

## Grizzly's Rudder Pedal Mod

OK.....Before I get started, just let me say that I am **well aware** that the Comanche doesn't have anti-torque pedals and that yaw is controlled by twisting the SAC. However, it also uses pressure transducers for pitch and roll and does not have much stick stir either. Using a Cougar, for the joystick, creates too much movement. No matter what design I tried, to create some type of a lazy Susan/rotary table, controlling the excessive play proved too frantic (and carpal-tunnel inducing!).

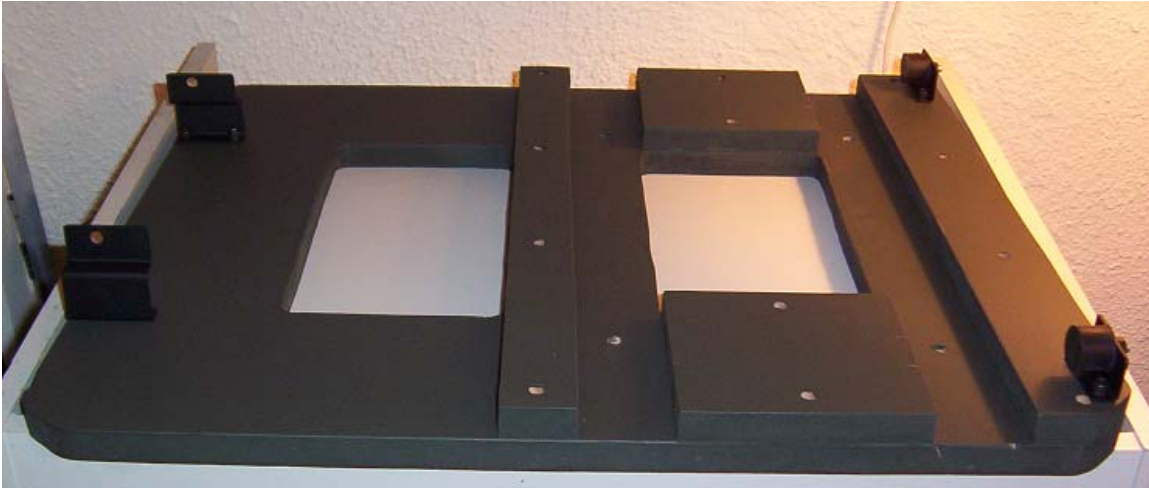
In the end, I opted to forgo that bit of realism and stick to a traditional pedal set-up. Those that have been following my project know that I'm all about the "-ish" anyway. An exact replica has never really been my goal here. That said, on to the pedals.....



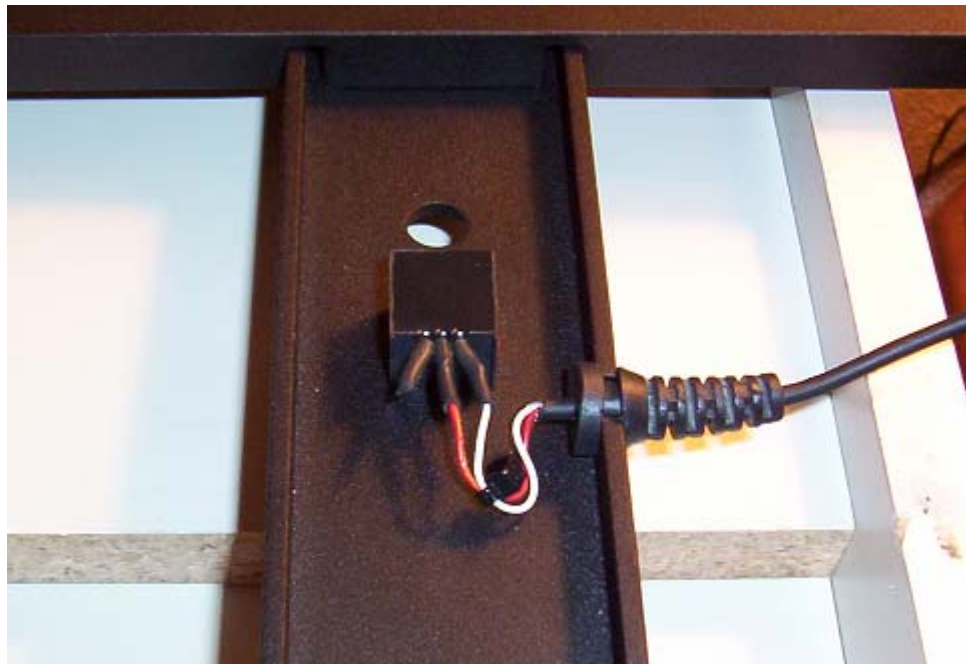
It started with my trusty (but worn) Thrustmaster RCS pedals. I wanted to beef up the hardware, remove the center detent, add hydraulic resistance, and elevate the pedals, so that the main section could be mounted below deck.

