

# How Many Speeds Do We Need?

ARTICLE & PHOTOS BY  
REINHOLD SCHUETZ,  
EXCEPTIONS NOTED.

The story begins before I even purchased my 1969 280 SL. During one of the phone conversations I had with my restorer/seller, Karl Middlehaue of Wausau, WI, I asked him what else he would do to the car if he were to keep it rather than selling it. He thought about that and gave a two-part reply. He said that if he were to keep the car to show it, he would have it completely re-sprayed, as the paint had 48 years of "lebenspur" (life's markings). On the other hand, he said that if he were to keep the car to drive it, he would seriously consider installing a six-speed transmission. He always felt that it could use another gear or two for driving.

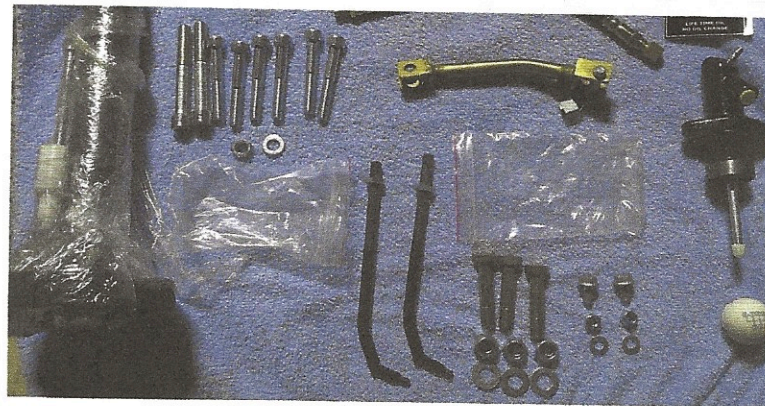
*After purchasing the car and driving it back to Washington State from Wisconsin, I agreed with him! The car had no trouble doing 75 - 80mph all day on our US Interstates, but the engine did sound quite busy at that speed, turning at 4000 rpm.*

Karl provided me with the contact information for the S&SG Getriebe, dealing out of Poland, that produced the six-speed based on a Getrag unit; so I sent off an inquiring email. That was the start of more than 30 emails over the next several months. The first email resulted in a reply from company owner Siegfried Thom. His command of the English language was a bit wanting and I think he was using Google Translate to



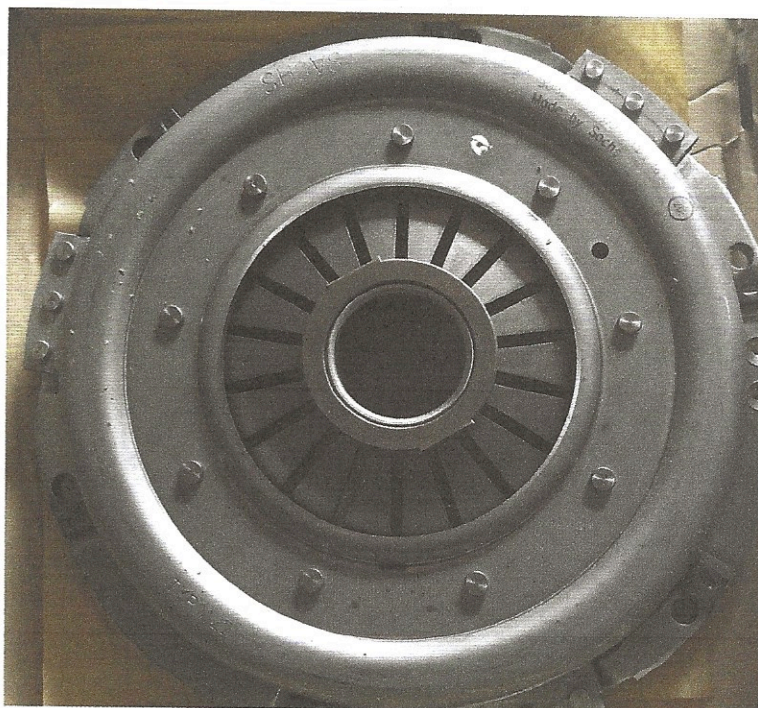
turn his German into English. Nevertheless, I got the gist of what he was conveying. Most of the subsequent correspondence ended up being with his wife, Anna Thom, who was a little bit better with written English.

