

OF WASHINGTON

# The Tool Trap

(Andy Banta wrote this as a column for a newsletter and has graciously allowed us to reprint it here.)

My desire to compete in motor-sports went hand-in-hand with my desire to wrench on cars. While a young teenager, I pulled a Briggs & Stratton powered reel-style lawn mower out of dumpster and was determined that I could make it run again. My father had a good collection of tools, and with his help (or possibly he with my help) replaced the bent valve and nursed the lawn-mower back to another couple years of productive life.

Not too atypical for a car enthusiast, my first car was an aging sports car. In this case, it was a rusted, poorly-main-

tained decade-and-a-half old Opel GT that I got for little more than removing it from the previous owner's front yard. Armed with a Crescent wrench, a few screwdrivers and pliers, I replaced the brake rotors and pads and rebuilt the severely gummed carburetor. Looking back on it, I'm not exactly sure how.

After that, I had a Fiat 850 Spider. After almost four months of faithful service I had a spark plug tip break off in the number one cylinder. By this time, I had my own socket set, combination wrenches, a few more screwdrivers, and probably some vise-grips. I managed to patch the Fiat up well enough to sell it, though it would come back to haunt me a few times.

Over the next few years, as cars came and went, I picked up more hand tools and minor power tools on an as-needed basis.

When I decided to get into racing, I joined forces with a few people who took what politely would be termed a "minimalist" approach to racing. Tools were in short supply and big-ticket items were shared by those who had them. One person had a welder. When you wanted something welded, it was a forty-five minute drive each direction. Pulling an engine involved throwing a chain around the garage ceiling joists and using a come-along to lift while the car was rolled out of the way.

A not-so-polite term applied to this practice was "turd polishing." Trying to misuse or jury-rig tools to accomplish a

task wore thin. Trying to hack off-the-shelf hardware items for racing applications seemed to work rarely, if ever. Trying to put a sheen on a turd didn't belie the fact it was a turd.

This came to a head when a couple other friends and I decided to try painting our own cars. In an effort to keep overspray out of our suburban neighbors' yard, we constructed a makeshift paint booth in the driveway out of conduit and plastic sheeting. In a foolhardy cost-cutting move, we tried using plastic conduit rather than metal. The conduit sagged in daytime sun, and all manner of support was employed to keep the plastic off the cars. The tiny 3/4 horsepower compressor gave up the ghost mere minutes into the job, forcing a panicked shopping trip to find a replacement compressor at 4 o'clock on a Sunday afternoon.

There probably wasn't a particular incident that caused the transformation, but it was about this time that I came to realize having the right tool for the jobs made sense.

Shortly afterward, I traded an old, tattered track canopy for a 2-ton engine hoist. This isn't a trade I would ever regret. A few months later, a metal cutting bandsaw found its way into my garage. A used "hobby" drill press came and went quickly, replaced by a heavier-duty bench model. Toolboxes got replaced when they started to overflow with specialty tools like snap-ring pliers, Reed Princes, safety-wire twisters and Dremel tools. I had taken the dangerous step from getting by with what I had to knowing what the right tool for the job was and acquiring it.

**Next Scheduled Meeting**  
Saturday, June 28th  
3:30 pm at Redhook Ale Brewery  
(see map page 11)

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### A Message from the President:

We need your help!

Or, put another way, you need help!?

Have you been waiting for that opportune moment to have some work done on your Z but have not been able to find the time to get it done? Have you been looking for the chance to assist in the mechanical education of fellow Z-Clubbers but have been waiting for a tech session? Well, whatever the case, your opportunity has arrived!

Next month Ollie "Z-Man" Naugle of Z-Specialties will be hosting a

#### ZCCW NewZletter

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tech session at his shop in Seattle. To that end, we need a "donor" car (and a back-up, just in case) to have some work done on it.

If you are interested, let me know what you want done either at this months meeting at Redhook Ale Brewery (see map & directions on page 11) or contact me by email at mswhite@sos.net or by phone at 360.424.8643.

As you will find out after reading some of the articles in this months NewZletter, we have had a couple of well received activities that should be repeated!

The Z-Hunt was, for the most part, enjoyed by all the participants and is a great way to spread the word about the only Z-Car club in Washington. With a little tweaking of the rules to allow for less rushing the next Hunt will be even better. So, when should we have our next hunt? Think about it and we'll bring it up at the meeting.

Next month, on 19 July, our meeting will be combined with a road trip and a picnic. We will be meeting at

Larabee State Park which is on scenic Chuckanut Drive. More information will be in the NewZletter next month.

In August is the 3rd Annual Meeting of the MindZ in Port Townsend. We are in the process of setting everyting up for this and could use your assistance. Interested in helping out, let me know!

On a sad note, one of our members, Rick Kienholz, emailed me a plea. You see, Rick is presently Z-less. He sold both of his Z's. And, because he is in the middle of crunch time at work he won't be doing much Z-wise for a while. Talk about dedication! As a result of this, Rick has been a bit on the depressed side lately. Go figure. So, in the spirit of a club, let's keep him in mind and send him a message once in a while to keep his interests piqued. His email address is rick1031@nextdim.com.

Rick, I feel for you and hope you are able to recover soon!

Z-Ya!

*Get Connected!  
Stay in Touch with  
Fellow Members!*

*with the*

## ZCCW Email List

To subscribe, send an email message to: [zccw-request@sos.net](mailto:zccw-request@sos.net) with "subscribe" in the subject line (sans quotes) leaving the body blank.

Afterward you will receive a confirmation message from the mail server.

If you don't receive this message, check to see that your email client is configured with your email address.

To send a message to the list, send it to: [zccw@sos.net](mailto:zccw@sos.net)

# ZCCW Leavenworth Road Trip

by Barry C. Breen

It was a dark and stormy night . . . oops, wrong story. Actually, two nights before departure, it was a dark and stormy night in the passes. Stevens and Snoqualmie were shut down with a late Spring snow and the ZCCW trip to Leavenworth looked in danger of being canceled. After much E-mail traffic about Z's sliding around on snowy roads not being conducive to

a fun club trip, we did it anyway -- "The Great ZCCW Leavenworth Road Trip."

