

#256

March/April

2002

Nines


The Saab Club Magazine



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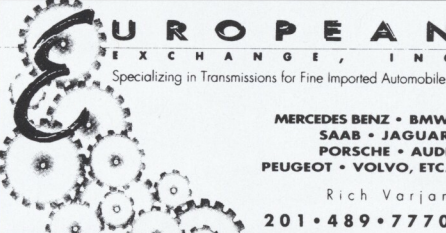
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NINES The SAAB Club Magazine (ISSN 1530-0730) Issued March, 2002.

NINES the SAAB Club Magazine is published bimonthly by the SAAB Club of North America. The SAAB Club is not affiliated with Saab Cars USA, Inc. or Saab Automobile AB.

SUBSCRIPTION RATE is \$30.00 per year in the US. Please see the form on the inside cover wrap for complete information.

SAAB Club of North America

2389 Chestnut Hill St. NW
North Canton, OH 44720-5822
Phone: 330-497-0346
9am - 5pm Mon - Fri Eastern Time
Fax: 413-740-5583
email: nines@neo.rr.com
WEB SITE: <http://www.saabclub.com>

Periodicals Postage Paid at Canton, Ohio, and at additional mailing offices.

POSTMASTER: Send address changes to NINES, 2389 Chestnut Hill St. NW, North Canton, OH 44720-5822.

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Front Cover: 9^{3X}

Photograph Courtesy of Saab Automobile AB

Cover Wrap: Michael Raphael's Saabs

Photograph Michael Raphael

Fuzzy Math

Steve - I got NINES 254 on Saturday, Nov 10th, and immediately read it cover to cover. Once again, Great Job! You continue to put in the right mix of material to cover the spectrum of Saab interests from vintage to classic to current models, as well as to what the future holds, plus good coverage of club activities around the country and the world. I'm also interested in hearing more about the formation of SCNA, Inc. Have the incorporation papers been filed? Where? As what kind of corporation? Has the Board of Directors been named yet? Officers elected? How will clubs, like our Rocky Mountain Saab Club, that already are incorporated fit into the new scheme? etc. This is probably the subject for a major forthcoming article.

And finally, regarding the 20th Anniversary SOC "question" you pose in your "Looking Out" column, I agree this SOC really is the 20th counting from 1983 through 2002. If the 1982 SOC had been held as planned this would be the 21st SOC in 2002. Do you commemorate the anniversary the year after, or the year of? I believe the year of, is proper.

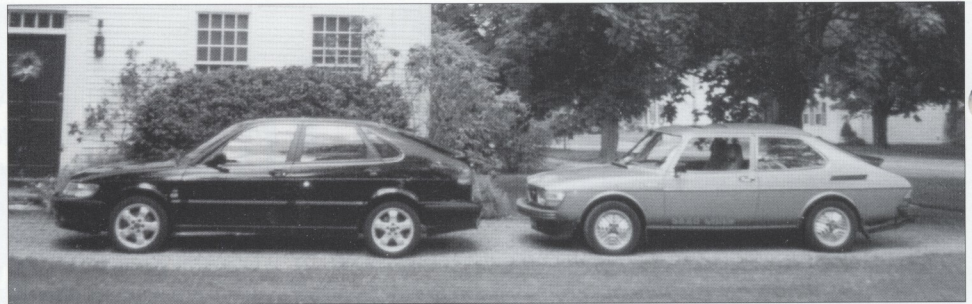
*Thomas E. Nelson
Golden, CO*

Regarding the question of whether 2002 marks the 25th anniversary of the Saab Turbo or the 25th year of turbocharged models, here is an excerpt from a press release Saab AB put out earlier this year:

"The Saab 99 Turbo was the first Saab turbocharged model. The initial run of 100 cars of this model was produced in 1977, and these cars were driven mainly by Saab's own engineers and test drivers, and also by a number of selected private persons.

When the model was launched for general sale as a 1978 model, the impressive 145bhp from the 2.0-liter, four-cylinder engine of the Saab 99 Turbo had already become acclaimed. Calculations showed that a six-cylinder engine with equivalent performance would have been about 50 kg heavier, and its fuel consumption would have been 30 percent higher."

I know that it's confusing... sorry. We're



Bill Rees' 99 Turbo, bought in 1980, and his new 9³

sticking with 25th anniversary, using 1977 as the first year of (initial) production.

*Steve Janisse
Saab Cars USA, Inc.*

Reader Tom Nelson is correct. The 2002 Saab Owners' Convention is billed as the 20th Annual, which it is, not the 20th Anniversary, Convention. We can do the anniversary next year. As for the 25th Anniversary Saab Turbo, I guess with all those cars rolling down the assembly line with "25" embossed in the seats, it would be discourteous to both the Company and the people who buy one to quibble. Phil's letter in NINES #255 answered some of the SCNA questions. Local Clubs, like the RMSC, will have to choose to affiliate as local chapters of the SCNA, but the plans are to make the benefits of affiliation compelling. SCNA's first election of officers and directors takes place at the Owners' Convention. -Ed.

Across the Pond

Got the new issue of CAR Magazine (British) yesterday. In it was a review of the new Toyota Camry. They pretty much hated it. It is a fascinating bit of info that really shows the difference between European tastes and American. The Camry was the best selling car in the US last year, with nearly 500,000 sold. In all of Europe, which is a market of roughly the same size as the US, Toyota managed to sell a grand total of 6,000 - yep, roughly FIVE DAYS sales for the US. It is no wonder that European companies struggle to sell significant numbers of cars in the US. Of course, we don't have all of the far more interesting alternatives to the Camry that the Europeans have to choose from, but still - such total lack of imagination!

*Kevin Rhodes
Westbrook, ME*

22 Years of Saab Turbos

As an avid Saab enthusiast I thought that you folks might be interested in our 22 years of Saab Turbos. We bought the 99 Turbo in 1980 (second owner)(see above picture). The odometer broke in late 1980 with 67,000 miles on it. The car is unrestored and used every day (except winters). It is all original, including the engine and transmission, and runs as strong as it did 22 years ago. My wife and I enjoy both cars very much.

*Bill Rees
West Brookfield, MA*

Confusing Specifications

I was just reading NINES #254. Great job as usual. Just a quick heads-up for you on page 18. The footnote (single *) for the 9⁵ Linear, Premium Package lists a sunroof. That is not part of the Premium Package. It is in fact standard equipment. It also appears that the items listed after the sunroof are a repeat of those mentioned in the beginning of the footnote. (Seat and mirror memory on driver seat)

My apologies for sounding like a critic! Just trying to give accurate information.

*John Libbos
Saab Cars USA*

We apologize for the confusion. When preparing the model/price/equipment matrix for NINES #254, we initially included Canadian as well as USA models. That got out of hand, so we decided to include only the USA specifications in the matrix, although the text described standard and optional equipment for the USA and Canada. The "asterisk" footnote describes the Canadian Linear Premium Package, and should have been deleted.

To reiterate the major differences in equipment between the USA and Canada 95 models: In Canada, Linear standard equipment includes heated front and rear seats, but does not include leather or sunroof, nor is the sunroof standard on Arc. In the USA, Linear standard equipment includes heated front seats only, but also includes leather and sunroof. The Driver's Package, which includes rain sensing wipers, BiXenon electric arc discharge headlights, ESP stability augmentation, and an ultrasonic "backup sensor alarm", is optional on all models in Canada. In the USA, ESP is standard on Arc and Aero, optional on Linear, and a package with rain sensing wipers, electric arc discharge headlights, and (with delayed introduction) backup alarm is optional on Arc and Aero, and not available on Linear. For full information, readers should visit a dealer. -Ed.

Favorite Saabs

I've been receiving NINES for a number of years and it's a great publication. I look forward to receiving each issue, thanks. I live in Sun City, CA, and I wanted to share with you and the readers my cars and a little about them.

My Favorite Car is my 1973 Saab 96, with 74,000 miles, 100% stock, with its original Bendix Saab radio. This car is built like a bank vault. My plan is to use it as a coffin when I retire from life! It is 100% stock and original, with new, original color avocado green paint, and appropriate color for Sun City where avocados rule.

I bought this car from Arnie Gunnerson of Fall Brook, CA. At one time Arnie raced Saabs professionally in Mexico. Arnie's wife drove this car for years prior to my purchase of it. Arnie is Swedish and knows Saabs like the back of his hands. When I bought the car, I knew it was well cared for. Arnie also has a Saab 95 that I have my eyes on, but he won't part with it. I don't drive the 96 much these days, but I would not hesitate to use it for a long trip if needed.

My 1993 900, non-turbo hatchback has 105,000 miles and is a great car. It is the last year of the classic 900. It's a shame they had to change the body style. This is my commuter car, with four 200 lb. (all men) riders. I drive this car 120 miles daily to work, four or five days per week. Awesome

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Ted Shapleigh's favorite and second favorite cars

Saab features: ignition switch on the floor, window switches on the floor, heated seats, heated rear view mirrors. The riders love the ride and the comfort; they fall asleep on the commute. There's lots of room. I love the 900 and pamper it.

*Ted Shapleigh
Sun City, CA*

Thanks for the kind words about NINES. Mr. Shapleigh also had a question about the cooling system, which our Dr. Nio has answered in the "technical end" of the magazine. -Ed.

Let it Snow

As a former New Englander living in the South, I've gotten used to almost everything....fast food places that aren't, everyone smiling and saying "Hi", and the oft heard phrase "What kinda car is dat?? Saab?? Is that a Jap car?"

I was really surprised though when snow finally came to 'these parts'. It snowed on Wednesday night, and was still snowing Thursday. I wasn't too surprised that work and school were closed....even though the totals were less than a foot.

On Friday I didn't even bother to call work, it's been a full day since the snow, so at 7am I was out in Gunnar (an '83 900T) to go to work. Our little cul-de-sac hadn't been plowed, but were in a small development so no great shock there. As the old Saab nimbly headed on the main road, I was indeed dismayed to see that the road was not touched by plow or salt. Thinking it was just the 'third world back country' area I live in, I headed for the main highway. This six lane well traveled way was also almost virgin snow and ice! Other than a few 4x4 pickups and a couple of SUVs, Gunnar and I were pretty much alone on our trip.

Some excitement! As a veteran of Connecticut winter storms I understand the principles of 'light on the gas, light on the brake', and had no worries. That was until, as I sat stopped at a light, I noticed one of the aforementioned SUV's coming up fast behind and obviously using her antilock brakes in full panic mode (swerves to the shoulder, then swerves to the median, then back again). As there was no traffic, and she

wasn't stopping anytime soon, Gunnar and I leapt out for the intersection and narrowly avoided getting customized from behind.

Next it was on the interstate, or so I thought. As I headed up the on-ramp I was greeted with the bright white reverse lights of the 20 or so cars in front of me "Backing Down the Ramp." Yep, the Interstate itself wasn't plowed or salted and had become impassable, and the state closed it.

Happily I made it to work and enjoyed the pleasure of my own company, as no one else in the 100+ person department made it in. Moral? Even if you live in the South, don't throw away your snow tires, or, Saab front spoilers make good snow plows.

*Eric Cohen
Selma, NC*

No Horns?

For several issues of Nines, I have marveled at that extra heavy-duty Viking helmet, otherwise known as the "BFH" (Nines issues #252, pg. 28 and #253, pp. 20 & 29). Somebody did a nice job on making that BFH.

It is my sad duty to report to you, and all Nines readers, something that I recently learned. We took a family trip to the Natural History Museum (in my 1985 900T with its go-fast gold Shelby alloys, sagging headliner and 182K miles) especially to go see the exhibit on the Vikings. It was an excellent exhibit, and among the many fascinating things I learned is that, to quote the exhibit, "The image of Vikings wearing horned helmets is a myth; their helmets never had horns." They have only ever found one real Viking helmet, and it did not show any evidence at all of horns or wings. You can see the helmet for yourself at the exhibit, or here is a web link for any doubters about this —

<http://www.amnh.org/exhibitions/vikings/fact.html>

They think these horns and/or wings are the imaginings of Victorian era artists, from what I read. The outfit of a Wagnerian opera star in the role of Brunhilda (the Valkyrie) was on display at the museum, as well as a Minnesota Vikings football helmet, various other humorous headgear, and all

different modern renditions of Viking helmets. I highly recommend the exhibit to those who haven't already seen it, but I'm afraid I can never look at a Viking helmet with horns or wings on it again without thinking about this.

As NINES says, though, you can still "Grab life by the horns and help spread the joy." We can all just honk our cars' horns every now and then, and think of that bit of Norse spirit and heritage built into the Swedish steel we drive. Happy SAABin'.

*Ken Hudnut
La Canada, CA*

The BFH was acquired from an Ebay Auction by a syndicate comprised mostly of subscribers to the Internet mailing list "Turbo!" and headed by Phil Lacefield, Jr. It has become the mascot of the New Saab Club of North America and is available for local Club events. Horns and all. Phil makes the travel arrangements for the BFH. -Ed.

My Saab Saved Me

All I can say is thank God I was driving a Saab. Last night, I was turning the corner from a major street, Walnut Hill in Dallas, onto Strait Lane, and as soon as I turned I saw a truck speeding towards me in my lane (he was driving on the wrong side of the road). Before I knew it, I was scrambling to get out of the smoky car. The force of the accident pushed my car back into the intersection but facing the opposite way.

The front of the car was crumpled and mangled, like you see in test photos. The windshield cracked, but there was abso-



Crumpled and mangled from a classical offset frontal collision.

lutely NO intrusion into the passenger compartment. In fact, the CD player was still playing after the accident. The cupholders in the back armrest came out, which I thought was interesting. I was so shaky but fortunately some witnesses were there and they took my phone to call 911. The man in the truck was passed out. Thankfully I have witnesses; they said they knew he was going to hit me. Thank God I was driving a Saab!

The police said he was going 50-60mph, as did the witnesses. I must have been going around 5-10mph or less as I was taking the turn. The stick was in 1st gear when I got out, but I was probably in 2nd at the moment of impact. My only injuries are some scratches to the face from the airbag deploying and hitting my glasses. I'm glad that Saab still makes tanks.

Timothy Fuller
Dallas, Texas



Stress cracks in the glass result from the body distributing the impact forces.



The pickup truck pretty much rode over the front bumper.

Saab's multi-path crash force dissipation design seems to have worked to Mr. Fuller's benefit in this case. The front bumper of the pickup truck that hit the Saab seems to have hit above the Saab's bumper, leaving the upper part of the car's front structure to take the hit. The windshield cracks appear to be caused by the stress carried in the glass, not from the occupant.

-Ed.



The upper front structure absorbed the impact forces.

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"Hey Dad, what's up?" My father didn't call me at work very often. I was living and working in Davenport Iowa, while my parents were living in Scottsdale Arizona. He said, "I want you to find me a car." I asked him what kind of car and why he could not find the car in Arizona. "A Saab convertible," he said. I told him Saab does not make a convertible. "They do now. I just saw a picture in a magazine while I was on an airplane," he said. I asked him if he had driven one and why he was interested in a Saab convertible. My dad said, "No, I haven't driven one. Saab just introduced the convertible and each dealer in the U.S. received only one car. The dealers here in Arizona sold their cars for \$5,000 over

sticker. There are none available even for a test drive. I just like the looks of the car and you know how much I like convertibles. Can you check with the dealers around you?" I told him I would check around, but if the car was introduced six months before, and each dealer only received one, I doubted if I'd find one.

A few weeks later I got around to calling the local Saab dealer. The dealer explained his was long gone but he thought the dealer in Cedar Falls Iowa still had the convertible. I called Randy Friedley Saab in Cedar Falls (next to Waterloo Iowa); Randy told me he still had a convertible. He had sold it to a gentleman in California who was going to fly to Iowa and drive it back to the West Coast. Just before completing the deal the gentleman called and said he found one out West. I asked Randy how much he wanted; he said he would be happy with the sticker price of \$25,000. I called my Dad right away and he told me to buy it. "What do you mean, you've not even seen it?" I said. "I don't have to see it, just buy it!" he said. I called Randy and said my father would call to arrange sending a check. A week later I joined a colleague on a business trip to Cedar Falls and picked up a beautiful Saab convertible. As many of you know, the original convertible was silver with a black top and a charcoal leather interior. Ours has a smooth 5 speed standard transmission. It was a couple of weeks before Christmas, so I enjoyed driving the car for a few days before my parents arrived for the holidays. The car was waiting for them in the garage adorned with a large red



Gustavo Lage taking delivery of his new 900 convertible in Davenport, Iowa, Christmas, 1986.

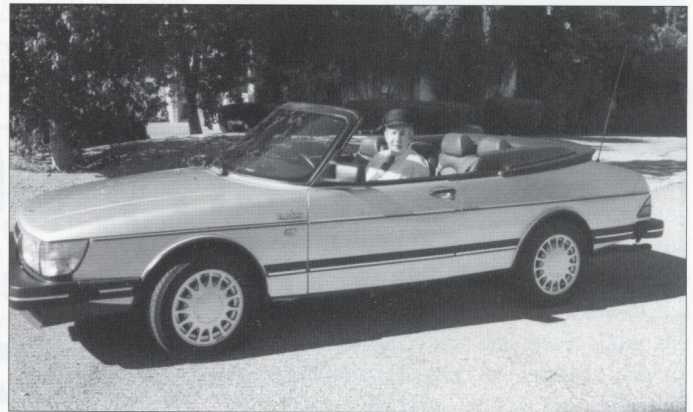
ribbon. It was a wonderful visit and I was sad to see both my parents and the Saab leave for the three-day drive to Arizona.

My dad drove his beloved Saab every day for the next 14 years. It was covered by a roof at his work and garaged at home. He parked it in whatever shade he could find whenever possible. I enjoyed visiting my parents in Phoenix very much. Part of the enjoyment was driving the convertible on smooth roads and driving up into the mountains. It didn't matter if the weather was a little cool in the winter; we just put the windows up and cranked up the heater. You see for the last 11 years I've lived in Northeast Ohio, the second cloudiest location in the country. Phoenix enjoys over 300 sunny days a year, and the top was down most of the time. The car served my dad faithfully for close to 15 years, only needing a clutch, brakes, tires, exhaust, battery and fluids. It never left my dad stranded.

During the past few years my dad would ask me, "Why don't you take this car back with you to Ohio?" My standard response was "We have pot holes as large as this car in Ohio, it's the perfect car for Phoenix. I enjoy driving it every time I visit. Besides I have two children, we really

need a four door vehicle." Finally during a visit to Phoenix in early 2000, Dad said he was definitely going to look for a newer car. Little did I know he was eyeing the new 9³ and its automatic boot cover. The phone rang in mid summer. When dad told me he had just purchased a dark blue 1999 9³ convertible, I said "That's great! Maybe I should come down next April for spring vacation and drive the 1986 back to Ohio." He quickly responded "Never mind, it's on a truck and will be there in a few days. I want you to enjoy the car this summer!"