The initial emails centered on the paperwork and wire transfer necessary to effect the actual purchase. Arranging for the wire transfer of the money and completing the various purchase documents was straightforward. Then began the correspondence regarding the mechanics of the shipping process; a kind of learn-as-you-go experience for me. The first real hurdle was that I needed a local customs agent to process the obligatory paperwork that would allow the shipper to bring the transmission into the country. I innocently assumed that when the transmission arrived at SeaTac airport, I would just be able to drive to the airport and sign for it with appropriate identification. Um, no. That turned into several days of phone calls to various offices and an eventual referral to an agency that handled private party transactions. Everything has its price! Once I retained them and filled out their requisite paperwork, it was just a matter of waiting for the process to unfold. Soon enough, a delivery truck pulled up to my curb, the driver got out, loaded a crate onto his dolly, and deposited the crate in my garage. Opening it was kind a like Christmas, as you might imagine!



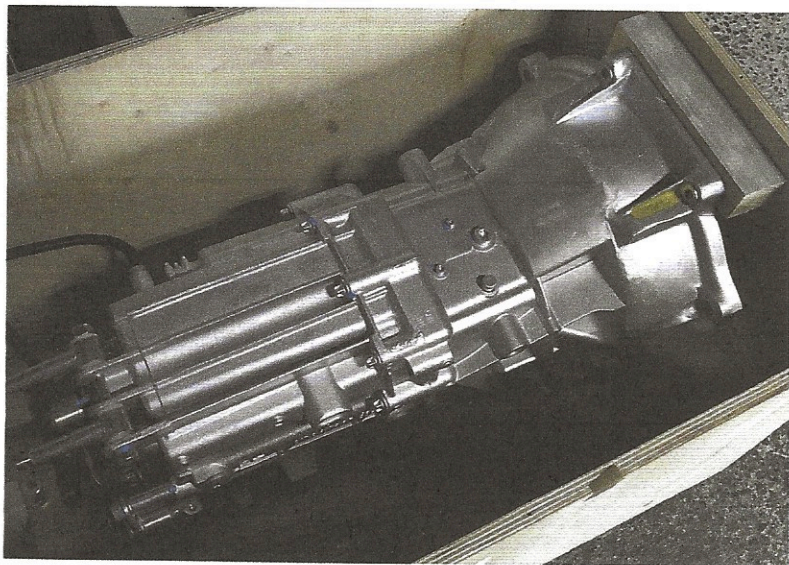
In this picture, you can see the new forward section of the driveshaft on the left, still wrapped together with the centering pin that we would be using when re-installing the flywheel, clutch plate and clutch disc.

While waiting for the transmission to arrive, I also ordered a new clutch pressure plate.



We performed all the work in my garage.

