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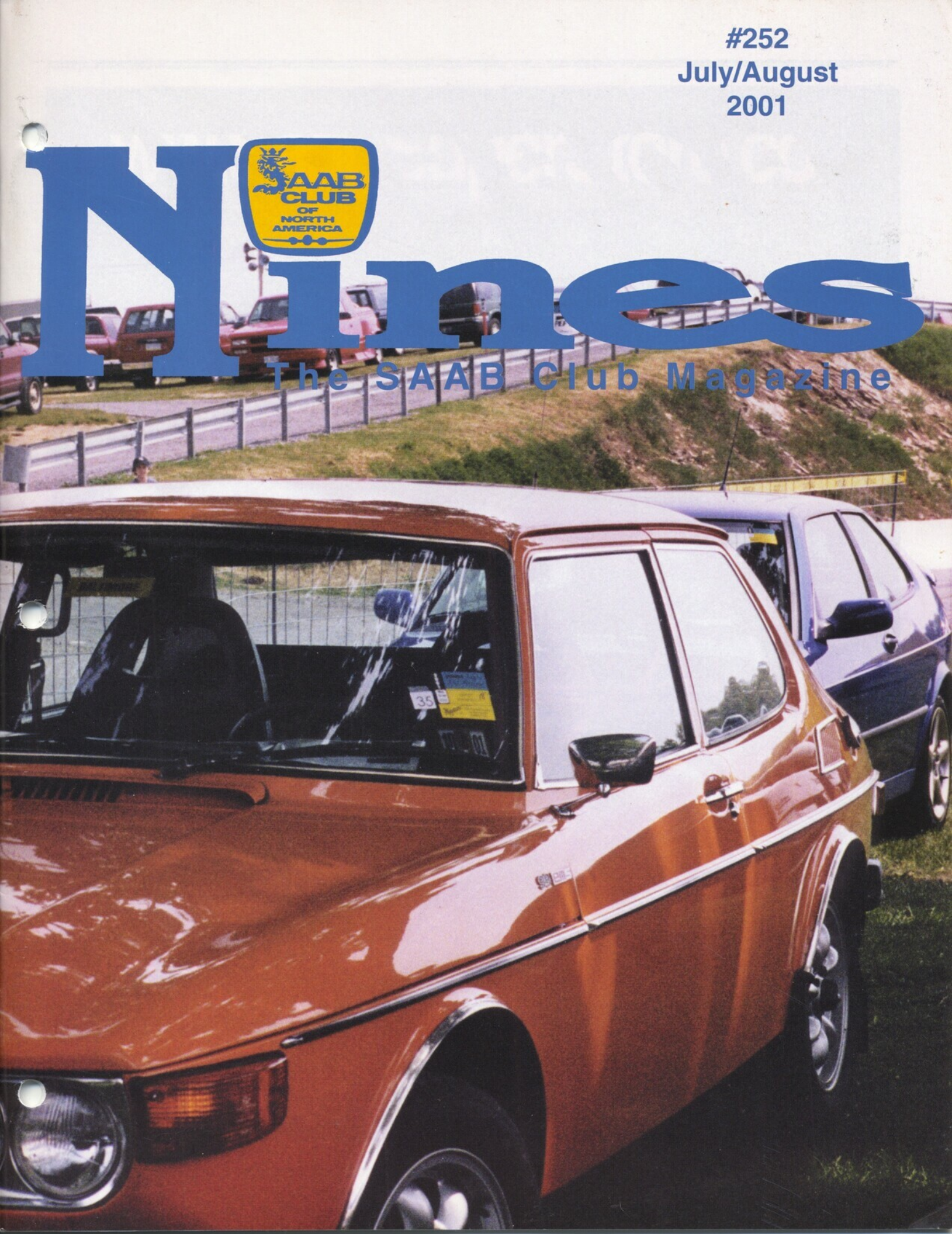
Nines

SAAB CLUB OF NORTH AMERICA

The SAAB Club Magazine



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Features

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Front Cover: Dr. William Jenkins 1974 99 EMS was pictured at the 2001 Carlisle Import Kit/Replicar Nationals.
Photograph by Stephen Goldberger

Cover Wrap: A gathering of Saabs, pictured at Little Buffalo State Park, Pennsylvania during the driving tour sponsored by the Central Penn Saab Club at the 2001 Carlisle Import/Kit Replicar Nationals.
Photograph by Stephen Goldberger

Cars in Cuba

Thanks for publishing my friend's photo from Cuba *(Nines #251 - Ed.)*. The GM car in the picture with the Saab 93 is a 1955 Buick. My dad had one.

Michael Fremer
Wyckoff, NJ

Mature Drivers

Don't underestimate little old ladies driving SAAB's. When I was in high school my folks had a dear old friend, Mrs. French, who was 80 if she was a day. She drove a SAAB 900T 5spd, probably an 83-84. I will never forget the one time she drove me into Portland to go to the public library - I don't think the speedometer needle dropped below 100mph the whole way. She was a very precise driver too - and she was sharp as a tack right up to the night she passed in her sleep. She always said "what cop would give a ticket to a 90 year old woman" - and she was right! She raced MG's in the (and in her) 60's. Wonderful woman.

Kevin Rhodes
This story was first printed in Turbo!

Ball Joints

I saw your comments on the subject in the current Nines issue. Allow me to disagree and suggest a differing explanation (for the classic 900 only):

Statically, the weight of the car is supported by the spring, upper A-arm, upper ball-joint, steering knuckle, bearing, hub, wheel, tire, ground. The load on the upper ball-joint tends to seat the ball in its socket and the taper joint in the steering knuckle. It is the lower ball-joint & A-arm that keep the wheel upright. One could envision an imaginary thief with nimble fingers removing the lower A-arm and ball-joint from a parked car (one side only!) without any visible external signs...until attempting to drive the car. Don't try this with the upper A arm and ball-joint!

Dynamically, in addition to the above loads, the damper acts on the lower A-arm, opposing any sudden up or down suspension movements. If the wheel hits a bump or curb sharply, the damper will react with a downward load on the A-arm many times the static load (remember the cracked lower A-arms before they reinforced the damper attachment?). This shock action will try to pull the ball out of the socket and to unseat the lower ball-joint taper from the steering knuckle; in the absence of the retaining nut, it may actually succeed!

This theory agrees with my experience of many years: due to the shock action, the lower ball-joints wear more often than the upper ones. And that's too bad, because it is harder to remove the lower ones...

Bernard Wassertzug
Rockville, MD

Clear Vision in Florida

Yesterday, I took advantage of a "not well publicized" Florida law that reads something like this: The state of Florida will pay the deductible for your comprehensive coverage portion of your insurance ONCE per year to replace a defective windshield (stone chips/bulls-eyes in the driver's vision or something larger than the area of a dollar bill). So, after years of pitted, spotty vision, and peering 'round the bulls-eye chips in my "original" windscreen, I spent 3 hours at the glass shop. I even helped the poor chap with the gasket and final seating of the glass, and the replacement of the outer rubber, center trim pieces. What a friggin' pain in the ass. Of course I remembered my digital camera after I was already inside the shop, so no pictures.

Mike "SaabDude" Szostkiewicz
Panama City, FL
This story certainly makes the Sunshine State look good! -Ed.

Global Warming a Myth?

I have been a Saab Club member since the mid-1980s, and this is the first time I have written to comment on an item appearing in the Club magazine. I refer to remarks made in the "Hydrogen Future" section of the "Professional Perspective" column (issue #251, May/June 2001) which unquestioningly assume that the currently popular hysteria over "global warming" is justified. I don't want to turn this into an intense and prolonged political discussion, which would not be appropriate in Nines, but did want to let you know that your entire readership does not support the opinions expressed in that article.

In point of fact, the reality of a long-term warming trend or (if such a trend actually exists) its causes are far from certain. Yes, it has been latched onto by environmentalists and governments alike as the next big thing which may be used to further control the lives of individuals and restrict their choices. The media has relentlessly fed the public with dire predictions of what will occur and that Something Must Be Done. However, there is no real consensus amongst scientists that global warming is taking place, or that if it is taking place, that the burning of fossil fuels is in any way responsible. (The vast majority of "greenhouse gas" emissions are from natural sources.) In fact, as time goes on more and more evidence is found that either there is no warming trend, or that we are not responsible for any minor warming which may be taking place.

For example, AP recently issued an article (based on a report in Geophysical Research Letters) describing how the ocean temperature cycle may be responsible for many of the effects that have hitherto been blamed on "global warming" and C02 emissions. Of course, this news story was buried deeply inside an internal section of the newspaper. I suppose that headlines proclaiming that we may not be facing environmental disaster Unless Something Is Done Immediately At Any Cost don't move papers off the stands.

Now back to the Nines column, which although concentrating on the situation in Iceland, had global implications. Despite all the lofty talk of "thinking outside the box," certainly here in the U.S. and in most of the industrialized world, there is simply no need for an incredibly expensive conversion from a perfectly good manufacturing and distribution system for fossil fuels, let alone the vast installed base of vehicles, powerplants, etc. that make use of such fuels. There is no urgent need to introduce a new type of fuel or automobile/truck engine. Regardless of the Nines article's contention that fossil fuels are a "dead end," oil supplies from a variety of sources (including some we have not even begun to tap, such as shale oil) will be plentiful for centuries. There is no reason that oil cannot "fuel the 21st century." (Note that the U.S. dependence on Mideast oil is primarily a political decision, there are certainly more stable areas from which we can obtain oil, including our own Alaskan reserves.)

Today's gasoline engines are marvels of efficiency and cleanliness. In fact, I believe it was reported in a previous issue of Nines that Saab's Trionic engine management system results in tailpipe emissions that are cleaner than the surrounding air in some areas. As I said, there is simply no critical need to spend many billions of dollars to introduce a completely different type of automobile using a radically different powerplant and fuel. There is certainly no justification for forcing the issue via government edict. This is a case where the status quo is fine and will continue to serve us well for a long time to come, and where a forced changeover will be incredibly costly and disruptive.

If a new type of power plant and fuel are wanted by some, let the market decide. For myself I have to say that I have no interest in a hydrogen/fuel-cell powered vehicle and will not purchase such a vehicle if it is offered for sale.

Robert Alpert
Westminster, MD

Please see our response to Global Warming Skepticism on the editorial page: "Looking Out"

My Saab Saved Me

My parents drive a lot, so they have always liked Saabs because of the safety issue. I have been in car crashes three times in my life and always inside of a Saab (still alive and kicking). A couple of those crashes have been minor, but the first one would have been lethal without the Saab 900.

It happened in the early 80's, and I was about five years old then. It was early morning and my mother was driving. I was playing in the front seat. We live in Finland and it was fall, so the road was full of black ice. We were driving about 100 km/h up the small hill and as soon as we got to the top of it, my mother hit the brakes. There was a police van in the middle of the road without any warning lights on. They were setting up a speed trap and I bet they were a little surprised when we hit them. The police car flew far away into the forest and our Saab was total mess, but nobody got hurt. My mother said that I was just smiling when I got inside of a tow truck and watched our Saab being dragged behind us.

The Court said that the police men were guilty for endangering traffic and they got the tickets, but the most important thing was that everybody stayed alive and perhaps learned something. I have had a driver's license now about a year and a half and I am driving a 1995 Saab 900 2.0 turbo, knowing that it must be the safest car in the world.

Antti Määkelää
Orimattila, Finland
This story was published in The Saab Network

What I've carried in my SAAB

My adventures with SAAB go back many years. I am taking you back to my early days with SAAB when I was much younger, on a very tight budget, and not always prone to making the best decisions. Just out of the Navy, newly married, and making a whopping $1.75 per hour as a baker, our home was a 10 X 50 mobile in a small Mobile Home Park. The year was 1963 and we were the proud owners of two SAABs. A 1959 750 GT and a 1959 93B. Both were purchased used in private sales.

Wishing to land a higher paying job, I applied to take the Civil Service Test for the Post Office, only to find out that you had to live in the delivery area of the P.O. giving the test. This meant moving to another Mobile Home Park. We found one with a vacant space, and made arrangements to have our home moved.

It is not too difficult to move when you live in a mobile, you unhook from the utilities, tape the cupboards shut, and off you go on the back end of a semi-tractor. But the mover said he knew that the park we were going to didn't have concrete footers to set up on. He requested that we have 12 inch concrete blocks (instead of the 8 inch we presently had) delivered to the site before he arrived with our house, to give us a more firm foundation.

I made a few calls to locate a source for the block, but found that they all charged a delivery fee that would really put a strain on the pocketbook, what with the cost of the moving and all. I decided to pick up the block myself. When I arrived at the brick yard, I had already taken the passenger and rear seats out to make room. I ordered and paid for 20 blocks and was instructed to pull around to the loading area. The dock worker asked, "What are you going to load the block into for transport?" I politely informed him that I was loading them into my car. He just shook his head and sat the pile down with the fork lift, and said, "Good luck."

They all went in with plenty of room to spare. But the tires looked a little fatter than normal and the whole car was quite a bit lower than before. I decided to take the driving very easy on the way home. Not far from the brick yard is a very steep long hill. with a lot of straining the 93 made the top of the hill still in first gear, but we had fairly easy going the rest of the way, till we came to a set of very rough railroad tracks. With the springs bottomed out I crept across the tracks without a problem.

I arrived at the site, unloaded the blocks, and awaited the arrival of our house. We were soon set up with four of the twenty blocks left over. Later that evening we decided to use the leftover blocks for a rear step. As I was lifting them around again they seemed even heavier than before, so I decided to put one on the bathroom scale just to see how much they did weigh. The

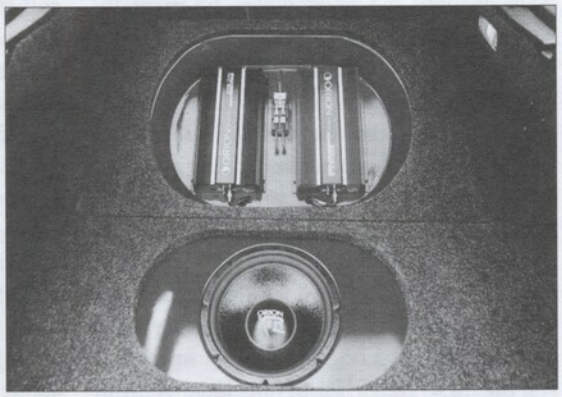
The reason I started this renovation project was to build a one-of-a-kind car. I have not heard of another one like it; I hope this is still the fact. It is a fine auto, and for someone who truly enjoys a high performance vehicle that is one of a kind, this should do it.

I started out with a chip *(reprogrammed Trionic control box -Ed.)* and tuned exhaust from Abbott Racing, out of England. After that, I got a next generation turbocharger from Turbonetics out of California. The wastegate was too big to fit the exhaust manifold, so we modified the exhaust manifold from a 99 by cutting a hole out of the center and fitting the wastegate on top. This seems to have worked out very well.

Next we installed new shocks and shorter, stiffer springs, which lowered the body by about 2 inches. Cross-drilled rotors for the brakes, a Quafe limited slip differential to control the "torque steer", and a racing clutch to transmit the power. We installed a ported and polished head, and painted the engine components to match the custom "cranberry" red paint. Custom rims and tires, and a custom stereo top it all off.

Grafton D. Smith
Waterbury Center, VT

The vanity plate tells it all.



Custom stereo installation. The spare tire well forms the enclosure for the woofer.

The engine compartment shows both cosmetic and functional upgrades. Note the sheet metal work covering the exhaust manifold, the body-colored valve cover, DI Cassete cover, intake manifold, and upper motor mount. Hoses have been replaced with stainless steel braided hose and aerospace hose ends.

Is your Saab out of the ordinary? Is it specially customized in its appearance, performance, or both? Write us abut it and enclose some photographs.

block weighed in at 65 pounds, meaning that I had loaded a car weighing 1896 pounds with 33 HP, riding on 155X15 Michelin tube tires, with 1300 pounds of concrete blocks. Like I said, I was young and dumb, but with a car that was built tough enough to take the abuse and still give us many more miles of safe driving.

Oh! Yes I did pass the Civil Service test and was hired as a Letter Carrier, thanks to a tough little SAAB.

George Basehore SAAB owner since 1961
Member Central Penn Saab Club

Wheel and tire upgrade. Note the cross-drilled brake rotor. The caliper body was painted to match the vehicle.

A Quest Completed

By now most of you are intimately familiar with the details of Claire Duckham's amazing '66 Monte Carlo 850 and the agony I went through after finding it, practically under my nose, for sale to the highest bidder. It seemed briefly that Claire, God bless his 95-year old heart, was considering selling it to me for the measly few hundred bucks I could scrape together, right up until the point where he mentally slapped himself and realized he was sitting on a gold mine. With the completion of the sale and the green beauty's subsequent departure to the loathsome Michigan winters, I slunk home with tail dragging and awaited the day when I, too, would be the proud owner of an 850cc smoking hotrod.

Little did I know that my wait would be a short one. A couple weeks after the drizzly January Sunday when I spent quality time with perfection, I began planning in earnest for the first gathering of the local faithful with the resurrection of the Tri State Saab Club. Our first meeting, scheduled for the US Air Force Museum in Dayton on April 29th, was building up to have quite a turnout, but the more hardy souls we could find, the better it would be. I began calling all over and emailing like mad, drumming up commitments to show and support the TSSC in the new millennium. One night while seated at this very keyboard, my brain dumped out a long-forgotten nugget of hope, one that would lead to all sorts of trouble.

About three years ago, I had seen a fellow in my home town of Middletown post an MC850 for sale on The Saab Network's classifieds. Intrigued that a fellow Saab fanatic could possibly live so close to my childhood stomping grounds, I emailed him and asked for info; his name was Charlie Terhune, and he'd been this car's second owner since 1987. We chatted briefly, and it turns out his son went to high school with my brother, and that he'd run into my father on occasion before his retirement from the Middletown Fire Department some years ago. These things do still happen in Small Town USA. Charlie was a friendly type, and wanted a good price for the car even then, but three years ago I was incredibly poor and had no hope of acquiring the car. I thanked him and forgot all about our conversation.

Right up until this past March. My memory suitably jostled, I contacted Scott Paterson at TSN, who had kept Charlie's phone number. I called, he remembered, and I invited him to the TSSC meet. Yes, he still had the old car, and immediately uttered the words that made my heart stop dead:

"It's still for sale; know anyone who's interested?"

Coming so close on the heels of the Green Monster's departure from my slippery grasp, I tried to keep my hopes from getting too high – in vain, of course. I stammered something to the affirmative, and we agreed to meet at one of his airplane hangars at Hook Field the week after the TSSC meet to see if the car still ran.

Walking on air in anticipation for weeks, we finally inspected the car, which had been sitting in heated shelter these three years gone by. This car had been driven to Waterville Valley, for those of you who may remember such things (white over red, headrests on BOTH front seats, very loud straight pipes). Although it was in need of some polishing, it was remarkably intact. After some tinkering and an impromptu starter rebuild to clear out gummies (and a frantic search for missing ignition keys), we had popping and howling up and down the tarmac, smoking out mosquitoes for a mile around.

We struck a deal and, lightheaded with success, I marched home to tell the lovely Mrs. Lacefield, who made one thing perfectly clear: either my red '74 Sonett or my former Brad Burns '68 96 V4 had to go. Fortunately at the TSSC meet, Paul Galanti overheard my dilemma and offered, should my deal for the MC850 come through, to buy the '68 (lovingly referred to as The Tick around Chez Lacefield, because of its blue color and the big stuffed Tick cartoon character hanging Garfield-like in the side window). I rebuilt the master cylinder, attached bumpers and air cleaner, adjusted timing and idle and mixture and valves and the like, and late one Wednesday night drove it to Indy for delivery. How entertaining, driving at speed on the highway while dodging thunderstorms in a car with bum wipers. Once we got there, I thought Galanti would burst into tears, he was so happy to have the thing! An early retirement present to himself, I'm given to understand, and one that I'm certain he'll enjoy for years to come. Another one converted to the VSAAB faithful!

