Charles Ryan's
Custom Subtle/280YZ

Charles was kind enough to share with me the draft of an article he recently submitted to Kit Car Builder Magazine. I've simply reproduced his text here, and inserted some photos he also sent me. Please feel free to visit my website at www.ZTrix.com for more information on the Subtle Z fender kit or the 280YZ fender kit. You can also see a video of Charles' car in autocross action at:

Thanks,

John Washington

I just completed a six year project to create the sports car of my dreams. A couple of years into the project I discovered Kit Car Builder magazine on a newsstand shelf in Newark airport; I've been a subscriber ever since. Of all the magazines out there, Kit Car Builder is the one I'd be most proud to have this car featured in. Your magazine contradicted the notion that I was out of my mind.

Friends and family would make comments like, "There a dozens of great sports cars out there, so why would anyone want to pour so much effort into an old Z"? Well, I wanted a ***true*** sports car as opposed to today's very heavy "watered down" production GT cars with dialed-in understeer, "traction nannies" and steering that isolates the driver from the "driving experience".

I detailed the project to the extent that your editor will have to work overtime, but if you're interested in this project, I'm sure that this bloviated "novel" can be turned into something your readers will find compelling.

Background on Decision to Use 240Z as Platform:

At 19 years old, I scraped $600 together to buy a ten-year old 1973 Datsun 240Z with 102,000 miles on it. It had typical rust issues and needed more work that I could afford to have done at the time. The amazing thing about this car was how much fun it was to drive; even with its worn out struts, weak springs and holes in the floor.

The 240Z, even in stock form, communicates its connection to the road in a way that few cars do. A skilled driver can steer this car with just the throttle, playing with the limits of adhesion around sweepers. I just couldn't keep up with the rust that had attacked virtually every square inch of chassis and I eventually sold the car.

Over the next 10 years I owned 1986 300ZX Turbo, 1989 Toyota Supra Turbo and a 1991 Corvette Convertible. These luxury Grand Touring cars were simply masquerading as sports cars. They were heavy cars, more suited to our highways than to twisty stretches of pavement. The 300ZX and Supra were quiet and comfortable at least; the Vette was unsophisticated, with build quality so awful that it ruined the ownership experience all together.

I wanted a real sports car; light, powerful and nimble. Low and behold I came across a rust-free 1972 240Z with California plates in a customer's parking lot. I tracked the owner down and gave him my number in the event that he ever wanted to sell the car. Four months later, he called me and I bought it for $1800.

In 2002, I spent a year installing a 280ZX Turbo engine in the car with 5 speed and upgraded suspension. I modified the engine to produce about 250hp. In such a light car, the 240Z was very quick and handled well. I enjoyed the car in this form for a good couple of years, participating in autocross events and track days from time to time.

At a Watkins Glenn track day, an instructor intrigued by my car, took me around the track in it. He made that car do things that I didn't think were possible. I knew at that point that this was the platform that I could build my dream sports car upon. A year later, the turbo blew and I took that opportunity to build this car.

There are several factors that make the 240Z a fantastic car to make sweeping modifications to. It is light, weighing in stock at about 2400 pounds. There are extraordinary chassis and drivetrain modifications that are readily available for this car, collectively transforming this mild mannered GT into an ultra-high performance sports car.

The following off-the-shelf mods were performed early on in the project in an effort to strengthen the drivetrain and Chassis and to prepare the car to brake and corner with race car reflexes. The weak R180 diff was replaced with a 3:7 LSD from the mid-80s 300ZX Turbo; it installed easily with the mustache bar from a mid-70s 280Z. The very strong CV shafts from the 1st gen 300ZX traded places with the 240Z's failure prone half shafts.

Beefy 280Z rear hubs replaced the smaller 240Z hubs and Wilwood 4 Piston aluminum calipers and 12" vented rotors bolted right up to replace the factory front brake set-up. Rear drums were shelved in favor a disc brake conversion kit that utilizes 300ZX rotors and Maxima calipers. The rear calipers connected right up to the 240z's E brake cable ends with no relocation or adjustment. Even the larger 280ZX master cylinder was a simple swap out.

Vehicle-specific coil over suspension components, fully adjustable control arms and large sway bars allow one to dial in amazing handling characteristics. Thick, oversized, heavy duty frame rails that weld over the original rails were installed, making the chassis much more rigid. Final chassis mods consisted of seam welding the shock towers and installing a four-point Autopower roll bar and strut tower braces front and rear.

