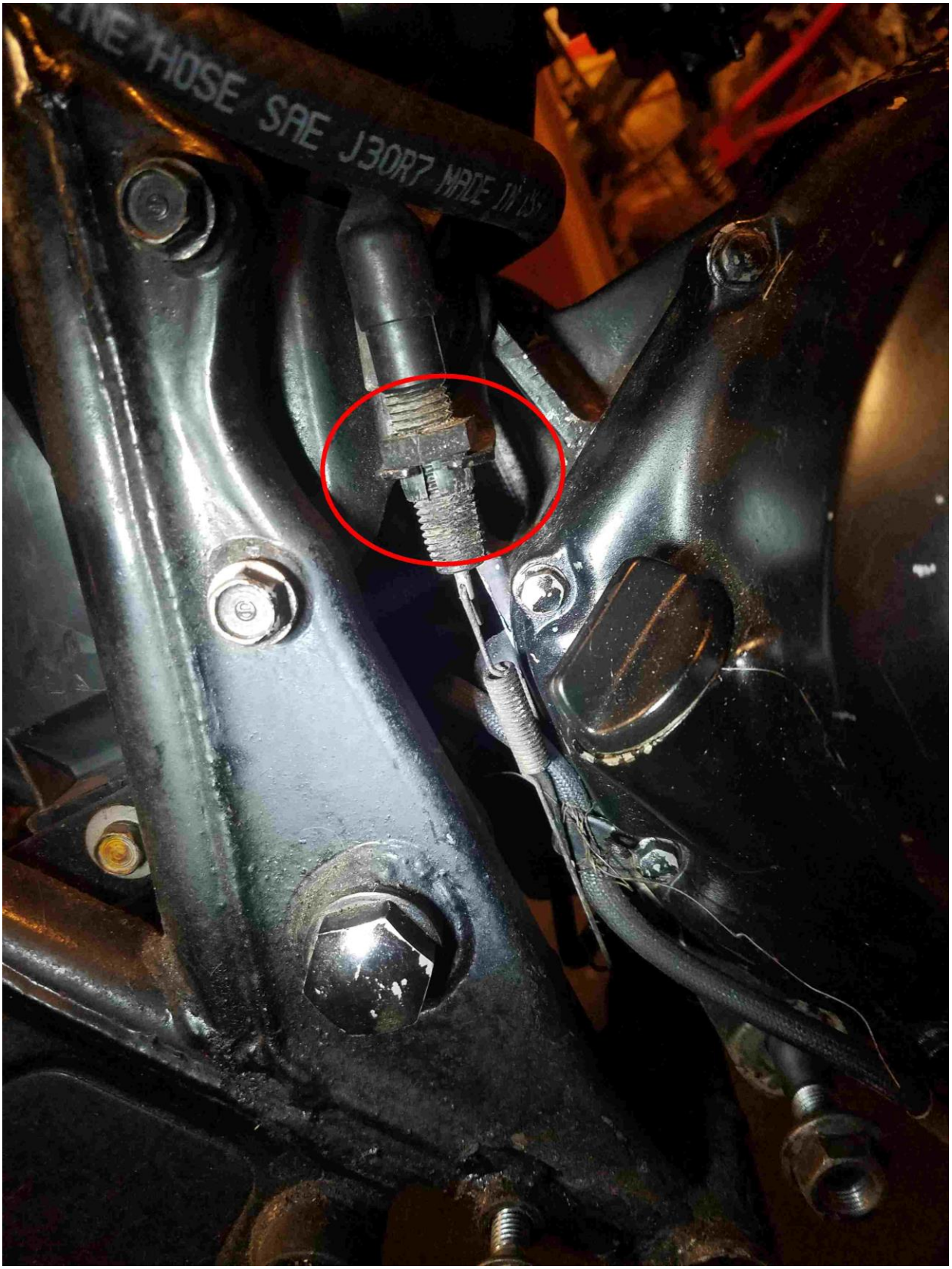
50. Re-attach the clutch cable, using the open end of the 14mm box wrench to hold the lever, then slip the cable end back in the holster. Tighten the 12mm nuts around the cable housing.

