

Z-Car Club of Washington  
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TO:

# The NewZ letter

of the Z-Car Club of Washington

Vol. XX, No. I

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Next Meeting: Flying Pig Brew Pub, 2929 Colby Ave., Everett, (425)339-1393 • 16 September 3:30



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**Prez Saysz**  
 As changes frequently happen in ones personal life, sometimes they affect what happens with club affiliations. This has happened to a member who has been of most valuable service to the club for a number of years. Tim Nevins, has decided to step down from the position of Secretary. I would like to publicly extend a world of thanks to him for what he has done for the club and look forward to hearing about your autocross adventures!

That line got me thinking (a mighty big accomplishment after a 3 day weekend) We seem to want a lot of different things from a new Z car. And a lot of different people with different objectives enjoy the car they call Z. Granted there are wild differences between the 240 in stock condition and the 300ZXTT in stock condition but somehow in-between and around those 2 (sometimes way around) we all find what we want. From stock restoration 240Z's to the V8 powered, complete suspension upgrade, spoilers all the way around pavement tearing up Z, there is a place we fit in.

At the August meeting, the position of Club Secretary had been filled. Susan Finn and Jeff Wieand have jointly taken over the position. Thank you for volunteering (and being volunteered, as the case may be) to take up the reigns.

The Z can be an autocrosser, drag racer, show car, Ferrari eater, or a daily driver. The Z is one of the only cars I consider "fun" to work on (granted I'd rather be doing an upgrade than a repair) The Z has styling, character and flair. And with anywhere from minor work to a major project it can easily be made uniquely yours. With the exception of the stock restoration Z's I have rarely seen 2 Z's that look exactly alike. Much like the owners."

In response to a conversation that has been happening on the Z-Car List, one that seems to be a recurring topic, Trevor Allen < T A l l e n 2 4 0 @ aol.com > wrote the following that I feel does a good job of explaining, in part, why we cherish the Z!

"<<Am I wrong? >>

Z-Ya at the meeting!

-Michael

### The NewZletter

A monthly (usually) publication of the Z-Car Club of Washington

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## ZCCW Application for Membership

Annual dues: Single = \$25; Family = \$30; Associate = \$15

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\*Associate membership is for those whom it would not be feasible to be able to attend any meetings or events.

Associate members in the United States will receive the printed version of TheNewZletter

To join, fill out application and send with payment to:

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Address: \_\_\_\_\_ City: \_\_\_\_\_

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Phone: \_\_\_\_\_

Z-Car 1: Color: \_\_\_\_\_ Year: \_\_\_\_\_ Model: \_\_\_\_\_

Z-Car 2: Color: \_\_\_\_\_ Year: \_\_\_\_\_ Model: \_\_\_\_\_

Z-Car 3: Color: \_\_\_\_\_ Year: \_\_\_\_\_ Model: \_\_\_\_\_

What area(s) of the club are you interested in?

Technical/Mechanical: \_\_\_\_\_ Showing my Z(s): \_\_\_\_\_ Autocross: \_\_\_\_\_ Rallying: \_\_\_\_\_

Cruises: \_\_\_\_\_ Other: \_\_\_\_\_

¿Do You Have Z Parts or Z's For Sale  
¿Are You Looking For That Certain Part or Z

Advertise them here in The NewZletter!

Call Michael at: 360.424.8643 or email: mswhite@sos.net

I am selling my 1983 280ZX. I have spent many dollars and hours fixing it up (and loved every minute of it). I am keeping my 240z (the next project) and I am buying a 1990 300ZX Twin Turbo. Here is a list of the upgrades done to the 280ZX since March 1997:

Replaced Rear deck seal (it was rotted and leaking), Replaced various lights, tail-light lens, Complete lube job/oil change/radiator flush, New spare tire and cartridge/rear wiper fixed, BRAND NEW STRUTS AND SHOCKS (and 4-whl align), Body work (rust prevention, scratch removal, dings fixed), \*\* BRAND NEW PAINT JOB (very nice too!), Warrantied for 2 years!, New clutch, master and slave cylinders, New top-of-the-line Sears Die hard battery, Recovered various interior panels with new vinyl, Brand new carpet installed, Repaired Air Conditioning (IT blows very cold), Replaced alternator, starter, and fuel injectors, New spark plug wires, Various screws, plastic pieces, and emblems to perfect the interior of the car.

This car is PRIMO now, and runs smooth and like a dream. There's a lot more, I just can't think of them while I'm writing this. Not to mention all the TLC I've put into the car. :). E-mail me at gcagle@lightningweb.com if you want to make me an offer for it. You can also call me, Greg, at 213-0964.



I am looking to purchase a 94,95, or 96 nissan 300zx either convertible or twin turbo. i would like a pearl white one or a black one if it is possible could you please contact me by e-mail at <popimp23@aol.com> if this is possible or call me by phone at 614-837-0470 and my name is Andrew.

1972 240Z in excellent condition. Wife's car since 1979. Retired and moving so must sell. 146K miles. Original orange color. New tires, brakes, including wheel cylinders. New clutch cylinders, radiator and battery. Everything works. Paint excellent. This car is all original and everything works. \$4500. Contact Burl Davies 206 725 2910

Does anyone out there have a wheel cover (called hub cap by my generation) for my '73 Z? Also can anyone recommend someone who can reinstall my radio. I know it's a simple job, I just don't want to do it! Preferably someone in Wenatchee or North Central Washington. Don Mollet, 131 Bogey Blvd., Chelan, WA, 509-682-5290, Email: <betdon@kozi.com>.