Interior

Unlike many other cars out there, the 240Z needs little in the way of interior upgrades. It's difficult to improve on this car's gauge layout, controls and pedal placement. Tall people feel right at home in this car with plenty of leg and head room. Swapping out the 240Z Amp gauge in favor of the 280Z Volt gauge was easy and the only physical gauge mod that was needed.

I installed white gauge faces with red needles and converted the incandescent bulbs over to blue LED's. The well-lit gauges look modern now and are easy to read day or night. I also swapped out the incandescent center console and dome lamps with modern white LED bulbs and added forward facing LED lighting underneath the seats that illuminate the foot wells when the doors are open.

I wanted more supportive seats and a quieter, more sophisticated looking cockpit. I found incredible seats in an unlikely donor car. The Nissan Pulsar NX seats fit nicely in the 240Z with bracket modifications. They are deep sporty seats with beefy side bolsters that offer excellent support and comfort. These seats did not belong in that anemic ride!

The grey and black herringbone fabric looks fantastic with the black carpet and dash. The Pulsar had a back seat, so I found several more of these cars in local salvage yards and purchased the back seats, using the fabric to create matching door panels and a center armrest.

I used Dynamat everywhere, installed new carpeting and had all of the stock plastic panels in the car clad in black vinyl. The interior now has a modern factory sports car look and feel.

It was also very easy to make the doors sound solid by inserting rubber strips between the door skin and the window mechanism and replacing the weather stripping.

Exterior

The original 240Z's lines had timeless appeal. My initial plan was to simply install ZG Flares to enable the fitment of wider wheels. I decided to add some money to budget for this build and go with a look that I had long imagined for this car. I came up with a

combination of exterior components that pay homage to the 240Z's timeless original lines while allowing for the fitment of much wider rims and tires.

The G-nose was a popular aerodynamic upgrade developed decades ago that elongates the front end of the car by 11 inches. The elongated nose balances out the car's new wider stance decreases high speed lift.

The look could not be created without the incredible skills of the father/son team of Ken Jones Sr. and Jr. The fact that these gentlemen are huge Z Car fans fueled their enthusiasm for the project. The attention to detail is evident in the fact that one might miss the important things they did to make this exterior look like it rolled off of a modern day factory production line.

From the doors forward, the fenders gradually widen to create wheel openings that are 3 inches wider than stock. The smooth transition from the G-nose into the wider front fenders was skillfully created by mating the G-nose to a widened airdam, continuing the fender lips into the airdam's lip.

This "factory" looking front end now easily accommodates 9.5" x 18" wheels shod with 245/30 ZR18" tires. We set the wheels and tires about an inch inboard consistent with production cars.

A carbon fiber hood replaces the heavy steel hood and the nose was actually custom shaped to continue the hood lines forward; a subtle detail that lends to the illusion that the car rolled off the "line" with this nose. Inspired by the 1962 Ferrari 250GTO, we crafted similar gill sets into the front fenders; plumbing the forward gills into the engine

bay with thermostatically controlled exhaust fans to help pull excess heat from that compartment. The aft gills feed the HVAC system.

The very wide rear quarter panels are racecar inspired and required the Jones' team's superior skill set to install for street car use. Racecar components do not incorporate inner wheel wells, fender lips or fuel doors into their design due to the singular focus of a racecar.

The install begins with the original rear wheel wells being cut back, welded shut and treated to prevent rust. Custom metal inner wheel wells were crafted from scratch and installed to look as if the car came this way right from the factory, complete with a removable panel to grant access to the fuel filler hose and fuel pump.

Fender lips that matched the front lips were incorporated into these racecar quarter panels to create a factory look. The rear quarter doglegs were sculpted to continue the rocker panel lines; a detail that goes unnoticed only because it exists. The rear quarters now easily accommodate 18" x 11" rims fitted with 295/30 ZR 18 tires.

We found that the early 90's Mitsubishi Eclipse billet aluminum fuel door mirrored the fender curvature where the new fuel filler neck would reside. We took this opportunity to update the filler neck to a late model locking neck with smaller inlet suited to modern pump nozzles. Again, the look is "factory" with a little flair created by the polished stainless steel Allen bolts that secure the fuel door frame to the new fenders.

I am grateful that the Jones' team insisted on the removal of the rain gutters despite the fact that this is an arduous task. They must be removed a little at a time, creating a gap between the body and roof that must be welded shut. The result is amazing in that the lines of the car flow seamlessly together now as the rear fenders and hatch pillars transition smoothly with the gentle curvature of the roof.