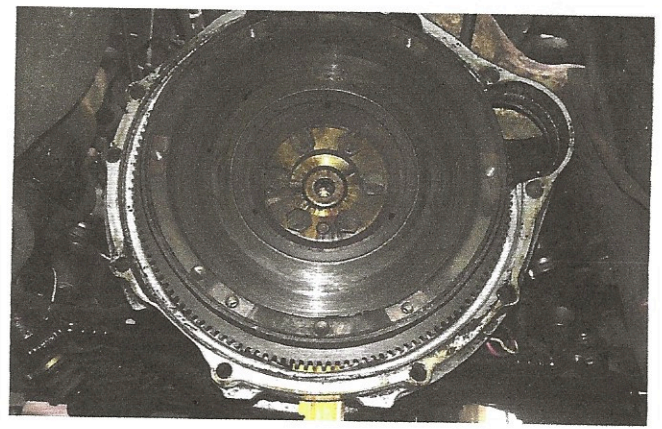
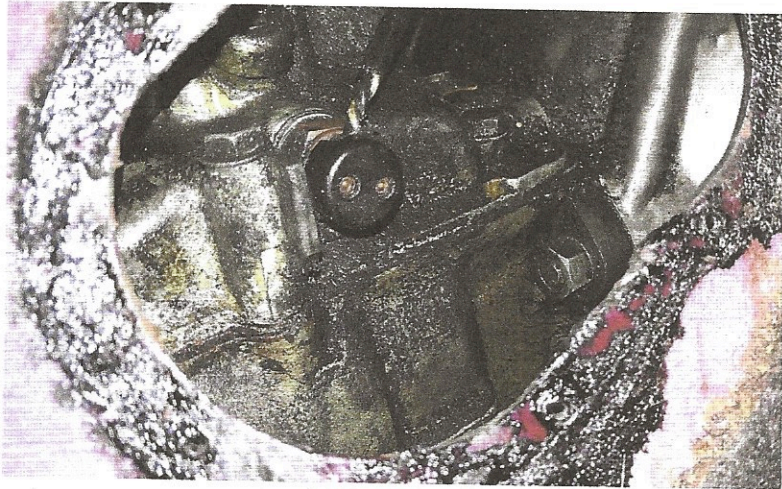
My son Nolan had previously pulled his Subaru STI's engine in his own garage using some foam lift ramps and blocks he had purchased for that purpose, and we employed those for this project. We drove the car onto the ramps in the front, then jacked the rear of the car up using the differential (and a wood block) as the lifting point allowing us to put the rear blocks under the rear wheels. Because of the tremendous amount of travel of the rear swing axles, we had to lift the rear quite a bit before lowering it onto those blocks, after which the wheels settled onto the blocks just fine.



S&SG starts with a Getrag transmission and does the work of turning it into this six-speed. The workmanship and accompanying parts all had a quality feel about them. The kit included all the necessary parts to accommodate the longer length of the new transmission.

## Now we could finally get to work!

Prep work involved pulling back the interior front carpets to get access to the two removable transmission tunnel panels and the shifter itself. The old transmission was a bit...oily.



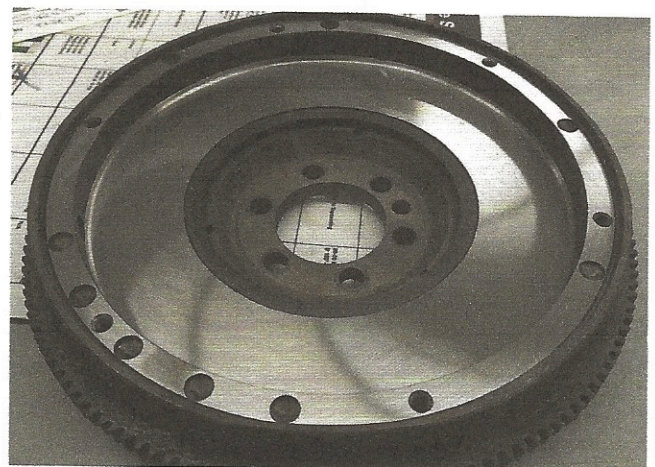
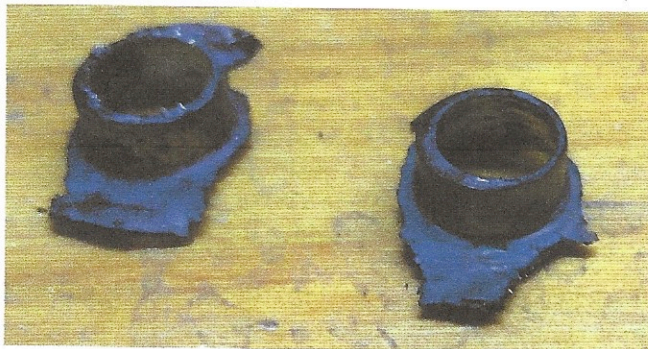
Once Nolan lowered the old four-speed down, he methodically removed all the remaining pieces attached to the rear of the engine, starting with the flywheel.

