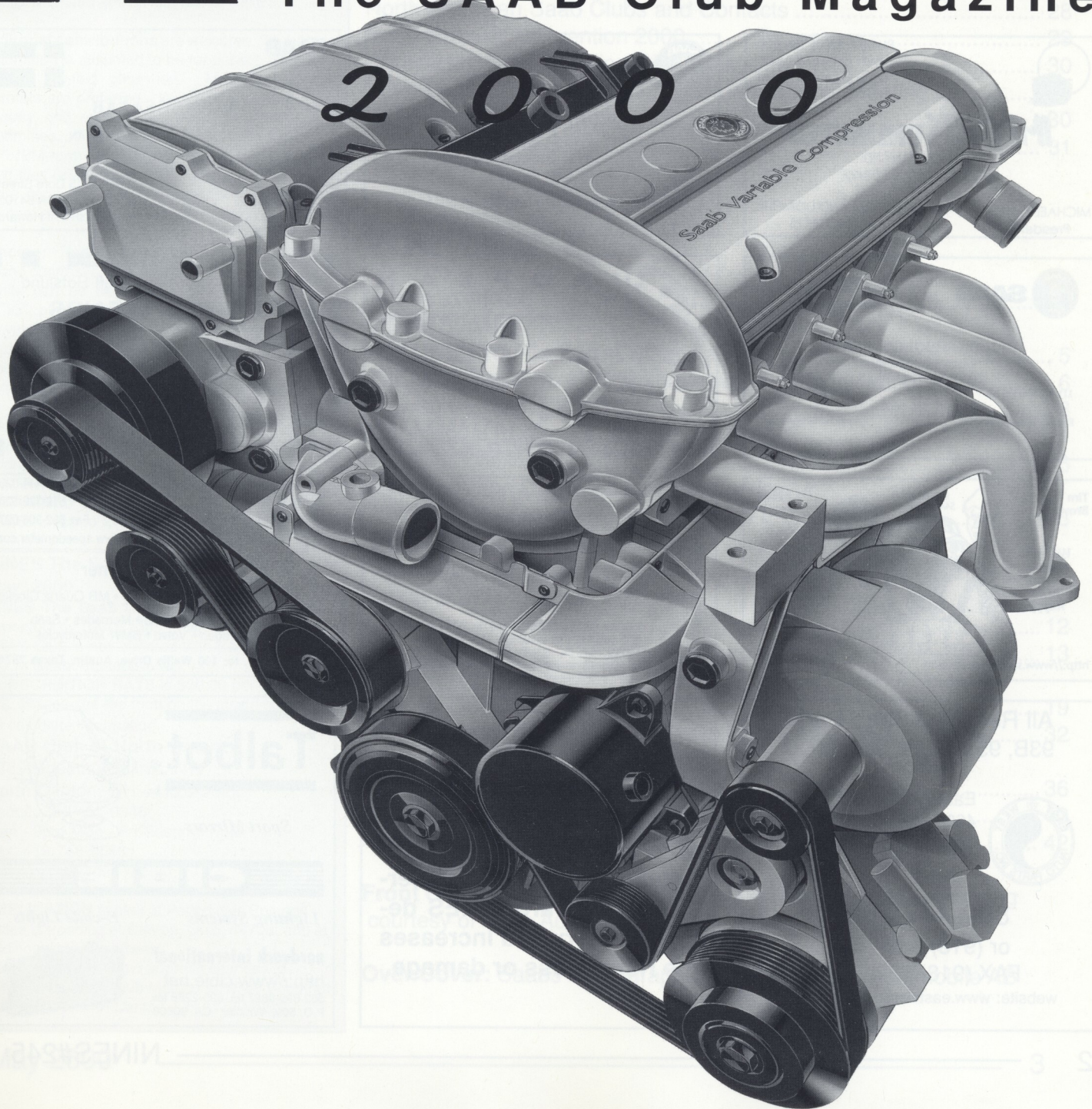


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May 2000

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The SAAB Club Magazine




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Photos: Preferred sizes are 5"x7" or 8"x10". Good contrast color photos or full range black and white can be accommodated, no smaller than 3"x5", please. Photos used on the cover will be rewarded with a one year subscription to NINES and must be submitted in 8"x10" or with the original negative or transparency. For return of photos, include SASE of correct size and postage.

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Front Cover: Saab Variable Compression Engine artist's rendering courtesy of Saab Automobile AB

Over Cover: Saabs Photograph courtesy of Saab Automobile AB

Letters

Dear Editor:

Enclosed please find my renewal for two more years. My wife and I continue to enjoy our Saabs ('87 900S and '88 9000T), although they're getting a little long in the tooth. This is primarily due to the absurd amounts of salt they use here in Wisconsin. They use so much salt that you skid on the salt granules instead of ice. I discovered the superiority of sand while living in Maine. My windshield got finely scratched by the wipers, but good traction and no thick slush.

In reference to the recent article about ignoring abnormal noises, our 900S started making a whirring noise in 4th and 5th gears at about 140K miles. At 162K, the transmission failed. On a couple of occasions, the front wheels locked up upon putting in the clutch while rolling backwards in reverse. Repair might have been possible early on, if I had listened to that noise. The decision at that point was either to sell the car for nothing or to pour about \$2300 into it (rebuilt transmission, shipping, clutch kit and labor). Having done the latter, the car is worth, oh, about \$2300. I was told that 900 transmissions are notorious for failing between 120K and 180K. If anyone else is facing this dilemma, consider also that your rebuilt transmission may not be to your liking, either. Mine whines noticeably above 75 mph, although I wouldn't know because our speed limit in Wisconsin is 65.

This transmission adventure did give me a chance to do some car shopping. The only 9⁵ the dealership had in a stick was an Aero (alas), which I found a pleasure to drive. It had none of the pulling-to-the-side-which-we're-told-isn't-torque-steer tendency reported in the Vigen. I found the suspension to be comfortable, so perhaps the untuned 9⁵ suspension would feel a bit soft to me. One thing which hasn't been mentioned regarding the 9000 vs. 9⁵ comparison is the 9000's tendency to pull to the side on slanted roads, especially while braking. The 9⁵ doesn't exhibit this tendency, one that I find a little annoying in an otherwise great car. I was able to drive a '96 9000 CSE and the 9⁵ Aero over the same stretch of slanted road, back to back.

So it's a relief to see a new car from Saab that I like, although I bemoan the lack of a 9⁵ hatchback (the wagon just doesn't do

it for me). I'm sure I salivated when I read in NINES that an AWD Saab is a near certainty. Three years ago I was thinking of replacing the 900S and was trying to choose between the new 900, an Audi A4 quattro, and keeping my 900S. I kept the 900S. The A4 looks great but didn't feel right, and what it is about the new 900/9³ that I find so unexciting I can't explain. Maybe it's the styling, which looks narrow and tall, strange in the back end, or perhaps it drives blandly. The 9⁵, on the other hand, drives more solidly and looks more formidable, especially with the right wheel choice. My wife says she's ready for one - a wagon.

*Dr. Erik Adams
Madison, WI*

I am enclosing a check for the renewal to your fine Club for one year. I had just received the latest issue of "NINES #242." The Club's publication is excellent, however I would like to make a proposal of topics I would like to appear.

1) The purchase of a pre-owned Saab 900-9000 series & 92/96 to 9000.

2) The aspects of purchasing a pre-owned Saab and which are the mechanical and physical components that are likely to wear out.

3) Articles on restorations - cosmetic and mechanical.

4) Articles on the history of the Saab from the 92/96 through the current models.

*Frank Saglimbeni
Roslyn Heights, NY*

Please sign me up. I stuck my 1980 Turbo 3 door in storage for 7 years and am now restoring the car. Its a sickness...

*Robert Blumenfeld
Chappqua, NY*

Do take notes, and lots of pictures, so we can share in your affliction. -Ed.

Here in the Northeast portion of Pennsylvania we have the best Saab service in the U.S. - Kunkle Motors.

Brief History: Named after the small rural town of Kunkle, it is the 3rd oldest Saab dealership in the U.S.

Owners: Mr. and Mrs. Daniel Meeker since November 1, 1957.

Sales/Service Technicians: Tim Haddle, Sr. and Tim Haddle, Jr., grandson and great-grandson respectively.

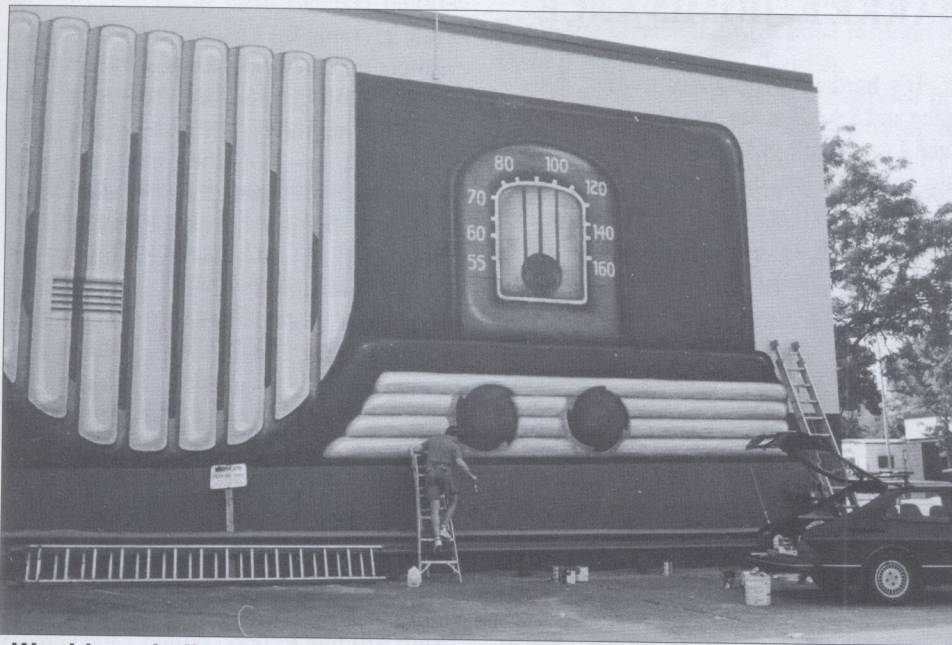
Summary: When you have a Saab problem who (or should) you gonna call? Kunkle Motors!!! Diagnosis is free and if you should need work performed, the current labor rate is \$35.00 per hour. I have tried other shops prior (mostly independents) but none have come close, in my opinion, to the superior knowledge, work performance and quality that Kunkle Motors gives. They fix only what needs to be fixed and that's it. No baloney here. I know some of their customers drive as far as 2 1/2 hours because of the shops trustworthiness. Have a problem, call 570-675-1546 and ask for Tim.

Happy Saabing (we are!)

*Ron Augelli, President
Saab Club of NEPA*



My Three Saabs. Inez Dunn, Homer, Alaska.



Would you believe that this big "radio" fit inside the Saab? Well, the paint and painting tools did, with the ladders being carried on top.

In the summer of 1999 I had the task of painting an outdoor wall mural for a radio station in Rochester, MN. Never having done anything like this before, I wasn't sure how I would work everything out. Nevertheless my 1983 900 Turbo was fit for the job. It had already been relegated mostly to winter duty and trips around town. Anyone who has owned a Saab hatchback knows it beats a wagon hands down for getting things in and out. On this job it meant 12 assorted gallons of paint, compressor, hoses, buckets, brushes, tarps, etc., as well as two 27' ladders on roof racks on top. I would pull up, remove the ladders, open the hatch, and within 10 minutes I was ready to paint. The project went smoothly and I found one more reason why I liked my Saab even as it aged.

*Gregory V. Wimmer
Rochester, Minnesota*

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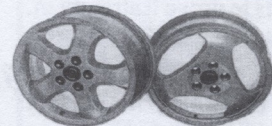
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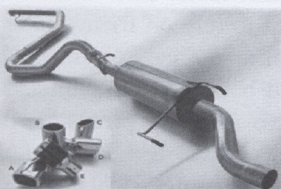
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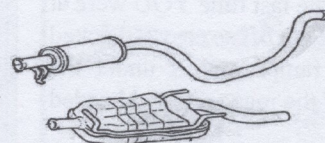
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WHEELS WHEELS WHEELS WHEELS WHEELS WHEELS WHEELS

I had to get the 1968 Sonett II V-4 inspected. Here in good old NY, since the car is old enough, it doesn't get the breathalyzer, the inspection is just a safety check. So I checked the safety items before I headed off. Sure enough, the horn doesn't work anymore. But I've owned the car long enough to know what that is. Under the steering wheel is the grounding contact for the horn. Sure enough, it's fallen off. Again. That's an easy enough fix, and one that my limited mechanical abilities can handle.

Screwdriver safety stowed, I'm off to the mechanic's shop. I dropped the car off, and was told that it would take an hour or more, what with the busy bays that this guy has. No problem, I told him as I headed out to do some errands on foot. An hour later, the car's in the bay. Great, I thought, I'll grab lunch. 45 minutes later, lunch over, the car's STILL in the bay. I went in to talk to the manager.

"Oh yea, it's just about done," he says. "Just hang out a few minutes." I wait 15 minutes while zero activity takes place at my car. Mechanics come and go, some with lunch and some without. Nobody goes near my car. Intrigued, I get up off the curb for a closer look. I check the car. The new inspection sticker is on the windshield. Keys are in the ignition.

I go back in to talk to the manager again. "Oh yea, let me check with the mechanic." Turns out that I embarrassed the mechanic. The car's done, but the guy working on it just doesn't know how to pull it out of the bay. He drove it straight in, and now he can't find reverse! The manager comes back out, with a sheepish look on his face. Turns out, he doesn't know, either!

Inside, I'm laughing, but I don't want to upset an entire garage of hard working mechanics. I realize that if you own a newer car and you don't back up a 4-speed on the column Saab every so often, it can be quite a mystery. So I pay my bill (all of \$10 - when was the last time YOU were at repair garage and got off so easy?), backed the car off the ramps myself under the watchful gaze of the manager, and headed home. Fun!

Seth D. Bengelsdorf
Port Chester, NY

MARKET DOMINANCE

It's hard to write about market dominance and SAAB at the same time. The only place I can think of that SAAB may dominate is in the hatchback-designed sedans. What I'm referring to is the change that has taken place in the car market. Remember when it was a "guy thing?" Men bought the

New Survey Topic: SAAB Ads in the Media - Good, Bad?

by Norma Goldberger

"Most people who test drive a Saab, buy a Saab," is the catch line in Saab's current run of radio ads. It's the purpose of the rest of the ad to get people to take that important first step of putting Saab on their list of cars to investigate. How well do those ads work?

We were driving to fetch our freshman college student (see NINES #243) to take her to the oral surgeon to have her 4 wisdom teeth extracted - it's important to understand the tension in the car - when we heard the SAAB radio commercial's male voice saying what fun it is for a SAAB owner to make lefts and rights on his way to the grocery store. I commented that this was a sexist commercial, whereupon the Editor commented that I had led a deprived childhood in which I never learned that driving was fun. I responded that I felt the commercial was sexist because women generally always go to the grocery store and men usually do not, so any reference to the fun of driving to the grocery to me smacks of as much credibility as a man on TV telling me that laundry detergent makes the wash fun. And as for the lefts and rights, I imagined the milk falling over and smashing the eggs.

If you want to respond to this SAAB related topic: pro or con, this ad or any other SAAB ad in the media, write or email. Meanwhile we need milk, think I can tear the Editor away from writing issue 245 by telling him how much fun it is to drive to the grocery store?

Not a chance - Ed.

cars and took care of the maintenance needs. While growing up I assumed by my Dad's example that men just did those things. My mother didn't get her driver's license until she was in her thirties. She never had to, or needed to know about the car because Dad made sure it was taken care of. (It didn't hurt that he was an Automotive Vocational/Technical Teacher.) Things have changed! Women now dominate the car industry. Maybe not doing service work, but they have taken a leading role in the purchasing and maintaining of the vehicles. Guys, do you think that the cleanliness in service centers new shops, showrooms and waiting rooms is because of you?

Each year since 1996, NAPA (National Automotive Parts Association) has taken a survey to determine the service needs and wants of auto owners. The 1999 Report "Auto Attitude Report" polled 1506 vehicle owners in fifteen cities, equally split between men and women, to gauge consumers' attitudes about car repairs and auto technicians in areas of trust, professionalism and training. I read about the Report in an article written by Bonnie McCleary, publisher of Northern Automotive News. In the October 1999 issue, Bonnie, a very knowledgeable publisher that gets right to the heart of her industry, separated the women's responses from the men's to make the report more meaningful. She starts out in the very first paragraph by stating, "It's no wonder women are taking better care of their vehicles since they are now buying half of the new cars and trucks in the U.S. That number is expected to climb to 60% by the year 2000." Currently, more than 65% of customers who take their cars to repair shops, are women. WOW! We have many women customers but I'm not sure it's at that level. It sure makes me stop and think about the services we provide for women. She goes on to say that three out of four women surveyed feel a trustworthy reputation is a key quality when choosing a repair facility. On the other hand, 66% of the women polled tended to rely on friends for honest information about car repair. 41% of women polled believe that technicians will fairly address a service problem. Only 21% of women polled feel auto-technicians abide by ethical, professional practices. While the report has lots more numbers and interesting statistics, I think the final one should be that 54% of women as opposed to 41% of

men develop regular preventative maintenance schedules. My conclusion from Bonnie's writing is that women do dominate, but they have yet to develop a high level of trust with the people that they are dealing with.

As service providers it is important that we advertise and promote our businesses so we can attract potentially loyal customers. Do women fit in this category? In Auto Inc. Magazine, February 2000 Issue, Ralene and Karen Friend (mother/daughter co-authors)

ers, (women), are now setting the standard. We in the service industry must respond to them if we are going to flourish.

Women, those of us in the service industry are here to help. We are trying to respond to you as a decision maker and trying to educate you so you can make good decisions in this area. Education about cars and maintenance are important as you make these choices. Developing trust with a service provider is very important. If you don't trust your present shop, "walk." Auto maga-


zines for the professional service industry have a lot to say to professionals about the changes that we need to make. The very first newsletter put out by All-Data (Technical Information Provider for Automotive Shops), February 2000, listed on its front-page websites for auto shops to check out. One of the sites was www.womanmotorist.com. This site is dedicated to educating the fastest growing segment of car owners (women). Upon checking out this excellent site, I found that they claim 70% of their "hits" are by women and 30% by men. So, it is really beneficial to all.

We are paying attention ladies! We are trying to talk in plain English and not car terms. An example of that is my wife. Linda had taken her son's pickup to a shop for some work and was told they had "turned the rotors".

She paid the bill but didn't understand why they needed to reverse the rotors. What good could that possibly do? When I explained that they were talking about resurfacing (turning) the brake rotors, the bill and what she had paid seemed much more reasonable. We're trying! Women, ask questions! As you create the market shift we need to learn from you as well. We know that fixing your car 100% right the first time is the standard! It is up to us to provide not only properly

repaired cars but have them done on time. (And cleaner than when they arrived.) This is a challenge for all of us! If you are a woman who is responsible for the car purchases and maintenance, you may still feel like you are in the minority because men staff most of the auto service industry. Women who are interested in working in the auto service industry are few and far between. We currently have three women on staff: Dorine in the parts department, Lori is our detailer and Linda is our receptionist. Women's attention to detail in the service industry is always a nice touch!

So we will continue to try to recruit women, but it is a difficult task. Difficult or not, the writing is on the wall: take care of our women customers or risk losing up to a 60% market share! I do not think there are many facilities that are willing to take that chance. So ladies, thanks to your input, the face of the auto service industry is changing...for the better. As SAAB continues to see their market share increase, we will see more and more women in Saabs. Let's make sure, by the service we provide that they want to keep them!




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2001 INFINITI QX4



The biggest news for the 2001 Infiniti QX4 is a new 3.5-liter DOHC V6 that produces 240 horsepower, an increase of 70 horsepower. Read Bob Storck's article on the new INFINITI QX4

USED CAR Buying Guide Used car buying is better than ever with "off-lease" pre-owned options. Find out how to get the best used car for the least amount of money in the new WOMAN MOTORIST Used Car Buying Guide.

