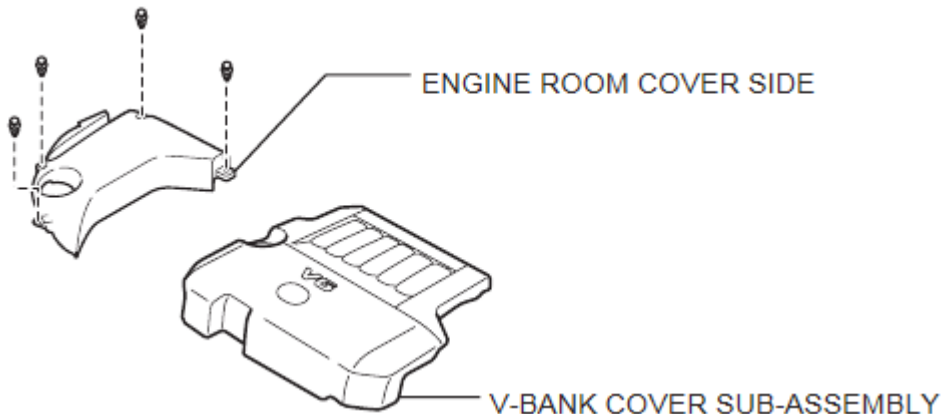
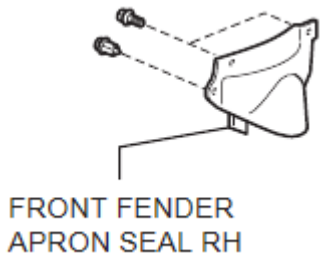


RX350 - Water Pump

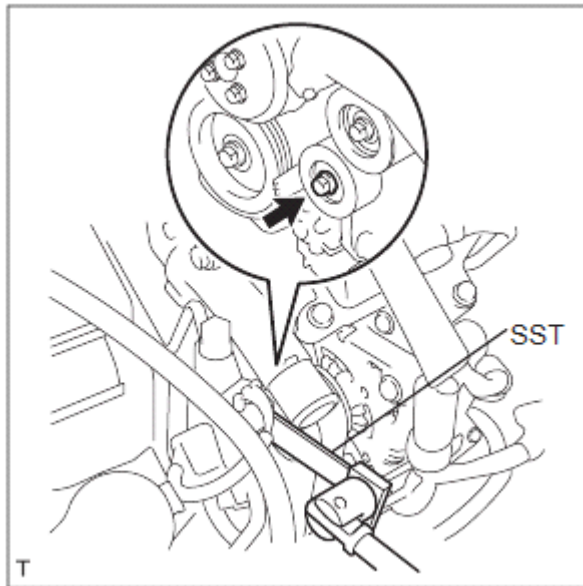
1. Disconnect negative battery terminal
2. Remove the engine room cover side and the v-bank cover. Just a few push clips.



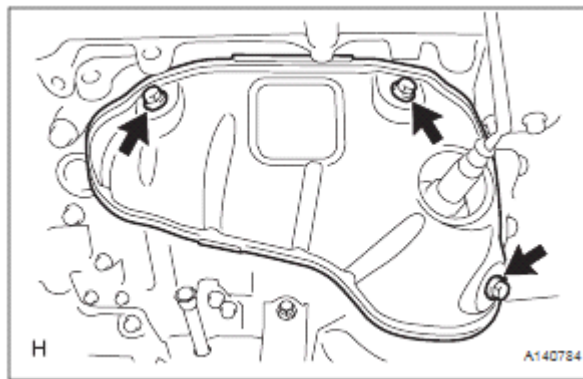
3. Crack torque from lug nuts on passenger front wheel while tire is on the ground
4. Jack up and place on jack stand (don't forget your chucks)
5. Finish off the lug nuts on passenger front wheel and remove
6. Remove No. 1 and No. 2 engine under cover. This is held on with a combination of 10mm bolts and push clips.
7. While you're down there near the RH wheel well, remove the push clip from the front fender splash shield and the 10mm bolts from the front fender apron seal. Remove the front fender apron seal.