The first group of Z's met at Z-Sport and, after waiting for stragglers, departed eastward bound on Highway 2. Next stop - Monroe - where the Snohomish and Monroe residents (including your dutiful reporter) joined the group. After photo sessions, last minute rest stops, tucking kiddies in nooks and crannies, the intrepid Z-clubbers finally departed for the passes.

It was a long uneventful drive through beautiful mountain scenery. Despite some backups, there were a few opportunities for Zooming Z's. The most notable event was zooming past a non-club member in a black 300ZX keeping the local constabulary busy by getting himself a ticket! Pity no one stopped to give him a membership application.

Once we went over the still snow-covered pass (the roads were dry), the clouds thinned out and the weather became mostly sunny and clear. We left Highway 2 with a left turn at the Squirrel Tree restaurant toward Plain and Lake Wenatchee. After crossing the river once, and winding down to the right, we reached Janene's family cabin on the river.

Did I say "cabin"? This is more likely named the "Janene Family Vacation Estates." We parked outside of what looked like a very large two car garage, which actually consisted of a large woodshop plus garage. Walking down a trail, we reached a second large storage shed containing a lifetime supply of snowmobiles. Proceeding further,

down a set of all-season stairs (this was beginning to look like a small state park), we came to our temporary abode for the evening -- the CABIN. Cabin, in this case, consisting of about five bedrooms, three bathrooms, a small apartment, two stories plus loft, large family room, bar/pool room, sauna, deck, and a partridge in a pear tree (or was that an eagle in a pine tree?) . . . all sitting on a steep but walkable incline, with an outdoor firepit all stoked up, about 100

feet above the roaring rapids of the upper Wenatchee River upstream from the Tumwater Canyon. Picturesque. Impressive. Relaxing. A

guy could retire here -- actually, one did -- Janene's Dad --our host for the evening.

Once settled in and unpacked -- we set out for downtown Leavenworth. Engines revved, T-tops down -- Mark Mullen led us the "back" way, through the village of Plain (very aptly named), via a fun windy road down the mountain -- the kind of driving these cars were made for!

Once reaching Leavenworth and parking, the group spread out amongst the Bavarian themed shops in different directions. Somehow eventually most everyone ended up at my favorite Bavarian shop -- The Leavenworth Brewery. After lunch and much hop-laden beverage, we walked around the other shops some

more and then headed up Highway 2 via the Tumwater Canyon (the "front" way) back to the cabin.

Sometime during this part of the day, the Mullen and Richer kids gave their parents a good scare and premature heart palpitations by coming in dripping wet with towels announcing they'd gone for a swim in the river -- right -- and lived to tell about it.

The evening barbecue and pig-out feast was the next event on the schedule. Everyone brought their own chicken and steaks, plus we cooked up potatoes and enjoyed more frothy drinks. After dinner, around the campfire, we toasted marshmallows and made "smores" (which, to the uninitiated, are little sandwiches of graham cracker, Hershey bar and marshmallow -- so named because everyone always wants smore). One clever member (Jim?) demonstrated a shortcut method -- by buying chocolate covered graham crackers you could skip the Hershey bar.

Late that evening, Janene and her Dad taught us the card game of "69". The rules are quite complex and I've since forgotten them but it's something like this: start with five cards each and a dollar or four quarters. Play starts to the right (but may change, read on). Each person plays a card and (sometimes -- read more) draws a card, keeping a running total of the pips (that's the number) on the card. Face cards are ten, except the ten itself, which is minus ten, a four reverses the direction of play (and

you can't draw -- or was that a nine?), some other card counts nothing but keeps you from exceeding 69 -- other cards are only valid on certain days of the week and you must stand on your head when losing your quarters (actually, I made up the last two

rules -- but there are more that I forgot). The first person in each round to not be able to play loses a quarter -- lose all four and you're out. Play continues until only one person is left -- who gets all the money. I would note here that the kids did better than the adults, Mark refused to play, but somehow Janene's Dad



won all the quarters. One of the more frustrating actual rules (which cost me a few quarters) was that if the next person started his play before you drew your card, you lose – no card.

The next part of this story consists of more Z's – the snoring kind –  
ZZZZZZZZZ .....



By the morning the group had thinned out some. A few had spent the night in Leavenworth, instead of at the cabin – and those we lost track of. My first (after sleeping late) recollection of the morning was being awakened by some critter jumping all over the sleeping bag. Turned out to be "Chewy", Mullen's little dog, and not the baby mountain lion I first suspected.



We headed back via Leavenworth again, some had breakfast at Sandy's Waffle Haus on Highway 2, and then browsed the shops again. There was also an interesting art show in the park.

By noon on Sunday, we hit the road to return to cloudy - rainy - west of the pass - home. We all had a very enjoyable time and look forward to the next ZCCW Road Trip.

## The Hunt Is On!

by Paul Richer

After a suggestion at one of our monthly meetings that we have an event to help recruit new club members by locating Z-Car owners and distributing information about our club. Danielle Rusthoven offered to organize our first Z-Hunt. The event was a big success and Danielle did an excellent job of planning and putting this event together. My trusty scout (my son Daniel) and I are eagerly awaiting the next Z-Hunt!

Danielle presented the rules and recruited contestants at the general meeting on Sat, April 26 and the Z-hunt was scheduled for the following day. The rules were pretty straight forward: locate as many Z-Cars as possible within an allotted time frame and "tag" them with a club flyer. Part of Danielle's planning was to have the contestants pick a geographic region off of a map that she brought to the meeting. This assured that there would be little if any duplication.