1974 collectors edition 240-z. Needs distributor and egr valve. Runs good. \$2000 OBO. Norman. <willisnb@sos.net>

Parts for sale. 240Z: chrome plated steering gear housing, side rods and compression rods. \$25.00; 4-sp transmission (includes shift lever, clutch cylinder etc) \$25.00; pressure plates (2) \$5.00 ea.; clutch/brake pedal assembly. \$10.00; half shaft (1). \$5.00. 260Z: elect fuel pump assy. \$5.00; Jim Phelps, Arlington, WA, 360-435-6845 <JimTrish@worldnet.att.net> .

'77 280Z, rare 5 speed, radar blue, garage kept, new tires, runs great. \$5,000 obo. 360.424.5134. Robert

I am in need of a hood from a 70-78 Z. My number is (425)806-1407 (home). Paul

'72 240Z For Sale. Left Front corner end damage - not driveable. Automatic. Bright yellow green ext. w/black int. 169,000 miles - Has been overhauled in the '80's. All original parts except mag wheels - still have original wheels. Perfect project car for someone. \$1,200 obo. Lee Moen (253) 839-4062

## Early Z Aerodynamics

This month we'll plunge into an unexplored area of Z info on which virtually nothing has been written: aerodynamics. If you've heard of Cd's (not music) before, some of this will be familiar. If not, I hope you'll find it interesting.

The 240 Z made its world debut just after the halcyon days of American muscle cars, and just before the Arab oil embargo that provoked America's shift toward fuel economy consciousness. By 1974, fuel economy concerns would begin to drive design features and aerodynamic profiles, but as the first Z was taking on its distinctive form in the Datsun studios in the late '60's, style, not aerodynamics was the primary concern.

Rather than emulating an American style, Datsun chose to contour the Z with European lines. A strong case can be made that the 240 was a direct conceptual descendant of the Toyota 2000GT, but the Toyota in turn owed its stylistic origins to the fastback designs of Jaguar, Ferrari, Maserati, and other European fastback designs. When the Datsun 240 arrived on American shores, it possessed the angular body lines currently popular in Europe, as well as an engine derived from a European manufacturer.

While American aerodynamic design of the late 60's shared much in common with El Capitan and Mount Rushmore, European design was little better, with the slight advantage resulting primarily from lower and narrower cars: less flat plate area, in aerodynamic terms. Many European cars had less aerodynamic drag than American cars simply because they were smaller. The graceful profile of the Jaguar XKE predicted where aerodynamics would push cars in the years hence, but in 1969 little attention was paid to parasitic, cooling, body pan, profile, induced, and aft body drag. The Seventies would bring a move away from angular lines toward rounded shapes; the recessing of radio antennas, wipers, rear view mirrors and other appendages; reduced windshield angles;

smooth belly pans; optimized cooling air apertures; and re-profiled noses and tails.

All the types of drag noted above appear in the 240 Z, resulting in a total drag penalty that is significantly greater than if each type of drag had been addressed and reduced by the Z's designers (which in fact they did do as the Z evolved). If one now wished to reduce the aerodynamic drag of an early Z, one would have to create solutions to the problems found in each of these areas, just as Datsun did with subsequent Z editions. What we'll do next is look at each station of the car and ascertain what kinds of drag are found in each location, and what the relative impact is of each.

First, an explanation: "Stations" are hypothetical, transverse, vertical "slices" of a car, and of the air around a moving car. Station 0 is at the forward-most tip of the car, even with the center of the front bumper on the 240Z. Stations with a positive number (24, 48, 56 etc.) indicate the number of inches aft of station 0. Stations with a negative number refer to locations ahead of Station 0, and indicate pressure changes in the air ahead of a moving car.

Now for a walking tour starting at Station 0 and moving aft. Looking at Station -12 to -36, we see that the area in front of a moving car is a high pressure area formed by air damming up in front of the vehicle. The dammed air will try to flow around the car somehow—under, over, or around, but in front of the car, a lot of air will remain relatively stationary compared to that flowing near the edges of the car. The pile of air the car pushes, combined with other types of drag, eats fuel and limits top speed so aerodynamic improvements are helpful.

Looking at Station 0 from the side of the car, we find that the front edge of the hood and the front edge of the lower valence define the radiator opening, and do most of the work of channeling airflow. The bumper,

which is not integrated into the bodywork, divides the airflow, creates drag, and reduces airflow into the area just ahead of the radiator.

The area between the hood on top, the valence on the bottom, and the headlight cans on each side can be thought of as forming a cooling air plenum which should guide air through the radiator. However, because Datsun designed the hood and valence for looks and not function, quite a bit of the air in this plenum "leaks" out into the front fender wells, through holes in the radiator bulkhead, and under the radiator. All the air that avoids transiting the radiator produces some lift (about 75 pounds at 60 mph) and raises the front of the car slightly, producing a slight reduction in traction, an increase in toe-in, and slightly more positive camber.

The waste of cooling air is important because any air that escapes the radiator 1) does not assist in the cooling of the engine; 2) causes drag as it tries to exit the engine bay, and 3) causes front end lift. Many newer cars are much more efficient at using cooling air, funneling the air from the body's cooling air inlet into the radiator with few leaks along the way. Improving the early Z's front end aerodynamics involves closing off cooling air leaks and adding ductwork to prevent high pressure air from bypassing the radiator.

If we were to get more specific about cooling air, we would pay attention to the rule of thumb regarding cooling air inlets and outlets: the exit area should amount to two to three times that of inlet area. The 240 would thus benefit from less air inlet area and tighter plenum ductwork.