In early August the car arrived in Northeast Ohio just in time to cure the mid life crisis from which my wife and I were suffering. I quickly lost ownership of the keys as my wife said, "Why should you drive it the three miles to work and leave it out in the parking lot. I'll drive it during the week and keep it in the garage." While I was waiting in line to title



The convertible and its owner: home in Arizona.

the Saab, I fooled around with names in case I wanted a vanity plate. Just to keep perspective on whose car it really was, I brought home license plates that read GRANPAS. Dad arrived in September for a visit and was very moved when I surprised him with a newly detailed car that was now appropriately named GRANPAS. The car is in great condition and looks only a few years old. It's never been wrecked or seen salt. There are a few minor scratches, but the original top and leather are in good condition.

I wanted to have the car checked over so I visited Dave Towell Saab in Akron, Ohio to interview the Saab mechanic. It was

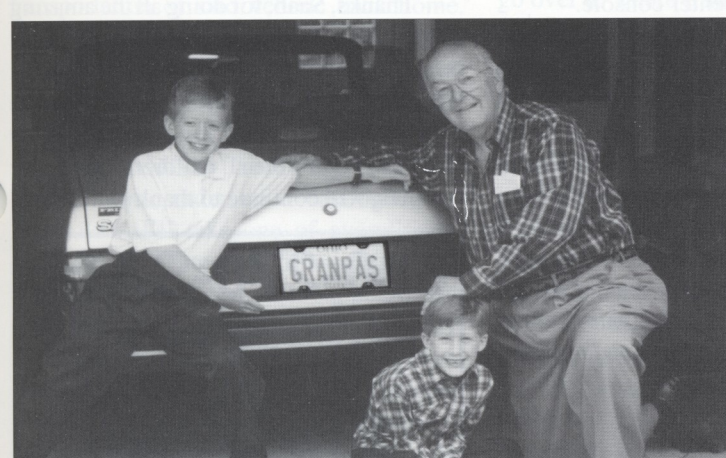
there that I met Jay Davis and J.J., his son. Jay explained that he has worked on Saabs for 25 years and remembers the first convertible. Between J.J., the Saab service manager, and himself they own about 10 Saabs. Since both Jay and J.J. live here in Canton, they offered to pick up the car at my house and take it to the dealership in Akron to check it over. Jay and I were talking in the driveway when they returned the car and I mentioned a friend who was now looking for his own 900 convertible. I joked about starting a Northeast Ohio club. That's when Jay told me that Steve Goldberger lived just around the corner and he was editor of NINES Magazine. "What's



Annette Lage in the 9³ convertible, behind the 1986 900. Shortly after this picture was taken, the '86 was on a truck to North Canton, Ohio.

appreciate Saab Automobile for building such safe, dependable and fun vehicles. Steve thanks for encouraging me to share my Saab story. Most important of all, I dedicate this story to my father, Dr. Gustavo Lage, and the love he has shown me. GRANPAS '86 will continue to generate great memories for decades to come.

*Chuck Lage
North Canton, OH*



Gustavo Lage with his grandsons, Richard (left) and David.

NINES?" I asked. Jay showed me the latest copy. Sure enough, the Goldbergers live about two blocks away and often walk past our house with their dogs and parrots.

When I got around to walking the check over for my subscription to NINES, I told Steve the story of GRANPAS. Steve shared the story of how Mr. Sinclair had influenced Saab into trying a convertible for the North American market. Steve invited me to the 2001 Saab Owners Convention and tribute to fifteen years of Saab convertibles. It sure sounded fun, but Vero Beach Florida is about 1,000 miles from Canton and the date was sandwiched between a business trip and our summer vacation. I sure hope to make the gathering this August in Cincinnati. By the way, our

friends, Dave and Jennifer Hubbell, are now the proud owners of a Monte Carlo yellow 1991 convertible. We take every opportunity to find the longest and most enjoyable routes to new restaurants or ice cream stands. The license plates on our friend's 1991 sure sums up our feelings about these unique cars, the plates read "9XDADFUN".

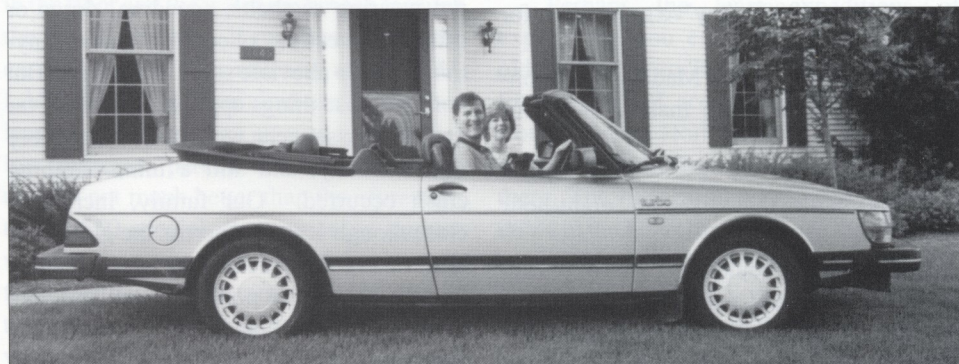
Dad's 1999 is now for sale. His health is fading quickly and he is no longer able to drive. He was able to make one last trip to Canton Ohio this past September. For those cooler evening rides, I gave him a black jacket

monogrammed on the breast with GRANPAS '86. My dad truly loved his Saabs. I'd like to thank Bob Sinclair for his vision and tenacity to initiate the Saab convertible. We all

Per-Börje Elg of Saab Automobile and Dave Schurk of Saab Cars gave me this info regarding the 1986 Convertibles: There were 379 1986 900 Convertibles made, and 362 were imported to the USA market. 188 were Turbo Manuals and 174 - Turbo Automatics. Saab Cars launched the Convertible together with the 9000 at Opreland Hotel in Nashville during the early Fall of 1985. In some cases, dealers "sold" cars early, but the car didn't officially go on sale until May of 1986. Production started in February with 5 cars, March was 14, April, 57; May, 137, June, 116; and July, 44. In August, production changed to the 1987 models, which by that time were completely sold out. In all, over 47,000 Classic 900 Convertibles were produced.

Larry West

Gustavo Lage passed away just before this issue went to press. Norma and I would like to express our condolences to his family and friends. The family has decided to keep Gustavo's 9³ Convertible. -Ed.



Chuck and Maggie Lage are now the second generation owners of this "first year" Saab 900 convertible.

Ramblings and Demands

by Phil Lacefield Jr.

Crazy Days and Sleepless Nights

It never fails: nothing around here is ever easy. Even the simple act of sitting down to a relaxing hour of History Channel programming involves more completion steps than one of Rube Goldberg's finest creations. There's a pugnacious two-year-old to keep out of trouble, a wife being treated for papillary thyroid cancer, four Saabs to care for and feed, a national Saab Club to breathe life back into and the SOC02 to plan and coordinate, not to mention the perils of maintaining two Day Jobs that allow me the unique luxury of working from home. Every day. Of every week.

That is, of course, when I'm not gallivanting around the country racking up Sky Miles visiting my clients or the home offices in Dallas, where I may as well keep a permanent mailing address for as much time as my exhausted soul spends in a cheesy rental commuting back and forth between my two employers' offices on the terror that is Texas Route 360.

Don't get me wrong, I'm not complaining – I love this pace and live for the excitement, so much so that it frightens our friends and neighbors who are shocked and disturbed to actually see me in town on the rare occasion when I am. Most of them are so used to seeing the 9000 or the convertible missing from the driveway that when both are corralled therein they usually think I've just bought another toy. What's really fun is to entertain my clients, most of whom are east of the Mississippi (and therefore within easy driving distance in my eyes) by driving up in the same 9000 they've seen me in for years.

"You just drove to Madison, Wisconsin, from Cincinnati, to make a two-hour sales call?"

"Yep."

"Err, isn't that like an eight-hour drive?"

"Yep, and I could have easily flown, but the airlines lack a six-disk CD changer and the ability to pull into a McDonalds for a Diet Coke refill whenever I like. I'll be making the seven-hour trek to Detroit tomorrow morning at about 4AM, too."

A conversation such as this, not uncommon for me to hear on any given day, usually elicits howls of protest and cries of disbelief from those for whom flying has become the easiest and most painless way to get from Point A to Customer B. And for REALLY long trips – say, to Singapore – I'd have to agree with them wholeheartedly. I'm not afraid to fly, nor do I mind doing such when the need arises. I just so much prefer driving myself where I need to go that I'd rather take a whole lot longer. I'd rather rack up more tarmac miles than Sky Miles, and not put myself and my rather beefy 6-foot-2 frame through the agony of even a short flight strapped to airline seats surely designed by Torquemada himself. I know, I'm weird, but sometimes it takes getting away from the countless loops of Veggie Tales tapes and my wife's beautiful presence to really relax.

Ahh, bliss. Right up until the cell phone starts ringing on the center console.

Tragedy struck close to home and brought a whole lot of things into perspective recently. My cousin, with whom I am very close, lost her two oldest children in a horrific one-car accident in Northern Virginia in January: an accident that to this day defies explanation. The kids were riding in a late-model Mustang hardtop driven by a level-headed 17-year-old (whose younger sister was also riding in back) down a dry, relatively straight road. Somehow the driver lost control, hit an embankment and flipped the car solidly on its roof. All but the driver were crushed to death instantly, and she didn't come out of it in very good shape herself.

What makes this accident even more tragic, if such a definition is even possible, was the utter senselessness of the whole thing. One looks for something to blame: not wearing seatbelts, speeding, drugs or drinking, weather, oncoming traffic, anything to help alleviate some of the pain. But none of those things apply here. The driver and her passengers were following every rule correctly, and still a mind-numbing crash occurred. Our family, incredibly close though scattered across the globe, has been taking these deaths very hard indeed. There's no way to point a finger and vent some wrath, nothing to help justify the whole mess and alleviate the agony.

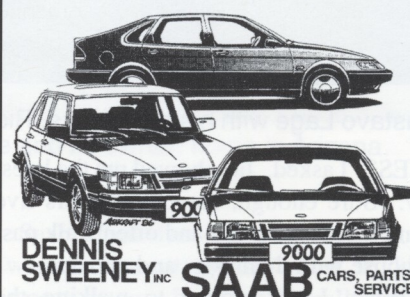
While standing at the burial services in Arlington (my cousin's husband is Air

Force and works in the White House), and in full view of the demolished section of the Pentagon, I once again thanked my lucky stars that I became so enamored of a peculiar little Swedish brand of cars whose safety record is unmatched in the world. That brand regularly pounds the stuffing out of every model they make and isn't satisfied until every living thing inside, including the dog in the back seat, is protected to the absolute best possible degree. That company flings their cars at replicas of gargantuan horned mammals in an attempt to protect the precious cargo and crew from any and all possible harm, even though the vast majority of the cars will never even pass by a moose, let alone attempt to T-bone one. I will miss my cousins terribly, but I will continue to thank the karma that pointed me towards Saab so many years ago. I will drive a little safer and strap my daughter in a little tighter in their memory.

Thanks, Saab, for doing all the amazing things you've done in the name of safety through the years and continuing to do what you do best – making 'em tough so we have a harder time breaking 'em on our end. Our children, and their children, and our families, will continue to thank you as well.

800-270-SAAB

Parts and Service

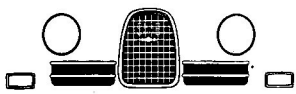


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Expeditious Expeditions

While you are admiring that vintage SAAB in your garage or thinking about picking one up for summer fun, I thought I'd run over some key advice for the novice old SAAB purchaser or novice vintage automobile enthusiast in general. Despite the number of times I'm asked these questions, it doesn't take much for even the vintage novice to see that there are 'right' and 'wrong' ways to go about finding that project or ready to roll summer cruiser, not to mention places in the U.S. from which to acquire an older automobile. The terms "California car" and "never driven in winter" are two of the holiest of holies when it comes to taking the plunge, but the price is often commensurate. Added to that, unless you have the fortune of living somewhere out on the Pacific Coast or in the Southeast, to name a couple of examples, is transportation of said vehicle back home. Even so, it is often worth it to pay more in the beginning than double or triple later on down the road (or perhaps, still off the road!)

With an MG or Triumph, you can call Moss Motors, order up a catalogue, say "Yes, well, I'll take one of everything!" Then, in a matter of disassembly and reassembly, and a third job to support it, you have, for example, a dealer-fresh '72 MGB-GT. You cannot do this with one of those vaunted two-digit SAABs. As someone reputed to be in the know about such things (ahem), I am often plagued with the inability to produce suitable items per requests made by well-meaning restorers of VOS, or Very Old SAABs. We'll use VOS to refer not only to the bullnose variety of 2-stroke cars, but also to later 96s and up to the last 99 sold in the US. The term "vintage SAAB" is one I use myself to refer to the elusive VOS, but in these later days with GM On-Star appearing in the latest models, the owner of a 1982 900T may think he has a "vintage" SAAB. I don't want to promote any more confusion than already exists on this topic.

The number one rule when buying your first VOS is money. If you don't have enough to buy something that isn't abandoned out in your friend's brother's doctor's backyard, put a jar on your desk and make sacrifices until you do. It is very well meaning to try and "save" a VOS, but

in reality, it is a very long and time consuming work of dedication not for the inexperienced or the faint-of-heart. I read far too many classified ads ranging from Cadillacs to Mercedes to German Ford Taunus station wagons (yes, there's one or two in the US) reading "I intended to restore but have lost interest and have no time". Say it again. Feel the tension as you utter that phrase. I "lost interest." Damning, isn't it! The backyard abandoned \$50 "project car" may be worth that for parts, but in all reality, unless you are being realistic about the challenge of full VOS restoration, and you can handle not driving this car for a long duration of work, AND are prepared to spend your hard earned pay for some time to come towards this labor of love, you will be well on your way to writing the above mentioned ad.

The number two rule when buying a VO-anything: don't get passionate during the process of making the purchase. Do not go over to where it sits on three wheels and a cinder block every afternoon and drool. It doesn't deserve that attention. Some old codger burnt a valve in that 96 V4 ten, no, maybe fifteen years ago, and it wasn't worth it to him to pull the heads and do a proper valve job. Maybe it was worth it in 1987. It's probably in the state that two parts cars are next to my shop which had similar problems when they faced the axe, too. Be realistic about what it is you are getting. See rule number one.

The number three rule, back specifically on the VOS but appropriate to most any older car: buy the nicest one you can find for a REASONABLE price. I'm not telling you to keep working the seller until he or she files a restraining order against you, or insist that you bought your last one for \$250 from some poor old guy at the assisted living home, and despite the holes in the floor and the water gushing in through the windshield seal, it runs better than the car at hand. A low mileage and REGULARLY DRIVEN "original car" is worth at least twice as much as anyone is asking. A low mileage "parked since 1974" car is usually not much better than the aforementioned \$50 special, as it probably burnt a valve early on and was deemed not worth fixing, either. Proper vintage Saab restoration, in parts alone, can run over \$5,000 if you do all your own machine, paint and body work. Assuming that very few in this audience have the appropriate machinery to

grind cranks and bore blocks, not to mention do show-quality painting and metalwork, let's double that figure. Now, factor in all the parts that neither I nor my esteemed colleagues may ever be able to provide you with, such as certain weatherstripping items, emblems, etc., and you have to make do with what you have or have something custom fabricated. And then, the most overlooked aspect often glossed over by the novice due to lack of experience in doing the work, safety is a big concern. You cannot drive something which has failing or non-operational brakes, severely worn front suspensions, etc. Your life is worth more than any VOS, Duesenberg, or any mode of transport.

Consider the example of a friend of a friend who just purchased a Cessna 152 in order to acquire his pilot's license. The 4 banger Continental engine in the 152 has an overhaul duration of 2000 hours. The 152 he purchased had 3700 airframe hours, and 1700 engine hours. Because the engine was nearing its safety zone, the cost of an engine replacement, a \$6,000 tab, was factored into the price. He paid about what it would cost to pick up a much higher airframe hours plane with a rebuilt engine. This is easily translated into a positive VOS buying experience. V4 and 2-stroke engine parts, for example, are relatively cheap and readily available. If the car has "low hours" and the motor/clutch/trans are shot but the body/paint/interior/weatherstripping are indicative of a garage queen with no frame rot, it is not unreasonable to pay \$3,000-\$5,000 for such a car, and put a \$2,000 engine in it. There are few of these around and the sellers are usually negotiable on price, especially if the engine has just failed and they are not 'in the know' about repair costs and parts availability.

Perhaps the least expeditious of expeditions you can make to acquire an older VOS is to bring in something odd from Europe. I acquired a '74 99 Combi Coupe from Holland last summer, as written in those issues on your shelf over there. The novelty of having, say, a 1976 96V4 in the US is fun. Because the NHTSA ban on imports of such items does not apply to cars older than 25 years, the range of available cars for sale in Europe and beyond is expanding. Transport from certain countries is more affordable than from others. If this is something that interests

you, I can tell you what I and a few clients of mine have done in the past year.

Finally, if you have hit rock bottom with your project car but are determined to make it work despite the fact that Jack (Aschcraft), Bud (Clark), or I just can't get you those fine new old stock seat covers, try finding a local source! Let's spend a little time on automotive upholstery. The convertible top/car seat/headliner business is a booming industry, and with the available fabric there are innumerable ways to have a set of 96 seats look better than new, and for less than you might think. Open up the yellow pages, yes, right now, and have a look under 'AUTOMOTIVE - SEAT COVERS AND UPHOLSTERY'. Find someone you trust, examine their sample books, and if needed, get a little creative. There is room for 'artistic license' on some of these projects. If it is a driver and not a concours show car, you may want the extra comfort of velour over vinyl-tex or a smart combination of both.

The art of vintage automobile ownership is multi-faceted, and working on them should not be a chore. It is part of the bargain in keeping them safe, alive and visible, no matter what they are. As always, I remain available for help, advice, and parts on the shelf for these fun relics of automotive obscurity. No question you have is too stupid for me or hopefully for anyone else so qualified. Do not feel that you are belittling yourself asking questions about how-to. I may try to set you up with a factory service manual if you are asking questions which manuals routinely cover. They are cheaper than any hospital bill, not to mention so is a phone call to me. See the note I made about safety above. Despite the catches, they're all worth the fun of enjoying your vintage SAAB, whether it's in the garage, under construction or out on the road!

West of Sweden SAAB
Charles City, VA

I wish this article had been written and published (and believed) before Steve accepted a "free" Saab from the Internet. It is still sitting in a Saab mechanics's lot after 7 years, waiting for the mechanic to "become interested" again. - Managing Ed.