I was successful in everything but the last wish. I tried a multitude of different designs and pedal positions, all with the same poor results. The metal framing of the TM pedals was just too weak to be able to withstand the extra twisting forces induced by a raised design. (Oh well. You can't have it all.)

Beefing up the hardware encompassed a number of things. First, a base frame to better support the slides and to have a mounting, for the hydraulic dampers. I also added rubber bumpers, do define and cushion the stops.



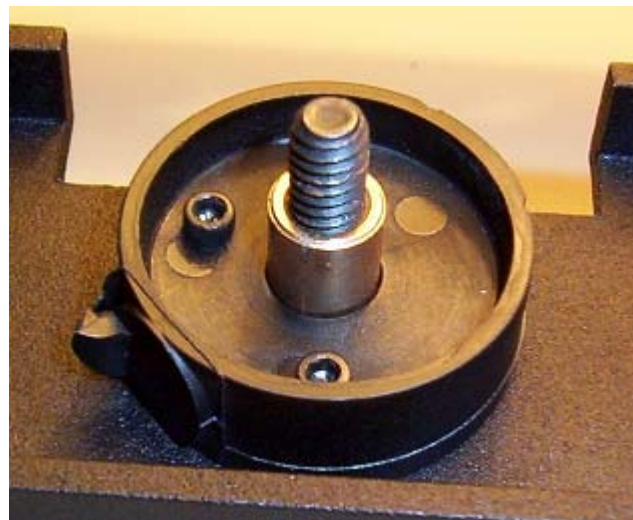
Next, it was time to get rid of the cheap, noisy pot. I opted to use the same industrial position sensor I used on my collective mod. It's not a hall effect but it is rated @ over a million cycles. (I can live with that.)



Next, it was time to improve the two main pivot points. They were starting to show wear and get a little sloppy. The top pivot (where the centering spring was mounted) was the worst. The plastic bearing sleeve was not too bad but the mounting hole was all stretched out. Since I had the room between the beams, now that the spring parts were removed, I opted to use an aluminum block to tighten up the hole.

