

1957 Cadillac Air Suspension

– Part 1, The Front

Back to the year when Cadillac first tried its version of air suspension - then this time we get it right

If you look at the stock suspension the first thing you notice after the conventional steel coils, shock inside coil, sway bar and rear steer GM used forever, is the very large spring tower opening. It was designed by Cadillac this way so the same frame could accept either steel coils or air suspension. This is a natural for the ShockWave conversion.



by Doc Frohmader

After a number of years of engineering, Cadillac introduced air suspension on the 1957 Eldorado Brougham. For four years this option was offered, but since only 904 Broughams were built there were a very few equipped with air. In at least some years (if not all) from 1957 through 1960, Cadillac offered air suspension as a \$215 option for both the Brougham and the non-Brougham models. To do so, frames were built to accommodate both steel and air springs. Reports on these cars tell us that the system was quite remarkably smooth and comfortable (quite a complement considering Cadillac's reputation for

great ride) as long as they worked.

The problem was that they were plagued with leaks. Leaks at fitting, and in controls, and anywhere else they could leak. They tended to freeze in the winter. You could lose air and drop the car without much warning. It was complicated and difficult to repair and maintain. In the end, Cadillac decided the gain in ride quality did not justify the cost and the experiment was abandoned. Kits were offered to convert the air suspension back to conventional steel springs.

Herb dropped the sway bar link and removed the shock to start clearing out what won't be used or is in the way of the installation. Two bolts at the bottom and one on the bayonet at the top fasten the shock.



If you loosen the castle nuts on the ball joints a turn or two and smack the joint a good hard one (or two) the joints generally pop loose without damaging anything.

Still, a lot was learned about air suspension and had Cadillac made a more serious commitment to working out the system it would certainly have been a success. I suspect that if it had been refined more before introduction and some of the more obvious problems confronted, it would not have got the early bad reputation that had much to do with the public's rejection of the system.

Not only that, but because the air springs lacked the structure to stabilize the car side to side and front to rear, Cadillac developed rear

suspension arms that are used with steel springs to this day because the system works so well.

The car we're looking at today is a 1957 Coupe DeVille in completely original condition. The car only has 9200 miles on it. Too bad it isn't as perfect as you'd hope it would be with the miles it has – I am convinced a sitting car deteriorates as fast or faster than one that is run regularly. So you'll see a lot of rust and crust as this installation is done, but don't let it concern you. Yours will just be that much nicer.



Wrap and bolt a chain around the frame or A-arm and coil to prevent it from flying out as you go to remove it. This could save you getting hurt. I prefer the A-arm because as the arm drops, so does the coil.

You can leave the upper ball joint along with spindle, steering arm and brakes intact, but it will want to drop. Herb's trick is to lodge a piece of 4X4 under the upper A-arm on top the frame rail. Every trick counts...



Of course the reason for this less-than-eye-candy install is that this is the car Air Ride Technologies used to prototype the system. Later, this car will get a fairly thorough rehab and upgrades to brakes and running gear, along with a lot of clean-up and paint.

In this first part, Herb Mundy will show how he installed the front ShockWave air suspension in the Caddy. You'll see how the original Cadillac frame was designed with larger spring tower openings that would have held the original air springs, but now leave plenty of room for the ShockWaves. While a good many GM IFS

setups require some trimming to get clearance, this car was obviously made for it.

As far as the modifications are concerned, they really consist of hardware changes where existing nutserts are removed and one small mount is removed by cutting off the attaching rivets. The whole process easily restored to original if you'd ever want to do it, simply by replacing the old hardware and mount. The original bump stop is removed to go seriously low and the sway bar link tube is shortened for the same reason. In all, this front conversion is one of the simplest I've ever seen done.

Slowly lower the A-arm until the pressure is released from the coil spring and then remove it. Be careful, move slowly, and play safe.



The two nutserts used to fasten the lower shock mount are removed with a chisel. They are held by small spot welds and generally come off clean.