Note that at this point we were supporting the engine with the jack stand that had previously supported the old transmission. The starter has been removed from the adapter ring assembly. Once the flywheel was off, we also removed the adapter ring assembly, exposing the rear of the engine.

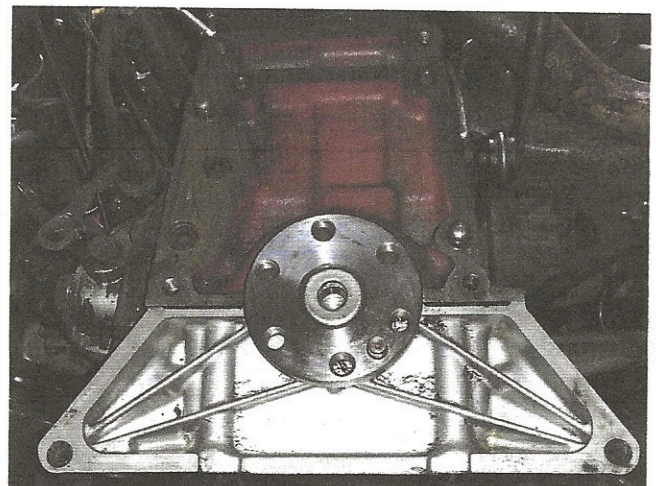
Now it was time to freshen up the pieces. Our local machine shop did a nice job resurfacing the flywheel.



The old shifter bushings - what was left of them at all - were paper thin, which goes a long way in explaining the long and sloppy shifter throws I needed to shift from one gear to the next!



I also cleaned up and repainted the transmission support plate. Of course, with the rear of the engine exposed, I did what I could to clean that up.



With all the parts cleaned up or replacement parts acquired, reassembly started - assembly ring adapter, flywheel, clutch disc and pressure plate were all installed. The supplied centering pin earned its keep!

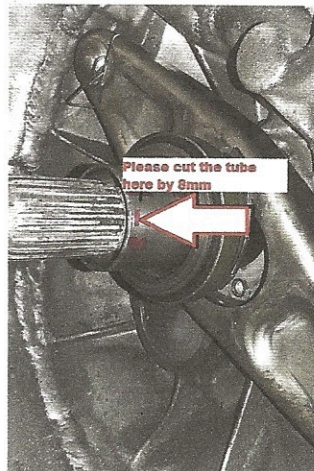
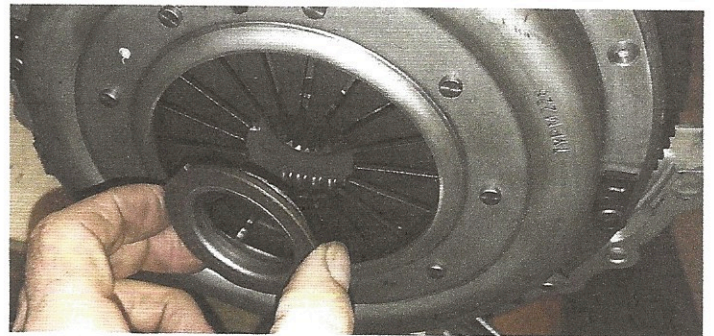
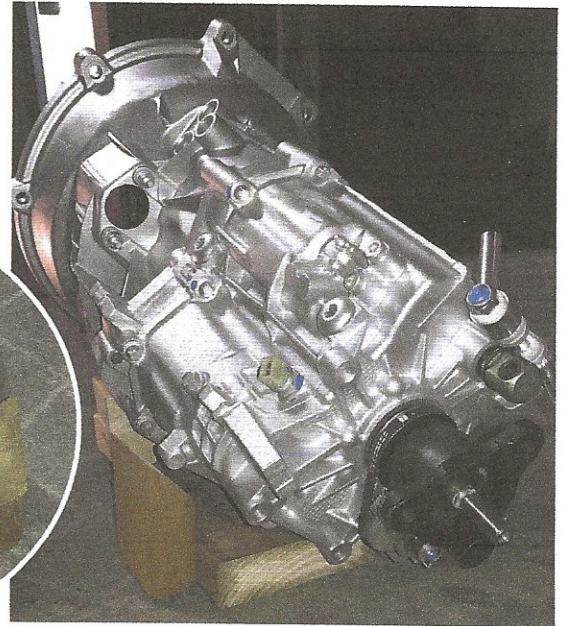
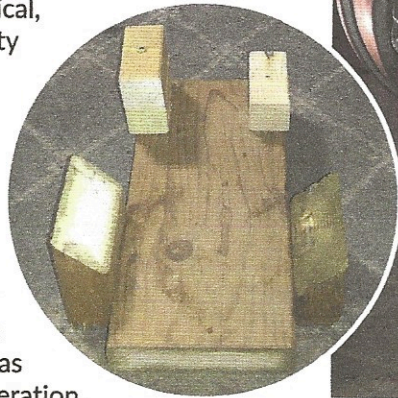
We were ready to install the new six-speed!