My son Daniel and I teamed up and set out in search of Z's in the south Everett area. The first area we hit was the Everett Mall and it turned out to be a gold mine... 13 Z's in one (big) parking lot. A number of other hunters targeted the malls in their prospective regions... so it looks like a majority of new members are gonna have something in common... shopping [grin]. We later tried Costco (not much luck) and then resorted to cruising the streets. This became a bit frustrating because we would often see a Z coming the other way and there was no way to tag it. We did chase one down and followed it into the Marina Village. The owner stopped to use the public restroom and we used that opportune moment to "tag" her car. While we were in the Marina area we found several other Z's. I've concluded that Z owners like Nordstroms and boats. Coincidentally, it turns out that my kids and I have been practicing spotting Z's for quite awhile now. We've been playing a variant of the old "Slug Bug" game which gives the first one to spot a Z-car (was Volkswagen "Bug") the right to strike the other occupants of the car in the arm after calling out "Z BUG" ..... its a guy thing.

All told, Daniel and I tagged 26 Z's and the entire group of hunters tagged over 140!! Not bad for a few hours of hunting. As mentioned in last months NewZletter, awards (restaurant gift certificates) were handed out to: First Place: Paul and Daniel, Second Prize: Greg and Danielle, Third Prize: Barry and Patty and Lowest VIN: Michael S. White. This is definitely an event worth doing again, so keep an eye on the calendar for the next Z-Hunt and plan on joining us.

## Datsun/Nissan Literature

From a conversation on the IZCC mailing list comes the following:

Tony Anderson wrote: I have been looking for information on the 72's. What I mean is, I need to find all the information and pictures I can of the 72's. I did purchase the photocopied Factory Parts Catalog that Rex Jennett offers (Great job, Rex). I still need more to help me with restoring my Z back original. Photos of the interior and exterior would be helpful I mean, something that will let me see if my Z has only one outside mirror, drivers side, or two exterior mirrors, driver and passenger side.

Carl Beck replied with: Your best bet is to order the original Factory Sales Brochures. Try the following- thanks to Steve Schnake's post below :

A couple of weeks ago I read a note about an individual that sold brochures for automobiles. I phoned this fellow and received a fax of available z car literature. I promptly ordered a number of items (including a 1970 sales brochure). Today I received the Datsun/Nissan brochures. They were everything he promised. Mint condition and great fun to page through.

If anyone else is interested in obtaining literature for their Z, you can contact him at:

Mr. Torry M. Brinkley  
The Literature Exchange  
P.O. Box 722  
Mead, Colorado 80542  
Fax/Ph. # (970) 535-4152

## The Long and the Short of It

**M**y brother Scott is a closet hot rodder, and for years has been sending me high performance engine articles. A few months ago he found a set of articles in a magazine that he thought so highly of that he sent me the entire magazine. Now of all the articles he has sent over the years, this set contains the best information I've seen.

I've reorganized several articles into one, and along with some pithy comments from Paul Richer, have included the result in this month's NewZletter as engine tech background that might help us understand why engines, including the Datsun L series engines, have the personalities they do.

"Personality???" you say. "Why would I be interested in that? Personality of an engine???" Tut tut." Even though engines may not have names like Fred and Barney, they definitely do have personalities.

One caveat up front: if the following information seems to have a slightly different perspective, it is because the magazine I refer to is the Chrysler Car Enthusiast Magazine, and its general point of view is that Chevys, Fords, Datsuns and Ferraris are mere evolutionary blips compared to the Truth of Chrysler. No matter. As I said, it's good info.

### A Wee Bit 'O History

In the 1950's and '60's, the popular explanations of high performance engines usually boiled down to bigger carburetors, full race cams, higher compression, and Oversquare or Undersquare engines. Slapping a bigger carb on an engine usually helped increase intake flow, which almost always made more horsepower. Cams made an engine idle rough so it sounded sexy. Higher compression on that wonderful 104 octane premium we had then produced more power. And short rod engines revved better. Pretty simple.

Alas, almost nothing is simple anymore, and that's certainly true of auto engines. Carbs have been pushed aside by fuel injection, and fuel injection rarely mentioned without also mentioning manifolds, cams, headers, and several other items. The array of cam choices has jumped from two or three to several score, depending on what you want to achieve. Higher compression has a new devil sitting on its shoulder in the form of those nasty oxides of nitrogen that are more

readily formed in the high temperatures of high compression engines. And Torque, which once languished in the shadow of Horsepower, has gained a lot of respect, which changes the playing field considerably.

It's true that you can improve nearly any engine, even a bad design, by prudent choices of fuel distribution and exhaust systems. But this article isn't about carbs, fuel injection, cams, or valves, even though those components may be the deciding factors in how an engine behaves. This piece is about basic short block design, and how it relates to torque and horsepower characteristics. It also indirectly helps explain why a few engines have been wildly popular, while others, such as the Chevy 400, have been the subject of ridicule and blasphemy.

Now it's time to compare some figures, and then look at what their wider implications. Almost all are American Big Three engines, but that's what we have the most information on. (See Table 1 next page)

Now some very succinct explanations. I'll be cutting out all the magazine info flab here.

### Piston Speed

Current lubricants limit maximum piston speed to about 4100 feet per minute. Make the piston move faster than that and you lose lubrication and burn up the engine.

### Stroke to Bore Ratio

Engines that have a relatively large bore and a relatively short stroke are termed as Oversquared. Engines with a relatively small bore and relatively long stroke are called Undersquare. Follow-through research by Chrysler after the Hemi was introduced in 1951 showed that the ideal compromise between friction and horsepower is about .94, i.e.: the bore being 94% the dimension of the stroke. If this ratio is lowered, however, an engine will make more relative horsepower at high rpm. As the table shows, few engines, with the notable exception of the L26 and the Chevy 400, have ratios close to the ideal. This reveals that considerations other than stroke-to-bore ratio have been deemed more important to designers.