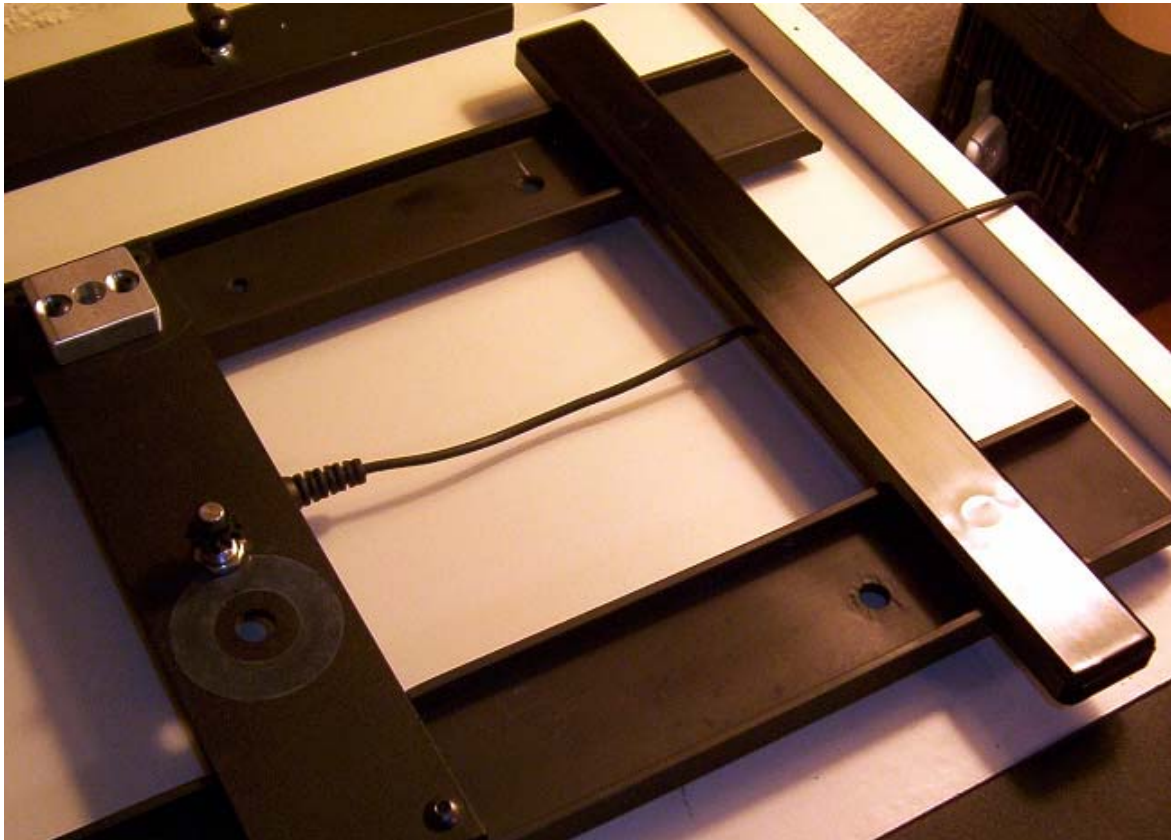


For the bottom pivot (where the pot was mounted), it was exactly the opposite. The mounting hole was fine but the bearing sleeve was very worn. In this case, I replaced the plastic sleeve with a brass one. I also added a second cap screw, to the gear wheel, to remove the slight play it had.

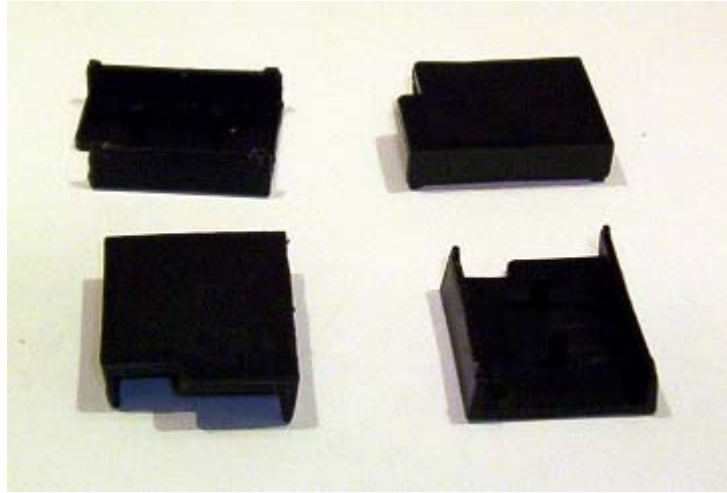


Now it was time for the slides.

I contacted CubPilot about his excellent RCS mod kits. As part of his mod, he provides heavy Teflon strips, to cover the slides and a Teflon donut, for under the gear wheel. While I wasn't going with a hall effect and didn't need his entire kit, I was intrigued by his use of the Teflon. Along with the long wear, it eliminates the need to grease (and re-grease) the slides. He was kind enough to sell me a sub-kit of just the anti-friction components I needed. (Big thanks to Cubby!!!!)