The G-nose 240Z, produced in very few numbers, was ahead of its time and aerodynamically superior to the production 240. The G-nose extended the hood line forward and down to meet the bumper, trapping less air beneath the front hood edge, routing more air over the car, and reducing the cooling air entry aperture. Datsun would not repeat this integral hood/bumper trait in the Z line until the advent of the early 300 ZX.

Stations 0 through 20 contain the headlight buckets, and the turn signals and marker lights, located outboard, aft, and just below the lip of the valence. While the turn signals and marker lights are more fully faired into the body than many cars of the era, they still protrude slightly from the bodywork, and present a noticeably bumpier surface than their descendants on late 80's and 90's cars. Any type of protuberance creates what is known as parasitic drag. The role of parasitic drag in a car's overall drag equation is significant, if not primary, and the desire to address and reduce parasitic drag has created the smooth car exteriors we find today.

The headlight buckets are aptly named: they catch a lot of air, increase airflow turbulence, and produce a lot of drag. The cool solution to the buckets—headlight covers—can really smooth up that whole area, but they are, unfortunately, frowned on by many motor vehicle departments.

Stations 20 through 62 contain the upper surface of the hood and front wheel openings. Air moving over the forward portion of the hood is still relatively high pressure air, though less so than the air directly in front of the radiator. The high pressure continues all the way to the windshield at station 60, which is why ventilation air intakes are located just in front of the windshield, and also why opening the hood slightly does not result in significant venting of hot air from the engine bay. One would think that such a large area of high pressure would push the hood and windshield down, but lift generated by the air dammed up by the front of the car is greater and the net vector is upward. Drag created by the hood's "engine bulge" is relatively small, compared to other early Z features, but it is significant enough that few modern cars advertising exceptional fuel economy possess them.

Parasitic drag in the hood area from stations 62 through 82 is created by exposed windshield wiper arms and shafts, as well as from the rearview mirrors. As with the several other protrusions from the 240's exterior,

## Another Shrimp on the Barbie

A recent post on the 240 list, followed by a response by Prez Michael White led to me tripping over an advertisement for a company that makes car rotisseries. Yes, you can hook your car to this gizmo and work on its underbelly while sitting comfortably upright in a lawn chair. Even though such a device had been mentioned before in The NewZletter, it seemed like a good idea to repeat the contact info in case some of you missed it the first time around

Here's what Accessible Technologies Inc web page has to say about their product

"The Bottoms Up Lift is built by the Automotive Tools Division which grew out of a hobby and love for cars. Our first rotating lift for turning automobiles upside down was built in 1988. The Bottoms Up Lift created the market for body rotisseries and is the leading seller. A new tilter will be introduced within a few weeks, as soon as the patent is filed. It attaches to the wheel hubs and turns the auto on its side

Sound like something you just gotta have? Here's the info to get one

Telephone 423-975-8907. FAX 423-975-8908

Postal address: Accessible Systems, Inc., 440 Matson Rd., Jonesborough TN 37659-5763.

E-mail: General Information: sales@accessiblesystems.com

Sales: sales@accessiblesystems.com

Customer Support: cs@accessiblesystems.com

OR....if you'd rather build one than buy one, Steve Bloom contributed this info to the :240 Club

Plans for a build-it-yourself car-rotator occurred in an article entitled Spin Your

Wheels by Jeff Lilly in the November issue of .Classic Auto Restorer, pp. 70-80

Back issues of this article are available from: Classic Auto Restorer at (714) 855-8822, or by mail from: Back Issue Department, P.O. Box 6050, Mission Viejo, CA 92690 for \$5.50 (includes postage). Steve notes: "This address was in the Nov. '94 issue but is apparently current. You might want to call them before cutting a check. Current subscription address is: Classic Auto Restorer, P.O. Box 420250, Palm Coast FL 32142-9486. The article is a detailed construction description — parts lists, details of jigs/construction setups, etc. If you're seriously considering building one, get this article. Incidentally, the magazine is a gold mine for restoration tips and articles. (\$28.00/year)

-Z



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generate “camber” and thrust to one side or the other. And of course you’ll get lower cornering capabilities running 0 camber compared with negative camber.

4) The car becomes more sensitive to caster and toe in. Result: Turning in and turning out of corners is greatly affected by front and rear toe. The car can feel more nervous. Steering effort can increase markedly at low speeds. Tire wear can increase where adequate rear toe-in is not used.

5) Wider tires with more grip will expose any weaknesses in your suspension or chassis because more force is being directed into the suspension and chassis. Suspension weaknesses can easily include: sway bar, TC rod, and steering rack bushings; tie rod ends; steering rack; and top rubber strut isolators. Chassis weaknesses might include frame rail

damage or corrosion; structures to which sway bars mount; and general torsional rigidity of the chassis.

My own conclusion: For autocross, wider tires are a must and great fun. For everyday driving (particularly in rain or—yikes—snow and ice) they are not so fun and can be downright scary. I mount the big tires only once in a while now for this reason. Note that optimum toe and camber settings for autocross are very different than those you would use on the street. In other words, suspension settings optimized for autocrossing will produce atrocious street characteristics and make the car a real chore to drive. Also, I would never, ever loan the car to anyone with the wide tires on. You’re just asking for major trouble.

—Z

## Tom In The Graveyard

In our last chapter, our hero, Tom Carter, had called an emergency meeting of the Three Z Club, arriving at the secret clubhouse after midnight. But before the meeting had concluded, the Toothless Man of Skagit Head had found them and the group had scattered along their prearranged escape routes. Now it was up to Tom to gather the clues, find the answer, and figure out who the Toothless Man really was.

