Z-Car Club of Washington
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Lynnwood, WA 98037-8013

TO:

1999 Nissan Fairlady 300ZX

The NewZletter

of the Z-Car Club of Washington

Vol. XXXI, No. I November, 1998

Next Meeting: The Flying Pig Brewing Co. • Everett• 21 November 1998

– What's Inside –

Prez Sayz

As I am sitting here, the rain pounding the office window, wind blowing the recently fallen leaves throughout the neighborhood and causing the window to bow and flex I peer out looking at the nearby mountain range and notice a dusting of snow along the top ridge. Ah, yes. We are coming upon that time of year where it is blustery, raining, snowing, or just bitterly cold. That time of year where we spend an ever-increasing amount of time indoors–can't really do much outdoors anyways since it's dark when you go to work and dark again when you come home.

I would like to ask you to contemplate the future of the Z-Car Club of Washington. We are coming upon a new year and we should set some goals for what it is that we, as a Club, want to accomplish in this coming year.

It has been mentioned in the past about hosting and/or co-hosting an autocross. Earlier this year, the North West Datsun Enthusiasts expressed an interest in co-hosting an event with us. Is this something we want to do next year? If so, we would need someone to take the lead of this and set things in motion.

Earlier this year we had a Z-Car Care Day at Motorworks Ltd. thanks to Duane Bender. If Duane would be willing, should we have something like this again?

We've had a couple of tech sessions earlier this year. I believe that we should work on having some more throughout the year.

This has been a good year for our Club. Our rosters, turnout, and finances have steadily grown. How are we going to build on our successes for the coming year? Many of us are regulars at the meetings and are getting to know eachother better at each meeting. With the diversity of backgrounds and interests that we have, if we are able to work towards the goals that we establish, 1999 shall be a stellar year.

Just something to ponder as we get ready for Officer elections as mentioned in Quick Bits later in this issue.

Z-Ya (where pigs fly...)

The NewZletter

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

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ZCCW Membership Application

Annual dues: Individual = $25; Family = $30; Associate = $15*
First year membership dues prorated if joined after first 1/2 of the year for new members. i.e.:

Individual:	[January – June $25.00]	[July – December $15.00]
Family:	[January – June $30.00]	[July – December $20.00]
Associate:	[January – June $15.00]	[July – December $10.00]

Note: The membership year runs the calendar year (January-December). All memberships received prior to December will expire on December 31st unless it is indicated on the membership application that the membership application is for the remainder of the present membership year and for the next complete membership year. For timeliness issues, all new membership applications received in December need to be for the following membership year.

*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 The NewZletter

To join, fill out application and send with payment to:
Z-Car Club of Washington
18505 Alderwood Mall Pkwy. Suite # 1-419
Lynnwood, WA 98037-8013

☐ New Member?
☐ Update/Renewal?

Membership Type
☐ Individual
☐ Family
☐ Associate

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): Rallying:

Cruises: Autocross: Other:

Classifiedz

Do You Have Z Parts or Z's For Sale?
Are You Looking For That Certain Part or Z?
Advertize them here in The NewZletter!
Call Michael at: 360.856.5185 or email: mswhite@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> .

For Sale, set of 7.5 by 16" Centerline aluminum wheels with Yoko 225/50-16's. Wheels need cleaning but no dings or curb rash. $600. Consider part trade for band saw or wire welder. Located Seattle area. Don't want to ship them. Can deliver as far south as Portland, OR. Jim 360-221-3170, <jameslux@whidbey.com>.

Wanted: I am looking for a 3-piece rear spoiler for my 280z, locally only please. Contact Shawn at <vman@seanet.com>.

Parting out 71 240Z. Dismantled, no body parts except rear hatch. Brad 425-745-5482

I have a 1977 Datsun 280Z, new deep red paint, stick shift, original motor, this car has not been driven since new paint in 1990! Needs to be buffed out. Fabric cover included. Multiple sclerosis has stopped any hope of completion. Needs most everthing but paint. Have owned it since 1981. Will sell cheap. Good start on a project Z. My loss can be someone's gain. Located in North Seattle/Shoreline. (206) 363-2884

'71 240Z for sale. Recarro's - need seat covers. Racing steering wheel. $7,000+ invested in front end rebuild, tranny, rear-end, radiator, brakes, etc. Have receipts for work done. Still needs some work. Comes with extra parts. Will let go for $1,900. Runs good. Pete Rossi 425.831.5850

'73 240Z Project Car - not a parts car. Body good, paint mostly good. Engine runs, not driveable. $750 obo. Adrian 425.453.9552

Ready for a transplant? '81 Maxima engine/tranny. New injectors. $500obo. Adrian 425.453.9552

'77 280Z Runs Great. An attention getter - a real eye catcher. $3,000 obo. Call 253.520.9034 evenings or weekends.

I have 30+ Z cars from 1970-1986 that I am parting out. Reasonable prices. Call

Ron @ 253.843.2813 or <rmillik@nwrain.com>.

I am selling my 1983 280ZX. I have spent many dollars and hours fixing it up (and loved every minute of it). Here is a partial list of the upgrades done to the 280ZX since March 1997: Replaced Rear deck seal, Replaced various lights, taillight 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!), New clutch, master and slave cylinders, 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. Make offer to Greg by e-mail <kelly@lightningweb.com> or phone (206) 213-0964.

1971 240Z. Build date 9/70. 89,000 miles. New paint, chrome exhaust. Everything original except new items listed above. Mint condition. Second owner - have owned since 1974. Estimated value by Z-Sport is $6,500. Contact Gary by phone after 4:00pm at 425.338.4194 or by email at <gwfrancois@aol.com>.