NEW CAR Buying Guide Get the best deal possible on your next new car. The WOMAN MOTORIST New Car Buying Guide Sponsored By CarSmart includes information on choosing the right car, getting the lowest cost financing or lease, negotiating the best price and much, much more. Highlighted Articles:

First Look: Ward Burton Runs Away with the Mall.com 500 at Darlington Raceway, S.C.

Woman Motorist, an "E-zine" magazine distributed over the internet. Not shown are the ads that pay the freight.

wrote about this issue to auto professionals. They said women formerly were very loyal. Presently, women tend to "walk" if they aren't recognized and respected as decision-makers. They are less likely to put up with high-pressure sales or mediocre service. They're likely to shop around to find services, products and respect. Karen and Ralene say there is a market shift happening that will have a long-term effect on the auto market. The non-traditional custom-

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Ramblings and Demands

by Phil Lacefield Jr.

A Match Made in Michigan

With the recent announcement that General Motors would be exercising their option to buy up the remaining fifty percent of Saab Cars, there arose such a wail of grief and protracted agony on the Web lists guaranteed to wake the dead. Many teeth were gnashed, much clothing was rendered, oaths were sworn, dogs and cats began living together in peace and harmony, total pandemonium erupted. The consensus has so far been that this can mean nothing but Bad Things for our beloved Saab, that The General is only capable of producing Bad Things, that Bad Things will happen to independent Saab dealerships and service centers, and that the final result will be the total annihilation of the Saab lineup as we know it.

I say you are all stuffed right full of blueberry muffins.

Now before the flaming begins (and I assure you, my email box will begin overflowing with great nasty letters of unabashed hatred and scorn before the ink even dries on the issue you hold before you), let me set the record straight: I don't like the fact that Saab will soon be on the same par as Pontiac and Buick in the very near future, nor do I particularly enjoy the current rumor that The General has already seen fit to attempt a Saab/Saturn merger, something I hold akin to mating a weasel and a fly fishing reel – just a terrible idea for all parties concerned. Nothing good can come of plastic-bodied cars of remote Swedish descent rolling off the line in Spring Hill, or an entry-level sedan using Saturn's first turbocharger based on a 2.3 EcoPower engine, nor can there be any lasting benefit to having both lines sold by khaki-wearing preppy young men on a no-haggle lot fairly awash in rebates and cheap lease deals.

Nay, from where I sit, this merger has the potential, and I emphasize the *potential*, to be a Very Good Thing Indeed for both Saab and The General, if the cards are all played exactly right. Take for instance the recent acquisition of Jaguar and Volvo by the Ford Motor Company. Don't think for a minute that Jag and Brick fans around the world didn't go through the same gnashing and rending motions that we all did upon hearing the news of their respective buyouts. The gloom and doom were flying thicker than political rhetoric in Iowa, all prophesying the imminent demise of both marques. But quite the opposite happened. Jaguar's entire line got revamped, polished and dragged kicking and screaming into the 21st century with sales, quality and reliability numbers unseen in the company's long and storied history. And who ever in their wildest dreams thought they'd see a curvy, well-rounded, un-box-like Volvo as long as they lived, with the same astonishing uplifting in quality and user satisfaction?

Granted, the rebirth of Jaguar did involve the occasional trip to the Ford parts bin (less so at Volvo), causing longtime cat fanatics to cringe at the sight of an Escortesque steering wheel here or the occasional pilfered turn signal lens there, but the gargantuan overall increase in ride and build quality would have been quite impossible without the wealth of knowledge, design and funding that only a company the likes of FoMoCo could provide. The best thing about the Jaguar deal is driving one; they've lost none of their English-car charm, poise and drivability and yet somehow managed to lose ALL of their electrical problems, and transmission problems, and handling problems...the list goes on and on. Although Volvo has yet to be as heavily influenced, make no doubt that you'll see the shaping hand of Ford in the mix in the very near future, with what one can only hope are equally impressive results.

Which brings me back to my original argument. The total absorption of Saab by General Motors has the potential of completely destroying everything that we have come to hold dear: the sportiness, the zing of a well-tuned turbo, and, yes, even

the quiriness. But stop and think for a moment, all you Saab lovers of child-rearing age, what a marvelous thing a Saab minivan or SUV would be IF and only if it was designed and built the way classic 900s and 9000s were? Imagine the engineering finesse of Trollhattan combined with the mass-production capabilities of Detroit, mixed with the teeming minds of designers in Valmet and Santa Barbara, to produce a sporty, reliable, and above all affordable line ranging from a reborn Sonett all the way up to a larger peplemover capable of towing a Bullnose without overheating? The possibilities are endless, the scheme grand, the potential for a similar rebirth equal to that of Jaguar is in the making, if the fine folks in Michigan do the right thing.

Another oft-discussed possibility is a gentle merger with those insane crazy young guys at Cadillac, which in and of itself could be considered a Bad Thing (Sonett DeVille? 9-5 Brougham Edition?) if not done correctly and with forethought. The new Evoq coupe and an unnamed SUV line Cadillac has been working on recently proves this division has developed quite nicely from the days of the Cimmaron and the 8-6-4 and diesel engine days, present company of the Catera excepted. With the proper management dipping from both sides of the Atlantic and an adequate amount of funding and support from the suits, a Saab/Cadillac team could one day soon field contenders at, dare we say it, Monte Carlo? Le Mans? Formula 1? Could a suitably factory-equipped four-wheel-drive Saab SUV tackle the wilds of Baja, the sands of the Paris-Dakar, or even aspire to the banked ovals of Indianapolis? Don't laugh: look at what Mercedes-Benz did with a heaping pile of cash, a rules loophole and a handful of insane drivers motivated to win.

No one likes to see a shotgun wedding, but if the bloodlines are solid, and Daddy doesn't run out on the family, even the worst of marriages can produce remarkable children.

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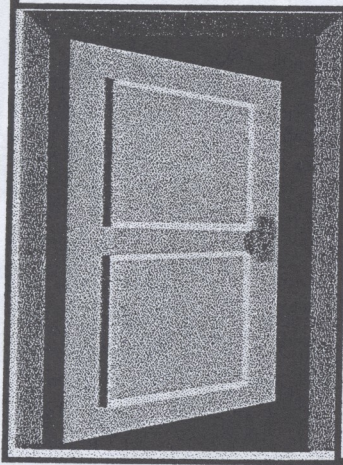
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Snow Car Revisited and Other Projects Snowed In

What's an old SAAB guy to do when the only two vehicles which will make it out the driveway for two weeks are the gas-guzzling Jeep and the '63 96? Since Kyndra needed to go to work after the roads cleared up enough, I was left with my road-tire-shod 96. Unlike many of you in northern climes, we in southeastern Virginia are not so accustomed to snow, and as such, the plows did not even start working the roads until sometime in the evening of the day following the storm.

The Mighty Three had not seen action since having been put away for the most part a couple of months earlier. I had one of those anonymous 3-digit SAABs being dismantled in the middle of the shop at the time, but thankfully it still rolled on four wheels and got out of the way enough to sneak the 96 out the door and to the side of the shop. I want to thank Florida Sonett owner Mike Szostkiewicz, who happened to be here anyway, for helping to not only push the 900 out of the way but also help push and lift when I beached the 96 in a couple of high spots! The '63 got some well-needed exercise the following day, as a few of us SAAB types got together in Norfolk with John Blair, triple Sonett III owner as well as some other projects and prize-winning restored vehicles.

The driveway snow has melted now for the most part, and the 96 will be thoroughly washed this afternoon and likely put back into its little spot, the rear brakes making some interesting "Fix me, or you'll be sorry!" knock-knock noises around turns. Add to the rust work which isn't getting any easier and the general maladies these cars suffer from when parts get old, and she needs more work than the trashing usually afforded her. My friendly local service facility gave her a clean bill of health after I assured them that the underside was still passable, and allowed me to pay them the \$10 for another year's inspection sticker.

On to other issues. The green ex-racecar '60 93F with the '64 GT-850 engine and the race-built 4-speed has been wanting for attention of late. I suppose that's the next

in-house project, tidy up some rust, suspension issues, clean the engine compartment, install another transmission with the later V4 driveaxles, and decide whether or not to keep the 4-bolt wheels. We're still looking for new rotors for these things, so if



you're hoarding a stash of them, let me know, I have a few customers who also wouldn't mind having a pair.

I suppose I owe you all a technical tip this time around, so here goes. Radio-Shack have been accused of carrying a Capacitive Discharge ignition for the meager sum of \$20, #990-0004. Alternatively we're researching two different systems for complete replacement of points and condenser on the Mighty Threes. One is the Crane Fireball #700-0231, the other is Pertronix #18673. Both are for 6-cylinder 4-stroke vehicles, and both require modification of the firing rotors (remove every other one for 3 cylinders). We'll be testing those soon and will rate them. Thanks to Bud Clark and Paul Perry in California for these ideas. Paul was running the Pertronix in Colorado at the time of the convention and it seemed to be a good-running setup. Let me know as to your results by e-mail if you get to one of these first!

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Tires

This month I interviewed Ron Roberts of Ziegler Tire in Canton, Ohio. Ron was a professional musician who became a tire store manager when his family situation made life on the road a drag. While explaining tire care to this novice, several of his customers were told “no charge” for the service his store performed on their cars.

I asked basic questions since frankly, I just like to drive a car and not take care of it. Normal maintenance, he said, should include checking the air pressure in the tires and looking at wear on the outer or inner edges. I asked how I would know if the air pressure in one tire is low, other than by checking it with a gauge. Ron explained that for a front tire, it would pull to one direction if the tire is low. Or if a car is pulling to the right or left this could indicate that the tires are out of alignment. A difference of only 1/16" can significantly affect the wear of the tires. Either way, if the car is pulling to one side, it means that the tires are suffering. With a back tire it's almost impossible to know if the tire pressure is low. One might feel a car losing power, or if the windows are open one might hear thump thump thump. One might feel that the car seems to be dragged as opposed to accelerating correctly, or overall all the ride feels rough.

When using a tire gauge, Ron stressed that one could purchase 6 different gauges, and they would probably give 6 different readings on the same tire. Even so, he stressed that the owner really should use a gauge to check the tires, and especially when inflating them. “Never ever believe the numbers you see on the old fashioned air pumps,” he said. Ron went on to describe one customer who brought in his car with brand new tires and complained the ride felt rough. When Ron checked the tire air pressure he found them to be over inflated so that the car was bouncing around on the highway. This customer filled up his tires until they ‘looked’ right without using a gauge. The new tires were worn from being over inflated. (See side bar: “Gauging the Pressure”)

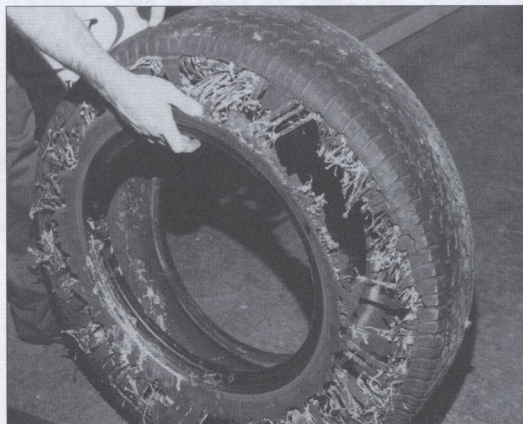
I asked about the wear on the inside or outside edge. Ron explained that rotation every 5000 miles was best for reducing the wear on the front tires, and that would be the time that wear on the inside edge would be most likely to be noticed. “You can easily

see the outside edge,” he said, “but the inside edge is hidden unless you have the wheel turned all the way. Sometimes I’ve even cut myself, when the tire looked fine but when I reached in to remove it, I found that the inside edge was worn down to the steel belt!” Ron does not agree with the manufacturer’s advice of rotation every 7500-10,000 miles. On FWD cars like Saab, the front tires do all the work of powering and turning the car, and they take the abuse on a stop. The back tires just roll. One customer recently came in after driving 20,000 miles with no tire rotation. The front tires were completely bald and the back tires looked like new.

How does one choose the proper tire? Ron said the driver has to consider:

1. The speed he normally drives,
2. The total mileage one drives annually and
3. Whether it is city or highway driving.

The tires which come as original



This tire can not be patched

equipment on a car must be capable of handling that car’s maximum speed. Ron said that it makes no sense to him to replace them in kind if the owner is a “mature” woman who only drives her Jaguar around town or occasionally on the freeway at or below the speed limit. Why pay the extra cost, and subject the owner to the rougher ride, if the car will never, ever, see more than 65 mph? “But if I know there is a teenager in the family,” Ron said, “I insist on putting on tires with the original speed rating. I know that if there’s a teenager, and the car is capable of 140 mph, sooner or later it will be going 140.” (Please, not our teens!)

If an owner just wants to get his car through the winter safely, and plans to sell it

in the spring and buy a different car, that’s different from someone who plans to keep the car and drive it a lot. Replacing tires with original equipment is always a safe bet, but the price can vary a lot. Original equipment tires can cost from \$90 to \$450 each. You’d think it’s only Ferraris and the like with \$450 tires, but the Chrysler minivan requires 450.00 tires. This can be quite a shock when the owner sees it’s time for new tires.

Snow versus all season tires.

Ron said most people in Ohio do not buy snow tires anymore. Snow tires are best for traction in deep snow but don’t make that much of a difference in town, where there are regular snow plows. Regular all season tires comprise the vast majority of the tires Ron sells, and his customers are quite satisfied with them. The newest tire for ice driving is the Blizzak, made by Bridgestone, or similar ice compound tires from Goodyear, Michelin, or (the traditional Saab owners’ favorite) Nokian. Their tread rubber compound is like a sponge with little cells that effectively act as suction cups. When the tires were first introduced, Ron was invited by Bridgestone to drive around an ice rink and compare Blizzaks to regular all-season Bridgestones. He said that with the regular tires he almost took out the wall of the rink, but with the ice tires he could maneuver and stop without trouble. The only negative of these tires is that they are expensive and have a shorter life span than other tires. In addition, once they are 60% worn they become the same as all purpose tires, since only 60% of the tire can be made with the little cells or the tire feels too squiggly on pavement. (See sidebar, “All Season”).

We asked Ron what one thing he would like us to tell people about tires. He said that most people don’t even think about their tires until they lose traction, but they should always be aware that the tires are the only thing connecting the car to the road. Most try to get just a few more miles out of the old before buying new tires. It’s one of the areas most ignored in maintenance. It’s one thing to get a car to move and another to get it to stop. In Ron’s opinion, brakes and tires are the 2 most important safety features.

Car companies, tire companies, magazines from NINES to Consumer Reports, and driving instructors all tell us to check our tire pressures every two to four weeks. This means obtaining a suitable tire pressure gauge.

"All Season Tires"

Before the widespread use of radial tires, snow tires were essential for winter mobility. The tread on the old-fashioned tires tended to squeeze closed unless they had a big noisy pattern. This can be a problem in wet weather, and it definitely is a big problem on snow. The tread on radial tires, because of the circumferential belt, stays open. Almost all drivers noticed that with radial tires on their cars, they had much better traction in snow than they ever had with bias ply "summer" tires, traction approaching that of bias ply snow tires. Goodyear engineers and marketers also noticed this. They exploited the natural tendency of radial tires to give good snow traction, opened up the tread design enough to meet the tire industry's rather vague specification for "Mud and Snow" (M&S) tires, and labeled the resulting tires "All Season".

There are no performance standards to qualify a tire as "all season", but most tires which are so labeled will provide a decent level of performance in light snow or slush. The best of the all season tires actually provide quite good winter performance. Tire design is an exercise in compromise: a balancing of different driving qualities which conflict against each other in the final result. In the case of "all season" tires, it is primarily the warm weather, dry and wet road performance that suffers. Rubber compounds which maintain their flexibility in cold weather tend to grip less strongly on hot summer pavement or on wet pavement. Tread patterns with many "sipes", the fine cross cut openings in the tread, are less stable under high side loads. And finally, in extreme winter weather, dedicated winter tires are much more capable than all season tires. The final selection is dependent on the driving environment, driving needs, and budget of the purchaser.

-Ed.

If you have purchased a new Saab, you need search no further than your owner's manual. For at least the past dozen years and probably longer, every new Saab has been delivered with a tire pressure gauge in the document folder (Figure 1). These appear to be good quality gauges, too. I have checked several, and they always give the same reading within one psi.

Figure 2 shows the standard pencil type gauge next to another handy tire maintenance tool, a tread depth indicator. Pencil gauges are rugged, relatively inexpensive and store conveniently in the glove compartment or center console. They are prone to be a little inaccurate, so you should "calibrate" yours against a gauge known to be accurate.

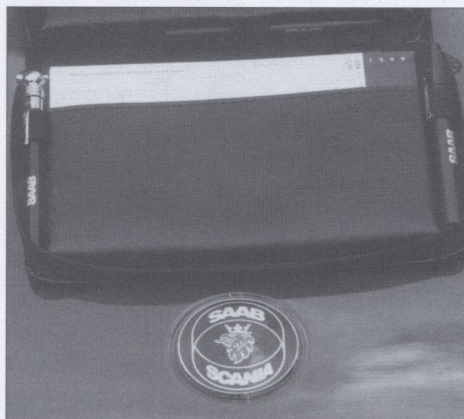


Figure 1: Every new Saab is delivered with a quality tire pressure gauge

Carefully checking the wear with a tread depth gauge will show if the tires are inflated for optimum tire life. If the depth gauge shows the tires are under inflated, use a higher pressure as indicated on your gauge. Another benefit of the depth indicator is to detect uneven tire wear near the beginning of a tire's life. Correcting the problem early will result in obtaining most of the tire's potential life. Don't wait until the wear bars on the outer ribs are showing,

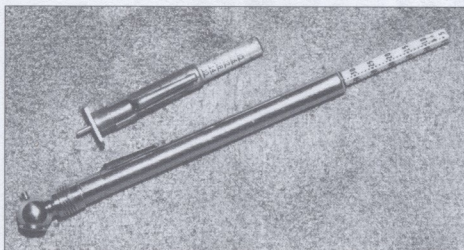


Figure 2: The traditional "pencil type" tire pressure gauge and a tread depth indicator.

and the tire is "shot" even if there is lots of tread rubber in the center.

Purchasing a high quality "reference" gauge for your garage provides a step up in accuracy. One can use it to measure the cold pressure of one tire and then remember how much pressure needs to be added to that tire. At the gas station, use the pencil gauge to measure your "reference" tire again, add the shortage to the reading, and inflate all the tires to that reading.

Figure 3 shows the front of two dial gauges which might be considered to be "reference" gauges. The one on the left might appear to be better, with its multi-color background, narrow needle, and chrome finish. Pick them apart, as shown in Figure 4, and the superiority of the black "Acme" gauge on the right is clear. It uses

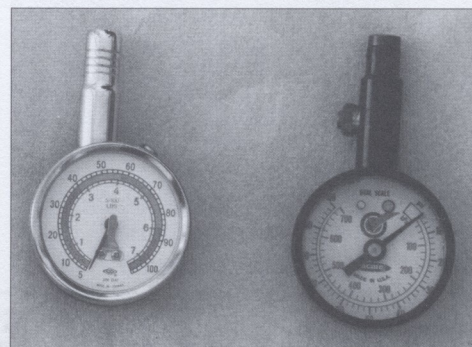


Figure 3: Round dial tire pressure gauges look precise.

a "Bordon Tube" mechanism, the kind used in scientific instruments, while the other gauge uses a simple spring and plunger, turning the dial through some kind of gearing inside the case.

More modern is the electronic gauge. Figure 5 shows two which are sold under the "Accutire" trade mark. One has a sort of pistol grip and is designed for the shelf or glove compartment. The other is

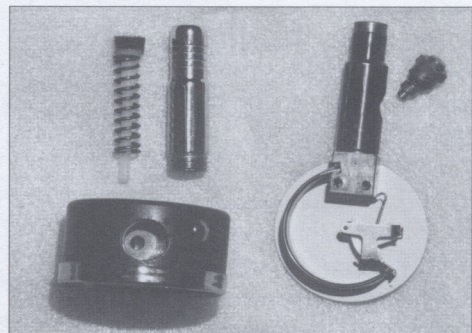


Figure 4: Some dial gauges have precision internal mechanisms, some don't.