### Rod Ratio and Rod Length

Rod ratio is determined by dividing the rod center-to-center length by

the stroke. Rod ratios of 1.8 or higher are referred to as long or "slow." Ratios from 1.65 to 1.79 are middle value ratios. Rods ratios of less than 1.64 are designated as short or "fast." Most written information lists the ideal rod ratio at about 1.9 though few engines actually match this figure.

Longer rods are currently thought to be of value for engines that have relatively restricted intake areas, such as most stock engines and race engines using restrictor plates (see Rod Angle below). Long rods accelerate away from TDC more slowly than short rods, which means that the pressure of combustion is applied to the crankshaft for a longer period of time over a greater number of crankshaft degrees. Conversely, long rods accelerate away from BDC more rapidly than short rods.

Long rods build compression as RPM increases, and short rods lose compression at high RPM. If one intends to increase the compression ratio of an engine, it will be much safer doing it to a short rod engine. For the same reason, long rod engines are not ideal candidates for high boost supercharged applications.

Paul again brings up an excellent point here: "There is a term I've heard called 'effective compression ratio' which accounts for things like valve overlap and RPM. Sounds like rod length plays a factor in this as well." Effective compression ratio (ECR) accounts for differences between static and dynamic compression. For example, you might run a compression check on two different engines and find them to have the same compression ratio. Yet those two engines might have very different working compression ratios at medium or high rpm. MEP, or Maximum Effective Pressure is another term that tries to address the same disparity between static and dynamic compression.

The term "effective compression ratio" tends to show up in articles about supercharged engines where the differences between effective compression ratio and static compression ratio are far greater and more easily perceived. Additional factors included or related to the effective compression ratio equation would also include manifold pressure, valve timing (in the case of Miller cycle

Continued next page

Table 1

Engine	Rod	Bore	Stroke	Ratio	Rod Bore	Stroke/ Rod Angle	Piston Speed @ 6000	6500
<u>Chevy</u>								
302	6.200	4.000	3.00	2.070	.750	15.260 deg	3000	3250
327*		5.700	4.000	3.25	1.750	.810	16.600	
327*		6.000	4.000	3.25	1.840	.810	15.700	
327*		6.200	4.000	3.25	1.910	.810	15.200	
350*		5.700	4.000	3.48	1.630	.870	17.770	3480
3770								
350*		6.000	4.000	3.48	1.720	.870	16.900	
283	5.700	3.875	3.00	1.900	.770	15.300		
283	6.200	3.875	3.00	2.070	.770	14.000		
283	6.500	3.875	3.00	2.160	.770	13.300		
400	5.500	4.125	3.75	1.470	.910	19.930	3750	4063
427	6.135	4.250	3.76	1.630	.880	17.840	3760	4073
<u>Ford</u>								
302	5.156	4.000	3.00	1.718	.770	16.910	3000	3250
351	6.480	4.000	3.50	1.850	.875	15.700		
<u>MOPAR</u>								
302	5.700	4.000	3.00	1.900	.750	15.300		
302	6.000	4.000	3.00	2.000	.750	14.500		
340	6.120	4.040	3.31	1.850	.820	15.689	3310	3586
383	6.400	4.250	3.38	1.890	.790	15.410	3380	3662
<u>Datsun</u>								
L24/146CID	5.230	3.270	2.90	1.800	.880	16.100		
L26/156CID	5.130	3.270	3.11	1.650	.950	17.600		
L28	5.130	3.430	3.11			17.600		
L28 stroker	5.130	3.430	3.27			18.600 (w/LD28 crank)		

(Note: It's not known whether 283's, 327's, and 350's were factory-built using all possible rod lengths.)

engines, which delay closing the intake valve through about 20% of the intake stroke), charge density, intercooler effectiveness and pressure drop, intake and exhaust flow and velocity, and no doubt other things that are well beyond my understanding. Suffice it to say that compression ratio is dynamic and changes throughout an engine's rpm range.

Returning from our digression, long rods have broad horsepower curves and are favored by long track and high speed racers for a wide torque curve. Long rod engines also produce better exhaust emissions. On the negative side, long rods weigh more than short rods, and crank bearings are subjected to more stress. Long (think "heavy") rods may also produce static and dynamic balancing problems. And long rods are much more touchy about cam duration and lift. You've no doubt heard tales of someone installing an aftermarket cam and then finding that it didn't do very much. Rod length is one reason why this can occur.

Short rod enthusiasts point out that they are relatively forgiving about cam selection. Short rods also have more intake drawing capacity and help fill the cylinders faster. Short rods produce relatively more low end torque, and relatively more horsepower at high rpm, and are therefore favored by short track racers for better instantaneous acceleration.

There are some notable exceptions to long rod/short rod generalities. One comes from engine guru Smokey Yunick who promotes use of "long" rods in any engine, and notes that long rod Indy engines run well over 10,000 rpm.

#### Rod Angle

Rod angle refers to the greatest angle (measured off the cylinder centerline) that a rod reaches when the crankshaft journal is halfway between TDC and BDC.

From extensive testing in the early 1950's, Chrysler engineers concluded that a rod ratio angle greater than 17 degrees excessively pre-loads the cylinder wall, pushing the piston

into the water jacket rather than down the cylinder, increasing cylinder and piston wear, and increasing power losses due to excessive friction. As a consequence, most high performance Chrysler engines possess excellent rod ratios and relatively long rods. Today's lubricants are greatly superior to those of the 1950's, but rod angle cannot be disregarded.

With respect to the rod itself, as the rod angle increases, more pressure is applied to the broaching areas of the rod big end--i.e. at about the 1:30 and 4:30 clock position (when crank rotation is seen as clockwise)--so large rod angles tend to be very hard on rods.