This departure made plenty of room for the MC850 and it's many, many boxes of spares in my Tiny Garage Of Doom, where it now resides with custom Ohio tags "MC 850" right next to the lovely red Sonett (tags "SONETT 3") and several lawn implements. I find myself in possession of no fewer than five completely disassembled transmissions, one of which is purported to be of the iron case variety; I am very much open to trading out, say, three sets of these in exchange for one or two built ones, should someone out there with a tranny jig and the patience to build me a pair want to work a deal – call me, we'll talk.

I still can't believe it; after so many years of waiting, watching, searching and disappointment, yours truly is the proud owner of a 1966 96 Monte Carlo 850 with 90,000 original miles and no rust. The fun has only just begun, as my parts searches become longer and harder, my calls to Chip and Bud for advice become more frequent, and my many hours of smoking off into the sunset roll on behind me. Is this the life, or what?

Out with the New, In with the Old

I just sold off my last new Saab for a while. The concours-winning 1992 9000 turbo is in the hands of George Simms in New York and I am riding the train home as I write this. There was nothing wrong with it; in fact, there was too much right with it to keep putting the sort of miles on it that Kyndra relentlessly drives week in and out. A non-Swede is in her future, something a little more disposable on the short term which she can thrash without it devaluing too much. Call me a wheeler-dealer, a traitor to the marque, or just a cheapskate. They're all true in one sense or another, but for once in my life I no longer need the ultimate versatility of such a car to the point where it is worth keeping. As far as other Swedes go, well, the old body 900s are moving from practical cars to cheap, oft-abused fixer-uppers, and the more I have to work after-hours to keep something like that on the road for Kyndra, the less chance and energy I have to keep the older cars alive. And if she wants to drive a V4, she'll have to get one of my "sleeping beauties" and do it up herself. Ha!

This issue was supposed to see a real bang-up feature article from me comparing the new lineup of Ford Focuses, including the upcoming SVT, model to the Saab lineup from the 1960s. A clean-cut, precision-built car built on a single platform with recognizable lines, identical front ends, and a high performance sporting variant. Unfortunately the SVT directors have not seen fit to loan one to me or even to give me the opportunity to drive a Focus proto-SVT, which in my mind could be the GT-850 of the '00s. While this chance may yet avail itself (and rest assured, I will do my comparison at that time) I want to reflect on a few crucial points here.

Few manufacturers of new cars, with Saab not among them at this time, are producing affordable sports cars which still serve a dual purpose from a practicality standpoint. You may argue that the base 9-3 and even the 4 cylinder variant of the 9-5 wagon are affordable and sporty, but they are big. Yes, BIG. Hearken back to the days of the older Saabs, when the term *quirky* first addressed the aircraft- inspired Swedes. But two-cycle engines and column shifting aside, your basic 96 was a very useful car for the family with two children on a trip, while being a safe and versatile automobile. It was perhaps even more so than much larger family sedans and wagons due to its ability to handle foul weather with then-revolutionary front-wheel drive. More sporting individuals, empty-nesters, even those whose children had a little more ample padding on their *derrières* opted for the GT-850 or Monte Carlo 850 model. Here safety and performance increased with front disc brakes and a much more powerful 60 hp oil injected GT motor, and comfort for front seat passengers increased dramatically with the factory Recaro-built front seats. I made reference to children with extra padding because the rear seat was directly from a boat; a wooden box with a couple cushions atop it and more or less the standard seat back.

The Focus lineup as released in 1999 is very much the same sort of offering with even more options; a small hatchback coupe, a four-door sedan and a four-door station wagon. The SVT platform is based on the 3 door hatch, but uprated with a 2 liter German Ford "Zetec" DOHC motor, ported and polished by Tom Walkinshaw Racing with a purported power output of 170hp plus. A first for small cars, a six-speed Getrag gearbox & final drive couples transversely to this peppy little motor (which even in stock tune is still extremely pleasant to drive - the 4 cylinder Morgan 4/4 has this motor with a Rover car gearbox). 17" rims, 4 wheel disc and ABS, and a sport suspension complete with body, interior and comfort trimmings round out the package, subtly denoting the extra money you spent. Yet at its suggested release price of $18,500, it continues the trend of being similar to the top-of-the-range Saab of yore.

Why, then, cannot General Motors take their small Opel platform and do something marginally interesting with it? Rumors of a "Sonett IV" have been stewing for years now, as have purported spy photos of the elusive 9-2. But what is "so neat" about a not-so-revolutionary Opel Speedster clone? More botched badge engineering, nothing unique, nothing to make one do a double-take. The official word is marketing here in the U.S. as Saab and Cadillac move closer together towards "luxury sports sedan" status. Everyone I meet driving a 9-5 traded in their LeSabre or Avalon for it, and not their 4 year old 9000 Aero. Furthermore, in a typical General Motors move of discontinuing production of a vehicle which has finally gotten it right (re: 1976 Cadillac Eldorado convertible, new Firebird/ Camaro platform, etc.) the last Saab hatchback may well roll off the line soon, wherein the "new" 9-3 platform will be that of a sedan and a small station wagon. Which market is it to target, the likes of the Subaru Outback? The Outback sells due to its "anti-SUV" bent of being a versatile all-wheel-drive car rather than a car-like truck. Whatever happened to keeping with what the traditional Saab customer wants from a Saab, and standing firm to attract buyers of the conventional who come around to wanting something with conservative, yet obviously well-engineered styling, handling and performance? Of course the cars which represent these Saabish traits have changed over the years, but Saab has historically pioneered these changes, not necessarily adapting to the week-to-week whims of the industry. Witness the original 99 Combi-Coupe, the first non-estate, or station wagon car in which you can put an overstuffed chair and some D.I.Y. shelving from IKEA? In conforming to more and more of the industry norm, will new Saabs lack ever more of the interior ergonomics and a lot of the traditional Saab engineering as the years roll?

One more gripe, and one from which even the Focus cannot escape, is the overwhelming presence of computer controls wreaking havoc throughout all new cars and all cars since 1996 with OBD-II (On-board diagnostics, 2nd Stage). I read in one of the automodrivel magazines to which I subscribe that OBD-III is fast on the heels of its already over-encompassing parent. Big Brother will not only be monitoring the condition of your new Chrysler Hemi-8 but uploading it to the proper authorities. And from what I hear, don't even think about speeding, because law enforcement may get to play a role in the data collection process which will undoubtedly ensue. The biggest question here is not for the new car buyer but rather for the fellow who wanted one new and couldn't afford it. Resale values on used cars will be that of cars which now are ten years older, as the potential for VECEF (Very Expensive Computer & Electronics Failure) will be many times higher and quite possibly exorbitantly expensive to replace. To get an idea, find an ad for a mid 1980s Maserati BiTurbo. A fine Italian designed car with lots of potential and, most likely, pressing problems. Nice examples fetch up to around $4,000 for a car which was $50,000+ new.

Regarding all of these issues, you may call me a cynic, you may write me all the e-mails you want reminding me that 2-stroke guys said these things about V4 cars, or 96

guys said it about the 99s. In the latter case I would agree, as the earliest 99s were nothing but trouble. Former Saab dealer, fellow columnist and colleague, friend, and V4 activist Jack Ashcraft will write you a book about those days, provided you send him enough Newcastle Brown to help him with the painful memories. My friend Glenn Bunch here in this area also recalls these days with agony, but when told a 16 valve turbo motor, an early 4-speed 99 transmission and a potential autocross Sonett can come together, it makes the pain a little easier to bear! Turbo! listmembers keep plugging away at the fact that "if it weren't for GM, we wouldn't have Saab anymore, they'd have been out of the car making biz years ago!" but what if we wind up with nothing but a front-wheel-drive cheap BMW? Volvo has made the unwashed masses forget that they only abandoned rear wheel drive with the last pipe-smoker 960 they sold not more than five years ago, so what does Saab now have to bring to the marketplace? Will they just be folded up and discarded, like centenarian Oldsmobile? Is the future of Saab nothing but a proverbial smoking wasteland, abused and stretched to the point where it becomes just too "homologous" to keep trying to sell it as a unique car?

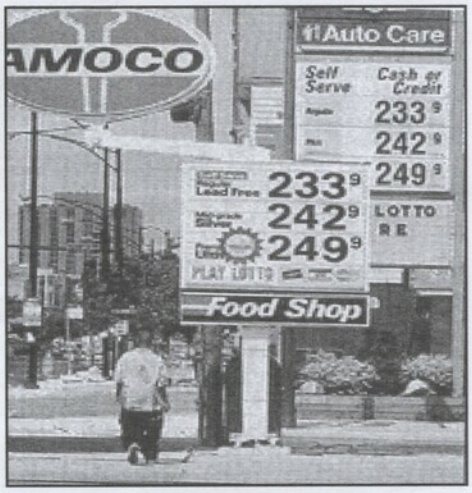
DIESEL?

Here we go again talking about fuel costs. A by-line in the March 9th, USA Today newspaper predicted $2.50 gas per gallon by mid-summer. Gasoline has risen to a $1.72 per gallon here by the end of April. Other news sources are now saying gasoline could go as high as $3 per gallon. This is not good news but reality! The US EPA says that the 2000 model cars as a whole have the lowest fuel mileage average since 1980. Is diesel the answer? Diesel is said to be the most efficient fuel we have.

In NINES #250 Jonathan Bartlett wrote a letter outlining his opinions about the advantages of diesel. This well-written letter describes the current diesel technology used by VW and Saab. Most of this technology is very available to all manufacturers and was well described by Jonathan, but for Saab to import diesels to this country, it takes much more than available technology. Please follow along as I try to describe where I think diesel as a fuel is today. I have skipped a lot of details, but I hope I have included enough information to give you a peek at what is going on. As we look at what is happening in the following paragraphs, think about infrastructure.

I think the cover of the August 2000 "Heavy Duty Trucking" magazine tells it all. The truth is--diesel is struggling to survive. I'm talking about trucks now but this is all about the diesel issue. The South Coast Air Quality Management District (SCAQMD), California Air Resources Board (CARB), American Lung Society, the United States Environmental Protection Agency (EPA), and others have all decided that diesel smoke or exhaust is a carcinogen. Whoa! Who would want to drive any vehicle that causes cancer? Would Saab sell you such a vehicle?

I suppose you can guess that there are laws and rules that are already passed and are on their way to correct all this. I'll only bore you with a couple. The EPA has been regulating diesel exhaust for several years and has recently passed a rule which mandates low sulfur fuel (15 ppm—which is a fraction of the current fuel sulfur content) for the whole country by the year 2007. At present, there is only one refinery in the whole country which can produce this new low sulfur fuel. SCAQMD decided that since this fuel was available they would pass a rule forcing all trucks in the four-county L.A. area to use this fuel exclusively by 2003. The SCAQMD has also passed a rule that favors ultra-low emission vehicles which makes burning liquid natural gas (LNG) more attractive than diesel (Rule #1190). When it comes to air quality regulations, what is good for CA is good for the whole country. Just watch!

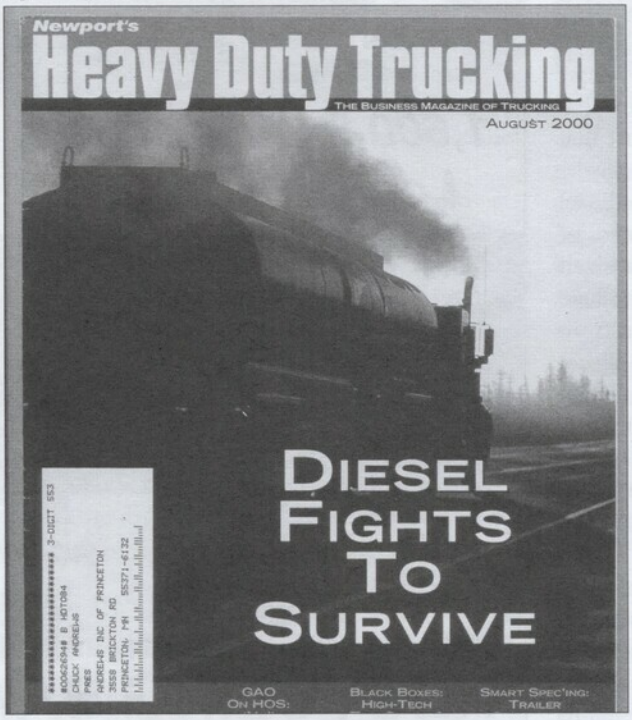


Fuel Prices This High?
Is it time for a Diesel Saab?

In the meantime, a chemical company called Lubrizol, in association with Caterpillar, developed a new fuel called Purinox to replace diesel. This fuel is 20% water. CARB verified this fuel in January 2001 saying that this fuel, which is a drop-in (no modification to the engine or fuel system), will reduce oxides of nitrogen emissions (NOX) by 14% and particulate matter by 63%. The emulsified water and Lubrizol proprietary additive are blended using special high-pressure equipment with standard diesel fuel. Water reduces the combustion chamber temperature, which cuts NOX, and there is less smoke and soot (particulate). Since there are no BTU's in water, there is a 5% or more loss in fuel mileage. Even though CARB and 21 other non-attainment air quality areas across the country are well along with plans to use this fuel, the EPA announced in the middle of April that it won't allow it's further use. A $2.5 million study will have to be completed which will take at least one year. Well… back to natural gas (NG)!

Caterpillar has developed a 12 liter dual fuel engine. This engine normally operates on 15% diesel and 85% NG. This ratio changes with engine load to allow maximum use of NG. It is currently being used in a fleet in California. An injection of diesel (about 15%) with the natural gas injection allows the normal compression ignition found in diesels. This is an electronically controlled engine and can go back to pure diesel if the supply of LNG is interrupted. It has about the same power as a straight diesel and only has a different intake manifold and sensors to allow the NG injection. When this engine operates at less than 60% of its rated power, the ECM skips cylinders by cutting off their NG supply. The remaining cylinders continue to operate at full power and efficiency.

Westport Innovations Inc. is working with Cummins to use its HDPI system. Their system injects a small amount of diesel into the heated cylinder (by compressing the air), and as the diesel ignites the



Modern diesel engines do not smoke like this ! It is an image that just won't die. This cover got an angry and hurt response in the next issue from Detroit Diesel Engine Company's VP Ludvik Koci, who defended their work to make diesel a clean safe fuel.

the natural gas is injected at high pressure. Westport has spent $110 million developing this system. Both Westport and Caterpillar's dual fuel systems seem to meet all the clean air requirements for the immediate future. The supply of natural gas is supposed to be about double the known petroleum reserves, so there should be an adequate supply. The natural gas price has been about half that of diesel until the price spike last winter. The infrastructure of the LNG is not built yet. The LNG in the truck tank is compressed and is at –260 degrees but enters the engine as a vapor at 120 psi. I have heard dollar numbers of up to $15,000 to convert a used truck to LNG. The cost of shipping by truck will have to go up. What would happen to the diesel infrastructure? Is it possible that LNG trucks are just around the corner?

Freightliner Trucks, the most popular brand in America, has developed a hydrogen powered sleeper, A/C and heater package. Everyone in the trucking industry knows that big changes are coming with diesel.

In conclusion, let's say that diesel may have a limited time of use in the US. How long, is anyone's guess. How long did it take to remove the lead in gasoline or DDT in agriculture once we decided it was bad? Would you like to buy some Firestone tires? If our culture or the media decides that something is bad, no one will buy or use that product.

How many Saabs powered by diesel would have to be sold to offset the cost of tools and equipment for the 200 authorized dealers? I don't think Saab will introduce the vehicles without excellent support from the dealers. I fully realize that the diesel cars burn clean and meet all air quality standards, but will that matter to the American public? How long will we have a good diesel infrastructure if LNG becomes the primary truck fuel? Will the EPA approve Lubrizol? For many years I used propane as a motor fuel in other cars that I have owned but finally gave up because it was so difficult to purchase fuel. Saab had a propane conversion kit available at one time! Will Saab introduce their diesels to the US? They have spent plenty of money to get them developed this far, and will be selling them in Europe. YOU will ultimately decide if it will be successful. Will you buy one?

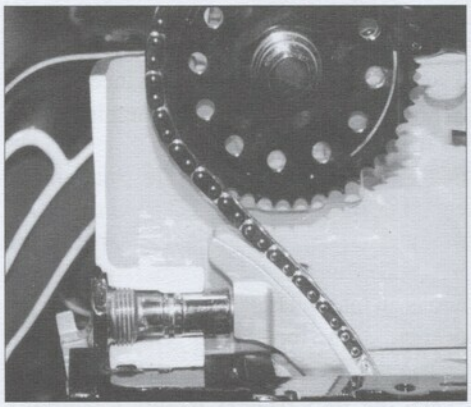
North American International Auto Show 2001

by Stephen Goldberger

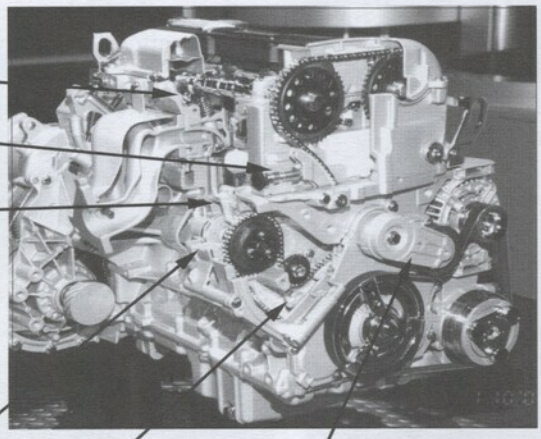
Cut away engines were prominent at both the Saab display and upstairs at the GM Pavilion of the 2001 North American International Auto Show. This article continues our coverage of the show, and adds to our past coverage of the GM Global 4, the Saab Variable Compression (SVC), and the Saab Combustion Control (SCC) engines. We've put a lot of emphasis on the Global 4, because it shows how much of Saab's engine design practice has contributed to what will be GM's mainstream 4 cylinder engine for the coming decades. Whether Saab will use the Global 4 in coming models is open to question, but there is no question that Saab has influenced the design a great deal.

In NINES #244 we showed photographs of a cut-away GM "Global 4" engine which was displayed at the 2000 North American International Auto Show. At the time we expressed our opinion that a lot of Saab engineering was in the engine, along with a lot of GM production capability. At the 2001 show, the "Global 4" cut away was on the floor where attendees could approach it, rather than up on a moving display and behind a railing. The ability to take a close-up view of the design details only strengthened our opinion: there is a definite Trollhättan connection to this engine.

The Global 4 engine was apparently approved in July, 1996, judging a Wall Street Journal story printed May 14 of that year which predicted such approval. At the time GM was manufacturing 12 different 4 cylinder engines, and the "Global 4" was intended to replace most or all of them. To date, it has been produced in 1.8 and 2.2 liter displacement versions, in Opel cars and the Saturn LS. The Global 4 engine also provided the basis for the Saab direct fuel injection prototype (NINES #248).



The cam chain tensioner is virtually identical to that used in the current Saab engine.

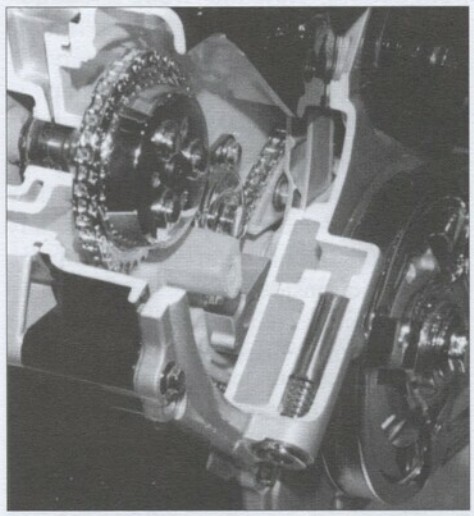


An overall view of the cut-away "Global 4" engine with some points of interest labelled. The belt tensioner is simple and reliable.