BRAKE-BY-WIRE

Yes, that's right. Electric brakes are coming and probably with a 42 volt system attached. How soon? Well, that's a good question! You can be sure that the brakes being developed won't be anything like the electric brakes you and I have had on some of our utility trailers. Before talking about e-brakes, we should look at the current development of brake systems, brake pads and brake rotors.

As the horsepower of cars and their weight have increased again in recent years, it has been necessary to develop new brake parts and systems to safely and quietly stop the cars. The by-word in the brake industry now is NHV (noise, harshness and vibration). Since all cars have the potential to have NHV problems, it is of great concern as new brake parts are developed. We will skip a discussion about ABS and go on to the rotors. Disc brake rotors on Saabs started out as non-vented, and eventually in the mid-80's the vented rotors were introduced (for better cooling which means improved control of NHV and shorter stopping distances). Currently, most cars use the vented rotors, but all vented rotors aren't the same. The Raybestos Co. ad that I have shown tries to alert technicians to the dangers of some after-market rotors. OEM manufacturers are now using non-traditional ventilation patterns to help combat NHV problems. There is more to rotors than just a steel disc. The pads aren't always the reason for NHV.

Brake pads on current cars can be categorized into three different groups:

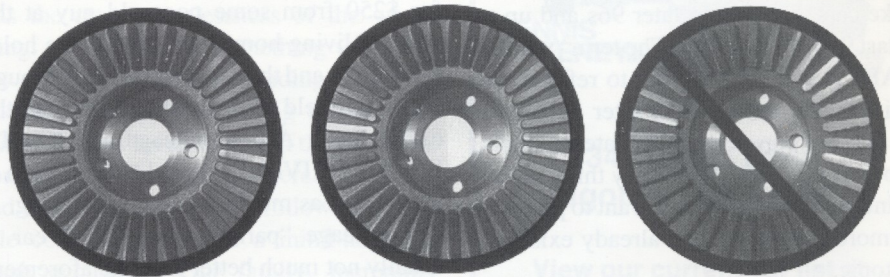
- 1) The non-asbestos organic (NAO)
- 2) Semi-metallic
- 3) Ceramic

Saabs could have NAO or semi-metallic pads either from the factory or as replacement units. I am not aware of any ceramic pads available for Saabs. When I checked with a dealer, they were also unaware of any soon-coming ceramic parts.

NAO brake pads provide less noise, excellent low-to-mid temperature effectiveness, and smooth brake operation. There is often a trade-off in durability in high-temperature operating environments, decreased rotor heat dissipation, and decreased pad life (lots of black brake dust).

Semi-Metallic brake pads provide excellent high-temperature performance, stopping power and pad life, but sometimes with a trade-off in noise and cold temperature effectiveness. Rotor life, some roughness and dusting are also sometimes noted. Semi-metallic formulations usually rely on aggressive metals to enhance their high-temperature braking effectiveness. This sacrifice sometimes contributes to NVH, control and braking effectiveness at lower operating temperatures. Semi-metallics usually have iron powders and steel fibers in their formulation.

Ceramic brake pads can be expected to have all the desirable performance characteristics of semi-metallic and NAO formulations plus performance improvements in the NHV with low dust levels. Ceramic pads achieve NHV control over a wider range of temperatures using a combination of softer non-ferrous metals (brass, aluminum and copper) combined with temperature resistant ceramic materials.



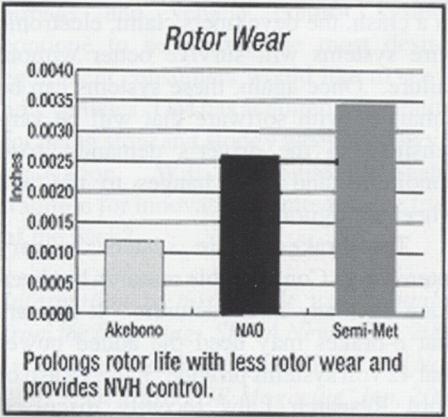
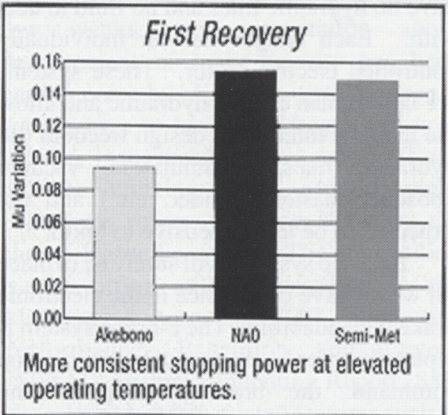
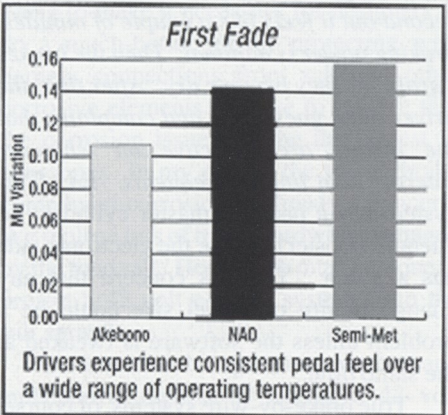
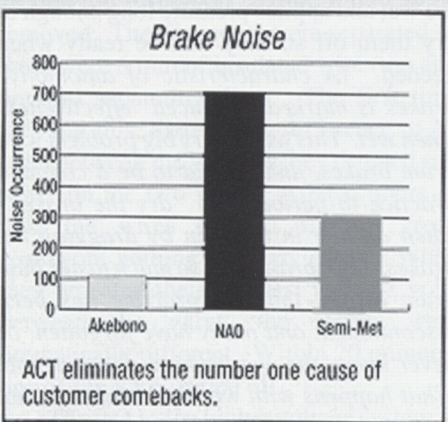
Original Equipment 37 Fins

Raybestos 37 Fins

Offshore 32 Fins

Today, original equipment manufacturers are using these types of non-traditional ventilating patterns to maximize cooling and to assist in reducing noise.

This Raybestos ad highlights the difference in construction of brake discs. Note the inefficient aerodynamic design of the flow channels, characteristic of all radial fin vented rotors. The narrow inlet openings and expanding flow channels limit the flow of cooling air.



The softer metals aid in braking at low temperatures and rotor cleaning without being aggressive to the rotor. Ceramic materials added to the soft metals enhance high temperature survivability and rotor compatibility because ceramics are naturally resistant to heat. Friction materials are sacrificial brake system components. Brake dust is a natural by-product of the energy that is converted to heat in the braking process. Ceramic's natural resistance to heat enhances pad life while reducing brake dust. About 30% of the cars in this country use ceramic pads (not Saab). Ceramic

pads are the most effective means now used to combat NHV on any cars. The three most popular cars sold in North America, Ford Taurus, Honda Accord and Toyota Camry use them. All GM pickups, Saturn, Cadillac, Lexus, Accura, Nissan, Mazda, Subaru, and Daimler Chrysler use them too. The European brands are strangely missing from this list.

I have included graphs from AKEBONO Corp. that has 500 engineers worldwide working on friction materials and ceramics in particular. They seem to be one of the front runners in brake-by-wire technology. They introduced ceramics in the U.S. market in the 1980's and are the OEM supplier for most of the ceramics currently being used. AKEBONO is building a new U.S. plant in Kentucky that will open in mid-2002, when they promise to have a larger offering of part numbers for the European cars. I've included a picture of a 9-5 wheel. You can see the center of the wheel is shiny but the rim is totally

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Ceramic brake pads, like these from Raybestos, contain ceramic fibers and other materials bound together.

black. Maybe you have experienced this. The brake dust shown occurred in 5,000 miles or less, the service interval on this customer's car. The OEM Saab brake pads make a mess on the wheels. If the proper ceramic pad were available there would be much less dust, and gray, not black, dust. The report I received from a Corvette owner about ceramic pads was very positive. Dusting was almost non-existent—no problem at all in his mind. Maybe by fall we'll see ceramic brake pads to fit Saabs.



The dusting shown on this 9⁵ front wheel is typical of the OEM semi-metallic pads used on European cars.

Akebono Corp., a manufacturer of automotive brake components, shows the properties of different pad formulations.

As seen in the Raybestos product ad, "ceramic" brake pads are not made from solid ceramic, but rather are conventionally

made using a binder and pieces or slivers of ceramic. -Ed.



Ceramic brake disc. Note the "backward curved" fins which are aerodynamically more efficient than the radial fins in the previous picture. The holes in the rotor face allow incoming air to compensate for the widening flow channel in the rotor, adding to the cooling capacity. Light weight ceramic discs must be aerodynamically efficient because they have a lower heat capacity than a heavy iron part.

Moving on to more advanced brake systems we find that composite brake rotors are now being used in limited numbers. Both Porsche and Mercedes have new brake systems available that use composite rather than iron rotors but at substantial extra cost.

The Porsche system called PCCB (Porsche Ceramic Composite Brakes) is a \$10,000 option on 911 turbos and is standard on the GTE. This system weighs about one-half that of standard brakes at each wheel. It weighs about 11 pounds and looks like the iron version they replaced. They are cross-drilled, vented, and are attached to a racing-style composite hub. Porsche is using special metallic pads with distinctive yellow calipers and claim a 100,000-mile life expectancy.

Mercedes has introduced its C System on several new cars. Since the system is only on the front wheels, it isn't as complicated as the PCCB. The C System is standard on some cars and costs \$5600 extra on others. Mercedes Benz claims a 186,000-mile life on these brakes and claims to have less squeal and vibration due to lower thermal expansion of the ceramic rotors. The rotors made by Mercedes are said to withstand temperatures up to 2550 degrees and reduce weight by over 13 pounds per wheel. This system uses 8 piston calipers made by Brembo.

Mercedes is also in the forefront with advanced braking software that controls each wheel separately. This can reduce spinouts when braking while turning, etc. This system goes far beyond regular ABS in that it will actually help steer and brake the car faster than the driver can react to sudden changes. This system will debut on the 2003 Mercedes SL500. It uses an electric hydraulic pump and a high-pressure accumulator so full brake pressure is always available when needed. Four fast acting valves may vary the braking force at each wheel. The quicker application of maximum hydraulic force minimizes reaction time and lowers stopping distances by 3%. This system senses when the brakes

are wet and applies pressure long enough to dry them off so they will be ready when needed. (A characteristic of automotive brakes is markedly reduced effectiveness when wet. This was a very big problem with drum brakes, and it used to be a common practice to periodically "dry the brakes" when driving in the rain by dragging the brakes. Disc brakes dry so much faster than drum brakes that the practice has been discontinued, and many have forgotten, or never knew, the wet braking phenomenon. What happens with wet disc brakes is that for a brief moment, probably less than a second but it feels like a couple of minutes, braking power is minimal. Then the brakes "grab" as they become dry. After that, the driver often goes home and complains that the brakes are defective on whatever Internet chat line he frequents. -Ed.) This system has a back-up master cylinder (no vacuum booster) in case the electronic side has a glitch. There is concern that any change in tire or wheel size could be a problem unless the software is tweaked at the same time.

True brake-by-wire systems, of course, have no hydraulic lines and no fluid to deal with. Each caliper has an individually controlled electric motor. These systems are lighter than electro-hydraulic and allow the manufacturer more design freedom (no hydraulic lines, accumulators, vacuum boosters, master cylinder, etc.) and are expected to be less expensive to build.

Back-up systems will surely be in place till we all have confidence in the electronic brake dependability. The e-brake system is reputedly safer because on the driver's stop command, the braking computer and calipers respond with the speed of electrons. In a crash, the developers claim, electronic wire systems will survive better without failure. Once again, these systems can be enhanced with software that will be very sensitive to the driver's demands, road conditions and any changes to tire and wheel configurations.

The brake-by-wire system is very interesting. Considerable research has been done by many manufacturers. It appears that e-brakes may need the added power that 42 volt systems provide. Paul Nicasti of Ford Research Labs recently discussed some of the corrosion issues at a conference in Dearborn, MI. Pairs of AWG 20 wires were laid side-by-side, and each had a



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section of insulation about 5 mm wide removed. The bare spots were separated so there were 6 mm of insulated wire (top and bottom) separating them. The first time they did this, there was a difference of 12 volts between the wires as they dripped salt water on the two wires. After 6 hours of this, the wires showed slightly green corrosion; nothing to worry about. When they repeated the same test with 42 volts between the wires, the results were dramatically different. Within 20 minutes, one of the wires rotted off.

The fact is, the higher voltage system is going to make it necessary for designers to do a much-better job of protecting wire harness connections from salt and other corrosive elements. I have to believe that the corrosion issue may be the largest to overcome. In my part of the world, brake component corrosion is already a concern. We replace lots of brake hardware damaged by the road salt. How much must be done to protect a 42 volt e-brake system from the salt spray?

A few months ago there were many enthusiastic reports of having a 42 volt system within a couple of years. In the past few weeks, any information about development of brake-by-wire has been hard to come by. I'm sure it will happen if we are ever to have a hydrogen powered vehicle. In the meantime, we can hope Saab will be thinking about ceramic pads, composite rotors, and maybe even the electro-hydraulic system. The competition is not sitting still. According to the J.D.Power & Associates 2001 Automotive Performance, Execution and Layout (APEAL) Feature Contenting Report (SM) just released, safety related features such as airbags and vehicle control systems continue to be among the most desired equipment consumers would like to see in new vehicles. GM has acquired a reputation for being slow and stodgy when it comes to innovation. Will GM build on Saab's tradition for innovation to move to the front of the pack?

Information in this article was compiled from the following: SEMA News, Nov, 2001 issue, Undercar Digest, June 2000 and Nov. 2001 issues, MOTOR Magazine, Jan. 2002 issue, Used Car DEALER, Dec. 2001 issue, numerous AKEBONO Corp. publications and press releases.



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

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



...to tell us that.



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Standing before the crowd of automotive journalists at the North American International Auto Show in Detroit, Saab's Executive Director of Design Michael Mauer said "Designers have the greatest job in the world... we're paid to dream." He then revealed the 9^{3X}, Saab's third-ever concept car, and for the first time in North America, the 9^X, Saab's second-ever concept car. Saab Automobile AB's President and CEO, Peter Augustsson, added, "The 9-3X is the springboard for the future direction of the 9-3 family of vehicles we'll be introducing over the next couple of years."

A rakish, graceful design, the 9^{3X} is said to bear a strong resemblance to the New 9³, due to be revealed later this year. According to Saab Automobile AB sources, the entire front of the 9^{3X} from the A-pillars forward is an almost exact match for the front end of the New 9³, although the 20-inch tires on the show car are not part of the production plan. While some elements of the interior are pure fantasy, the shape of the



Saab President, CEO, and Chairman Peter Augustsson (L) looks on while GM Vice Chairman of Product Development and Chairman of GM North America praises Saab's current and future products.

Photograph courtesy of General Motors

dash, seats and door panels are said to mirror almost perfectly their respective interior parts on the New 9³. Finally, the Coupe's tailgate and rear styling were said to match those of the New 9³ "5-door", scheduled for introduction after the sedan and the convertible versions.

Mounting a lightweight "Ecopower 2" 2.8-liter V6 turbo with Trionic engine management pushing a five-speed semi-automatic transmission and an ESP-controlled Haldex AWD system, the 9^{3X} is capable of 280 bhp at 5,500 rpm. The engine is specified in Saab's press releases as an aluminum block, 60 degree design with dual overhead cams, 4 valves per cylinder, and variable valve timing. This engine is definitely not a derivation of the V6 engine currently used in the 9⁵. The engine is designed to accommodate Saab Combustion Control: Saab's revolutionary technology that combines direct fuel injection with variable valve timing and a variable spark gap. A spark plug injector provides air-assisted fuel injection and turbulence for better combustion, as well

as a high-energy spark. Exhaust gases can comprise up to 70 percent of the combustion mixture, so power can be controlled while still using the ideal 15:1 air/fuel ratio necessary for current catalytic converters. A "twin scroll" turbine housing and exhaust flow management allow for minimal turbo lag while providing sufficient flow capacity for high output from the large displacement engine. The single turbocharger is mounted on the transmission, a method used with the Saab/Isuzu 3.0 TiD diesel available on 9⁵ models sold in Europe. Saab

Combustion Control was introduced to the public at the 2000 Paris Auto Show and covered in detail in NINES #248 (November/December, 2000).

When asked about the relevance of the concept car's engine to the New 9³ production vehicles, Saab Cars President Dan Chasins said that "there will be engines with other than 4 cylinders" available in the New 9³. He also said that the New 9³ is being designed to accommodate a full range of gasoline and diesel engines, precluding any need to redesign the chassis midway through the product's life cycle.

After a few minutes of prepared speeches, a surprise guest took the stage: GM Vice Chairman of Product Development, Chairman of GM North America, and driver of an '02 Aero SportWagon, Bob Lutz. He outlined the five elements that, in his opinion, characterize a successful automotive product: A great man-to-machine relationship, excellent driving dynamics, great performance, memorable design, and a wonderful, tactile feel and touch. "Today's Saab vehicles are right on in every category," he said, "and they are true to Saab's unique and powerful character. At GM, we are fiercely protective of that character." Immediately thereafter, the stage was opened for everyone in attendance to get a first-hand look at both cars inside and out, with members of the international motoring press giving both cars rave reviews.



9^{3X} on the Saab Pavilion at the 2002 North American International Auto Show in Detroit. A "traditionally styled" SUV can be seen at an adjacent stand, looking by comparison like something from a previous century.

Photograph by John A. Timmers

We had the pleasure of attending the Press Preview at the North American International Auto Show in Detroit. There we were able to interview Michael Mauer, Executive Director of Design at Saab Automobile, AB. The following is our interview.

How did you become an automobile designer? What was your educational background, and how did you arrive at automotive design as a career?

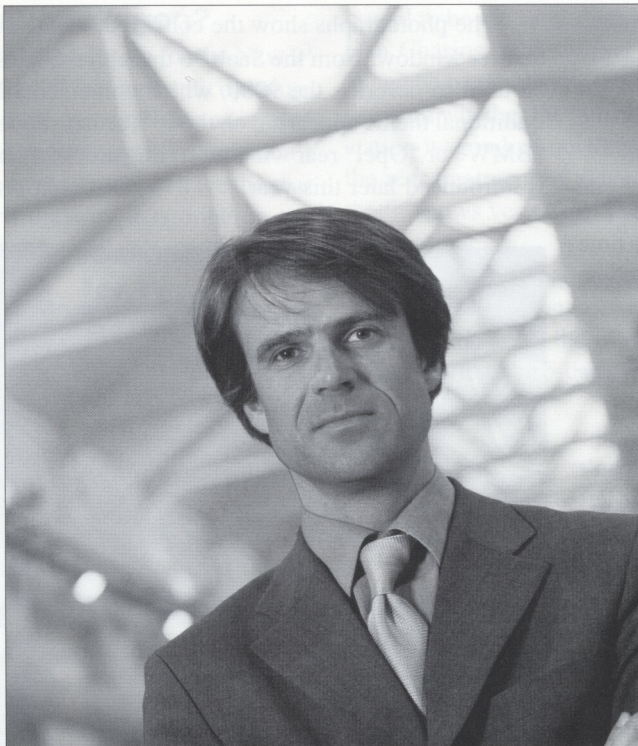
I credit my father, who saw my interest in cars and design, and encouraged me to enroll in the Transportation Design program at the Pforzheim University of Applied Sciences. At the time I entered, the program was brand new, founded with the support of Mercedes Benz. I was one of just two students in my class. I studied product and graphic design, and quickly decided I was interested primarily in cars. My colleague chose to specialize in small product design.