#### Strokers

Stroking an engine means increasing its stroke so that the piston travels further up and down in the cylinder, thus increasing the displacement and power of an engine. For the backyard engine builder, stroking has been a common method to increase the compression ratio and power of a

Continued next page

standard production engine using off the shelf parts. The Chrysler 273 block eventually grew to 360 cubic inches through a combination of boring and stroking. The Chevy 327 was destroked to produce the 302, and stroked to make the 350. And the Datsun L24 was stroked to make the L26.

Early in automotive history all engines were long stroke engines. But over the last seventy years the quest for more horsepower and higher rpms encouraged a gradual evolution toward shorter strokes. Today the quest for low emissions has again brought the focus back toward long strokes which tend to produce fewer pollutants than short stroke engines.

By the way, the only way to stroke an engine is to change or alter the crankshaft to obtain a longer throw. If all other components remain the same, an increase of stroke will increase the compression ratio because the piston is being shoved further toward the head. Conversely, longer rods or taller pistons will increase compression ratio, but the engine's displacement will remain the same.

Paul adds: "Realistically you can't increase the stroke and keep all the other components the same. Pistons are usually designed to come close to the top of the block (within .020" or so) and thus stroking forces you to use either shorter rods or special pistons that have the wrist pin moved up (better). Not doing this results in...(the pistons striking the heads)."

Paul came to my aid on another puzzling point by providing this detail: Stroking an engine does change the rod angle. Rod angle is a factor of rod length and stroke. The bore has no effect. Increasing stroke increases rod angle. Increasing rod length decreases rod angle. The equation is:

$$\text{invSin}[(\text{stroke}/2)/\text{RodLength}]$$

#### Rotating Mass

Since we're talking about engine design and short block components, a few words on rotating mass are in order. One way to increase horsepower is to reduce the amount of power the engine uses to twirl the crank, rods, and pistons around inside the engine. The less power you use to spin rotating engine components, the more you'll send to the rear wheels. An engine with less rotating mass will also rev more freely and quickly, and that translates into higher instantaneous acceleration.

Inside the engine, probably the quickest and most effective way to do this is to replace pistons with lightweight aftermarket pistons. Lightweight rods can also help, but you'll get more benefit from a piston change. Outside of the engine proper, a lightened flywheel can liberate some horsepower, though it will come at the expense of driveability.

As you can see, selecting engine components is complex task and very much dependent on anticipated engine use. Do you want torque or horsepower? Do you want a wide range of rpm? Do you want power up high or driveability down low? And what does this all have to do with Datsun Z and ZX engines? What about that "personality" thing?

Well, all this information helps explain why the L24, L26, and L28 engines have different characters. For example, compared to the L26, the L24 has a longer rod and a rod ratio that's much closer to the ideal rod ratio. Furthermore its shorter stroke helps make it "rev happy." In everyday life this means the L24 has a personality that is much more in line with the ideal "sports car" personality. The L26 and L28 may produce equal or greater torque and marginally faster acceleration times, but the personality of the L24 engender more endearing comments.

Let's go one step farther. Pick an engine that you know has a good reputation for being a driver's engine and look at its specs. I'm not talking about horsepower here, I'm talking about responsiveness and driver enjoyment. You can always find an engine somewhere that makes more horsepower or torque. My personal list excludes the Ferraris, Lambos, and Jag 12's, simply because they are not realistic mods for a Z or my budget. For straight enjoyment, those engines are the L24 Datsun, the 327 and 302 Chevys, and the 2000cc, 302 and 351 Fords. If you've driven any of these engines, you may see that they share some personality (if not power) similarities. On the other end of the scale, check out the rod angle and rod ratio of the Chevy 400 and you'll see why it has the reputation it has.

Here Paul adds this note: "A lot of the "Hot Rod" magazines are pushing the 400 as the "engine du jour" IF one rebuilds it with 6.0" (extra-long) rods and special pistons that are now available from aftermarket suppliers. Using 6 inch rods on a 400 get the rod angle down to 18.2,

not ideal, but better than the 19.2 of the stock engine."

How about some other famous engines? One of the most famous engines of all time is the Rolls Merlin engine that powered the WWII Spitfire and Mustang fighter aircraft, as well as drag tractors, Reno unlimited air racers, hydroplanes, and even a Jag XKE more recently. The Merlins were a relatively slow turning engine and had a bore of 5.4" and a stroke of 6.0", giving them a bore/stroke ratio of 1.11 and an Undersquare designation. They had a displacement of 1650 cubic inches (about 27 liters, or just about one cubic foot) and used a two stage centrifugal supercharger, an intercooler, and methanol injection. All that hardware, plumbing, and 130 octane gas produced about 61" of manifold pressure and a maximum horsepower rating of about 2400 at a relatively low 2700 rpm. Maybe not what you'd want in a Z, but just the thing to drive a big propellor.

Back on the ground, based on production numbers and years in service, the flat four VW Beetle engine certainly ranks as one of the most successful engines ever. Designed as a forced air-cooled engine that needed high rpms to keep the engine cool, the 1974 VW's bore was 3.37", and it's stroke was 2.72" making it an Oversquare, short stroke engine that needed to rev to make power. The VW engine isn't glorious, but it does keep on keepin' on.

And that brings us back to the Datsun L series engine, certainly one of the toughest and most reliable engines anywhere, and fortunately wrapped up in a body considerably more pleasing than the Bug. Engine personality is just as important as body styling because it enhances driver enjoyment, which is really the bottom line. Hopefully this information will help you pick and choose modifications you may make on your Z. Yes, other factors, notably single or double overhead cams, valves, superchargers, and intake and exhaust systems can mask the deficiencies of a poorly designed engine. But adding good components to a good foundation sounds better, don't you think?