Basic Electricity, Part 1

From the October/November 1987 edition of the Bulletin

[Bulletin] EDITOR: We probably get more questions about the electrical systems than any other kind. This happens because most of us have almost no understanding of how electricity works.

Here is an article which deals with electricity from the novice's point of view. It appeared in the trade magazine and will have additional parts. Depending on how technical they are we may reprint them for you, so stay tuned.

Basic Automotive Electricity

Electricity is a big mystery to you, eh? You've tried to learn something about it but they throw a set of formulas at you and never bother to tell you why? Or where you'd use them? Not sure which meter to pick up to see why the blower motor, starter, or alternator you just installed doesn't work right? We want to help.

This article is intended to present the basic operations of components and circuits from a practical standpoint without going into theory that bogs down most of us when we try to study and understand electricity. In order to intelligently diagnose most electrical system problems we really don't need to know that theory. Yes, there are times when solving a circuit problem requires deeper understanding of circuit analysis than we'll give here. But we hope that after using the basics for a while, you'll be encouraged to study electricity a little deeper.

Electrical Current

We can think of the flow of an electrical current in the same way as we think of the flow of water. We say that water flows in the current down stream. In the same way, we say an electrical current flows through a wire or cable.

If we put a paddle wheel in a stream so that the current of water can turn the wheel, the flow of water current can be made to do some work. If we put an adjustable gate upstream of the paddle wheel (before the current gets to the wheel) we can control the amount of water that gets to the wheel. Therefore, we can adjust the amount of work that gets done in the certain period of time. Of course the more water that flows the more work that gets done.

Electrical current flows along a wire the same way. And the greater the job that needs to be done, the greater the current we need. Then we can think of the size of wire carrying the electrical current as the width of the stream carrying the water current. The more current we need, the bigger the wire needs to be.

We say that electrical current flows from the positive to the negative because Ben Franklin said so. He really didn't know. He took a guess. After all, he had a 50/50 chance at being right. It had to be one way or the other. Many years later when scientist were able to measure it in the laboratory, they found old Ben was wrong.

But by that time so much had been done and written about electricity that most people continued to think about it in Franklin's way. And for most practical purposes that's okay, especially on the automobile. So now we say that Ben's way is conventional current flow. We say that the flow from negative to positive is actual or true current flow. Conventional flow is the easier way to think about it and is used by almost everybody. Of course, we use it here and say the current flows from positive (+) to negative (-).

Whether it's water or electricity, there are four characteristics concerning the ability of the flow to do work.

- The amount of current flowing.
- The force of pressure behind the current.
- The impedance or resistance the current encounters along its path.

• The amount of work that gets done.

As technicians, we don't design electrical circuits. We maintain and repair them after we find the fault. To find the fault, we must measure one or more of these characteristics. There is a certain amount of confusion among us about the terms—the words use to describe the characteristics. So the first thing to do is to come to an understanding on the terms.

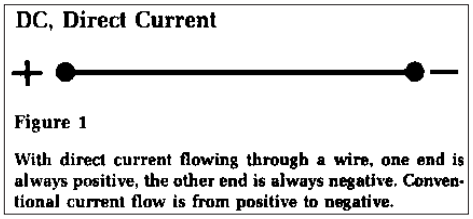


Figure 1

With direct current flowing through a wire, one end is always positive, the other end is always negative. Conventional current flow is from positive to negative.

The amount of water flowing, whether in a stream or in a pipe, is measured in G.P.M., Gallon Per Minute. The amount of electrical current flowing is measured in amperes, amps for short. How much current is flowing? So many amps? And the number of amps flowing depends on the job that needs to be done. A big job like cranking may take 200 amps. A small job like lighting the instrument panel may take one or two amps.

The water gets pressure from gravity, by falling down a hillside or even falling through a small incline in a river or a stream. Water pressure is measure in P.S.I., Pounds per Square Inch. Because electrons are too light to be effected by gravity, electrical pressure has to be develop through chemical means (the battery) or electromagnetic means (the generator or the alternator). Electrical pressure is measured in volts. So, voltage, is electrical pressure.

Can there be voltage without current? From a practical standpoint, yes. Putting a voltmeter across a battery that is not connected to anything else will indicate 12 volts, small current needed to operate the meter. If we connect the voltmeter to the hot side of a burned-out lamp bulb, we'll read a voltage even though no current is flowing through the bulb.

Electrical current does not have an easy time flowing along a wire. Current always encounters some resistance. That resistance is measured in ohms. Every wire has some resistance: the actual amount depends upon the diameter and the length of the wire. A coil or a motor winding may have many turns of small wire. The long length and small diameter of this wire will have a high resistance, maybe up to several thousand ohms. The heavy, large diameter cable from the battery to the starter will have a very small resistance, a fraction of an ohm.

We use resistance to determine if a winding or coil is partially shorted, that is, the wire's insulation is burned somewhere deep in the coil. The bare wire of one turn is touching the bare wire of another turn, or touching the metal case.

Resistance measurements are also used to determine the condition of resistors in the system that are intended to hold back the current, such as to dim panel lights or reduce blower motor speeds.

One more term we need to use from time to time is watts. This is the amount of power being used. It also designates the amount of electrical power that is—or can be—supplied by a power source like the battery and alternator. For a period of time watts was used to designate battery capacity.

Watts is power. Watts equals volts multiplied by the amps. For example, if the current going to a headlight lamp is 4 amps and the voltage is 12, 4 x 12 = 48 watts. 48 watts is the power being drawn by the lamp.

Kinds of Current—AC vs. DC

There are two kinds of electrical current, DC (direct current), and AC (alternating current). What's the difference and why do we care?