We have reprinted the overall view from NINES #244 and indicated the areas of interest. Not visible in this view are the thermostat housing and the power steering pump.

The timing chain tensioner is very similar to the timing chain tensioner which Saab has used since the mid 1980's. It screws in through the timing chain cover on the exhaust side and drives the upper end of a pivoting guide on the "slack" side of the chain. Overall, the timing and balance shaft chain layout appears very similar to the Saab engine.

The second view inside the timing cover shows the water pump drive sprocket and the exhaust side balance shaft drive sprocket. It also shows the oil pressure relief mechanism. Like the Saab engine, the Global 4 oil pump is concentric with the crankshaft and built into the timing chain cover. The oil pressure relief mechanism is a robust spring-loaded plunger which opens a bypass channel when the pressure exceeds its setting. This mechanism isn't ever going to require service, but the spring and plunger can be removed by unscrewing a cap which is easily accessible. Anyone buying a "lease return" vehicle with a Global 4 engine could easily pull it out to see if a "glop" of sludge, indicating deferred maintenance, is present on the plunger.

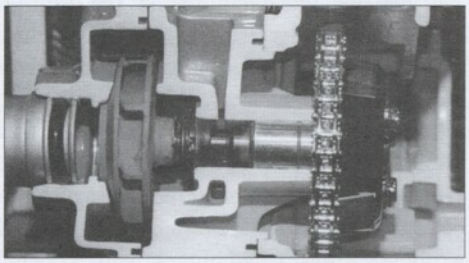


The water pump drive and oil pressure relief valve are seen in this view.

The water pump drive, using the balance shaft chain, is unconventional. Every other GM engine I am familiar with uses a belt driven water pump, or in the case of the GM of Europe V-6 engine, the back side of the timing belt. The water pump in the Saab "B" engine, used in most 99s and early 900s and which was derived from the Triumph built engine, also featured an unconventional water pump drive. In that engine, an auxiliary shaft, driven by the cam timing chain, powered the oil pump, water pump, distributor and the fuel pump on carbureted engines. Many engines with toothed belts for the cam timing use the timing belt to drive the water pump, but this

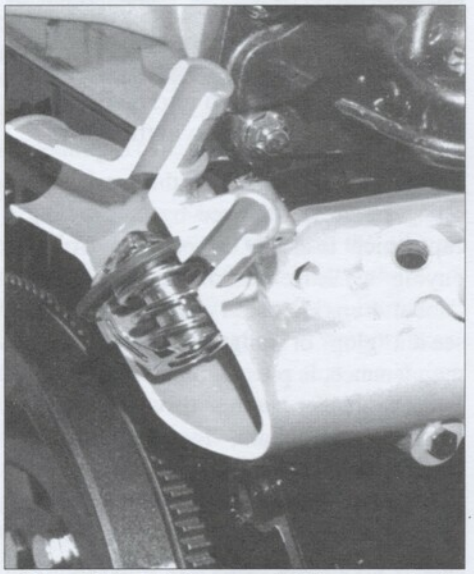
is the only application I know of where a balance shaft chain is put to such use.

The water pump itself is a very efficient shrouded impeller with backward curved



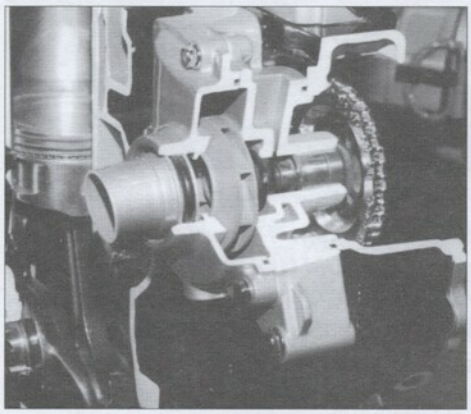
The water pump is driven by the balance shaft chain, and is serviced from behind. Note the "weep passage" behind the primary seal. You do not want to delay replacing seals when it starts to weep. Replacing a bearing damaged by coolant would require removing the timing cover.

blades indicating a design for high flow volume. The water pump housing is tightly fitted to the shrouded impeller to minimize recirculation inside the pump. The pump itself is cantilevered off the drive sprocket bearing, with the input pipe sealed with an O-ring.



The Global 4 thermostat is mounted and sealed in typical Saab fashion.

At the other end of the cooling system, the thermostat housing features a small bolted on cover to which the appropriate rubber hoses are attached. A rubber washer envelopes the thermostat plate and seals the cover in typical Saab fashion. This detail differs from GM's domestic USA practice and it also differs from what we have seen

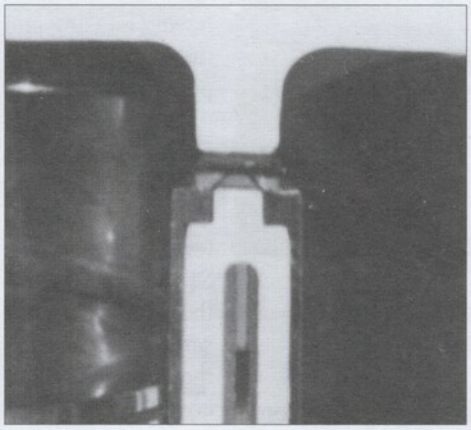


This view of the water pump highlights the impeller design.

on the V6 designed by GM of Europe. It's a small detail, but this one convinces us that Saab designers have had a strong influence on the Global 4.

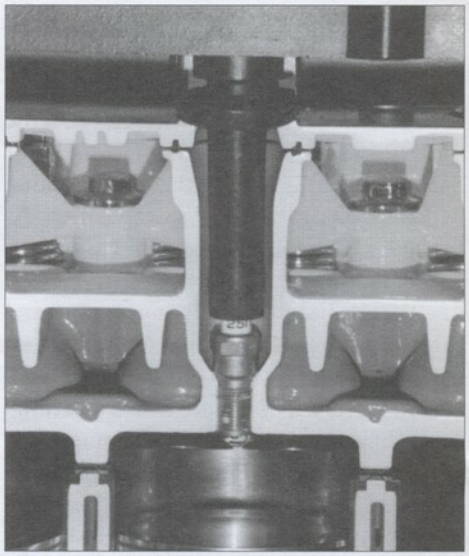
Last among the definite Saab influenced design features is the direct ignition module. Direct ignition has appeared on the 3.5 liter Oldsmobile Intrigue/Aurora V-6 and is an integral part of the Global 4 engine design. In the USA, GM has used distributor free ignition systems for many years, but they usually feature a centrally located "coil pack" with high tension "secondary" wires leading to the plugs. We believe they will adopt the Saab design direct ignition on their DOHC design engines, like the Global 4 and the new in-line 6 cylinder truck engine, but the pushrod design engines are not suited to Direct Ignition.

While Saab engineers have strongly influenced the design of the Global 4, it is important to acknowledge the advances from both GM's manufacturing technology and advances in industry in general. The most significant advance is that the Global 4



A detailed view of the iron cylinder liner pressed into the aluminum block.

is an all aluminum engine made using GM's "lost foam" casting technology. Constructing the block and head from the same material eliminates differential thermal expansion between them, reducing the demands on the head gasket. With the iron cylinder liner being shrink-fit into the cylinder block, the iron liner's thermal expansion is controlled by the aluminum block. This gives the same coefficient of thermal expansion between the piston and the cylinder bore, allowing a tighter tolerance between the piston and cylinder.

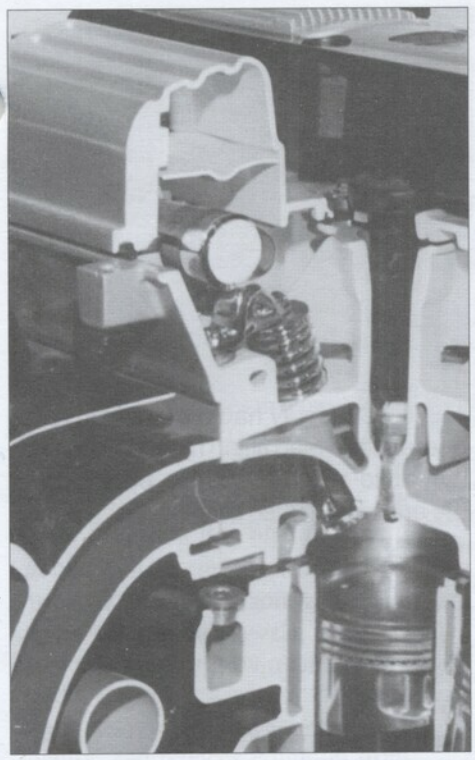


Intricate internal passages are made possible with "lost foam" casting.

The photographs show the intricate geometry made possible by the lost foam casting method. In particular, notice the thin but uniform wall between the inlet and exhaust ports and the water passages. One can see the shape of the ports in the water passage. Cooling passages between the cylinders are precisely cast, and many internal and external mounting surfaces have reduced machining requirements because of the precision with which the block and head can be cast.

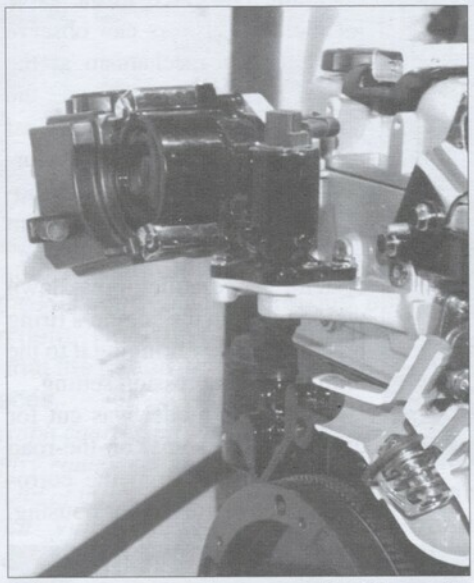
The roller cam follower is an important friction reducing design detail. Not only does it reduce fuel consumption and increase the power output of the engine, the reduced friction also reduces the load in the cam timing chain. GM has used roller followers in both pushrod and overhead cam engines for many years.

Besides mechanical friction, there are tremendous aerodynamic forces inside an engine. At 6000 rpm, an engine with a short



Roller cam followers reduce friction, reducing stress on the cam chain and increasing the engine's output. The Saab developed Direct Ignition Module is used on several GM engines.

3 inch stroke has a peak piston velocity of approximately 150 ft./sec. Most automobile engines, including all current Saab engines, have a longer stroke than this. This produces air flow inside the engine which reaches hurricane speeds. Likewise, the counterweights on the crankshaft reach speeds of similar magnitudes. The photographs show how the Global 4 counterweights are shaped to reduce the aerodynamic friction. We haven't seen this before in an engine. Is this a design detail motivated by an aircraft heritage?

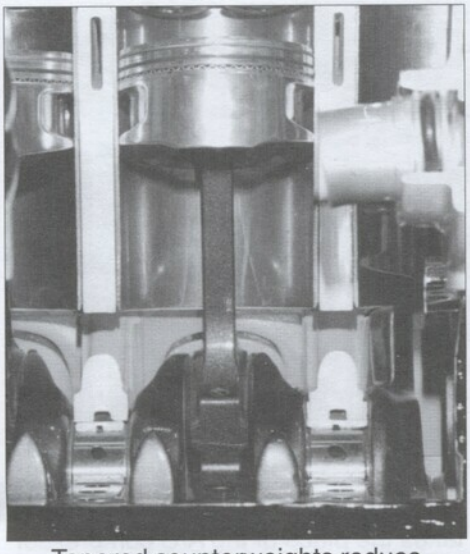


The power steering pump is driven off the intake cam in this implementation. Note the thermostat location and arrangement.

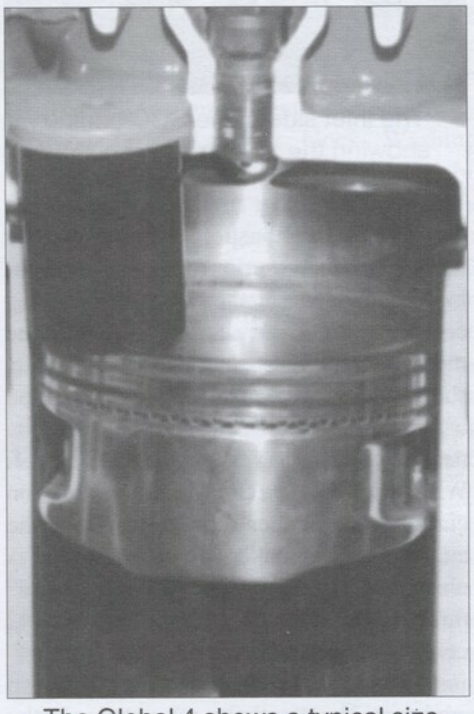
Another unusual design feature is the locating the power steering pump at the "back" end of the engine where it is driven by the intake cam. This makes more space available at the "front" of the engine, shortens the poly-V belt, and saves an idler pulley, at the cost of additional stress on the timing chain and additional seal in the head and valve cover. We believe the pump's location was motivated by the impending adoption of an electrically assisted power steering assembly (EAS). We will be exploring this innovation in the context of the coming switch to 42 volt automotive electrical systems in a future issue.

Saab showed cut away models of their variable compression (SVC) engine and their direct fuel injection (SCC) engine. We printed Saab's extensive press releases describing these engines in NINES #246 and #248, respectively. There was nothing in the live "hands on" models to contradict any of Saab's descriptive prose, but being able to inspect the cut-away engines adds perspective.

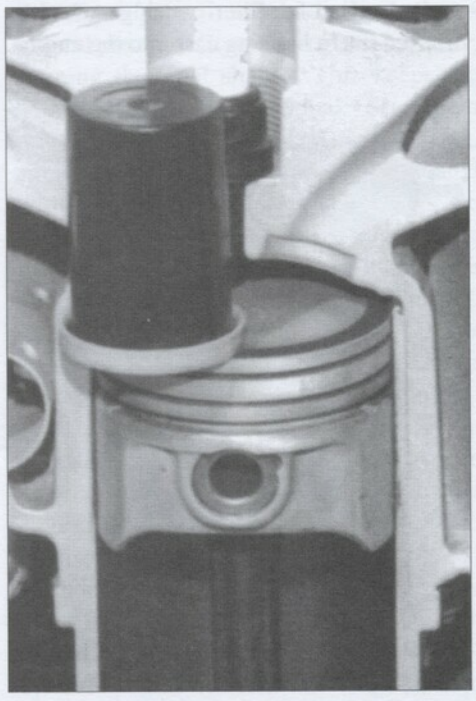
The most striking feature of the SVC engine is how truly small the cylinders are. To be sure, the model shown was the 1.4 liter six, not the more current 1.6 liter five cylinder, but the trend is the same. With the very "undersquare" bore to stroke ratio and the small displacement, these are chain saw size pistons. The photographs show a comparison of a "Global 4" piston with a film cassette case on top and the same cassette case on top of an SVC piston.



Tapered counterweights reduce aerodynamic drag inside the engine.



The Global 4 shows a typical size piston for a passenger car engine.

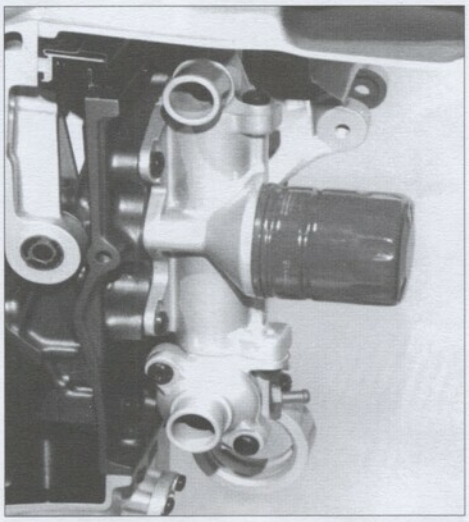


The piston in the SVC engine is barely half the diameter of the Global 4

Cut away SVC engine. The arrow highlights the coolant distribution tube.

The coolant enters the SVC "Monohead" through a perforated tube inside the water jacket and running the length of the engine. This ensures uniform cooling despite the water being introduced at the end of the engine.

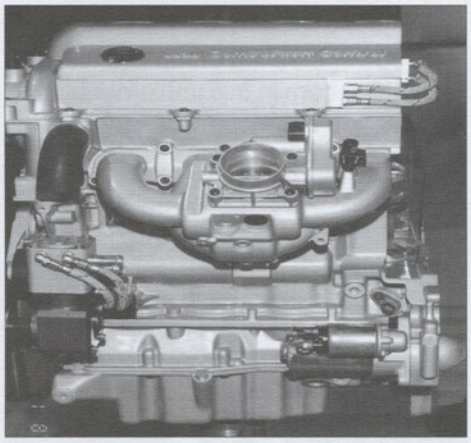
An interesting detail is the oil-to-water heat exchanger which both cools the oil and serves as the mount for the spin-on oil filter. This is different from GM's "Global 4" engine's use of a filter cartridge which is inserted into a housing cast into the engine.



The oil-to-water heat exchanger in the SVC engine also allows the oil to reach operating temperature more quickly, especially in frigid climates.

A lever was installed on the cut-away so people could manually vary the engine's compression ratio. The hydraulic cylinder used when the engine is in operation is located in the same location, so visitors can observe the actuating mechanism at the same time they observe the compression ratio changing. Just as Saab's "Automatic Performance Control" (APC) turbocharger boost control mechanism was designed as a "fail safe" system, a hydraulic breakdown would result in the engine's firing pressure quickly bringing it to the minimum compression setting.

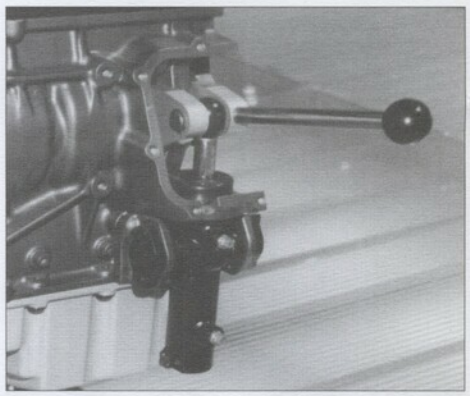
The SCC model was cut for display after some on-the-road testing, judging from the corrosion on the starter motor housing.



The inlet side of the SCC engine showing the air pump and hoses.

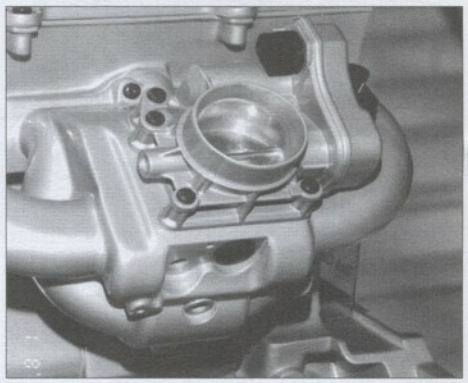
The air compressor used for injecting the fuel into the combustion chamber and for mixing the charge prior to ignition was put in the place of the air conditioning compressor. The intake side of the turbocharged SCC engine uses a simple, short runner intake manifold rather than the complicated multi-path present on the naturally aspirated versions of the Global 4. With the fuel injectors and the ignition circuitry all under cover between the camshafts, the intake side of the engine is clean and simple. The "drive by wire" throttle body has no apparent mechanical connection to the accelerator pedal.

One striking feature, showing that Saab engineers know their way around the "Global 4" engine very well, is that the pathway between the air compressor and the injector/ignitor screwed into the cylinder head passes through the engine block, then exits up top through the valve cover.