The original lower shock mount holes will now be used to secure the lower ShockWave mount. This type of mount was developed at ART just so no extra mount parts would be required.



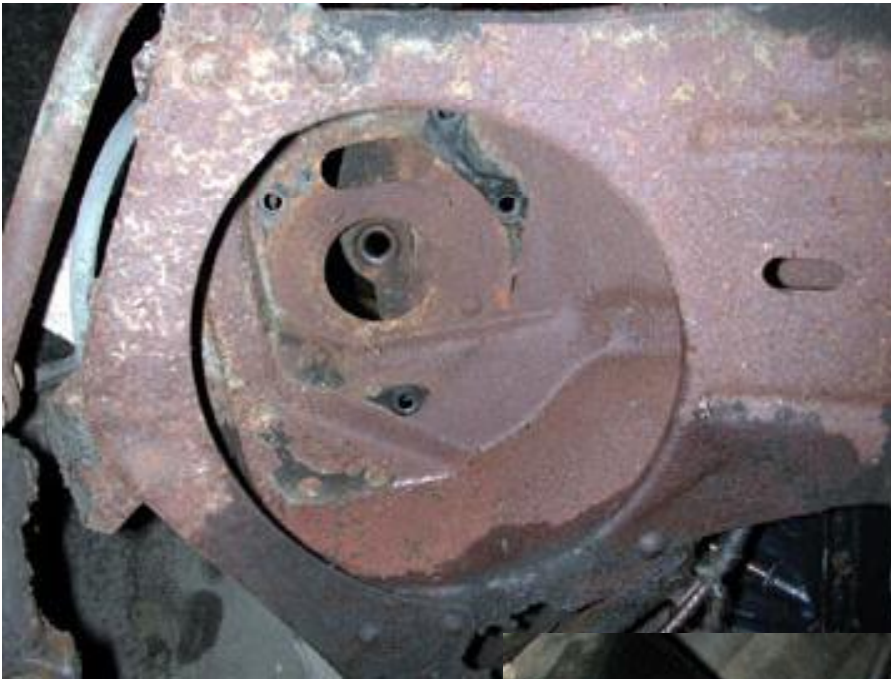


Look up into the spring tower and you can see the mount that was used to locate the top of the coil spring. It will interfere with the ShockWave so it has to be removed.

The trick is to clip the rivet heads off from the top using a small cut-off wheel. If you work carefully, you can remove the tops without damage to anything else.



Use a punch and drive what remains of the rivets down and out and the mount will come out from the bottom.



The result is more room above and a direct shot at what was the original shock absorber mount location.

There is a bushing swedged into the frame where the shock bayonet passed through. It is too small to allow the ShockWave mount stud to pass, so use a flat chisel to knock the edges over and drop it out to the bottom.



The bushing will drop out intact unless you go nuts and destroy it. The hole left is just the right size for the ShockWave stud.

If you worry about ever going back stock, save these, the lower shock nutserts, and the mount plate. I think I could restore these parts in an hour or so if I needed to.



The Air Ride Technologies kit includes the ShockWave, which is a combination of an air spring and a billet 12-way adjustable race-type shock wrapped up in a single billet housing (patented) and the hardware you need to install it.

After attaching the air line, the unit is slipped up into the tower and through the hole. You connect the line because it is easier to do before the unit is in place.





Unless someone pointed it out to you, you'd think the top mount was stock – and it IS! I love an installation where so much of the original is used to make it simple and clean.

The bottom mount is the same kind of setup as the original shocks, except instead of being mounted from the bottom, it mounts from the top. The dial for the shock adjuster faces to the outside for easier access.



Energy is transmitted directly to the A-arm instead of through the hardware. The lower mount is used primarily to prevent the ShockWave from moving out of position side to side.

Herb removed the original bump stop (another item for your bag) because it didn't allow the car to fully drop and because it is not needed. The ShockWave has an internal bump stop.



The sway bar link spacer tube was also shortened to allow the drop. You need to know that there are several things to consider and adjust when going LOW.

The completed installation is simple, straight-forward, and works great – what a ride!