Direct current is current that flows in one direction, from positive to negative. With DC flowing through a wire, one end of the wire will always be positive, the other will

More *AutoWeek* Newz on the New Z

Z Ragtop

From the October 12, 1998 issue of AutoWeek, Vol. 48, No. 42

There may be a Nissan Z roadster in our future. Nissan Design International has penned the first sketches of a roadster based off the Z Concept, the potential design for the next Z car (News, AW, Aug. 24). The are "rough, rough sketches," say NDI's Jerry Hirshberg. "We wanted to evolve the design so that it would translate to a roadster and be the same car."

Meanwhile, the Z Concept coupe has evolved from the clay model unveiled at the Nissan road show of future products last summer. The revised design is substantially less retro, Hirshberg says, although you'll still recognize cues from the original 240Z in the concept car, which bows at Detroit next January as a running model. NDI has tightened the car's lines, especially at the rear end to make it appear more dynamic.

The redesign at the tail rids the car of what some described as a Porsche-like appearance, Hirshberg says, and the character lines that extend rearward from the door handles are emphasized. NDI has just shipped the clay model with those changes to Metalcrafters, which will build the prototype in sheetmetal. Nissan engineers still are tweaking the concept's powerplant, believed to be a version of the automaker's 3.0-liter V6.

A Lighter, Cooler Z

From the October 26, 1998 issue of AutoWeek Vol. 48, No. 44

As in 240Z, not 300ZX.

Nissan North America is on a big push to convince headquarters in Japan that it should make the next Z car a lightweight, high-revving four-cylinder that would sell for less than $25,000, in the spirit of the original 240Z. The spirit under the hood in this scenario would appear to be from the company's 2.4-liter four, pumped up to 190 horsepower (it makes 150hp in the Altima). Nissan in the United States has hinted, but won't confirm, that that's the engine it has in mind for the Z Concept.

The good news is that the Z Concept redesign we told you about recently (News, AW, Oct. 12) looks better than the first Z Concept drawings, as these renderings show. The car will debut at the Detroit show next January, complete with engine and running gear. Also appearing there will be Nissan's sport/utility truck (SUT) concept. Nissan Design International's studio in California also is working hard to have a roadster version of the Z Concept ready to appear in the sheetmetal at next fall's Tokyo show.

NDI's Z Concept is designed to be small and lightweight, aimed at the college grad with a good entry-level job, just like the original 240Z. NDI's preference for a modem 240Z, instead of a 300ZX successor (with possibly a twin-turbo 3.0-liter V6), got a boost when Honda announced that it managed 240 hp from the normally aspirated 2.0-liter VTEC four in its S2000 roadster (News, AW, Oct. 5). A four cylinder 240Z would upset those purists who believe the Z can only have a six (and it would still fall 40 hp short of the smaller Honda engine), but it would please those who prefer a Miata-fighter.

Nissan released drawings of the updated Z Concept at a press conference preceding Yutaka Katayama's induction into the Automotive Hall of Fame. Asked what cars Mr. K sees as potential competition for the next Z, the Father of the 240Z said: "I think BMWs [Z3s] and the like ... I'm sure that the price [of the next Z] would be quite affordable, so there'd be no competition."

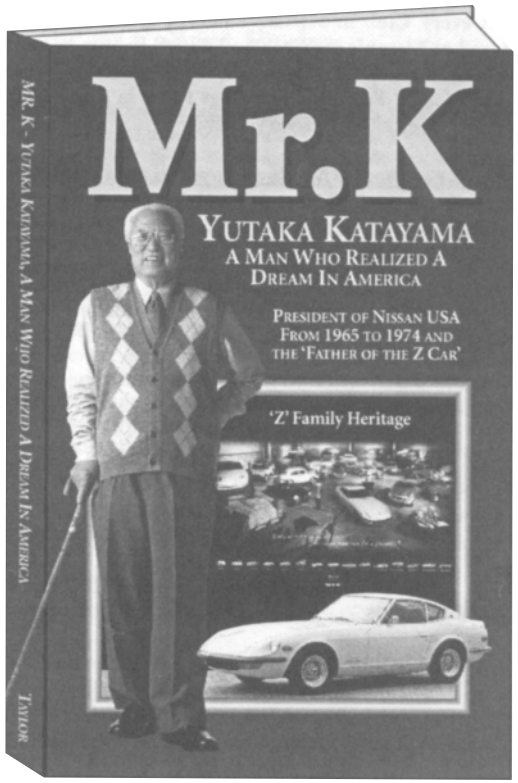
—Z

This is the enhanced English version of the book published last year in Japanese about Mr. K's life and times.

This 160 page, 5.5 x 8.5, hard-cover, Smythe bound book, with laminated dust jacket, contains over 160 pictures and graphics (including 12 pages in full color).

Some of these pictures have never been published before, such as Mr. K as a child with his family. Also included are rare pictures of the Z's ancestors and other automotive firsts (for example, the first Datson).

Each book includes an exact 3" x 5" color replica of the Legendary Z Print.



Books may be purchased from:

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Irving, Texas 75062

Price: $25 per book for Z Club Members – includes free handling, padded mailing container and UPS shipping anywhere in the continental U.S. Please add another $10 US per book for all international orders.

For non-Z Club Members, $30 per book for all continental US orders – includes handling, padded mailing container and UPS shipping anywhere in the continental U.S. Please add another $10 US per book for all international orders.

Administratively:

[1] For all mail orders, please indicate Z Car Club affiliation to receive free handling/shipping.
[2] To ensure UPS delivery, please use a street address – not a PO Box.
[3] ZCCA will again be acting on Mr. K's behalf for this project, therefore, please make check or money order (sorry, no credit cards) payable to "ZCCA T/A" (Transfer Account).
[4] There's an additional discount for orders of 50 books or more, please contact "Mad" Mike during the day at 972-438-8344 for information.
[5] Orders filled on a first come – first served basis.

always be negative. It's the kind of current we get from the battery–pure DC.