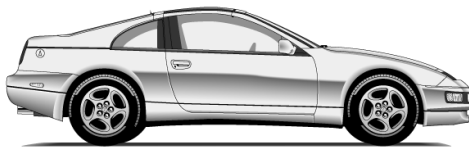
“Fifty fifty,” muttered Tom absently as he sped through the dark along the winding asphalt of Bailey’s Gulch. The trees seem to close in on both sides. Somewhere in his mind he knew the wet fall leaves could turn his sticky A008’s into ice skates, but what was important now was the identity of the Toothless Man. Tom was distracted and perplexed.

A mile ahead in the early evening murk was the Henderson Turn, bearing the legend of where in ‘68 Rory Henderson had ended his 440 Firebee into old man Malcolm’s woodshed roof. The Firebee was totalled, but Rory had lived, albeit a different man. And his face! Tom gasped Could it be??? Rory Henderson.....the Toothless Man?

Suddenly, without warning he was sliding, oversteering, spinning on a layer of wet leaves as if on new snow toward the entrance road to the old Adam’s cemetery. “I’ve lost it,” thought Tom as the Z slid between the graveyard gateposts. “The leaves....” he flashed again as he careened with a crash through the Adam’s family section, stripping tombstones and flower pots and sending them flying into the Garden of Heavenly Rest’s memorial reflecting pool.

As if in a rush, everything became still. “Am I dead, or have we just stopped moving,” thought Tom. He became aware that his face was wet, and he suddenly, clearly, could hear tick-tick of cooling metal. “Guess I made it after all,” thought Tom, and then the pain hit him.

Next Month: Tom In the Hospital!!!



1994 Nissan 300 ZX 2+2

these components represent only a small portion of the total drag picture, but they do produce drag and noise. I have never seen a single allusion to the aerodynamics of wheel well openings, which is odd considering the size of the feature, and therefore can report nothing on their aerodynamic impact. But I have some places yet to check, and if more information turns up, I’ll report on that in the future.

The angle of the windshield introduces another kind of drag: profile drag. Profile drag results from the general shape of an object, and is greater when profiles approach an angle perpendicular to the air flow. When the profile is closer to being parallel with the airflow, profile drag is reduced. The 240’s windshield angle compares favorably to many cars of the era (the Jag XKE for example), but it is noticeably steeper than that of almost all modern cars. Park your Z next to a 1996 Corvette and check it out.

Looking down from directly above the car, the early Z windshield is also relatively flat, i.e.: the left and right sides do not curve around very much. Air flowing from in front of the windshield around the A pillars to get to the sides of the car must make a sharp turn, and sharp turns always produce drag. Compare the Z windshield to that of modern cars and you will see how much attention current designs give to easing air from in front of the windshield around the sides of the cockpit.

Station 82 through 156 includes the top of the car, side windows, rear quarter windows, over-door drip rails, doors, door handles, rear fenders, hatch, and antenna. A lot is going on here, but the total falls into one of two general drag categories and we’ll look at each.

The top of the car is one of the smoothest places on the entire Z, and while smooth is generally good from a drag perspective, here it has another negative effect. The smooth top of the Z, gently falling to the tail, encourages high velocity air to remain attached to the roof surface, and that

attachment produces lift on the aft section of the body. The figure that comes to mind is 120 pounds of lift on the rear of the car, but I don’t recall now at what speed that figure is reached, though I believe it was either 60 or 100 mph. Lift on the aft body relieves load on the springs, and the aft body lifts slightly.

The MacPherson strut rear suspension acts like the front suspension when the body is raised: camber becomes slightly more positive and toe-in changes slightly compared to the body’s static setting. The mismatch of lift between front and rear at speed on the 240 is a major reason why the Z is known as an understeering car at low speeds and an oversteering car at high speeds. Oversteer and understeer characteristics are formed by more than suspension type and settings. An optional rear spoiler was available for the 240 almost from the beginning, though relatively few 240’s possessed one. Changing the aft body lift characteristics of the 240 involves either creating downforce, as with the original rear spoiler, or “spoiling” the lift before it begins.

A more effective alternative than a rear spoiler would be small, integral turbulator strips in the roof near the forward edge of the hatch, similar to those now found on many upscale driver helmets. Turbulator strips placed perpendicular to the airflow detach flowing air from the curved surface of the helmet (or wing, or Z top) and make it turbulent. Turbulent air does not stay attached to the helmet surface, and lift is reduced or “spoiled”. No one has ever marketed turbulator strips for the early Z or any other production car to my knowledge, but it is easy to see that such additions would fundamentally alter the unique lines of roofs and aft bodies, and thus probably be hard to sell. Reducing the downward slope of the hatch also would reduce the amount of lift generated, but then the distinctive Z shape would be lost.

Aft body lift produces drag of a type known as induced drag. Modern designers have moved a few paces down the road since the 240 and actively attempt to profile car bodies aft of the cabin area to reduce turbu-

lence, lift, and drag while maintaining visibility and marketable style. Function can always be improved, but is in the end beholden to style. Buckminster Fuller's Dymaxion, for example, took streamlining to the nth degree, totally ignoring style. The result was a teardrop shaped vehicle that looked (and sold) more like a fighter drop tank than a car and thus passed into history. But for its size, the Dymaxion had good aerodynamics.

An aerodynamic comparison of the 240 to two other high performance rooflines is useful. The first is the elevated rear deck style as found on the Toyota MR2, Lotus Europa, or Ferrari Dino. Air flowing off the roof bubbles turbulently back over the rear deck, creating less lift than is found in the 240. The turbulent air carries its own drag penalty, but that penalty decreases as the distance from the rooftop to the rear deck decreases, and the distance is small in these three cars. Ferrari also makes use of the low pressure formed by the sudden dropoff of the roof to the deck to assist engine cooling airflow, reaping some benefit from the profile.