Gauging the Pressure

conveniently attached to a key ring. These have the advantage of displaying the tire pressure in unmistakable arabic numerals. I use this type of gauge most often.

The ultimate in tire pressure gauges is a telemetry system installed inside each wheel. These systems are required for "extended mobility" (aka run-flat) tires. "Run flat" tires never do run while flat, because their internal structure provides support if the pressure is lost, but without air pressure their speed capability and range are quite limited. Therefore, a means for alerting the driver to loss of pressure is essential. SmarTire™ is one such system. The wheel mounted sensors detect motion



Figure 5: The Editor's choice - easy to read and accurate .

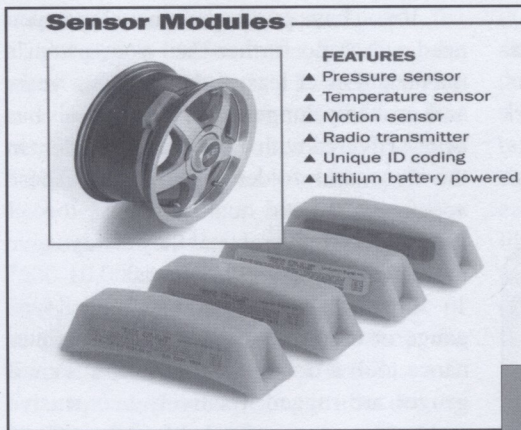


Figure 6: Telemetric tire pressure monitoring

(so that they transmit only when the vehicle is moving), pressure, and temperature. Each wheel sensor is tuned to a unique frequency, and for those who pull trailers there is a six channel unit available. Figures 6 and 7 show the SmarTire™ transmitters and dash display unit. They aren't cheap. You can link to vendors who sell the system at their website: <http://www.smartire.com>.

Finally, there's measuring tire pressure by sleight of hand. Or is it smoke and mirrors? It's computer stuff, actually, using

the data from the ABS sensor to detect one wheel which is chronically turning at a different speed than the other three. That is the tire which is losing tire pressure, the one with the nail. Without an independent measure of vehicle speed, this strategy will only detect a leaking tire. To detect a condition where all tires are under inflated or over inflated by the same amount

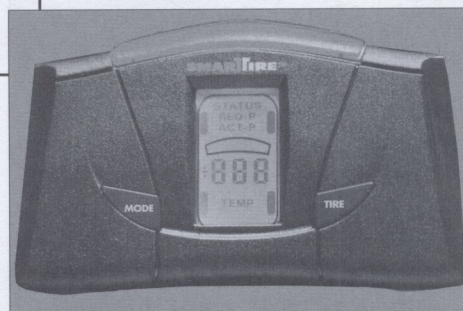
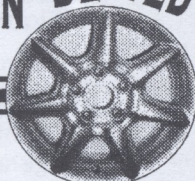


Figure 7: The SmarTire dashboard display unit.

would require something like a doppler shift radar transceiver for an independent speed measurement, along with periodic calibration runs.

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Saabs in Competition

All Woman Team to Drive Sonett in Targa Tasmania Rally

Alaska high-school teacher Teresa Davenport has been accepted for the ninth running of Targa Tasmania, a six-day rally for vintage and modern sports cars covering 2500 kilometers of scenic Tasmanian highways. The Australian event, by invitation only, runs in May, 2000, and features 300 cars from around the world, from 1920s Alfas to contemporary purpose-built rally blitzers from Porsche, Mazda, and Lamborghini. Davenport's co-driver will be Cheri Huntoon of Reno, Nevada. "We're honored and excited," says Davenport. "At this point, we're the only Americans who've been accepted, and one of only two all-woman teams."

To prepare for the Australian outing, which features flat-out driving over twisty mountain roads which are closed to public traffic, Davenport has campaigned a vintage Saab Sonett in Pacific Northwest rallies and races for several years. "We really don't have this sort of motorsport in the US," she explains. "The only way to get high-speed pavement experience is on the race track.."

When the Swedish blue-and-yellow coupe appears at Seattle International Raceway or Portland International Raceway, it stands in vivid contrast to the track-prepared cars around it. The Saab Sonett is rare—only 12,000 were built from 1967 through 1974, just a thousand in 1968—but even more surprising to fellow racers is that because its primary purpose involves highway driving under varying conditions, it retains road-going suspension and tires. It also retains its original engine specifications, although the Alaska Rally Team admits to a few more than the car's original



To prepare for Tasmania's alpine roads, Teresa Davenport has been racing her 1968 Saab Sonett on Pacific Northwest race tracks.

(Bob Dunsmore photo)

65 horsepower. "We're running in a limited production class in Tasmania," says Davenport, "and there is only so much we're allowed to do. In fact, when we race this car, we drive it to and from the track!" In Davenport's rally class, engine internals such as cams, valves, and pistons may be modified, but the team mechanics are conservative and cautious. "In Targa Tasmania," says Davenport, "the first objective is to stay on the road and get to the finish line."

Vintage Saab fans may be interested in specific modifications allowed within the

has carried Jack Lawrence to so many Saab victories. Sparks come from a Mallory Unilite distributor and coil. The clutch is stock, but the flywheel has been lightened, and a steel balance-shaft gear was an obvious swap, along with Capri oil pump and starter motor.

Even more interesting may be the selection of gears, a Series I close-ratio cluster turning a Saab 96 sedan's standard 4.88 ring-and-pinion instead of the Sonett's higher 4.67:1 gear. This makes second a smoother transition when downshifting from third, with about the same rev jump as a fourth-to-third downshift. "It really makes a difference on twisty roads," says Davenport. "You can't learn the same down-shift and braking points that you memorize on a race track, so shifting has to be fast, smooth, and positive. This set-up doesn't have the top end of the Sonett ring-and-pinion, nor the sheer acceleration of the traditional Saab rally gearboxes, but it works very well for the slow-for-tight-corners, blast-down-the-strights we'll see on the Tasmania stages."

How Fast?

This business of how incredibly fast Saab Sonetts are—or were—in stock trim or otherwise reminds me of my favorite racin' T-shirt slogan: "The Older I Get, The Faster I Was." I do remember that when my first Sonett (a '69) was newish (yes, it even looked newish) I did manage to run along the Glenn Highway at a top speed that I calculated from the tach to be around 107; I can't remember what the speedometer said.

Several years later, in ice-racing trim with a turbocharged 1700, the top speed was open to question. The car would go absolutely as fast as I dared to go. I figure I could have run it right up to grenadation if I cared to. But the thing is, unless you're at Road America, absolute top speed is irrelevant. What we seek is "frog power"—the ability to leap out of corners and run up to whatever red line we dare right pronto.

The Oakley Woman's Targa Tasmania ride is VERY nifty in this regard, what with a zinger 1500 and a nice selection of Series I gears set up by Jack Lawrence. Each is quite appropriate and falls at the proper rpm range for the changing circumstances of twisty-turny zippedy-doo-dah driving; I broke the engine in via a 1000-mile round-trip excursion along Highway 89 in the Sierras. . . where I confirmed that the car is at least capable of carrying 77 in a 65 zone. I have documentation.

Satch Carlson

Originally posted on VSAAB - The Vintage SAAB Mailing List
(<http://www.vsaab.com>).

Saabs in Competition

The Tasmanian highways aren't the only roads traveled by this particular Saab. Echoing the earlier days of sports-car racing, Davenport has in fact driven the car over hundreds of highway miles just to get to the start of some events. For the three-day Shell 2000 Rally in Canada, for example, the car was driven from Portland, Oregon to Calgary for the rally—where it won its class—and then back to the Portland workshop where the car is maintained. Any unexpected disaster must be dealt with on an ad hoc basis. After driving the car to the SOVREN races in Seattle during the 4th of July weekend, she says, the team was only temporarily stranded when an intake valve snapped in two. "We borrowed a trailer—and the truck to pull it!—from friends in Seattle," she says. "But if we had to, we could have just pulled the pushrods and spark plug to that cylinder and limped home on three."

Targa Tasmania, which consists of a number of flat-out special closed-highway stages on every major highway on the

island, has seen the likes of racing legends Jack Brabham, Stirling Moss, and Jochen Mass on its damp up-and-down roads, all dealing with the same challenges: roller-coaster elevations, slower cars, and changeable weather conditions. The American team will run on Yokohama AVS Intermediate tires chosen not for their all-out dry-weather traction but for their outstanding ability to hang onto wet pavement—even cutting through standing water. "Sometimes it rains so hard they have to cancel a stage," says Davenport. "And even then we have to drive through it—that's the only way to get to the next one!"

Targa Tasmania regulations prohibit the use of special rally tires such as those used in European events or "racing compound" street-legal racing tires such as those used for sports-car racing on American tracks. "In Tasmania," says Davenport, "we're allowed just six tires for the entire week, so we have to think about durability as well as traction in all conditions." For the Down Under excursion,

the crew will ride on Yokohama AVS Intermediate tires, which work well on wet roads and provide ample traction in dry conditions—without wearing away on gritty tarmac surfaces. The 185-60 Yokohamas are mounted on 5"-by-15" wheels.

One other factor affects tire choice: On a race track, a car is an empty shell with a single driver. In a marathon rally, everything travels with the two-person crew. "The Saab Sonett was never much for hauling luggage," laughs Davenport. "With two spare tires instead of one, and our helmets, first-aid kit, fire extinguisher, and everything else the two of us need for six days, just packing the car becomes an art. There's no other form of motorsport where you make your tire choice based on whether you can get two of them in the luggage compartment!"

*Press Release
Sent to NINES
by Satch Carlson*

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Around the World in 80 Days - Driving a Saab 96

Shades of Phileas Fogg, protagonist of Jules Verne's 19th century novel. In these days of jet powered people transport, one can manage to travel around our planet in 80 hours. But this adventure will travel overland, with only a couple of airlifts to traverse the oceans. Not all 80 days will be spent on the road, but many of the days on the road will be quite long.

Richard Taylor and David Pierce of Phoenix, Arizona, are no strangers to motor marathons, but this will be the longest either has attempted. For that matter it is the longest anyone has attempted. To make the adventure complete, they will be traveling in a 32-year-old car, a 1968 Saab 96.

Taylor and Pierce are serious about their rallying, which is why they chose the Saab. They wanted something that would be reliable, have reasonable power, and would be comfortable for those days when they would be on the road for 16 hours. They started by making a list of desirable features, comparing 4-wheel, front-wheel and rear-wheel drive, open and closed cars, carrying capacity, and reliability. In addition, the rules state the vehicles have to be 1960s vintage or older, so contemporary vehicles were out of the question. In addition, there was the choice of something with rally heritage. It all came down to the Saab 96 with the Ford V4 engine.

The duo ran in the 1997 Peking to Paris Motor Challenge in a 1962 Willys, and Taylor participated in the 1998 London to Capetown run with his 10-year-old daughter in a Land Rover Defender with turbo diesel power. This will be Taylor's third major endurance rally, and based on what he has learned on these other events, feels he is prepared to be competitive overall.

"Dave and I would like to win," said Taylor. "There are probably 10 or 15 teams that will be competitive, but reliability and luck will be of major importance. Some of the older cars can probably keep up the speeds, but run into problems with long distance reliability. We've put a lot of time and money preparing this car. It's probably the most expensive '68 Saab in the world. We've been working on it for 7 or 8 months."

The annointed machine was a low mileage 1968 96-V4 purchased from Jack Lawrence at Motor Sport Service in Jamestown, New York. Lawrence had sold the car new when he ran a Saab dealership, and acquired it in the mid-1980s after the original owner died. It had only 25,000 miles on the odometer, and was in excellent condition, other than a bit of floor rust. Lawrence had driven the car only occasion-

ATW. The engine is a basic 1700cc Ford V4, balanced, but with forged 90mm pistons from Saab's 2.0-liter normally aspirated engine for lower compression. Compression ratio is only 8:1, since gasoline in some remote parts of the course may dip to 70 octane. Better breathing is accomplished with ported heads and larger valves, and the engine is equipped with an MSS Street Cam. A 43mm MSS carburetor and appropriately modified intake manifold sit atop the engine.

A larger capacity radiator has been fitted to cope with the temperatures expected in the Gobi Desert, and who knows how hot it may get this June in Montana and the Dakotas. It has done well so far in the heat of Phoenix. A larger, six-bladed fan has also been added to draw more air through the radiator.

A factory close-ratio rally gearbox will give the engine better pulling power under competition conditions. The exhaust system was originally designed to go over the roof, but rules and common sense have moved it back under the car. Re-design of the exhaust was still being worked out by Lawrence as of this writing, a bit of a problem as it needs to fit around the skid plate under the engine.

Colway Rally Tyres will keep the car off the ground. Colways got the nod due to their reinforced construction, as replacements will be difficult to come by at most places along the route. The Colways are mounted on polished Sonett alloy wheels, chosen for their strength. MSS Rally springs and Koni hydraulic shocks complete the suspension.

Since the ATW will be on the road for hundreds of miles and many hours a day, comfort is of major importance. Recaro SE reclining seats have been fitted, with manually operated lumbar bladders for better back support. One reason the Saab was chosen was the amount of interior space. "There is incredible room inside for two people," said Taylor. "If you have to sleep in the car, which is a real distinct possibility, you have some comfort due to the leg room."

Taylor feels its also necessary for the competing vehicles to look good, so the car has been nicely prepped inside and out. It has been painted a hue of red as used on 1999 Cadillacs.

To support their habit of running

Anchorage to New York, overnight stops

June 11 - Rest Day in Anchorage
 June 12 - Tok, AK - 519.42 kms.
 June 13 - Dawson City, Yukon - 301.00 kms.
 June 14 - Rest Day in Dawson City.
 June 15 - Whitehorse, Yukon - 606.76 kms.
 June 16 - Watson Lake, Yukon - 736.00 kms.
 June 17 - Terrace, BC - 863.42 kms.
 June 18 - Smithers, BC with loop to Granisle - 473.71 kms.
 June 19 - Rest day in Smithers.
 June 20 - Prince George - 531.16 kms.
 June 21 - Kamloops - 661.93 kms.
 June 22 - Banff - 551.38 kms.
 June 23 - Rest day in Banff.
 June 24 - Shelby, MT - 624.79 kms.
 June 25 - Bozeman, MT - 490.45 kms.
 June 26 - Billings, MT, via Yellowstone National Park - 549.72 kms.
 June 27 - Rapid City, SD, via Devils Tower, Crazy Horse Memorial and Mt. Rushmore - 787.36 kms.
 June 28 - Jamestown, ND, via Badlands National Park - 786.29 kms.
 June 29 - Duluth, MN - 863.77 kms.
 June 30 - Rest Day in Duluth.
 July 1 - Marquette, MI - 722.31 kms.
 July 2 - Bay City, MI - 723.39 kms.
 July 3 - Niagara Falls, Ontario - 557.60 kms.
 July 4 - Rest Day in Niagara Falls.
 July 5 - Binghamton, NY - 536.00 kms.
 July 6 - Newark, NJ - 333.96 kms.
 July 7 - Rest Day in Newark/New York.

ally, so he was willing to give it up to a grander cause. MSS did much of the mechanical work on the car, replacing anything questionable with new parts. Lawrence also provided a beefed-up front suspension with more reliable front axles from a late 99/early 900. The standard 5-bolt hubs have been respined to accept the larger CV-joints. He also built the engine to provide reasonable power over the broad range of environmental conditions and gasoline that the teams will encounter on the

Saabs in Competition

marathon rallies, Taylor and Pierce have started their own business restoring vintage cars, Automotive Wizards of Arizona, or the "Wizards of AZ". "Before I went to law school I was a mechanic, and Dave worked as a technician at a Saab dealership for many years," said Taylor, "so we're both quite familiar with the 96 and should be able to tackle any problems that might crop up enroute."

In addition to the '68, the team purchased a '71 96 with the intent of using that as their primary car, but the '68 turned out to be the better chassis. 1968 is the cutoff year under the Classic Rally Association rules, though newer cars may be used if they are essentially unchanged from the 1968 model. Both 96s ran in last September's Cannonball Classic, a rally organized by Car and Driver magazine columnist Brock Yates and San Francisco car dealer Martin Swig. It was more of an easy tour than the flat out speeds the cars will encounter on the ATW, but it did give Taylor and Pierce a chance to wring out some problems. Pierce also drove a 5,000 mile tour of the western U.S. in March as a checkout to clear up any potential trouble areas before the car was shipped to London in April. The rallyists leave the Tower of London on May, 1, heading down to Istanbul, then taking five weeks to cross Asia, ending that leg in Beijing, China on June 10. The 40 or so teams will then be airlifted with their cars to Anchorage, Alaska for the North American section.

The ATW crosses North America between June 11 and July 7, from Anchorage, into Yukon Territory, taking a route down the Rocky Mountains, and across the United States via Montana, South and North Dakota, Minnesota, Wisconsin and Michigan, crossing to Niagara Falls through Canada, then across New York state to Newark by July 6th. Cars will be loaded onto transport planes for the journey to Morocco, in Africa. After a few days crossing northern Africa, the rally crosses the Mediterranean to Spain, then through France, and returning to the Tower of London on Day 80.

Trusting to the reliability of the 96, and some luck, Taylor and Pierce will be there to celebrate. While trophies would be a nice capper to the trip, it's the adventure and the memories that will be most lasting.

Wild West National Pro Rally

In keeping with the year 2000 Owners' Convention theme of Saabs in competition, here is one tale from last summer that needs to be shared.

Dave Shrenk, who runs the Scanwest Body Shop in Seattle, entered his first SCCA Pro Rally in June, the Wild West Pro Rally, held out of Shelton, Washington. To be a bit more specific (but probably less clear to those who don't follow rallying closely) Dave was entered in the two regional Club Rallies run in conjunction with the two-day Wild West National event. The car was a 1986 900S 2-door sedan, a project begun by Dave's brother Doug, who had been rallying for several seasons out of the Scanwest Autosport shop. Co-driving for Dave was Chad Little, a friend from Seattle, not the Chad Little who drives in NASCAR. The rare 2-door body style was chosen for greater strength and lighter weight of the chassis.



Dave Shrenk and Chad Little in their 1986 900S two door coupe rally car.

Doug Shrenk was entered in another Saab, the same new-style 900 Turbo (NG900) that Sam Bryan and Rob Walden had taken to the 1997 Pro Rally Group 5 Championship. Walden still had the car, and installed Doug as driver based on his proven

Around the World Rally Continued

With the 2000 Saab Owners' Convention Track events taking place on July 5 and 6 in Lime Rock, CT, having a contingent of Saab enthusiasts cheering along the route is a distinct possibility.

Tim Winker

capability as a top finishing driver. Scanwest Autoport owner Walden was the co-driver.

Troubles for the Dave Shrenk 900 began on Friday night's Sou'Wester Club Rally when the rubber connection between the shifter and the transmission disintegrated, leaving a shift lever full of Neutrals. They towed the car back to Seattle, a couple of hours away, and worked through the night to make repairs in time to start the Saturday Wild West Club Rally.

The Doug Shrenk/Walden NG 900 was leading the Group 5 category and was fifth place overall after the first six stages, all run on Friday night. They held a 10 second lead over the factory-backed Group 5 Toyota Supra of Ralph Kosmides and Joe Noyes. On the first Saturday stage, the Doug Shrenk/Walden Saab put an additional 34 seconds on the Toyota. Failure of a rollpin in their exotic X-Trac gearbox put them out of the event on the second of Saturday's stages. The European X-Trac transmission

is also used by such World Rally Championship factory teams as Toyota and Ford. Doug Shrenk and Walden were classified as winners of the Group 5 class in the Sou'Wester Club Rally, second overall behind the Open class Audi Quattro of Lauchlin O'Sullivan and Jon Oxford.

Meanwhile, Dave and Chad made it back to Shelton with their 900S in time to start the Saturday rally, despite only an hour or so of sleep. Things were going well until the fourth stage of the day when the 900 got airborne on a "yump" and came down hard enough to break the front motor mount. With the front of the drivetrain not properly connected to the chassis, the ignition distributor proceeded to beat a tattoo into the hood, eventually causing the distributor cap to dislocate which led to a broken distributor rotor. The team was able to reassemble the rotor while on a stage using medical tape, and they were able to continue.