AC, however, is current that goes back and forth in the wire, first going in one direction (above zero volts) and then in the opposite direction (below zero volts).

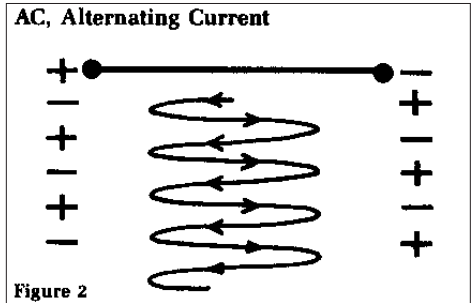


Figure 2

With alternating current flowing through a wire, the ends of the wire are reversing (alternating) their polarity.

How fast does the current go back and forth? That depends on the speed of the machine—the generator or alternator-that is producing the current. Currents produced by rotating machines is always AC. For example the generators that produce the 110/220 volt electricity for our homes and shops are highly regulated in speed to produce 60 hertz. This means in one second, the current make 60 complete cycles from positive to negative and back to positive. We say that the frequency is 60 Hz (short for hertz). Actually, that's a pretty low frequency. We'll talk about higher frequencies later.

Automotive electrical systems are DC, mainly because the battery is an important part of the system. A battery is strictly a direct-current device, but the current generated by the automotive generator and alternator is AC, which means that the outputs of those machines must be rectified, that is changed to DC. This is done by the commutator in the generator and by diodes in the alternator.

The terms we have used above are the formal, textbook words. In practice other words and phrases are often used to describe electrical measurements. Let's clarify some of these regarding current.

You might get the question: "How much current is the starter drawing?" The text-book answer is "X amps." but the question might also be stated as:

- What is the starter's current draw?
- What is the starter amp draw?
- What is the starter amperage draw?

For the amount of current going out of the battery, the question might be:

- What is the battery drain?
- What is the battery load?
- What is the amperage drain?

The amount of current (amps) needed to supply the entire system with everything turned on is said to be the systems load.

If an alternator is designed to produce 70 amps, we say that its current rating is 70 amps, or that its amperage is 70 amps.

Circuit Elements–Wire

Wire does nothing but carry current between or among the active circuit elements. But it must be big enough in diameter to carry the current required by the device it is connected to. The necessary length of the wire also has an affect on the minimum diameter.

Wire is specified in AWG (American Wire Gauge) sizes. The smaller the AWG number (called the gauge number), the larger the diameter of the wire. In auto work there is a tendency to call the larger sizes of wire cable—even though the wire may not be cable according to the word's definition. For example, the battery cable is #6 or #8 gauge on most 12 volt systems in order to carry heavy power. Moderate power from the alternator is carried by 10- or 12-gauge wire, and lower power in other circuits is carried by 18-gauge wire.

Is there anything special about automobile wire? For one thing, it must be stranded, which means the entire wire is not solid, but is made up of several strands of smaller wire. This makes the wire flexible and able to

withstand the vibration of the automobile. Solid wire crystallizes and cracks at the fixed mounting points very quickly. Therefore, solid wire must not be used. the solid wire used in buildings is not flexible enough for automobile work. The insulation must also be able to resist the high temperatures of the engine compartment and resist wear-through by abrasion.

Resistors

A resistor is an element placed in a circuit for the specific purpose of reducing voltage. Any resistor is designed to have a certain specific resistance value in ohms. It may be in the form of a wire of a resistance material. Such a wire is often used in the primary ignition circuit between the ignition switch and the primary terminal of the coil to reduce the voltage at the coil to about 8 volts. Some cars use a wire-wound resistor to do the same job. Again, the wire used here is made of special resistive material. Some of these are called ballast resistors, but not every wire-wound resistor is a ballast resistor.

The circuit of the heater/air conditioner blower motor uses a couple heavy wire-wound resistors. Consider the blower control that has a three position switch. In the low-speed position, the switch will contact the end of a series of two resistors. With the two resistors in the line, the voltage to the motor will be low and the motor will run slowly. At the medium position, the switch will only contact the end of the first resistor. With only one resistor in the line, the motor will run at medium speed. At high speed, the switch will cut out the last resistor, allowing full voltage to the motor. Then the motor will run at full speed.

The most common resistor is the carbon resistor made of a rod containing a certain amount of carbon needed to get a specific resistance value. These are usually found in radio and electronic circuits. You don't usually use these around the automobile.

All resistors change their ohmic value to some small extent with heat. The amount of change is taken into consideration in the design of the circuit. However, there is a special type of resistor in which the ohmic value varies with temperature in a very predictable and repeatable way. It's called a thermistor. A thermistor is used on the auto most often as a temperature sensor feeding temperature information—usually coolant temperature—to the computer. As the temperature changes, the thermistor's resistance (ohmic) value changes, and so the voltage going to the computer changes. The computer reacts to this voltage, along with signals from other sensors, to adjust the engine timing and fuel mixture.

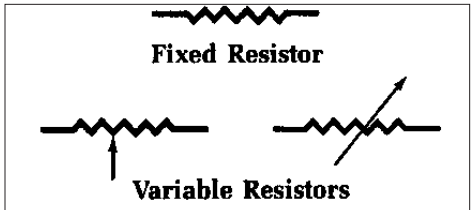


Figure 3

Wiring diagram symbols for resistors. The symbol on the right is also used for thermistors.

