

<https://benno928.wordpress.com/2018/07/04/rear-speaker-upgrade/>

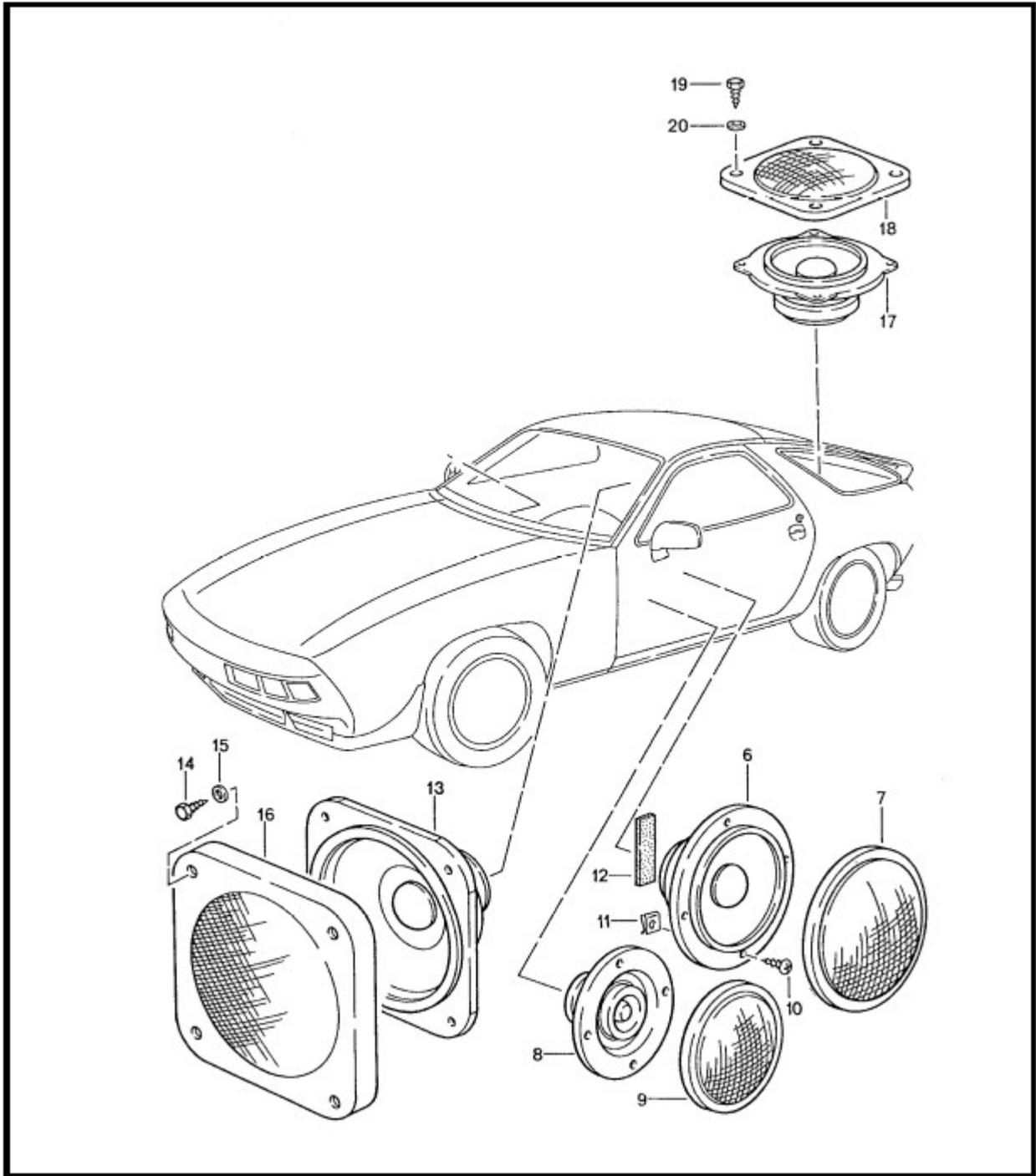
July 4, 2018

SPEAKER UPGRADES

If you've been following along with this blog you may have noticed a lot of time and energy spent on audio work. I blame my friend Doug, who when I first got the car proclaimed this coke-hauler needs a bitchin' stereo! This thought has kinda stuck with me and over the months and years I have been working on improving the sound system while still being true to the factory aesthetic.