Tell us of your career at Mercedes. How did you come to begin your career there? What were the projects on which you worked?

Mercedes wanted to encourage German talent, which is why they supported the Transportation Design Program at Pforzheim. It was a very easy connection from my schooling to Mercedes Benz because many of my teachers were also Mercedes Benz designers. When I began with Mercedes, I was one of the first young designers to work there. I worked on the whole range of Mercedes products, from trucks and busses to sport cars. In 1998 I went to Tokyo as manager of Mercedes' Advanced Design Studio of Japan. Then I returned to Germany as head of design at MMC Smart, a Mercedes joint venture to produce a really tiny city car, a 2 seater.

What led you to leave Mercedes and join Saab?

First of all, I was offered a position in which I report directly to Peter Augustsson, President, CEO, and Chairman of the Board of Directors of Saab. When Peter asked me what it would take for me to come to Saab, that was one of my requirements. I wanted both



Michael Mauer, Executive Director of Design at Saab
photograph courtesy of Saab Automobile AB

freedom and responsibility. The point is not just to be involved in the journey, but also to be involved in setting the destination. The designer, as I see it, should not be thought of as just a supplier. Saab has been an engineering driven company, where the engineers define the product and then hand it to the designers to "wrap a package around it." The way the company is now, with the Advanced Design Studio and my position in the organization chart, the designers have more influence over the engineering. We can challenge the engineers to try a different approach when their solutions are forcing what we believe is a bad design.

Second, I find the Saab brand very interesting. Today many car companies are searching for heritage, a brand statement. This is something Saab, with its roots as an aircraft manufacturer, has always had. It's not one company any more, but the company's history and the cars they have always made have that clear heritage. We use that heritage in our designs, with the wrap around windshield in the 9^X and 9^{3X}, for example, and with our cockpit inspired instrument panels.

Third, I like living in Sweden. I didn't like living in Tokyo. I like the open space, I like the outdoors, nature, biking and skiing. I have a house by the sea; I am very happy living in Sweden.

What is the message from the concept cars Saab is showing today?

The 9^X is a vision of what the Saab brand can stand for. It is sporty and "multidynamic", combining performance and practicality. It shows where we can go with design to distinguish Saab. When I joined Saab, the 9³ was so far along, I couldn't influence it much. But we are at the beginning of the development of the successor to the 9⁵, and the 9^X design shows some of the ideas I would like to incorporate. Besides the wrap around windshield, there's the strong front to the car. There is the very short front overhang. Designers hate a long front overhang, but with front drive, that's the solution the engineers always want to give you. I would like to challenge them to find another solution, as we have done with the 9^X.

The 9^{3X} has a shorter time perspective; it represents what the Saab brand will stand for in the immediate future. All of the chassis components, the suspension, the drive train, are parts which are taken from the New 9³. The volume shape from the A pillars forward is almost exactly what the 9³ will look like. The rear end of the 9^{3X}, when you look at it, is clearly one of a high performance road car, with the wide track, not one of an off-road truck. The back view is what the 5-door version of the 9³ will look like.

Both cars show how Saab can enter the SUV segment, but with a product which emphasizes the sporty on road performance for which Saab is known. It will have ground clearance with big wheels, with sporty on-road tires.

What is your relationship with General Motors Corporate Design?

There is an exchange of opinions from time to time, but mostly we are on our own. To create a brand identity, you must avoid mixing. If there is too much mixing of people and ideas, then all the cars will be the same. This is not our goal, nor is it GM's goal.

In its first 50 years, Saab had just two chief designers, Sixten Sason, and Björn Envall. Now just 5 years after that, you are the fourth.

I don't promise that I will stay with Saab for 45 years to keep up the average, but it is my intention to stay for long while. One of the bad things of coming to Saab is missing out on the introduction of the Smart, the Mercedes SL and SLK. These were all my designs, and it does hurt a little to see them come out and I'm on the outside. When you spend so much time and energy to grow a design, you like to be part of the harvest.

What else would you like to share with our readers?

Designers have to be aware that we can't go too fast. Potential customers can't be left behind, so we have to go more slowly than we would sometimes like to. Still, Saab has a tradition for and a great potential for innovation. When we design, first there's the pre-phase segment, and then the model phase where we visualize the package as a base for discussion and influencing dramatically the engineering. Then we go to the development center, not just to our suppliers. This is an essential part of the understanding phase and the only way to have successful products.

The photographs show the consistent theme used by Saab for the "C" pillar and rear quarter window, from the Saab 96 through the latest 9^{3X} concept car. "Odd man out" can be used to describe the 9000, which coincidentally was styled by Italdesign. With the traditional theme appearing on the 9^{3X}, artists renderings in other publications predicting a "BMW" or "Opel" rear window styling are likely to be seen as incorrect when the New 9³ is introduced later this year.

Photographs courtesy of Saab Automobile AB



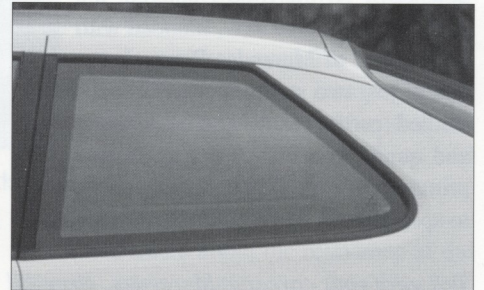
Saab 96



Saab 9000



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Saab Classic 900 sedan.



Saab 9⁵



Saab 9^{3X}

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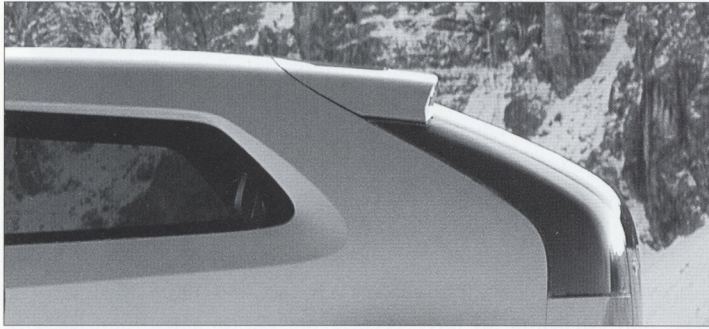
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Hatchback or Station Wagon?

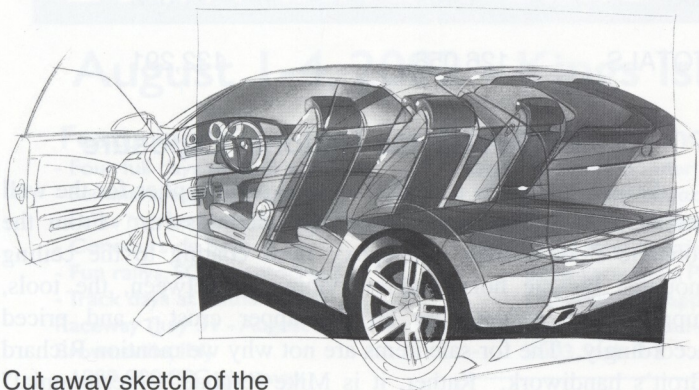
The 9^{3X} rear treatment gives a hint at the design for the New 9³ "5-door variant". Whether the actual 9³ will feature a split opening, like the concept car, or a traditional single piece tailgate as is used on the current hatchback and SportWagon Saabs, we certainly don't know. We also doubt that a production vehicle would have the rear bumper integrated into the rear hatch the way it is done on the concept vehicle, but who knows? What we will see, we believe, is



Steeply sloped with short rear overhang, the 9^{3X} blurs the distinction between hatchback and station wagon.

the steeply sloped rear window of the prototype, with a short overhang as compared to the 9⁵ SportWagon, or the current 9³. This would result in short but tall cargo hold. Total volume would be similar to what exists in the current 9³ but it would be contained in a slightly shorter floor plan. This has been a styling trend lately, with such vehicles as the Ford Focus, the Chrysler PT Cruiser, and the Mazda "Protogé 5" having designs that are too short and too sloped in the back to be considered wagons, but much more upright than traditional hatchbacks. Automakers tend to discourage either description. For maximum cargo space, the 9⁵ SportWagon will probably remain the Saab of choice.

Michael Mauer indicated in his interview that most of the new 9³ design was in place when he arrived at Saab. The 5-door design was probably less developed at that time than the sedan, given that its introduction has been planned to follow the sedan by some time and given that the front two-thirds of the sedan and 5-door are



Cut away sketch of the 9^{3X} shows the internal proportions of the passenger and cargo space. The long wheelbase, with the rear wheels set well behind the rear seat enables the designer to provide generous amount of cargo space while keeping a stylishly short rear overhang.

bound to be the same. That was the case with the 9⁵, according to Dan Chasins, who was product manager for the 9⁵ SportWagon. When he began that project, the 9⁵ sedan was well defined, but the decision whether the "9⁵ variant" would be a 5-door hatchback or a station wagon had not yet been made. We believe, therefore, that the rear treatment of the 9^{3X} is predominately Mauer's work, and that it shows very well what the designers have in mind for the 5-door variant.

Sources at Saab indicate that the New 9³ 5-door will be introduced after the convertible variant, which itself will occur some months after the introduction of the sedan. It is also a safe prediction that the 5-door will have an all wheel drive capability, at least as an option.

Why SUVs?

"In Bid to Win Affluent Consumers, Volvo, Saab Plan to Launch SUVs" is the headline of a Wall Street Journal (WSJ) story by Karen Lundegaard and Scott Miller, dated January 3, 2002. The story previews the introduction at the 2002 North American International Auto Show of Volvo's SUV, the XC90, slated to go on sale in the fall, and Saab's 9^{3X} concept vehicle. According to the WSJ, the 9^{3X} is designed to whet appetites for two SUVs, one small and one larger, that Saab plans to introduce by 2004.

Behind the move to produce vehicles which are outside their traditional product line, according to the article, is the desire on the part of both Ford (owner of Volvo Cars) and GM to tap a major demographic shift in the new-vehicle market in the U.S. The article attributes to Paul Ballew, GM's chief market analyst, that the richest 20% of Americans account for 46% of new-car purchases, compared with only 30% in 1995. That top 20% includes those with household incomes over \$75,000. Placing additional classes of products in their "premium European brands" is an obvious attempt to win more affluent consumers. Sales of their traditional U.S. luxury lines have lost ground for both Ford and GM, and Volvo and Saab now are working toward ambitious U.S. and global sales targets set for mid-decade.

The WSJ noted, however, that Saab and Volvo have largely missed that market shift, too. They point out that in 1990, Volvo was bigger in the U.S. than BMW AG, Toyota Motor Corp.'s Lexus brand, or Mercedes-Benz. Since then, BMW and Lexus have tripled their U.S. sales, and Mercedes has expanded about 2.5 times, and those three brands now each sell about 200,000 vehicles a year in the U.S. Meanwhile, Volvo's U.S. sales have grown just 37% during the period to about 123,000 vehicles in 2000. While Saab's 40,000 cars in 2000 is a better percentage gain over 1990's total of 26,000, they haven't matched their U.S. record of 47,000 vehicles set in 1986.

Undaunted, Volvo's goal is to increase global sales to 600,000 vehicles a year by 2005 or 2006, up from 422,000 now. In North America, the target is to move sales up to 200,000 vehicles annually, a nearly 50% increase from current levels. Hans-Olov Olsson, Volvo's president and chief, executive officer, was quoted saying, "Sales there (in the USA) are going to have to grow faster for us than in our other markets." Toward that end, Volvo's SUV, the XC90, was designed from the ground up with Americans in mind. The Journal quoted Volvo's chief designer Peter Horbury saying, "Americans like riding up high, like on a horse or a covered

wagon." Fortunately during NINES' interview with Michael Mauer, Saab's Executive Director, Design, there were no analogies made between driving Saabs and equestrian related modes of transportation.

To meet its goals, Saab plans to roll out five new or updated cars by the end of 2004. That number includes the two SUVs, the new 9³ sedan, and the convertible and 5-door versions of the 9³. It's counting on the new products to nearly double its U.S. sales to 70,000 vehicles by the end of 2004. Dan Chasins, President of Saab Cars USA, Inc., told NINES, "This business is very much product oriented." In addition, Saab has spent the past several years shoring up its dealer network, trimming less-profitable dealerships and encouraging dealers to open exclusively Saab showrooms. Those that do number about 40% of the brand's 210 U.S. dealers, up from about 25% four years ago.

The company is also increasing marketing expenditures 40% this year, according to the WSJ. A new ad push is planned for the redesigned 9-5, now in showrooms. Dealers complained that previous ads were too high-brow, and the new campaign will emphasize how much fun Saabs are to drive. The ad showing the Saab 9-5 wagon pulling a parasailor is an example of the new program. In addition, we anticipate a major ad blitz when the new 9³ is introduced in the fall.

Sales ended 2001 with a weak but typical December. Following the trend of the second half of 2001, December's 9⁵ sales were quite a bit stronger than those for the 9³, the latter winding down toward being replaced in late 2002 with an all new design. January saw some improvement in the 9³ results, but sales of the 9⁵ all but dropped off the chart. According to a Saab spokesperson, "We're just not going to see another month like that." The assertion was based on promotional budget being dramatically increased, with strong incentives on the current 9³ and product quality advertising of the 9⁵, leading up to the launch of the new 9³. According to sources in dealerships, the advertising and promotional activities were "building up showroom traffic" in February.

For 2001 as a whole, Saab Automobile AB showed a decline similar to that seen in the United States. The US continues to be Saab's largest single market, but the home market, Sweden with 9 million inhabitants, has by far the largest per capita sales of Saab with 2800 per million. Norway's per capita Saab sales are less than a quarter of Sweden's, but qualify it for second place. Holland, the UK, and Australia all have greater per capita sales than the US, which is followed by Spain, Germany, France, and Italy.

Sales

	DEC '01	JAN '02	period
coupe 93	7	1	8
viggen coupe	7	9	16
sedan 93	119	43	162
sedan 93 se	467	721	1188
viggen sedan	42	20	62
convertible 93	2	3	5
convertible 93 se	235	203	438
viggen convertible	39	30	69
campaign convertible	1	0	1
total 93	919	1030	1949
sedan 95	518	188	706
sedan 95se	339	123	462
Aero 95	272	74	346
wagon 95	374	75	449
Gary Fisher edition	1	0	1
wagon 95se	259	65	324
Aero Wagon	38	20	58
total 95	1801	545	2346
IDS	3	3	6
total (2001)	2720	1575	4295
last year (2000)	3753	2314	6067
percent increase	-27.52	-31.94	-29.21
total year to date	37557	1575	
previous year	39479	2314	

Saab AB 2001 Global Sales
(Top 10 markets and totals)

MARKET	Total 2001 Sales	2001 Sales per million population	Total 2000 Sales
United States	37,445	140	39,236
Sweden	24,785	2800	26,085
United Kingdom	15,521	260	16,374
Germany	8,001	100	7,153
Spain	4,401	110	4,295
Holland	4,302	270	5,244
France	4,057	70	3,589
Italy	3,150	50	3,053
Australia	2,889	150	2,620
Norway	2,763	610	2,772
IDS	1,469		1,822
TOTALS	126,058		132,291

Saab Owner Has National Exposure

Groit's Garage is a catalog of tools and supplies for the well heeled and discriminating automotive connoisseur. From the concrete floor cleaner and epoxy floor coating to the ceiling mounted bicycle hoist and everything in between, the tools, supplies and gadgets are all the upper crust - and priced accordingly. The for-sale items are not why we mention Richard Groit's handiwork. Rather, it is Mike Raphael's "testimonial" photograph of his 1974 Sonett on page 4 of issue number 128, complete with an inset of his 2001 Saab Owner's Convention Concours first place trophy plate. You can order a copy of the catalog at www.griotsgarage.com or by calling 800-345-5789, and perhaps they still have the issue that displays Mike's Sonett.

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2016 Pritchard St.
Panama City, FL 32405-1446
phone/fax 850-785-7372
SaabDude@bellsouth.net or
SaabDude@mail.saabnet.com
- Gateway City Saab Club**
Greg Cassidy
3256 Bainburry Ct
St. Louis, MO 63129
314-318-8508
- Great Lakes SAAB Club**
Jim Laman
617 Beechwood
Holland MI 49423
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- Green Mountain SAAB Club (Vermont)**
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612-636-3771
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e-mail info@nesaab.org
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- Northwest SAAB Owners (Washington, Oregon, British Columbia)**
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Hello friends, thanks for your patience while the SCNA gets itself organized. Due to a printing delay the membership cards that are due to those who have recently signed up or renewed will most likely be mailed toward the end of March. Newly redesigned SCNA window stickers will accompany the cards in these new member welcome letters, along with a list of membership benefits.

The SCNA website at www.saabclub.com is being updated and loaded with all sorts of neat new stuff. As time goes by, we will be adding member-only features to the site to go along with the information and promotional features that have been the traditional content. Visit, and watch how it grows.

The Saab Owners' Convention 2002 website, www.saabconvention.org, has been up and running since mid-February, featuring information about the convention along with both on-line registration and a downloadable printable mail-in form for those who prefer to register the traditional way. Direct mail flyers with mail-in forms will be sent to the SOC mailing list, which includes attendees of past conventions and NINES subscribers, among others. Our Convention Poster, an enlarged version of the Convention Announcement on page 21, has been printed and should be displayed prominently at your local Saab dealer and at many independent Saab parts and service suppliers. If you know someone who owns a Saab, mention the convention to him. There will be a limit on the total attendance, so if you do wish to attend, be sure to register early.