So far we have spoken only of fixed resistors. There are also variable resistors. Variable resistors can take several types. One is a carbon film on some kind of an insulating base. One end of the carbon film is connected to a part of the circuit. A connecting wiper that can run from one end of the film to the other is connected to the other part of the circuit. As the wiper moves across the carbon, the resistance is varied. Volume controls of radios are this type.

Another kind of variable resistor is the wire-wound type called the rheostat. A coil of resistance wire is wound around an insulating board or rod. A contacting wiper is arranged so it can move from one turn to the next, again varying the resistance. On the car, this type of variable resistor is found in rotating part of the headlight switch to control the intensity of the dashboard panel lights. The TPS (throttle position switch) found on a computer-controlled carburetor systems is another example of a variable resis-

Battling the Brakes...

From the August/September 1987 edition of the Bulletin.

Working with modern brakes is different than it used to be, Especially with disc brakes. They're a lot less complex, not so many springs, clips and adjusters to get in the way; and most cars go through an entire life without attention to the caliper one. Disk brakes do suffer from some odd problems that can keep us guessing though. Noise is always a bothersome problem, uneven wear rates are hard to explain, and premature wear is difficult to cure short of changing the driver.

There's also a class of disk brake problems that might fall under the heading of "driveability" glitches. One such problem is .easy to spot and has a little known cure

Mysterious Malfunctions

The scenario starts with a vehicle coming in with brake noise problem or perhaps even for some other non-brake related malfunction. At some point in diagnosis and treatment it's decided to install new pads. Since the rotors show only minor wear it's decided to proceed without refinishing them. Okay, so a good grade of pad is purchased, installed, and the customer is sent on their .way

Next day; "Hey Joe, since I got the car back yesterday the brakes feel funny." It seems maybe the pedal feels soft or requires more pressure than usual to generate a normal amount of whoa power. Maybe there are related funny noises, maybe there aren't. No matter what the symptom, you've got a dis-.satisfied customer on your hands

What went wrong? Bad pads? Did the job need to be bled? Maybe the rotors should have been turned after all? Probably not. .More likely the answer is: "D" none of these

A Marvelous Cure

A closer inspection will reveal that existing wear has caused the outer circumference and the base circle of the swept area (the part of the rotor that the pad actual rubs on) to be radiused. In other words, the edges of the pad may be riding up on a raised portion of the rotor surface, the fillet where the unworn .part of the rotor dips into the wear area

Sometimes the radius of the dip will be pronounced and cause a problem even though the rotor is in acceptable shape otherwise. While the true and proper cure is to re-finish or replace the rotor, lets assume that for economic reasons that's not a desirable ?solution; so what's a poor mechanic to do

The basic problem is that the pad doesn't seat squarely into the rotor because the edges are being lifted up by the wear radius on the rotor's circumference. When that occurs several things can happen. Often the pad will chatter and cause odd noises. Worse it will ride up then shift into place causing an odd feel to the pedal. In the very worse case the pad will be held up from the .disk and braking power will suffer

While such a situation will usually resolve itself, as the pad wears in and the edges get worn off, your customer will be put-out at best in the process. You can avoid that situation by applying a corrective mea-.sure before they even get back in the car

Before you begin the process of installing a set of pads, take a look at how they're going to fit the rotor. (Even a new rotor. Pad configurations will vary from vendor to vendor in order to consolidate part numbers and applications; so the way the pads meet disk can vary too.) If there is any chance that the pad will not fit squarely, simply employ a course file, or the grinder, to bevel off the edges where the first hit is going to take place. The beveled edge will allow the pad to make full contact on the surface of the rotor and the noise and pedal problems will be avoided without the expense of replacing .or re-finishing the disk

A side benefit will come from the fact that the sharp ragged edges of new pads can some time contribute to noise problems in and of themselves. Beveling off the edges will reduce the incident of noise problems even if .a rotor problem never existed

—*Z*

Quick Bits

November General Meeting

The General Meeting for November is going to be a week early due to the Thanksgiving Holiday weekend the last weekend of the month. We will be meeting at The Flying Pig Brewing Co. at 2929 Colby Avenue in Everett at 3:30 on 21 November. We should be getting reserved parking in front of the restaurant–bring your Z for what may be the last chance to show off our Z's before the end of the year.

Since there was not a large turnout for the October meeting, Officer nominations (Secretary, Treasurer, Vice-President, and President) have been tabled for the November meeting. So, we will be having both the nominations and the elections at the November meeting. Of course, there will be other items for discussion as well.

Dyno Day is Set

Gregg Kerber

Here is the information for the upcoming dyno day that I just received from Larry DeCamp. He is from the Camaro club that we will be doing the dyno day with. There are 10 slots open for us. Anyone that would like to attend, please e-mail me ASAP and I will add you to the list and make a waiting list for extras.

Gregg <gkerber@gte.net>

Original Message From: Larry B. DeCamp:

I got in touch with Austins on having a day to go run our cars through their dyno. January 16th is the day, I set it up to begin at 9:00 and go till were are done, I am sure they close by 5:00. The address is 5602 S. Tacoma Way, Tacoma. Phone is (253) 472-1336. We will be meeting people at the Weigh Station on south bound I-5 just south of where highway 18 crosses. Plan on leaving the Weigh Station at 8:30 if you want to join up there. The cost is the same as last time $500.00 plus tax, so about $560.00. The plan is to just split it up evenly between the number of cars. The way it works is, the car is chained down, you get up to 30mph, then floor it and run the engine up as high as you want. For automatics you can go through the gears, for manuals it was just leave it in one gear, 3rd worked for our stuff. Each run produces a chart of hp and torque. You get to see how it builds up, when to shift, etc. Time permitting you can try changes and run through again. See you there. Larry DeCamp

240Z Club & Microfiche CD Demo

From Mike Gholson

Hello everyone. I'd just like to take this time to announce the birth of our revised web site. http://www.240z.org has been updated and reformatted to bring the best possible information to you.