The rear tail lights needed updating and the bumper needed to go in favor of cleaner lines consistent with the rest of the car. Many hours were spent in front of a computer, mocking up ideas in photo-shop to identify the right tail lights for the car.

Ken Jones Jr. sent me images of what would end being the ultimate tail lights for this car. They are aftermarket LED tail lights for the late-90's Skyline GTR. We ordered an aftermarket fiberglass panel created to swap individual round tail lights into early Z cars and Ken Jr. incorporated the GTR tail lights into the panel.

The lower rear valance of the car is stock; the sheet metal was welded to close bumper mount holes and other slots, creating a late model Corvette-style rear with clean uninterrupted lines.

Even more time was spent finding the right rear spoiler for the car. Again, Photoshop helped us visualize spoiler options, allowing us to virtually fit dozens of spoilers to the rear hatch until we hit upon the prefect choice. The Jones' team crafted a custom base for the Pontiac Grand Prix's trunk wing; an odd shaped disk that looks more at home on the restyled 240Z than it ever did on the large Pontiac.

The custom base positions it to mimic the highly effective whale tails popular in the 80's, "spoiling" the air as it flows over the hatch. The spoiler's LED third brake light finished off the look and adds an element of modern functionality to the tail light system.

Staggered 3 piece aluminum wheels were manufactured by Boze Forged Wheels. The wheels have modern looking 6 spoke center sections with striking deep dish polished aluminum lips. The rear wheels are 18" x 11" shod with Sumitomo HTZIII 295/30 ZR tires. The 9.5" wide front wheels are fitted with the 245/35 ZR HTZIII variant.

Engine and Drivetrain Mods

One deficit was power. I set a 400HP goal for the engine and originally decided to stick with the Nissan L series engine. I installed forged rods and pistons in a 2.8 liter 280ZX turbo block and used all of the latest turbo, fuel delivery and engine management technology to achieve this horsepower goal.

The engine delivered incredible power and torque with limited lag thanks to a T03/04 hybrid turbo that effortlessly spooled up to deliver 12 pounds of boost at just 1800 rpms. The problem with an engine like this is that nothing better go wrong at the limits. Unfortunately, the ignition module failed at the limits and the engine essentially blew up. I needed a more reliable powerplant and started entertaining the V8 option.

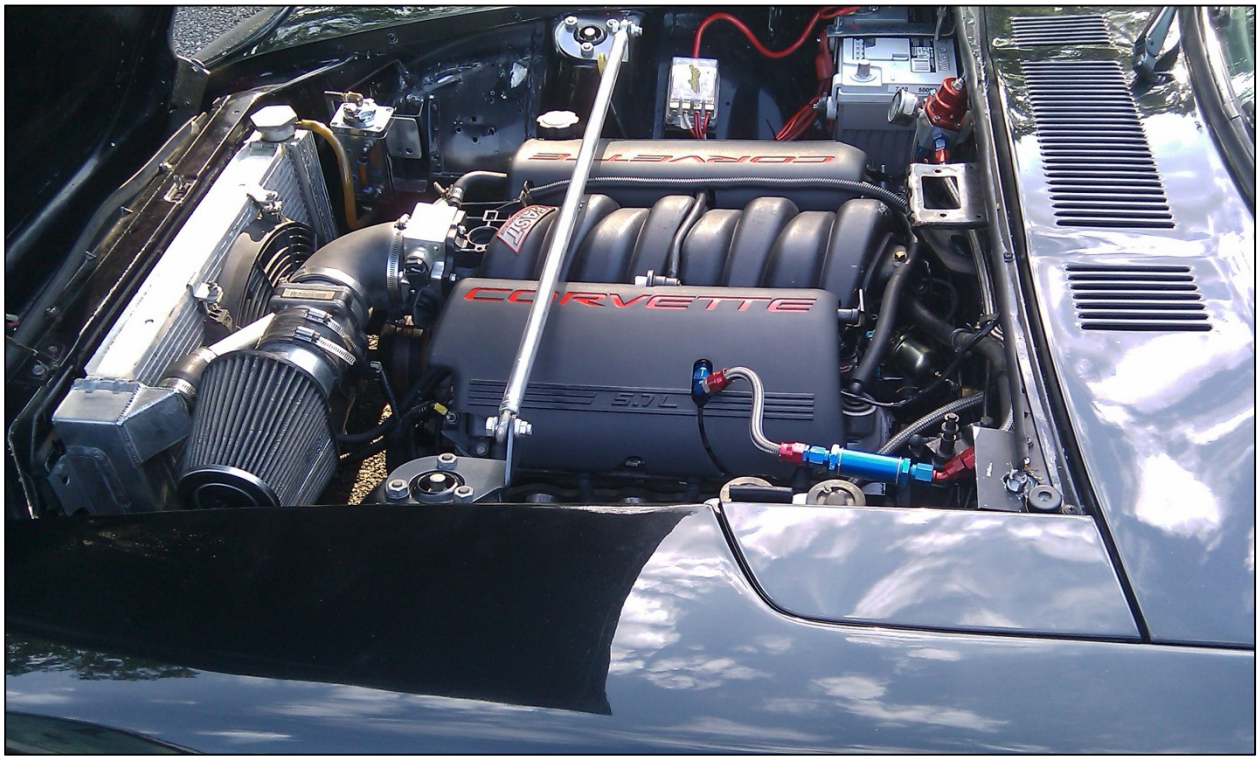
GM's LS1 engines deliver phenomenal horsepower and torque with normally aspirated reliability and modern electronic control modules. It was late fall when the Nissan engine blew up and the car was going into hibernation for the winter anyway, so the timing was right for an engine swap.