The other style, found in the elevated aft roofline of some late model Honda Civics, carries the majority of cabin height all the way to the aft end of the car. Lift and, in some cases, even drag is reduced with this style, but negatives tend to include relatively poor aft visibility and an excessive high position for the large, heavy window that's used to improve the poor visibility. This style contains a subset of cars such as the Nissan 300ZX and Dodge Stealth (and the new Z??) possessing tall aft bodies and general wedge shapes, and having aerodynamics similar to the Civic.

The 240's side windows, quarter windows, door handles, and drip rails are not flush, and all the bumps produce parasitic drag and noise. The same is true for the radio antenna. While these components do not comprise a major percentage of the overall drag of the 240, they cumulatively represent a drag penalty that is worth avoiding.

Hidden from view, the 240's bottom is a last place to take stock. Of course the 240's belly is rife with all sorts of odd shaped valleys and projections, all of which interfere with the smooth passage of air. But the 240 is not much different from the most modern autos: full belly pans have become neither practical nor popular. Current cars <I> have better developed front belly pans than does the 240, but underbody aerodynamics have only been adopted and explored by formula cars to date. This could easily change; all it would take is another fuel supply crisis. But for now the 240 is pretty much on par with other cars.

## Conclusion

Reasonable aerodynamic improvements for the early Z are limited to cooling air inlet plenum improvements, cooling aperture alterations (G-nose kits), headlight covers, aftermarket front air dams, and rear spoilers. Other improvements—recessed wipers, antennas, marker and turn lights, and handle-less door latches are possible with a little more effort, and still preserve the Z's shape. Still others including windshield angle, flush windows, and altered aft body contours are only for the most advanced do-it-yourselfer to whom aerodynamics have become more important than style preservation.

—Z

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to: zccw@soc.net

## Big Wheels for the Early Z

The following request came to the 240 list:

"I have a 78 280Z that I am rebuilding/enhancing and I would like to use 16x7 wheels. I don't know anything about "offsets" or such. The reason I want to go to a 16" wheel is that I am planning to enhance the braking system and a 15" wheel is the minimum needed for clearance over the new larger calipers. I don't believe in minimums so I have decided on a 16" wheel. I am not planning to lower the vehicle but if need be I will flare the fenders. I am trying not to change the characteristics except for maybe a bit more rubber on the ground. Any suggestions would be appreciated."

As this question seems to repeatedly come up, I'm including my response:

I've used a set of 16 x 7.5" Centerlines on my 72 for some time. To try to answer the "fit" question concretely, I just measured my wheels. They have a 5.0" back spacing (the distance from a straightedge laid across the inside face of the rim to the inside face of the wheel where it bolts to the hub/brake drum). The Centerlines came with a 3/8" spacer which must be used to clear the springs and spring seats. This therefore works out to a 5 3/8" (5.375") backspacing. This conflicts with my memory from somewhere that you need a 4.5" backspacing on the early Z to clear the springs and spring seats, but I can't dispute the measurements. You would not need to use the spacers if you modified the spring seats and used 2.5" ID springs. I have heavier springs that have lowered the car about 1", and the 16 x 7.5 wheels with 225/50-16 Yokos clear the springs by about 1/4", and clear all four of the stock fender lips.

What is not often mentioned in the "will this fit?" conversation is what happens to the car handling. I think several things are very important here where wider tires are used with spacers, some of them good and some bad:

1) Wider rims allow the use of lower aspect ratio tires. Result: Lower aspect ratio tires with good grip will transform handling. On my car, more body roll results from tire sidewall flex of the stock tires than from the suspension itself. When I take off the 175 14's and put on the 225/50 16's the difference is astounding. Tire sidewall deflections of the lower aspect ratio tires cut body roll by nearly 50%, and transitional handling is much quicker and more precise.

2) The scrub radius is changed on all four corners. The scrub radius is the distance between the centerline of the strut and the centerline of the tire. Result: The car becomes more sensitive to road surface variation and no longer behaves "as stock" because the center of the tire is pivoting outside (rather than on) the axis of rotation of the strut. Deletion of the wheel spacers will improve this situation somewhat, provided you can clear the springs. But the Z also benefits from the wider track produced by the spacers. If you want improved handling, the wider track is probably worthwhile. Another negative of increased scrub radius is that more stress is placed on wheel bearings.

3) Wider tires make the car more sensitive to camber settings and tend to produce camber thrust. Result: Static and dynamic camber settings will generate transient side-to-side loads as the tires react to the angles of the road surface. For example, negative front camber on the left front corner in combination with a tilted road surface (humps, troughs, ridges) will produce a side force which pushes the tire (and the car) left or right. Left and right sides of the car, and even all four corners of the car, can simultaneously react separately, sometimes in concert, and sometimes in opposition to each other, generating constantly changing camber thrust totals. On a smooth road this is not a problem. On a ridged or troughed road this results in very nervous handling. Setting camber to 0 can reduce the problem, but will not solve it because the road surface itself can

## Stringer Needed

You've probably realized by now that the articles in The NewZletter heavily favor the early Z. There are simple and complex answers for this. The simplest answer is that the editor owns a 1972 240 with 230,000 miles on the odo, and thus has a ready base of experiences from which to draw. A slightly more complex answer is that early 240's are mechanically within the reach of backyard mechanics, while later model 280's not so simple. And 300ZX's (the ones where you can just barely see snatches of the ground when looking down through the engine bay) require a high caliber of fanatic to do anything more than change the oil. Thus the do-it-yourself database is much thicker for 240's than for 300's.