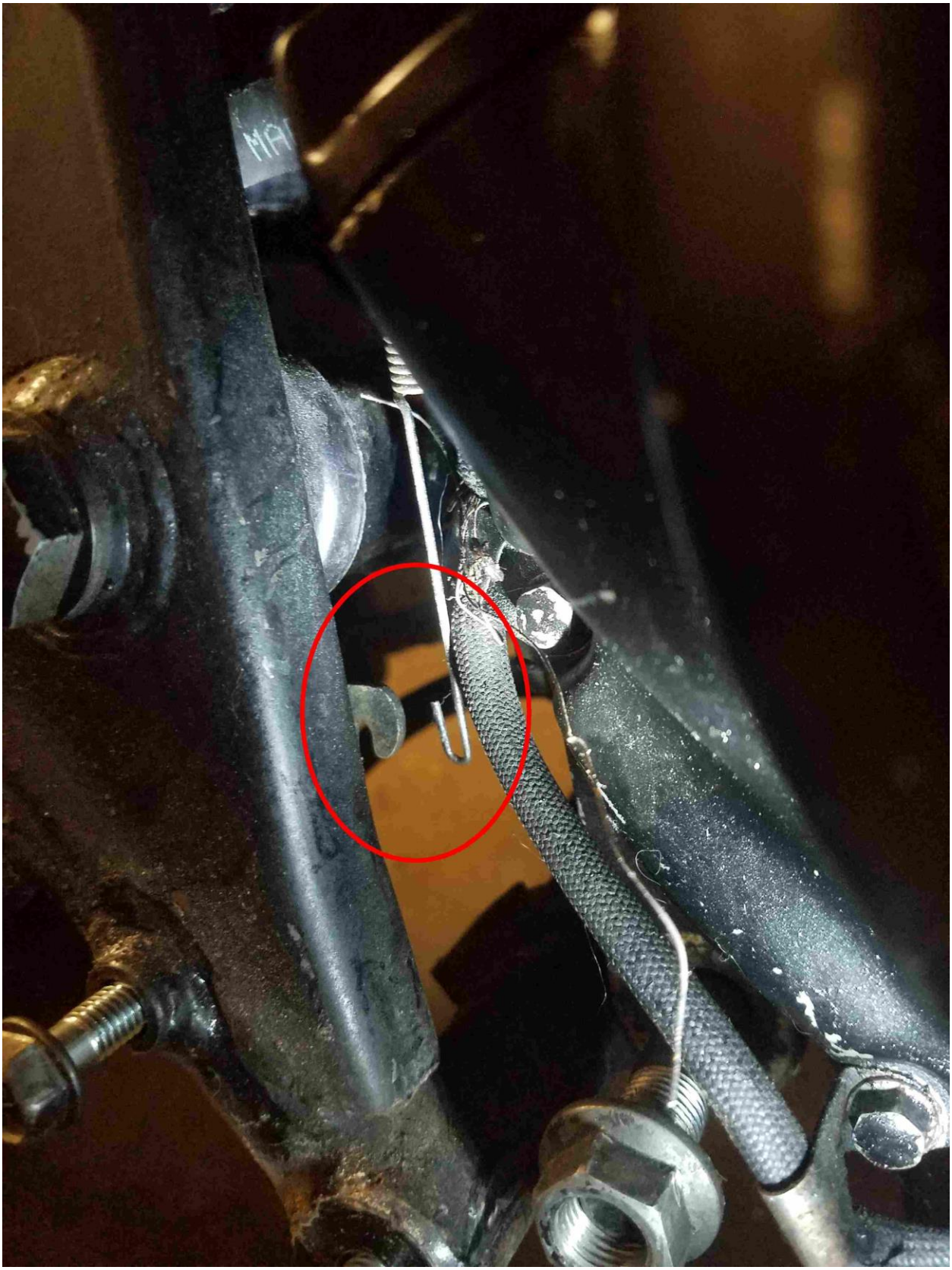

14mm

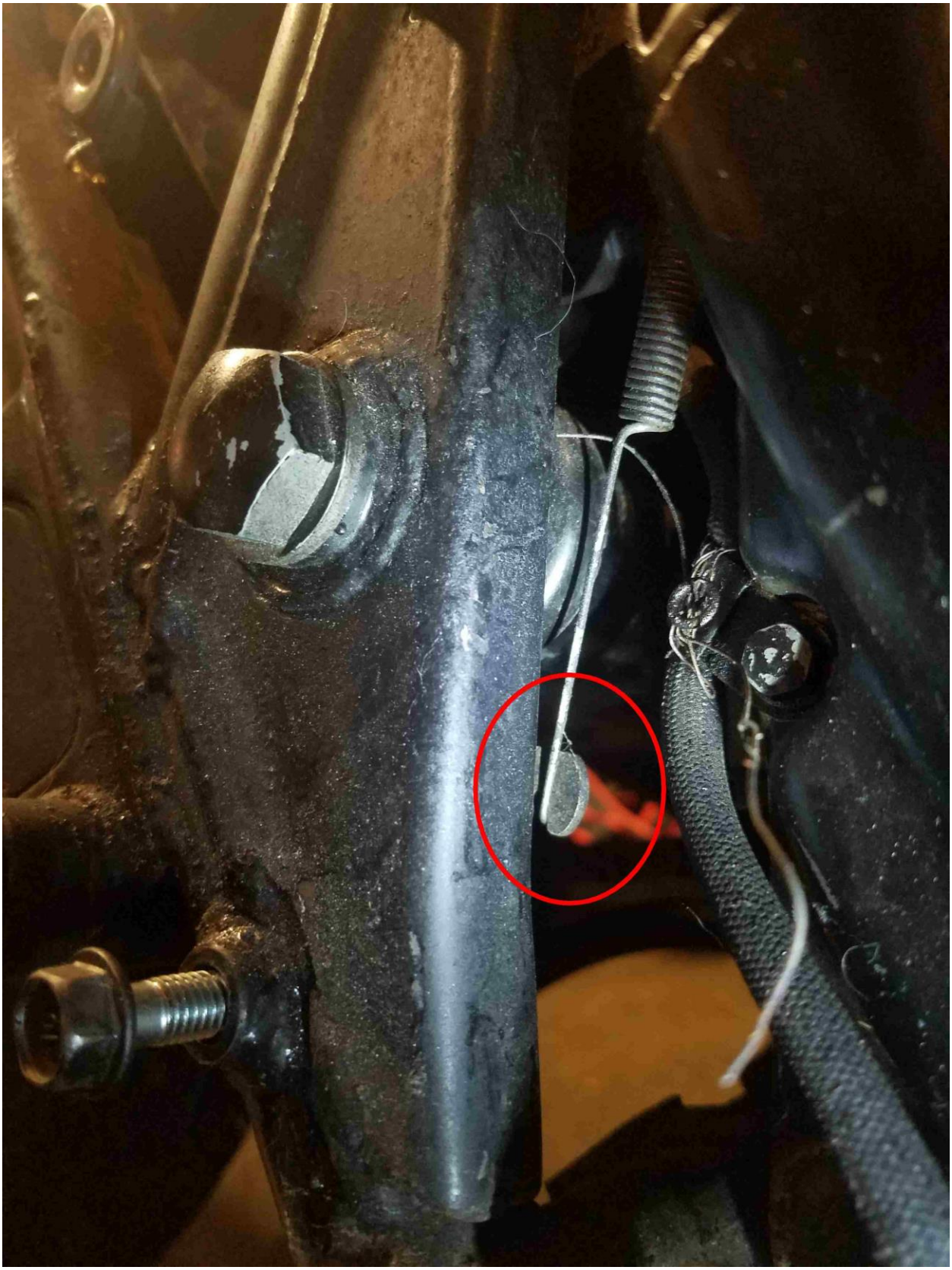

12mm
14mm

51. Run the long bolt with the 19mm head and the 17mm nut back through the bottom of the frame, to hold the foot pegs on.