Please be sure to direct Saab Club membership questions to me. Steve has his hands full with NINES, and besides, he doesn't know the answers to Club related questions. You can contact me by mail, email, phone or fax at:

The Saab Club of North America, Inc.
 PO Box 683
 Middletown, OH 45044
 phone/fax 513-423-9925
 email info@saabclub.com
 web site: www.saabclub.com

Phil Lacefield Jr., Executive Director

CENTRAL PENN SAAB CLUB PRESENTS

SAABSAABSAAB
at Carlisle
 MAY 17th-19th 2002
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CARLISLE Import Kit/Replicar Nationals
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If you plan on attending, Please make sure you e-mail CPSC at admin@CentralPennSaab.com
 Saabs at Carlisle T-Shirts will be available at a discount when you register in advance!

The organization for SAABs at Carlisle 2002 is under way. We have begun receiving inquiries from many SAABers who are interested in attending this year's event. New this year will be an e-mail communication, much like SAABtoberfest in year's past, where we will disseminate information and respond to questions concerning the event and related topics, over the short few months remaining before May 17-19. As we receive notification of interest in attending, we will add your name, along with the most likely car (or cars) you'll be bringing to the event. We want to both increase interest in the event, and better inform those who are planning to attend.

As in years past, the goal is for everyone to have FUN. We will again have a hospitality tent, a lunch provided on Saturday, May 18th as well as door-prizes, a silent auction and a few surprises too! On Saturday, we will also have an awards presentation for Long Distance and People's Choice, and a driving tour beginning in the afternoon, with a stop along the way and a dinner stop at the end. For those enthusiastic attendees, we will most-likely return to the fairgrounds after dinner to share some SAAB stories and enjoy an adult beverage as we did last year.

We had such an out-pouring of support in 2001, that we needed to use the Volvo area of the show field. I would like to have

that problem again this year. Let's show our friends at Carlisle Productions and Volvo that Saab owners are serious about Carlisle by making a good showing all around. Please pass along this communication to any SAAB owners you know and let's create a groundswell of activity and support for this event. Join the Central Penn SAAB Club, along with our friends from The New England SAAB Association, WASSAAB and the New Jersey SAAB Owners Association, in making this year's event bigger and better than last year.

Preregistration

for one "show car" and two adults, three day admission is only \$10. This fee will be offered until April 26th. After that date, and at the gate, the show car registration will be \$20. You can download a registration form and a map from the "events" page in the SCNA web site at www.saabclub.com. In addition, we will mail registration forms to those on our list expressing interest.

*Marc A. Fails, President
 Central Penn SAAB Club
president@centralpennsaab.com*

Mississippi River Tour

You are cordially invited to participate in the first annual Mississippi River Saab Tour. The event, to be held Saturday, April 27, 2002 will be a casual drive with other Saab enthusiasts on scenic back country roads along the Mississippi River, crossing Wisconsin, Minnesota, Iowa and Illinois. The tour will start in LaCrosse, WI and end in Dubuque, Iowa, with prizes to be awarded. To participate, please send an e-mail to MRTour@mail.saabnet.com and you will updated with more details as the tour nears.

*Paul Ellis
 Minnesota Saab Club*

I have a question for NINES about the Saab 900 cooling system. The gauge is very busy. It never gets to the red zone, but it gets close, especially on long uphill grades. On level, freeway driving it stays around the middle, and then on long downhill grades it runs a little below center. Is this normal? From what I hear, it is, but by 1993, you would think the cooling issue with this car would be solved.

*Ted Shapleigh
Sun City, CA*

The cooling system is the MOST important issue of the classic 900 non turbo 91 and above. In everyday driving, the difference between the normal position and the highest temp reading determines the amount of thermal shock. The more stable the temp gauge reading is between stop and go driving and highway driving, the better off the motor is as well as the parts that are bolted to it. Models such as yours are equipped with a 2.1 liter motor. One weakness is near the #1 cylinder at the coolant passage at the exhaust side of the head. The distance between the sealing ring for the cylinder on the head gasket and the coolant passage must be narrower to accommodate the increase in cylinder bore diameter, as compared to the 2.0 liter motor. The cooling problem is compounded by the second fan not being controlled by the thermal fan switch, but rather by the A/C switch. Soldering one wire with a connector to a different wire and some minor rewiring at the fuse box will result in both fans working together. You also need to change a relay. The details are in Saab Service Bulletin from 1992, which you can find on the net at http://216.78.172.244/cooling_system_folder/hightempsbpg1.htm.

The way I look at this, having two cooling fans is like an airplane having two motors instead of one. If the single motor quits, you better find a place to land real quick. Two motors, and you have some options. Even with two engines, if you have to fly over a mountain, one motor might not get you over the top. In the case of your Saab,

by the time you get to the top of the mountain, the engine and transmission had to work overtime to handle the load, compounded by the slower speed and airflow through the radiator because just one fan is working.

There are some other issues with the cooling system. The car was designed with a timer relay on the fan system that limits the amount of time that the fan will run after you shut the Saab off. This relay has the potential danger of sticking on and running the fans until your battery is drained. What's worse, if the relay fails "open", the fans won't run at all. On Classic 900s, I have been eliminating that relay for years. The way I feel about it is if the engine is hot enough to turn the fans on, let them run and cool the place down! You can read about the timer relay at: http://216.78.172.244/cooling_system_folder/radfandelrelbull.htm. On the 2.0L classic 900, the time relay is mounted on the inner fender above the ignition control unit. Cut the wires one at a time on the connector, tape and insulate the 2 little wires and stuff them into the protective sleeve for the wire harness. Solder the 2 larger yellow wires together and insulate them well. I "nylock" them to the harness to secure.

The Thermal Fan Sensor: The OEM Saab part would work well if it were mounted in the other end of the radiator where the hot water from the motor enters. Mounted where it is on the cold side, when it turns on the fan, the gauge points 7/8 toward the red on the gauge. I replace this sensor with one having a cooler setting. The one I use is from VW Rabbits from back in the mid 70's. This also applies to the 9000 models that used a 2 wire thermal fan sensor. On 9000s, that use a 3 wire sensor to control a two speed fan system, I use an Audi sensor from the same time period.

The Thermostat: When Saab launched the 900T, the spec for the thermostat was 82C and 89C for the non turbo. As the years rolled by, the 89C started showing up in everything.

During the course of Major Service, I always pluck them out and replace them with 82C units, turbo or non. I always remove the thermostat to flush the cooling system. I use a back flush; in other words, the flushing water is moving in the opposite direction of normal coolant flow. This way, any loose stuff gets flushed out in a more logical manner. Do the same for the radiator. The coolant normally flows out of the engine and into the top radiator hose into the radiator where its cooled and the cool coolant returns to the motor through the lower radiator hose.

Some years ago a Saab factory trained tech came to work with me. After the second week, he asked, "Where are all the head gasket jobs?" I told him I only do a couple a year. Usually it's someone buying a used Saab, and while checking it I note a leak. They call and schedule it in if they purchase the car. I have older Saabs with the old style original head gaskets still on the road. The head gaskets used now are redesigned: they are made from better material and fortified in key areas.

If your '93 900s has in the area of 80 -120,000 miles on it, you should plan on replacing the head gasket, clutch, and front crank pulley and front seals in the near future if you haven't already. The good news is all these parts have been upgraded except the clutch. For the clutch, you can "upgrade" by using a 1981 - 89 900T Genuine Saab Clutch kit, part# 8781346. The German (Sachs) Turbo clutch disc is almost twice the size of the "S" clutch, and the last time I checked it was \$20.00 cheaper as well! You won't notice any difference except your clutch will last for a long, long time. While having the clutch done make sure the flywheel gets resurfaced and a new rear seal installed. The rear seal is another part that has been changed for the better since its original introduction.

Please send your technical repair and maintenance questions to Dr. Nio in care of NINES, by email, "snail mail", or fax.

-Ed.

Rally of the Tests

About two years ago I joined the Saab Owners Club of Great Britain. My hope was to find some mention of an event that might be held to recall the RAC Rally series. The reason is simple: my SAAB 96 was the one driven by the team of Erik Carlsson and Stuart Turner to an overall win in the 1960 RAC. I imagined it would be fun to return the car to England to relive some of its history.

Unknown to me there were other folks with similar interests. Philip Young, head of the Classic Rally Association, was thinking that a retrospective event to honor the ten years of post-war RAC Rallies would be appropriate. As his plan came together he chose to limit the event to cars in production during the years 1951-1961 in the main classes and to add an "antique" category for the pre-war entries.

Surprisingly, my notice of this historic rally came not from the UK club's "SAAB Driver" publication but from Tim Winker. Back in February he e-mailed me with the request I contact Philip to see about entering my car in his Rally of the Tests, the name used by journalists in the 1950s to refer to the RAC Rally. Philip's reply answered both my questions: 1) were there any SAABs entered as yet? and 2) were there any former RAC winning cars entered? Both answers were no. Erik Carlsson had won the original RAC Rally three times in a row, and his wins were pivotal in Saab's later success in the UK market, so I decided to enter.

Finding a navigator was easy. Neighbor and former student Dave Machacek and



RAC Medallion was presented to Eric Johnson by Erik Carlsson.

I had driven the Dakota car, a two-stroke, in one rally. It was the first for both of us. We had also talked of how interesting it would be to return the car considered a dark horse in the 1960 event to challenge once again the much more powerful cars like Jaguar, Mercedes and Ford.

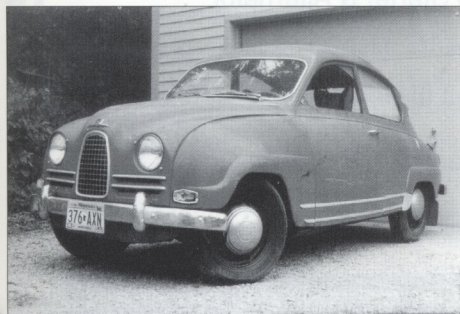
Although we agreed to split the costs I began immediately to look for sponsors. Checks to two levels of the Saab UK organization revealed they do not sponsor vintage cars. A call to Ken Ciocci at Spectro Oil turned up a case of the wonderfully smoke-free synthetic motorcycle racing oil. A subsequent call to Steve Janisse at Saab Cars USA resulted in their agreement to pay for the shipping to England. Other donations to the cause came in many forms.

The engine in the car, a standard 850cc, had only been driven 2000 miles before I bought it. Knowing it had been properly timed and well oiled with Spectro for its next 30,000 gave me confidence that all I would need would be one of Larry Williams' favorite fuel pumps and fresh ignition bits to have reliability for such a rally. Tom Donney had gone through the early cast-iron tranny just before we had convoyed to the 2000 Saab Owners Convention in Hudson Valley, so I was confident here as well. In rebuilding the car originally I had gone with later style CV joints for the outer drivers but retained the rubber donut system for the inners to preserve the appearance of originality. My

memories of Larry reaching beneath the front wheels in his 1950 model 92 massaging the grease back in the early style outer drivers were too vivid. Paul Perry, proprietor of the Swedish Auto Factory in Santa Clara, CA, sent upgraded Ferodo brake linings and I had the drums turned to match. All hydraulics had been new in 1996 with stainless braided hoses and silicone fluid. No cause for concern here either. Tires had to be the original bias ply according to the rules but I prevailed upon Philip Young to allow radials since the GT-750 had been equipped with them as standard. I stuck with the early style 155 Michelin X but put fresh tires on the front to maximize grip in the inevitably wet English December.

Now attention turned to the interior. I had been unable to source the proper materials for redoing the interior trim but now I renewed my efforts contacting leads in England, Norway and Sweden. It was a combination of Rolf Jensen in Sweden and Original Auto Interiors in Michigan that gave me what I needed for the trim. The woven nylon needed on the GT style seats remains elusive. Given that the rally would include a series of about 20 off-road tests I decided to upgrade to modern rally seats and four-point belts. As time was getting short I made a one day 900 mile trip to Kansas City to do final measuring and selection of the seats. Having a car with passenger compartment dimensions tapering to the rear and vertically makes modern seats with shoulder support quite difficult to fit.

Paralleling these efforts in car preparation I had been carrying on a lively e-mail conversation with David Fielden, two-



When Eric Johnson purchased the RAC winning 96, it looked tired and worn.



The car was restored to mint condition by Eric Johnson.

Saabs in Competition

stroke guru, and Colin Wallace, competition manager, from the Saab Owners Club of Great Britain. They had shown enthusiasm for my SAAB entry in the rally from the start and offered support in the form of spare parts, mechanical help and a tow vehicle in case of a crash or break down. It was reassuring to know we would have this support while driving a 41 year-old car to its limits at a distance of 5,000 miles from my home garage with all its spares.

Shipping was originally planned to happen from my front door- have a container delivered, have a crew pack it and then truck, train and container ship it to England. As we approached the deadline for shipping Steve Janisse e-mailed with a request- might he have the car in Atlanta for the press launch of the revised 9-5 in early October? I didn't even have to check the calendar to know this would be difficult but, driving to Press Launch and then to the docks seemed like something Larry Williams would do. I phoned Wallenius Lines, the company that took the car to Gothenburg in 1997 when Chuck Andrews and I drove the Nordkapp Tour to

Trollhattan, and was given a possible schedule. I could spend three days driving to Atlanta, 4 1/2 days in Atlanta, then drive to Baltimore in two days and just make the final date for the loading of the Atlantic Conveyor. An e-mail to Greg LeBaron got him looking at his calendar and soon thereafter he signed on as the co-driver to Baltimore via Atlanta.

Meanwhile things were happening in England. The club had set the arrival date for the car to correspond with the annual NEC Classic Car Show in Birmingham. The rally car would share the stand with five other Saab cars and provide the opportunity for something I had dreamed might happen: giving the original navigator, Stuart Turner, a chance to see the car.

At 9:30AM on October 5th Greg showed up right on time. I was packed and all was ready except for two things- the left front fender was still missing its chrome strip and I had yet to weld in the new rally seats. We left at noon taking blue highways and even smaller roads that did not appear on our maps. Single lane bridges, beautiful countryside, river valleys and remnants of fall color graced our route. Especially

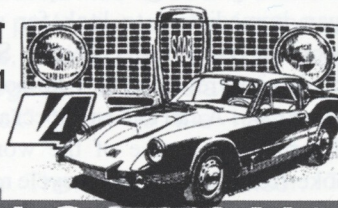
delightful were the Great River Road along the Mississippi, the area north of Paducah, KY and the area from Columbia to Chattanooga, TN. We had a quiet Sunday morning in Columbia exploring the grounds of the school Greg once attended.

Arriving in Atlanta early Monday afternoon we found our two bedroom apartment ready at the Peachtree Plaza Hotel. We turned the car over to the "Shows and Shoots" staff to do the cleanup for showing the car and borrowed a new Vigen for exploring the area. Tuesday we spent at Callaway Gardens, Wednesday we split up for our own exploring and Thursday we joined the press group for a series of drives in various engine and transmission variants of the new 9-5.

It was at lunch in a hangar at Peachtree Regional Airport that I mentioned my long-time wish to ride in a SAAB 340 like the one being used to shuttle each day's group of journalists from the Greenville, SC Saturn Vue launch to Atlanta. The pilot said I could certainly fly on the plane since there was plenty of room but a name needed to be on the passenger manifest a day in advance. Within five minutes he returned to the table

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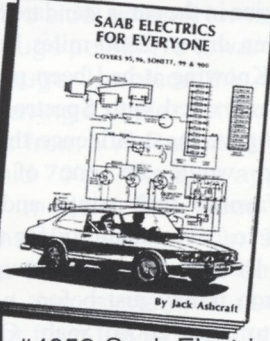
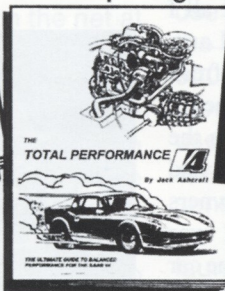
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with the day's manifest saying he found my name on it! My flight as the only passenger to Greenville was uneventful, but on the return flight I was invited to sit in the jump seat in the cockpit. This leg of the flight was filled with sights never to be forgotten!

The pattern most days was for the incoming journalists to arrive at the airport, have one join Erik Carlsson in my car for the ride to the hotel followed by the other journalists in new 9-3 cars. The evening provided time for the launch dinner where the revised 9-5 models were unveiled with Erik's replica #283 driven quite noisily into the launch room by the man himself.

By 8AM Saturday morning we had packed our gear and were leaving Atlanta. We only made it two blocks when we stopped to solve an electrical problem that had taken out our turn signals, stoplights and windshield wipers. A quick diagnosis revealed the simple problem- the fuse contacts. Soon we were on the road again with Baltimore our goal. Good driving conditions, a healthy car and our well-rested condition got us to Virginia before we took a break for supper and sleep. Making good time also gave us a chance to visit family for lunch in Williamsburg on Sunday and to briefly tour the historic area. By nightfall Sunday we had found a superb barbecue and were registered in a motel just outside Baltimore. The evening was spent stripping the car of valuables and stashing them in the standard GT seatbox under the rear cushions and in a compartment I had created within the rear seat back.

Monday's visit to the shipping agent, customs and Wallenius went so quickly that we were at Baltimore Washington International Airport by 10AM with time to spare for our 5PM flights. I was so relieved at having delivered the car safely and on time that I did not mind reading the day away.

Arriving in Glasgow right after Thanksgiving, we were met by Colin Wallace and treated to two days of videos showing typical rally tests UK style and working on maps. Because the rally organizers had prohibited the use of Halda equipment during the rally, our original Speedpilot had to be removed. This was particularly irritating for two reasons- the Halda had been used by Erik and Stuart in their 1960 win and it was our only source of



A test called "The Army Game", driven on the Halton Army Training Grounds. The Saab had passed the vintage car behind the tree during the test.

mile reading in 0.1 mile increments. To compensate navigator Dave plotted the course for each day on Ordnance Survey maps, using twice the number of maps that had been recommended.

Curiously, the maps are scaled to have one inch represent a kilometer, evidence other countries are stuck between metric and English systems just as we are. Some map sections simply involved finding the route on a transit between the off-road tests. Others had navigation tests. For these Dave would use a romer to interpolate specific positions within the grid and identify them by letter designation. Our task would be to visit each point without retracing our route, without recrossing our route and without leaving the least developed roads having yellow coding on the maps. Completing these sections in the dark in pouring rain proved our most challenging task.

A break in this preparation came on Sunday morning when Colin and Grace treated us to dinner at St. Andrews Golf Course. We were seated in a corner overlooking the old course. Delicious food and bits of history complimented the views. Evening found us in the first-class section of a train to York. Complimentary tea served on a train running right on schedule was something new for me.

In York, navigator Dave continued his mapping while David Fielden and I prepped the car. The rush to make the shipping deadlines had left details like installation of a windshield washer undone. We also replaced distributor parts and reset timing to eliminate a slight ping. Dinner was at David and Ann's favorite pub, a place we found to have good choices both for food and drink.

