



XAT Racing LS460 Brake Upgrade Install Document

Tools you will need:

$\frac{3}{8}$ " Drive Ratchet: 22mm, 19mm, 18mm, 17mm sockets

10mm, 12mm, and 14mm wrenches

10mm flare wrench

10mm Allen head (preferably socket drive)

Knipex/channel locks/pliers

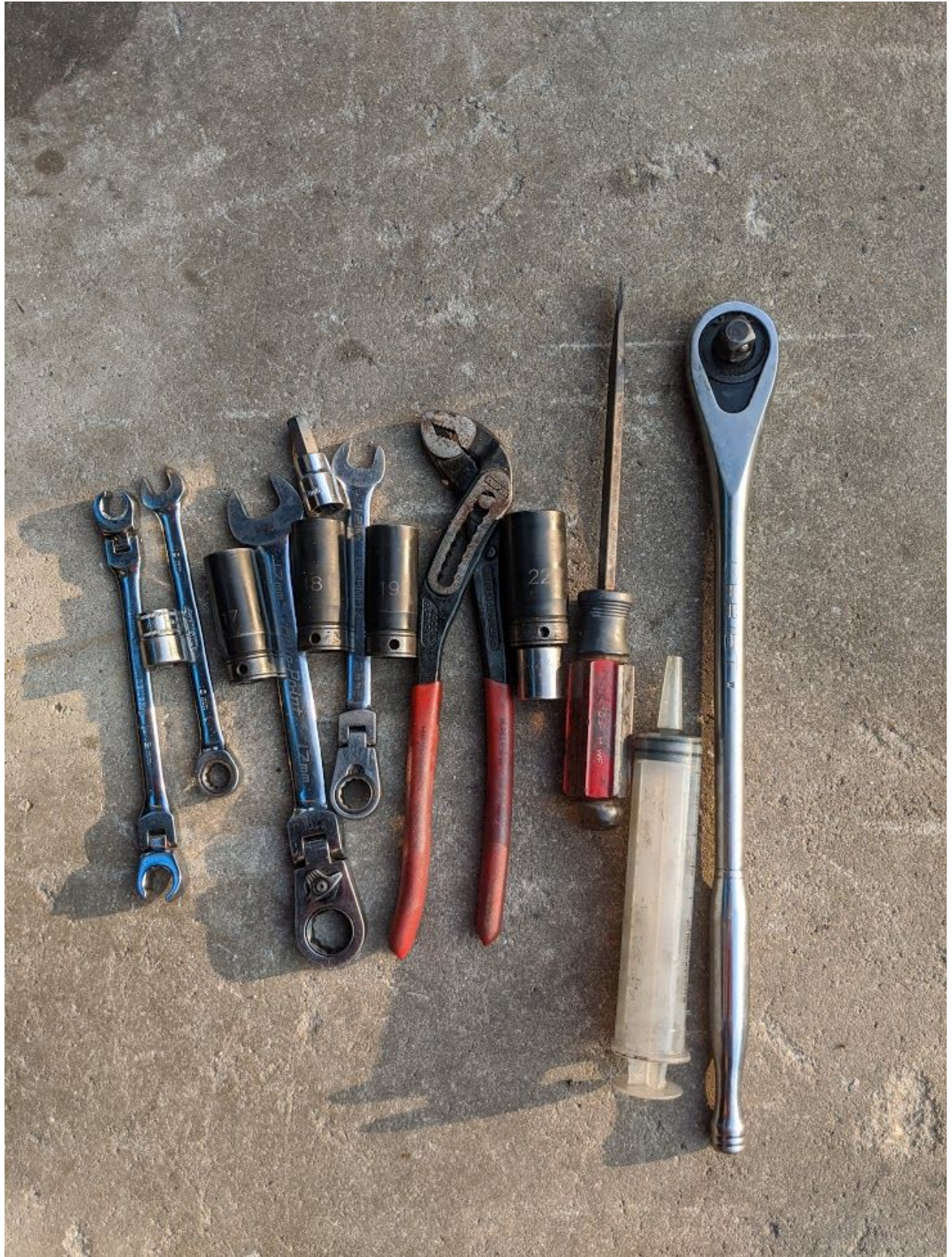
1 clippyboi (shears, dykes, cutoff wheel, etc.)

