IMPORT SERVICE

Saab Front Disc Brake Service Tips

Most of us consider disc brake service to be a fairly straightforward repair procedure. Resurface or replace the rotors, clean the calipers, stuff in a new set of pads and hardware, pump the brakes, and off

you go. No big deal, right?

But what happens when the customer who owns this Saab 900 model returns complaining about a severe caliper clunk that didn't disappear with new pads (especially when backing and braking at the same time)? Or maybe there's still some brake shudder he wrongly assumed would disappear with a simple pad replacement.

The front discs on this Saab also contain the hand brake mechanisms, and will require a little more expertise on your part than you might expect. Knowing a few tricks and recognizing excessive wear at certain key points can save you the embarrassment of explaining away these annoying problems.

The fact that the hand brake mechanisms are included in these calipers complicates things only if they stick, bind, or are improperly adjusted. As a result, we include more than average coverage of the hand brake and its hardware.

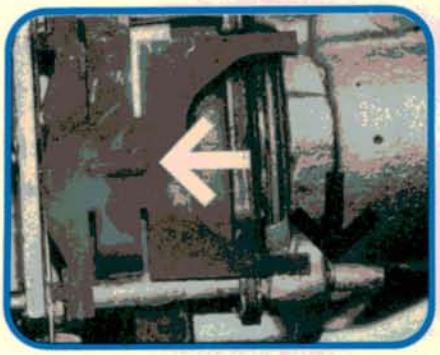
To start with, we suggest that all cleaning, inspection, and especially lubrication be done before rotor resurfacing or replacement. That way you won't be slopping anti-seize all over the clean rotor surface and brake pads.

In addition, when you're all finished with your reline, don't just hop in the car and pump up the pads. First pull the hand brake lever up six clicks. Then pump the brakes to correctly position the pads before releasing the lever. This will properly set the initial pad-to-rotor clearance.

—By Ralph Birnbaum

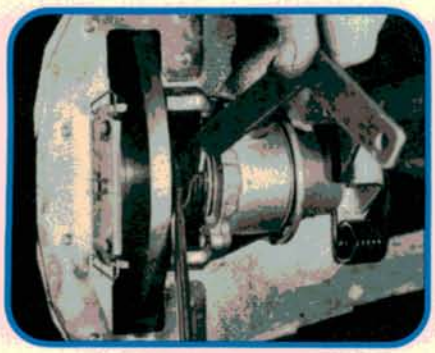
1

Before you start, we wanted to take a moment to show you where NOT to grab the brake/knuckle assembly when turning it from side to side. Too much pressure on the rotor splash shield can distort it and cause it to rub on the rotor and make a scraping noise.



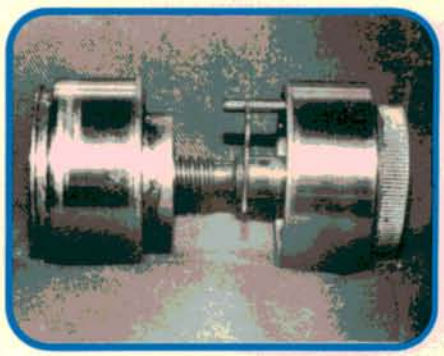
2

Spray the big U-pin with penetrating oil and drive the pin in slightly. This will force the penetrant into the caliper holes, and remove the tension from the retainer clip (black arrow). Now pry the U-clip out with a small bar or screwdriver. The anti-rattle clip will fall out (white arrow).



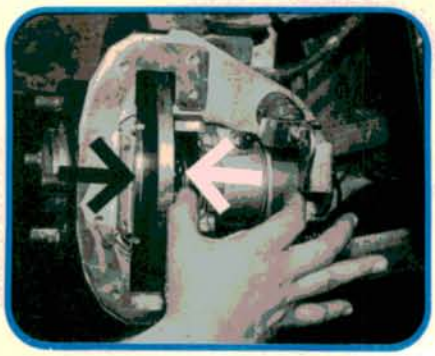
3

If the pads are worn thin, the primary piston (the one next to the rotor) will be screwed out pretty far. Before exercising the caliper, use Saab special tool 8996043 or equivalent to partially screw the piston in. Turn it clockwise and be careful not to damage the caliper boot.



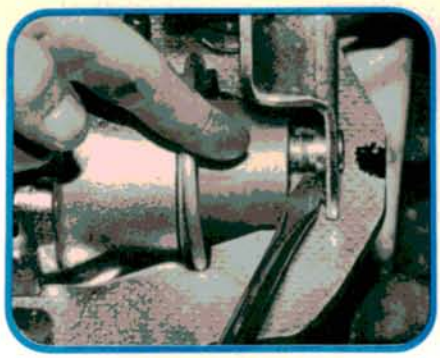
4

Here are the brake pistons removed. See how they screw apart to compensate for pad wear? You want to screw that primary piston (left) inward enough to keep it from popping out of its seal when you begin exercising the caliper in the next step. Always check for torn boots or rusted pistons.