The speaker setup in 928's varied from year-to-year. From 1985- 1988 the cars had 8 speakers operating on 4 channels.

- The doors have 2" tweeters and 4" mid-range speakers
- The B-Pillars have 6.5" low-range, or woofer.
- The rear deck near the C-Pillars have 4" mid-range speakers



The door speakers are on the front 2-channels (Left/Right) and the rear speakers are on the rear 2-channels (Left/Right). The speakers all use paper cones, small magnets use a simple filters to separate the frequencies into the respective speaker ranges. So the sound quality is pretty inferior with modern components that are widely available at a variety of price points.

In choosing speakers my main concern was maintaining the factory look so I wanted to preserve the factory grills. The other main concern is the shallow fitment on the door panels. With the help of a local car audio installer, Peter Clover at Mobile West, we were able identify some very nice quality components.

For the door speakers, the factory tweeter has a very unique fit that was difficult to match. We found it easier to use a single 4" coaxial (Tweeter plus Mid-Range in a single housing) and leave the factory tweeter disabled. These are the door speakers we decided to go with [Morel HiFi HYBRID INTEGRA 402](#). This is a high-end 4" coaxial component speaker that uses an external crossover. The 4" standard mounting holes on the speaker line up with the mounting holes on the door. So the only tricky part is making an adapter for the factory threaded speaker grills.

For the B-pillar woofers, life was a bit trickier. The factory speakers are 6.5" and have a unique mounting plate to the grill+frame. The system is designed to suspend the speaker above the trim panel. The challenge is finding a speaker that will fit. We ended up with Morel HiFi ADMW 6" Mid Range Subwoofer. The smaller driver would allow the use of an adapter plate to mount the speaker into the factory grill+frame.

For the C-Pillar speakers, we disabled those speakers since most people claim they are not audible from the driver seat.

B-Pillar Woofer Installation

Here is what the factory woofers look like. As you can see the speaker is integrated into a metal frame that mates to the speaker frame. The assembly holds the grill tight to the frame and the speaker so it does not vibrate.



