

Subaru Forrester Power Steering Rack Install

This document shows a set of pictures I took while installing a 1999 Subaru Power Steering Rack into my 1973 Datsun 240Z. The car had already been converted to a 1995 LT1 with a WC T5 transmission and I had kept the original pump from the donor car (Caprice 9C1) so I used it.

The steering has a feel similar to a higher end modern sports car. It's light but still has reasonable road feel. The Subaru rack I used seems to have a higher ratio than the stock Datsun so the steering is quicker than it was.

I raised the front of the engine 1/2" so the main pulley/dampener would clear the plumbing on the rack. This wasn't the only solution but it was the cheapest and had the added benefit improving the drive line angles. I didn't take pictures of the new setback plates but I can get Solid Works drawings if anyone wants them.



This shows the original rack along side the Subaru rack. 1984 Celica inner tie rod ends are installed along with the Subaru outers that were on the rack when I got it from the wrecking yard.

This combination provides plenty of adjustment to align the car.



This shows a Celica inner, a Subaru outer and the 2 connected.



This is the cross member I used, it's from a 280Z. I had to cut an opening to clear the valve body of the rack and modify the mounts to accept the different shape. After making the cuts I welded reinforcements to the bottom and top of the member where the cut was made and also reinforced the mount tower as it also had to be clearance.



This is the rack mounted to the cross member. I routed the fluid return line under and to the front of the rack. The 2 smaller lines are -4 braided with AN ends, the hard line was cut and tubing nuts were used to mate it to the stainless flex. Viperred1z on HybridZ.org provided these for me, he used them in an install he did but changed it after some problems so had them laying around. I've had no problems with leaks so this setup does work.



Here is the cross member mounted to the car. I cut the original steering shaft and machined a flange that allowed me to bolt a Subaru u-joint to it. The u-joint is half of the steering shaft from the Forrester. The shaft was comprised of 2 u-joints connected by a rag joint. I cut one of the u-joints from the rag, opened up the holes so I could use it with the flange I machined from a 1 1/2" long by 2" diameter piece of round stock.



Here is another shot of the steering shaft.



And another shot of the rack and steering shaft.



This shows the amount of clearance to the headers.



These are power steering adapters I bought from Speedway racing. They thread right into the GM pump and the pressure side of the Forrester rack.



This shows the pressure and return lines at the rack after the install was complete.



Another picture of the plumbing connections at the rack.



This pictures shows the routing of the lines across in front of the engine.



This shows a relatively high level view of the front of the engine. As you can see I used a power steering reservoir from an old Volvo and mounted it fairly far forward in the engine bay.