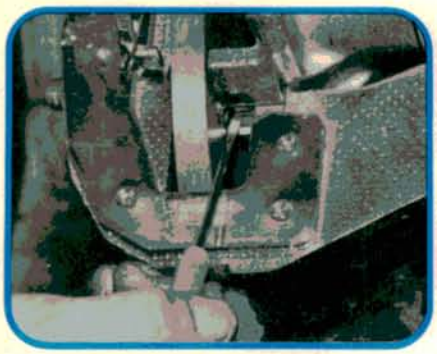
5

Now free the yoke by alternately prying between the yoke and rotor (black arrow) and primary piston and rotor (white arrow) to exercise the assembly. As you pry the yoke outward, you'll see the primary piston move toward the rotor. Once the yoke is fully outboard, finish screwing in the primary piston.



6

Don't just beat on the yoke to free the slides between the piston assembly and yoke. If the secondary piston sticks to the yoke, you'll pop its seal. Pry as shown as you tap the yoke inboard. This will free the secondary piston and help free a sticking hand brake arm at the same time.

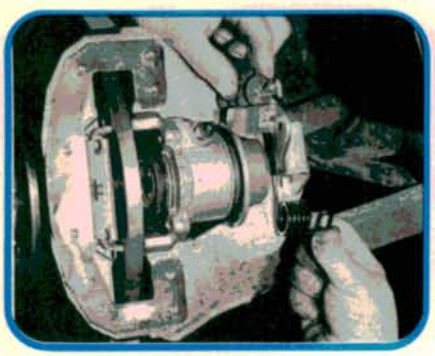


7

These slides allow the caliper frame and pads to float on the piston housing. The fit between the yoke and housing is critical to proper brake operation. It must be clean and well lubed so it can slide. It must also be tight enough not to knock and make noise.

8

Here's a worn yoke removed from the caliper assembly. This one is badly grooved where it rides in the piston housing. When this customer backed the car and braked at the same time, the extra slop allowed the caliper to shift and clunk. It's new caliper time for this car.

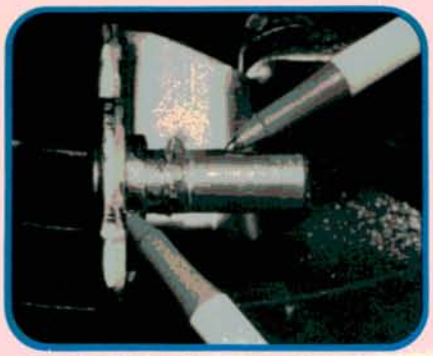


9

Now remove the big return spring on the hand brake activator and work the hand brake lever out of the secondary piston. There is a replaceable seal on the shaft where it rides in the secondary piston that can seize and stick on the lever shaft.

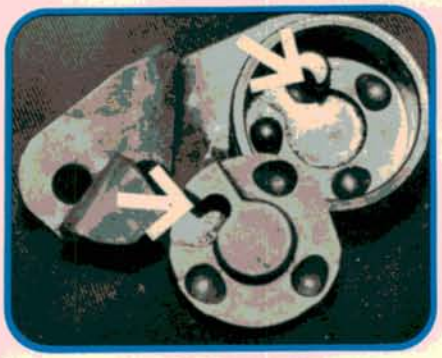
10

This small rubber tab on the hand brake cable dust boot keeps the cable in the hand brake arm. You'll have to push it away before disconnecting the cable. With the cable removed, check for signs of a torn boot or sticking cable. Don't push the cable in too far, however. We'll explain why later.



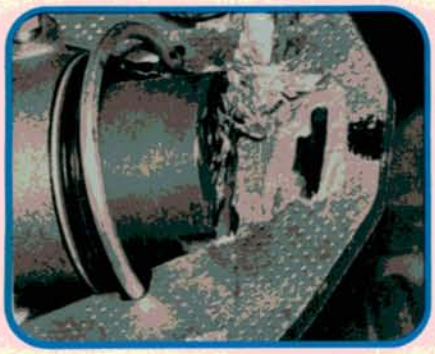
11

Here, we've removed the hand brake activator from the caliper frame. Make sure the areas shown are clean and burr free. Always wire brush and lubricate this arm with an anti-seize compound before reinstalling it. We don't want it to stick and keep the hand brake applied all the time.