Later in the rally (neither driver nor co-driver is sure where, both were a bit groggy after the struggle to finish) the car went up on its side and Little was certain it was going over. However, it settled back onto its wheels, and they were able to continue.

The motor mount was bolted back together in Service, and the cap and rotor were replaced, which kept the Saab in the rally. The radiator fan had also been damaged in the earlier incident which caused the car to overheat, so a replacement fan was installed, and they were able to continue.

A brief bit of driver fatigue put the 900S into a ditch and high centered, unable to extract themselves. Fortunately the Shrenk/Little team was nearly the last car on the road, so the Sweep team came by in short order, pulled the Saab back onto the road, and they were allowed to continue.

By now the transmission was jammed in 2nd gear and the Saab was running on only three cylinders, and they considered just parking the car, but decided that as long as it could motivate under its own power, they would continue.

On the final transit back into Shelton, they had a flat tire. They were nearly too worn out to change it, but change it they did, and they made it to the Moose Lodge where the Awards Banquet was being held. There was a slight incline up into the parking lot, and with only one gear and a weak engine it took several tries to ascend the grade, but eventually they made it, checking in at the final Main Time Control to the applause of the rest of the Scanwest Autosport team, other competitors and rally workers.



Dave Shrink (l) and Chad Little (r) worked hard to avoid the dreaded "DNF" (did not finish)

In the final results, Dave and Chad are listed as 19th of 20 finishers in the Wild West ClubRally, their first rally. While the winners got most of the publicity and attention, the effort of the entire Scanwest team to help the new guys reach the finish certainly deserves recognition.

*Tim Winker
Photographs by the author*

Saab AWD Product Rumors

On February 14, 2000, Automotive News published a story claiming that the Saab all-wheel-drive vehicle, which was hinted at in NINES' September, 1999 issue, will be derived from the new Buick Rendezvous platform. The Rendezvous platform is very similar to the Pontiac Aztek (NINES #244), differing in that it has a longer wheelbase to allow 7 passenger seating. The 2001 Pontiac Aztek debuted at the Los Angeles auto show in January, and the 2002 Buick Rendezvous was shown at the Chicago auto show.

The project, code-named GMT 256, has been assigned to a design team, according to AN. They went on to predict that the vehicle will have "standard Saab features," such as a turbocharged Saab engine, narrow fixed headlights and a Saab-style horizontally split, chrome-rimmed grille. AN also claimed that GM sources say the vehicle could be the first Saab product to be sold only in North America.

A spokesperson from Saab commented to NINES regarding the A/N report. While he would not comment about the specifics of a vehicle being produced in a specific factory or being based on a specific platform, he spoke directly towards the concept of a Saab "Cross Over" vehicle. According to the spokesperson, Saab is such a low volume producer that a "North American only model is out of the question." He said, "It may sell in much higher volume in North America than in other markets, but it will be available in all the markets in which Saab participates." In addition, he said, any new Saab product would, like the models sold now, start with GM platforms but be engineered and developed to meet Saab's standards. "We don't stamp out someone else's vehicle and then place a Saab name on it. The new vehicle will be designed to meet Saab's standards for performance, safety, and efficiency. We've stated that we will be broadening the range of our product offerings over the next several years, but we certainly will not discontinue making the kind of cars which formed the basis for Saab's product line for the past 50 years."

An international presence for the vehicle is consistent with the prediction that the traditional Saab engine will be part of the program. The current LPT V6 has been an important factor in the success of the 9⁵ in the United States. A V6 would be even more critical to the success of a Saab SUV in the US because it would necessarily draw most of its buyers from outside Saab's current customer base. Saab certainly isn't making any comments on the engine choice for the SUV, either on or off the record. The GM Powertrain website, however, has a page describing the benefits of turbocharging and stating that a 3.5 liter turbocharged V6 would have the power and torque characteristics of a 4.4 liter V8. It also shows an artist's rendering of an oil-spray cooled piston which could have come from a Saab 9000 sales brochure.

Saab 9⁵ Wagon Gary Fisher Edition

The new Saab 9⁵ Wagon Gary Fisher Edition combines the performance, safety and cargo-hauling abilities of the Saab 9⁵ Wagon with enhanced versatility features that suit one of the world's top mountain bike teams. The vehicle begins with Saab's 4 cylinder LPT 9⁵ Wagon and adds the Premium Package which includes leather seats, dual power seats with memory and a premium Harman/Kardon audio system. In addition, a sport leather-wrapped steering wheel with perforated leather sections and handgrips is also provided. Outside, the Gary Fisher Edition features the lower front air dam, rocker panel moldings, and rear valence as used on the 9⁵ Aero Wagon, along with unique design 17 inch diameter wheels and 225-45-17 Michelin high performance tires.

To enhance its load carrying flexibility, the 9⁵ Wagon Gary Fisher Edition adds:

- * A roof rack system with bike carrier and ski holder
- * A body-leveling rear shock absorber system
- * Saab's roll out load floor
- * A strong cargo load net that separates the passenger compartment from the cargo area
- * A side cargo net
- * A 12-volt power outlet in the cargo area
- * A cooling box for refreshments that can chill contents to 41°F.

To top off the package, a Saab Limited Edition GaryFisher mountain bike is also included. The bike offers Fisher's 6061 T6 aluminum frame with Genesis geometry, a Rock Shox Judy XC fork, Bontrager Superstock wheels and Shimano Components. This special edition bike, which features unique Saab Team Blue paint with Fisher Team Yellow decals, is only available with this vehicle and has a retail value of \$900.

The Saab 9⁵ Wagon Gary Fisher Edition will be available this spring, and Saab plans to produce only 650 units. They will be available in Silver and Black and, including all of the additional features listed above, will be priced \$1,880 more than the base 9⁵ Wagon with the Premium Package, for a MSRP of \$36,995. To help promote this package, Saab Cars and Gary Fisher will launch the Saab Gary Fisher Ultimate Trails Tour (UTT), bringing Gary Fisher dealers and Saab dealers, as well as potential Saab and Fisher customers, together for a weekend of bike and car testing, entertainment and technical clinics. For more information about the UTT, see www.saabgaryfisher.com.



2000 9⁵ Wagon Gary Fisher Edition - the 6-wheel Saab!
Photograph courtesy of Saab Cars USA, Inc.

Saab Cars USA Personnel

Saab Cars USA, Inc. President and COO, Dan Chasins has been appointed head of Saab Automobile's Market Area Americas in addition to his current responsibility. Chasins succeeds Joel Manby, who was named President of Greenlight.com, an online new car buying web site. During the last four years, Manby led Saab through a period of market share expansion and dramatic sales growth. Prior to joining Saab, Manby helped build Saturn as the manager of its largest sales region in the mid-1990's and as one of the original managers on the marketing team starting in 1985.

Dan Chasins, joined Saab in 1992 as Director of Marketing and later spent four years in Sweden, first managing the development of the 9⁵ Wagon and later as Vehicle Line Executive for the 9⁵ and 9000. He takes over a position that is part of a revised marketing organization launched by Saab Automobile AB, which bears global responsibility for marketing and sales in all Saab markets. Mikael Eliasson, Saab Automobile AB/s Vice President, Sales and Marketing, is in charge of the new organization.

In other personnel news, Eric Geers has been named Director Corporate Communications at Saab Cars USA, Inc. In this position he will be responsible for the development, implementation and management of communication policies and public relations

programs in the U.S., as well as the coordination of PR activities in Saab markets in South America and Canada. Geers is Dutch, 38 years old and studied at the IVA, the international Automotive Business School in the Netherlands. He began working for Saab in 1986, first at AIM, the Saab importer in The Netherlands, and later at the headquarters of Saab Automobile AB in Sweden.

While in Sweden, Geers organized the Talledega Challenge, where Saab not only reestablished its high speed endurance records for regular production cars but also enlisted the aid of the motoring press. The press cars became incrementally faster as time went by, allowing a series of journalists to become world record holders, if only briefly, including Nines Editor Emeritus Tim Winker and Contributing Editor Jack Ashcraft. Said Geers, "The purpose here was to demonstrate the quality and performance of the 900 automobile to the journalists, and allowing the journalists to participate was a way to attract their attention. It was a risk, of course, since any failures would also be highlighted, but we had confidence in our product and the results showed that our confidence was well placed."

Sales Data

Saab's sales continued to be weak through February and March, with the March year on year comparison looking especially bad. The weakness was attributed to the absence of subsidized lease offerings, as Saab applied financial incentives to outright purchases of vehicles rather than leases. With the Saab 9⁵ enjoying good reviews in the motoring press, one wonders about the sales drop. Meanwhile, the numbers show that the Viggen rate is below Saab's 1000 model USA allotment, Aero sales show good strength considering the models price. The 9000 sales include CS and Aero models, which were discontinued after the 1997 model year.

| | FEB | MAR | period |
|--------------------|------|--------|--------|
| model 900 | 9 | 6 | 15 |
| coupe 93 | 57 | 50 | 107 |
| viggen coupe | 31 | 19 | 50 |
| sedan 93 | 367 | 326 | 693 |
| sedan 93 se | 328 | 203 | 531 |
| viggen sedan | 11 | 16 | 27 |
| convertible 93 | 420 | 345 | 765 |
| convertible 93 se | 281 | 295 | 576 |
| viggen convertible | 11 | 21 | 32 |
| total 93 | 1506 | 1275 | 2781 |
| model 9000 | 3 | 2 | 5 |
| sedan 95 | 207 | 243 | 450 |
| sedan 95se (4cyl) | 48 | 41 | 89 |
| sedan 95 V6 (se) | 274 | 238 | 512 |
| Aero 95 | 184 | 162 | 346 |
| wagon 95 | 140 | 168 | 308 |
| wagon 95 V6 | 3 | N/A | 3 |
| wagon 95se(V6) | 165 | 120 | 285 |
| total 95 | 1021 | 972 | 1993 |
| total 2000 | 2539 | 2255 | 4794 |
| last year (1999) | 2318 | 3292 | 5610 |
| percent increase | 9.53 | -31.50 | -14.55 |

Saab Variable Compression Engine *Press Release by Saab Cars, Inc.*

Saab Variable Compression - or SVC for short - is a new engine concept that enables fuel consumption to be radically cut, but without impairing engine performance. The combination of reduced engine displacement, high supercharging pressure and a unique system for varying the compression ratio enables the SVC engine to use the energy in the fuel far more efficiently than today's conventional automotive engines. This offers entirely new scope for combining high performance with low fuel consumption and low exhaust emissions.

Fuel consumption 30 percent lower

The SVC concept enables the fuel consumption of a conventional naturally aspirated engine to be reduced by up to 30 percent without impairing the engine performance. The five-cylinder SVC engine developed by Saab has a displacement of 1.6 litres and is as fuel-efficient under normal conditions as a conventional 1.6-litre engine, but can deliver the power of a 3-litre engine whenever the need arises. The emissions of carbon dioxide (CO₂) are reduced proportionately to the fuel consumption, while the CO, HC and Nox emissions will enable the SVC engine to meet all current and proposed future legal requirements.

The unique feature of the SVC engine and the one which is the key to high efficiency is that the engine has a compression ratio which is variable. The fixed compression ratio of a conventional engine is a compromise between the needs in a wide variety of operating conditions - in stop-go city traffic, in highway motoring at constant speed, or in high-speed expressway journeys. As opposed to this, the compression ratio of the SVC engine is continually adjusted to the optimum value for the prevailing conditions.

Variable combustion chamber volume for variable compression ratio

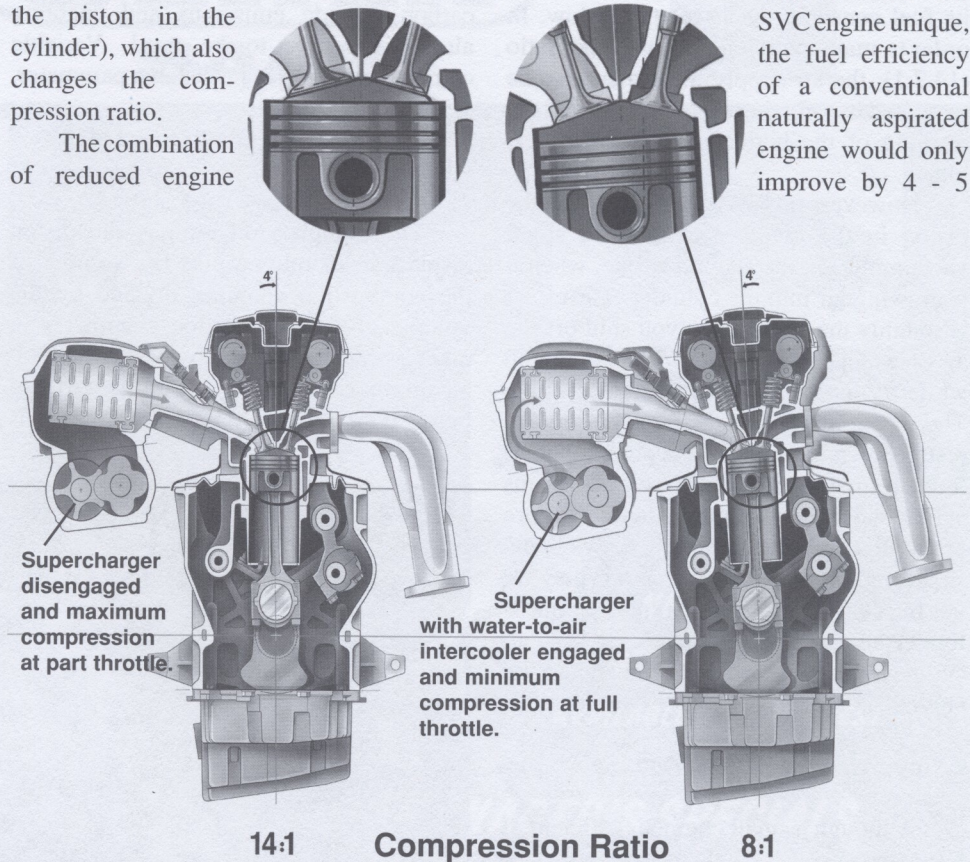
The SVC engine consists of an upper part comprising a cylinder head with integrated cylinders, which is known as the monohead, and a lower part consisting of the engine block, crankshaft and pistons. The compression ratio is varied by adjusting the slope of the upper part of the

engine in relation to the lower part. This alters the volume of the combustion chamber with the piston at top dead center (highest position of the piston in the cylinder), which also changes the compression ratio.

The combination of reduced engine

Three cornerstones of the SVC concept

Although variable compression ratio is what makes the SVC engine unique, the fuel efficiency of a conventional naturally aspirated engine would only improve by 4 - 5



An artists rendering of the Saab Variable Compression engine.

displacement, high supercharging pressure and variable compression ratio enables the SVC concept to be used to develop engines with a specific torque of 200 Nm/liter (147 ft. lb./liter) of engine displacement and a specific power of 150 bhp/liter of engine displacement. The SVC concept thus opens the door to the development of both small, extremely fuel-efficient engines with good performance, and bigger engines delivering sports car performance at reasonable fuel consumption.

Alternate Fuels

The variable compression ratio also gives the engine great fuel flexibility. Since the compression ratio can be varied and adjusted to suit the properties of fuel, the engine will always run at the compression ratio that is best suited to the fuel being used.

percent if it were equipped with a variable compression system. The potential of variable compression can be put to full use only in combination with reduced engine displacement and high supercharging pressure.

1. Reducing the engine displacement - size does matter

An Otto engine is most efficient and puts the energy in the fuel to maximum use when it is running at a high load. A small engine must work harder and must thus run closer to its full load if it is to perform the same work as a bigger engine which utilizes only part of its maximum capacity during normal operation. In simple terms, the small engine can be said to extract more energy from every drop of fuel.

Saab Variable Compression Engine

One of the reasons is that, under these conditions, the pumping losses are lower in a small engine. Pumping losses arise when the engine is running at low load and when its fuel consumption is relatively low. In order to maintain the ideal air-to-fuel ratio (14.7:1), the air supply must then also be restricted by reducing somewhat further the opening of the butterfly valve in the air intake.

However, this in turn means that the piston in the cylinder is under a slight vacuum during the suction stroke, when it is drawing air into the cylinder. The effect is roughly the same when you shut off the air hole of a bicycle pump with your thumb while trying to pull out the pump handle. The extra energy needed for pulling the piston down is known as the pumping loss. Since a small engine more frequently runs at full load and the throttle is therefore more often fully open, the pumping losses in the small engine are usually lower than they are in a big engine. Moreover, a small engine is lighter and has lower friction. So a small engine is generally more efficient than a big engine.

2. Supercharging - power on tap

Although a small engine is efficient, it is not powerful enough in practice to be used for anything other than powering small, lightweight cars, if it is to give the car acceptable performance. By supercharging, which involves forcing in more air than the engine would be able to draw naturally, more fuel can be injected and be burned efficiently. The engine then delivers more power for every piston stroke, which results in a higher torque and higher engine output. Moreover, if the engine is supercharged only at large throttle openings when extra power is really needed, the fuel economy of the small engine can be combined with the performance of a big engine.

Downsizing and forced induction have long been well-known concepts at Saab. Saab launched the turbo concept back in 1976 as one way of boosting the performance of an engine by raising the intake air pressure, but without making the engine bigger and heavier, and thus more thirsty. Within the framework of the turbo concept, Saab has developed a number of innovative engine systems, all of which have contributed towards boosting performance, lowering the fuel consumption and

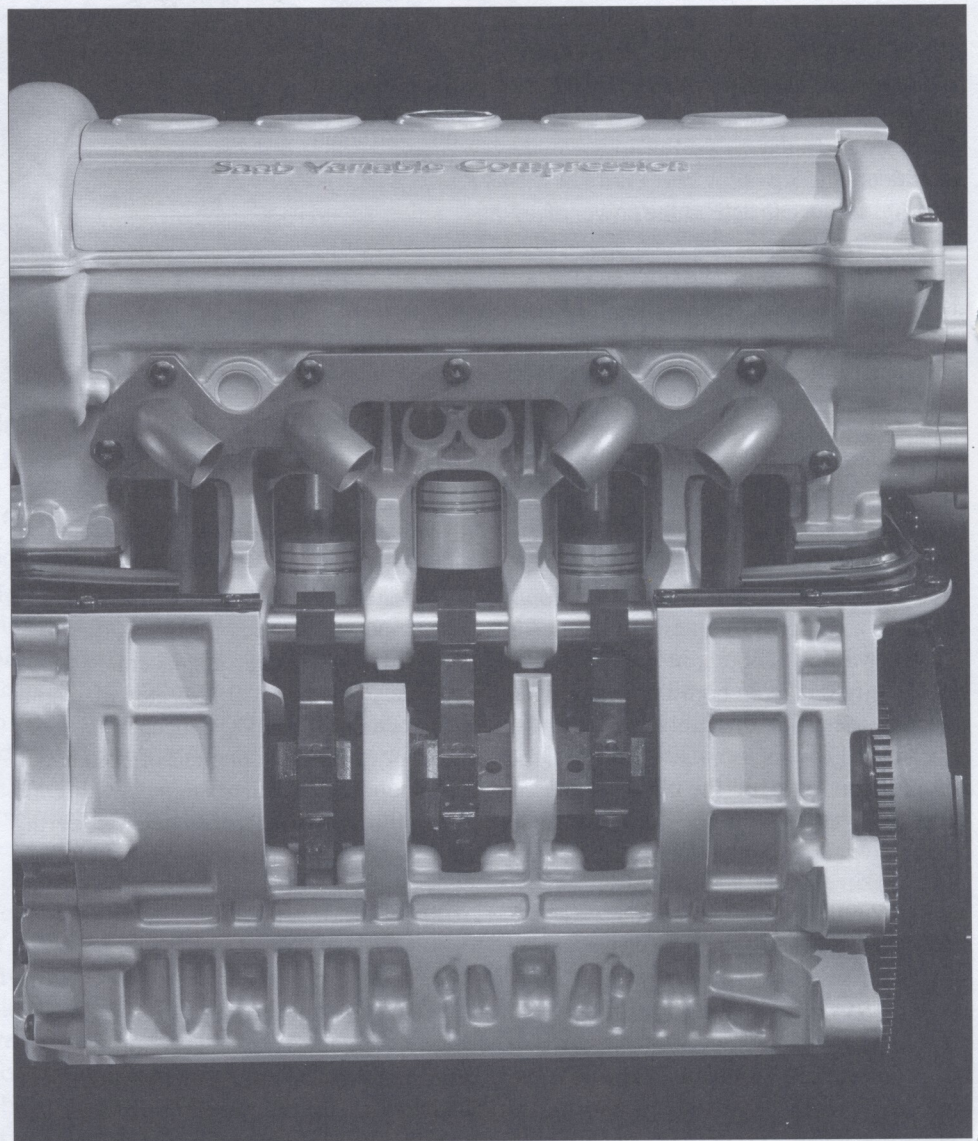
reducing the exhaust emissions. However, engine development has now reached the stage at which a new parameter is needed to meet future demands for reducing the carbon dioxide emissions and enabling alternative fuels to be used. Variable compression ratio is just such a parameter.