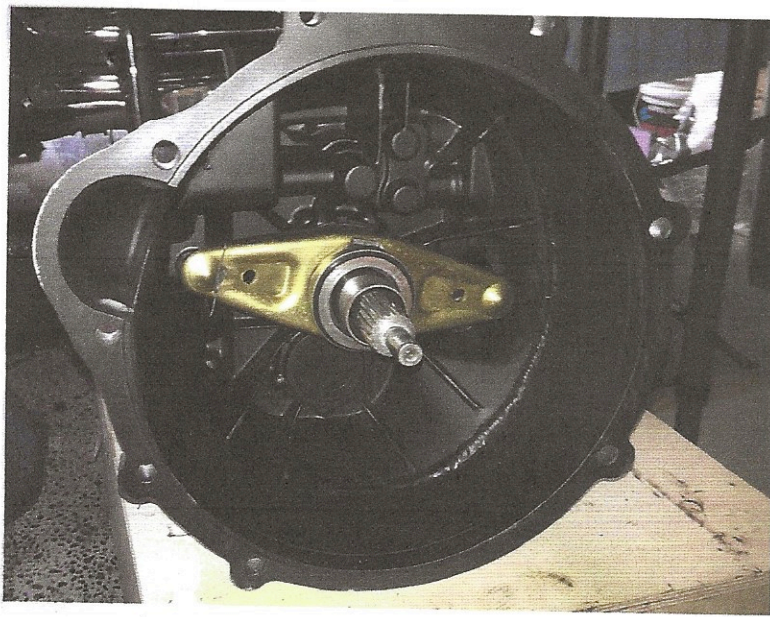
Because of the foam blocks that we had the car's wheels resting on, we were limited to using a floor jack for lowering the old four-speed down and raising the new six-speed up. In looking at the new Getrag-based transmission case, I saw that its two sides and underside were not symmetrical, so I fashioned a wooden cradle with a variety of wood blocks that I cut up to help with stability in the lifting process. Necessity is indeed the mother of invention!

Our first attempt to lift and install the six-speed with the wooden cradle worked reasonably well, but my son had some trouble getting the front of the transmission through the available frame opening to mate with the engine block. It was late in the day, so we called a halt to the operation. I sat down in front of my computer and emailed Siegfried about the issue. In his reply, which included his own explanatory pictures, he pointed out several different issues that he spotted in the pictures I sent him about our progress - all of which I subsequently addressed before getting back to the process of actually attaching and installing the new six-speed.