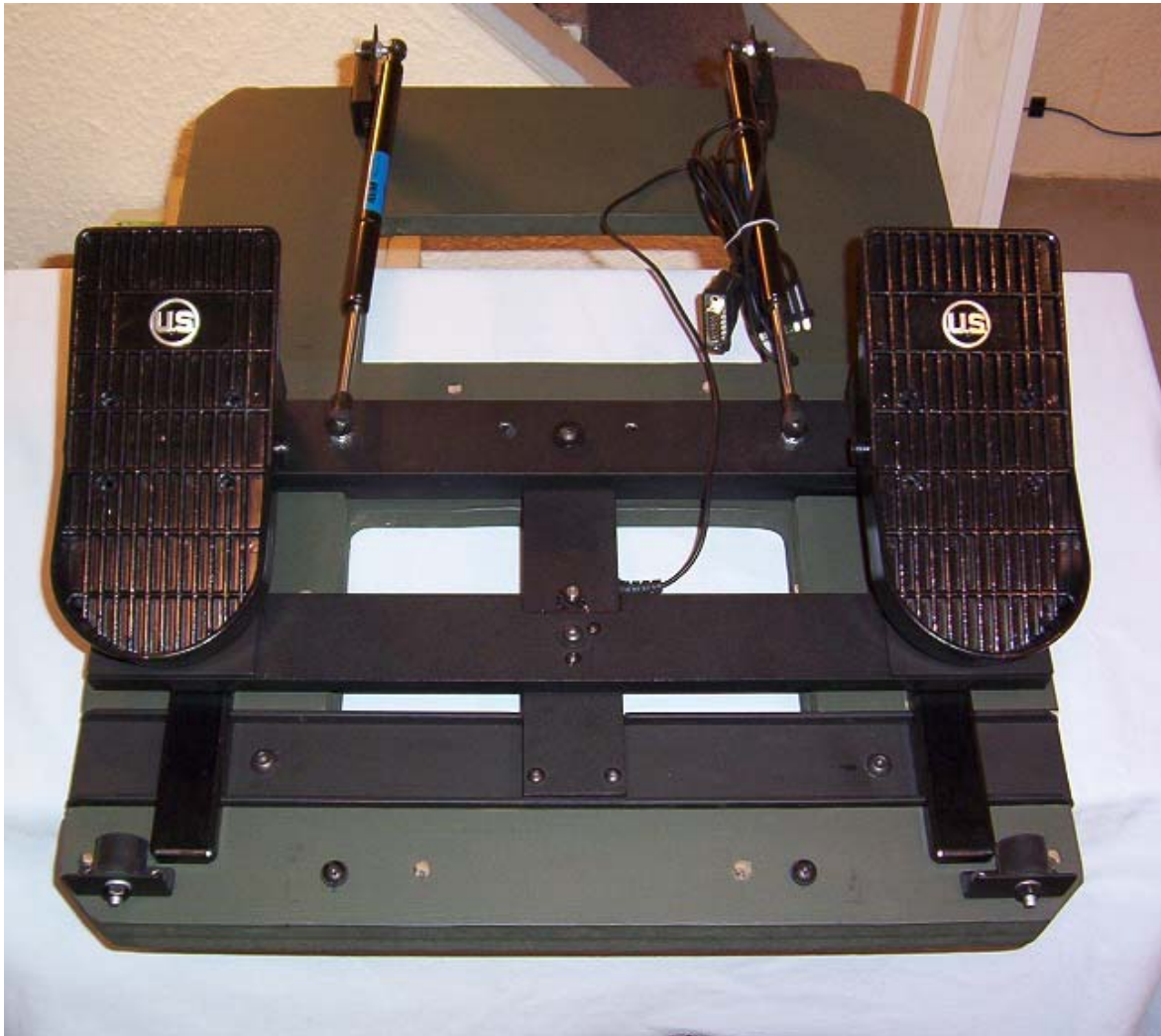
The other half of this is the top slides, in the cross rails. I was horrified to find upon disassembly, that what were being used were the same cheap, hollow, plastic guards that covered the pot. These are soft plastic and should not have been used as a friction surface, in the first place.



So, I replaced them with some solid chunks of black Delrin. (Cut, milled, and polished to fit.... Of course.)



After some re-assembly, it was ready to mount to the frame and add the hydraulic dampers. Again, with a nod to my earlier collective mod, I used the same type of dampers. The differences being that, on the collective, I used a 100lb extension damper and on the pedals, I used two 50lb compression dampers.



The last bit was to add a protective cover (with some skid tape.). It also helps to hide everything, now that it won't be below deck. Although, the base frame will be recessed into the deck, so it shouldn't sit up too high.



As a finishing touch, I dug some old USAF collar brass out of drawer, buffed them up, and installed them in the cutouts, where the old TM logo plates went.



**Well, that's it. I hope it helps to get those creative juices flowing!!! – GrizzlyT**