

I have successfully replaced the spark plugs on my Lexus RX400H 2007. Using the guide for the RX350, it was close, but not the same. As such this write up is to help all that come next. If you have a fully stocked garage you can do it yourself. Total time if you know exactly what you're doing and have help, 2 hours. First time, plan for a weekend of work. I would say effort was 6 hours of work. I went slow and made sure I didn't lose anything, laid everything out, and took breaks. I started at 3pm Saturday and finished Noon on Sunday. That's about 4 hours Saturday (which had the sparks out and replaced), and 3 hours Sunday putting it back together.

The two bolts on the back of the intake manifold are significantly harder than the rest. I HIGHLY recommend a long ratcheting wrench for both the 12mm and 14mm with a flex head. I got the Tekton WRN77107 from Amazon and it worked well. I don't think there is a great option for these as they are really close to the firewall, there are lines above and below, and just no good access.

I also did not see an effective way to remove them without removing the intake manifold, or the wiper cowl. They both need to come off to get the back 3.

So what do you need?

1	2 Wheel Chocks	21	1/2" Drive Ratchet
2	8 Part Containers	22	1/2" Drive Sockets (10mm, 12mm, 14mm, 19mm, 5/8")
3	Breaker Bars	23	1/2" Drive Flex Ratchet
4	Flashlight / Floodlight	24	S Bend Wrench, 12mm and 14mm
5	Cordless Drill with 10mm Hex	25	Extra Long Tekton WRN77107 12/14mm Ratcheting Wrench
6	Mechanical Part Grabber	26	12mm Wrench and Ratcheting Wrench
7	Magnetic Grabber	27	14mm Wrench and Ratcheting Wrench
8	Mirror	28	19mm Wrench
9	Gloves	29	Zip Ties
10	Thread Cleaner	30	Flush Cutter
11	Trim Remover Tool	31	Air Compressor (for cleaning)
12	Needle Nose Pliers	32	Spark Plugs (6)
13	8mm Allen Wrench with Handle	33	PCV Valve (1220420040)
14	Kelly Forceps	34	Intake Manifold Gasket (1717620020)
15	Hose Pinch Off Pliers	35	Plenum Gasket (1712720010)
16	1/4" Drive Ratchet	36	Intake Flange Gasket (1711620010)
17	1/4" Drive Sockets (10mm, 12mm, 14mm)	37	Throttle Body Gasket (2227120040)
18	1/2" to 1/4" Adapter		
19	Multiple 1/4" and 1/2" Drive Extenders		
20	5/8" T Handle Magnetic Spark Plug Puller		



1. First remove the Negative Terminal from the Battery. This is a hybrid, and while unlikely, you really don't want it starting up on you while you're working on it. (Blue)
2. Then we need to remove all of the push caps marked in orange (9 of them)
3. Then remove the Wipers with the 3 bolts (14mm) marked in Red (3 of them, plus the two wipers). Remove the wipers by lowering the hood, bending the arm up like you're going to replace the wiper blade, then remove the whole arm. Place it aside safely.



4. Remove the wiper cowl cover (under the wiper arm from the last step) by lightly pulling up on the edge nearest the engine, and then pulling away from the glass. It's very light. Place it aside out of a windy area.
5. Remove the wiper motor by removing the (5) 10mm bolts marked in blue in the next 2 photos. Also remove Wiper Motor Plug (Blue). Pull the wire through the cowl hole so it is free of the Wiper Cowl.
6. Remove the Strut Tower 14mm nuts (3 each side, 6 total) marked in Orange.
7. Remove the Wiper Cowl by removing the (4) 10mm bolts and (2) 10mm nuts marked in Red.





This hook might hang on the intake assembly. If it does, leave this in for a minute and we'll clear in by step .

8. Remove the two 10mm bolts from the cold air intake (Blue Arrows).
9. Loosen 10mm cinch strap (Orange Arrow).
10. Remove plug and plug straps. The straps can be a challenge. I used the Kelly forceps to pinch them. Narrow needle nose should work too. (Orange Circles)
11. Remove Engine Covers (Red Arrows)



This one second. 'Curl' it from the rear to unhook that hook, then up, then back.

This one first. Lift up on the front then out.