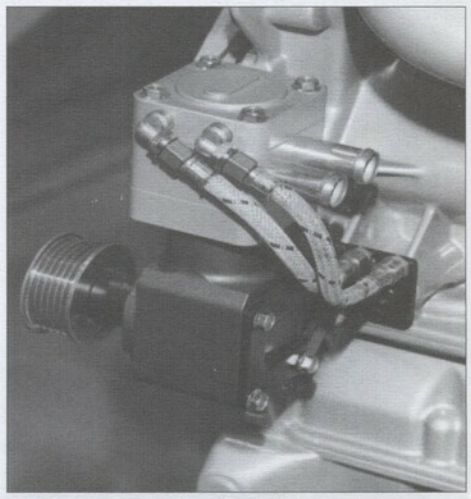


The SVC display had a manual lever to operate the head tilting mechanism. The hydraulic cylinder used in operation of the engine can also be seen in the photo.

Photographs by Stephen Goldberger



The drive-by-wire throttle assembly shows no trace of a mechanical linkage.

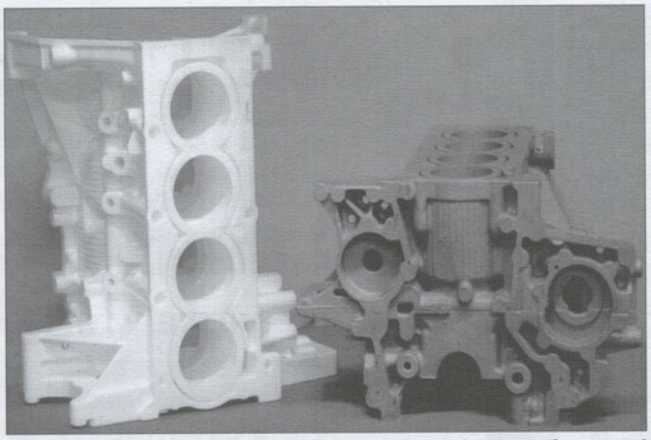


The air pump for the SCC prototype takes the place of the A/C compressor on the Global 4.

by Gary Stottler

High Technology Saab Engines may soon be made from Styrofoam

We like to think of our modern Saab as a high-tech machine, full of electronic systems to control power, comfort, and handling and designed and manufactured using advanced modeling and techniques, computer simulations, and robots. Some of the most basic parts, however, are still made with techniques that have been in use for decades. The basic parts of your Saab's engine, such as the cylinder block and cylinder head, are made from cast iron and aluminum using much the same techniques that were used in the original Saab 2-stroke engines of the 1950's. Soon, however, these parts are will be made with new a new technology that saves weight and cost, improves quality, and reduces pollution from the manufacturing process. This technique is called "lost foam casting", and as the name suggests, this technique uses a Styrofoam copy, or pattern, of a part which is "lost" during the casting process.



An example of an engine block (right) manufactured using the lost foam casting technique, and its Styrofoam pattern (left). Note the parting line on the casting, indicating that the pattern was probably made from at least two pieces.

Photograph courtesy of Vulcan Engineering Co., a supplier of foundry equipment and provider of engineering services in the field of metal casting. You can read more about casting and Vulcan Engineering at their web site: http://www.vulcangroup.com. Photograph used with the permission of Saturn Corp.

To get a feel for the lost foam casting process, let's take a look at the cylinder block of the engine: the part which contains the crankshaft, pistons, connecting rods, and balance shafts. The Saab cylinder block is made by pouring molten iron into a mold shaped like the cylinder block. When the metal cools, the mold is removed, and the finished casting is then machined to provide smooth surfaces for cylinders, gaskets, bearings, and so forth. Most cylinder blocks, and all those made from cast iron, are made using a process called sand casting. To make a sand casting, special sand is mixed with binding agents so that it will hold its shape (much like using wet sand to build a sand castle) and then packed into a "box". A "pattern," usually wood carved to the shape of the desired part, is then pressed into the sand and removed, leaving a hole the shape of the part. The hole is then filled with molten metal, and the sand is broken away, leaving the finished casting. In the case of the cylinder block, this process becomes very complex. Typically the mold must be made from 2 or more "boxes" placed together in order to form a cavity with the shape of the block. Before the mold is assembled, "cores" must be placed inside the cavity to create the internal cooling passages and other features of the block. Getting all these cores together consistently is a tricky process, and often cast parts must be designed with sections that are thicker than needed, for example cylinder walls, to make allowance for the variation that can occur in placing the cores. For the same reason, there may be a lot of expensive machining performed on the casting to turn it into dimensionally accurate finished cylinder block. Washing all the sand from the inner passages of the block after it is cast is also a job, but a necessary one. Imagine the effect on your engine if sand remains in the cooling or oil passages after the engine is built! Keep in mind that in a high-volume foundry, these processes must be repeated as much as several hundred times per hour. In addition, the sand which is used to make the casting cannot be reused, causing environmental concerns in both mining and disposing of the sand.

Enter the "new" technology of lost foam casting. The technique was first used for casting cylinder blocks (as well as the cylinder head) for Saturn Corporation engines, beginning in 1990. Lost foam casting (used principally for casting aluminum) creates a very accurate casting allowing increased flexibility to design a casting with thinner sections (so that it is lighter), with more complex oil and cooling passages than possible with sand-cast alternatives. It also results in a casting that is very near the final shape of the finished part, thus reducing the amount of machining needed to create the final part.

Here's how it works: An exact copy of the finished part is made from Styrofoam, which can easily be molded into complex shapes using common injection molding techniques. This pattern looks a lot like the white Styrofoam in your disposable coffee cup. The Styrofoam pattern is placed inside a box, and the box is filled with very fine, dry sand. The box is shaken or vibrated to ensure that the sand fills in any voids and to densely pack the sand around the shape of the pattern. Molten aluminum is then poured into the Styrofoam. The heat of the metal vaporizes the Styrofoam, and when the metal cools an exact replica of the core is left behind. If you take a look at a Saturn engine, you'll see the faithful detail of the head and block castings, right down to the "beads" in the Styrofoam. In the case of a complex part like a cylinder block or cylinder head, the Styrofoam pattern may be built up out of several pieces of Styrofoam glued together, forming the final shape. This keeps the molding of the individual Styrofoam pieces, formed by injection molding, simple. The finished pattern is then coated with a ceramic material which allows the gas from the vaporizing Styrofoam to pass into the sand but prevents the sand from sticking to the metal surface of the casting. Once the part has cooled, the dry sand is easily removed, and then the sand can be reused for additional castings.

As has been previously discussed in NINES, some future Saab engines may be derived from the GM Global 4-cylinder engine, much like the current V-6 is derived from a GM unit. In fact, the Global 4-cylinder was designed with significant input from Saab. Saab's experience with designing and building high performance 4 cylinder engines resulted in a basic design which is suitable for Saab's unique applications. The Global 4-cylinder engine

for all applications is made using aluminum lost foam cast cylinder block and cylinder heads. The cylinder block uses cast iron cylinder liners, which are pressed into the aluminum block after it is machined to provide a durable wear surface for the piston rings.

One version of the Global 4-cylinder engine is now in production in the USA and can be found in the Saturn L sedan and wagon. The cylinder head and block are cast at the GM Powertrain foundry in Massena, NY, and the parts are machined and assembled at GM's engine plant in Tonawanda, NY. Saab engines, and the castings that go into them, could be produced at various facilities in the US and Europe, and of course they will have components and features unique to Saabs. For a sneak peak at some of the basic building blocks, though, you can take a look under the hood of the Saturn L.

Gary Stottler is "Staff Engineer, Concept Development, GM Global Alternative Propulsion Center."

Welcome to Classic Corner, a regular column which will cover the care, feeding and driving of the Saab 99, 90 and Classic 900. These Saabs have seen very little coverage in NINES recently, yet they are among the most numerous Saabs still on the road. This column will try to rectify that. If you have any suggestions, corrections, or anecdotes, please forward them to classiccorner@saabturbo.com or by snail-mail to the editor of Nines.

Some may be asking why the 99 is grouped with the Classic 900, and what is a Saab 90? Well, the answer is pretty simple. The 900 started life as a stretched 99 chassis. In fact, many of the parts and upgrades for the 900 will fit the 99. Front suspension, rear suspension, seats, etc. are all interchangeable to some degree between the 99 & 900. Over the years, each was upgraded and updated as needed. The Saab 90 was an entry level car with the front of a 99 and the rear of a 900 2-door sedan. Following is a brief history of the Classic Saabs, the 99, Classic 900 and 90. This is not meant to be an exhaustive history, but rather a quick guide to the changes over the years.

Saab 99: A New Era

The 99 was Saab's first 'large car'. A 'compact' by EPA standards, it was a departure for Saab, who had, until this point, only produced small, lightweight cars. Everything would be different about this car, unlike the 95 and 96, which were obvious descendants of the 93 platform. Introduced in 1969 as a 2-door, the Saab 99 contained many features which were new to Saab:

- Disc brakes on all 4 wheels, with a handbrake acting on the front wheels
- A completely new engine: the Triumph built OHC inline 4-cylinder.
- A Saab-exclusive design transmission, and an optional automatic transmission.

Initially in 1.7 liters, later expanded to 1.85 liters, this Triumph built motor was in place of the Ford V4 that was powering the 95 & 96s of the time, but Saab had problems with the engine right away. It was low on power, and they had reliability problems, so Saab decided to take the bull by the horns and redesign and manufacture the engine to their specifications. Saab significantly beefed up the head, strengthened the block, and straightened the head bolts in their design. Thus was born the 1985 cc 'B' motor in 1972, which would soldier on, little changed mechanically, until 1980.

The Transmission case bolted to the bottom of the engine block formed the oil sump for the motor, but the motor and transmission never shared lubricants. The basic design, with many internal modifications, was kept throughout the production of the 99, 90, and Classic 900. Curiously, Saab kept the freewheel feature that had been in Saab gearboxes since the two-stroke days, which is not needed by 4-stroke motors, until the Swedish "B" engine was introduced.

A 1969 Saab 99.

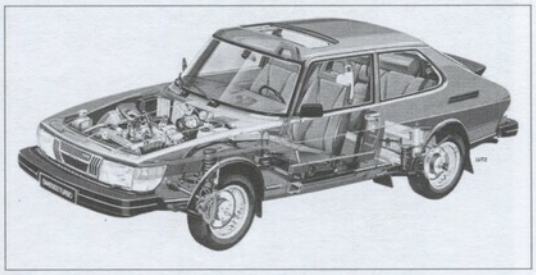
For the first two years, the 99 had an instrument cluster very reminiscent of the 96. In 1971, Saab changed that to the modern, distinctly Scandinavian instrument cluster we know today, which carried through to 1987. The 99 was produced in the widest selection of body styles save the Classic 900. There were 2 and 4 door sedans, and 3 and 5 door hatchbacks. The hatchback 99 model was introduced in 1974, and continued through 1978. Carburetors gave way to fuel injection, and many of Saab's safety features were born on the 99.

The most important innovation for the future of Saab as an automaker was the introduction of the Saab 99 turbo in 1976. Offered for public sale as a 1978 model, it was the most powerful Saab to date, with 135 horsepower. Turbocharging would become a vital part of Saab's philosophy as an automaker, and established Saab as the maker of high performance, luxury class vehicles.

99 to 900

By the mid 70s, Saab recognized that the 99 was starting to look a little long in the tooth, and the engine and accessory demands of some markets (the USA in particular) were making maintenance on the engine increasingly difficult. The car couldn't live on one alternator belt. At the time, Saab was not ready to invest in a completely new car, and they also believed that the chassis they had designed still had a lot of life left in it. Saab decided on a redesign of the 99 chassis to accommodate the new demands of their markets. Thus the 900 was born. Legend has it that Saab was initially going with the next number in sequence, which would have been 100. However, Audi already had a 100 model, and one thing that kept the lineage in the naming of the cars was the number nine. So, 100 was changed to 900, and all was well in Trollhättan.

The first 900s were only available as hatchbacks. In fact, the new 900 was essentially the same car as the 99 from the 'A' pillars back. When the 900 started selling as a 1979 model, the 99 became available only as a sedan with 2 or 4 doors. Compared to the 99, the 900 had a longer wheelbase, more integrated front lights, and plenty of room in the engine compartment. Saab completely redesigned the instrument panel as well, with a more modern and vastly cheaper to manufacture version. The wiring system was upgraded to be able to handle the large number of accessories that were anticipated. Air conditioning was designed in from the start. Even when purchased as a dealer option, the installation was completely integrated into the car's ventilation and heating system.



The Classic 900 model formed the backbone of Saab's model line for nearly 15 years.

1981 saw the addition of a sedan body style to the 900 range. Also, Saab redesigned their 2.0 liter motor into a lighter, more reliable one. Gone was the usually reliable, but expensive to repair in-the-block water pump, and the shaft that drove it as well. The distributor was moved to the end of the camshaft, and the oil pump was now driven by the crankshaft. This motor also would end up powering the 99 & 90. The most significant developments

made to the 900 over the years were APC turbo boost control (1982), the 16 valve DOHC turbocharged motor (1984), and the Convertible (1986).

APC stands for Automatic Performance Control. This system reduces boost levels when the system detected a knocking in the cylinders. As a result, higher compression ratios can be used, improving fuel economy and allowing quicker engine response.

The 16 valve motor started in 1984 (1985 in the US). The added breathing increased the turbo's performance to 160 HP, and ultimately 175 hp in SPG models. A non-turbo version was also introduced.

Former Saab USA president Robert Sinclair provided the impetus for Saab to build the Convertible. One of the best selling Saabs, there were people who ordered one in 1986, but did not get one until 1989! *(See Saab News in this issue. - Ed.)*

The Saab 900 helped take Saab to new heights in production numbers. However, by the late 80s, the bubble had burst, and it was time for a new car. While the design and construction were still excellent, Saab could no longer compete in the marketplace. The 900 was designed in an age where speed of assembly wasn't so important. If you needed more capacity, you built a new plant (Malmö 1990) and hired more people. By the late '80s, it was apparent that continuing to build the Classic 900 would push Saab further and further into debt. A solution was needed, and the New-Generation 900 was created.

The Saab 90 combined the front section from the 99 with the 900 sedan rear section.

Saab 90

When the 900 came along, it wasn't long before the 99 was relegated to the position of the "entry level car." There were no trim options, only the manual trans, and carburetors to boot. In fact, as soon as the 900 was introduced, all but the base 2-door 99 models disappeared from the USA, even though 99 turbos were made as late as 1981 in Europe.

When Saab introduced their next large car, the 9000 in 1985, it was obvious which model was the "old maid" here. The tail end, especially, of the 99 was definitely '60s. Saab still needed an entry level car, so the decision was made to modify the 99 using parts from the 900 2-door sedan. If the 900 is a 99 from the 'A' pillar back, the 90 is a 99 from the 'C' pillar forward. The trunk of the 90 is the same as a 900 sedan trunk, with the spare under the floor. The Saab 90 was sold only in Europe and the UK, and only as a two-door sedan.

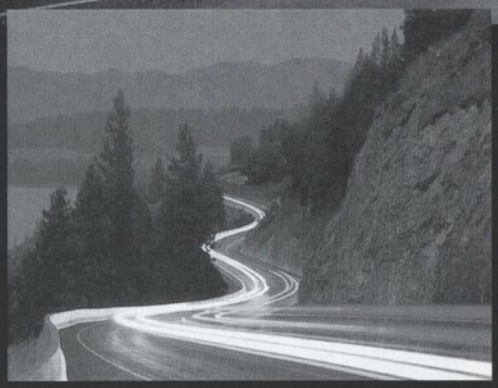
Model Years in production:
99: 1969-1984
900: 1979-1993 (1994 for the Convertible)
90: 1985-1987

Next time: 99 & 900 electrical system tips.

Photographs and drawing courtesy of Saab Automobile AB

driv-ing (dri'ving), *adj.* **1.** having force. **2.** vigorously active; energetic. **3.** relaying or transmitting power.

... we didn't need a dictionary...



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Roadblock to Saab's Diesel in the USA?

In the NY Times, May 27, 2001Edmund L. Andrews and Keith Bradsher wrote,"To judge by the mileage it can get, the Audi A2 sounds like just the kind of exotic hybrid-fuel car that President Bush would want to promote with his new energy plan." With a top speed of 100 miles an hour, it can travel 78 miles on a single gallon of fuel. "Yet the A2 has at its core a technology that generates scorn in the United States: the diesel engine."

In Western Europe, they reported, fuel prices are very high, and a new generation of much cleaner, more nimble diesel-powered cars is suddenly the height of fashion. Diesel engines powered nearly one-third of all new cars sold in Europe last year, and their predicted share will rise to at least 40 percent by 2005. By contrast, fewer than 1 percent of new American cars have diesel engines. The gap is likely to widen, because American antipollution regulations severely restrict the sale of diesel engines, and American environmental groups are adamantly opposed to relaxing them. European environmentalists, while pressing for tougher standards, are far more accepting of the new diesel technology.

A report commissioned by Congress and being prepared by a panel of the National Academy of Sciences will bluntly suggest that the United States may be missing a big chance. Andrews and Bradsher, quoting a person familiar with the draft report, claim the panel will state that "the surest, fastest way to improve the fuel efficiency of the American fleet would be to allow diesels to be a greater part of the landscape." But the panel is not expected to call for a change in the environmental rules which are inhibiting their adoption here. The person close to the panel said a shift toward diesel would require "gigantic" investment and "would probably be a foreign- dominated technology."

They also quoted Harry Pearce, a vice chairman of General Motors before becoming chairman of its Hughes Electronics unit, as saying, "We're denying ourselves the largest incremental step we could take" to reduce American emissions of global-warming gases, but absent a change in environmental regulations, GM would not develop diesel for the US market. For example, in Germany the average new car fuel efficiency has improved steadily to about 32 miles a gallon, and the average diesel car gets about 40 miles a gallon. By contrast, the average efficiency of new vehicles in the United States has deteriorated steadily since 1990.

European environmentalists and government officials have been much more comfortable with diesels than their American counterparts. "A liter of diesel takes one farther and produces fewer greenhouse gases," said Albrecht Schmidt, a top expert on energy issues for Germany's Green Party. "The big problem with diesel is the small particulates, but we think that problem can be solved with new particulate filters." American environmentalists remain highly critical. "Diesel is the quick and dirty way to increase fuel economy," said Daniel Becker, the director of energy and global warming policy at the Sierra Club. "As long as we have other technologies that are clean, I don't see the point in producing carcinogenic soot." *(We can only shake our head in wonder that the US EPA has delayed implementation of technology that could immediately reduce that soot by about half. -Ed.)*

Stringent air pollution rules for diesel engines were issued with virtually no warning by the California Air Resources Board in late 1998, and will take effect in the 2004 model year. The decision was made by the board itself, a group of political appointees, many of whom were about to leave office because their patron, Gov. Pete Wilson, a Republican, was retiring. The board's technical staff had recommended more lenient standards, but at its final meeting, with no staff analysis, the board adopted stricter rules with little discussion. The Environmental Protection Agency traditionally copies California's air pollution rules and did so for the diesel rule in late 1999. The agency's decision, which also takes effect in the 2004 model year, came despite heavy federal subsidies by the Energy Department and the Transportation Department for the production of prototype vehicles with hybrid engines that could run on either diesel fuel or electricity. General Motors, Ford and DaimlerChrysler each completed diesel- electric hybrid cars in early 2000 that could get 80 miles to the gallon, but have largely abandoned these projects because of the new air pollution rules.

At the same time, compared with Europe, the United States has much dirtier diesel fuel used by heavy trucks and in a slightly different form, as home heating oil, with far higher levels of sulphur. The American oil industry, much more influential than Europe's oil industry because the United States produces a lot of oil, has lobbied successfully to prevent rules requiring cleaner fuel to take effect until June 2006.

In most European countries, diesel is also less expensive than gasoline because of tax treatment. European countries impose much higher "ecology" taxes on gasoline than diesel fuel, mainly because governments want to avoid damaging commercial truckers.