3. Variable compression - pearl of wisdom

The compression ratio is the piston displacement volume plus the volume of the combustion chamber divided by the volume of the combustion chamber - in other words, the amount by which the fuel/air mixture is compressed in the cylinder before it is ignited. The compression ratio is

one of the most important factors that determine how efficiently the engine can utilize the energy in the fuel.

As a general rule, the energy in the fuel will be better utilized if the compression ratio is as high as possible. But if the compression ratio is too high, the fuel will pre-ignite, giving rise to 'knocking', which could damage the engine. In a conventional engine, the maximum compression ratio which the engine can withstand is therefore set by the conditions in the cylinder at high load, when the fuel and air consumption are a maximum. The compression ratio remains the same when the engine is running at low load, i.e. when the engine output and boost pressure are low, such as when the car is traveling on the highway at constant speed.



A cut away of the Saab Variable Compression engine, showing the adjustable cam, the monohead tilting crank rods, and the center three pistons.

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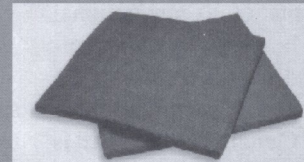
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Due to its variable compression ratio, the SVC engine can be run at the optimum compression ratio of 14:1 at low load in order to put the energy in the fuel to best possible use, and the compression ratio can then be lowered to 8:1 at high load to enable the engine performance to be raised by supercharging without the problem of knocking occurring.

New ways of using known engine components

An objective in the development work on the SVC concept was to retain as many of the basic components of a conventional engine as possible. The crankshaft, connecting rods, pistons and valves are all of the same type as those of today's engines. What distinguishes the SVC engine is the way it is split into upper and lower parts. The upper part, which is known as the monohead, consists of the cylinder head with integrated cylinders, whereas the lower part - the crankcase - consists of the engine block, crankshaft, connecting rods and pistons

The monohead is pivoted at the crankcase. The compression ratio is altered by tilting the monohead in relation to the crankcase by means of a hydraulic actuator. The volume of the combustion chamber will then increase and the increased volume will lower the compression

To increase the compression, the slope of the monohead is reduced. The volume of the combustion chamber will then decrease and the compression will be higher. The monohead is sealed at the crankcase by means of a rubber bellows.

The monohead can be sloped by up to 4 degrees. The optimum compression ratio is calculated by the Saab Trionic engine management system on the basis of the engine speed, engine load and fuel quality. The compression ratio is continuously variable.

Efficient four-valve combustion chambers

An important benefit of the SVC concept is that the variable compression can be achieved without the need for modifications to the design of the efficient four-valve combustion chamber. The combustion chamber design is of vital importance to the combustion process, and thus directly

affects the exhaust emissions, fuel consumption and engine performance. One of the essential conditions in the work of developing the SVC concept was that the new technique should not impair the existing technique.

Since the monohead is made as one unit, it has also been possible to make the design of the cooling water passages much more appropriate. This is also essential for being able to supercharge the engine sufficiently to achieve the required performance.

Mechanical compressor for adequate boost pressure and fast response

The mechanical compressor used for supercharging is engaged and disengaged by the Saab Trionic engine management system. The compressor is equipped with an intercooler and delivers a maximum boost pressure of 2.8 bar, which is much higher than the boost pressure delivered by today's Saab turbocharging system. Saab engine designers chose to use a compressor instead of a turbocharger for the SVC engine because none of the turbochargers available on the market today would be able to deliver the high boost pressure and have the fast response needed by the SVC engine.

A platform for continued development

The SVC concept and the 1.6-litre, five-cylinder engine now unveiled represent a surge forward in the development of the Otto engine and provide a totally new platform for further engine development. The fact that the additional compression ratio parameter can now be controlled enables engine operation to be controlled more accurately, and the engine can thus be made more efficient. SVC can be combined with other engine technologies for improving the performance further, lowering the fuel consumption, and reducing the exhaust emissions.

The SVC engine represents a decisive step in the long-term development work aimed at combining the benefits of the Otto engine and the diesel engine. This trend is already discernible in engine development. Direct injection will be used on the Otto engine just as it is on the diesel engine, while the diesel engine will have much more electronics. Variable compression

has so far been the missing link between the two.

Engine innovators

The importance of the compression ratio to the efficiency of an engine has been known ever since the infancy of the car, and there are many more or less imaginative patents for different designs of variable compression engines. What Saab engine designers were first to achieve - just as they were with turbocharging in the 1970s - was to combine innovative new thinking with a known technique and known theories in order to develop a system that is practical and usable in ordinary cars.

Saab engine designers began thinking about developing a variable compression engine back in the early 1980s, but it was not until the end of the 1980s that more concrete development work was started, albeit on a modest scale. The first patent application was lodged late in 1990. The first usable experimental engine had a displacement of 2.0 litres, and delivered a far higher torque and power output than was necessary. But the engine did prove that theory performed well in practice.

Actual testing began when the second generation prototype engine - a 1.4 liter in-line six - was ready in the mid-1990s. The objective was that an SVC engine of that design would have the performance and power output of a naturally aspirated 3.0-liter V6 engine, but at 30 percent lower fuel consumption. In order to have the potential of the SVC engine assessed by independent experts, Saab approached the renowned German engine development company FEV Motorentchnik in Aachen, which submitted a thorough evaluation to confirm that the engine attained the targets set up, and that it was also possible to make further advances by continued development work.

However, the six-cylinder, 1.4-liter in-line engine was not appropriate to the performance level needed by the projected Saab range of cars. The engine also entailed packaging disadvantages. So it was dropped in favor of the five-cylinder, 1.6-liter engine concept.

The SVC concept would have been impossible to develop without an advanced engine management system. The addition of variable compression as a further control parameter in the already complex

control system of today's modern car engines makes very strict demands on the engine management system. The engine management system for the SVC engine is a special version of the Saab Trionic system - the engine management system developed in-house by Saab and in use on Saab turbocharged engines since 1991. Further development of the Saab Trionic system and the in-depth knowledge of the system accumulated by Saab engineers have been central elements in the development of the SVC concept.

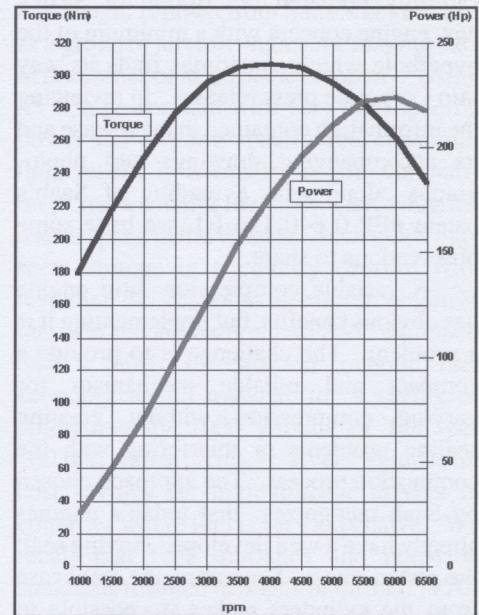
However, even in its latest version, the Saab five-cylinder, 1.6-liter SVC engine is still at the prototype stage and further development work is needed before the engine can be taken into regular production. The final design and size, and also the performance and fuel consumption properties of the ultimate production engine are dependent on many factors, not least the demands that customers make on their cars.

Technical data

The figures tabulated below relate to the 1.6-liter test engines currently used in the technical development work. The exact technical specifications of future regular production engines will be dependent on this development work and thus cannot be specified before a regular production engine has been presented.

| | | |
|--------------------------------|-------------|--------------------------|
| Engine displacement | 1.598 | liter |
| Number of cylinders | 5 | |
| Cylinder bore | 68 mm | |
| Piston stroke | 88 mm | |
| Compression ratio | 8:1 to 14:1 | depending on engine load |
| Max. compressor boost pressure | 2.8 bar | |
| Max. monohead tilt angle | 4° | |
| Peak engine torque | 305 Nm | (224 ft. lb.) |
| Engine rating | 225 bhp | |

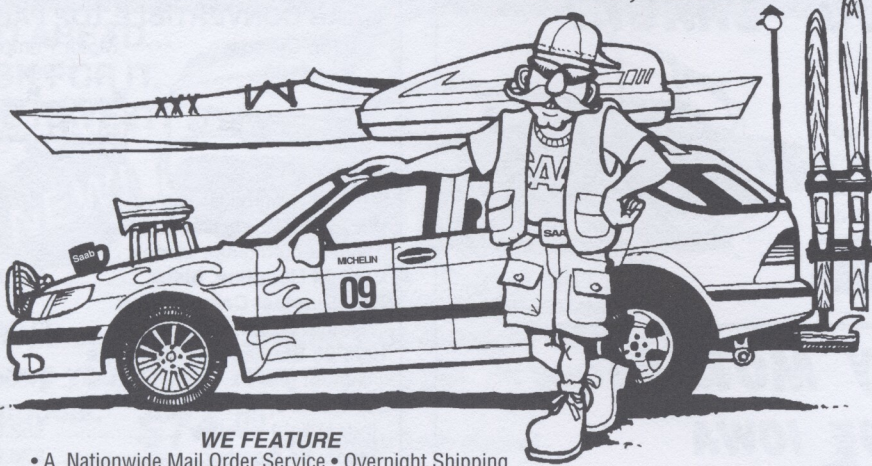
Engine performance, 1.6 liter Saab Variable Compression engine



The torque and horsepower curves of the 1.6 liter SVC engine.

Photographs drawings and graph courtesy of Saab Automobile AB

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mechanism right where the balance shafts should go. The 5 cylinder configuration is a design which has been used by several manufacturers in upmarket vehicles without balance shafts and without objectionable noise and vibration levels. For Saab buffs, a 5 cylinder engine could be considered a combination of Saab's first (2 cylinder) and second (3 cylinder) engines.

To achieve the very high (14:1) compression ratio while keeping Saab's low-emission combustion chamber geometry, a long stroke, narrow bore engine results. Consequently, high supercharging pressures are needed to force large volumes of fuel-air mixture through the relatively small valves. These high pressures are achieved more readily with a "Rootes Blower", which is a positive displacement machine, than the centrifugal compressor in Saab's traditional turbocharger.

Exploring this change more fully, we are mindful of the extent that automotive electronics and control systems have advanced since Saab began their turbocharger development in the 1970s. Inlet pressure was controlled in the early turbos by allowing the inlet pressure to open an exhaust turbine bypass, the "wastegate".

With Automatic Performance Control (APC), electronic controls were used to "fool" the wastegate actuator, but inlet pressure control was still achieved by the same mechanical means. Today's electronics allow for a quick acting compressor clutch and flow dampers to direct and control the inlet air. General Motors has many years of experience with Rootes superchargers which is available to Saab's engineers.

We believe the performance curve shows a compressor with the capacity to drive the engine to the knock limit at engine speeds up to approximately 3000 rpm, and that above that speed, the flow capacity of the supercharged intake limits the performance. It is known that engines are more susceptible to pre-ignition at lower engine speeds, and consequently the volume of intake charge and subsequent engine output is limited.

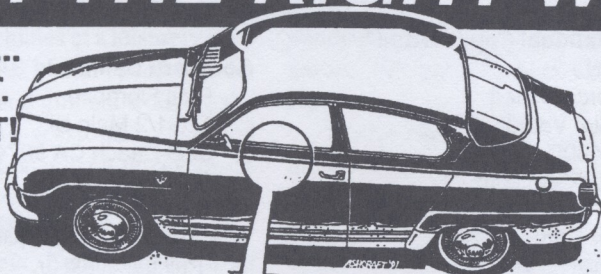
We conclude by considering the commercial significance of what certainly appears to be a technological success. One observation is how much this engine looks like a production engine, not a special prototype. From the piston and crank

assembly to the adjusting cam and crank rods, it all looks "mass produced." The hallmark of the SVC motor, efficiency of the design, follows from Saab's beginnings as a group of aircraft engineers making cars in the corner of an airplane company. Using SVC, a powerplant with very high specific power and very low specific fuel consumption, results in a smaller engine compartment and a smaller fuel tank, increasing the useful space in the vehicle. Such goals may seem strange in a country overrun with leviathan SUVs, but to an aircraft engineer they are second nature. An SVC equipped Saab's 30% increase in overall fuel economy would translate to a saving of approximately 1000 gallons of fuel per 100,000 miles. This is a very significant cost savings for high mileage drivers in countries where fuel is very expensive. We recall that fuel shortages and emission standards resulted in Saabs of the late 1970s and early 1980s being prized for their combination of fuel economy, performance, and low emissions, and allowed Saab's concept of Turbocharging to flourish. Perhaps the fuel cost increases of recent months will lead to history being repeated, this time with SVC.

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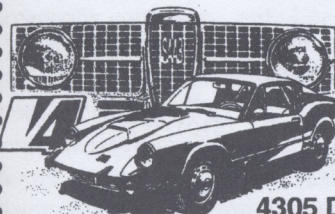
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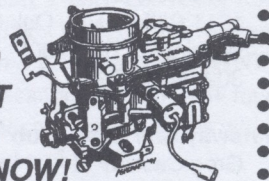
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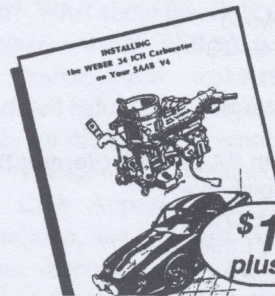
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Club News: 2000 North American Saab Owners' Convention

Saab Cars USA and the New Jersey Saab Owner's Club have chosen the Hudson Valley Resort, in the foothills of the Catskills of New York as the headquarters for the 2000 Saab National Owners Convention. The resort is located less than 100 miles from The Big Apple – New York City, and a short drive from Interstate 87. Here are some of the highlights that participants can look forward to:

SAAB HIGH PERFORMANCE DRIVING SCHOOL

On Wednesday, July 5, at historic Lime Rock Park in northwestern Connecticut, Saab owners will have the opportunity for professional instruction by a team of experts from the Skip Barber Driving School. For the first time, there will be an advanced class designed for drivers who have either participated in a prior Saab High Performance Driving School (1997 or 1998), or have other relevant racing, pro rally, or autocross experience. The driving school is available only for registered convention attendees, and will entail an additional fee. Space is limited.

TRACK DAY AT LIME ROCK PARK

Thursday, July 6 features a full complement of track activities for every participant. Participants may opt to tour the track in their own vehicles at a leisurely pace during the "track tour", or at speed with an instructor giving basic guidance during the high speed "lapping sessions." A timed Autocross Competition will allow owners to test their driving skills and their car's performance capabilities against owners of similar Saab models. Novice as well as experienced drivers are invited to race around the cones in search of valuable bragging rights. A nominal fee applies.

CONVENTION ACTIVITIES - JULY 7-9

A welcome reception will be hosted by Saab Cars USA staff, the convention organizing committee, rally Legend Erik Carlsson and other special guests. At Saab Seminars, learn more about your Saab's mechanical systems as well as its heritage. Join experts from around the world as they discuss topics ranging from Saab aircraft history to two stroke restoration. Learn how to squeeze more performance from

your turbocharged Saab, or how to bring out the beauty in your Sonett's paintwork. Saab factory representatives, Saab Club members, and others faithful to the marque will be on hand to answer your questions and give advice on how to make your Saab perform and look its best. The traditional Concours d'Saab will determine the most original and beautiful cars at this year's event. Owners will compete for



top three honors in each model class, as well as for special and modified cars.

No racing or rallying experience is necessary to compete in the Saab fun rally just bring a sense of adventure and a keen eye for details. Travel around the twisty back roads of the Catskill Mountains, and keep an eye out for the area's abundant wildlife. Keep your eyes open, answer questions about the things you pass, and you'll be among the top finishers eligible for fun prizes.

From a hubcap for a 1958 Saab 93, to a model of your new Saab 9 5, you are sure to find what you're looking for as vendors from around the country sell items from their collections of useful and hard to find parts. Saab will also be on hand with a full selection of parts and goodies to bring excitement to your Saab, bookshelf, or wardrobe. Photographers will showcase their cars and their talents in the 3rd annual Saab Photo Contest. Entries will be in three categories: Saabs in Competition, Car Portraits, and Kids and Saabs. 1st, 2nd and 3rd place winners in each category will receive prizes. Photos will be displayed throughout the convention for inspection by convention attendees and voting for the "People's Choice".

For the younger Saab enthusiasts, on Saturday Camp Saab provides a full day camp with lunch and an evening pizza party.

Babysitting and a Friday camp are also available through Hudson Valley.

Saab special guests, Convention staff and your fellow Saab enthusiasts will join for the traditional Saturday night Banquet and Awards Contest, including a drawing for terrific door prizes from our sponsors

REGISTRATION INFORMATION

Walk up registration will not be offered during the 2000 Convention. You must pre register, and you are responsible for your lodging arrangements. Convention planners have negotiated in season rates with the Hudson Valley Resort in Kerhonkson, NY. As the headquarters for the 2000 Convention, Hudson Valley offers warm Catskills summer hospitality, a health Spa and full amenities. You can reserve your room by phone at 1-888-948-3766 toll free. Remember to ask for group number 1411. Reserve your room early as space is limited at this highly desirable summer vacation spot.

Registration flyers will be mailed out to all NINES subscribers, previous convention registrants, and many others. If you have received Convention Registration Flyers in past years, you should receive one this year too. For more information or to request a flyer, call 1-800-438-7222, and press option 6. The Convention's website at www.saabconvention.org and NINES website at www.saabclub.com will have "PDF" files of the registration forms which you can download and print.

Concours d'Saab

Thinking of polishing up the family "wheels" and entering the Concours de SAAB at the 2000 Saab Owners' Convention? What about that little nick here or the spots over there? Will a \$10.00 bill taped to the valve cover make a difference? Outlined below is a synopsis of the judging rules for the 1999 Convention.

The scorecard contained 510 points: 20 for Curb Appeal, 270 for Quality and Condition, and 210 for Original Specifications. Each and every Saab rolled off the end of the assembly line with at least 490 points, with the remaining 20 points being determined by whether the owner's choice of paint color and fabric suits the judges. Beyond that, the following guidelines were to be applied. These rules apply mainly to

the original model classes, not necessarily to the modified or unlimited classes.

Judges were instructed to reward originality over beauty, so put away the chrome plated coil cover and red anodized hose couplings. Accommodations were to be given for the fact that most cars are driven to the event, not trailered. Spare parts or travel items which are clean and neatly placed were not to detract from the score. Finally, the judges must have full access to the car's interior, trunk, and engine compartment. Areas of denied access were each assigned a 100 point deduction.

As an example of the judging form, under "wheels and undercarriage," a total of 100 points were possible: 60 under "Quality and Condition", and 40 under "Original Specifications." Under "Quality", points were awarded for cleanliness and quality of the paint and polish on the wheels; cleanliness, tread depth, and matching of the tires; cleanliness and condition of the wheel house areas, and the visible condition of the exhaust components. Under "Original", points were awarded for the wheels being either Original or Genuine Saab Accessory wheels, and for wheels being correct for the model year of the car; the tires being either the original size or being a "possible or reasonable equivalent;" and the suspension and exhaust being either the correct original equipment or Genuine Saab Accessory components.