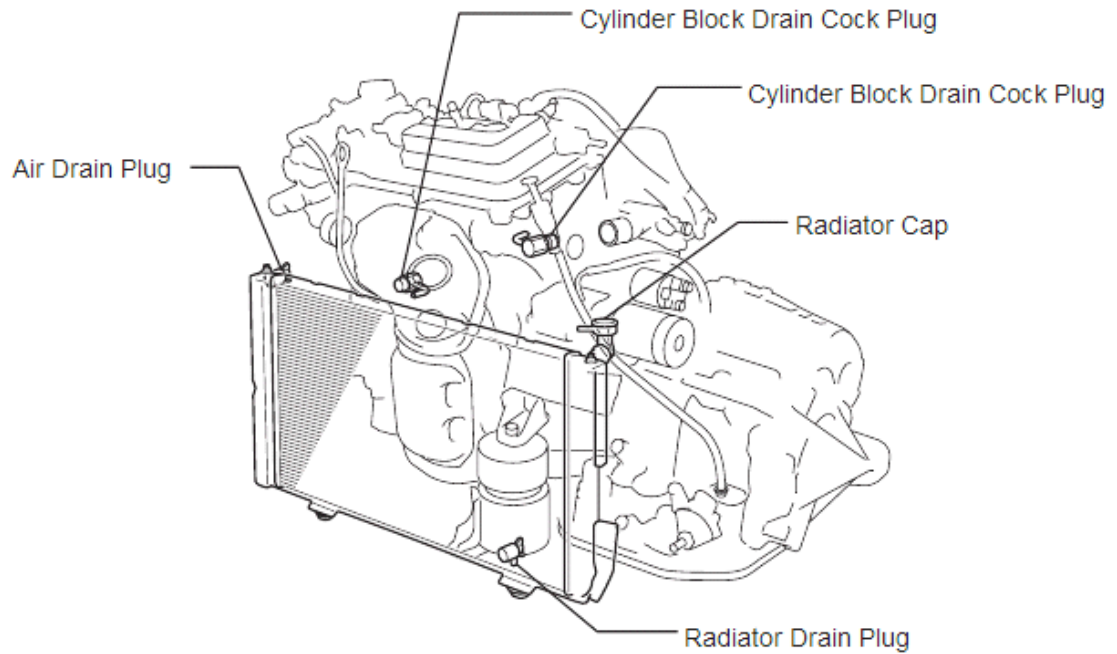


8. I removed the drive belt at this point, but you may choose to leave it on until you get more clearance or until you break free the bolts on the water pump pulley. Clearance to get at the tensioner is tricky. I went at it from the bottom side and used a 3/8" stubby breaker bar with a 14mm socket. You can also use a 14mm wrench, but it takes some incredible strength to crank that tensioner and pull the belt with your free hand. Turn the tensioner counter-clockwise.

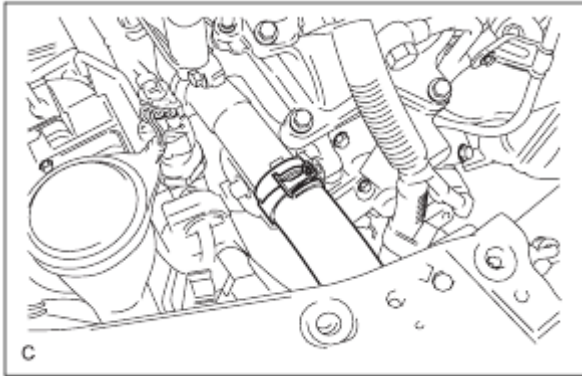


9. Might as well drain the coolant at this point. Make sure you prepare the ground with some newspapers and absorbent.
- a. Remove radiator cap - check if it's hot first!
 - b. Place your drain pan under the radiator drain cock and turn it loose. It's yellow and under the driver's side of the radiator.
 - c. Once that's stopped, I placed a small bucket under it to capture any remaining trickle and moved my pan directly under the front headers. Unbolt the heat shield (3 bolts) from the headers and you may want to move the engine oil dipstick out of the way (1 bolt). Get your flashlight ready and you should be able to make out a brown drain cock bolt hidden behind the headers with a tube sticking out below. I was able to get a small hose around this and the break that drain cock free a few turns to let the block coolant drain out down my tube and into the pan. There's another block drain cock somewhere, but I couldn't find it. This seemed to be enough not to make a huge mess when the water pump comes off.