By noon on our second day we hit the road to practice Dave's map skills and to work on my driving on the left side of the road. We headed north and west with David following in his wife's company car, a Porsche Boxter S. We promptly got off track and my inexperienced driving gave David reason to wonder how he had ever gotten hooked up with such a rookie team. By the next afternoon Dave had routed us along the tide flats north of our destination at Blackpool. But the road became more and more rural until, going through a farmyard, we came face to face with a cow standing in the middle of the only relatively dry route. Rather than risk getting stuck we back tracked and on the way noticed a very small sign that read, "Equestrian traffic only."

Thursday we completed the labeling of the car with number 16 labels on the doors and the rally plate on the trunk. Scrutineering began with a noise test, the limit being 98 dB. Before the car passed with 92dB, we had a chance to meet with what became our favorite Mini team of Gordon and Sheila in their 1961 Austin 7 that had no heater. When I complimented Gordon on having his wife as navigator he confided it had taken three tries to find such a match.

Our next step in getting the car cleared involved safety checks as well as inspection for originality. For this we had substituted a picture of the Halda to fill the hole where the original had lived for 41 years, so we had no problems. Ironically, Philip Young, the fellow who had disallowed the Halda, commented that it was a shame the rally seats were not original and wasn't the color a bit too orange for the original color? All this under fluorescent lights in the car park!



"Braking the Limit" on the Minntex Proving Grounds, contained a long straight followed by tightly placed cones. "A left foot braking paradise" said Johnson.

The next three days of rallying were a blur. We were in the car before 8 each morning and drove past the 4:30PM sunset until about 10pm. Weather was highly variable as expected in a maritime climate. We enjoyed dramatic views across the moors, ancient stone walls lining the route, roads that could shrink to one lane at a river crossing or near a town center.

Both Friday and Saturday nights there came a time when the clouds would clear, the nearly full moon appear and Dave would comment that he no longer needed his light to navigate from the maps. I

continued to fear a lapse of judgement that might put me on the wrong side of the road so did all in my power to concentrate and "think left."

Hardknott Pass, the most talked about challenge on the course, we completed very well. We utilized the engine's capacity for full throttle over the long uphill section, our drum brakes proved adequate for the steep descent and we ended up with a perfect score on the regularity. Same was true for the pass at Ulpha where we also scored zero on a slightly less steep route.

The focus on driving and navigating took its toll late in the first day. I attribute this to missing lunch and just snacking instead. By nightfall we were both exhausted and famished. It was at this point that we became hopelessly lost while doing one of the map navigation exercises. We pressed on and eventually reached each checkpoint in its proper sequence but it's a miracle we survived at all. Sat-



At "Hardknott Regularity," due to the steep grade, one "under 1000 cc" competitor needed the navigator to get out and push. Not the Saab!

urday and Sunday we ate proper meals and fared better in our driving/navigating.

The tests were varied and challenging. Most interesting for me included one that started on a paved go-kart track and finished with the course circling a grassy field. Another began with the historic 1909 Goodwood Hillclimb, circled through some trees on a route littered with slippery leaves before opening onto the banked corner of the old race course and finishing among the buildings that house the historic museum. The test with my favorite comment was the second one on the waterfront in Blackpool. I attacked the slalom section with enthusiasm using left-foot braking to help settle the suspension and guide the car. As we careened through the second set of pylons Colin was reported to have said, "I think we may have ourselves a dark horse."

Our results were highly variable in these tests as might be expected with an inexperienced team. We placed as high as a fifth and a ninth overall and had more tests where I felt we had fully utilized the car's potential. 841cc's isn't much in a field having 2.9 liter Aston Martins, Mercedes V-8's and 3.8 liter Jaguars. We even placed first in one test, but that was due to a timing error which moved us up from where we rightfully belonged, at about 15th of the 104 cars that started. I mention this with having no complaint as it took 500 volunteers from many local clubs to run controls and handle timing on the 1000 mile route.

By the end of the rally we were feeling good, the car was continuing to run well and Dave was beginning to imagine us entering some future events. We had moved up in the overall rankings each day to finish in 47th place overall, just above the middle where I had hoped we might end up.

Overall I feel lucky for having so many aspects of the rally go well. Preparation proved adequate, support from the Saab Owners Club exceptional and the invitation to the 2002 model launch provided a fascinating view of an auto industry tradition. Added to this were the chance to shake Stuart Turner's hand, the opportunity to pass through fabulous countryside, and the conversations we enjoyed with other rally competitors and spectators along the way. Countless times a spectator would ask, "Is this Erik Carlsson's car?" My "yes" answer would trigger a picture being taken

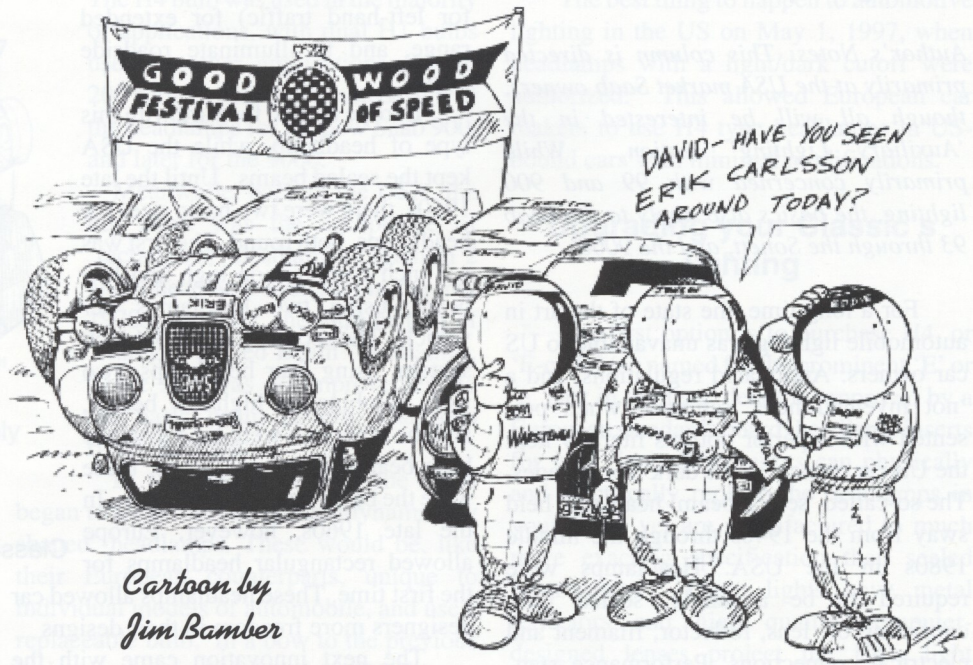
of the car alone or of the children posed beside it. A brief interview with a BBC reporter on the first day may have been what alerted the locals to the fact that the red SAAB had some history.

At the awards ceremony at the Grand Hotel in Brighton we were treated to a short video of the race. Our car was featured at the water crossing pushing a bow wave through the foot deep river. But it was while watching the winning Mercedes 300 that I became concerned enough to ask Mini driver Gordon, "Doesn't the throttle steer of that car make it appear it has a limited slip differential?" The rules strictly forbade such enhancements. Gordon thought for a moment before replying, "You may have the only stock car of the lot."

As I write this conclusion I hope the car is safely dodging all the icebergs on the North Atlantic between Liverpool and Baltimore. I drove the Rally of the Tests.

Eric Johnson

Photographs by Tim Winker



*Cartoon by
Jim Bamber*

This cartoon was spied on an internet site. When we asked if we could run it, Jim Bamber the cartoonist with Autosport magazine, wrote, "I bought a SAAB V4 years ago after watching (Stig) Blomqvist driving on the RAC Rally, in 1972, I think it was. Glad you liked it. Just mention my name and that'll be fine."

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Light up the Darkness

Author's Notes: This column is directed primarily at the USA market Saab owners, though all will be interested in the 'Auxiliary Lighting' section. While primarily concerned with 99 and 900 lighting, the basics also apply to the Saab 93 through the Sonett, and the 9000.

For a long time, the state of the art in automobile lighting was unavailable to US car owners. Antiquated regulations, and a 'not invented here' rationale when presented with superior options literally kept the US car owner 'in the dark' for decades. The so-called 'sealed beam' headlamp held sway from the 1940s through the middle 1980s in the USA. Headlamps were required to be a single, sealed unit, consisting of lens, reflector, filament and electrical connections. Performance standards were established for 'low' beam and 'high' beam headlamps for the first time in the early 1940s.

These regulations and headlamp manufacturing standards were instituted because of the varying quality and performance of the available lamps of the day. This was the age of the 6 volt headlamp. These performance and manufacturing standards were, I'm sure, quite adequate, and perhaps even 'state of the art' for their day.

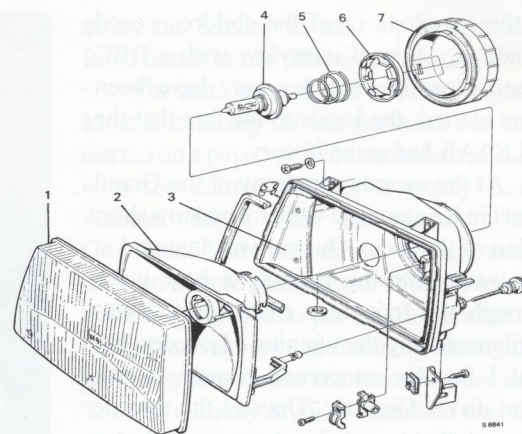
Technology pressed on in Europe where advances were made to both the lens and reflector of the headlamp. To get the best results, the 'sealed beam' needed to be broken out into its component parts once again. The bulb was optimized with separate filaments for the high beam ('main beam' in Europe) and low beam ('dipped beam'), which also featured a shield to keep the light directed properly. The reflector and lens were also designed for this bulb.

The most important development was in the area of beam pattern. The 'Sealed Beam' pattern was designed around a central 'bright spot' on the road. This was totally inadequate for most driving conditions in Europe, where there are very few road lights outside the city and country roads tend to be narrow. The Europeans developed a beam pattern that spread as much of the light as possible across as wide an area as possible. There was a hard cutoff to reduce glare for oncoming drivers, and a 'kick up' to the outside of the road (to the

right for right-hand traffic, to the left for left-hand traffic) for extended range, and to illuminate roadside signs.

Europe moved forward with this type of headlamp, while the USA kept the sealed beams. Until the late 1960s, there were two basic sizes for headlamps, both round. The first was a 7 inch combination high and low beam, using two headlamps per vehicle. The second was a 5 3/4 inch system, using four headlamps, two were combination high/low beams, and the other two were long distance high beams. Even in Europe, these were the basic sizes of headlamps. In the late 1960s, however, Europe allowed rectangular headlamps for the first time. These headlamps allowed car designers more freedom in their designs

The next innovation came with the introduction of a new type of bulb. These bulbs use a small quartz-glass capsule, pressurized with a 'Halogen' gas (usually Bromine or Iodine – hence the original term 'Quartz-Iodine'), and higher filament temperature than is used with inert gas tungsten bulbs. The halogen gas picks up



Headlight, disassembled view
 1. Glass
 2. Reflector
 3. Headlight housing
 4. Bulb
 5. Spring
 6. Lampholder
 7. Sealing cap

Classic 900 European H4 headlight Assembly

the tungsten molecules that the white-hot filament gives off, and re deposits them back on the filament. This process, commonly called the 'Halogen Cycle', allows for longer life of the bulb, as the filament is reinforced continually, and the bulb does not get blackened by the deposits from the tungsten. The higher temperature gives a "whiter" light than traditional tungsten filaments generate and more light

High wattage bulbs or auxiliary lights?

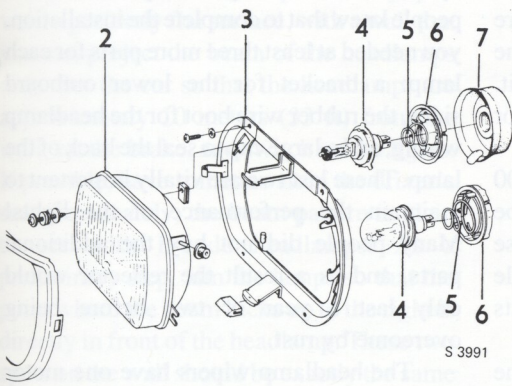
Saab owners are constantly looking to improve the lighting performance of their cars. Often, the question is asked about high wattage bulbs for either the US headlamps or the European headlamps. The standard H4 bulb is a 55/60 watt bulb. That's 55 watts on low beam, and 60 watts on high. Higher wattage bulbs take the form of either 65/100 or 85/100. Standard H, H2 & H3 bulbs are 55 watts, and the higher wattage bulbs are 100s. There are variations on this, with power consumption ratings as high as 125 watts. Before installing those higher wattage bulbs, there are a few things you should think about.

Do the headlights appear to be 'dim' to you? If so, check them over carefully. Clean the lens (inside and out, if possible), check that the reflector is in good shape. No bulb can compensate for a rusty reflector. If the bulbs are over a year old, replace them. Quite often, a check like this, with newly cleaned lens and reflector, and new regular-wattage bulbs, will improve the perfor-

mance of the lights to where you no longer need think about higher wattage.

How is your lamp constructed? If the bulb mounts into plastic (US 9000 & 1987 & on 900 headlamps), do not even bother with higher wattage bulbs. Get the European lights first. You probably won't need the higher wattage bulbs after switching to the European headlamps.

Can the car's wiring handle the load? This is important, as you are considerably increasing the load. Each 60 watt high beam draws 4.7 amps at a nominal 12.8 volts, making it 9.4 for the pair. The 100 watt bulbs draw 7.8 amps each, or 15.6 for the pair. Sure, your car has at least a 55 watt alternator, but you have to run other things too! Picture yourself driving at night (all the lights) in the rain (wipers) on a cold, foggy day (heater fan & rear window defroster). Let's not forget that the ignition and fuel injection use power. Add in the cell phone and car stereo and you're pushing the ability of the alternator to keep up. The alternator would have been sized to handle this 'worst case scenario' with a little to spare, but probably not an additional 6 amps.



99 European H4 Headlight Assembly

intensity for a given “wattage”. The bulbs were introduced in single (H1, H2 & H3) and dual filament versions (H4). The heat generated inside the bulb requires that the outside of the glass be kept clean and free from skin oils, lest the bulb crack. Halogen bulbs were a natural complement to the flat-cut-off beam pattern of European headlamps. A headlamp that uses the ‘H4’ bulb is clearly marked ‘H4’ on the lens.

As aerodynamics became a design goal, the Europeans were right there with aerodynamically shaped headlamps which retained the beam patterns started earlier.

One thing I have noted, and I run only the regular 55/60 watt H4s, is the connector housing deforming and/or becoming brittle from the heat. Part of this problem can be alleviated by replacing the spade connectors for the bulbs, and soldering them on as well as crimping. This makes for a better electrical contact between the lug and the wire. Another part of this problem is simply that the bulbs get hot in use. Higher wattage bulbs will get even hotter, and accelerate the deterioration process.

Finally, what are you looking to get out of the higher wattage? The new bulb cannot change the pattern of the beam, and while you will light things up somewhat farther away than before, it will be nothing like the nearly double amount of power you are putting into them. If you are looking to get light into places that your regular headlamps can't, you need:

Auxiliary lighting

Auxiliary lighting can take on three basic forms. First are fog lamps. You know, those things that hit the curbs and snowbanks and make the front of your SPG

The H4 bulb was used in the majority of applications, with dual H1 bulbs used in other applications (Volvo 200 series). This led to the design of the headlamps for the new Saab 900, and later for the 9000.

Meanwhile, back in the USA, the big news was the acceptance of ‘rectangular’ headlamps (again in 2 and 4 headlamp systems) in the mid 1970s, and later, the introduction of ‘Halogen Sealed Beam’ headlamps. There still was no improvement to the basic beam pattern. Darkness ruled the night.

In the middle 1980s, the USA began to allow the use of ‘aerodynamically shaped’ headlamps. These would be, like their European counterparts, unique to individual models of automobile, and use a replaceable bulb. In a bow to the previous insistence on sealed lighting, DOT standards do require O-ring seals between the bulbs and the housings. However, the USA still did not adopt the European lighting system, preferring to stay in the ‘dark ages’. The bulbs used are individually replaceable, with sockets specific to each type, and the beam patterns was still rooted in the 40s.

look ratty. Next are driving lamps, and lastly auxiliary headlamps. This last one is not needed if you already have the European headlamps. Today's rally cars will sport anywhere from four to eight additional driving lamps for use on the night stages. It's like having portable daylight.

Fog lights are standard equipment on many Saabs, and most 900s and 9000s are pre-wired for them. Saab used to sell kits which included the relay, lamps and brackets, but these are most likely no longer available, so we have to make due. Fog lights project a beam with a hard, flat cutoff, designed to light up the road in the immediate area of the front of the car. These should be aimed, much like the European headlamps, but with their flat cutoff 20 cm below the center of the headlamps.

Fog lights are very useful in fog, of course, but also useful anytime you want your car to be more noticeable, like driving in the rain. They should switch off when the high beams are switched on, and all of Saab's standard wiring provides for this.

Driving lights can take on a few different beam patterns. The key thing that

The best thing to happen to automotive lighting in the US on May 1, 1997, when headlamps with a light/dark cutoff were authorized. This allowed European car makers to use H4 type headlamps in US-bound cars with minimal modifications.

Upgrading your Classic's lighting

The first option is to purchase H4, or ‘E-code’ (so named for the prominent ‘E’ or ‘e’ cast in the lens, denoting approval by a European standards board) headlamp inserts for your Saab. These units can physically and electrically replace the headlamps in your Saab, yet are manufactured to much more exacting specification than sealed beam units. These lights have metal reflectors and high quality computer-designed lenses project the H4's light output better. In the 99, the high beams are replaced with a ‘pencil beam’ lamp with an H1 bulb. This beam stretches more than a mile down the road! Inserts are the least expensive route (for new parts, anyway), and allow you to maintain the US market appearance of the car. So, a 99 will still have

distinguished them from fog lights is that the beam is projected much farther out in front of the car, and in a narrow pattern. Pencil beam lights are a special type of driving light with a very narrow, concentrated beam that can reach out to over 1 and a half miles in some cases.

Aiming driving lights is fairly simple. To ‘ballpark’ the aim, use the same setup as for aiming the headlamps, but aim these lights basically straight out ahead. Center of the beam should be the same height above ground as the center of the lamp. After driving the car a while you might want to fine tune the aim to better satisfy your tastes. I usually do this on a deserted country road. Properly aimed, driving lights will glare into the eyes of oncoming drivers, and the mirrors of cars you are overtaking. Therefore, they should be switched off when encountering oncoming traffic or overtaking another vehicle. See the sidebar on lighting etiquette.

Driving lights should be wired so that they only come on with the high beams. They should not be on with the low beams or parking lights.