Please take some time to visit our web site. You'll find it interesting and a very valuable resource. We also have a downloadable demo of the ever-so-famous Z-Car Microfiche CD-ROM.

Microfiches Available

From A. Egerer

I just wanted to let you know that I've been able to purchase 2 sets of microfiches (at different times, 6 months apart) for the first generation Z's at my local Nissan dealership. It took 1-2 days, and was less than $20.00. If you're interested in them, try your local Nissan dealership.

1999 Nissan 300ZX Webpage

Paul Cobbs

For those that are interested, one of the forums had this link to Nissan's 1999 Fairlady Z (300ZX) site: <http://www.nissan.co.jp/COMPASS/FAIRLADY/>. [See picture on back cover -MSW]

tor or rheostat. Small rheostat are sometimes called potentiometers.

The electrical symbols that are used in wiring diagrams to identify fixed resistors and variable resistors are shown in Fig. 3.

Lamp Bulbs

Lamp bulbs are so common that they seem hardly worth talking about. However, a couple of points should be made. The light is produced by pushing current through the resistance of a fine wire called a filament. The filament gets hot enough to glow brightly. This white heat would burn the filament very quickly if the filament were in air, so the glass bulb is evacuated, leaving the filament in a vacuum. the point to be made here is that the resistance of a coil filament is very low. This suggest that even a small lamp would draw a heavy current when connected to a battery. In reality the lamp does not draw much current except for the instant when the switch is closed. As soon as the filament heats up, its resistance rises drastically and the lamp actually draws only moderate or low current. Of course, the amount of the current the lamp actually draws depends on how much work it does, that is, how much light it produces.

Circuit Operation

There are a few more circuit elements we need to talk about. But first, let's take a break and look at the operation of a simple but typical circuit containing the elements we have already covered.

Let's wire up a lamp bulb to a 12 volt battery. Let's include a switch so we can turn it off and on as shown in Fig. 4. We'll arrange a series circuit composed of the battery, the switch, a lamp, and wires that connect these parts together. In a series circuit, the current flows progressively through each component of the circuit. So when we close the switch in our circuit, the current will flow from the positive post of the battery, through the closed switch, then through the lamp, to the negative post of the battery, through the battery and start the trip over again. As long as the circuit is complete, the current keeps flowing through the loop—until the switch is opened, the lamp burns out, or one of the wires breaks.

What happens to the current as it keeps making the circuit? What happens to the voltage? Well first of all, we've got to know what the current and the voltage are. The voltage is easy. The circuit is powered by a 12 volt battery. How much current is flowing out of the battery and into the circuit? The same question might also be worded:

- What's the drain on the battery?
- What's the battery load?
- What's the amperage of the circuit?

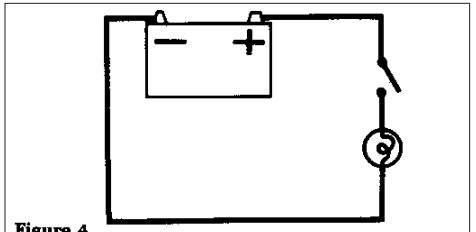


Figure 4

A simple series circuit of a battery, a switch, and a lamp bulb.

The size of the lamp determines the amperage of the circuit. Let's say the lamp draws two amps. Then two amps will flow out of the battery, loop their way through the circuit, and flow back into the battery again.

What happens to that current? Does it just dissipate as it flows through the light bulb? Does the current just burn up?

In almost every treatise on basic electricity, there's a discussion of a basic law called Ohm's Law. Ohm's Law defines the relationship among amps, volts, and resistance. But this writer thinks that another law is even more important to us here. That law is called Kirchoff's Current Law and states: in a closed electrical circuit, all of the current leaving a one point must return to that point. Not only is Kirchoff's Law vital to your understanding of circuits, it is also essential to your troubleshooting of circuits!

So what does this law mean to us and to the circuits we've been discussing here? It means that whatever current leaves the positive post of the battery must get back to the positive post. How does it do that? After it flows through the switch and the lamp, it'll continue on through the return wire to the negative post, through the plates and electrolyte of the battery and back to the positive post. It means that the same current (amps) is flowing in every element of the circuit. It further means that the current (amps) is the same in every part of a series circuit, so that the two amps flowing out of the battery flows through the switch, the lamp, and all connecting wires including the return line. This has further implications you must remember:

• A measurement of current can be made in any part of the circuit.

• Any weakness in the return line such as loose and dirty connections, undersize wires, etc., are just as important as weaknesses in the hot line are!

Well, what does happen to the electrical energy as it passes through the lamp? Something's gotta be given up or we'd have perpetual motion within the circuit! What happens is the voltage drops as the electricity flows through the light bulb. This means some voltage is lost going through the bulb. When the current reaches the battery again, it gets pumped back up to 12 volts as it flows from the negative to positive.

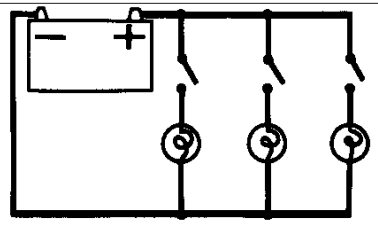


Figure 5

A parallel circuit of 3 series circuits. Each lamp is in series with its own switch.