## Z-Cade

Aching for an excuse to go cross country in your Z this summer? The New Mexico Z Car is organizing a cruise from San Diego to the 10th Annual Z-Car Convention in York, Pennsylvania to be held July 22-26. The group will leave Albuquerque on Saturday, July 19 and drive roughly five hundred miles per day. Leave dates from points west of Albuquerque haven't been set yet, but if your interested, contact Michelle Forsman of the NMZCC at Forsmanz@aol.com

## Instructions From Hell

Here's an Internet post that will resonate with any of you who have wrestled with a manual in the course of an attempted repair. This particular set of instructions is about unsubscribing to an electronic mailing list, but I think by the time you get into it fifty words you'll see that its "appeal" is universal. Get ready.....

Here's how to unsubscribe:

First, ask your Internet Provider to mail you an Unsubscribing Kit. Then follow these directions.

The kit will most likely be the standard no-fault type. Depending on requirements, System A and/or System B can be used. When operating System A, depress lever and a plastic dalkron unsubscrber will be dispensed through the slot immediately underneath. When you have fastened the adhesive lip, attach connection marked by the large "X" outlet hose. Twist the silver-colored ring one inch below the connection point until you feel it lock.

The kit is now ready for use. The Cin-Eliminator is activated by the small switch on the lip. When securing, twist the ring back to its initial condition, so that the two orange lines meet. Disconnect. Place the dalkron unsubscrber in the vacuum receptacle to the rear. Activate by pressing the blue button.

The controls for System B are located on the opposite side. The red release switch places the Cin-Eliminator into position; it can be adjusted manually up or down by pressing the blue manual release button. The opening is self-adjusting. To secure after use, press the green button, which simultaneously activates the evaporator and returns the Cin-Eliminator to its storage position.

You may log off if the green exit light is on over the evaporator. If the red light is illuminated, one of the Cin-Eliminator requirements has not been

properly implemented. Press the "List Guy" call button on the right of the evaporator. He will secure all facilities from his control panel.

To use the Auto-Unsub, first undress and place all your clothes in the clothes rack. Put on the Velcro slippers located in the cabinet immediately below. Enter the shower, taking the entire kit with you. On the control panel to your upper right upon entering you will see a "Shower seal" button. Press to activate. A green light will then be illuminated immediately below. On the intensity knob, select the desired setting. Now depress the Auto-Unsub activation lever. Bathe normally.

The Auto-Unsub will automatically go off after three minutes unless you activate the "Manual off" override switch by flipping it up. When you are ready to leave, press the blue "Shower seal" release button. The door will open and you may leave. Please remove the velcro slippers and place them in their container.

If you prefer the ultrasonic log-off mode, press the indicated blue button. When the twin panels open, pull forward by rings A & B. The knob to the left, just below the blue light, has three settings, low, medium or high. For normal use, the medium setting is suggested.

After these settings have been made, you can activate the device by switching to the "ON" position the clearly marked red switch. If during the unsubscribing operation, you wish to change the settings, place the "manual off" override switch in the "OFF" position. You may now make the change and repeat the cycle. When the green exit light goes on, you may log off and have lunch. Please close the door behind you.

## Dash Repair

Most of us who own early Z's have dashes that are no longer young and have one or more cracks. There are a couple of dash cap manufacturers that I have listed information about in previous NewZletters. Dick Denno recently posted the following message on a possible new alternative for early Z dash repair to the 240 group:

In response to a readers question about repairing a cracked dash or door panel, the July issue of Hot Rod Magazine responded: "A company called Just Dashes (Dept. HR07, 5491 Lemona Ave., Van Nuys, CA 91411, 818-780-9005) can restore your cracked, faded dash and your door panels as well. The company uses a vacuum-forming process to recover the existing configuration and make it look exactly like a brand-new dash pad. An alternative for door panels is to re-use the existing panel structure and cover it with a different material."

"This posting is for information only and is not an endorsement. Perhaps one of our Z-owners can try the process and report back on the price/quality of the results. Vacuum forming over an existing, cracked dash sounds like a good technical solution if new replacement dashes are not available."

Dicks message was tantalizing, but Doug Antelman from the 240 group quickly replied: "We discussed this issue about 3 months ago when Mike Gholson was trying to decide between new dash (from Nissan) or a recovered one. He decided to go new, because the recovered dash, they cannot guarantee they will match the original texture. We can only hope that with Nissan's plans to restore the early Z cars that they will start producing dashes again!!"

I've included Dick's post here as a reminder of both a possible remedy for truly trashed dashes, and as a warning for Z owners seeking original factory perfection.



## GM One Wire Alternators

If you've ever lusted after one of those trick GM "one wire" alternators, you aren't alone. Jeff Wirtz posted this to the 240 group:

"Has anyone out there tried fitting a GM based one wire alternator to a Z car?? In my case, I have a '74 260Z. Prices for a stock alternator and regulator would be around \$80 to \$90 for a couple of common Z car sources, but the local alternator rebuilder says he can make up a one wire alternator that puts out about 70 amps with the right size pulley for about \$60. The only problem I can see is the mounting brackets will need to be either modified or fabbed up custom.

Also, the wiring harness will need to be modified (duh), but as far as I understand it, all I will need is the one hot lead out of the alt, I think the rest of the Z harness can be clipped."

Scott DeHotman quickly responded with this advice: Don't pay that for a "one wire" GM alternator!!! It is a simple process to make any 10SI GM alternator a "one wire" alternator. (10SI is the standard "Delcotron" alternator found on vehicles from about 1974 to 1986). Here's how you do it:

There is a male post on the back of the alternator & a plug-in with two terminals. The two terminals are marked "1" and "2". The "1" is the circuit that feeds a signal to the light/gauge on the dash. The "2" is the circuit that excites the internal voltage regulator.

Run a jumper wire (about 14 gauge) between the "2" terminal and the male post on the back on the alternator. Run a wire (12 gauge) between the male post on the alternator to the positive terminal on the battery. If desired run a wire from "1" terminal to "VOLT" gauge on dash. (I don't know if your factory gauge will read the input, but it's possible).