Finally, note is taken that the Concours de SAAB is not meant to be the same kind serious event as, for example, the Pebble Beach concours d'eligance. The goal of the competition is for the owners to have fun showing off their "pride and joy", and to recognize both those who have made the effort to keep their cars in original showroom trim as well as those who have used their car to express their uniqueness while keeping it consistent with the car's original character.

CARLISLE NATIONALS MAY 19-21

The Carlisle Import-Kit/Replicar Nationals will be held at the Carlisle, Pennsylvania Fairgrounds. This is a premier event for Imports of all brands. The Saab Club of North America will host a pavilion in cooperation with the Central Penn Saab Club and the Saab Club of NE Pennsylvania. Stop by for the weekend or for a few hours. Besides Saab, makes from Alfa to Volvo will have representative clubs.

Saab Night at the Races coincides with the BLÅ RØK celebration.

Princeton Speedway

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North American Saab 1/4 mile dirt track champion will be crowned / 4' trophy.

Old or new, fast or slow, if you have a Saab racer come dig in the dirt with us! Steep high banked corners with short straights. **FUN!**

\$1000 is the minimum prize money and trophies will be awarded to top place winners in each race. Sponsors are being pursued to raise more cash for the evening. We believe that most ice racers, SCCA cars and dirt track cars will qualify with very few modifications. Look over the rules below to see if your car will qualify.

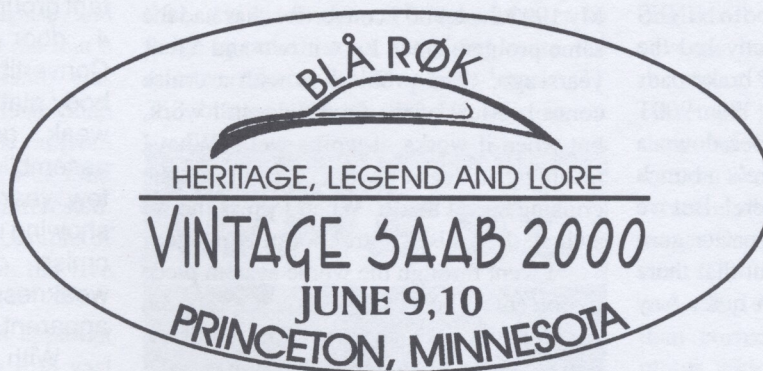
SAAB Club of Northeastern Ohio Organizational Meeting

The Saab Club of Northeastern Ohio will hold its organizational meeting at 1:00 PM on Saturday, May 13. We will meet at Ed Wolfe Shaker Saab, 10299 Shaker Blvd., Cleveland, OH 44104. We have had positive indications of support from Dave Towell Saab in Akron, Saab of Bedford, and Swedish Solution, and hope to bring as many of the smaller independent Saab service providers in Northeastern Ohio on board as possible. A large turnout would be a big help. Come to the meeting and help plan the kind of events you would enjoy attending. We also plan to hold regional events in cooperation with the Saab Club of Central Ohio, Tri State Saab Club in the Cincinnati/Dayton Area, and the Great Lakes Saab Club in Suburban Detroit.

GLSC SPRING SWAP MEET

A spring swap meet/garage sale/picnic has been scheduled for Saturday afternoon, May 13, 2000 to kick off the summer Saab Season for the GLSC! Please mark your calendars for this event - we will meet more or less from 12:00 noon until 5:00 pm (although long-time members will realize that we are none-to-formal about the times), and will meet in the Milford/Commerce area northwest of Detroit (final location is still being finalized). The get-together will be loosely organized as usual, but we plan to have an informal swap meet with a few tables and bulletin boards, so bring out all the Saab parts and paraphernalia you'd like to sell/trade/give away (or at least a list or some pictures), and with any luck you can go home with a whole new batch. Of course we'll eat, drink and just "talk Saab" for those not in a bartering mood, and we've got lots of interesting vintage Saabs to look at as well as the usual socializing and advice and info on your Saab (other topics, still no charge!). Lunch, munchies, and beverages will be provided for a small donation. If you'd like to help out, please contact Gary Stottler or Bjorn Soderstrom.

gary.stottler@powertrain.mpg.gm.com
Phone: 248-685-5725/8-341-5725
Fax: 248-684-3878/8-341-3878
Page: 248-240-8595



The Minnesota Saab Club, Andrews of Princeton, Inc., and Meyer Garage, Inc., are hosting BLÅ RØK- VINTAGE SAAB 2000. The event will be held on the grounds of Andrews of Princeton - in Princeton, MN from June 9th through June 10th.

The event will celebrate the sights, sounds, smells and BLÅ RØK of two-strokes, V-4's and the model 99 course all vintage cars and their owners and any interested bystanders are encouraged to participate.

Princeton is just a short drive north of Minneapolis/St. Paul.

Close to shopping and recreation for all to enjoy.

Event highlights:

- Celebrity Saab guests -
- Saab night at Princeton Speedway -
- Restoration tech sessions -
- Parts swap -
- Vintage car tour -
- Rum River Festival and Saab car parade -
- Swedish heritage, entertainment and food -
- Vintage parts auction -
- Car concours and judging -
- Games and activities for young and old -
- Banquet and awards ceremony -

Fees:

Pre-registration fees are due by May1, 2000

\$50 per registrant - includes commemorative T-shirt (pre-registers only), window decal, on-site amenities and meals.

\$75 for family - includes one registrant plus up to three family members for on-site amenities and meals.

Accommodations:

Many area hotels are available. A list will be mailed along with the registration materials.

REMEMBER! Hotel room is your responsibility! Inquire and book early.

Registration:

Registration is available three ways: by US mail, by e-mail, or on the website (listed below).

All methods will receive registration materials by mail.

contact: Minnesota Saab Club 200 East 66th Street Richfield. MN 55423

Clattering Brake Pads

I recently started to subscribe to NINES and wonder if you have ever covered the problem of clattering inner rear brake pads on an otherwise gorgeous '89 900T convertible. When this car goes down a bumpy road, it sounds as if there's a bunch of loose nuts and bolts somewhere! But we traced it to the rear brakes. My service guru says they're safe and secure, but that there are no "keepers" to keep them quiet Any suggestions you might offer?

The correct pad application from a quality manufacturer has a clip made to the inner pads to secure them to the brake piston. The outer pad is secured in the caliper housing by an external spring that inserts into the caliper and clamps the outer pad between the caliper and caliper housing.

One picture below shows the Saab rear pad, part number 89 68 026 (These happen to be made by Textar) with the clip made to the inner pad. The other picture shows an exploded view with the external spring for the outer pad.

Might be time to seek out a more experienced Saab garage.

Errant Cruise Control

My 1992 Saab 900S convertible has had the same problem since I got it two and a half years ago. The problem is with a cruise control. Most of the time it doesn't work, but when it works, it works well. What I mean by it doesn't work, I can't set the cruising speed at all. When I press the set switch, the cruise control doesn't engage.

I went through the whole system piece by piece. I checked vacuum pump in conjunction with the vacuum regulator, cruise control switch operation, pedal switches (Automatic transmission), vacuum lines and all of the wiring using the wiring diagram from the Saab manual. All of the individual elements and wiring checked o.k., i.e.. no short or open circuits. So I thought since I have checked everything but the Cruise Control Electronic unit that it must be the ECU that is bad. I ordered a used ECU from Saab Depot for \$75 since I didn't feel like spending \$350 (quote from a dealer) but this didn't solve my problem. Could it be speed transmitter? Or is there something else more simple that I am missing? Please help!

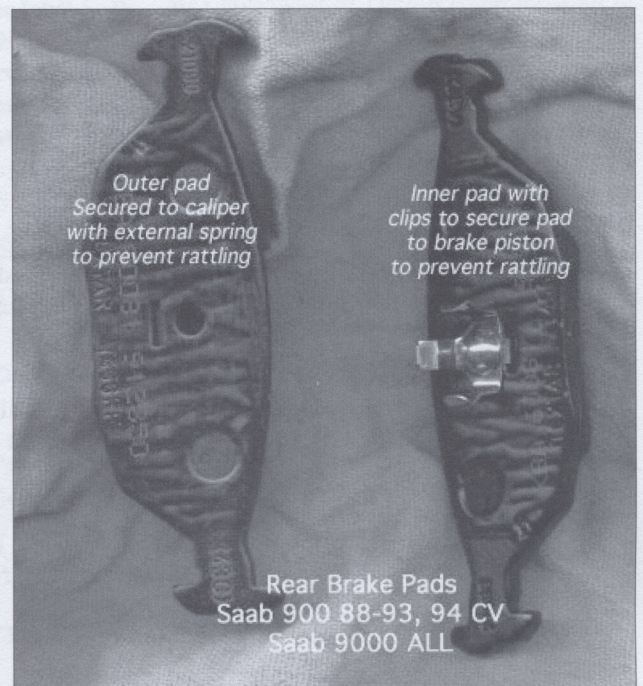
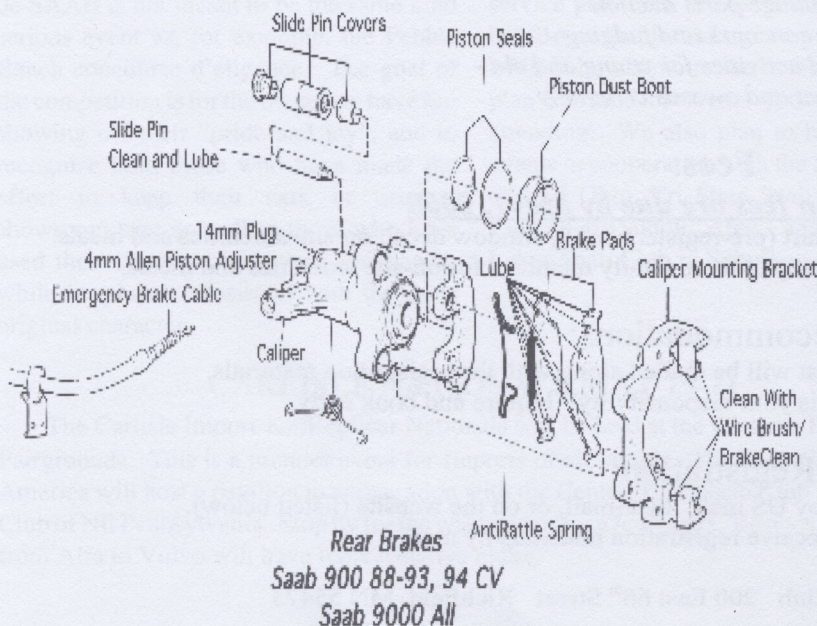
Zvonimir Kotnik

The cruise system gets an important ground from the left rear brake light. 4 door 900 models (and the Convertible, which is based on a similar body platform) suffer from a problem of weak grounds at the rear light assemblies. I have noticed over the last few years that the 1992-on cars are showing up with intermittent inoperative cruise controls before any other weakness in the rear lights becomes apparent.

With the repairs you have already attempted to resolve this, you have two things left, the speed sensor in the speedometer unit, and the rear light grounds. The rear light ground repair is much less expensive to undertake, and according to Saab should be carried out anyway. Eventually the left rear light assembly will fail due to the ground problem.

For a fix of the ground problem, look at http://216.78.173.72/electrical_system_folder/lightground4door.htm

For cruise troubleshooting from experience, look at http://216.78.173.72/electrical_system_folder/cruisecontrol.htm



The latest chapter in the restoration of my 1958 93B, began with a phone call from Bob McNary, of Ventura California. Bob, a long-time vintage Saab enthusiast and memorabilia collector, informed me that a gentleman in Frederick, Maryland, was looking to sell the last of his vintage Saab collection. Since Bob lived a little far from Frederick, some 3000 miles, he was kind enough to call me to see if I was interested. After examining a few fuzzy photographs of the parts stash, I decided to take the five hour ride to Maryland.

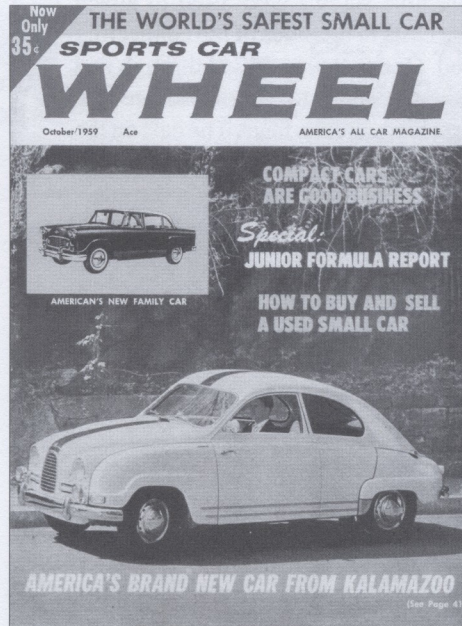
Early on in my visit, it was apparent that I had stumbled upon a man with vast experience in race preparing and rallying two stroke Saabs. He told me his Saab story while sitting at his kitchen table. I hung on to every word. His name is Chris Custer.

Chris was introduced to Saabs in 1956 in Doylestown, Pennsylvania when he was offered a Saab 93 in exchange for his Volkswagen beetle that had a blown engine. The Saab's owner complained that the car had no power, and couldn't wait to get rid of it. Chris took the Saab for a test drive and recognized immediately that the car's only problem was that a plug was fouled. Once out of sight, he pulled over to clean it. With the car now running perfectly, the trade was quickly made.

Chris was employed by Saab USA from 1957 through 1960 as their Technical Service Representative. He was discovered by Saabs National Sales Representative, Bob Wehman, at a hill climb event in Pennsylvania. When Chris's race prepared 1957 93 humiliated Saab's factory prepared car, he was offered a job on the spot. Chris spent the next couple of years teaching Saab mechanics the finer points of two stroke repair and maintenance. His service territory was a mere 3,500,000 square miles - the entire USA! Time was also put aside to continue his well established rally career. Chris and co-driver Dick Smith were named Sports Car Club of America's national champions in 1957.

Road and Track Magazine interviewed Chris in 1958 for an upcoming article on the new GT 750 model. The magazine's representatives were astonished when the little 750cc powered car turned a 0 to 60 mph time in 12 seconds flat. What they didn't know was that the test car was actually Chris's rally car. The final drive gear in the transmission had a lower gear

ratio than stock, which produced a favorable speedometer error of about 5 mph. The Road and Track writer was not aware of this, and used the car's speedometer to judge speed. Just as surprising were the quarter mile results. That little 'stock' GT 750 blasted through the 1/4 mile in an



Chris Custer behind the wheel of his 1959 93B Rally Car on the cover of the October 1959 issue of "Sports Car Wheel"

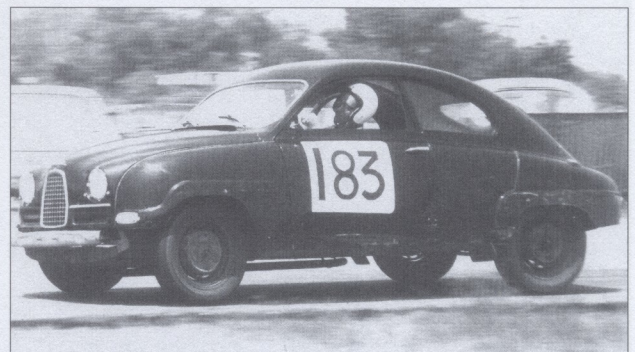
astonishing 17.5 seconds. This was faster than some 2.0 liter sports cars of the era. What they didn't know was that the quarter mile wasn't a quarter mile at all, Chris had measured out the course by using the cars Halda Speed Pilot... 15% short! After the magazine's release, sales of the GT 750 took a sudden jump.

Seems like trickery was the name of the game during rallying in the late 1950's. During this period, Saab's performance department employees (all three of them) had yet to fully understand the ins and outs of two stroke engine modification. The molds used to manufacture the motors block would sometimes shift around a bit during the casting process. A lack of consistent port alignment resulted in performance variations. That's one reason why some of the 93's were extremely fast and others were complete dogs.

Rather than waste precious time modifying the block's ports, Chris decided that the best way to build a fast motor was not to build one at all. A secret pact was made with several local Saab dealership Service managers. They were asked if any of their customers had an unusually fast motor in their car. Of course some did, and these motors were routinely removed under "warranty" and returned to Saab's performance department to be used in their race cars. The cars owner was told that their motor had some type of problem, and rather than correct it, Saab would replace the motor with a new one for free. Some of Saab's earliest rally wins in the States were achieved with these 'defective' motors!

The Saab performance department knew that borrowing customer's motors couldn't go on forever, so they took the next logical step. Rather than trying to modify existing components, they chose to test large batches of parts to find the most suitable for racing. They would test twenty or more carburetors on a flow bench, keeping the one that had the best performance. Likewise, they would test dozens of distributors to find the one with the perfect advance curve. Crates of parts were tested, the best of which were saved for racing.

During this time, the performance department was experimenting with modifying the block's intake and exhaust ports to increase performance. Correct porting turned out to be quite tricky, grinding away a little too much material in the wrong area resulted in a block that was suitable as a boat anchor, and little else. Dozens of blocks were scrapped during the experimental stage. As time progressed, performance modifications were made to most all the engines components. Heads were skimmed,



Chris racing his GT-750 powered 1960 93F. This car was later modified to become the "94 1/2"

Lost, but Not Forgotten

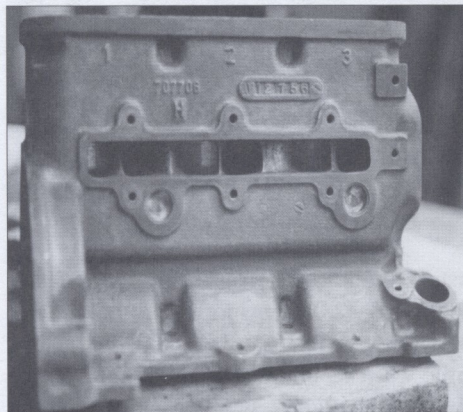
manifolds were ported and polished, flywheels were lightened, clutches were strengthened, carburetors and air cleaners were modified etc.

Chris was heavily involved in the preparation of Saab's factory entered cars in the 1957 and 1958 'Little Le Mans' ten-hour endurance race at Lime Rock Raceway in Lakeville, Connecticut. All vehicles entered in this event were supposed to be stock production cars. All modifications were forbidden. As you may have guessed, few, if any, of the cars entered were truly factory stock. The methods used by the various racing teams to modify their cars were all well known 'secrets.' Block porting was not allowed and was checked during scrutineering. The intake and exhaust manifold would be removed and the ports would then be examined for the original rough casting marks. Chris's team would port the motors to racing specifications and then spend several hours with a hammer and punch, stippling the ports to give the allusion of the original casting marks. The result? Saab won 1st, 2nd and 3rd in class in 1958 and 1st, 2nd, 3rd and 4th in class in 1959.

The fun continued long after Chris and Saab parted company in 1960. Chris and his racing buddies stopped at nothing to squeeze more power out of Saab's two stroke motor. The object of the game was to literally fill ever nook and cranny of the motor to increase lower case compression, and with it, horsepower. To accomplish this, the three cavities in the lower crank case would be partially filled. A metallic two-part epoxy resin called 'Devcon' would be applied to the walls of the crank case. To prevent the resin from spinning out of the case under load, two screws were tapped through the bottom of each of the three crank case cavities to help lock the resin in place. The screw heads were located inside the motor and were held in place with tack welds. The pointed ends of the screws protruded out of the bottom of the block. The ends would be cut off flush with the outside of the block, and stippled with a punch so as to go undetected during scrutineering. An old crank would be lowered into the crank case, creating an impression in the resin. The resin would then be trimmed on a lathe to allow .037 of an inch (.94mm) clearance between the spinning crank and crank case. Another

process was devised to create casts that were bolted to the sides of the connecting rods. This modification involved pouring molten magnesium into the indentations on the sides of the rod. Once removed, the casts would be weighed and balanced. Two machine screws were used to attach the casts to the sides of the connecting rod. One cast was drilled through and counter sunk to accommodate the machine screw's head. The cast on the other side was drilled and tapped to accept the machine screw's threads.