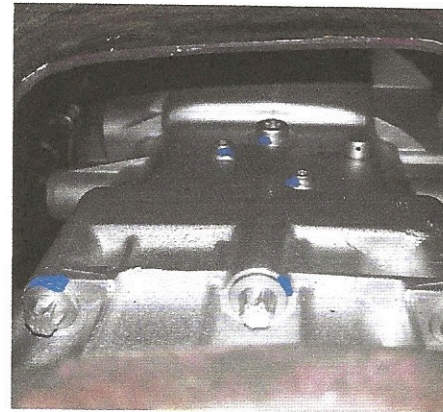
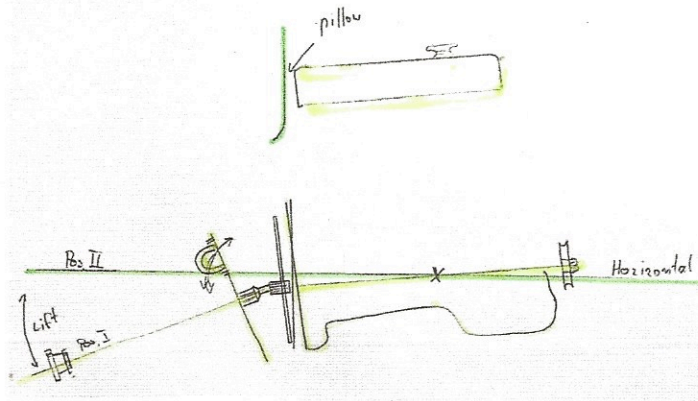
First I had to remove the new pressure plate as he recommended that the center slip ring needed to be removed. After a bit of prying, that was accomplished. Siegfried also added something that was not in the original instructions:

"We have found in one that the guide tube for the thrust bearing front is too long, please shorten by 8 mm, it is with 2 pieces M6 bolts (sic: bolts) SW 10 mounted."





The part he was referencing can be seen in the photo above. It is the tube around the toothed spline protruding from the transmission. Addressing that issue entailed: removing the tubing by undoing the referenced bolts, finding another machine shop that could shorten the tubing to the recommended length, handing over \$50 for the ten minutes of work, and then reinstalling the tubing and Loctiting the bolts as recommended. Siegfried's email went on to explain how to approach mating the six-speed to the engine, and he followed up with another supplemental email and diagrams further explaining the installation angle we needed. Siegfried also called out one other correction - he advised that we should remove the center bearing and dust cap and install them in the reverse order, which we did.

