Brake Bleeding with ASR

FACTORY SERVICE BULLETINS

Brake bleeding for ASR proceeds just like brake bleeding with ABS, and like that system bleeding is most often needed to flush the fluid. It's not that brake fluid has a shorter useful life with the traction control systems; it's that there are very expensive machined components in the hydraulic circuit, components lubricated internally only by the brake fluid. You can buy many drums of brake fluid for less than the cost of the simplest of the hydraulic units on any of the traction control systems, so there's no economy in stretching the calendar for a fluid flush. Earlier vehicles with ASR called for a full fluid flush every year or 12,000 miles, preferably in the Spring (at StarTuned we assume this is because the risk of contaminated brake fluid grows with the temperature, so flushing just before the year warms is a good choice). Later cars (after April of 1991) stretched this to every two years or 24,000 miles. But to wait more miles or a longer time than that is to risk easily avoidable damage to very valuable equipment.

There is brake fluid under high pressure in the pressure reservoir, fluid that won't come out by just bleeding the brakes through the wheel calipers. You have to bleed the reservoir itself and flush the pressurizing pump to get all the fluid out.

Here's the brake-bleeding procedure for a vehicle with ASR:

First, with the ignition off, release any pressure at the reservoir. Do so by opening the bleeder marked SP on the hydraulic control unit. Open this bleeder at least one full turn and leave it open until the fluid-flow stops. Then close it. As with all brake bleeding, use a hose to direct the flow of waste oil into a container to protect the vehicle paint.

Next, with a vacuum pump (or even a turkey baster, permanently retired from the kitchen) draw the master cylinder fluid level down to within 10 mm of the bottom of the reservoir. Don't draw the fluid any lower than this, or you risk introducing air into the system, and then your flush procedure will be unnecessarily complicated to pump the air through and out.

Connect a pressure bleeder to the master cylinder reservoir (or top it up with clean fluid, if you prefer to bleed using the pedal and an assistant). Mercedes-Benz technical information suggests a fluid volume of 80 cc's per caliper if there is no air to flush from the system and 500 cc's per if there is. Considering the replacement cost of the mechanical and electrical hydraulic-circuit components, you may want to incline to the latter figure in either case.

ASR systems using a pressure reservoir (not all!) have a bleeder marked SP on the hydraulic unit. Step One in flushing the brake fluid is to open that bleeder one full turn until all the brake fluid stops flowing. Once clear, new fluid flows from each caliper bleeder, confirm that the reservoir holds enough fluid, reopen the bleeder marked SP on the hydraulic control unit (protective hose still connected) and start the engine. The pressurizing pump will try to fill the pressure reservoir. This can't happen with the bleeder open, of course, so let the fluid run until it is also clear, new fluid entirely without bubbles. Don't let the master cylinder bottle run empty! Finally, close the bleeder and allow the pump to complete filling the pressure reservoir. When the pump shuts off, turn off the engine, disconnect the power bleeder and top the master cylinder up to the indicated level. Double-check that the vent aperture in the master cylinder reservoir cap is clear.

Note

Regarding the ABS/ASR hydraulic control unit and reservoir, with the engine off I bled down the fluid from bleeder marked "SP" and then closed the bleed. Next i did the calipers, and then did a final bleed on the ABS/ASR unit. In the guide above it says "Don’t let the master cylinder bottle run empty!" I nearly did so, especially when bleeding the ABS/ASR unit with the engine running so I'll say it again - "DON'T LET THE MASTER CYLINDER BOTTLE RUN EMPTY" - the fluid comes out of the ABS/ASR bleed at a very high rate so beware.