In Europe, both Ford and G.M. lost significant market share because they failed to recognize the coming popularity of diesels years ago. Today, both companies are racing to catch up. "I believe it is just a matter of time before the United States comes around to diesel," said David W. Thursfield, chief executive of Ford of Europe. "The technology has moved ahead so much. Fifty miles to the gallon is normal, and you don't even know you are driving a diesel." *(Based on a story Copyright 2001 The New York Times Company)*

Saab's Quality on the Rise

The Saab 9^5 Sedan and Wagon have been ranked as the Best Mid-Luxury Car in the 2001 J.D. Power and Associates Initial Quality Study (IQS). The Saab 9-5 moved up to this segment from the Entry Luxury group last year. IQS measures owner-reported problems during the first three months of ownership.

Saab was also rated as the 5th highest manufacturer in the IQS, according to an article published in USATODAY.com, May 17, tied with Toyota with 121 "reported problems per 100 vehicles in the first 90 days." If one applies a +/- 3% sampling error to the results, Saab was essentially tied with Acura, BMW, Toyota, Buick (!), and Infiniti. Only Lexus (85) and Jaguar (108) had better scores than the "gang of 6". Saab's rank has improved from 20th in 1999 and 12th in 2000.

15 Years of Saab Convertibles

The Saab convertible was first shown at the 1983 Frankfurt International Motor Show. Developed from the two-door version of the Saab 900 at the urging of Saab USA's President at the time, Robert Sinclair, the response was beyond all expectations. A limited run of 400 cars was produced in the spring of 1986 exclusively for the U.S. market. The cars were sold so quickly that most prospective buyers did not even realize that sales of the car had begun. The 1987 model was sold out long before its production had even started, and 1989 models were being ordered way back in the autumn of 1986!

Today the convertible is one of Saab's most popular models. In the USA, the 9^3 Convertible typically represents 40% of 9^3 sales, and around a quarter of total sales. In Europe, every third buyer of a convertible in the premium segment opts for a Saab 9^3 Convertible. In certain countries, including Great Britain and Sweden, Saab has more than 50 percent of the market for premium convertibles. It is now 15 years since the top was folded down on the first Saab Convertible, and today, more than 150,000 Convertibles later, Saab is indisputably the true convertible specialist in the premium segment. The 15th anniversary of the introduction of the Saab Convertible is the theme of the 2001 Saab Owners Convention at Vero Beach, Florida.

Saab Wins Security Test

"With nearly £170,000 worth of metal under the spotlight here, our experts expected a tough challenge. However, it was the cheapest car, Saab's 9^5, which was the toughest nut to crack - while Jaguar's XJ8 was far too easy a target, despite being £13,355 more expensive. BMW and Audi should think again, too." So starts an article describing the theft resistance of "Executive" class cars in the web site for the British magazine "Autoexpress". Saab improved its position from runner-up in last year's competition by adding shielding to the locks and electrical relay boxes to ward off thieves wielding wiring diagrams. Saab was singled out for it's unique transmission locking feature (these were manual transmission cars), and given credit for its glass break and motion detectors. The only security feature lacking was security glass on the side windows, which Saab said is not fitted so emergency services can get into the car quickly after an accident. You can read the entire report at http://www.autoexpress.co.uk/Jacgavin/securitytests/executives.html.

Sales

	APR '01	MAY '01	period
coupe 93	38	52	90
viggen coupe	7	7	14
sedan 93	458	485	943
sedan 93 se	346	378	724
viggen sedan	10	13	23
convertible 93	11	14	25
convertible 93 se	695	762	1457
viggen convertible	34	73	107
campaign convertible	1	1	2
total 93	1600	1785	3385
sedan 95	391	473	864
sedan 95se	234	269	503
Aero 95	98	128	226
wagon 95	178	206	384
Gary Fisher edition	4	6	10
wagon 95se	80	102	182
Aero Wagon	27	45	72
total 95	1012	1229	2241
IDS	4	12	16
total (2001)	2612	3014	5626
last year (2000)	3319	3463	6782
percent increase	-21.30	-12.97	-17.05
total year to date	10451	13465	
previous year	10092	13555	

Sales for the period continued to be weak, as they were for the March/April period. Convertibles were the brightest spot, accounting for almost half of all 9^3 sales. The 9^5 models handily outsold the "steel roof" 9^3 models, as they did in March/April, with the Aero models outselling Viggens 2 to 1, (8 to 1 excluding the convertible). One expects the steel roof 9^3 range to be the volume leader, which it had been for years, but for now the 9^5 and the convertibles are the stronger sellers. The next 9^3 will not be here too soon.

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Send an email request to turbo-request@secret-secret.com. Place the word "subscribe" in the subject line and in the body of the post.

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http://www.vsaab.com

BOLD HEADING indicates a new or changed entry.

CARLISLE Import Kit/Replicar Nationals

What a difference a year makes, thanks to a break in the weather, more aggressive promotion and the active participation of the invigorated Central Penn Saab Club, the Delaware Valley Saab Club, and the New Jersey Saab Owners Club. The Saab armada put on an impressive showing at the 16th annual Carlisle Import Kit/Replicar nationals at Carlisle Fairgrounds, Carlisle, PA. The count on the field was nearly fifty (50!!) Saabs of a variety of vintages. From a 93, to an orange 99 EMS, several SPGs, Classic Convertibles, a 1993 Commemorative Turbo, a 1987 Talladega 900, several Viggens, to a 9-5 Aero. Officially, Saab placed 4th in attendance with 47 members & cars registered, behind the Pontiac Fieros (they're considered with the 'kits') with 77 members & 108 cars, the Volvos with 61/64 and the Triumphs with 56/65. Unofficially, however, the Saabs actually on the field outnumbered the Volvo contingent by a wide margin.

A lucky raffle winner is drawn from the "BFH" Viking Helmet.

Saabs at Little Buffalo State Park, the mid point of the Scenic Tour

The Central Penn Saab Club did a fantastic job of organizing the event. Kelly Saab provided lunch on Saturday, donated prizes were raffled off, and there was a 106 mile Romp before a group dinner. A few of us die-hards stayed at the fairgrounds until after 11:00 PM. Carlisle Events deserves credit, too for splitting the "Custom Compact Power Jam" out from the Imports and Kit cars. No longer are we subjected to an incessant thumpa-thumpa as various "audio" equipment vendors strive to see who can make the more distorted bass.

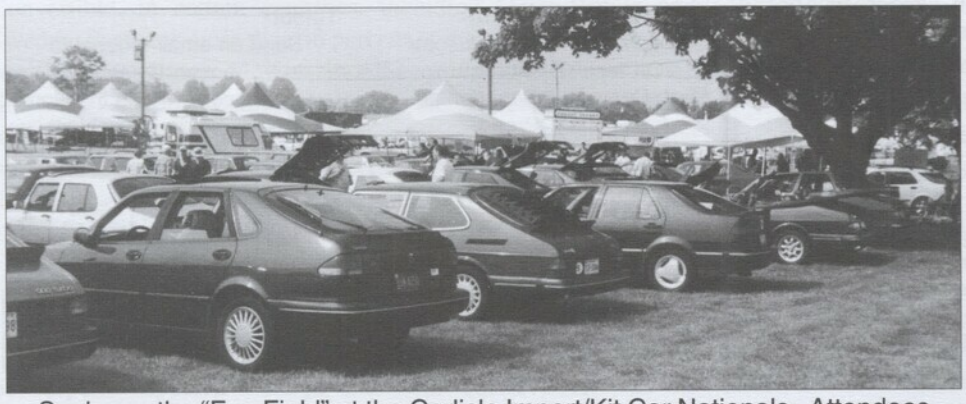
Eastwood Company & Meguiar's came with large tents and plenty of product. It is always interesting to see the other imports. The Brits are always out in force, and the Germans, too (though mostly with the Vee-Dubs). The Volvo club gets a pretty big turnout, and some now-less-common imports, such as Citroen and Renault have their contingents.

Carlisle has definitely become a prominent event on the Northeastern Saaber's calendar. With any luck, we can continue this level of turnout in the future, and get some vendor action going! There are too many Volvo vendors and too few Saab vendors in the flea market. If you run, or know someone who runs a Saab-related business, consider coming out next year. The more vendors we have, the more people we'll get, and vice-versa. Done right, one might put a well-restored car on the 'fun field', a fixed-up car to sell on the sales field, and some parts on the flea market.

If you've got a Saab, and live in the Northeast (figure about a 500 mile radius of Carlisle/Harrisburg PA), mark your calendars for May 17-19 2002, and keep an eye on http://www.carsatcarlisle.com. If there is any decent chance you will attend, do pre-register! Pre-registration ($10 in 2001) for the non-competitive 'fun field' gets you:

- Admission for two for all three days (an up to $32 value!)
- Parking on the show field. You are closer to the flea market and you don't have to walk up the hill with your treasures! (up to $15 value).
- A great time with other regional Saabers. (Priceless)

Larry West
Photographs by Stephen Goldberger



Saabs on the "Fun Field" at the Carlisle Import/Kit Car Nationals. Attendees were blessed by having both a sunny day and the only shady spot on the field.

New Florida Panhandle Club

I'd like to report the formation of The Florida Panhandle SAAB Club! It was but a small gathering. Four cars, five people, in Sam's Club parking lot with a plethora of SAAB Stories, none of which were sob stories. My '71 Sonett III was definitely a conversation piece. One gentleman didn't know it has a Ford engine! All the more reason to form a local chapter. Information. News. Fun. Our motto became: "Too bad, you can only drive one Saab at a time," as there were multiple, multiple Saab car owners in attendance.

Mike "SaabDude" Szostkiewicz)
Panama City, FL
Photograph by Mike Szostkiewicz

Rebooting a Saab Club

The San Francisco Bay Area Saab Club was once one of the most active Saab clubs in the nation with regular events including annual swap meets at the Swedish Auto Factory (formerly the Saab Factory), Don Young's famous Bridge to Bridge rally (it takes you across all of the bridges in the Bay Area at night) and even an outstanding National Convention at Kirkwood CA in 1996. However, with the club candle burning so brightly at both ends to get the convention organized, it burned out shortly thereafter. A few of us drove out to the '99 convention and talked about getting things going again, but with such tiny jets, so to speak, there wasn't enough fuel in the chamber.

Suddenly that's changed with a mailing from Roger Wapner who has stepped up to 'rebuild the carburetor' and get the club jump started. We had our first meeting of the new century at the old meeting spot, Bronco Billy's Pizza in Fremont and 10 people showed up and brought a lot of enthusiasm, although none so determined as Clifford Quan. He's so jealous of all the great events happening in the Northeast that we read about on TSN like Saabtoberfest, that he's going to have every single Saab owner in the Bay Area over to his house for a BBQ. So, it's that kind of enthusiasm that we're going to try to harness and dole out in moderation.

We listed a half dozen possible events including a drive to the sea, a drive to the local vineyards, a co-hosted track event with the local Volvo club, a tech talk, and a BBQ. We discussed some guidelines which focused on sustaining the effort such as not having events too often, not hosting a national convention, and keeping the organizing load off any single person. With that done, we came up with half a dozen items on a to-do list, such as getting a web page with contact and event info online and to begin work on our first event, a Father's Day drive to the ocean (a particular beach known for its seals).

After we finished our discussion (and our pizza), we all adjourned to the parking lot to stand around in the cool evening jabbering about the Saabs (how did you get those 18 inch wheels on there? Nice. Is that the two stroke 93 that won an award at the '99 convention? This 900S was just converted from auto to manual. The 9-3 molding sails fit right on my 96 900 conv...).

Stay tuned to TSN as all the details will be posted on the events page (http://www.saabnet.com/tsn/events/) as well as links to the club web site.

R. Scott V. Paterson
Menlo Park, CA

Saab Owners Celebrate Wings & Wheels

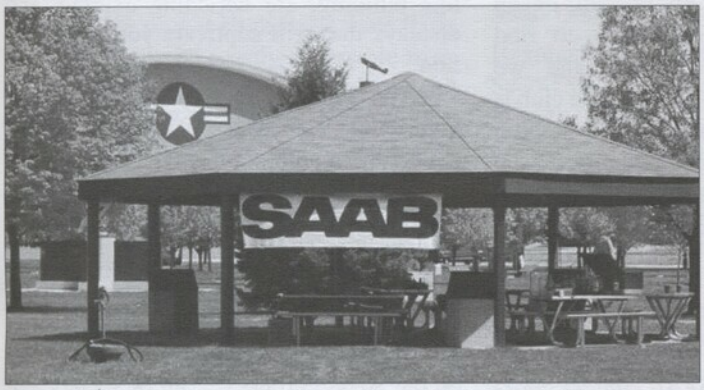
Nearly 50 Saab owners in 35 Saabs of various vintages traveled to the U.S Air Force Museum in Dayton, Ohio, on Sunday, April 29. It was the first joint meeting of the Tri State Saab Club and the Saab Club of Central Ohio. Saab lovers from Ohio, Indiana, Kentucky and West Virginia came to see the awesome collection of aircraft and related items at the museum, and to talk about their Saabs and make new friends.

Saabs lined up with the Air Force Museum in the back-

The oldest car represented was Gary Truell's '72 96, with Phil Lacefield's '74 Sonett III following a close second. As expected, a heavy contingent of classic 900s made the trip, along with a smattering of 9000s, 9^3 and 9^5 models, including a 2001 Aero Wagon. Thanks to generous donations from Saab Cars USA, Just Saab, and Scott Paterson of the Saab Network, a large number of gifts were handed out by pulling names from the Viking helmet (aka the BFH!). Thanks also to everyone who brought food and drink to feed the masses, and for making the event such a success.

To view some fine digital stills by Perry Ellington on the Internet, set your browser to: www.tbmarket.com/wingsandwheels.

by Dan Orzano
Saab Club of Central Ohio



The pavilion was the center of Club activities.

Photographs by Perry Ellington

Columnist Phil Lacefield Jr. staked out the "Space of Honor" in the Air Force Museum lot.

NESA at Wigwam Saab

On April 14th, 2001, New England Saab Association (NESA) members experienced the Saab Nordic at Wigwam Saab in North Providence, Rhode Island. A Tech Session was held at the new Saab Nordic Tuning building which is adjacent to the Sales/ Service building right on 915 Charles Street starting at 10:00am and ending at 2:00 PM. The session started out with the NESA greeting all newcomers and current members, and later continued to discuss the events scheduled for the 2001 season. A major emphasis was put on the New England Saab Association gathering in North Conway, New Hampshire on August 10th-12th.

After the NESA Meeting and an introduction, Donald Gregson at Wigwam formally introduced the dealership and how Nordic Uhr came to the USA. He later described in great detail all the ins and outs of all the Saab Nordic tuning packages available for the Saab 900, 9000, 9^3, 9^3 Viggen, 9^5,9^5 Aeros and 9^5 Aero Wagons. As a group we moved into the Service bay and got a chance to take a look at a Saab 9^5 Nordic Aero up on a lift. This gave everyone a good opportunity to see all Saab tuning parts in application. Many photos including video footage were taken by NESA officers and others during this time.

Finally, after getting a great complimentary catered lunch by Wigwam, in groups of 4 we got to ride in either a Saab 9^5 Nordic Aero Sedan in Red or a Saab 9^5 Nordic Aero Wagon Silver. These were driven by Don Gregson of Wigwam Saab and Bengt Karlsson, who lives in Providence, Rhode Island who assisted Wigwam in bringing Nordic to the USA. This drive went outside North Providence and up Route 146 North and then back South with many acceleration, braking and cornering opportunities along the way that were taken. The speed, handling characteristics and overall comfort, was noticeably better than any Saab I have ever driven in, period. I was completely impressed from start to finish and can't wait for another chance to get behind of the wheel of a Nordic Saab.

On behalf of the New England Saab Association I want to personally give thanks to Don Gregson, Jacklyn in Service and the Sales, Service and Parts departments at Wigwam Saab, Inc.

Ryan O. Emge

NESA Members view a Nordic modified 9^5.

New DC Area Club

As a DC area Saab enthusiast, I felt that the existing Capital Area Saab club didn't sponsor enough driving related activities. Therefore, I have organized my own small Saab club for area enthusiasts who not only want to talk about their cars, but also have fun driving them! We have over 30 members already, and have had 2 successful events in the past few months. Membership began by using Saabnet to find interested folks, and we went from there. The club is name The WASSAAB Club (The Washington Area Saab Club), and WASSAAB is the license plate on my 1988 SPG!

Mike Heyse
Washington, DC.
See the "Clubs" listing for WASSAAB contact information. -Ed.

Calendar of Events

New England Saab Association

August 10 - 12: The 2001 New England Saab Owners Gathering. Are you too far North and East to drive all the way to Florida for the 2001 SOC? Too faint to handle Florida in July? Planning to attend the SOC but always up for another Saab Gathering? The New England Saab Association is sponsoring a gathering at the White Mountain Hotel and Resort, near North Conway. The theme is a Celebration of 45 years of Saabs in New England, and will focus on the history of this fine automobile. Featured events include a Concours de Saab, Scenic Drive, Golf Scramble (with a FREE brand new Saab Nordic Aero prize for a "hole in one"), a Friday evening seafood buffet, a Saturday night banquet, and a Time Speed Distance (TSD) rally. The short TSD fun-rally will end in Dalton, NH with a Rally and Driving Skills seminar taught by instructors from the Team O'Neil Rally School. The seminar includes a "Consistency and Improvement" test and using the Team O'Neil rally course, which will be combined with the scores for the TSD rally. For information and/or a registration form visit the NESA web-site at www.nesaab.org, or request a brochure by writing to NESA, Post Office Box 119, Keene, NH 03431.

New England Sonett Club

October 14th, 2001 is the Second Annual "Swedish Car Day" at the Museum of Transportation (MOT) in Brookline, MA. The Museum cares for and protects many unique and remarkable vehicles, as well as many other significant historical artifacts. Throughout the Museum''s castle-like building, are enriching exhibits and displays that will captivate your imagination.

The Museum is fortunate enough to hold and care for America's oldest collection of automobiles. The collection is important because it highlights the rapid development of the automobile and related technologies and societal changes which filled the early years of the twentieth century. Who we are today, where we live, how we get around, what businesses we find on our street corners……all of society and culture have been altered radically by the advent and advance of the automobile.

Don't miss out on this great opportunity to meet other club members in a picturesque setting that also offers something to do for the whole family. Last year more than 85 Saabs, old and new , attended this event. The N.E.S.A. (New England Saab Association) and the New Jersey Saab Club will also be in attendance, guaranteeing a huge turnout. The New England Sonett Club will present a trophy to the most pristine pre-1975 Saab (regardless of club affiliation) and to the N.E.S.C member who traveled the longest distance to the show. In addition to our clubs trophy's, the museum will be presenting awards. At the time of this writing, the criteria for winning and the quantity of these awards is not known. The organizers will attempt to group cars together by model but as the lawn fills up this will become difficult. Plan on arriving between 9:00 and 10:00am to secure a good spot. Aside from the concours, this will be a social gathering with no formal agenda.

This event is sponsored in part by Charles River Saab of Watertown, MA. Charles River will be providing hamburgers, hot dogs and soft drinks to all attendees. They recommend you bring a picnic blanket and if you have the room, folding chairs.For more information on the museum, check their web site at www.mot.org. For directions to the MOT or additional information, check the NINES web site www.saabclub.com.