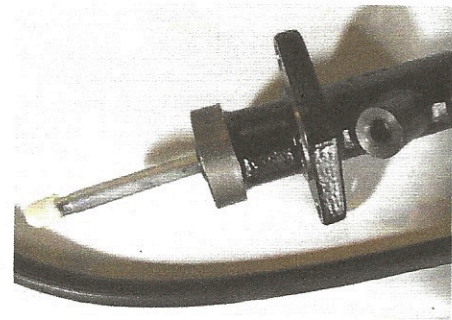


## Now we were getting close to that light at the end of the tunnel.

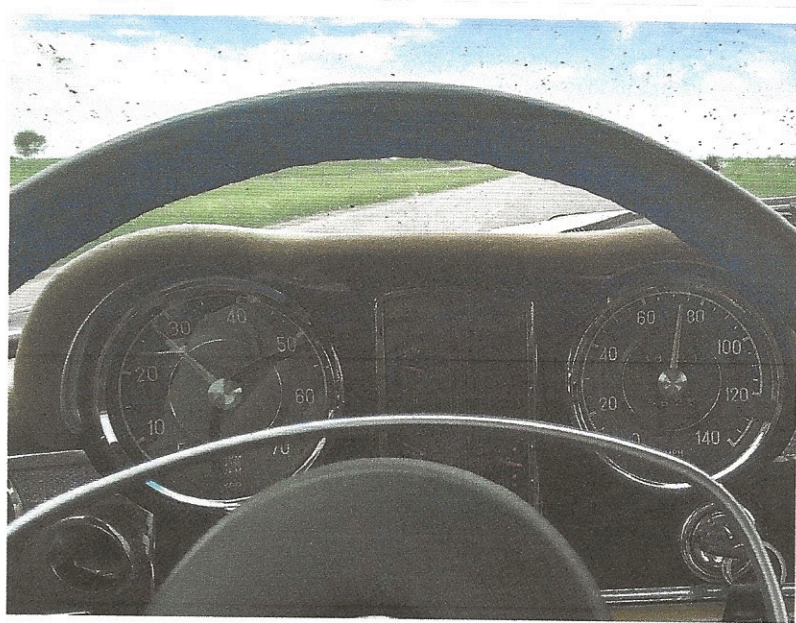
After digesting Siegfried's new drawings and the fractured English in his explanatory emails, we re-started the installation process. He was telling us to angle the rear of the transmission case down a bit while also rotating the case clockwise about twelve degrees. Nolan got under the car, we maneuvered the six-speed into position underneath the car using the wooden cradle and floor jack, and started pumping the jack handle. As the transmission rose Nolan grabbed it to both steady and, using his youth and strength, rotate and position it per

Siegfried's instructions. This time it worked!

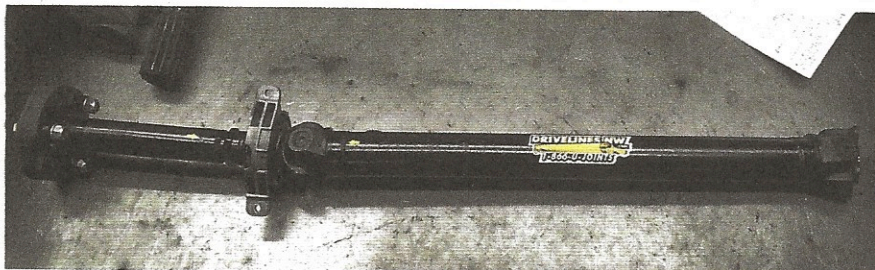
Once we had the new transmission in place, there was the busy work of installing more old and new pieces in the reverse order of removal: old shifter and new bushings, speedometer cable, new clutch slave cylinder and hose, starter motor, reverse light hook-up, support plate where the engine block attached to the adapter ring assembly.



At this point, we were pretty pleased with ourselves, but we still had to have the old and new driveshaft sections rebalanced as a single unit. However, because of the limitations imposed by having the car's wheels resting on those foam blocks, we couldn't rotate the old rear driveshaft section to get to all the bolts required for removal. End result, we bolted the new front driveshaft in and transported the car by flatbed to my local mechanic. He raised it on a proper lift where the wheels hung free, allowing him to undo all the driveshaft bolts and drop it down. I then transported the two sections to a driveshaft shop in Fife, Washington that did a super job, as shown by the before and after shots.



were no longer at 4000, but right around 2600 - 2700. As an added bonus, my gas mileage rose from the teens into the 23-25 mpg range.



Then it was back to my mechanic to have the newly balanced combined driveshaft installed.

Finally, with everything installed and reattached, it simply looked like this from the inside.

There was some residual cleanup, of course. The old transmission and all the replaced parts were carefully stored in the same crate that the six-speed arrived in. And the proof, as they say, is definitely in the pudding. My first major trip in the car after all this work was in June 2019, when I drove it to Illinois to my 50th high school reunion. During that 4200-mile round trip, the rpms at 70 mph (in 6th gear)



Having noted all that, I should mention that at the PagodaFest - San Diego 2019 (another enjoyable 2500-mile round trip) tech sessions, the old concept of an Italian tune up was discussed.

The fellow who was giving the session on injector pumps was reminiscing how in the old days, when a little old lady would bring in her SL running rough and poorly, they would take it out on the freeway and drive it in 3rd gear at high rpms for 10-15 minutes and bring it back to the shop purring like a kitten - so the engine is not meant to be lugged. I keep that in mind around town and have my fun as the opportunity presents, eh!?!