12. Next we are going to remove the air intake assembly. You can see the cinch strap from the previous step with the orange arrow. Remove the 10mm bolt from this side (Red Circle), and the two from the other side (Red Circles). Remove the whole assembly by coming slightly forward, then slightly left to unhinge the duct, then out of the engine bay.





This is where you should be now:



13. Your call if you want to remove the front 3 spark plugs now or later. The coil packs (orange) are held in by 10mm bolts (blue), and the spark plugs themselves are 5/8". I used a little high temp copper anti-seize on the new spark plugs, but remember to go snug, and then slightly less. The anti-seize makes the torque deceiving. I used a slight amount of red Loctite on the 10mm coil pack bolts as one of them walked out slightly from the first weekend I attempted this. They were on really tight after that first attempt, I was surprised it walked out.

14. We need to keep pushing back to the rear plugs. First remove this hose from the intake buffer (Blue Arrow).



15. Loosen the cinch strap from the throttle (Blue Arrow).



16. Remove the two screws on the buffer panel and pull the whole thing out. Sorry I didn't get a better photo, but they are obvious when you look at them (Blue Arrows)

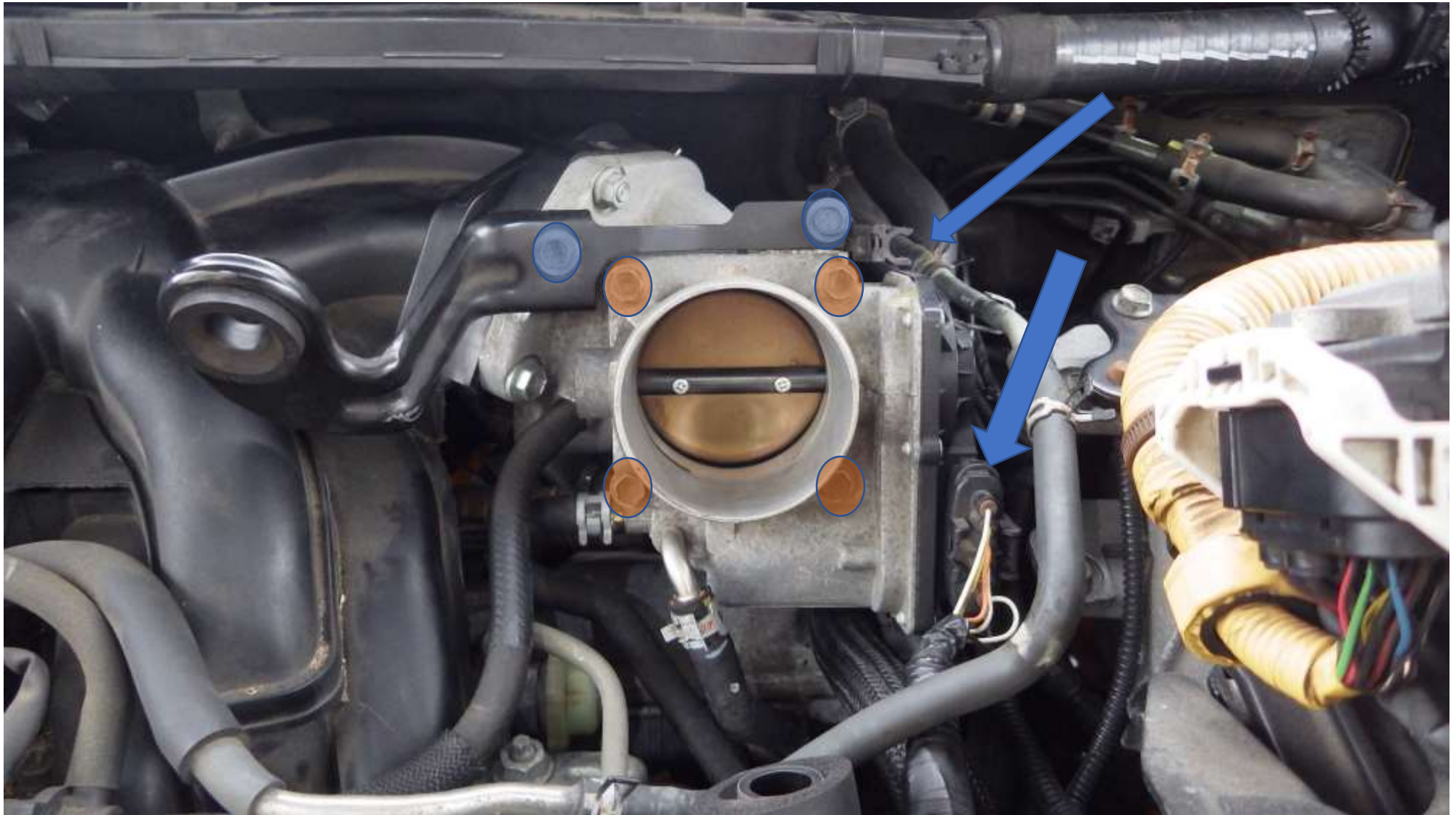


You should now see this throttle body. Good news! We're halfway to the back spark plugs! This took me about an hour to get to. The next few steps went ok assuming your bolts aren't seized. Mine were from here on back. Go slow, use PB Blaster or another lube. I used the ½ Ratchet with lots of extenders and bends and got to each bolt. Go slow, they will release. Lexus built this well. I did use the breaker bar on a few that I didn't have the right leverage due to space. Be careful, do not snap a bolt off back here.

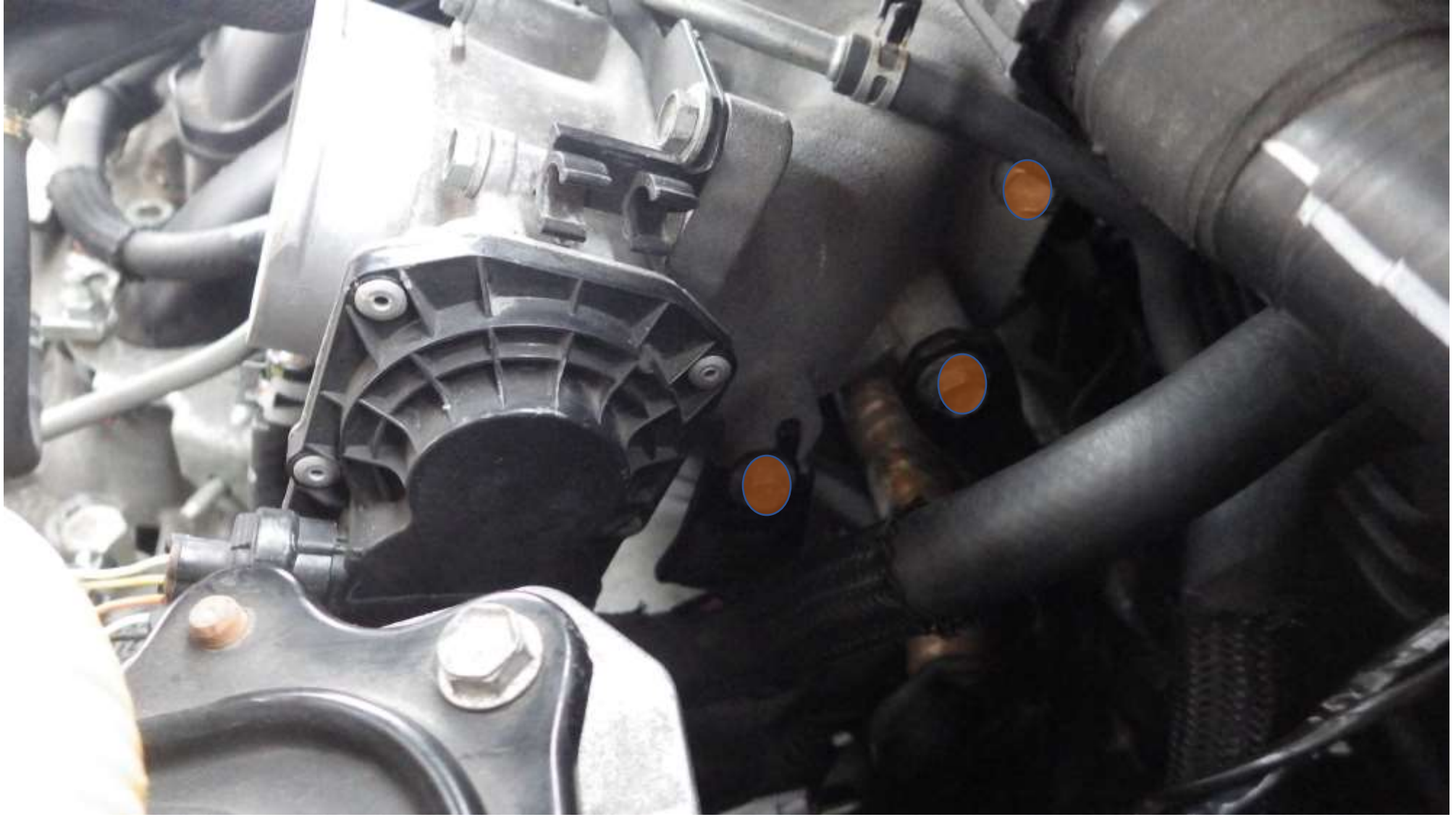
17. Remove the 2 10mm bolts (Blue Circles) on the throttle body mount.