But we all crave information, and as a club we don't want to ignore anyone, so what we need is a newsletter contributor/expert on the 300ZX to step forward and clue us all in on a regular basis. We need someone with the answers, or the ability to find them, and the willingness to be the first person contacted when a question on Nissan's newer hardware arises. Gain fame and notoriety in one fell swoop! If that sounds like you, let me know. I promise the load will be light and shouldn't interfere with your league bowling schedule.

## Could It Be?

For those of you not on the Net, Greg Cagle forwarded this enticing post from Autoweek, Vol. 47, No. 35, Pg. 2):

"G.I. Joe and Barbie, your new ride is on the drawing boards. Actually, it's on the walls of Nissan Design in La Jolla, CA., where renderings hang of what Nissan North America hopes will be the sports car that will help to fill the void left by the demise of the 300ZX. But if Nissan builds the car, it will be in the spirit—and price class—of the original 240Z, not the more recent \$40,000-plus Z.

"The car likely would be rear-wheel drive, even though it would be built on the Altima's front-drive platform. Power would come from a high-output (200-plus horse-

power) version of the DOHC 2.4-liter four used in the new Altima and the upcoming Frontier pickup. Ironically, given the engine size, the car could be called the 240Z.

"Nissan has renderings of both a coupe and a roadster. The coupe is wedge-shaped, and has a low-profile bullet nose that sweeps up to meet the back end of the canopy-style greenhouse.

"Drawings of one interior are labeled "shut up and hold on to something," and have handles built into the bolsters of the passenger seat, as well as on the dash. Nissan North America is holding on, as its project awaits approval from Japan.

## E-Letters: Z Engines

A few weeks ago Jeremy Southern queried the ZCCCW list:

"Hey, I was wondering if ALL 1979 engines in the 280 ZX are the same. I own two of them. One of them is very fast as the other one is a lot more sluggish. Could you please answer this question

I was about to fire an e-mail back to Jeremy when I realized (oh dear!) that I didn't know when the Turbo came out. So instead I queried a few ZCCCW'ers and Mark Mullen answered that the Turbo was built in the 1981 & '81 1/2 model year, as an automatic.

That questioned answered, I felt free to answer in this way: There was only one engine, and all should give about the same power. But that was, let's see, eighteen years and a lot of piston mileage ago. All manner of things might have happened in the intervening years to decrease the power of either engine. Worn valves, rings, cam system, and intake system all rob horsepower. In the other horsepower direction, unknown engine mods including head milling for increased compression (intended or not), carbon deposits, and/or an aftermarket camshaft might have actually increased the engine's power over that of the original. So a wide discrepancy between "old" Z's should be expected.

-Z

## Fifty Fifty

Most of the articles that make it into The NewZletter are mechanical and advisory in nature; we like to address common problems and be of help to Z owners. This article, however, has to do with driving philosophy, a particular philosophy in fact, one that even has a name. It's called Fifty Fifty, and it will improve your driving and your ability to avoid sheet metal contact.

We tend to drive the percentages. A silent voice constantly whispers: "I'm operating at 85% of my maximum right now." "The chances are very low that a deer will cross the road up ahead." "Chances are high it's going to be snowy up in the pass today." "Chances are low that my left front wheel is going to fall off." Many of these conclusions are accurate. But in a very important way they are all grossly inaccurate.

Fifty Fifty came to my driving awareness via a circuitous route, by air as it were. It's first articulation came via a man from near my hometown who became a WWII fighter ace flying off Navy carriers. He didn't have a name for it, but his explanation went something like this: "When you take off and land on a carrier, problems can become very important in a real hurry. Everyone encounters these problems, and if they live long enough, they will encounter quite a few of them. So every time you take off you think: 'What will I do if the engine quits just off the deck? How will I land differently if I return with control surface damage? What do I do if the main fuel pump fails on takeoff?' There's a whole bunch of major things that can happen in the next one or two seconds that you can survive if you act instantly and correctly."

That type of mental approach increases one's chances to survive and is part of the Fifty Fifty perspective. But there's another component to Fifty Fifty, one that puts a different light on the wide array of assumptions we make when driving. It's best illustrated by considering an accident that has already taken place, perhaps even one out of your

experience. Lets say a driver on a given day has an accident at noon. The reasons in this case are irrelevant. The accident happens to be a rollover at highway speed, and the driver escapes badly shaken, but with only minor injuries.

Now think about the hours, minutes, and seconds just before the accident. In this case (and in virtually all accidents) there was nothing out of the ordinary about these time slices. The normal percentages were all in the green right up to the instant when the norm went haywire. One moment the driver wasn't having an accident, and the next moment he was rolling, as if a bad-luck switch had suddenly been thrown. The Fifty Fifty view of such an incident is that there is only one percentage that has any real meaning: either something will happen or it won't. Fifty Fifty. You've got an even chance that something extraordinary will happen in the next instant.

Say it again: Either something will happen. Or it won't. On the day of the Big One, statistics don't mean a thing.

If this mental exercise sounds too intellectual, then it's high time to take it out of the theoretical and bring it into the driver's seat with you. Like an accident, this is a personal thing. Study the dash and grip the steering wheel. Think about the oncoming car or the upcoming intersection. Consider that the next move that you make will be THE most important one in your driving life. What happens in the next five seconds will boil down to an either/or. And the five seconds after that. And the five after that.

The exemplary driver knows the most about what's going on, which means he or she is more aware than other folk. Practicing awareness is good. It's hard to improve without practice. And it's impossible to improve without considering not only the common possibilities, but the uncommon ones as well.