New Jersey Saab Owner's Club

On September 15, 2001, The New Jersey Saab Owner's Club will be holding its first annual picnic, tour and membership drive! It promises to be a fun day, full of good roads in NJ, NY & PA, but most of all, with the camaraderie of fellow Saab Owners! The tour will start at High Point State Park, NJ. Take Route 23 (easily accessible from Rt 46, I-80 and the Garden State Parkway) north to High Point State Park. We will muster at 9:00 AM, with a drivers' meeting at 10:30, and the tour will start promptly at 11! (note: please check the club website for any updates or changes). The tour is based on part of a scenic tour that I ran a few years back. (http://www.saabturbo.com/saab/tristate.tour.html). We will be doing the part from High Point to the end, finishing up with a picnic at a member's home in Sussex County. The route will take us through some wonderful scenery on the Delaware River in NY and PA. We will visit scenic areas, and finish up with the twisty backroads of New Jersey. All Saab owners are welcome, from any place. We will be recruiting new members to help grow the club. As an added incentive, anyone who joins at the tour will recieve the lower renewal rates ($18 vs $20)! For more information, contact Larry West by phone at 908-507-6691, or e-mail at njsoc@saabturbo.com. For on-line information, point your browser to http://www.saabturbo.com/njsoc

The Saab Club of Central Ohio

Regular meetings are at 7 p.m. on the first Wednesday of every month (except this July) at the Buckeye Hall of Fame Cafe on Olentangy River Road. We usually meet in the Arena room by the video wall. These are informal gatherings of the Saab faithful who want to get together and swap stories, exchange repair tips or just "talk Saab" for a few hours. Between these meetings, we'll be planning other activities, such as tech sessions at a local repair shop, visiting the local dealer to see the new Saab products, social events and more. You don't have to be a gearhead, just someone who is interested in Saabs and wants to have fun with other Saab owners. A Web site is under development and a mailing list will be created as well. We'll continue to coordinate with other Ohio and regional Saab club activities taking place throughout the year. For more information, contact Dan Orzano via e-mail at dorzano@compuserve.com, or by phone at 614-444-4885.

Saab Club of Georgia

Regularly scheduled dinner meetings of the Saab Club of Georgia are held on the first Monday evening, of each month, unless it is a holiday, at 7:00pm. The meetings are held at Tony's (an American Grille and Tap), located at 1085 Holcomb Bridge Road in Roswell. Tony's is one block west of GA 400 at the Holcomb Bridge Road exit. Take Exit 7B if you are coming north on GA 400. You will see Tony's on the left in the shopping center in front of the Holiday Inn. See: http://www.accessatlanta.com/community/groups/saabclub for more information.

Western PA Saab Club

July 21: Pittsburgh Vintage Grand Prix Car Show. The Western PA Saab Club will join numerous car clubs for an all day show on the Schenley Park Golf Course. Tour the many displays, visit the vintage car paddocks, and observe the day-long vintage race time trials from one of the best corners of this fantastic track in the university community of Oakland in Pittsburgh, PA. Bill Jacobson, of Hunt Valley Saab in Suburban Baltimore, will be competing in his Sonett I, so come on out and cheer for him! Spend the night and watch the races on Sunday, the 22nd. All Saabs are welcome, but must be in place by 10:00 AM for the Saturday Car Show. For information, contact Andrew Bittenbinder: 412-366-6165.

Turbo!

October 6: It's not too early to make plans for attending "SAABtoberfest", the autumnal driving tour through Central Pennsylvania organized by Deb and Dean Lusby. Deb and Dean had become increasingly concerned about potential liability, which put a big question mark into SAABtoberfest planning. But The Swedish Underground in Williamsport is sponsoring a Saab/Volvo club, and SAABtoberfest will be taken under the wing of the club. This means the event will be covered by the club's insurance. Details will follow, but other than a few Volvos tagging along, the event will be pretty much the same as past 'fests/Romps. For further information, email Deb Lusby *blaithin@ptd.net* or call Deb or Dean at (570) 286-9277. *Remember that Deb's "day job" of loading the brown UPS trucks starts in the wee hours of the day, so* ***DO NOT CALL AFTER 7PM Eastern Time.***

Attention Local Clubs!

Please keep NINES up to date on your planned, or even semi-planned activities! Our closing date is about a month prior to each issue's release, and it takes up to three weeks from the release date for some of our subscribers to receive their copies. People interested in attending your events *will* contact you for more information, but only if they have some information that an event is on the horizon.

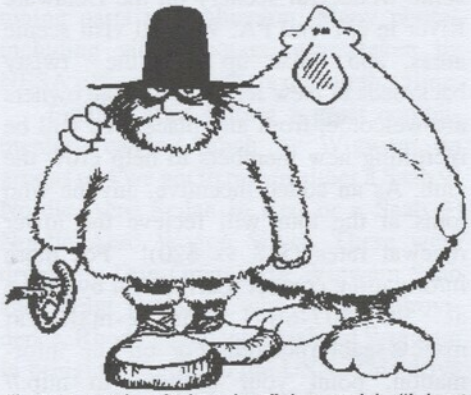
Alaska Rally Team Wins 2001 Thunderbird Rally Historic Class

"The Thunderbird Rally." It may sound like a winos' reunion, but it stirs the hearts and souls of die-hard lead-foot rally drivers as nothing else can, short of all-out "real rally" competition—and there's little of that these days, especially for vintage cars, unless you want to go through the trials of building a car for the US ProRally or Canadian CARS competition. Most of us settle instead for time/speed/distance rallies of the "brisk" persuasion—and the Canadians are well-known for that tendency. Canadian rally slang defines "navex" as those rallies we call a Zero Hunt, wherein navigators argue about how many hundredths can dance on a pinhead while drivers zone out in stupefying boredom. A "drivex" is one in which the navigator has only one comment, "You're still late!" and clings to every available grab-handle in stupefied fear while the driver imagines himself to be Tommi Makinen - or, in the case of us vintage geezers, Erik Carisson.

If Canadian rallies are known for their drivex tendencies, the Thunderbird is downright legendary. Run in various incarnations for over 30 years across the low hills of southern British Columbia, T-Bird has known years in which the winning team was hours - hours! - behind perfect time, and it was on this event that canny competitors learned to carry hoes, not shovels, to clear away the snow from the inevitable snowbank intrusion. (Hoes are faster. No jokes—they're too easy.)

Alaska Rally Team involvement in T-Bird goes back to its brief fling with stage-rally stardom. One winter it was renamed Pe'klona - the White Bear - and it was run as part of the North American Rally Championship. That was the year the Alaska Rally Team took a Saab Sonett down the highway, through the BC hills, and off a bridge in the middle of an icy stage.

The Alaska Rally Team



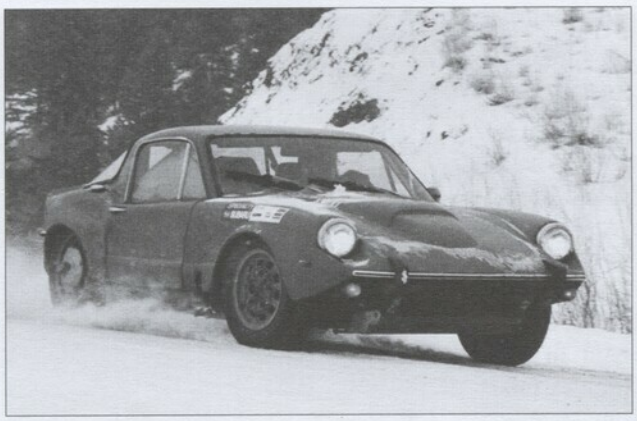
"I can make it louder," he said. "I just can't make it any faster!"

In later years, after the winter event had returned to its TSD roots, the Alaska Rally Team in turn returned to Thunderbird, usually running four-wheel-drive cars in unlimited competition. "We never liked to leave any excuse, so we always ran the latest top-of-the-line hot set-up as far as tires, lights, and rally computers," recalls Peter Linde, better known as Sergeant Sideways to ART historians. "That way, if somebody posted a lower score, we knew they had just plain outdriven us." Few, however, ever out-drove Sergeant Sideways, who won Thunderbird in an Audi Quattro Coupe in 1997 while I, as ART Spiritual Advisor, manned the TimeWise computer.

It was the quest for perfection that led the Alaska Rally Team back to Thunderbird in 2001, on President's Day weekend (February) at the Kamloops-Williams Lake area in Western BC, for an all-out assault on the Historic Class. It was not the first ART historic presence, for Teresa Davenport had been using Thunderbird to practice for her eventual run at Targa Tasmania for several years; running with the expressed purpose of dialing in her '68 Sonett in 1997, '98, and '99. Those were useful excursions: A broken distributor-points assembly in 1997 led to modification of a Mallory electronic distributor for the car, and an alternator failure in 1999 brought about the installation of a Japanese Denso unit that puts out more power than the original Bosch and even allows access to the #1 spark plug.

But the 2001 Alaska Rally Team Thunderbird assault was to be altogether different: an attempt not only to win the competitive Historic Class, but to compete on equal footing with an array of modern cars equipped with all-wheel-drive and modern rally computers. "Not to mention the heated seats," I muttered when the heater fan puked its innards before the first section of the event. This particular scheme was born several years ago, when Canadian Historic rules were modified to allow mechanical equipment of any age—Curta calculators, Halda TripMasters, Twinmasters, and SpeedPilots—as well as other rally equipment over 25 years old. It was that "25 years" that intrigued me. We were running Zeron odometers and computers back in the '70s, and although they weren't as sophisticated as the whiz-bang boxes of today, they were the latest and greatest of their own particular era. We knew we'd be skirting the spirit of the rule. I think it was actually meant to keep rally computers out of vintage cars but we're really in keeping with the whole idea of reproducing an earlier age. We're running today set up exactly the way we were back then, though I may be a little slower. And I'm sure my navigator, Russ Kraushaar, would much rather sit behind a TimeWise than the Zeron - if only because the Zeron takes up about half his office space!

Garth Ankeny's 1957 Karmann-Ghia and his father Fred's 1970 Saab 96, the famous Hawg of Steel.



The Carlson/Kraushaar Saab Sonett dominated Historic Class competition in the 2001 Thunderbird.

The original scheme called for procuring a Zeron and installing it in the "Hawg of Steel," the bedrock 1970 Saab 96 with which the Alaska Rally Team first established a reputation (or several). Our slogan was "Break Early And Get Down Off The Mountain Before They Close The Bar," but we were younger then. That car was originally factory-prepared by Saab for a privateer who reportedly wanted it for the Acropolis Rally. In the hands of Stan and Suzanne Crews, it ran the last Trans-Canada Rally, the BC Centennial, in 1971. After I bought it for Pro Rally use, it was placed into neglected storage and gradually become Historic. It has all the unusual bits: Recaro seats, oversized fuel tank, Plexiglass windows. How could you take a car like that to the crusher? Instead, the car was turned over to Portland's Fred Ankeny, whose first foray with the orange coupe would be the ART assault on T-Bird '01, so the Zeron went into a red '69 Sonett.

Fred Ankeny's Hawg of Steel Saab 96 retired early with "very expensive noises" from the engine.

Fate would not prove kind to Hawg of Steel, running an experimental 1900-cc stroker *("Stroker" in this case means a 4 cycle engine with a lengthened piston stroke, not a two stroke engine. -Ed)* engine. After Ankeny and navigator John Joyce took a wrong turn, a certain quantity of spirited driving in an effort to make up time led to the development of what Ankeny called "an expensive noise," so the crew reverted to the ancient Alaska Rally Team motto and retired to the pub to plan their return in 2002.

Meanwhile, the ART entry list was rounded out with Ankeny's son Garth in a 1957 Karmann-Ghia. as well as a completely stock 1968 Saab Sonett in the hands of father-and-son team Guy and David Recordon. And of course Teresa Davenport was back with the Targa Tasmania car, with Greg Hightower cranking a Curta calculator for the first time. Navigated by Jay Kennedy, Ankeny's beautifully-restored 40-horse VW retired when the brake master cylinder expired. "I knew I could drive home with the handbrake," said Ankeny the Younger after the rally, "but I didn't want to chance it on some of those rally roads."


Guy Recordon, navigated by his 14-year-old son David, never put a wheel wrong in his '68 Sonett II V4, but took heavy penalty points after his odometer failed.

All three Sonetts finished the rally

The Davenport/Hightower ride was a handful. Since the 1500-cc Targa engine was apart for rebuilding *(a blown piston on the fourth day had put Davenport out of Targa Tasmania - See NINES 246),* a 1700-cc autocross engine was thrown into the car for the Thunderbird. Unfortunately, a vacuum leak (or an air leak, or an internal fuel leak) had the two-barrel Solex defining its own idle characteristics. "Sometimes it would idle just fine," said Davenport, "but mostly it would run up to three or four thousand rpm and stay there!" Since unintended acceleration is not the wisest strategy for an event like T-Bird, the pair fought their way over the course as best they could. Mostly they stayed on the road and out of trouble - until they moved over to let a charging Bob Chandler get by and found deceptively drifted snow waiting to pull them into the ditch.

Chandler was in hot pursuit of our Carlson/Kraushaar Sonett, but not for Historic Glory. Chandler's car, an ancient Datsun 240Z, is eligible for the Historic Class, but navigator Mark Clemmens sits behind a modern Alpha rally computer. Therefore, the car runs in the Unlimited Class. Their real hope was to be the highest-finishing two-wheel-drive car. That spot is quite familiar to Chandler, who has been well-known as a snow-and-ice wizard for years, but to take that spot, they'd have to catch the front-drive Sonett. This would be no cakewalk for the rear-drive Datsun, no matter how skilled the driver. With the advantage of Zeron navigation (a brilliant navigator, Russ "Squidboy" Kraushaar may be more familiar with the TimeWise 797 and 798 computers, but he had spent some time "dialing in" the idiosyncratic tantrums of the Zeron), front-drive traction, studded Hakkapeliittas on all four corners, along with a driver who admits to several years spent racing on Alaska ice, our little red Historic car could cruise with the big dogs. We received just one penalty point during the first half of Saturday's ten-hour marathon, compared to Chandler's 17. And that section included the spectacular Yawning Pit of Death, an intimidating "S" curve which usually sees timing controls before and aft.

The second section included the Luge Run - no further description necessary - as well as a one-hour loop in the Canadian dark that could be omitted by competitors more tempted by food and shelter than the thrill of competition. Here the Recordons wisely opted to take a huge points hit by heading for the hotel, the visibility afforded by their stock headlights being somewhat less than that inside a healthy cow. "Just preparing all these cars to get to the rally," said Recordon, "was a lot of work. The day before we left, for example, we had to swap the transmission in my car so we could get a working speedometer gear. We wanted to fabricate a light bar, or at least install some H4 headlights, but we ran out of time." Since their Halda TripMaster stopped counting miles in the afternoon, the

Theresa Davenport's Sonett returned to competition after a bittersweet run in the 2000 Targa Tasmania (NINES 246).

Recordons had racked up so many penalty points that it made little sense to grope their way blindly through the Stygian darkness; they headed instead for light and warmth and food. Kraushaar and I weren't so lucky.

Oh, I'd've happily cut and run. The problem was that we knew our scores were good, so we had to keep going! Cursed with the same feeble headlights as those in Recordon's car, our Sonett sped squinting into the night. We didn't even start the last leg until 9:00 o'clock. And then we came across Teresa, putting the triangle out for the blue Sonett. High on a ridge road above the Fraser River, the Davenport/Hightower car had stuffed it moving aside for Chandler - but as the occupants were unharmed, the red car kept going. And dicey as it was, the field was still equal. We took a few points but Chandler took some, too. Where we'd take a two-point hit, he'd take three - except for one little stretch that scared me.

That was a downhill right-hander: a lurid moment. Feeling the drift vector change to an arc that would carry the car off the road, I yanked the car hard a-starboard, then countered the slide by snapping back to opposite lock. That was fine - we missed the trees - but I really had to get it straightened out a little bit to get through the following left. This "trick driving" accounted for another seven points, to leave the little red coupe with a total of eight for the day: fifth overall, well clear of the Historic competition, and nearly half a minute ahead of Chandler for "first two-wheel" honors.

Nor would our night-time excursion be the ART's final lurid moment. Sunday dawned overcast and hostile, with fresh snow powdering the packed ice of what is usually called the Zamboni Run. It was here that an utterly charming Historic Ford Zephyr had to make several runs to get up one steep hill. And it was here that I forgot the first rule of rallying: *When You Have A Good Lead On The Competition, A Few Points Won't Hurt You.* Pushing to stay on time in a tricky, icy downhill section, we found ourselves in Basic Speed 101: *Too Fast For Conditions.* It was overconfidence, really. I was having a pretty good time slippin' and slidin', and I forgot that conditions don't stay the same on those roads. Suddenly I was on a slick patch and there was no way I was going to make the turn. Kraushaar heard the words he has come to dread in ten years of hanging out with me - "Hang on!"- as the red car went straight across the ditch and wedged its nose into the rocks and bushes of the Canadian hillside.

Fortunately, the Recordons were close behind, and the red Sonett was pushed back into the fray. We had one rear wheel hanging in the air, and the front was wedged pretty good, but we were able to shove the whole thing sideways and get some traction. Others recall a slightly different procedure. Kraushaar swears I was jumping up and down on the Sonett hood to free it from the clutches of the bank. In either case, we were quickly harnessed back into contention, grateful for the quarter-inch aluminum skid plate that protects the front of the car. But we were late, which is when the fun began.

At first I was a bit confused. I looked at the computer readout, and it read 8-something. I couldn't figure out what that meant. 80? 800? How late were we? Twenty minutes? Kraushaar reminded me that in Zeron-speak, 800 is two minutes down from perfect time (999 is one hundredth-of-a-minute behind, 001 is one ahead of perfect time). Two minutes? What would Erik do?!

What followed was about the most fun I've had since the hogs got Grandma. If there had been a control right around the corner, we'd've been hosed - but there wasn't. So I got to drive like - well, I had a real good time. There were places where you could see through the corners, sometimes two or three miles down the road, and know that it was clear. I could set up a rhythm and power through the bends at a pretty good clip.

Down came the numbers: two minutes late, then a minute and a half, each well-drifted curve slicing another precious second or two off the error clock. Finally we were "in their minute," driving now to get back down to the elusive zero. "That's when we came to the hills," says Kraushaar.

Uphill ice is the bane of the front-wheel driver; any increase of throttle spins the wheels, any increase in speed is lost as the weight transfers to the rear and the front wheels spin even faster. Churning up snowcones with the Hakkapeliittas, I feathered the throttle and drove by the sound of the spinning tires, watching the error readout grow. "I can make it louder," I said at one point. "I just can't make it any faster!" Knowing there would be a control at the top of the highest switchback - where else would you put it? - I flung the red coupe sideways to drift past the laughing control crew just ten seconds down. Our lead would stand.

The rest of the rally was an anticlimax, a few points here and a few there, and I drove it properly subdued and circumspect. It was ours to throw away and I had already done my damnedest to do just that! A free-spirited lark on an ice-racing track near Cache Creek gave the rally field a chance for one last sideways fling of their cars, and the scores were totaled up. Rally aces Gary Webb and John Kisela finished with just seven points in their Subaru Legacy, one point ahead of R. Dale Kraushaar (yes—stepfather) and Larry Richardson (Subaru Impreza). The Alaska Rally Team's Kenai Faction was well represented with *(Nines subscribers - Ed.)* Jim and Cristy Breazeale's 10-point finish, breaking the "Sube" ranks with their Audi Quattro, while Glenn Wallace and Richard Squire were two points astern in their Impreza. John Fouse and Dennis Wende moved ahead of the Sonett with a 22-point total in their Subaru SVX, eight ahead of the ART's Historic-winning score of 30. That was good for sixth overall out of more than 50 starters and handily cleared the Datsun's final 56. With the Datsun classed as unlimited, the second-place Historic honors went to Mike Welland and Gordon Passmore, who brought their vintage BMW 2002 home with a penalty of 259 points.

Photographs by Satch Carlson
Logo by the Alaska Racing Team

Historic Rally Instruments

by Satch Carlson

Rapson's Revenge
Or The Mills of the Geeks Grind Slowly

Fooling around with old rally instruments can be as rewarding—or frustrating—as tinkering with the cars themselves. Following our devastating humiliation of the Historic Hordes at Thunderbird, I expect we'll hear a certain amount of puling from the whiners: "No FAIR! They. . . they USED A COMPUTER!" This never-never land of what should and what shouldn't be allowed in Vintage/Historic/Beater Class has been going for some time; in fact, that's what led us to this year's strategy.