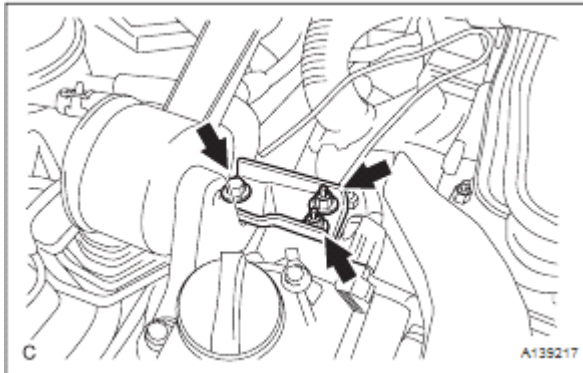




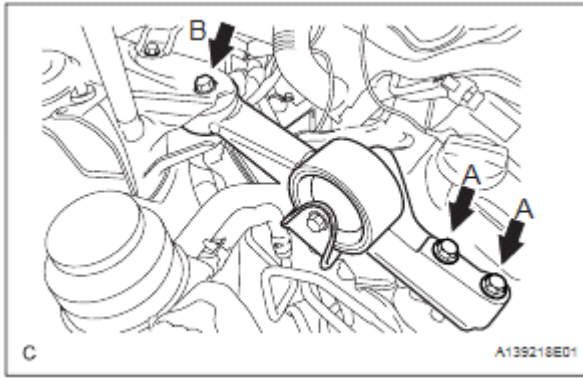
10. Remove the radiator hose outlet. Don't forget this step!!



11. Now the fun really starts as we start digging our way towards the water pump. Remove the No. 2 engine mounting stay. There are 2 nuts (17 ft*lbf) and a bolt (28 ft*lbf).

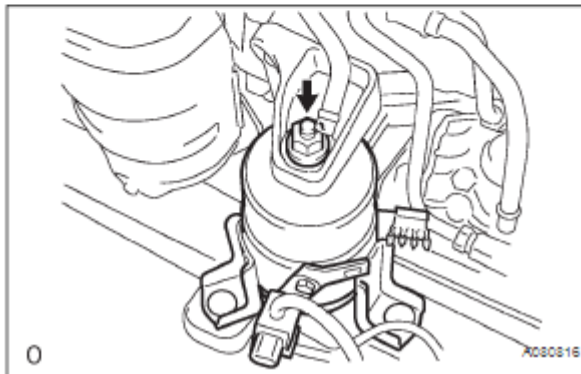
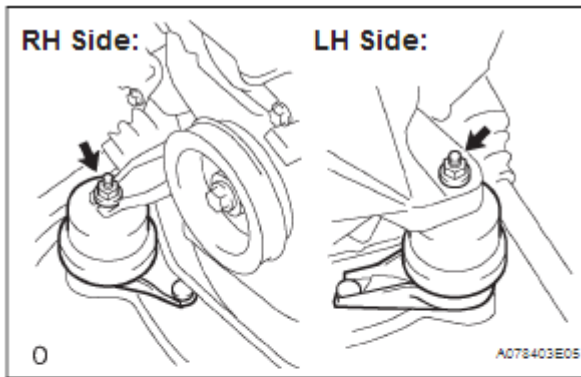


12. Remove the engine moving control rod (dog bone) assembly. Only 3 bolts (28 ft*lbf) here. Don't make the mistake I did and remove the pivot bolt essentially making this 2 parts instead of 1.

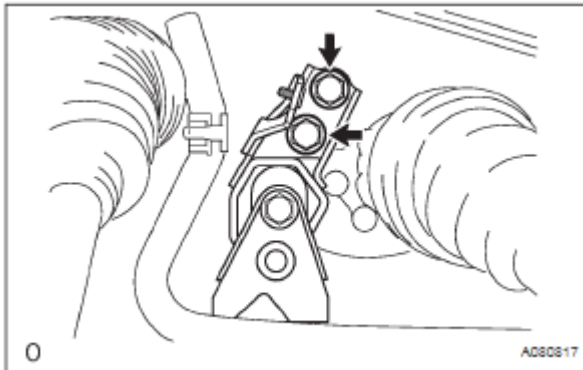


The rest of the steps will involve raising and lowering the engine based on ease of access and tools. Here's how:

- Remove nuts from RH (70 ft*lb) and FR (64 ft*lb) engine mounts. I have the LH pictured here, but no need to remove this. The goal is to pivot the engine up from the RH (passenger) side.

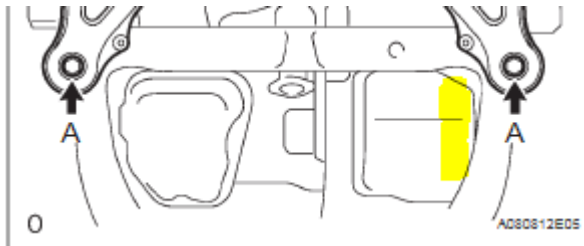


- Remove the 2 nuts (58 ft.*lb) from the RR mounting insulator. This is located back down in the wheel well - back and left of the RH mount.