I have been driven completely off the road in snow by sleeping truck drivers, have been passed in heavy slush by spinning overtakers, and have avoided large wildlife in bad visibility more times than I can remember, so I know that if you put on enough miles, you too will encounter unusual and potentially disastrous situations. The real question becomes: Will I be ready? Will I make the right sequence of moves? Or will I be adjusting my stereo's equalizer or making an important (ha!) cell phone call?

There's a disconcerting result to becoming a more accomplished and capable driver: If you are successful, the chances will increase that if you are involved in an accident, it will have been caused by someone who is less aware and less able than you are. You will be a victim. That means that the better driver you become, the more you have to compensate for the inability of others.

I'll close with another aviation tie-in. It is generally accepted that accidents resulting from pilot error share a pattern of multiple pilot errors. The list is unusually short. One can possibly get away with two or three errors of judgment, and maybe even four. But make five and you will be on the ground, somewhere. The carryover to driving is simple. Just as a good landing begins with good "chain" of decisions, so too do successful escapes from driving predicaments depend upon a series of correct, rapid decisions.

The aviation community believes that awareness limitations are not innate, and that awareness can be taught. Expanding a pilot's advance awareness—his awareness into the immediate what-if future—is the goal of aviation Judgment Training. Car drivers have no such organized assistance (I purposely and publicly ignore driver's "education" here). Drivers must learn on their own. And that's what a Fifty Fifty perspective helps one do. Give it a try. It won't hurt a bit, and your drive will become a lot more interesting.

-Z

## California's SB42

Kyle Hagemann of the 240 list has been keeping that body apprised of the condition of a bill in the California legislature that would exempt older cars from emissions checkups. We should all be interested in any legislative alternatives to "yank-'em-off-the-road" because the first laws passed will become models for other states. Here's the latest from Kyle:

SB42 moved on to the Assembly floor last week, where it was amended on September 5. Instead of being a rolling 25-year exemption, it will now exempt all \*PRE-74\* vehicles immediately. That's the good news, especially for those of you with '73's. However, the exemption will not roll forward again until January 1, 2003, where it will exempt all vehicles \*\*30\*\* years old and older, instead of the originally recommended 25. Bad news for lots of you, especially those with 260's. For more info check this website: <<http://www.smogcheck.org/000138.htm>>. Follow the SB-42 link. If you're unhappy with this modification, contact your legislator. I believe that any amendments need to be approved by the state Senate also, so this is by no means done and over with. I don't know why it was amended to be 30 years old and older, instead of 25. The only objection to SB-42 so far has been the C.A.R.B., who said they'd support the bill if it was changed to read 30 years. I don't know if the C.A.R.B. has that much pull or what. Anyway, that's the latest. More to come!

-Z



## Pacific Northwest Meeting of the MindZ

Despite the long ferry wait for some and the mix-up regarding how much everything was going to cost I believe that most everyone who attended this years event had a great time! Perhaps next year we'll head over to Port Townsend on Friday afternoon to beat some of the Saturday morning traffic. We'll see.

The B.C. Crew put together a filling evening meal on Saturday and Janene & Company put together a splendid breakfast the following morning! I doubt anyone went hungry that weekend. Great job everyone!

After breakfast on Sunday morning, we had our scavenger hunt. Jim Tomisser, knowing quite about the Port Townsend area, pretty well put this whole event together. Jim put together a list of 19 items that could be "found" in and around Port Townsend.

Of course, you cannot have a scavenger hunt without prizes, and we didn't want to disappoint. So congratulations go to...

First Place: Jeff Wieand - One Years Free Membership.

Second Place: Greg Cagle - Z Valve Stem Caps.

Third Place: Ross Corrigan - One Years Subscription to Z-Car Magazine.

Fourth Place: Susan Finn - Z Key Fob.

Fifth Place: Mark Mullen - Z Key Fob.

And, Jim, thank you for putting together a great event! I heard from many people who took part that they enjoyed the opportunity to do some searching around in Port Townsend!

-Michael





connection between the left and right sides of the vehicle in the area where the rear sway bar and front pivot point of the rear suspension mount.

Another owner-performed, non-stock hole that is sometimes suggested (in conjunction with cooling problems) is in the aft portions of the front fender wells, large enough to mount an exhaust fan to rid the engine bay of excess heat. This portion of the fender well connects the upper frame horn with the frame rails, and though the area is quite strong because of its proximity to the firewall, any structures designer would suggest that such a modification be accompanied by a metal doubler of two or three times the fender well metal thickness, securely fixed around the perimeter of the hole.

The other major omission was a byproduct of body corrosion, having nothing to do with body strength, but being important just the same. Any holes through the body provide another avenue for exhaust gases to enter the cockpit. Holes don't even have to be in the aft half of the body: exhaust can enter the cockpit from the engine compartment or transmission tunnel. The early Z has enough problems keeping exhaust gases out because of old door and hatch gaskets, as well as the variety of other odd holes that magically appear over time. More holes don't help.

Want examples where even small rust holes make an interior air quality difference? Rocker panels; frame rails; under-battery and under-brake-master area; firewall; hatch; the upper, rear body edge; front and rear fender wells; and lower rear fenders and floor pan.

Even though Datsun made a lot of Z's, the early ones are getting old. Datsun didn't begin to effectively rustproof the Z until the late 70's so age has been joined by corrosion as primary enemies of early Z's. Keep track of the state of your car and pay attention when corrosion appears. Take care of it early and do the job right.

-Z

## ZCCW Member Profile

Last month's "Dear Son: Please Write" piece extolling the virtues and rewards of submitting a ZCCW member profile prompted a response from ZCCW member Don Mollet. As promised I'm including it in this month's NewZletter for your benefit and to make him even more famous than he already is.

Name: Don Mollet. Age: 62.

Z-car: 240Z 1973.