Now let's add some more lamp bulbs to the battery, with a switch for each lamp. Notice here that there are three individual circuits. Notice that each lamp can be turned on independently of the others. These are called parallel circuits. One end of each of the circuits is connected to the "hot" (positive) line from the battery, and the other end of the circuit is connected to the "return" (negative) line to the battery. In the wiring diagram, the circuits form a ladder, with the rails being the positive and negative lines, and the rungs being the three individual series circuits. So we say that each of the circuits is in parallel-with the others. Another way of describing these parallel circuits is to say that each circuit is across the others. Take a moment and compare Fig. 5 with Fig. 4. See how we stack up or hook up three separate series circuits to form three circuits in parallel with each other? Please re-read what we just told you. Re-read it until you understand it!

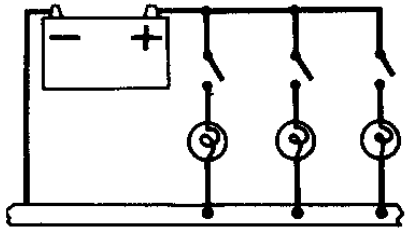


Figure 6

On the vehicle the frame, engine, and sheet metal are all connected together via straps and bolts to become the negative bus called *ground*.

Each lamp is the same size, so each circuit will draw two amps. When all three switches are closed the total amount of current drawn from the battery will be six amps. The total amount of current returning to the battery's negative post will be six amps.

The diagram of Fig. 6 shows the second end of each circuit connected to a negative bus. On a car, the negative bus is a frame, the sheet metal, and the engine block.

These three are connected together by cable, straps, or bolts, to form the negative bus. We call this bus ground. Ground is symbolized on wiring diagrams by the triangle of three lines as shown in Fig. 7.

Let's modify the third circuit so the brightness of the lamp can be adjusted. We'll

time, all of us at Nissan take pride in what we have accomplished with the Z-Store and in the cars we have restored. I think it is also safe to say that those people fortunate enough to have purchased one of our restored Z's have a very rare vehicle indeed.

The warranties originally set for those cars remain in place, and owners will continue to be served by Nissan's Claims Center.

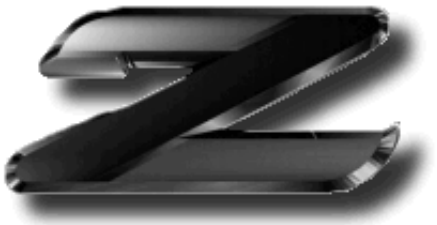
The remaining cars are being completed by Datsun Alley of Signal Hill, CA, and will be delivered to our participating dealers across the country within the next 10 days to two weeks. Datsun Alley will be continuing the restoration process on its own and will be offering completely restored 240Zs to customers. These will not be Nissan-authorized cars nor will they come with a 12,000-mile/12-month warranty. Datsun Alley, however, will stand behind its work, and assist any buyers of these cars with any warranty-related problems. Marc Jones of Datsun Alley can be reached at 562-988-0009.

Let me just conclude this letter by saying it was a privilege to represent Nissan through the Z-Store, and I have greatly appreciated your interest and support of this program. On a personal note, I have been asked by Robert Bentley Publishers, a company noted for its automotive heritage books, to write a book on the Z, including a section on the Z-Store and the Z's legions of fans. If you have anything interesting that you would like to pass on to me for inclusion, please e-mail me at <pete.evanow@nissan-usa.com>, or send it to my attention at P.O. Box 3052, Orange, CA 92857.

I look forward to seeing many of you at the next National Z Car Convention, and thank you for helping to keep the Z alive and for sharing in the company's great heritage.

Cordially,
(signed)
Pete Evanow
Manager, Z-Store

—Z



Z-Store Program Shutdown

c/o Carl Beck to the Z-Car List

Hi Gang:
I received the following from Pete Evanow, Manager of the Z-Store Program at Nissan Motors U.S.A.

It was addressed to the Z Club Members - so I pass it on to you FYI.

Carl

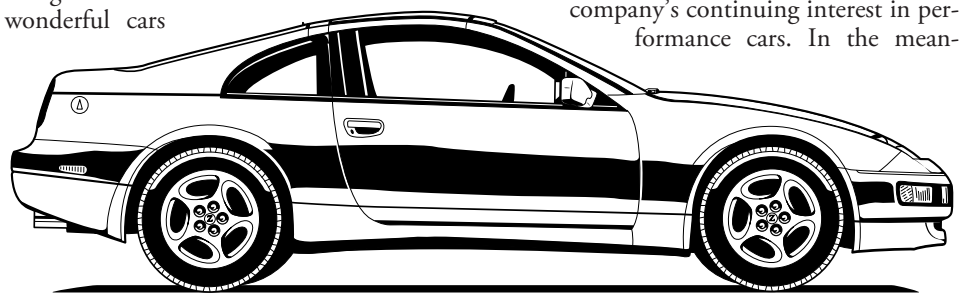
Z-Store
Nissan Motor Corp., U.S.A.
30 October 1998

TO OUR Z-CLUB MEMBERS:

As you well know, Nissan Motor Corporation USA created the Z-Store as part of a unique program to keep the spirit of the Z car alive after retiring the 300ZX. As of the 31st of October, 1998, the official program will be discontinued.

The restoration of Vintage Zs involved more than 18 different body shops and three restoration businesses, and the quality restoration process was backed by Nissan Motor Corporation U.S.A. Through the program, some 40 cars have been restored, with one donated for a charity auction organized by Rick Cole. Others have been sold to Z enthusiasts across the U.S., as well as buyers from around the world.