52. Replace the brake light switch and spring, hook it back on the brake pedal lever.

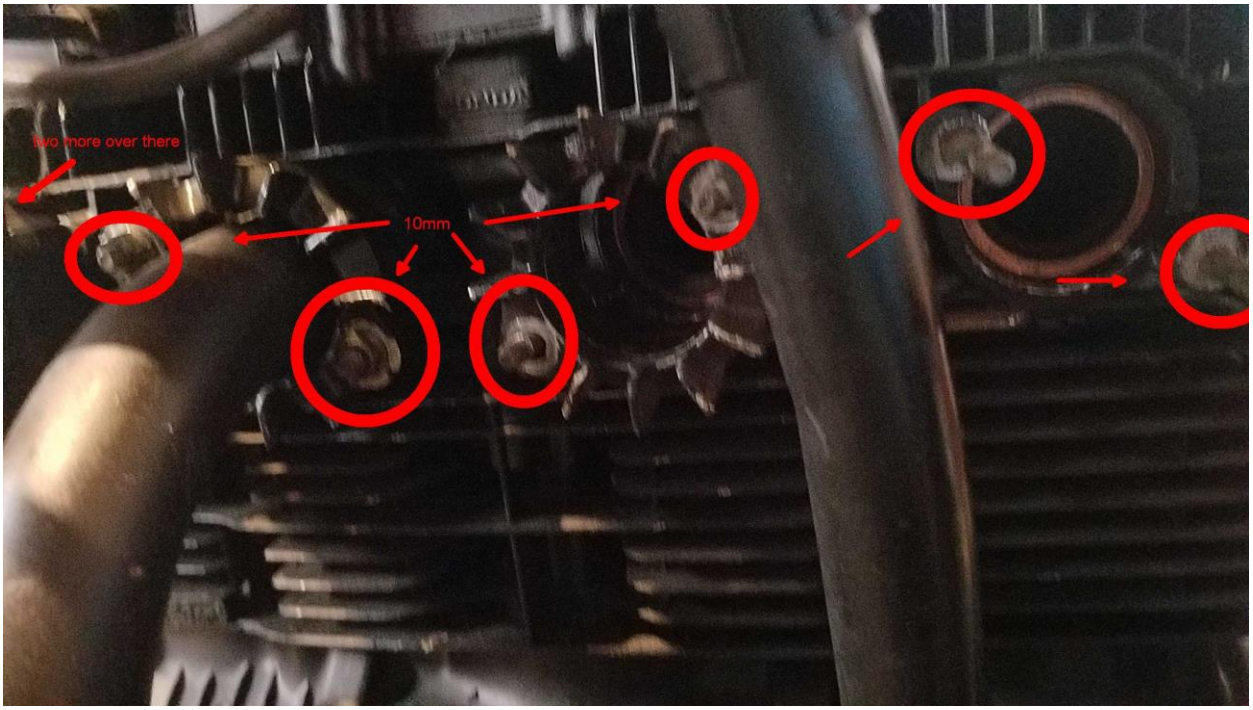

HOSE SAE J30R7





53. Replace the foot brake pedal lever, slide it on the splines before inserting the 12mm bolt.

54. Replace the exhaust- there's not really an easy way to do this, it's cumbersome. If you're putting new copper ring gaskets in, do them now. Then I'd suggest you hook the pipes into the head first without the nuts (for the inner pipe on the left side, you may need to bring the pipes into the frame before putting the retainer and shims in, as they don't clear the frame once it's slipped into the head, I wish there was an easier way to explain this but if you have the quad pipe setup you'll find out what I'm talking about) then attach the rear, with the passenger foot pegs, loosely with the 14mm bolts and nuts. Tighten the two 10mm nuts per pipe on the front side, then tighten the foot peg/rear bolts.



55. Fill it up with oil.
56. I guess now's a good time to see if it fires up. Don't forget to set choke, set to run, open fuel, neutral, standard pre-flight checklist, etc, etc, etc
57. Ride on bucko!