My first Z. Owned since 1974 when it had 9,600 miles. My other car is a 1993 Mazda MPV minivan.

My Z is used for joy riding (and what a joy!). From 1974 until 1982 it was used for commuting. At that time I put it in storage where it stayed until 1991. Since then I have driven it approximately 150 miles. I started restoring it in 1996 and it is now in mint condition, with a new silver paint job, except that the radio and antenna need to be reinstalled.

Total miles I have driven: 850,000+ miles, 136,000 in my Z.

Total cars owned: 12

My Z is stock.

I've taken two long trips (back in the '70's) one to San Diego and the other to Los Angeles.

I've had no accidents in my Z.

The top speed I've ever been was in my Z between Moses Lake and Ritzville on I-90 in 1974 and that was 120 mph. In 1995, I took my Z up on the wheat fields North of Waterville and got it up to 100 mph.

Never been upside down!

Thanks Don, and welcome to the ZCCW!

## The Ones That Got Away

Hooboy. When I got an actual paper copy of last month's NewZletter, I of course read through it to see how many mistakes I'd made. Halfway through I lost track and gave up. But among the bunch of small mistakes were two gigantic omissions that I can't let escape, both of them in the Z chassis article. You may have figured them out by now, but if you haven't, I need to cover them and save some face.

The first had to do with general topic of degraded body strength, in this instance resulting not from corrosion or impact, but from intentional degradation. I speak here primarily of Z convertible conversions. As you recall from last month's article, the major loads imposed on the body generally run from the floorpan up through the sides of the body and into the roof. Now if you remove the roof, what do you have? An incomplete structure, one that can't possibly carry normal loads, not to mention abnormal ones. That means poor suspension performance and probable rapid structure failure. Sounds like fun, eh?

I harbor a lust to have a convertible Z, just as many of you have. Continuing queries about convertible conversions reveal that this desire is widespread. So what must one do to strengthen the body to get it back up to its original strength? My answer isn't a concrete one, i.e.: "Do A, then B, then C." Rather it is a general answer that puts the load (hehe) back on you: You must either add a completely new frame which can carry all loads. Or you must create new frame portions which successfully intercept all loads coming up through the body sides and disperse them throughout the entire structure.

The first option—creating an entirely new, self sufficient frame—is complex, difficult, and probably will add a lot of weight. The second option is no less difficult because one must be very carefully to tie into all the thin metal that comprises the stock body sides. Remember that the strength of the

early Z is dependent upon an integration of many shapes—box structures—not the thickness of the metal. Successful dispersal of the loads being routed through the many box sections means fully connecting to each leg of each box structure, or in the case of large boxes, spreading the load from your new thick-wall tubing over a wide area of the thin walled chassis sheet metal. This is a daunting task as one is actually redesigning the structure. And neither of these techniques is a job for the occasional welder.

The methods I've seen for "reinforcing" convertible conversions includes a partial rollcage that ties the floorpan and rear shock towers together. This can look nifty, but leave the body weak because a connection between the front door posts/A-pillars and the rear pan and shock towers has not been made. If one were to create a partial roll cage that did this, it would look very much like a roof in profile, but would probably be heavier than the roof you removed.

Let's say you are bound and determined to have a topless Z. Once you've figured out how to do one or the other of these reinforcement options, you then need to consider all the abnormal loads that might occur. The clearest examples of abnormal loads are probably racing loads, which assault torsional rigidity and load point strength, and collisions which concentrate very high loads. Is it possible to design for abnormal loads without a top? Yes. In a couple of weekends? Not by most of us, and not for just a few bucks. So before you get the body saw out, think through what you're facing.

People aren't shy about cutting holes for other reasons, stereos for instance. Gotta put those speakers somewhere. One spot where they're sometimes installed is in the bulkhead behind the seats, on the front wall of the jack storage nook. In this case, chassis strength is probably not compromised significantly, but it's prudent to note that the function of the bulkhead is to strengthen the

# ZCCW Automotive Activities

September						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

## September 1

BSCC Event #6 - Bremerton

## September 20

5th Annual Woodstock Festival - Duval, WA

## September 20-21

Harvest Swap Meet, Chehalis, WA

## September 27

ZCCW General Meeting - Flying Pig Pub & Brewhouse, Everett

## September 27

BSCC School - Bremerton  
NWR/SCCA Solo II School - Kent

## September 28

BSCC Event #7 - Bremerton  
NWR/SCCA REtional #7 - Kent  
Snohomish Car Show - Snohomish

October						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
	26	27	28	29	30	31

## October 4

Road trip to Leavenworth

## October 5

Rally "4" Kids, King County, WA.

## October 11

Crazy Days Car Show. Arlington/Lakewood

## October 11-12

29th Annual Monroe Swap Meet, Evergreen Fairgrounds.

## October 25

ZCCW General Meeting - Location TBD

## — What's Coming Up... —

## December 14

South Central Jingle Bells Cruise, Tacoma, 206.475.7005

## December 20(?)

ZCCW Christmas Party. Location TBD.

## December 20/21

Christmas Fair, Puyallup Fairgrounds, 206.845.1771

## — 1998 —

## February 28

Nissan Datsun Sports Owners Club, Inc. 30th Anniversary black tie event. South Yarra VIC Australia

## July 20-25

Fiesta de Albuquerque - 11th Annual Z-Car Convention, New Mexico

November						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

## November 1-2

Swap Meet, Kitsap Fairgrounds, Bremerton

## November 1

Antique Toy Show, Puyallup, WA Fairgrounds

## November 9

Elite's Project Santa Claus, Bellingham

## November 22(?)

ZCCW General Meeting - Location TBD