One of Chris's friends, a gentleman named Hank Rudkin, perfected another trick to increase compression. This modification involved redesigning the pistons. The underside of a GT piston is conical. A taper begins just above the wrist pin and terminates under the piston crown. The idea was to cap off the tapered area, creating a



Standard 750 cc block, ported beyond GT 750 specifications

hollow pocket under the piston crown. Using a lathe, the top of the piston was cut off just above the wrist pin. A flat aluminum disc, 0.180 inches (4.57mm) thick and the same diameter as the piston, would be placed between the two halves. One half teaspoon of sodium salt crystals was placed inside the pocket under the piston crown. The purpose of the crystals was to help dissipate the additional heat generated by increasing compression. The piston would then be welded back together, ground smooth, balanced and heat treated. When the motor was running, the crystals would bounce around inside the piston crown like salt in a salt shaker. Amazing!

His motors were not just for cars either. Chris was also an avid speed boat racer.



Chris racing his GT-750 powered speed boat in the 1960's. The noise could be heard for miles!

What was used to power his other machine? You guessed it: the Saab two stroke motor from his race car. Car racing on Saturday and speed boat racing on Sunday, all with the same motor! In order for the speed boat's prop to turn in the correct direction, the motor had to be run in the opposite rotation to that of the cars. Try doing that with a four stroke!

In 1980, in search of a way to express his automotive expertise, Chris started his own car manufacturing company. The company is named Rotus Inc., since the car closely resembles the Lotus 7. Outward appearance is where the similarity ends. Chris claims the Rotus has three times the structural rigidity of the Lotus 7 or Caterham 7. Rotus customers have few limitations in choosing a drive line or suspension modifications. Chris will design the car to your taste, the results of which have been staggering. His most recent accomplishment was a Mazda dual turbo equipped Rotus weighing 1640 Lbs. and producing 300 HP.

In the early eighties, Chris decided that he wanted to try his hand at vintage racing. Fortunately he still had one of his old race cars, dubbed the Saab 94 1/2. As you can see from the photograph, the car is a 1960 93F with a 1966 96 front end. When I asked why he went to all the trouble to perform the

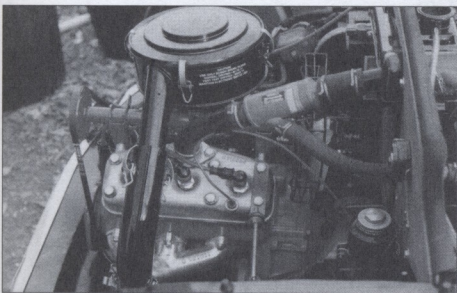


Chris Custer's "Saab 94 1/2"

graft, I expected him to list things like better aerodynamics and improved cooling capacity. Much to my surprise the reason was far from technical. He did it to improve the car's appearance, and nothing more. The car has an impressive racing history having attained victories at Marlboro Raceway in Maryland and Suffolk Raceway in Virginia. Modifications include front disc brakes, lowered suspension and the removal of all unnecessary weight. All that was needed to race again was a new GT 750 motor. Chris went through his parts bin and was able to produce a racing motor using all N.O.S. (new old stock)*components. The car was almost ready to go when Chris's health, unfortunately, started to give him trouble. Time marched on, and it became apparent that his vintage racing debut was not to be. It was then that he decided to sell his dream.

Before making the trip to Maryland, I was told that to liberate the GT 750 motor, I would also have to buy the race car that was wrapped around it. The car was a little rough, but restorable. A deal was struck and I towed the car, stuffed to the roof with parts, to my home in Walden, New York. A full restoration of the 94 1/2 is planned, but will take years to complete. The temptation to transplant the GT 750 motor into my 1958 93B proved to be too great. The motor was pulled from the 94 1/2, taken apart, cleaned up and installed in the 93B. All engine modifications were, of course, duly noted. So, just how many tricks were employed during the construction of Mr. Custer's last racing motor? For now, that will have to remain a secret, let's just hope I make it through scrutineering!

**New Old Stock refers to parts which are "original equipment", brand new but no longer in production. -Ed.*



GT-750 motor resting peacefully in Bruce Turk's 1958 93B



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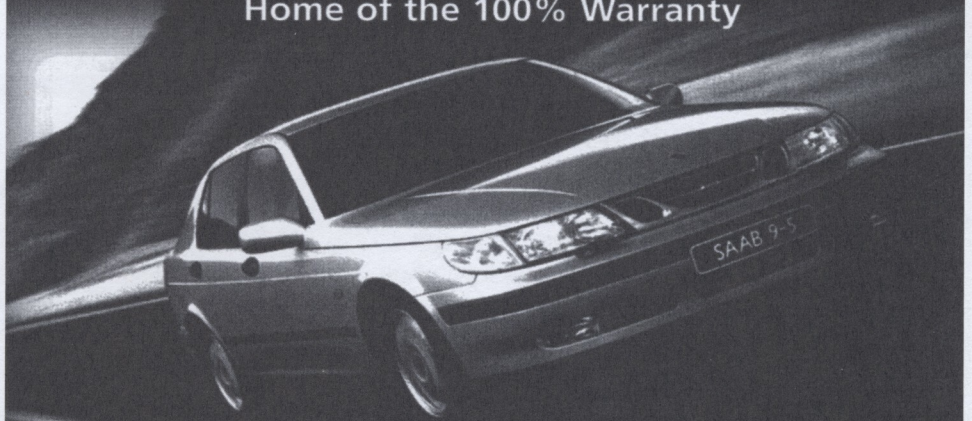
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SAAB V4 PRESSURE PLATES

The pressure plate, like several other engine-associated parts, is generally put into the category of black art. Either it works, or the wrench working on your car replaces it with a new or rebuilt unit. In most cases he really doesn't understand exactly how a pressure plate actually WORKS.

NOTE: All of the following is based on the presumption that the relationship between the clutch disc pressure surface and the pressure plate mounting surface of the flywheel remain at a stock dimension (approximately 0.644"). If the flywheel has been "resurfaced" (the pressure surface machined) without a similar amount of metal being removed from the pressure plate mounting surface, then nothing is going to work right. It is critical to check this measurement on your flywheel (see Figure 1).

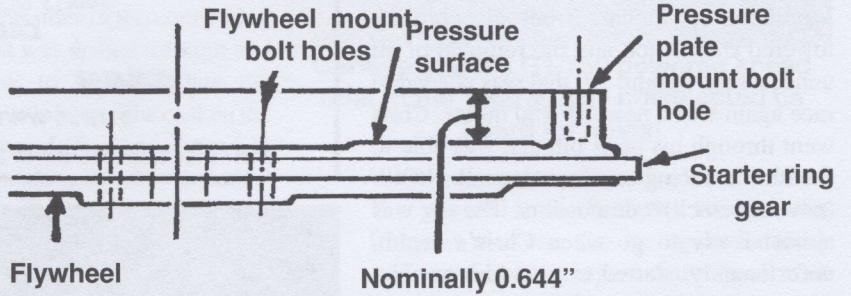
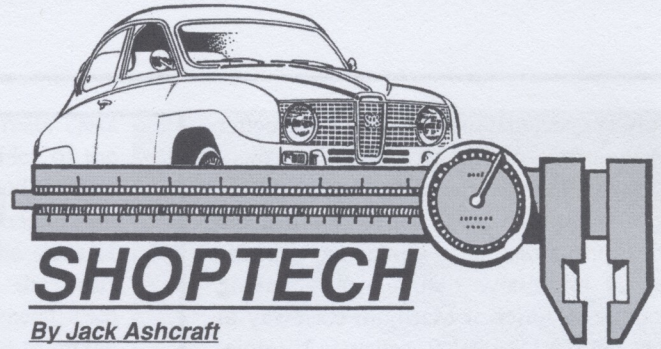


Figure 1. Flywheel showing pressure plate mounting surface to friction surface dimension.

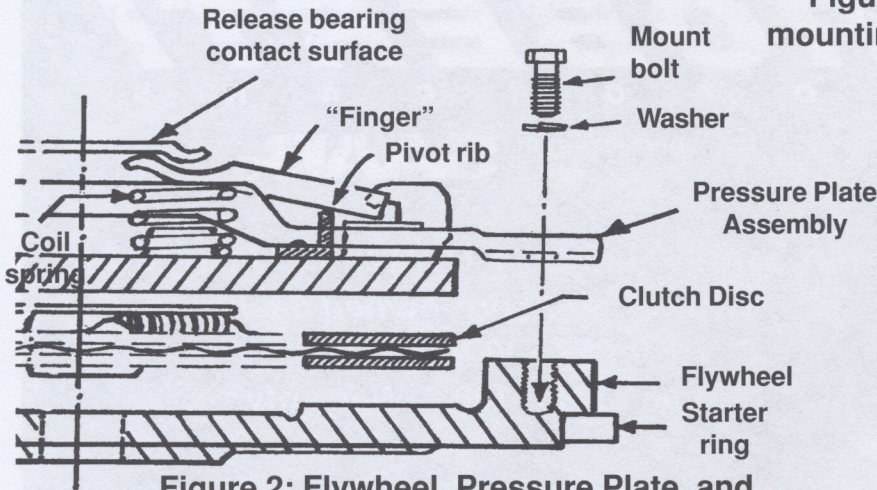


Figure 2: Flywheel, Pressure Plate, and Clutch Plate Assembly

Figure 2 is an exploded section drawing of the V4 pressure plate, clutch disc and flywheel. Note that the six pressure plate coil springs (one shown) extend the release bearing contact surface well above the pressure plate. Note also that the clutch disc is an assembly of two friction surfaces riveted to a center spring wafer.

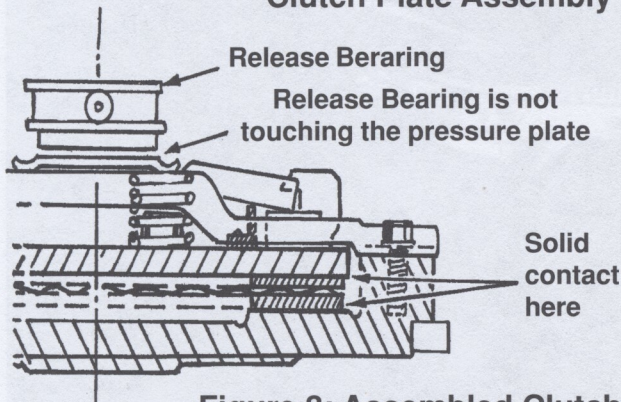


Figure 3: Assembled Clutch

Figure 3 shows the parts assembled, with the mounting bolts torqued (16 ft/lb). In this configuration, with the release bearing FREE PLAY properly adjusted, the release bearing will NOT be in contact with the pressure plate. The clutch disc is "locked" (by pressure of the six pressure plate coil springs) and the whole unit turns at engine speed, as does the input (clutch) shaft of the transmission.

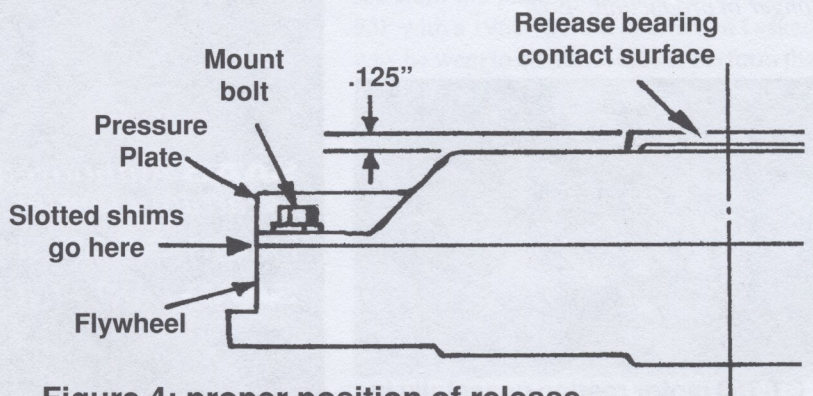


Figure 4: proper position of release bearing contact surface

Figure 4 shows the view of the pressure plate from the side, with the bolts torqued down. The release bearing contact surface (nearest the release bearing itself) must be approximately .125" (1/8") aft of the flat surfaces of the pressure plate housing. This will insure that A) the clutch will release properly, and B) that the release bearing support ARM fingers will not contact the pressure plate housing when the clutch pedal is fully depressed.

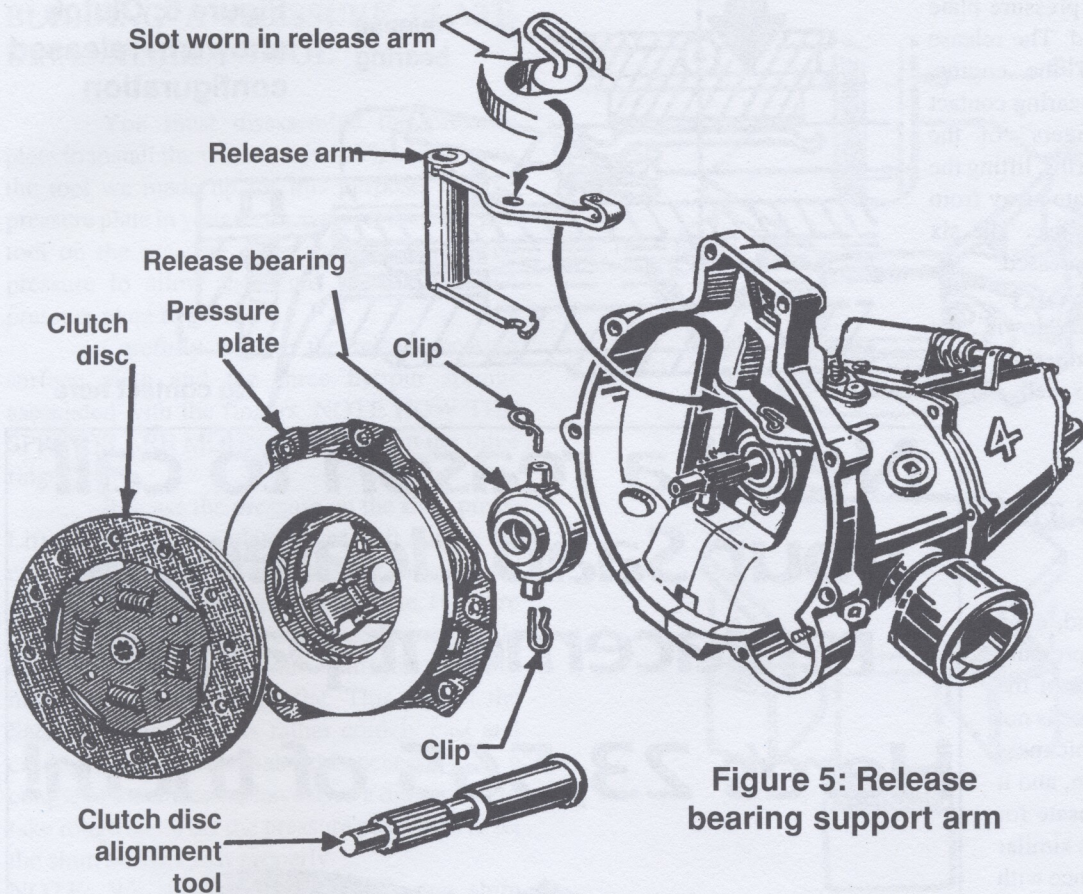


Figure 5: Release bearing support arm

Figure 5 shows the release bearing support arm. Saab did not use hardened steel for this part and it is VERY common to find the normally round mounting hole to be worn into a SLOT. If yours is in this condition, the part must be removed and repaired or replaced. We build up the worn area with the MIG welder and then machine the mounting hole out to stock diameter. Note that the lower finger--a semi-circle of metal--must also be built up and machined out to stock configuration during the repair process.

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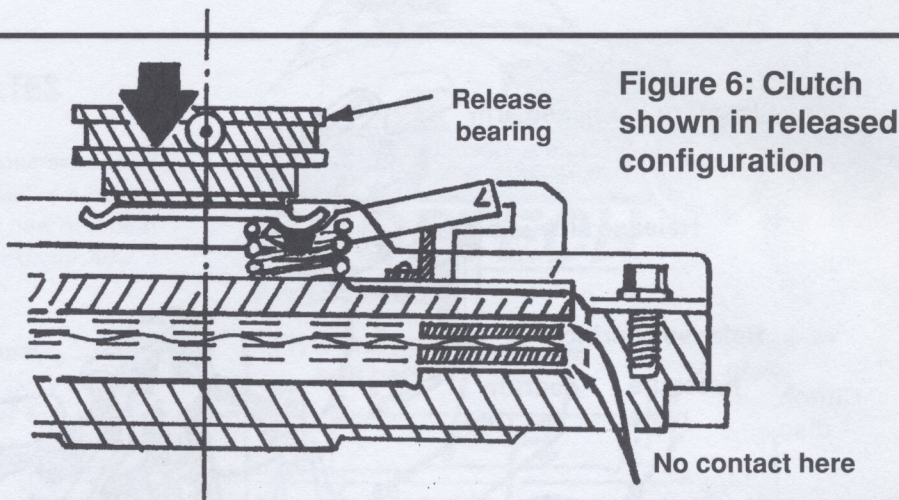
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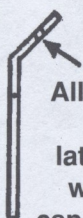
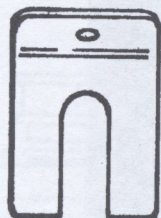
Figure 6 shows the action of the pressure plate when the clutch pedal is depressed. The release bearing moves forward, toward the engine, forcing the pressure plate release bearing contact surface forward. The three "fingers" of the pressure plate pivot on the housing ribs, lifting the pressure surface of the pressure plate away from the friction surface of the clutch disc. The six pressure plate coil springs are compressed.

As long as the clutch pedal is held "down", the clutch disc--splined to the transmission input shaft--is free to rotate at the speed of the transmission.



PROBLEMS CAUSED BY THE CLUTCH DISC

It is quite common to find, even with a NEW clutch disc and NEW pressure plate, that the mounted-up location of the pressure plate release bearing surface is not correct (see Figure 4). Different thickness of the clutch disc itself is the reason, and it is commonly necessary to compensate for this with shims. We make up shims similar to those shown in Figure 7. Experience with V4 pressure plates over the years has taught us that a 0.030" shim--fitted between the pressure plate and the flywheel at each mounting bolt--will displace the release bearing pressure surface AFT by about .125" (1/8").

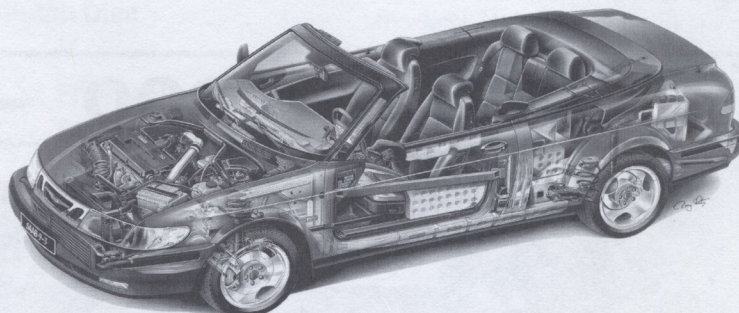


1/8" hole
Allows shim to be removed later, as clutch wears. (Shim can be removed with hooked wire through inspection hole in bell housing)

Figure 7: Adjusting Shims

Once the correct release bearing pressure surface location is established, it is necessary to add washer shims under the six pressure plate springs. These must be the same thickness as the slotted adjustment shims. The washer shims restore the pressure plate pressure (which was reduced by adding the slotted adjustment shims) to its original figure. Adding these washer shims is absolutely necessary to prevent clutch slippage!

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BUILDING A PRESSURE PLATE DISASSEMBLY TOOL

You must disassemble the pressure plate to install the washer shims. Figure 8 shows the tool we made up for this purpose. Set the pressure plate in your shop press, set the 3-legged tool on the pressure plate and put on enough pressure to allow the three "fingers" of the pressure plate to go slack.