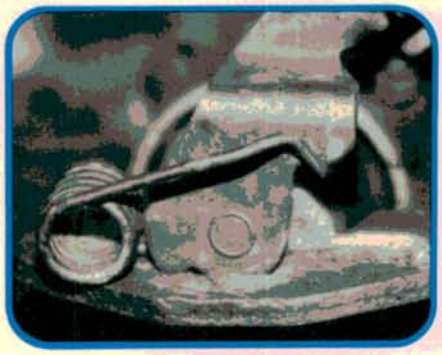
12

Here's a better look at the hand brake mechanism and activator. The notch in the shaft fits into the notched round disc. The lever rotates the disc against ball bearings. The balls climb those ramps in their recesses, forcing the discs apart. Again, we don't want the shaft sticking in the "on" position.



13

With the hand brake lever removed and the secondary piston free of the yoke, clean and lubricate the secondary piston slot and the yoke. Also clean and lubricate the slot in the yoke where the hand brake lever rides. Reinstall the hand brake lever before tapping the yoke back on the secondary piston.



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Now reinstall the brake arm return spring. Here's what it should look like, just in case you forgot. Before you reinstall the cable, check the arm for free movement, making sure it returns to the fully off position without sticking or binding. This is very important.

15

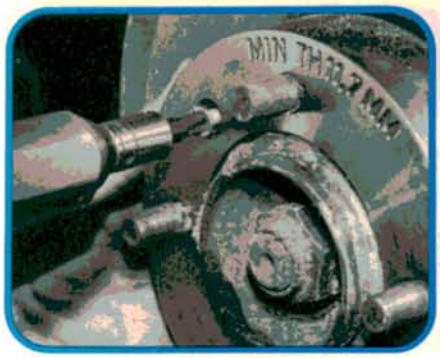
When reinstalling the hand brake cable in the arm, it is very important that the hand brake cable isn't either stuck "on" or adjusted up too tightly. There should be a slight amount of free play between the cable and arm (indicated by the feeler gauge), or the brake will stay partially applied.

16

Remember we told you not to push the hand brake cables in too far? If you do, you can push the shouldered adjusting nut out of its hole in the hand brake and it'll catch. You'll have to go inside the car, push the seat forward and remove the inspection covers on the console to reinsert them.

17

After reinserting the shouldered adjusting nut as shown, double check to make sure that you have that small amount of free play at the brake arm. The adjuster for the right caliper is on the left side of the console. The adjuster for the left caliper is on the right. Don't be fooled.

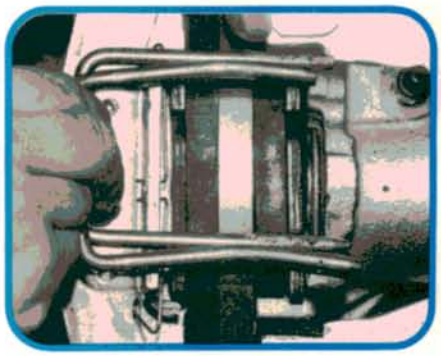


18

Here are a couple quick tips on rotor R and R. Tired of breaking tips on your impact driver trying to remove these Phillips® head screws? Place the ball end of your ball peen on the screw head and rap it with a brass hammer. This will loosen the screw. Then finish removing it with your impact driver.

19

After removing the rotors for resurfacing, clean the drive hub/rotor locating surfaces. Remove all accumulations of rust or corrosion, or you'll get a run-out condition at the rotor braking face. A wire brush and some sand paper, followed up by some anti-seize compound, will do the trick.



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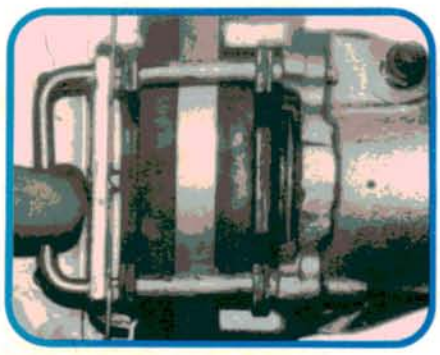
The U-pin should have a slight bend in it of approximately 20 degrees. This puts tension on the pads and caliper frame to further minimize any tendency for the calipers to chuck and knock. Heat and normal use can straighten the pins, however, contributing to caliper knock.

21

Just in case this is your first run at these, you might forget how this spring clip was positioned. This spring goes in front of the U-clip and helps absorb some of the U-clip vibration. It must snap in the center hole in the yoke and then snap *over* the U-clip to be effective.



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After installing the U-shaped pad retainer clip, insert the lock pin. Then pull the U-clip back against the lock pin. This will tension the U-clip against the pin to hold it. It will also give you a little room to drive the U-clip in for the next brake job. Reinstall the anti-rattle clip.