18. Remove the 4 10mm bolts (Orange Circles) on the throttle body.

19. Remove the attached line and the throttle body plug (Blue Arrows). I recommend using electronic contact cleaner on the plug while here.



20. If you're going to clean the throttle body you'll have to remove all of the lines going to it (coolant) and place it aside to wash with cleaner away from the engine. If not, just carefully pull it forward and set on a forward part of the engine. Have lots of mechanics rags for this, keep everything as clean as possible.
21. Next we have the first part of the intake manifold. Remove the 12mm bolts shown, and 1 12mm nut (Orange Circles). Note the short one for the mount bar. When you're reattaching, the short one goes there.



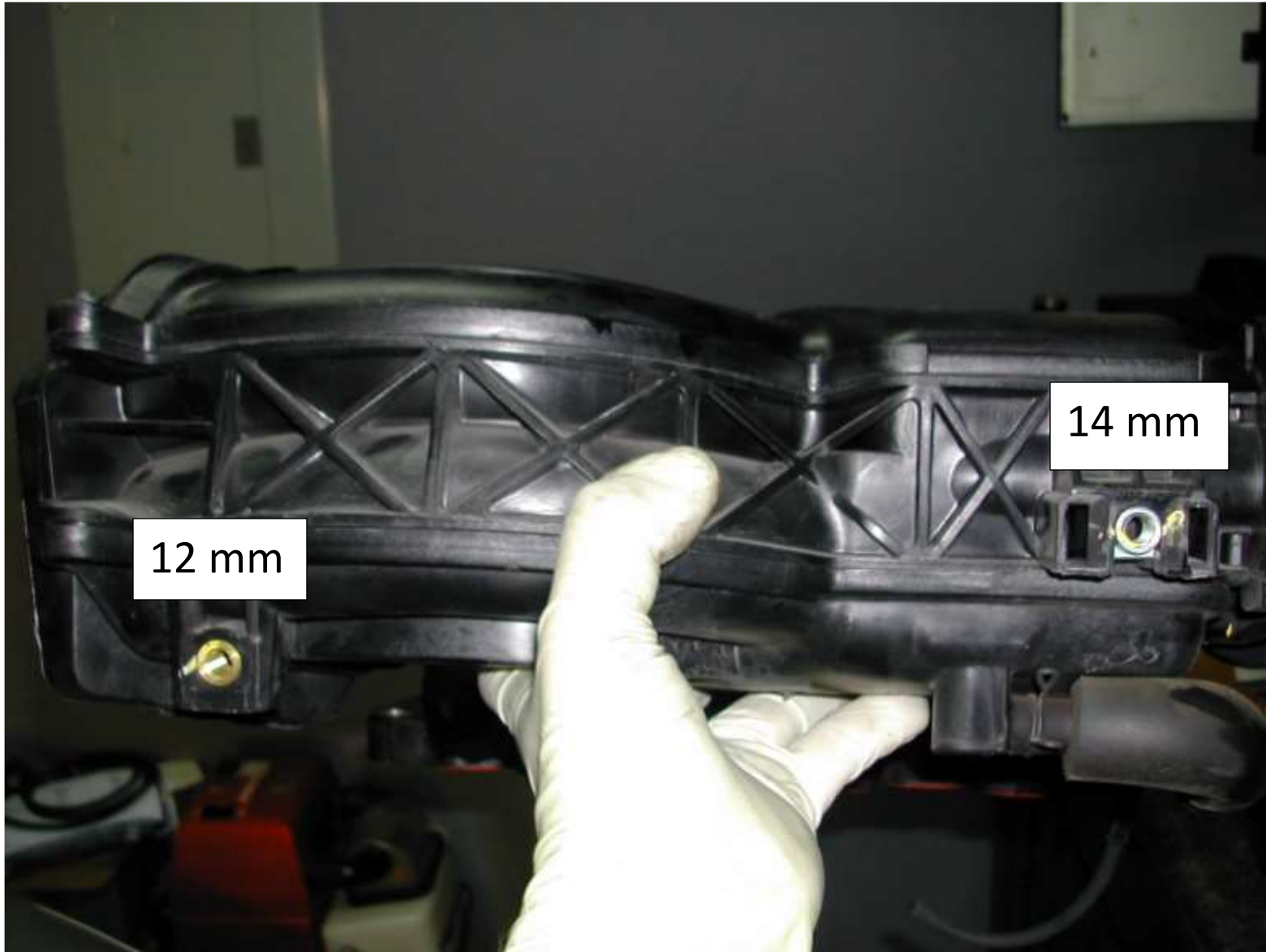
21.b. Remove the hose attached (Blue Arrow) and pinch closed. Now would also be a good time to replace the filter and/or clean this while removed from the engine.