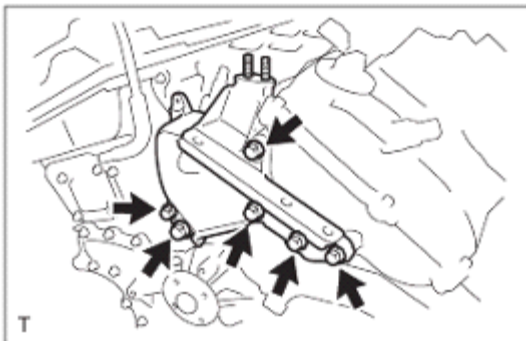
- Get your floor jack positioned and a good chunk of 2x4. Mine was long enough to run the length

of the oil pan without interfering with anything else...probably about 10 to 12 inches. Align the 2x4 as far to the passenger side of the oil pan as possible and start lifting. The goal is to get the engine to tilt upward. I slowly rose mine until the intake manifold was nearing the top of the engine bay. Placement of 2x4 is in yellow.

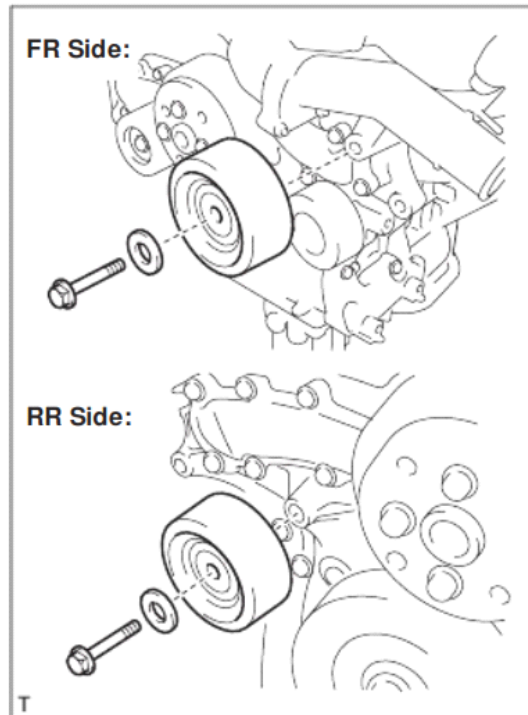


Now with the engine up, you'll have better access to most of the bolts. A few of them, I still found it easier to put it back down into place...especially the bottom bolts of the water pump and pulley bolts. You don't want to be torquing hard on these with the engine floating on a jack.

16. Back up top, remove the 6 bolts (40 ft*lbf) from the No. 1 engine mounting bracket. There are 3 bolts lengths here. Pay attention to make your life easier on installation. The 3 super long ones go in the bottom middle 3 holes, the medium length goes in the bottom left. The 2 shorter go far right and up top.

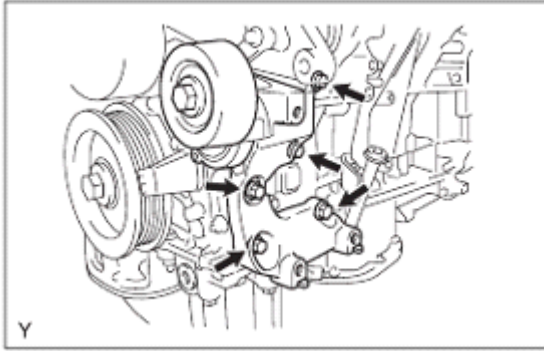


17. Remove the idler pulley bolts (32 ft*lbf).

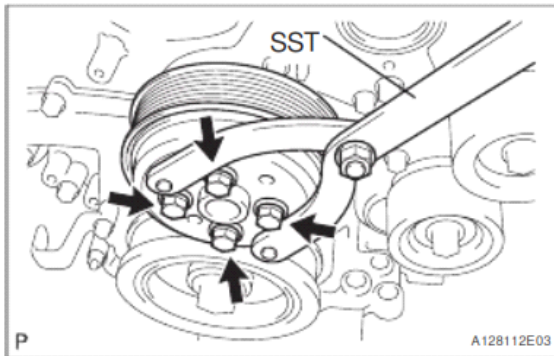


18. Remove the bolt from the tensioner pulley. HINT: This is reverse threaded so loosen it by turning clockwise. I put the engine back down on the mounts for this one and used a flat breaker bar (AutoZone #27115). The manual wants you to remove the whole assembly, but this is impossible

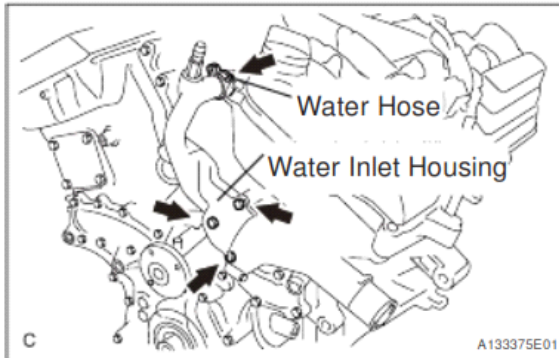
without taking more junk off. Just make sure you get that pulley bolt back on pretty darn tight. Only for reference, here's a picture - don't remove all these bolts.