A friend of friend had an early Z car with a nicely modified Corvette LS1 and 6 speed transmission. The car had been wrecked and we made a deal to have the engine and drivetrain installed in my car.

The results are spectacular. The lightweight LS1 looks at home in the 240Z's large engine bay. Modified with mild cam, 90mm TB, Wilson "FAST" Intake, headers and free flowing exhaust, it delivers in excess of 400 hp. The 6 speed's ratios compliment the 3:70 LSD gearing and 295/30 ZR 18 tire OD.

The car rockets off the line with controllable wheel spin, sending the car sideways (if you want it to) as one shifts into 2nd at 6500 rpms, still propelling the car forward with

ferocity. If the desired effect is to have the rear tires hook up immediately, one just needs to shift with a tad less aggression.



Shifting into 3d at higher rpms chirps the rear tires as the speedo needle kissed the 100 mph mark; you grab 4th and you can't believe that you're still pinned to the seatback as she rockets north of 120.

The engine has a docile side as well; at 75 mph in 6th gear, the engine is spinning leisurely at 1800 rpms, delivering gas mileage in the 30 mpg range. Shifting into 3d at higher rpms chirps the rear tires as the needle heads north of 100 mph almost immediately. The suspension, drive train, chassis and braking systems were all modified specifically to handle this kind of horsepower, so reliability has been a non-issue thus far.

An unexpected treat came in the way of exceptional highway gas mileage. At 75 mph in 6th gear, the engine is leisurely spinning at 1800 rpms, delivering gas mileage in the 30 mpg range.

Modern conveniences and touches:

High performance enthusiasts tend to shun anything that adds weight to a vehicle and for good reason. The beautiful thing about having a 2500 lb. car with 400 hp is that one can add a few pounds here and there without sacrifice. I was pleasantly surprised how little weight was added to the car when I equipped it with power windows, keyless entry,

power door locks and remote control mirrors. All 3 mods added less than 20 pounds to the car.

I modified the mirrors with discrete LED pathway lighting that stays on for 45 seconds when the lock/unlock buttons are pressed on the remote control module. The headlights were replaced with sophisticated housings that incorporate high power Xenon bulbs and bright DRL LED halos. The brake/taillight LED's are striking and ultra bright as compared to the original incandescent bulb array.

The Sirius satellite radio is integrated into the custom carbon fiber fuse cover just below the stereo head unit. The low profile Sirius antenna looks right at home centered on the rear part of the roof just forward of the hatch. The sound system is factory looking as well, with an amp hidden under each seat and nine speakers nestled throughout the car, mounted flush with all surfaces.

A donut spare tire occupies the full size spare well beneath the rear hatch, making room for the 10" subwoofer that shares its cavity.

Summary:

A project like this is not for everyone. Modifying a 40 year-old car's chassis, suspension and drivetrain to deliver modern super-car performance is an arduous task.

Then there's the quandary one faces as the lines of the car start to come together to create something spectacular looking. Modest performance, antiquated lighting and inexpensive wheels fitted with adapters just won't do anymore. Performance modifications and aesthetics battle for your hard earned money until both are equally satisfied.

All said and done, I don't think anything compares to driving one's dream car around and having others validate the fact that you created something very cool.