It started when Martin Wilson and John Rapson had the temerity to show up with a Brantz odometer at Thunderbird five or six years ago. Nobody said anything about it that year, because the Porsche 911 spent the weekend wallowing in deep snow—or, rather, tobogganing across it—but the following year, they had the nerve to win the Historic Class. . . with an electronic LED-readout odometer of recent manufacture. "Booooo!" cried the Luddites, and all of a sudden a new rule appeared. It said that Historic cars could use MECHANICAL instruments made any old time. . . but if they wanted anything electronic, it had to be 25 years old. Take THAT, Wilson! Take THAT, Rapson!

That's when the Alaska Rally Team set about searching for a genuinely vintage rally computer, something from back in the Zeron 550/660/770 era, and sure enough we came up with one of these behemoths. Jack Christensen of TimeWise fame got it to light up, spit blood, and produce numbers, and we installed it in one of the Too Many Saab Sonetts that litter the grounds of the ART estate.

Now, just as the Lancia Stratos was the state of the art in its day, TSD rallyists of the '70s were constantly tinkering with cutting-edge paraphernalia. The Pacific Northwest was a hotbed of electronic jury-rigging, with many geeks fashioning their own versions of the "Hot Set-up" in rally computers. And today, just as it is rewarding to tinker with older cars and coax them across the rally route, so, too, it has been an interesting experience to get an old Zeron to produce calculated time. Just as you have to remember a careful routine if you want to find reverse gear in a Sonett, so too must you remember to not inadvertently cancel the Zeron's clock settings! Unlike its modern counterparts, such as the TimeWise 798A, the old electronic box—should that be "electronic boxcar"?—has quaint and unpredictable habits, such as manufacturing numbers when its input speed is zero.

A sales display of Halda "Twinmaster" and "Tripmaster" Rally Odometers.

The rationale behind a computer in a "drivex" event is the same today as it was thirty years ago: Only the most able and skilled navvy can crank out numbers on a Curta when the car is being pitched thither and yon by a manic lead-foot driver. Of course, it takes quite a bit of skill to address the computer properly—especially when it's an ancient box that requires certain Druidic procedures to work at all—but at least that level of ability can be attained by any proficient navigator who isn't prone to The Technicolor Pukies. In fact, the arguments for computers in Historic are the same as those for other classes: They level the playing field more than any other element of TSD rallying.

The classic "Curta" hand-cranked calculator.

Years ago, in 1988 to be precise, I argued against the use of computers in Jerry Hines' AlCan rally. "If you let them in," I said, "it means a guy will have to buy a computer if he wants to win." "Right now," Hines replied, "he has to buy a Tom Grimshaw. Computers are cheaper—and there are more to go around." That was the point that swayed me to the Dark Side of Electronic Intervention. Now, I have always rallied in pampered luxury; that is, I have had

1. navigators who were spot-on, muy excellento time-crunchers, and

2. equipment that could measure to a gnat's kneecaps, whether it was a Halda Twinmaster fed through an adjustable ball-disc integrator, a Zeron 700 odometer/clock, or a TimeWise 797/798 A box.

I like to win; but rallying is mostly a game of personal best, since we are always trying to attain an impossible ideal score. I have never taken a lot of pleasure in "beating" other rallyists in TSD events when their instruments are inaccurate or nonexistent. But as a driver, I have always tried to minimize everything that distracts me from the chores on my side of the car, like navigator input: hence a simple readout that says, "You're early, dude!" or the more-likely-in-Canada statement, "You're late!" I prefer it when we eke out a win by dint of, dare I say it, a certain amount of driving skill.

After all, the computer may be able to multiply two numbers, compare the results to a clock, and tell me I'm late. But how hard can that be in an event like Thunderbird?! Yeah, I KNOW I'm late—but the damn computer isn't doing diddly to get me down the road any faster. In fact, our greatest pleasure in Thunderbird 2001 was our battle with Bob Chandler and Mark Clemmens in Chandler's ancient 240Z—and since it was equipped with an Alfa computer, the Zed car wasn't even running in the Historic class. "My goal," said Chandler, "is to be the top-finishing two-wheel-drive car." Obviously the Alfa gave no particular

advantage in the traction department, and with our front-wheel-drive Hakkapeliitta-churning SAAB we were barely able to squeak out a score that was lower than a rear-drive, tail-happy limited-slip Datsun!

Those who want to dismiss our success in Historic with "They've got a computer!" are not only selling navigator Russ Kraushaar short—spend a ten-hour stretch behind a Zeron sometime before you decide it's a cakewalk—but they are also missing the true nature of Thunderbird. The truth is that at one point Sunday morning, we were two minutes down. First of all, the stupid computer had done absolutely nothing to keep me from flinging the Sonett off the road, over the ditch, and onto the rocks; it didn't even help push us back on the road. More important, it did nothing thereafter but chronicle our slow efforts to wind ourselves back into a respectable position; that we were able to do so had to do with luck (if the timing control had been closer, we would've been hosed, eh?) and a certain amount of Alaska experience that enabled us to get down the road at a reasonable clip. Oh—and when we did finally slide past the timing control, the box gave us a cheerful estimate of the penalty we were taking.

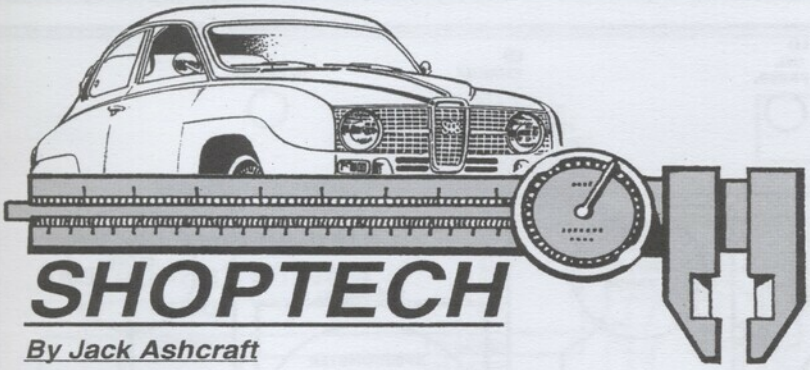
Another argument against equipment—in Historic or any other class—is that it raises the costs of competition. True enough; it's always going to cost more to fill your toybox. But there is certainly no cost advantage to equipping a car with vintage mechanical devices (or reproductions) over vintage electronics. Our ball-disc integrator cannot be found at any price (and ours isn't for sale!). As I write this, the bidding for a Halda Twinmaster on eBay has just passed $700 with three days to go; Tripmasters are fetching between $400 and $800, with Speedpilots around $500. A fair hand with a Curta (between $400 and $1000 on eBay) and an accurate odometer ($200—$500 in modern form) can produce the same calculations as a rally computer. We paid $300 for the Zeron after Christiansen refurbished it.

At this time, my own corner of the Alaska Rally Team toy box contains the Zeron rally computer, a Zeron odometer/clock, two Halda Twinmasters, the ball-disc integrator box, one Halda Tripmaster, a Halda Speedpilot (hey, nothing looks cooler than a Speedpilot!), and enough gears and cables to tie this stuff to just about anything that rolls, along with three Curta calculators—and I'm the driver; navigator Kraushaar has another two Curtas and two Tripmasters. There's also the TimeWise 797A and the TimeWise 798A for when we're not in vintage mode; Russ also has one of each.

The Sonett ran the Grand Canyon Rally with the TimeWise installed, but there was no vintage class at that event. Actually, my preference is to run the same set-up we had at Thunderbird, since it represents "the cutting edge of technology" we were trying to achieve a quarter-century ago; the big clumsy box with its humongous knobs and buttons is kind of quaint, and the sound of Russ madly pushing buttons to adjust the computer is a perfectly appropriate counterpoint to my mad search for gears in the four-on-the-tree column-shift transmission. Since my vision of historic competition is to compete exactly as we did in the Olden Days, burgeoning electronics and all, I plan to run the Sonett with its Zeron set-up in as many events as possible this season.

That way, any time we take a modern car and a TimeWise to a rally, Kraushaar will be so grateful for the vacation that he'll be willing to pay for the beer!

Photographs by Satch Carlson



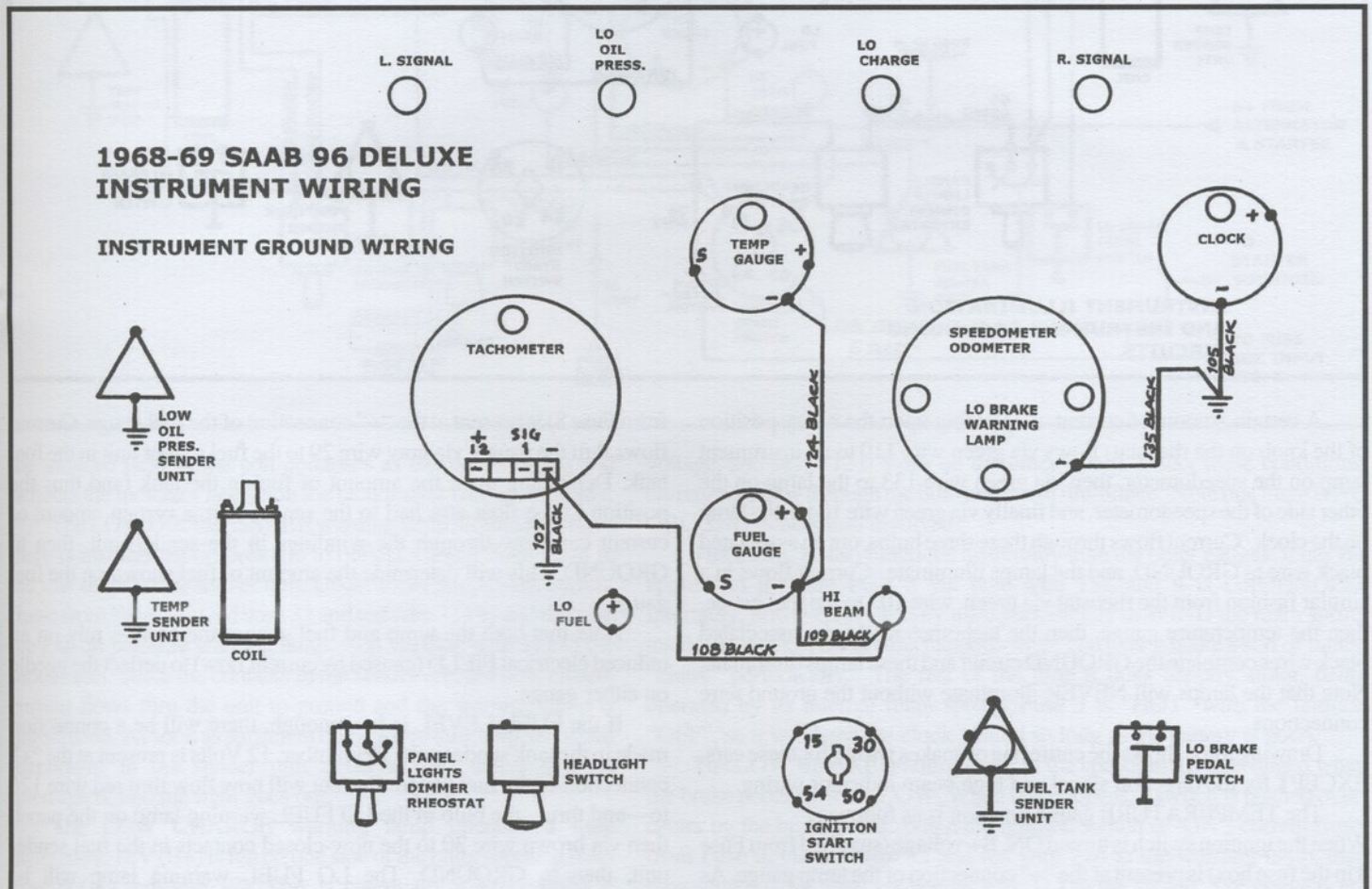
SHOPTECH

The Bag of Snakes Behind the Panel

By Jack Ashcraft

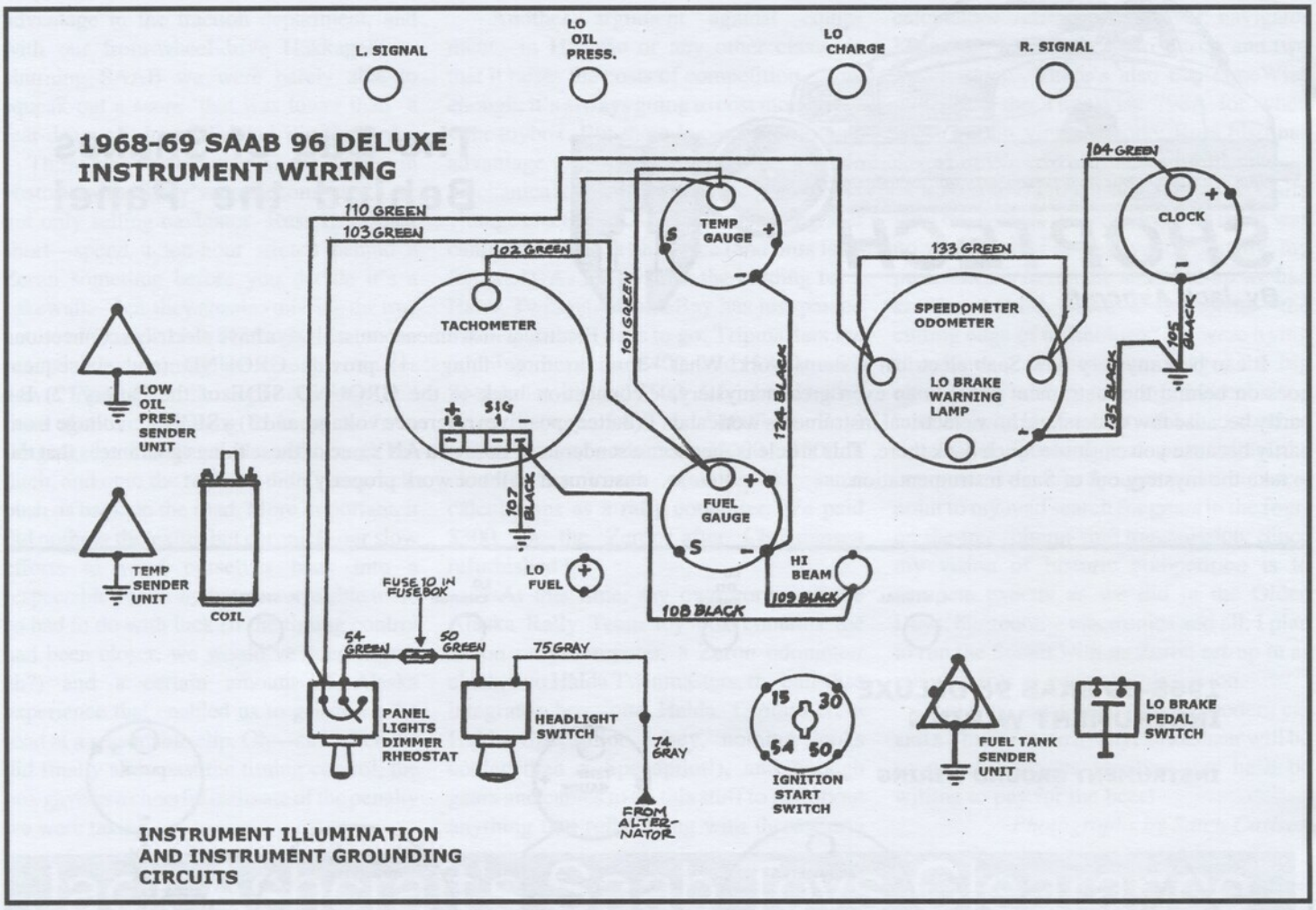
It can be a mystery how Saab electrical systems work. What goes on behind the instrument panel is an even greater mystery, partly because few understand how electrical instruments work and partly because you can't see much back there. This article is meant to take the mystery out of Saab instrumentation.

Electrical instruments must always have electrical connections that do three things: 1) provide GROUND (and subsequent connection back to the GROUND SIDE of the battery, 2) B+ (battery positive) reference voltage, and 3) a SIGNAL voltage from a sender unit. Loss of a ANY one of these things guarantees that the instrument will not work properly.



The first drawing is a graphic representation of the components seen on the instrument panel of the 1968-69 Saab 96 DELUXE. Also shown are associated components. The GROUNDING circuits for the instruments are shown in this drawing, with the number and color of these wires indicated. "-" on a gauge indicates the GROUND connection, of course. "+" on the gauge indicates where the B+ reference voltage will be connected and "S" on the gauges indicates that the SIGNAL from the appropriate sending unit will be connected there.

Drawing two shows the full circuit for the instrument LIGHTING. B+ voltage is supplied from the alternator, thru wire 74 and 75 gray, to the headlight switch. When the switch is pulled ON, to either the first (park lights on) or second (headlights on) position, current flows thru the switch to Fuse 10 in the fuse box (via green wire 50), thru Fuse 10 to the panel lights dimmer rheostat (via green wire 54).



A certain amount of current (depending upon the rotary position of the knob on the rheostat) flows via green wire 110 to an instrument lamp on the speedometer, then via green wire 133 to the lamp on the other side of the speedometer, and finally via green wire 104 to the lamp on the clock. Current flows through these three bulbs, out an associated black wire to GROUND, and the lamps illuminate. Current flows in a similar fashion from the rheostat via green wire 103 to the fuel gauge, then the temperature gauge, then the tachometer. Again, associated black wires complete the GROUND circuit and these lamps illuminate. Note that the lamps will NEVER illuminate without the ground wire connections.

Drawing three shows the entire bag of snakes wiring for these cars, EXCEPT for the direction signal and high beam indicator wiring.

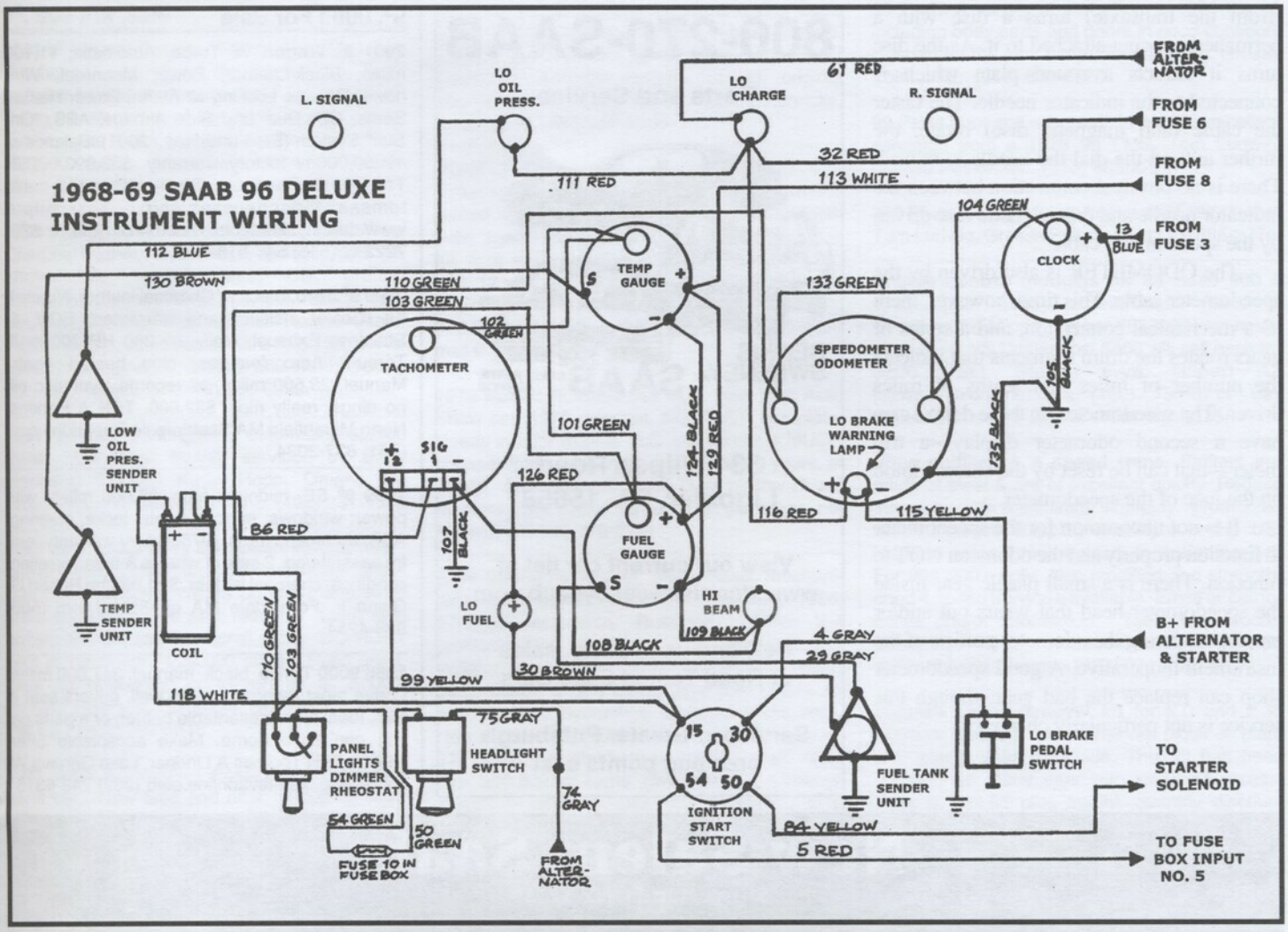
The TEMPERATURE gauge function is as follows:
When the ignition switch is turned ON, B+ voltage (supplied from Fuse 8 in the fuse box) is present at the "+" connection of the temp gauge. As the engine begins to warm up, a certain amount of current can flow from the "+" connection, through the gauge, then via brown wire 130 to the temp sender unit, through the sender unit, to ground. The gauge will register some reading. As the engine warms up, the sender unit will pass more current and the gauge will read higher. Note that the "-" (GROUND) connection is providing a ground reference for operation of the gauge.