DOT3 or DOT4 brake fluid

Anti-sieze

Optional: red threadlocker/Loctite

syringe (brake fluid)



Step 0: Make sure you have all PPE, are on a safe, supportive, level surface, have a safe jack and jack stands to hold the vehicle up, and back-up options should things go...awry.

Step 1. Break loose front lug nuts on your wheels while the car is still on the ground. This will help in removing the wheels once the car is in the air.

Step 2. Put vehicle on jack stands or on a lift when properly raising the vehicle. Remove front wheels. We recommend sticking to the factory suggested jacking points, as seen in your owner's manual.

Step 3. Remove the (x2) 17mm bolts holding the brake caliper to the spindle. You can zip tie or use mechanic's wire to secure the caliper to the upper A arm. Sometimes, you *just want to let it hang*, but you *really* shouldn't be doing this. Especially with old, decrepit brake hoses that remember when Bush was president. Unless, of course, you opted for new lines as you shouldve anyways.



Step 4. Remove the brake rotor. In many cases, you can screw in a bolt to one of the small holes on the mounting surface of the rotor. This will break it free from the hub, and permanently give that rotor separation anxiety. You're taking this rotor away from its home, where it comfortably was attached for many years, and you should be ashamed of yourself! But, it's too late now. Sell it used to someone who needs a replacement one, or toss it in the scrap pile. By this point, the damage has been done. It's just a rotor, it doesn't have emotions.



You're also welcome to take a BFH (big friendly hammer) to the backside of the rotor to free it from the clutches of time and the hub. We're not judging. This works quite well.

Step 5. Remove the (x4) 10mm bolts that secure the brake rotor dust shield that have torx heads in them. These might try to round off and become a circle quickly, so we recommend using a high quality wrench/socket from Snap-On, Mac, Matco, etc. that engages the flats instead of the points. We had this issue with a few of our vehicles we installed these kits on.

Slide the shield away from the spindle, and cut the thinnest part so you can peel back a large enough section to remove the shield from the spindle/hub.







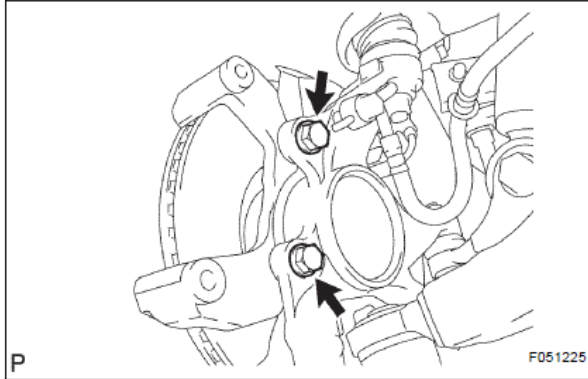
Who would win, a dust cover that will no longer fit with a big brake upgrade, or one clippyboi? There's numerous ways to do this with all sorts of tools, but the dust shield will end up discarded like an old pair of shoes that never fit you right, and you never really liked anyways. Why did you wear them for so long? Once they got dirty that one time, you could never really get them back to new. What made you decide to keep them? It doesn't matter, that's all in the past now. You should stop getting distracted and finish this project!



Step 6. **If you are installing a roll center adjustment kit**, do so now by removing the (x2) 17mm bolts that secure the lower ball joint to the spindle. Install the spacers and new longer bolts before bolting the spindle to the lower ball joint. **If you are not installing a roll center adjustment kit**, now will be the point where you wish you had purchased a set from us. Fitment here with the steering arm is incredibly tight, and you're most likely going to have to do a bit of clearancing for fitment to work properly. With the roll center adjusters, this kit is completely bolt-on.



