An Amateur Mechanic's Lament

By Jerry Shultz

So about two years ago our little family race team (Manager Licia, daughters Hope and Jamie and I) managed to blow up our beloved 240sx during a track day at ORP. Hope was probably doing about 125 when the engine suffered a complete loss of oil pressure and powdered all the main bearings in about a millisecond. I've got the baggie to prove it.

We love the 240, such a well-balanced car, so easy to drive, and she'd been in the family since new, so we decided we had to bring her back to life. We only got one season out of the race-built 4 cylinder we'd spent a gob of money on, so this time, we thought, let's just put in a chevy V-8! Cheap, almost bullet proof, easily available parts, lots of tuning options, how could we go wrong?

Let me count the ways!

First, I need to admit that none of us, especially me, claim to be mechanics. I'd worked on air-cooled Volkswagens almost exclusively, and I'd become pretty good at dealing with those, having had maybe 10 VWs over the last 50 years. But yanking out the bug motor, bolting on new cylinders and heads, and putting the thing back in could be done between breakfast and lunch. I think I got a little too over-confident – OK, a whole lot over-confident, about my mechanic skills!

My experience with auto mechanics otherwise consisted of changing oil, brake jobs and simple tune-ups only. But the girls and I thought we should give it a try. Hope has natural engineering talent, and Jamie has a very logical mind, along with some limited auto shop experience. Licia approved the budget (foolish girl!), so off we went.

We picked up an LS3 crate motor from GM and a new T56 Magnum from Tremec. A kit from a company called Sikky included some fancy billet motor mounts to fit the chevy into the S13 chassis, along with a nice oil pan that fit around the front clip cross member, an aluminum driveshaft, and some other assorted parts that were going to make the swap a simple plug-and-play - according to their advertising!

And the fun began.

The motor comes without the flywheel, so we had to choose a flywheel and clutch. Turns out, there are about 100 choices for each, and they're not necessarily compatible with each other. Got the right flywheel after two tries. Got the clutch right first choice – amazing!

Then came the bell housing. Again, many, many choices. Steel, aluminum, different depths – all depending on what vehicle they're intended for. The LS3 was used in Camaros, Corvettes, sedans, and trucks, but the crate motor was generic, so no guidance on all these other bits. Choosing the wrong bell meant the transmission shaft could be either too long or too short to fit properly into the engine, so with a little research we managed to get that right. The master cylinder for the clutch slave had to be upgraded from the stock Nissan, so we got a Wilwood unit from Summit.

Then we had to choose a new slave cylinder. Again, multiple choices, dimensions, attachment points, hydraulic fittings, - GRRRR! Turns out we needed a very “short” slave to fit the tranny/clutch combo we had, and the first two were too long. We found this one from Tremec, advertised as the lowest profile available, and it fit the tranny – but then it was too short for the clutch, so a number of conical washers had to be added to make up the difference. We had no clue how to choose how many washers to use, so we reached out to a great speed shop, well known to the club, Edge Motorsports, who made a house call to help us out (Thanks Brad!).
So now the engine, flywheel, clutch, slave cylinder, and tranny are all together in a lump. Time to get the lump into the car.

The Sikky kit included instructions for beating out the trans tunnel on the Nissan to accommodate the larger transmission the LS required. Just use a hammer and beat it out ½ to 1 inch, it said confidently, then it will fit.

Wrong. I’m guessing we had the lump in and out of the car maybe 10 times, beating out the tunnel sheet metal a little more each time, before we gave up and started cutting out the tunnel where the clearance was too tight. And I mean tight. There is about 2 millimeters of tunnel clearance now that it’s in the car.

The next challenge was getting the transmission carrier bracket from Sikky to fit to the chassis. The holes in the bracket they supplied didn’t fit the threaded, fixed location holes in the chassis, so we had to call Sikky and get a replacement. The new bracket came with slotted holes, so clearly, they had faced this problem before.

With the new trans bracket, the whole thing was finally in the car. Now to install the aluminum driveline. One inch too long! So, we called Sikky again, who basically told us that our Nissan S13 was different than every other S13 in the world and wished me luck. Thank heaven for our local driveline guy, who lopped off 1 inch and re-balanced the thing (for $240!).

And that’s where we’re at today. It’s in the car, we’re starting to hook up the new fuel pump, complete the exhaust system, and figure out how to shield the brake and fuel lines from the exhaust headers so we don’t boil the fluids inside.

So, we didn’t get the car ready for 2022, but heaven help us we are committed to Icebreaker ’23 for sure.

I recently had the chance to help my Granddaughter Brailey put together a whole apartment full of furniture in about 8 hours. The next time I think about an engine swap, I’m going to call IKEA!
See y’all next year!