4 round headlamps, and the 900 two rectangular ones. You also don't have to hunt for a different grille for your 99!. Headlamp inserts are manufactured by Cibie, Hella and Marchal, among others. I have found the best quality in the Cibie units. In fact, with the Cibie high and low beams in my 99, I find no need whatsoever for auxiliary lights.

For most US Saab enthusiasts, the ultimate conversion is to install the original European Saab headlamps. This gives the car the appropriate 'as-designed' look. It is also possible to install headlamp wipers and washers with the European lights. There are two types of these lights.

The 99 uses a unit similar in construction to the H4 replacement lights mentioned above. That is, the lens is bonded to the reflector, and the entire unit is moved to aim the lights. A special bracket is used to mount and aim the lights to the same points that the US inserts mount to. The 99 European headlamps have one disadvantage: For all years, the headlamp surrounds need to be changed to the oval shape from the twin circles. For 1975 and later, the entire grille also must be changed. None of the US grille parts are compatible with the European lights. The main problem is finding a European grille in good shape (which is like finding a US grille that's in good shape).

The 99 used two headlamp wiper systems. On the non-turbos, a motor was fixed to the back of the radiator, and the wipers were run by a bellcrank arrangement that moved them horizontally across the lens. The whole mechanism mounted between the grille and radiator. Air Conditioning could prove a problem if one wanted to mount the wipers. The turbo wipers are borrowed from Scania trucks. There is one motor for each light, and they move in an arc from top to bottom. The change was necessary because the 99 turbo's radiator fans are mounted in front of the radiator.

The 900 unit (and 9000, etc) has a fixed plastic housing, with the lens firmly attached to it. The reflector is the only moving part, and it moves inside the housing. The housing/lens assembly always remains in a fixed position on the car, so the aerodynamics and appearance are not affected when the lights are aimed. There are different sets of lamps for the 900 up to

86, the 900 from 86, and one for each of the three variants of 9000 nose. None are interchangeable. Aiming the lights is done by moving two knobs on the rear of the unit. One knob for horizontal and one for vertical.

One nice thing about the 900 and 9000 lamps is that the grille does not need to be changed! You will no longer need those headlight surrounds. And the chrome grille for the pre-1987 cars really makes the lights shine!

On 1979 through 1986 900s, the headlamp wires in the car simply plug into the back of the H4 bulb (after routing the wires through the housing and dust boot). On 1987 and later 900s, and all 9000s, wiring modifications must be made to change the connectors to ones compatible with the lamps. Caution must be used when purchasing these lights in the USA. Saab sold the 900 lights under their 'Sport and Rally' program for quite a while. The problem arises because Saab did not sell a complete 'kit of parts' to install the lights. You got the headlamp assembly (Housing, lens and reflector - basically what any European owner would buy after a crash) all

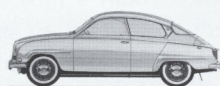
by itself. Knowledgeable parts counter people knew that to complete the installation, you needed at least three more parts for each lamp: a bracket for the lower outboard sides, the rubber wire boot for the headlamp wiring, and a large cap to seal the back of the lamp. These last two are vitally important to maintain the performance of the lights! Many people did not buy the additional parts, and as a result the reflector would only last a year or two before being overcome by rust.

The headlamp wipers have one motor for each lamp, Their mounting is different for each model, like the lamps themselves. They are self-contained units, requiring only +12 volts, ground, and a signal from the windshield washer circuit to activate them (they only work when you pull the stalk back to wash the windshield).

Proper aiming of the headlamps

Properly aiming your Saab's headlamps is extremely important, both to you and other drivers on the road. This is especially important with the hard cutoff of the

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European E-code headlamps. Ideally, you want a perfectly flat surface, with a wall that you can project the beam of the headlamps onto. Set the car so that the headlamps are approximately 10 meters (33 ft) from the wall, set the brake, and switch on the lights. If possible, have someone sit in the driver's seat. Fortunately, the beam pattern is plain to see with E-code headlamps. As a preliminary step, aim the lamps so that the point where the beam kicks up to the right is directly in front of the headlamp. These two spots on the wall should be exactly the same distance apart as the horizontal distance between the centers of the two lights on the car. That sets the horizontal pattern. A good 'ballpark' aim here is to stand at the back of the car and sight along the car to make sure the beam is going directly forward.

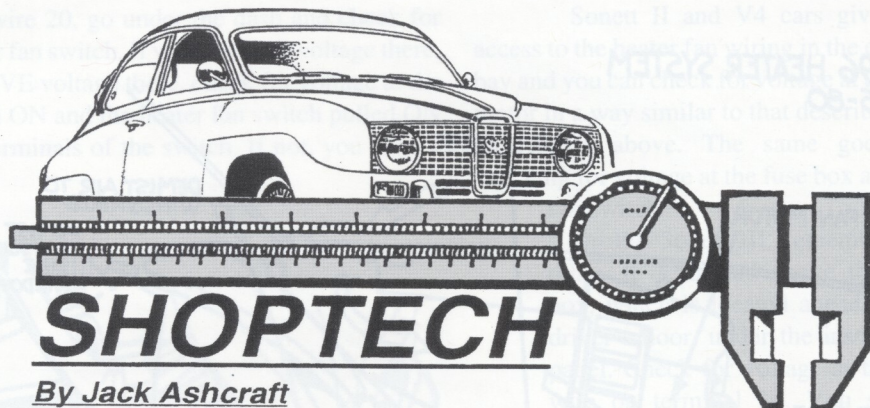
For vertical aim, begin by placing a mark on the wall the same height above the ground as the center of your headlamps are (this is why the flat surface is needed). Now, move the headlamps so that the horizontal line falls on the wall 10 cm *below* the mark you made. That's right, *below*. The headlamps should be aimed with a slightly downward pointing angle. This helps keep the lights from glaring in the eyes of oncoming drivers when the car goes over slight road imperfections.

As a final check, you could drive at night in the left lane of a highway that has concrete 'Jersey Barriers' as the left side of the road (these are plentiful in New Jersey for some reason). If you glance at the pattern of the beam on the wall, it should be parallel to the top & bottom of the barrier. You might want your co-driver to do the looking.

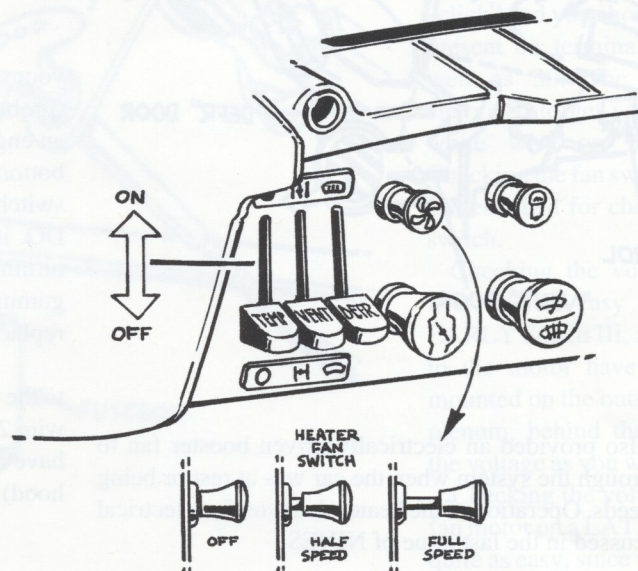
I hope that this has been an informative and useful column. I'm always looking for suggestions for future articles, so send any suggestions or comments to me via this magazine.

References:

- Bosch Automotive Handbook, 5th Edition*
- Scientific American Working Knowledge: Halogen Lights*
- <http://www.sciam.com/0796issue/0796working.html>
- Saab parts catalogs and service manuals for 99 and 900*



TROUBLE SHOOTING THE HEATER SYSTEM

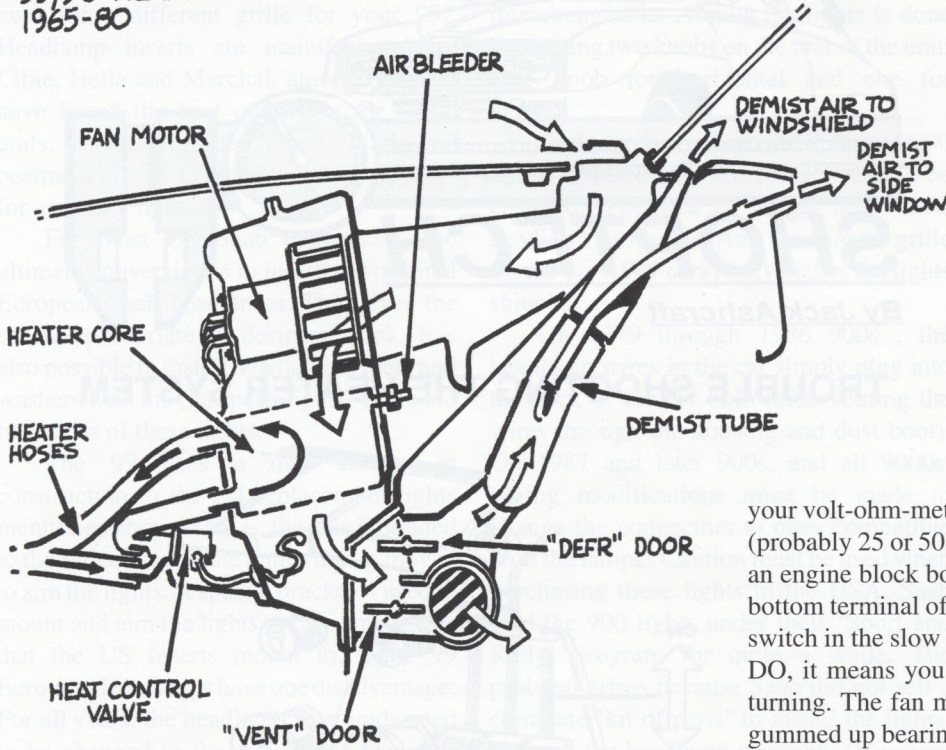


Trouble shooting any system is a lot easier if you understand how the system was designed to work in the first place. The Saab 95/96/97-heater system uses engine coolant to produce the heat. Coolant is circulated through a heat exchanger that we call a heater core. The amount of heat is determined by how much heated coolant we allow to flow through the core. On all the Saab 95/96/97 cars, the LEFT of the three control levers is the TEMP control.

Operation of the TEMP control opens or closes a coolant valve. Moving the control towards ON gives more heated coolant flow, thus a higher temperature of the air leaving the heater/demister openings. Saab got cute and added a thermostatic control to their heat control valve that helps hold the heater temperature constant, even though the engine coolant temperature may vary as the engine thermostat opens and closes.

Outside air passes into the heater box through a scoop in the cowl (95/96) or the hood (97). If the VENT and DEFR doors (the Swedes call them "dampers") are open, the air will pass through the heater core and either down towards the occupants feet (VENT open) or up to demist the windshield (DEFR open), or both (both VENT and DEFR doors open).

95/96 HEATER SYSTEM
1965-80



Saab also provided an electrically driven booster fan to hustle the air through the system when the car was at rest or being driven at low speeds. Operation of the heater/demister fan electrical system was discussed in the last issue of NINES.

TROUBLE SHOOTING

Typically, you discover that the heater is not working on a cold and frosty morning in early fall. Here are the most likely symptoms and what you can do to correct the problems that cause them:

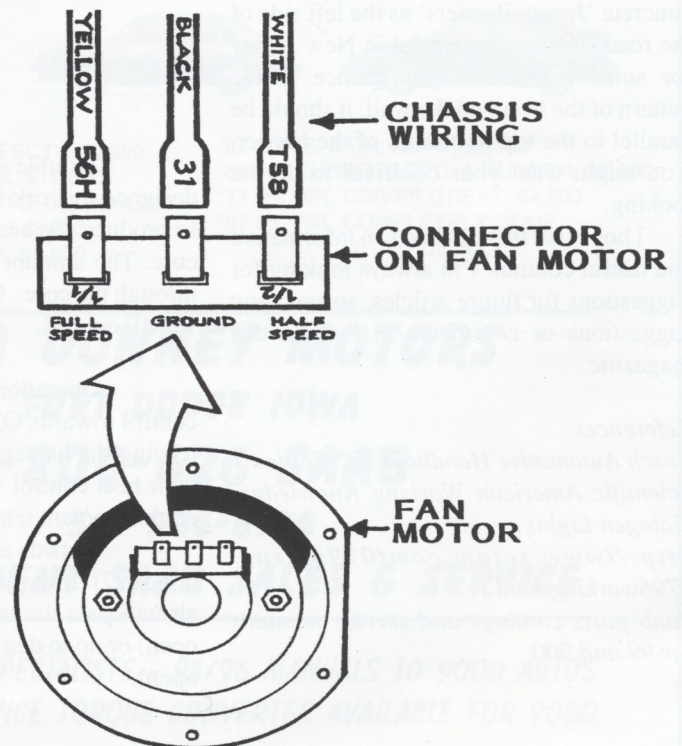
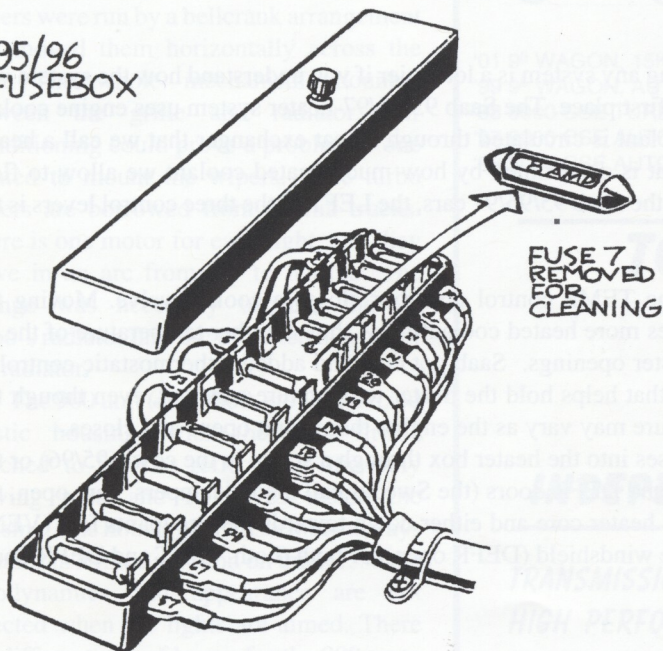
The Fan Does Not Operate

Check the appropriate fuse. If it looks visually good, carefully clean the ends of the fuse and the fuse holder. Replace the fuse and try the fan. Be sure the ignition switch is ON for the test, as this circuit is not "hot" with the ignition turned OFF.

If the fan still does not respond, get out your volt-ohm-meter. Set the meter on a scale higher than 12 volts (probably 25 or 50 volts). Put the black lead on a good ground (like an engine block bolt head) and the red lead (on 95/96 cars) on the bottom terminal of the heater motor (1/2 speed) if you have the fan switch in the slow speed position. You should read 12 volts. If you DO, it means you have power applied to the motor and it is not turning. The fan motor is faulty, probably worn brushes or really gummed up bearings, or both. The motor will have to be rebuilt or replaced.

If you have NO voltage reading at the fan motor, go back to the fuse box and check to see that voltage is present on the white wire 20 leaving the fuse box. You checked the fuse, but you could have corrosion (particularly in a 95/96, with the fuse box under the hood) in the connector at the fuse box.

95/96 FUSEBOX



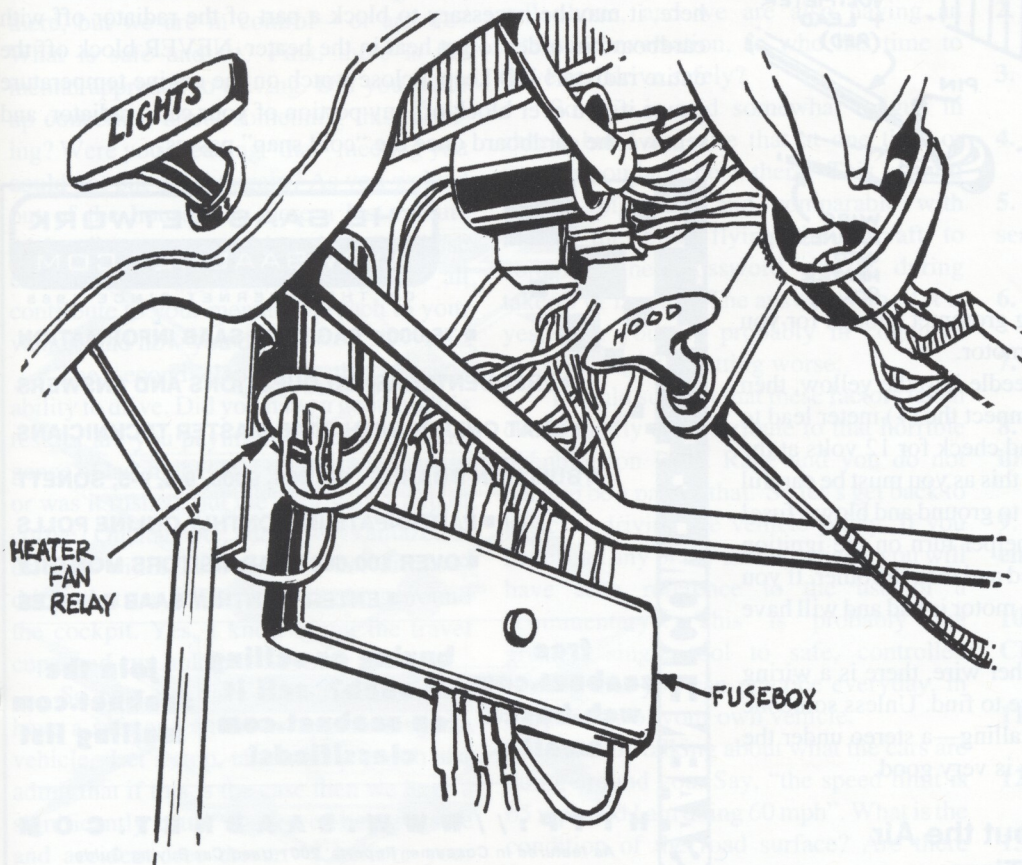
Assuming there is voltage present at wire 20, go under the dash and check for voltage at the same white wire going to the heater fan switch. If you have NO voltage there, check the wiring harness for damage. If you HAVE voltage there, check for voltage at the output terminals of the switch. With the ignition ON and the heater fan switch pulled ON you should have voltage at one of the output terminals of the switch. If not, you have a faulty fan switch. Replace it.

Sonett II and V4 cars give you access to the heater fan wiring in the engine bay and you can check for voltage at the fan motor in a way similar to that described for the 95/96, above. The same goes for checking for voltage at the fuse box and the fan switch.