22. Ok, the stupid intake manifold. This bested me the first time. There are 2 bolts on the back of this manifold, 12mm on the right, and 14mm on the left. Both are too close to really get to with a ratchet. A wrench is needed, but space is awkwardly tight. As such, a long, articulated ratchet is needed for both sides. I'm over 6' with big fingers, so I needed the wiring harness to come down to get my hands in. Your mileage may vary, but I popped it off. One of the clips broke and I replaced it with a zip tie on the cleanup. Clips are shown with blue arrows for the harness.



23. You might as well go for these two bolts first. If you can't get them off, then you can't get the rear 3 spark plugs and will need to hire someone to do it. This is where mechanics make their money. It took me 2 weekends to figure it out. How much is your time worth? So, I forgot to take a photo, so I'm including another photo from the RX350 writeup. You can see where they go in:



23.b. Here is the mount without the intake in the way:



23.c. Here is a photo how I got the 12mm out. There is no photo for the 14mm as I asked Ganesh for assistance, and we still ran out of arms. I managed to get the whole bar behind the intake, and push down to break it loose. Thankfully it was hand spin after that. Good chance you will lose both bolts down the back when they come out. Both of mine were easily enough retrieved with the magnet from the bottom pan.



24. Assuming you got the two bolts out, lets move on to the front side. Remove the two 10mm bolts from the bus, and place the bus forward (Blue Circles).