Step 7. Install the XAT LS460 adapter bracket using the supplied M12x1.75, 10mm Allen head bolts. Install the bolt so that they are tight--holding the bracket to the spindle--then install the 18mm retaining nuts from behind the adapter. Use "red" Loctite/threadlocker compound if desired. These get torqued to **80 ft lbs**



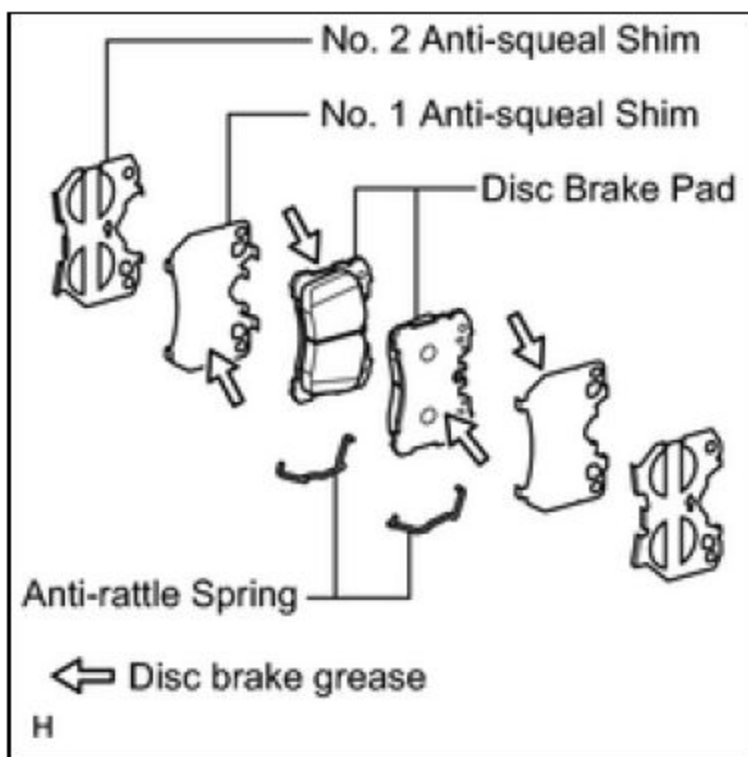
Torque: 108 N*m (1,101 kgf*cm, 80 ft.*lbf)





Step 8. Install new 14" vented rotor. This is a front 2008-2012 IS-F off the shelf rotor, though we typically supply StopTech/Centric since they're an OEM manufacturer, and we've yet to have any issues with them.

Step 9. Install new pads, or inspect and clean old pads on the OEM LS460 calipers. Really, you *should* just install new pads while you're there. It's around \$50 shipped for a new set, and we can get them quickly for you. Standard pad thickness is 13.5mm from the factory, so keep that in mind when determining whether or not you replace your pads. We recommend using brake grease on the back of the disc pads, where the shim sits. Some pad kits will include the #1 shim, but the #2 shim typically gets reused, so do not toss this!



At this stage, you'll also want to drain all old fluid from your LS460 calipers, and fill them with new fluid as much as you can. A syringe will help this from becoming a larger mess than it needs to be, and speed up the bleeding process greatly.

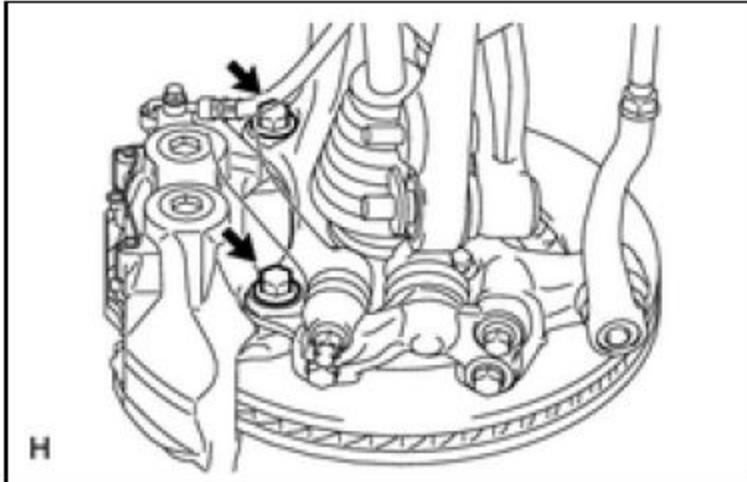
We recommend installing stainless braided lines at the same time, cracking open the bleeder, and use the syringe to put as much fluid into the caliper as you can manage. This step is normally very messy, but it will help save time when bleeding the system later.