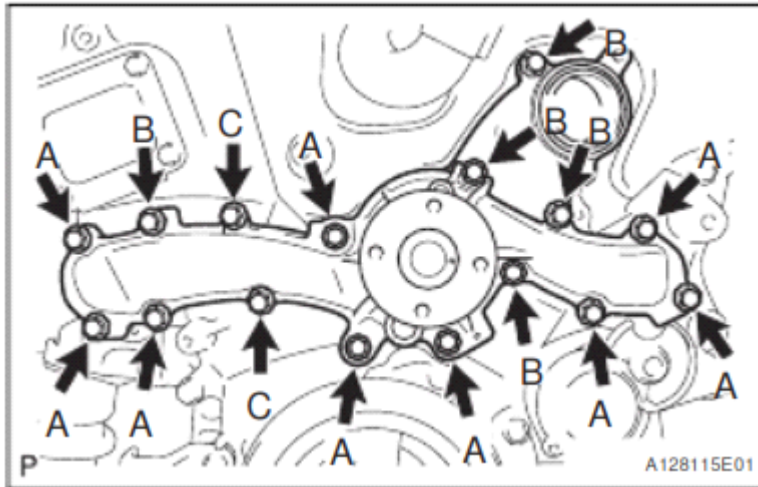
19. With the engine raised again, remove the 4 bolts (15 ft*lbf) from the water pump pulley. There's special tools for holding the pulley still, but I was able to use leverage from a long (really long) screw driver between the bolts to hold the pulley still. Once they're all cracked loose, back them out by hand. If you left your drive belt on, it should be enough hold without doing anything special. Remove that belt now if you haven't already.



20. Remove the water hose from the water inlet housing
21. Remove the 2 bolts, nut and washer from the water inlet housing

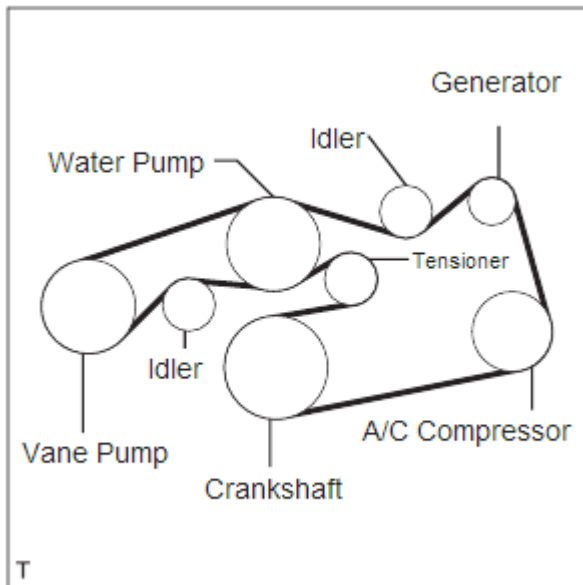


22. If you're replacing your thermostat, you'll have to separate the inlet housing into 2 parts to get at it.
23. Remove the 16 bolts from the water pump. I did a combination of engine up and down, wrenches and sockets. There are a couple different bolt sizes and I used the same bolts in the same holes I removed them from. On installation bolt A: 15 ft.*lbf, bolt B & C: 81 in.*lbf (6.75 ft.*lbf). Clean bolts well (no oil or goop). Apply 1344 on bolts C.



Installation is reverse of removal. A couple of notes:

- Clean up hard parts and degrease where the pump gasket meets engine
- Pay attention to torque settings
- Drive belt installation is tough:



- Coolant steps:
 - a. Close the cylinder block drain cock plug (9 ft.*lbf)
 - b. Close the radiator drain plug at bottom of radiator
 - c. Loosen the air drain plug at the top of the radiator 3 or 4 turns
 - d. Slowly fill radiator (8.9 quarts) until coolant overflows from the air drain plug you just loosened. This was a lot of coolant for me until this happened.
 - e. Then close the air drain plug at the top of the radiator.
 - f. Fill reservoir tank until full
 - g. Press inlet and outlet hoses several times by hand and check levels
 - h. Install radiator cap and reservoir cap
 - i. Start engine and warm up. Set AC to MAX hot.
 - j. Stop engine and wait until engine coolant cools down
 - k. Add coolant to the full line on the reservoir