25. Remove the 12mm bolts around the frame (Orange Circles).



26. Remove the 8mm Allen bolts and remove the frame. Previous steps and colors are included for reference.

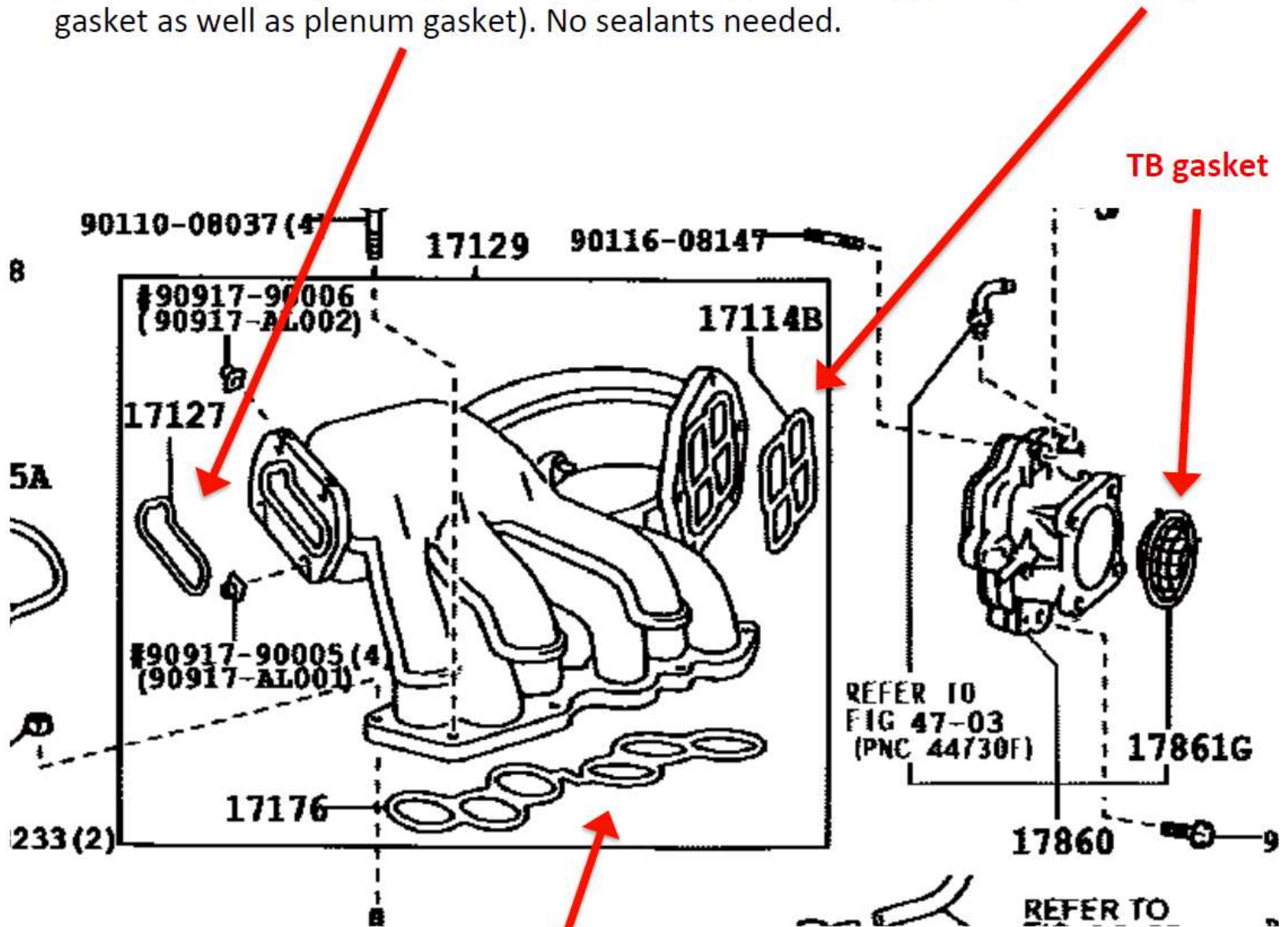


27. Remove the intake manifold by going up, and then back a bit to clear the studs. The frame is still there and will push back. Took me about 10minutes to figure out the right angle but it did come out. Going in was much easier. You will be greeted by this sight:



28. Remove and replace spark plugs the same as before. My Spark Plug T-Handle didn't fit, so I used the 5/8" Socket with various extenders. The PCV valve is in red, and I replaced mine along with all of the gaskets along the way. Here are the parts from the RX330 write up.
<https://www.clublexus.com/forums/rx-2nd-gen-2004-2009/689263-rx330-rear-spark-plug-change-diy-with-pics.html>

Relevant gaskets (the TB gasket, surge tank (upper intake) gasket, intake flange gasket as well as plenum gasket). No sealants needed.



surge tank (upper intake) gasket

Main parts: Denso long life iridiums (your preference between Denso and NGK), PCV (I changed mine), upper intake (surge tank - orange) and intake flange (gray) gaskets, and TB gasket (not shown). Very bottom right is surge tank cover gasket. I did not change this. I bought all through Rock Auto. I won't list all tools because it may vary for you but I would suggest a short (stubby) set of ratchet wrenches in particular a 12mm and 14mm for the brackets at the rear of the upper intake.



Parts needed:

- Denso long life iridium spark plugs – Denso part # SK20R11
- PCV (I changed mine) – Lexus part 1220420040
- Upper intake manifold/surge tank gasket (orange) – Lexus part # 1717620020
- Plenum gasket – Lexus part # 1712720010
- Intake flange (gray) gasket – Lexus part # 1711620010
- TB gasket – Lexus part # 2227120040