I strongly believe the program satisfied a niche demand, and generated positive publicity for Nissan. Additionally, our efforts to bring new life to these wonderful cars has kept the "Z" spirit alive and just as importantly, helped bridge the "gap" between the discontinuation of the 300ZX and the development of a new generation sports car, now possibly a new Z. I hope the cars we were able to deliver to our participating Z-Stores helped generate floor traffic, customer interest and profits from the cars' sales. I also know that parts sales for Nissan, and obviously from the many Z-related aftermarket companies increased based on the recognition of owners of the value of 240Z ownership, as many people began restoring or improving their personal vehicles.



While Nissan plans no official announcement about the discontinuation of the Z-Store, our Public Relations Department has prepared the following statement:

"With the rich heritage the Z car has generated over the years, Nissan wanted to maintain a high level of interest in the Z after the discontinuation of the 300ZX. The Z restoration program helped us to do that, and it satisfied a special demand for these cars. We're now looking forward to what we are hoping will be a new Z. We showed a concept car this summer which was aimed at recapturing the spirit of the original Z, and we'll be unveiling a version of this concept at the January Detroit auto show which we hope will be a further definition of a true, pure sports car."

Nissan will now focus its attention on the development of the Concept Z, which may very well open a new chapter of the company's continuing interest in performance cars. In the mean-

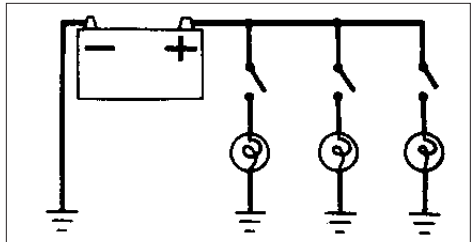


Figure 7

Ground connection to the chassis is symbolized by the triangular shape of three lines.

insert a rheostat between the switch and the lamp. You can see that the rheostat is in series with the switch and the lamp. The symbol shown on the diagram is the same one found on wiring diagrams. With the sliding contact at the beginning of the resistance wire, there is no resistance in the circuit. Therefore, the lamp will shine at full brightness. With the slider at the other end of wiring winding, there will be the full resistance of the rheostat in the circuit. Then the lamp will shine at its dimmest. This is exactly the circuit found in the panel lamp dimming portion of the auto's light switch.

What happens to the voltage in this kind of a situation? Part of the 12 volts will be dropped across the resistance of the rheostat and the remainder of the voltage will be dropped across the resistance of the lamp. How this will be divided up, of course, depends on how far we turn the rheostat. WAIT. . .There's more

This concludes the first part of our article on basic electricity. That's right, this was just the first part. We'll have even more for you in our next issue with a look at:

- Short circuits
- Current measurement
- Voltage measurement
- A closer look at individual system components.

So stop back next month as our look at electricity moves from basic theory to some more concrete applications in the real world.

—Z

Total Approx. Circuit Amperes	Total Circuit Watts	Total Candle Power	Wire Gage (For Length in Feet)										
12V	12V	12V	3′	5′	7′	10′	15′	20′	25′	30′	40′	50′	75′	100′
1.0	12	8	18	18	18	18	18	18	18	18	18	18	18	18
1.5		10	18	18	18	18	18	18	18	18	18	18	18	18
2	24	16	18	18	18	18	18	18	18	18	18	18	16	16
3		24	18	18	18	18	18	18	18	18	18	18	14	14
4	48	30	18	18	18	18	18	18	18	18	16	16	12	12
5		40	18	18	18	18	18	18	18	18	16	14	12	12
6	72	50	18	18	18	18	18	18	16	16	16	14	12	10
7		60	18	18	18	18	18	18	16	16	14	14	10	10
8	96	70	18	18	18	18	18	18	16	16	14	12	10	10
10	120	80	18	18	18	18	16	16	16	14	12	12	10	10
11		90	18	18	18	18	16	16	14	14	12	12	10	8
12	144	100	18	18	18	18	16	16	14	14	12	12	10	8
15		120	18	18	18	18	14	14	12	12	12	10	8	8
18	216	140	18	18	16	16	14	14	12	12	10	10	8	8
20	240	160	18	18	16	16	14	12	10	10	10	10	8	6
22	264	180	18	18	16	16	12	12	10	10	10	8	6	6
24	288	200	18	18	16	16	12	12	10	10	10	8	6	6
30			18	16	16	14	10	10	10	10	10	6	4	4
40			18	16	14	12	10	10	8	8	6	6	4	2
50			16	14	12	12	10	10	8	8	6	6	2	2
100			12	12	10	10	6	6	4	4	4	2	1	1/0
150			10	10	8	8	4	4	2	2	2	1	2/0	2/0
200			10	8	8	6	4	4	2	2	1	1/0	4/0	4/0

- **Calculate the wire length of the circuit including the ground or return circuit wire if one is used.**
- **Determine the total circuit load in amps, watts, or candlepower, and choose the appropriate column.**
- **Move to the column showing the length of the entire wire circuit. Select the proper wire gauge.**
- **Use a wire two sizes larger for 6 volt applications. (If you need 16 for 12 volt, use 14 for 6 volt.)**

ZCCW Automotive Activities

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					

December

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		

January

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
24/3	1	25	26	27	28	

November 21
ZCCW General Meeting - 3:30 - The Flying Pig Brewing Company - 2929 Colby Ave. - Everett

December
ZCCW Christmas Party - Date/Location TBD
and/or
2nd Annual Christmas Charity Drive and Holiday Potluck. To benefit the children at Children's Hospital.
Details to come.

January 30
ZCCW General Meeting - 3:30 - Location TBD

What's Coming Up...

Haven't yet received much regarding events for the beginning of 1999. Will get them listed as they arrive.

The ZCCW draws its calendar information from many sources. If you would like to be one of those sources and have automotive events that you would like to have included, email Michael at mswhite@sos.net.