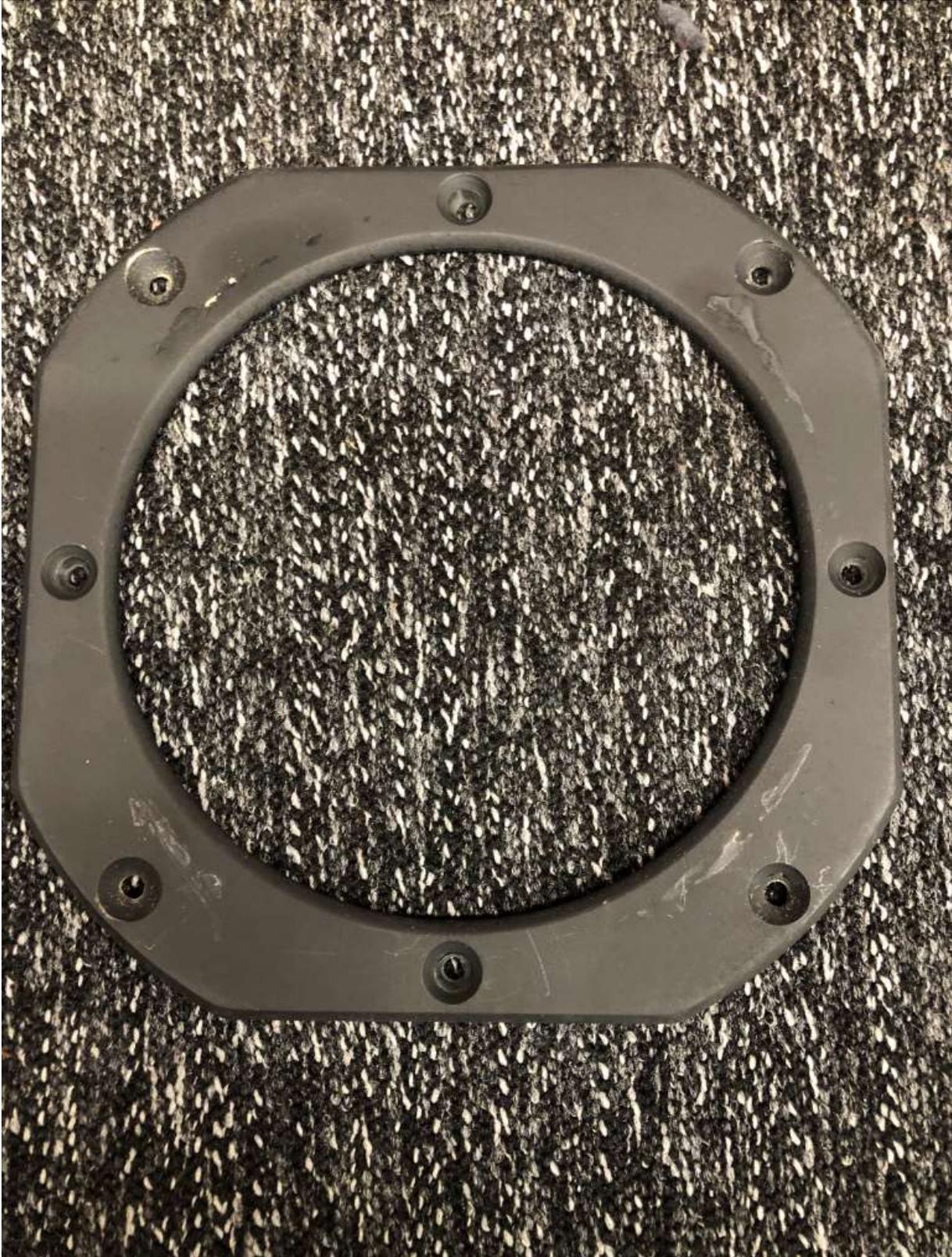


Here are the replacement speakers in reference to the speaker grills. As you can see the mounting holes do not line up. So an adapter plate needed to be fabricated out of wood.





Here is the adapter plate made from 1/4" MDF and then painted black.







The grills were loose in the frames so I used some epoxy to secure them and prevent them from vibrating.



Next I wrapped the adapter with some rubber bicycle tube to prevent any vibrations against the frame or mounting

holes.



Here you can see the speaker mounted in the frame with the factory securing tabs and screws. The final product looks perfectly stock and when I test fit it there were no unwanted vibrations!



Made in Israel
Warranted and distributed by
morel
Double magnet 160W / 40mm
70mm Hexatech Aluminium Vaid
Hand crafted by morel
ADMW 6





Door Speaker Installation

The door speakers were far easier to install but getting the speaker grill adapters made was a bit more complicated. I was fortunate enough to know someone with both CAD

experience and access to a 3D printer. I suggested that we make a threaded adapter ring that bolted to the speaker that would allow the grill to thread on.



Here you can see the adapter ring compared to the factory speaker.







underside of ring



threads on ring



threads on grill



this is the replacement speaker



the ring press fits on the speaker



back side of speaker



speaker mounted on door panel



grill threaded on





Here is the cad files for the front speakers in 3 formats

SDLPRT, https://docs.google.com/file/d/1iLE5DOe3w8hF44Ac1U-kY0c800Qcbv3X/edit?usp=docslist_api&filetype=msword

STEP <https://drive.google.com/file/d/1d5SlwHJB2XmCSShtv4Svg2QT8yVL4j4m/view?usp=drivesdk>

SLT https://drive.google.com/file/d/1Slw_Ba_wD2aywbl8h4Atwdmm0xsxRGsJ/view?usp=drivesdk