I have contemplated doing this on my Z. I intended to replace the Datsun factory bottom bracket with a bracket

intended for small block Chevys with headers (the bracket is manufactured by Hedman). You should be able to find the bracket anywhere chrome accessories are sold. I converted several OLD cars from a generator system to an alternator system using this method.

The basic 63 amp Delcotron will work great. Part numbers vary from retailer to retailer, but the alternator you are looking for is commonly numbered a "7127-3". (the suffix "3" indicates the clock position of the two terminal plug-in of the internal regulator, it is offered in a "3", "6", "9", or "12").

Steve Walters also added this comment: "I haven't done this on a Z before, but I did it on my boat several years ago (V8 inboard). It was a very simple conversion and has worked great ever since. As you stated, the mounting brackets are your only problem. Assuming you can overcome that problem, the rest is easy.

## Member Discount!

Jim Tomisser, in his neverending effort to promote the Z-Car Club of Washington, forwards this tidbit of information for our benefit:

I'm happy to report that Burien Nissan has consented to offer our club members a 20% discount on parts. In order to qualify you must show a membership card. Their address is;

Burien Nissan  
16042 1st Ave. S.  
Seattle WA. 98148



## The Tool Trap

continued

This simply made me more enthusiastic, and I started going in search of more "right jobs" for particular tools. I signed up for an evening machining class at a nearby trade school. Mere weeks after trying my hand at the lathe and mill, I started scouring the newspaper for ads for used equipment.

It only took a little while before I hit paydirt. A model railroading fanatic had died, and his nephew was selling off bits of the estate. Geno's nephew told an interesting story of his life: Geno, a native Italian, was captured by the British in the second world war. As "punishment," Geno was sent to the U.S. when the war ended. The punishment didn't seem too bitter, as Geno died with two adjoining houses in one of the pricier neighborhoods in the San Francisco Bay area. He had built a shed-like structure between the two which model trains ran through. Tucked in a bedroom in one of the houses was Geno's machine shop. Three lathes, a mill, complete tooling for each, lots of spare stock, spot welders, grinding wheels, and more were stuffed into this bedroom and closet. A friend and I bid on the entire contents of the room and walked away with a bargain.

The booty was split, and I converted an enclosed porch on my house into my "machine shop," with a couple lathes, a grinder and a floor-standing drill press set up. The small bench-top mill we had scored moved in briefly when I had some milling to do.

When it came time to move, I knew a two-car garage and enclosed porch weren't going to cut it any more. The new place has a shop, which immediately prompted getting a full-sized mill. Model-railroad-sized lathes weren't covering everything I wanted while building race cars, so I moved up a size there, as well. There was plenty of room when a used 300-amp TIG came on the market, so I snagged that, too. And now, even my shop is fairly full with a variety of cars and tools.

Maybe it's time for a second shop.

A few pics from the Vintage Z Rally at Nissan Headquarters on  
3 May 1997 care of our Secretary Tim Nevins.



## Our Membership

From time to time, members wonder where we are all located. Here is the current membership roster for your perusal.

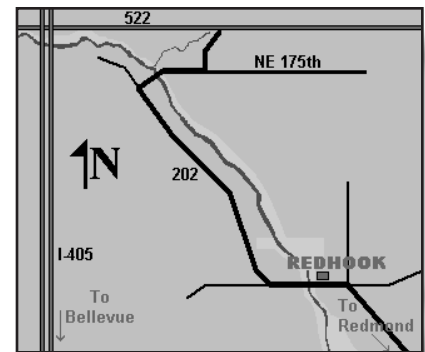
Barry Breen .....Monroe  
James Lux .....Langley  
Mark & Janene Mullen.....Everett  
Michael Bates.....Everett  
Paul Richer.....Snohomish  
Roger Sawyer .....Kirkland  
Tim Nevins.....Bellevue  
Mark Hostetler .....Seattle  
Toni Bancroft .....Everett  
Michael S. White .....Mount Vernon  
Jim & Linda Tomisser .....Kent  
Donald Mollet.....Chelan  
Rick Kienholz .....Spokane  
Glenn Torgerson .....Snohomish  
Maryanne Torgerson .....Snohomish  
Pat Tisdall .....Poulsbo  
Paul Perez.....Lancaster  
Duane Bender .....Redmond  
John & Michelle ForsmanAlbuquerque  
Bill Gilland .....Port Orchard  
Brad Raynor.....Lynnwood  
Greg White .....Bellingham

Mark & Pam Merkle .....Mill Creek  
Greg Cagle.....Seattle  
Gregory Sewell.....Bothell  
Allison McLean.....Bellevue  
Kit Craven.....Boise  
Frank Rowan.....Renton  
Rob Bowman .....Redmond  
Marcus Smith & Ruth Garasi  
Burlington  
Jared Lathrop .....Everett  
Jim & Patricia Phelps.....Arlington  
John Anderson .....Yakima  
Merle Hutchison .....Beaverton  
Rodd W. Wagner.....Bellevue  
Scott Dawson .....Seattle  
Fred Calahan.....Lynnwood  
Paul Berg .....Bothell  
Edwin Bexten .....Seattle  
Tom Larson.....Bothell  
Ann & Craig Channer.....Seattle  
Bud & Deb Rogers.....Gold Bar  
Lisa & John Walton.....Edmonds  
Keith Pennock.....Kirkland  
Nick Blenkush.....Bothell  
Robert Donahue.....Victoria  
John Strobel.....Woodinville  
Shawn Edwards.....Bellevue

## June Meeting Location

Redhook Ale Brewery,  
143000 N.E. 145th St.,  
Woodinville, WA 98072

Directions From 405, North or South, take the Wenatchee/Monroe exit (#23 East) to Highway 522 East. Take the Woodinville exit and stay to the right. Turn right on NE 175th. Left at the 4-way stop onto Highway 202. Travel approximately 2 miles. The Redhook Brewery is just past the Columbia Winery on the left. For the more visully inclined:



## Classifieds

For Sale: '71 240Z, needs a little work. \$900 call Tim in Redmond 425-868-7990

Set of 4 Enki rims with locking lugs and tires size 15x7 and 225/60R14 came off a '78 280z have receipts. Over \$1000 invested asking \$300.00 call Jeff (253)838-2135 (Federal Way, WA) or E-mail me at rnewton@gr.cc.wa.us

1980 280ZX 19,500 original miles, color Black, leather interior, a/c, cruise, 5 speed, t-tops, all original, excellent interior, paint fair, body excellent no rust, garage kept since 1985. Any reasonable offer over \$5,000.00. Any one interested email eaupi@aol.com or phone 405-355-7805 Lawton, OK.