The FUEL gauge function is as follows:
When the ignition switch is turned "on", B+ voltage (also supplied from Fuse 8) is present at the "+" connection of the fuel gauge. Current flows thru the gauge, via gray wire 29 to the fuel sender unit in the fuel tank. Depending upon the amount of fuel in the tank (and thus the position of the float attached to the sender unit, a certain amount of current can flow through the windings in the sender unit, then to GROUND. This will determine the amount of fuel shown on the fuel gauge.

Note that both the temp and fuel gauges themselves rely on an induced electrical FIELD (caused by current flow) to deflect the needle on either gauge.

If the FUEL LEVEL is low enough, there will be a connection made in the tank sender unit. Remember, 12 Volts is present at the "+" connection of the fuel gauge. Current will now flow thru red wire 126 to—and thru—the bulb in the LO FUEL warning lamp on the panel, then via brown wire 30 to the now-closed contacts in the fuel sender unit, then to GROUND. The LO FUEL warning lamp will be illuminated.

The TACHOMETER functions as follows:
When the ignition switch is turned "ON", B+ voltage is present at connector 12 ("+") on the tachometer. This was supplied from connector 15 on the ignition switch. The tachometer is also grounded at its "-" connector. When the engine is running, the pulsed signal from the "-" (distributor) side of the ignition coil is felt at the signal (SIG 1) connection on the tachoometer. The internal electronic circuit of the tachometer interprets this pulsed signal (caused by current flow when



the induced field in the coil collapses as the points close) and deflects the indicator needle on the tachometer face accordingly.

The LOW OIL PRESSURE warning lamp illuminates when there is insufficient oil pressure to deflect a small diaphragm in the low oil pressure sender unit. Under these conditions, current flows from Fuse 6 via red wire 32 and red wire 111 to and through the low oil pressure warning lamp, then via blue wire 112 to the sender unit. Since the contacts in the sender unit are now closed, current flows thru the unit to ground and the warning lamp is illuminated. As soon as sufficient oil pressure builds up, the small diaphragm in the sender unit deflects, the current flow is interrupted, and the light goes out.

The LOW CHARGE warning lamp operates a little differently. 12V (B+) is felt on one side of the bulb, supplied from Fuse 6 (via red wire 32). This is essentially a REFERENCE voltage level. The other side of the warning lamp is connected via red wire 61 to a connector between the voltage regulator and the alternator. As long as the alternator is putting out the same voltage as the REFERENCE voltage, there is no difference of electrical potential felt across the low charge warning lamp and it does not illuminate.

If the alternator begins to produce LESS than the REFERENCE voltage, there is then a DIFFERENCE of electrical potential felt across the warning lamp (i.e., +12.6 Volts reference voltage, and say, +12.0 Volts on the other sided). Under these conditions, current will flow through the bulb and it will illuminate. Note that there is NO GROUND connection involved!

The CLOCK also functions differently than the other gauges. It has B+ applied to it (from Fuse 3 via blue wire 13), and it is GROUNDED. Internally, however, B+ is only used periodically to WIND the main spring inside the clock. This is what happens when you hear it make a sort of muted "clunk" periodically. The rest of the time it ticks happily along, being operated by its internal main spring. Fuse 3 is "HOT" with the ignition "OFF", so it will keep the clock wound so long as the battery is good.

The LOW BRAKE warning lamp in the speedometer is actuated when the brake pedal goes too LOW. When this happens, a switch is pushed over-center by the brake pedal. When the ignition switch is "ON", current flows from Fuse 6, via red wire 32 and red wire 116 to the warning lamp, then through the lamp, then via yellow wire 115 to the switch. The contacts are now closed in this switch and current passes thru it to ground. The warning lamp illuminates.

This lamp is meant to get the driver's attention, in hope that he/she will be smart enough to check on WHY the brake pedal went too low. To RESET the switch, you reach down under the instrument panel in the vicinity of the brake pedal and physically push the shank on the switch rearward and the switch will reset and the light will go out. Hopefully, you will also investigate the low brake pedal situation.

The SPEEDOMETER is a cable driven mechanical item. The cable

(from the transaxle) turns a disc with a permanent magnet attached to it. As the disc turns it attracts a round plate which is connected to the indicator needle. The faster the cable (and magnetic disc) rotate, the further around the dial the needle is moved. There is no physical connection between the indicator needle and the magnetic disc driven by the speedometer cable.

The ODOMETER is also driven by the speedometer cable. This time, however, there IS a mechanical connection, and a series of gears rotates the drum segments that indicate the number of miles and tenths of miles driven. The speedometers in these deluxe cars have a second odometer display—a trip meter—that can be reset by the chrome knob on the face of the speedometer.

It is not uncommon for the speedometer to function properly and the odometer NOT to function. There is a small plastic gear inside the speedometer head that wears out and/or breaks, rendering the odometer portion of the instrument inoperative. A good speedometer shop can replace the bad gear, though this service is not particularly cheap.

9^5, 9000 For Sale

2001 9^5 Wagon V6 Turbo, Automatic, 11,100 miles, Black/Leather, Power Moonroof, Windows, Remote Locking w/ Alarm, Power Heated Seats, CD, Dual and Side Airbags, ABS, "On-Star" System (Free until Nov., 2001). Balance of 4yr/50,000mi factory warranty. $33,990. **TSN** Tom Donney, Fort Dodge IA. tdmsaab@donneysaab.com, http://www.donneysaab.com/a369.htm, (800) 626-7222 or (515) 546-6184

2000 9^5 Aero. Black w/ Charcoal leather. Nordic II Kit (Dealer installed and warranted) ECU, 4" Stainless Exhaust, etc. - +/- 280 HP 300 lbs/ft Torque. Aero features, plus heated seats. Manual, 25,500 miles, all records, synthetic oil, no dings, really nice. $32,000. **TSN** A Perkins, North Marshfield MA Saabforsale@aperkins.com (781) 837-3034

1999 9^5 SE, midnight blue, 30,600 miles, with power: windows, mirrors, seats, locks, steering. ABS, automatic trans. 6/75 factory warranty. am/fm cassette/cd. 2 sets of wheels & tires. excellent condition. charcoal leather. $24,000/bo Robert G. Guinn jr, Forestdale MA qjr88@aol.com (508) 888-4254

1986 9000 Turbo, black, manual, 347,000 miles. I have most records. It runs well, drivers seat is torn. Ideal for a presentable beater, or a parts car you can drive home. Make acceptable offer. $1,000 **TSN** Thomas A Lindner, Lake Geneva WI lindnerjefp@genevaonline.com (262) 248-6315

9³, 900 For Sale

2001 9³ Viggen Coupe, Steel grey, 5,100 miles! Purchased new from Ramsey Saab (NJ). Includes heated seat option. Why sell a Viggen? Being transferred overseas. Hate to part with it, but happy to find a great new home! Good luck! $31,900 Adam Brownstein, New York NY adam_brownstein@yahoo.com (917) 587-0061

1999 9³ Viggen TURBO 2.3 $25,900, Elec. Blue/Charcoal leather, 10,000 mi, 5 spd std, ABS, air, alloywheels, am/fm cass, CD, cruise, pb,pdl,pmoonroof,p seats, ps, pw,traction control, Memory Seat, Rear Spoiler, Heated Seats, Turbocharger, Sport seats, Aero Pkg., Stock No: sx062912, Imports Unlimited, 569 North Colony Rd., Wallingford, CT (203) 284-8989

1997 900SE, dark green, automatic, 65,500 miles. New tires, freshly serviced by Saab mechanic $12,900 Kevin Hopp, Omaha NE Email: khopp@mitec.net Phone: (402) 231-4319

1985 900 Turbo SPG European Model, rare - one of 4 imported by Regional Saab Mgrs - Black with tan interior, no cracks on dash, leather in great shape (Driver's seat redone). Saab seat covers on front seats, original radio. NO RUST kept in the South. 224,000 miles. Runs great, ideal for restoration or to run as is. $7000. Richard Peterson, Columbia, SC. call 7 PM - 10 PM EST (803) 892-6848

1981 900S Automatic - Possible restoration or parts car. New tires and rims, also alloy rims. Many repairs made - more needed. $1200 or fair offer. Patrick Carmody, Painesville, OH. Pcarmody44@aol.com, (440) 352-8062.

1980 900 Turbo New or rebuilt: brakes, clutch, transmission, head gasket, fuel pump, water pump, ball joints, suspension bushings, headliner, radio and speakers. EMS manual rack, straight, solid body. Needs paint. Jim Phillips, Akron, OH (330) 376-3003 (W), 330-882-6008 (H), or Steve Goldberger, nines@neo.rr.com 330-497-0346

93, 95, 96, 99, Sonett For Sale

A red 5-door 1977 Saab 99 for sale. It has about 75,000 miles (with A/C) on a completely rebuilt motor. In the last 2 to 5,000 miles it has new or rebuilt: exhaust pipe and muffler; fuel lines, filter, and injectors; cooling fan, starter; EMS wheels; tires; ignition wires and distributor; trailer hitch and head liner. There are many spare parts including: wheels, winter tires, fender trim, rev counter, fuel distributor, alternator, and rear light. It was going to be restored but the owner was in an aircraft crash and is now physically unable to do the work. The body is in good shape with only minor dents and rust bubbles. OFFERS PLEASE. J. Fergus S. Anderson, Chemainus, BC, Canada. anderson_fergus@hotmail.com (250) 246-2861, fax (250) 246-1065.

1973 96 V4 daily driver, needs a caring Saab home. Mechanically sound, rebuilt engine, brakes, shocks, new tires, repainted "BMW Colorado" (attention getting orange), original interior, worth $1500 OBO. Mauri Henricks, Kokomo, IN (765) 452-4191

SONETT: Go Racing. Excellent SCCA GT4 or Vintage FP full race prepared Sonett III. Formerly owned by Ray Longhitano and raced competitively against Jack Lawrence's Sonett. Incl one full race engine and one endurance engine (in car), 12 year history, and all log books. Can mail or Email photos to seriously interested. Asking $12,500. Motor Sport Service, (716) 665-4200 mss@madbbs.com

1970 Sonett III, Serial No. 005. New York Auto Show car, 1970. Straight, NO RUST, complete. Needs interior work & TLC. Whole car is MUCH cheaper than you can repair the rust on yours, at $1500. Jack Ashcraft, 4305 Dark Hollow Road, Medford, OR 97501 jackashcraft@prodigy. net Phone/FAX 541-779-0731

1969 95 Estate Wagon, Silver Sand, mechanically and cosmetically refurbished, June 1996. 37K on restoration. Rust-free. 1750cc V-4 professionally rebuilt w/ new parts. Rebuilt radiator; electric fan (7/99). Professionally rebuilt transmission & new clutch assembly (1-01). All new or rebuilt hydraulics. Stainless brake lines. New pads/shoes (10-00/1-01). Rebuilt starter (5-01). New regulator/battery (10-00). New dash cap, 900 leather seats. Email for specs/photos. $5500 Neil Gray, Hoopa CA ngray51@hotmail.com (530) 625-1015

1968 Sonett V4. Tub has rust but is repairable. All glass intact, Fiberglass good except for paint. Driver's seat needs upholstery, Passenger seat OK. No headliner. Engine runs and gearbox sounds good. Restoration project or good parts car. $850. Motor Sport Service. (716) 665-4200

Parts & Miscellaneous For Sale

17" '01 9-5 Aero "take off" wheels, removed at the Saab Port in New Jersey. 10-15 miles on them! Center cap included. Saab list is $350 each, and $12 for the center cap. Correct tire size is 225/45/V17(you can sub 215/40/V17 for 900's/9-3's) wheels are properly boxed/shipped to prevent damage. Some even include lug nuts! Over $600 a set our website and on ebay! Call and order a set from this ad $449(You MUST mention the SaabNet and NINES) including free ground shipping! Limited quantities **TSN** eEuroparts.com, Woodstock CT sales@eeuroparts.com http://www.eeuroparts.com (866) 383-7611 (toll free)

Soccerball Wheels from 1979 900 EMS (4) with center caps. Straight but need refinishing and worn tires removed. Free if you pick up in Palmyra, PA. Paul Pocavich. pocavich@successful.net. Phone (717) 838-0760

96 Parts A variety of parts from a 1973 tan 96 including body parts and doors in good contition. Headed for the junk heap. Tom Ludwig, Grosse Pointe, MI. (313) 885-2270.

99 Parts front and rear seats in good to excellent condition from a 1978 99 EMS. Tom Ludwig, Grosse Pointe, MI. (313) 885-2270.

900 Parts 4 alloy wheels from a 1985 900 Turbo. Tom Ludwig, Grosse Pointe, MI. (313) 885-2270.

Engine control modules for 89 Saab 900 5 speed (non turbo) jetronic/Bosch Made in Germany. OEM part number #882602 new never used as is. US Dealer cost $458 will sell each for $300 OBO. Steven Frye, Gilbert AZ steven.frye@avnet.com (480) 794-8711 day (mountain time) 8-5pm or (480) 497-9638

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Wanted

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"TSN" indicates a photo is available at The Saab Network Classifieds: http://www.saabnet.com/tsn/class/

To start, we are (not again!) changing our mailing and subscription procedures, but only slightly. Leaving off the "Address Service Requested" line below the return address means that undeliverable issues will not be returned to us, but we will receive address correction notices. According to the USPS, periodicals are forwarded for 60 days from the time of the move, and we are supposed to receive a change of address notice for mail which has been forwarded. We do not always get them, however, so if your copy of NINES arrives with a yellow change of address sticker on us, contact us at once. Better still, contact us at least 4 weeks before you move, and your NINES will be mailed to the new address.

I don't know if it's the crumpled stock market, the Republican in the White House, or the phase of the moon, but judging by some of this issue's submissions, there's a whole lot of grumpiness going on. Let's see if we can see the glass as part full.

Chip Lamb is sounding a lot like the Biblical Prophets, warning of the fire and brimstone consequences that follow evil ways. We must remember that the Prophets' aim was not the destruction of the sinners, but their repentance. The analogy with Oldsmobile is a lesson. In some 10 years, Olds went from "something special" to "something ordinary." The Chevrolet engines with "Rocket" labels, the attempt to "cheap out" with a diesel converted from a gasoline engine, and finally the "badge engineering" of the late 1980s and early 1990s dissipated three-quarters of a century of hard-earned good will. Subsequent first rate products, such as the Aurora and Intrigue, were unable to restore shine to the name plate.

Saab has not yet been sent down that path, in my opinion. The latest JD Power Initial Quality Survey results for Saab are at levels that Saab never achieved as an independent producer, and they are at levels that no other GM brand has ever met either (although Buick came close). In this issue's article reviewing engines, we see the same forward and independent thinking that has marked Saab's engine program since the early 1970's, when they brought back in-house the responsibility for engine design and manufacture. If the Global 4 becomes the foundation for some future Saab engines, I believe that it will not be a case of Saab "making do" with parts from the GM bin. Rather, I think, this issue shows that it is "little Saab" designing for GM an engine on which Saab should be proud to put their label. The risk is there, however, that GM will be tempted to "badge engineer" a Saab car. Having Prophets to sound the alarm helps to prevent that. So does the determination of Saab's employees, which has served us well so far.

The references to global warming as a consequence of atmospheric changes caused by burning fossil fuels brought us responses which question their scientific accuracy. I admit that with the possible exception of Newton's Laws (which are valid only for large objects moving slowly), "universally accepted scientific truths" have a very poor track record. But then, so does the "head in the sand" approach to facing problems. The writers argue that human activity is being blamed for global warming without sufficient scientific evidence to support the theory, but the argument against CO_2 being the culprit is primarily a statistical "negative proof of hypothesis." And as we went to press, the National Academy of Science went on record confirming that CO_2 is causing global warming. I suspect that all the subscribers would turn grumpy if I neglected the publishing long enough to research the arguments and offer a conclusion, so for now I'll leave the issue open for continued discussion among the subscribers.

Two bodies of fact remain, however. One is that climactic warming is occurring, whatever is causing it. There are subsequent changes in both the distribution of rainfall and the rate and frequency at which it falls. "100 year floods" are occurring every 3 years, it seems, while the Everglades are about to dry up and blow away, if they don't burn down first. The disintegration and melting of the polar ice caps threatens to turn our coastal cities into copies of Venice. Change in the environment affects the range of species, and is exterminating some. The other fact is that the potential damages from the production and use of fossil fuels go beyond climate change. These include environmental damage both inherent to the production of fuel, and that caused by accidents in the production and transportation of fuels. There are also economic, social, and political consequences based on the distribution of supply and consumption of fuels. Reducing the use of fossil fuels reduces these stresses on our environment and our societies.

I also wish to mention the inherent hazard of using liquified natural gas (LNG) as a transportation fuel in "low pollution diesels." Unlike diesel fuel or gasoline, a natural gas "spill" diffuses into the atmosphere until it attains explosive proportions, and then explodes. And unlike hydrogen, "spilled" natural gas, and especially spilled LNG, is more dense than air. Thus the gas settles onto the ground, or in basements, before exploding. I think proponents of LNG for transportation fuel underestimate the safety hazards of its use as well as the technological advances in conventional diesel fuel combustion which have occurred in recent years.

A hearty welcome is in order for Larry West, who joins our regular columnists. Larry has been turning wrenches on Classic 900's, and now on his 99, almost since Moses. He's also a student of the model, with SPG and Convertible "spotters guides" on his website, http://www/saabturbo.com. I've felt for some time that the 99/900 needed more visibility in NINES, and I'm happy that Larry is going to be helping there.

I'm also happy that local Saab clubs are active again (or at least they're keeping me clued in on what's been happening.) In the middle Atlantic region, Deb and Dean Lusby and the Central Penn Saab Club have become sort of a catalyst. Folks from around the region have attended activities like SAABtoberfest and The Bridges of Lancaster County Tour, and then gone home to organize their own clubs. As the various Internet lists and NINES carry word of these activities across the country, the enthusiasm of potential local club organizers gets ignited. Let's all keep it up (and keep NINES informed)!

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