Then, bolt the caliper to the adapter plate using the supplied M14 bolts, **100 ft lbs** as per the original manual. If you're so inclined, here's another opportunity to tighten using Loctite/red

Torque:

135 N·m {1377 kgf·cm, 100ft·lbf}

threadlocker.



Step 10. Remove the 14mm banjo bolt from the stock caliper and install on the LS460 caliper. This spec is **29 ft lbs**. Again, we strongly recommend going with stainless braided lines while you're at it, which will also include new installation hardware.

Note how the side springs clip into the pads. Each pad gets one side spring. The #2 shims are directional, so you should have 2 for each side of the car. The pads are not directional, but the #2 shims are. Note the arrow for rotation.



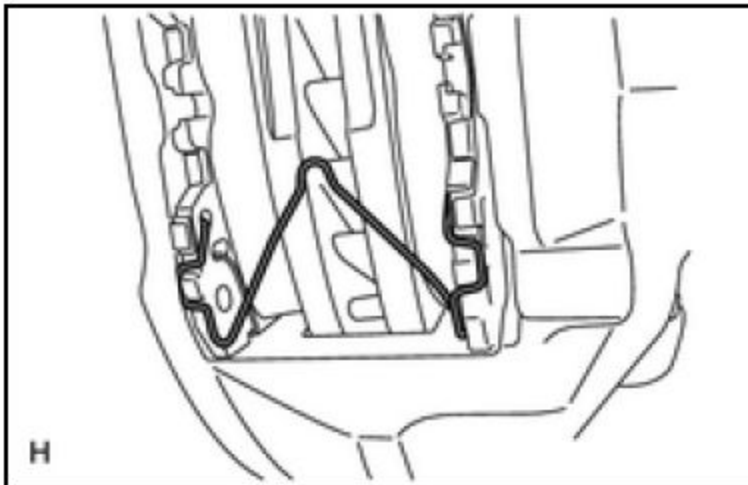
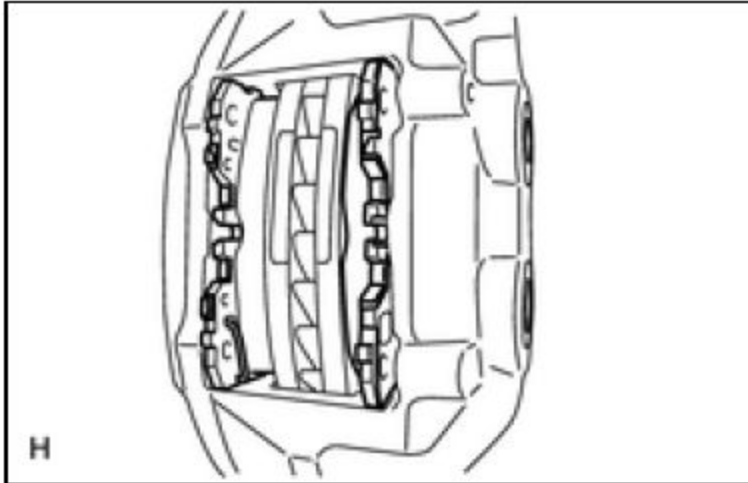


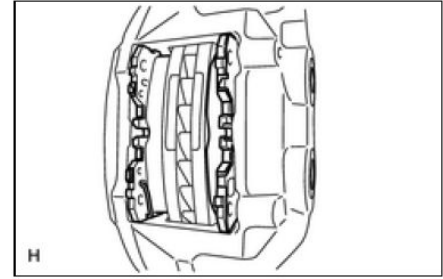




Make sure each of the caliper pistons have been fully retracted. If they are not, you will have quite a bit of trouble installing the thicc new brake pads. Slide the new pads in from the top of the caliper after it is installed.