Carefully remove the release bearing surface plate and the three hairpin springs associated with the fingers. **NOTE HOW THE SPRINGS ARE MOUNTED!** Lift out the three fingers.

Release the pressure on the shop press. Lift off the pressure plate cover. Lift out the six coil springs. Install the shim washers over the six cylindrical bosses on the pressure plate. Pressure plates vary a bit and in some cases we must file out the center of some of the shims just a little to make sure they fit down flat. This part of the Sachs pressure plate is rather crudely cast and casting irregularities make this necessary. In a couple of instances we have used a die grinder to take rough spots off the pressure plate boss to let the shim washer seat properly.

NOTE: We use common valve spring shim washers for this purpose, V.S.I. No. 102 (0.030" thick, V.S.I. No. 103 (0.060" thick) (see Figure 9).

Set the six coil springs in place. Set the cover in place. Set the tool in place and compress the springs. Set the fingers in place and reinstall the hairpin springs and the release bearing surface plate. Release pressure on the shop press.

Install the clutch disc, pressure plate and the six slotted shims. Be sure to use a clutch disc alignment tool to center the clutch disc on the pilot bearing (in the aft end of the crankshaft). Torque the six mounting bolts evenly to 16 ft/lb. Check the fore/aft location of the release bearing pressure surface (see Figure 4).

NOTE: If you remove the flywheel on the V4 engine for any reason, it is imperative that you use **NEW** flywheel bolts when you reinstall the flywheel. Saab gives the torque figure for these bolts as 50 ft/lb, since they use no locking devices. This is essentially a torque-to-stretch condition. Reusing (with subsequent re-torque of) stretched flywheel bolts invites breakage. If you have ever seen the destruction caused by a flywheel coming adrift you can understand why this is to be avoided at all cost.

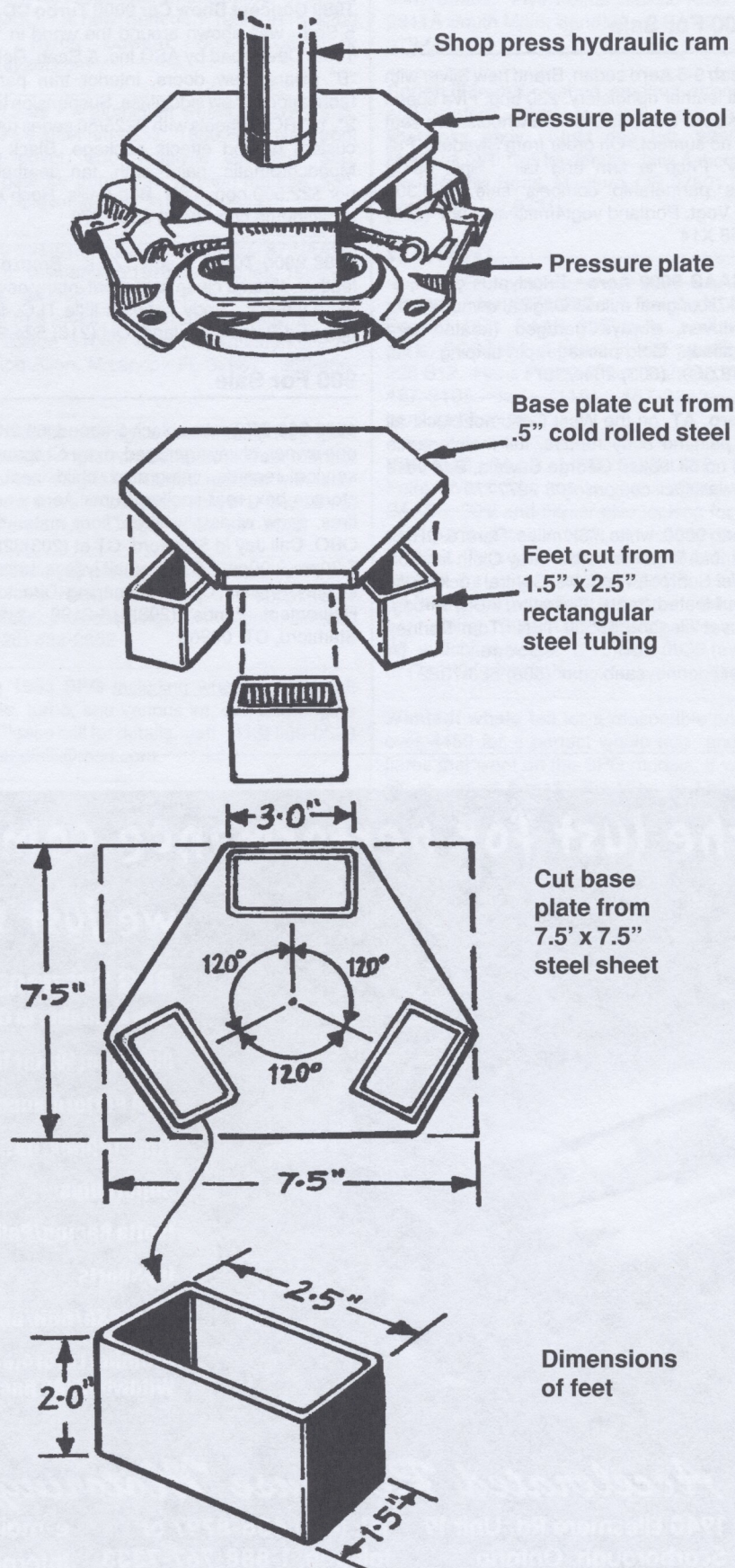


Figure 8: Pressure Plate disassembly tool

9⁵, 9000 For Sale

2000 Saab 9-5 Aero sedan. Brand new Silver with charcoal leather upholstery. 230 bhp. Five speed transmission. Three spoke 17in wheels. No seat heaters no sunroof. On order from Sweden. Full warranty. Price is firm and fair. Split up of business partnership compels sale. \$36,300 Randall Vogt, Portland vogt4me@aol.com (503) 228-9858 X14

1993 SAAB 9000 Aero. Eucalyptus green, 5-speed, 17K original miles. Original owner, never winter driven, always garaged (heated and dehumidified). Gold package, pin striping. Like New. \$18,500. (603) 284-7367

9000 Aero, AT, on the West Cost, not black, all original paint/no body repairs, full maintenance records, no oil leaks. George Suwala, San Jose CA gsuwala@cisco.com 408 9277779

1992 Saab 9000, white, 76K miles. Rare: 5-DR, 5-SPD Manual, 2.3L non-turbo. Gray Cloth Interior, Air, Power Sunroof, Windows, Central Locking W/ Security, Heated Seats, Cassette, ABS, Airbag. Simple, yet elegant. \$8500 TSN Tom Donney Motors, Fort Dodge IA tdmsaab@donneysaab.com (800) 626-7222

1989 Concept Show Car 9000 Turbo CD 2-Door 5-Spd - was shown around the world in 1989 & 1990. Developed by ASC Inc. & Saab Relocated "B" pillars, new doors, interior trim panels, & fabrication of new side glass. Suspension lowered 2", 16" ROH wheels with P225/50 series rubber, & custom ground effects package. Black Cherry Monochromatic paint with tan leather interior. \$22,500 obo. TSN Bob Fallis, Roch Hills MI ref5@home.com (248) 853-7978

1988 9000 Turbo 5-spd 178 K. Bronze brown leather - interior clean runs great, many new parts, extra wheels. Body needs a little TLC. \$2800 -neg. Ed Roth, Cleveland, OH (216) 524-9644.

900 For Sale

1995 900 SE Turbo, black 5-speed, 60.2K miles, one owner, always garaged, extra oil changes, all service records, integrated child seat, trunk storage box, rear spoiler, Super Aero wheels w/ tires, snow wheels w/ tires, floor mats. \$14.5K OBO. Call Jay in Stamford, CT at (203)329-9668 7:30pm-9:00pm EDT or email jv@us.ibm.com R. L. (Jay) Vivian, CFA Managing Director, IBM Retirement Funds (203)316-2199 -2190 fax Stamford, CT 06905

1995 Saab 900 SE Turbo Coupe, black, w sandy colored leather 133,000 miles. EC, never any accident or scrapes. Major maintenance inc. tires, muffler, and brakes done. Fast, smooth one owner car, faithfully maintained exclusively by Saab mechanics. \$9,800. Alex Driessen, Henniker NH driessen@conknet.com (603) 428-3474

1990 Saab 900 Turbo SPG, 143,000 miles. Beautiful spg talledega red, black leather interior, always maintained. \$9700 Steve Hritz, Denver CO shritz@centerre.com (303) 761-7602

1990 Saab 900S, charcoal, 5sp, new AC, heated leather, all power including roof, new Nokia tires, all maintenance records, 99k miles. \$4495/BO Karl Heise, Rochester NY Email: kheise@msn.com (716) 292-6844

1988 Saab 900 Turbo, 3 door, red, standard, 164,000 miles. Runs and drives well but needs tranny work. New rotors, brake pads, valve cover gasket, ECM, rotor, rotor cap, spark plugs, retractable antenna and switch for electric sunroof. \$900 obo William DeMars, Prior Lake MN demars@sprynet.com (612) 805-8642

1986 Saab 900 Turbo Convertible one of the 1st 600 limited silver prototypes. Everything original/ perfect condition. \$58K miles. \$27,000 OBO. Robert P. Bethea, Columbia, SC 29206.



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1980 Saab 900T 3-door. 5-speed, black. New or rebuilt: brake rotors, calipers, pads, M/C, "Group 6" stainless brake lines, Clutch & M/C, Tranny, water pump, fuel pump, ball joints, suspension bushings, motor mounts, head gasket, headliner, all with "0 miles". EMS manual rack. Straight, solid body with NO RUST. Buy for cost of parts - \$2100. Stephen Goldberger, N. Canton, OH. (330) 497-0346, Email: nines@neo.rr.com, or Jim Phillips, (330) 376-3003.

99, 96, 93, Sonett For Sale

Rare test car: **1977 Saab 99 EMS Turbo**, 2 dr. sedan, burgundy, standard, 100K +/- miles, body good, floors in great shape. One of about 5 used by US dealerships to familiarize themselves with turbocharged SAABS. \$2900 TSN Ken Blanchard, Avon CT khb99@hotmail.com (860) 232-6793

1974 Saab 99, 4 door w/trunk, 46,950 miles. Garage kept from initial purchase. 4-speed. Driven 20 miles in past 13 years. No rust, sanded and primed, ready for paint. New windshield, hand brake cables, speedometer cable, alternator, water pump and electronic ignition wiring; spare engine. Many other parts. \$1,750 Alan Kohn, Berwyn PA alankohn@erols.com (610) 644-1429

1974 SONETT. 59K miles, good paint, excellent upholstery. No belly pan rust. Nice sports car. \$3995. (60-3) 284-7367

1972 SAAB 96 White rust-free daily driver. Low miles, many new accessories installed, plus box of used parts. \$4,000 OBO. SASE for photos. Will deliver - \$100 plus expenses. Ken Edwards, 296 Brethren Church Dr., Jonesborough, TN 37659. Kenosabbe@excite.com (423) 753-3153

1962 850 GT. Rebuilt: Engine, Transmission, brakes, cooling, new paint on dry California body. Extra front clip. Jack Robinson, Sedalia, MO 65301 1-800-886-2701

Other Car For Sale

1989 Volvo 760 Turbo Wagon. Automatic, 105k, new factory turbo, struts & belts. One of the finest in existence, original white ding free paint and impeccable tan leather. Sunroof, cargo cover, & fence. No disappointments. \$8300 TSN Swedish Auto Inc., Syracuse NY swedish@dreamscape.com (315) 428-0281 (NINES, an Equal Opportunity Media Company)

Parts and Misc. For Sale

97 Saab Aero 16" wheels with Snows (4) \$250ea + shipping **9000 Roof rack** \$50+ shipping Lawrence Wiggins, Peekskill NY larry.wiggins@compaq.com (914) 734-7134

4 used short spoke wheels 6X15 fits '94-98

900s. New retail \$285 per wheel, sell for \$100 per wheel OBO. 4 new Summit P195/60R15 \$200 OBO. Byron Coward, 803-781-0026 or rtontm1@aol.com

For 1975 99 - 4 aluminum wheel covers - \$25. 1977 99 - 4 steel rims \$35. 1980 900T New front bumper cover, \$50, catalytic converter \$50, canine gate for trunk, \$35, ignition module, \$35. Ed Roth, Cleveland OH 216-524-9644.

Eclectic assortment of parts for '57-'87 SAAB * literature. Dismantling 1973 96 & Sonett; 1962 96; '83, '84, '86 900, '78 99GLE w exc tires/Ronal wheels; '87S motor, 27K, \$1000; virtually new '67 stroker motor, \$1000; tons of parts/manuals no lists. Rob Allen, Micanopy FL 32667. 352-466-4970

For 1978 99 Turbo Engine total rebuild. New grille and headlight rings, front bumper and rear bumper skin, front turn signals. As new radiator with fans. Three Inca wheels - steering rack, IPD sway bars, Best Offer. Chuck, Oregon. 503-244-0032

3 new 750cc (B) piston, .5mm oversize. These pistons have rings, wrist pins, and upper roller cages. \$299 plus shipping. Dick Merrill, Seattle, WA. (425) 432-2652

Parting 1985 SPG including wheels, airflow kit complete, turbo, and various int, ext, and engine items. Please call for details. Jeff, (413) 569-0529 e-mail jandhill@msn.com

Parting out Saabs: '84 900, 85 900T, 86 900 Base, 86 900 SPG, 87 900T 16V, 89 900S 16V, 94-98 900, 900S, 900T. Drivetrains, Interiors, Body Parts, Suspension, Wheels, Misc. Parts & Accessories. Dave Anelli, Walingford, CT. 203-949-4881.

Parts: 1967 96 V4, 1969 95, 1977 99GL 3-dr, 1978 99T, 1979 900 Gli, 1980 900 EMS, 1986 900S, various 99-900 alloy wheels, glass, switches, wiring harnesses, wipers, blowers, heater cores, steering wheels, call weekends, John. (313) 882-0129

For '79-'93 900, new condition, from Saab accessory catalog: Leather shift knob \$20 (list \$46); black rubber floor mats \$25 (list \$53). Mike 206-622-5306.

Front exhaust pipes (1) 8336232 '78T, \$45. (1) 9300773 '80T, \$45. **8-valve cyl head** w distributor and cover, 25K on valve job and street cam, with used MSS header, \$300 plus shipping. Al Phillips, c/o Motor Sport Service, 1400 E. 2nd St., Jamestown, NY 14701. (716) 665-4200.

New & Used SAAB Parts books, t-shirts, patches, \$ literature available. Ken Edwards, 296 Brethren Church Dr., Jonesborough, TN 37659. Kenosabbe@excite.com (423) 753-3153

We can supply new shocks for Saab from 1956 through 1993. We also rebuild lever shocks on

early Saabs. Five Points Classic Auto Shocks, 2911A South Main, Santa Ana, CA 92707, (714) 979-0451

Sonett III frame, cleaned, repaired, strengthened and painted. Ready to install under your good fiberglass body. Just one left. \$2500 FOB Medford, OR. Call for details. Jack Ashcraft, 4305 Dark Hollow Road, Medford, OR 97501. Phone/Fax (541) 779-0731.

WANTED

Wanted - for 1971 99E 1.7 liter, 2-dr, 4-speed: Special 1971 SAAB 99E tools, various spare parts, BOSCH fuel injection test system EFAW 228 S12. Hans Persson, San Rafael, CA. (415)-457-9105 fax (415) 457-3249, e-mail: hansuno@aol.com

VINTAGE SAAB LIFE SUPPORT, Stevens Point, Wisconsin, wants your abandoned old SAABS; 99's and earlier also looking for cast off old parts. Don't smash or destroy those old SAABS. Turn your non-running SAAB into life support for other vintage SAABS. Help other SAABers find those hard to find parts to keep their car running. Bill or Dan Yudchitz, Stevens Point WI yudchitzwctc.net (715) 345-0938 (evenings) or (715) 341-7552 (fax)

Wanted: whale tail for a reasonable price, (not over \$450 for a perfect whale tail) and fender flares that went on the SPG models. If you have either, call or e-mail. Bill Mumaw, Littleton CO wmumaw@act1corp.com (303) 972-6623

Wanted: mounting hardware for rear hatchback louvre to fit '79-'93 900. Stuard Seavey, Williamstown, MA 01267 Phone (413) 458-2171

Need 2.3 liter engine for 1994 9000 turbo. ... oil pump went out engine turns but no oil pressure. The wall of the oil pump housing is worn. Please contact me if you know where we can find an engine. I would also appreciate any other ideas on how to get it fixed. Kolly, MI davenew@erols.com (616) 646-9135

NOTE: When the notation "TSN" appears before the advertiser's name, a photograph of that item can be seen in The Saab Network Classifieds at <http://www.saabnet.com/class/>

It's been a year since I became the Editor and Publisher of NINES, a year which has rushed by with amazing speed. I'd like to thank all those who have wished me well over the year, and I'd like to especially thank those who have taken the time to contribute their Saab experiences. I'd also like to thank Norma, whose sharp eye goes a long way toward making NINES a composition that would make an English teacher proud, who keeps the membership rolls (and the rest of the house) in one piece while I am entombed in the computer room for three weeks finishing an issue, and for her love and support, without which I could never begin to produce a NINES magazine of such high quality.

I've been able to keep improving NINES over the year, thanks to the support of the membership. We're printing on a whiter paper, which gives the photographs a lot more "snap". The cover wrap protects NINES from some of the ravages of the Postal Service. The cover wrap also moves the subscription form off the back cover, so you can cut it out and renew (hint) or update your address (**BIG HINT**) without cutting into the magazine. Speaking updating addresses, we received back several copies of issue #244 indicating that the subscriber was "temporarily away." The Postal Service tells me that these most often are people the Floridians call "snowbirds": those who spend the winter months in warmer climates. They don't always forward magazines under those circumstances. In fact, the Postal Service doesn't "always" do anything except deliver mail to the intended addressee while the addressee still resides at the address on the label. Please help by keeping us up to date with your address. Our mailing list goes to the printers about the 15th of every even numbered month.

Our web site (<http://www.saabclub.com>), has given us a forum for showing our product to people around the country and around the world. We show our cover and sample some articles to help bring new members into the fold. Nines and The Saab Network (<http://www.saabnet.com>) have agreed to allow classified advertisers to place ads in both media, allowing Saab enthusiasts the convenience of single contact when selling or soliciting for mileage enhanced Saabs or parts and supplies. TSN has also begun to

provide on-line subscription services for both new subscribers and for renewals. If you prefer to shop "on line," NINES can now be on your list.

NINES is continuing to follow fact and rumor regarding the all-wheel drive Saab, and we are careful to distinguish fact from



An artist's conception of how a Saab SUV might appear, printed in Car and Driver magazine.

speculation. One example of speculation is the picture reprinted from Car and Driver magazine. It looked to me as if someone used a computer graphics program to "morph" the grille, hood, windshield and wheels from a Saab Aero onto a picture of the Buick Rendezvous. Said a Saab representative when asked to comment, "All the car magazines have Photoshop these days."

For many of us, myself included, a high

center, all-wheel drive Saab is not a product we would like to own. We drive on roads that are more or less paved, and the qualities we seek in a vehicle include efficiency and prodigious handling abilities. Others may live in areas where pavement is more of a luxury than an entitlement, however, and for those people, the new product presents an opportunity for Saab ownership which hasn't been a reasonable choice since the last Saab 96 rolled into the Saab Museum. Blending Saab's spirit into the all-wheel drive product may also enlighten some of the people who are currently SUV owners. Saab will hopefully win their share of the SUV market, and this will bring those people to the Saab dealer for purchase and (the dealers hope) service. Saab's policy of providing dealers with company-owned "service loaners" will result in many SUV owners driving a Saab car for the first time. As the ads say, most people who test drive a Saab, buy a Saab.

I expect to be attending at least one or possibly two days of the Carlisle Import/Kit Replicar Nationals. I encourage members in the central Atlantic region to consider stopping by to enjoy the show and say "hello."

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