Looking for a STOCK 72 240Z must have sound engine, stock seats. Prefer to find first/ second owner. Color, mileage does not matter. Contact Nick @ 608-781-1655 WI or email lsiss@centuryinter.net

Here is a list of items that can be had for free or darn close to it! I won't ship, I will help you carry this stuff to your car from my garage. If you are interested contact me at (daytime) 704-3866, (evenings) 204-6025 or via email at timn@microsoft.com.

- 60A alternator for a 75-78 280Z (has broken bolt) (works fine!)
- R200 3.54 diff, includes cross member and mustache bar

- 72 4speed transmission - worked great when I removed it from my '70 240 - 4 years ago

- 5 speed tranny core. This one makes noise, but could be used in a pinch as is
- Brand new 240Z radiator with a huge dent in the core! (don't ask, just take it away!)

Really cheap stuff —

- Stock '77 280Z seats. Recently recovered, do not have rails \$100/pair

- 2.5" exhaust, will connect with stock ex. manifold, Flowmaster muffler \$150 (1 month old)

- 4 15x8 steel wheels, powdercoated silver \$150 (wheels are free, you pay for the powdercoating!)

I'm looking for an original sales brochure for the Series I, (1970-early 71) 240Z's. Any assistance in locating one in good condition would be appreciated. Email address is pbrissin@ix.net-com.com My phone # is (206) 842-8192, evenings. Thank you!

I have a few Nissan brochures in my collection that I am parting out and I thought that you or members of your club might be interested in some of them. I would appreciate it if you would include my Email address and website address in your next newsletter for your members to check out. The Nissan brochures are listed at <http://www.dlcwest.com/~gkohut/nissan.html> other brochures also available can be found at <http://www.dlcwest.com/~gkohut/index.html>. Thank you, Glen Kohut. #266-919c Albert Street, Regina, Saskatchewan S4R 2P6, Canada. Email: [gkohut@dlcwest.com](mailto:gkohut@dlcwest.com)

# ZCCW Automotive Activities

June						
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					

**June 1**  
WWSCC RCCC Asphalt Bowl '97 - Kent

**June 15**  
WWSCC BEAC Autopilot '97 - Kent

**June 22**  
3rd Annual Poker Run, by N Cascade Region VCCA, Dave Kosche 206.334.3796

**June 22**  
NWR/SCCA Regional #4 - Kent

**June 22**  
BSCC Event #4 - Bremerton

**June 28**  
ZCCW General Meeting at Redhook Brewery in Woodinville

July						
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		

**July 6**  
Waterfront Park All Nissan Show & Shine, North Vancouver, BC. Hosted by B.C. Z-Car Registry. Info: 604.987.4416 evenings between 6pm-9pm.

**July 6**  
NWR/SCCA Regional \$5 - Kent

**July 11-13**  
5th Annual Mt. Shasta All Datsun-Nissan Meet. Mt. Shasta, California. Contact Dennis Hale at 408.336.2444. For details check <http://dimequarterly.tierranet.com/events/97shasta.html>

**July 13**  
BSCC Event #5 - Bremerton

**July 18**  
ZCCW Tech Session at Z-Specialties, 19921 Ballinger Way, Seattle

**July 19**  
ZCCW General Meeting/Picnic. Larabee State Park

**July 20**  
WWSCC MCPS Sports Car Spectacular '97 - Kent

August						
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 31	25	26	27	28	29	30

**July 22-27**  
10th Annual Z-Car Club Convention, York, PA

**July 26-27**  
SCCA Seattle National Tour - Kent

## — What's Coming Up... —

**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 - Location TBD

**September 27**  
BSCC School - Bremerton  
NWR/SCCA Solo II School - Kent

**September 28**  
BSCC Event #7 - Bremerton  
NWR/SCCA REtional #7 - Kent

**October 11-12**  
29th Annual Monroe Swap Meet, .Evergreen Fairgrounds

— 1998 —

**February 28**  
Nissan Datsun Sports Owners Club, Inc. 30th Anniversary black tie event. South Yarra VIC Australia

**July 20-25**  
11th Annual Z-Car Convention



**Give this application to another Z enthusiast!**

## ZCCW Application for Membership

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

Prorated by quarter for NEW members ie:

Single: [Jan - March \$25]	[April - June \$18.75]	[July - Sept \$12.50]	[Oct - Dec \$ 6.25]
Family: [Jan - March \$30]	[April - June \$22.50]	[July - Sept \$15.00]	[Oct - Dec \$ 7.50]
Associate: [Jan - March \$15]	[April - June \$11.25]	[July - Sept \$7.50]	[Oct - Dec \$ 3.75]

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

Z-Car Club of Washington  
 11707 SE 60th Place  
 Bellevue, WA 98006

Membership - Type -	
<input type="checkbox"/>	Single
<input type="checkbox"/>	Family
<input type="checkbox"/>	Associate

New Member?  
 Update?

Name(s): \_\_\_\_\_ Birthdate(s): \_\_\_\_\_

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

State: \_\_\_\_\_ ZIP: \_\_\_\_\_ E-Mail: \_\_\_\_\_

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: \_\_\_\_\_



*Z-Car Club of Washington*

132nd Ave SE 3624  
Snohomish, WA 98290

:TO