The other anti rattle springs, pins, and pin retaining clips will need to be installed as well.

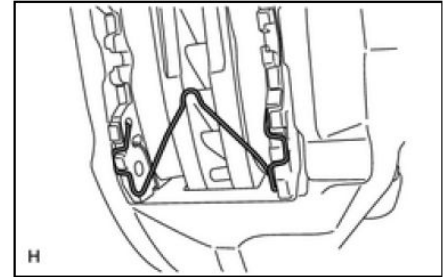




(f) Install the front disc brake anti-rattle spring between the 2 pads.

NOTICE:

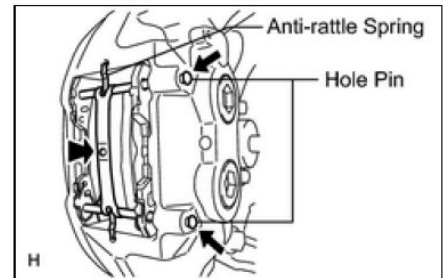
The anti-rattle spring can be used again if it has sufficient rebound; no deformation, cracks or wear; and has had all rust, dirt and foreign particles cleaned off.



(g) Install the front disc brake anti-rattle spring to the disc brake caliper.

NOTICE:

The anti-rattle spring can be used again if it has sufficient rebound; no deformation, cracks or wear; and has had all rust, dirt and foreign particles cleaned off.

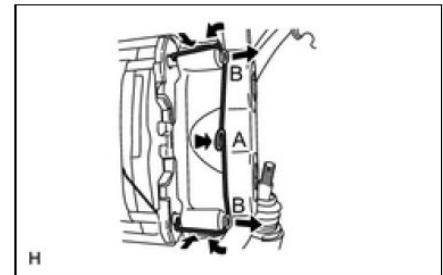


(h) While pressing the area labeled A, install the 2 front disc brake anti-rattles with hole pins.

(i) While pressing the area labeled A, slightly pull out the hole pins (labeled B) from the brake caliper, and install the pin hold clip.

NOTICE:

The pin hold clip can be used again if it has sufficient rebound; no deformation or wear; and has had all rust, dirt and foreign particles cleaned off.



Note the head of the pin is facing in towards the vehicle. When you slide in the pin, we typically recommend using anti-seize on it, and also make sure the pin holes are pointing straight up during installation.



According to the factory service manual, the holding clip for the pins and the anti-rattle springs can all be reused as long as they retain springiness, are not deformed, worn down, and are not rusted away.

Step 11: DOUBLE check all bolts for tightness. **Factory caliper mount bolts get tightened to 100 ft lbs.** The banjo bolt gets **29 ft lbs.**

Then it's time to bleed the calipers, starting with the passenger side then drivers side. This is the case regardless of LHD or RHD, you will *a/ways* want to start with the passenger side first.





Step 12. After proper bleeding procedure of your brake system, you can reinstall your wheels and lower the vehicle back down. Torque wheel lugs to OEM spec after vehicle is on ground, **usually 80-100 ft lbs.**

Step 13. Be sure to check brakes prior to driving at speed. XAT Racing is not responsible for any brake failure or negligence on your part. These are “for off road use only.” If pads and rotors are new, be sure to break in and bed the rotors and pads properly according to the instructions included with your brake pads. It will greatly benefit performance and longevity of the pads and rotors to do this often ignored step.

These brakes should be very quiet after installation. If they sound like annoyed mice who have the cognizant ability to, and thus realize that, they are being taxed and taken advantage of at every opportunity (taxation is theft), you may need to double check everything again. It's possible that the brakes are not properly bedded in. These brakes are off a car notorious for and specifically designed to have low NVH.

Enjoy!!