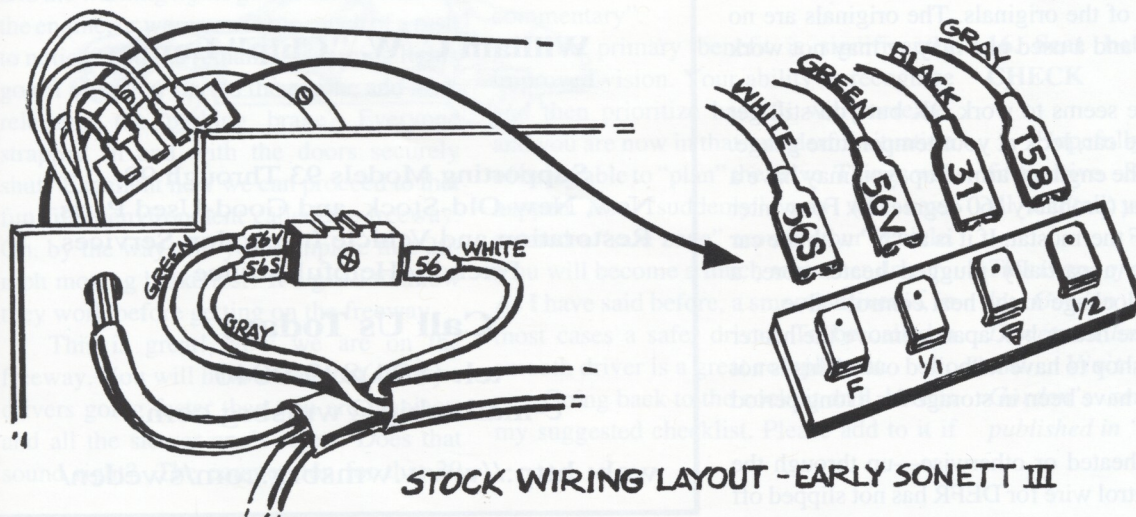
On the Sonett III, remember the relay. It is located above the fuse box, which is located ahead of the driver's door, under the instrument panel. Check for voltage at the red wire on terminal 30. You should have voltage there at all times. When the ignition switch is turned ON, you should feel—and hear—the relay “click” and you should have 12 volts present on terminals 86 and 87 as well as 30. The relay must be energized to get voltage at the 30A white wire on the fan switch. Checking the fan switch itself is done as described for checking the 95/96 switch.

Checking the voltage to the fan MOTOR is easy enough on the EARLY Sonett III, as the connectors to the motor have a junction box mounted on the outside of the heater plenum, behind the engine. Check the voltage as you would for a 95/96.

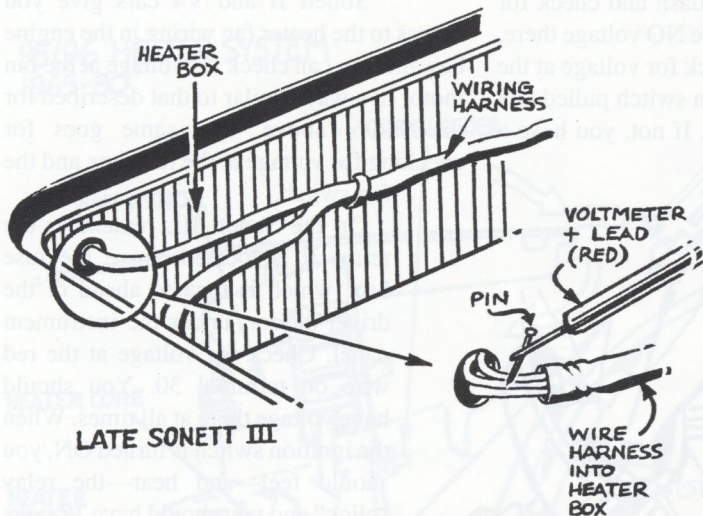
Checking the voltage going to the fan motor on a LATE Sonett III is not quite as easy, since you cannot get to the fan motor itself without first removing the hood and front fenders, and the cover over the motor assembly. But you CAN see the wire bundle that goes into the fan housing. On some cars, you can gently pull back the black plastic



SONETT III FUSEBOX LOCATION



STOCK WIRING LAYOUT - EARLY SONETT III



sheath and it will pull out of the housing grommet enough for you to see the three wires that go to the fan motor.

Carefully push a straight pin or a needle into the yellow, then the grey (yellow on some cars) wire. Connect the (+) meter lead to the pin or needle, ground the (-) lead, and check for 12 volts at the wires. It is a good idea to use a helper for this as you must be careful not to short the pin or your (+) meter lead to ground and blow a fuse! With the meter hooked up, have your helper turn on the ignition switch and the fan switch—first one speed and then the other. If you read 12 volts and the fan does not run, the motor is bad and will have to be replaced.

If you do NOT read 12 volts on either wire, there is a wiring problem in the harness that you will have to find. Unless someone had done a butcher job stealing—or installing—a stereo under the dash, this is unlikely, as the Saab wiring is very good.

The Fan Operates, but the Air Is Cold All the Time

Sometimes the fan runs—in both speeds—perfectly well, but you get either NO heat or heat all the time, regardless of where you position the TEMP control. This is the indication for a frozen heat control valve. The valve must be replaced if you can't free it up. Aftermarket replacement kits are available but will not have the thermostatic control feature of the originals. The originals are no longer available from Saab, and a used one may or may not work and may or may not leak.

If the heat control valve seems to work OK but you still get no—or very little—heat in the car, look at your temperature gauge. If it is well below "N" with the engine warmed up, you may have a hot weather engine thermostat (probably 160 degrees F). For winter use, you need a 180-degree F thermostat. If it is at "N" with the car warmed up, you may have a partially plugged heater core, a collapsed heater hose, or a blockage in the heat control valve.

You may have to take the heater box apart, remove the heater core and take it to a radiator shop to have it "boiled out". This is not uncommon in old Saabs that have been in storage for a long period of time.

If you cannot get air—heated or otherwise—up through the demisters, check that the control wire for DEFR has not slipped off

the door control lever (or that the lever itself is not broken). If you can get demist air but no air at your feet, check that the control wire for VENT has not slipped off its door control lever (or that lever is broken). Finally, check that some "critter" hasn't built a neat nest in the lower heater plenum, which is preventing the doors from moving, or air from passing through, or both.

In cases of extreme cold weather, and I'm talking sub-zero here, it may be necessary to block a part of the radiator off with cardboard in order to get heat in the heater. NEVER block off the entire radiator! DO keep a close watch on the engine temperature gauge if you ever block off any portion of your car's radiator, and remove the cardboard once the "cold snap" passes.

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Safe and fit to drive?

Are we safe and fit to drive? We should all be asking ourselves this question before we strap in and start moving a vehicle on the roads.

Let's all remember the vehicle gets us there, but we are in control – or are we? What is safe and fit? First, there is the mental approach to driving. Did you wake up concerned about something this morning? Were you dreading “that” meeting you could not put off yet again? As you walked out of the house was there a last minute “debate” on a sensitive issue? These emotions, concerns and worries will all contribute to your mental approach to your vehicle and how you drive.

The second element is the physical ability to drive. Did you have a good night's rest, or are you paying for your overindulgence of last night? Did you have breakfast, or was it rushed, out the door with a cup of coffee? On that note, I am always amazed at driver's willingness to have hot drinks – drinks that can and do burn, sloshing around the cockpit. Yes, I know about the travel cups, and cup holders, but think about it.

So now we have established that we have a safe and fit driver approaching the vehicle. Let's stop, take a deep breath and admit that if this is the case then we have a significantly better chance of being a safe and accident free driver. I believe your mental approach and physical well being are keys to safe, planned and smooth driving.

Now we are strapped in. Let's go through the cockpit pre-departure check. When did you last check the tire pressures? Did the warning lights go out before starting the engine, or were you in too much of a rush to notice? Did the remaining warning lights go off after you started the engine and after releasing the parking brake? Everyone strapped in and with the doors securely shut? Excellent now we can proceed to that fun filled environment called the freeway. Oh, by the way, did you complete that 20-mph moving brake test? It's good to know they work before getting on the freeway.

This is great! Now we are on the freeway. You will have noted that all those drivers going faster than you are maniacs, and all the slower one's idiots. Does that sound right? The competition for that 20

feet of road is intense. This combined with traffic density makes for a dangerous environment. Not only that, but in this fun filled environment we have “tools” to ensure that we are completely occupied. When I say “tools”, yes, I am referring to the radio, the scalding hot coffee, the wonderful cell phone, and we are also having an intense conversation, so who has time to drive and drive safely?

So this is said somewhat tongue in cheek, but I am sure that at one time or another you have been there. This is multi tasking big time and comparable with asking the pilot flying the aircraft to complete the crossword puzzle during takeoff or landing. The answer is no. If it is yes, then you are probably in cognitive overload and it's getting worse.

I would suggest that these factors taken cumulatively all contribute to that horrible phenomenon Road Rage and you do not want to be a part of that. So let's get back to basics – driving the vehicle safely. If you have read any of my earlier articles you will have seen reference to the use of a “commentary”. This is probably the greatest single tool to safe, controlled driving that you can practice everyday, in the privacy of your own vehicle.

Start by talking about what the cars are doing around you. Say, “the speed limit is 65 mph and I am doing 60 mph”. What is the condition of the road surface? Are there changes in the surface? What about those road signs? Are they informational or advisory? Do they warn of a hazard or do they order as in a stop sign? Start doing the commentary slowly, and build in the various visual inputs. After some practice you will be able to do a “running commentary”.

The primary benefit is significantly improved vision. Your ability to recognize and then prioritize hazards will increase, and you are now in that wonderful situation of being able to “plan” the drive. Things will happen less “suddenly”, you will have created a “safe zone” around your vehicle. You will become a much smoother driver. As I have said before, a smooth driver is, in most cases a safer driver. To be called a smooth driver is a great compliment.

Going back to the cockpit drill, here is my suggested checklist. Please add to it if

circumstances require and maybe cut it out and have it laminated – I have.

COCKPIT DRILL

1. Door secured - CHECK
2. Parking brake - SET & CHECK
3. Gear lever in park - SET & CHECK
4. All doors secured - SET & CHECK
5. Seats, steering position, mirrors and seat belts adjusted - SET & CHECK
6. Pressure on the foot brake - SET
7. Ignition on - SET
8. Fuel gauge rising, warning lamps are illuminated - CHECK
9. Depressing foot brake, and starting engine - SET
10. All warning lamps extinguished - CHECK
11. All instruments functioning - CHECK
12. Ready to move off - CHECK
13. Select drive, check round car - CHECK
14. Release park brake, foot brake, mirror and shoulder check, indicator signal and move off
15. Moving brake test 20 mph - CHECK
16. Seat belt lock up functioning - CHECK

Hopefully, you are now safer and more fit to drive. Safe controlled driving to you all, and talk yourself into talking.

This is one of a series of articles contributed by Gordon Booth, Chief Instructor of Drivetrain Inc. based in San Jose California. Visit www.drivetrainusa.com. Gordon's series of articles have been published in “Team Corvette”

by Stephen Goldberger

Saabs For Sale

2000 Viggen Turbo Convertible Black - Trans: Manual - Mileage: 7000 - Price: \$32,000 mint, loaded, premium pkg, 5spd, 4yr war, special edition, rare, top of the line. Bruce Friedman, Malibu CA bfriedman@partminer.com (310) 457 6763

2000 9-5 Wagon - Color: Black Trans: Automatic Mileage: 24,000 Price: \$27,500 or b/offer. 4-Door Wagon. Loaded with features. Original driver. **TSN** Chris Zelov, Durham PA Email: zelov@geniusloci.com (610) 346-9164

1999 Viggen Original purchase April, 2000. 2 years warranty left. Fastest and best Saab ever made. Chromed factory wheels, blue w/black leather. Sharp looking car, 23,000 miles. One of 400. Save \$22,000 of price of new. Every Saab accessory, all for \$24,500. Don't miss this one. Paul, Billerica, MA. (978) 667-5373 days, 978-239-8491 (cell, evenings).

1992 9000 2.3L non-turbo 5-speed, 170,000 miles. Silver/gray, original owner. This car is exceptionally clean. All mechanicals and accessories are in excellent working order. Includes roof rack, trailer hitch, 2nd set of wheels/snowtires. \$3400. Ingemar Ekstrom, Barnes, WI. ije@cheqnet.net. (715) 795-2183

Complete early 1986 900 SPG Turbo car, Anthracite, 261,000 miles, rough condition overall, runs great, everything works, light rust, trans quiet and smooth but won't downshift into 2nd [not bad syncro!], comes with complete 2nd 86 SPG wrecked [hard hit drivers door]. \$2500 Ken Morrison, Ft. Collins CO (970) 498-8638

1984 900 Turbo 4-door sedan. Gray, 5-speed, 16 valve engine, excellent mechanically, body very good condition. \$2800. Milan, Cleveland, OH. (216) 531-8448 Fax (216) 738-1901

1969 Sonett, green. 1700cc modified engine, webbed case trans., high speed cam, MSS Carb. and Intake manifold, new tuned exhaust, electric fuel pump, electronic ignition, all rusted metal cut away and replaced including new rocker panels, new head liner, new weather stripping, new paint, high backed seats, rewebbed seat belts. Special feature: four bolt hubs with dual piston front disk brakes, SAAB 99 soccer ball wheels with TOYO P185/65R15 tires, SAAB 96 road springs and front anti-roll bar. \$5,200 Steven Golber, Evanston IL golber@sprynet.com Phone: (312) 574-7258

1987 9000 Parts Car Excellent parts car. Blown Transmission. Engine & Turbo perfect. Needs minor body work & paint. Burgundy Leather mint, driver seat worn. new parts (ie: Heater core, defrost fan, radiator, lighted switches, tires, etc). New bra, car cover, Code Alarm w/Alpine pager. Car can easily be fixed or if you need parts, it's a guaranteed steal! Located 40 miles South of Salt Lake City. \$500 or best offer. **TSN** Charles R. Dolan, Orem UT IBChuckD@attbi.com (801) 374-2912

Parts & Miscellaneous For Sale

1971 Sonett for parts. Built(!) motor, new Falken tires, new upholstery, chrome, stainless steel everywhere. Car together except body. \$10K invested. Call for details: R. Terry, PO Box 1300, Rampsur, NC (336) 495-8464

HYDRAULIC KITS. Just purchased a large stock of NOS kits for clutch and brake systems of Saab 95/96 and Sonett. Call with your needs. Jack Ashcraft, 2030 Grey Eagle Drive, Medford, OR 97501 541-779-0731 e-mail: jackashcraft@prodigy.net

SAAB by Clarion Tape Deck Brand New Buy it for a Spare. Part number 0247510 Plug and Play for 1992-1995 9000 and 1992-1993 900, also 1994 Convertible \$125.00 If you need the rack, it is \$10 extra. Shipping and insurance is \$11.00 in the US. **TSN** John Schreiber, Fort Lauderdale FL jschreiber@telocity.com (954) 524-7222

Brand New in Box Saber Performance Free Flow Exhaust. Fits 98 and newer Saab 9-3 and convertibles. Increase performance and exhaust note. My price \$510 plus shipping. (It will cost you \$625 plus shipping on line) Better quality and techs than Saab sport exhaust. And brand new in box, B&G sport springs. Fits 98 and newer Saab 9-3 and convertibles. Lowers car approx 1 inch and improves handling without sacrificing comfort. My price \$220 plus shipping. (Springs sell for \$310 plus shipping if bought from supplier) Jeff, Atlanta GA. jeff@vanguardmortgage.com (770) 850-9000 x 207

SWEDISH DYNAMICS specializes in performance parts for all Saab automobiles. Best in street performance. We offer: Engine updates, Cylinder head modifications, Turbo upgrades, Fuel/fuel management, Exhaust, Intake, Camshafts. Brake updates: Cross drilled rotors, Brake pad upgrades. Suspension updates, Spring upgrades, shock/strut. **SWEDISH DYNAMICS, INC.** sales@Saabperformanceparts.com www.saabperformanceparts.com (203) 791-8826

Saab parts for cars from 1978 99 to 1985 900 turbos. Side doors, turnk lids, hatch, engines, transmissions, seats, panels, radios, etc. Milan, Cleveland, OH. (216) 531-8448

Front and rear gray leather seats from a 1991 9000 turbo. Leather is in good shape, rear seats restitched 6 months ago, front seats are both power/memory and all components functioned properly when removed. Drivers seat heater pads both open circuit, new seat heater pads can be installed for an extra \$150. \$1000 OBO. Kevin Joyce, Stewartstown PA joyce.kevin@att.net (717) 993 2586

V4 95 & 96 Parts (1970) Original V4 Complete w/ trans, radiator, heater assembly, complete instrument panel, new exhaust system w/muffler, windshield, L&R doors w/glass, original floor mats, all very good condition. Nisswa, MN. (218) 963-1204 8AM - 6PM Central Time.

The tragedy in Phil Lacefield's family, a car full of teenagers killed or seriously injured in a single car accident, is being played out all too often around the country. Our heart goes out to all those families. I know you can't compare the results from one crash to another in a different location and with different circumstances, but on hearing the story, I was reminded of Ashwarya Nukala's story (NINES #248). Although it rolled several times at 60 mph, her 9³ didn't even break the sunroof, and she walked away unhurt. NINES policy is to support safe driving in crashworthy cars. We are printing Gordon Booth's series on car control, and I'd like to remind parents of new drivers of David Thompson's instructional text for new drivers, which can be ordered from www.carcontrol.com.

In NINES #254 we printed a photo of the Classic 900 convertible that received the "Drool Bucket" award at SAABtoberfest, 2001, whose ownership was clouded in mystery. Renwick Jones has just joined the Saab Club, and told us it was his car. Hailing from the Columbus Ohio area, he is now living in New York City. He and his award winning convertible will be attending the Owners' Convention this year in Cincinnati.

Finally, a personal endorsement for subscribers to also join the new Saab Club. With the discount program, Club membership can pay for itself and then some. In addition, the Club brings benefits like liability insurance coverage for driving events, a continuing organization to support our annual Owners' Convention and promote regional clubs and club activities, and a dynamic and useful member support tool in the Saab Club web site. These benefits happen if people join. Saab Cars USA is enthusiastically supporting the Club with promotional copy in Saab Magazine and Saab Discovery (the 4 page glossy flyer that many owners receive from their local dealers). I encourage all of you to support the Club with your membership!

Wanted

Early Saab 9000 rear reflector panel. This fills in the gap between the tail lights to give a wraparound effect. Locator fee paid. nblenkush@hotmail.com

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



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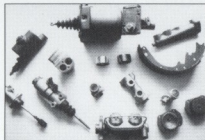
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