Project Volvo Turbo

Part One: A LITTLE HISTORY

by Matt Stone

PHOTOS COURTESY OF VOLVO CARS

Most magazine "project cars" follow a similar format: The editorial staff takes a brand new car, bolts on the coolest parts and goodies available in the marketplace, and guess what? The car ends up looking better (though sometimes not!) and going faster. This approach can be fun and informative for staff and reader alike, but it's hardly original, and it may not represent what actual buyers/readers would do to their own cars. And there are at least two other flaws with this formula. One is that it assumes that each driving enthusiast who wants to improve his/her ride is starting with a new car. A lot of us know this just "ain't so." Secondly, it assumes magazines have bags of budget lying around for the trickest (neé most expensive) parts and accessories available. Also not necessarily realistic.

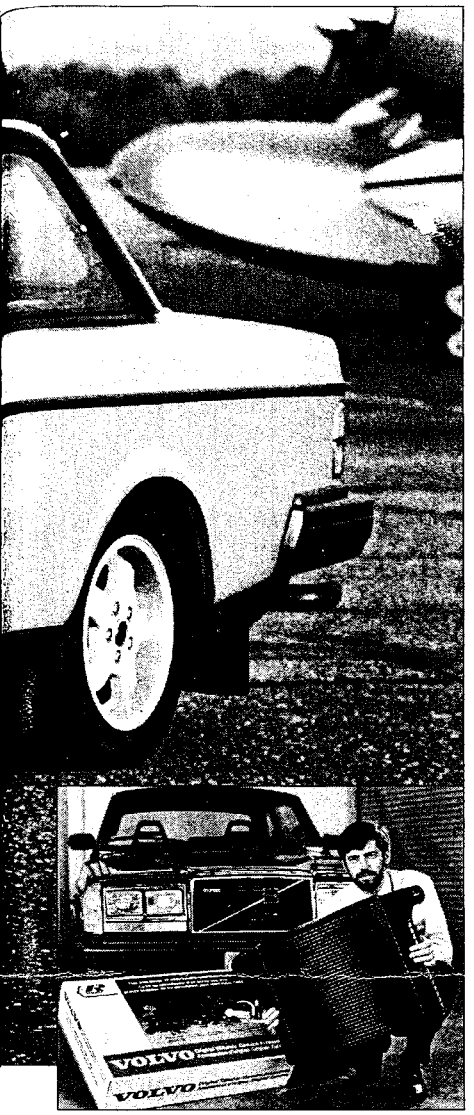
No don't get me wrong: I like the latest and hottest componentry as much as you do. Seeing the high-tech hardware in action is probably one of the reasons you buy this magazine. But $45,000 roadsters and $3,000 to $4,000 aftermarket wheel-and-tire packages are not in the cards for many enthusiasts. european car has been addressing some of that bargain-priced need with the "Super-Buys" series. And now I'm going to take a stab at it...but with a Swedish accent.

Welcome to Project Volvo Turbo

This project car will start with a representative used car, bought in the marketplace. That means I'll not only have performance and appearance upgrades to look forward to, but things to fix and problems to deal with...just as you would. I'll try to take a cost-effective, pragmatic approach toward getting the car up to snuff and then improving it on a modest budget...just as you might. Sure, three-piece 18-in. forged alloy wheels and the latest P-Zeros would be cool, but don't expect to see them on Project Volvo Turbo. That's not something an average buyer would really do to a 15 year-old Volvo, so I won't either.

Why a Volvo?

The reasons for selecting a 2-Series Volvo Turbo for this project are many: european car has never done a Volvo project car, and your letters indicate that you enjoy the Volvo (and Saab) car features published in the past. The early '80s Volvo Turbos represent the company's

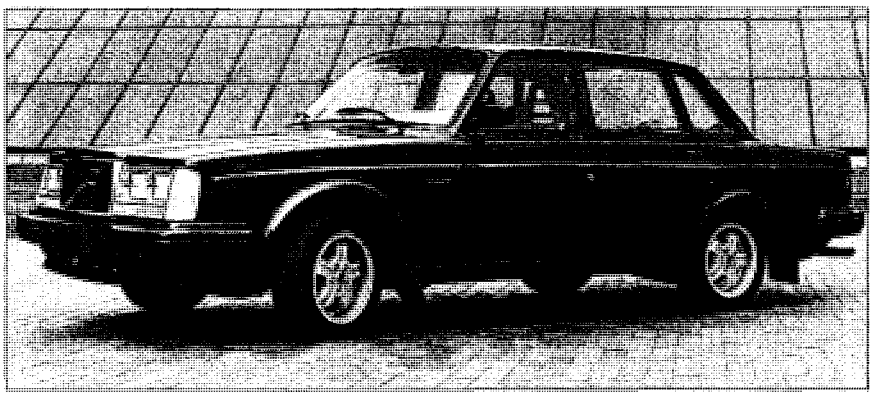


first real effort at shedding its boxy and boring image and developing some reputation for performance. You can still see a bit of their original DNA in today's S70 turbos and R cars.

Need more? Sure. These cars are robustly constructed and tend to live long miles, so it's actually possible to buy an early '80s Volvo that is not ready for the scrap heap the day you drive it home. The underpinnings are soundly, if not exotically, engineered, and they respond very well to minor modifications. As you'll see, it takes relatively little work (and expense) to turn a Volvo into a real handler.

The 2-Series Volvos are plentiful: Available in the U.S. marker from 1974 through 1993, more than 2.8 million 2-Series cars were built. Though evolution of the platform (which I'll review in a bit) took place throughout its production run, the basics stayed much the same. That means there are lots of updating/upgrading possibilities. Any and every part necessary to maintain a 2-Series is available, and most prices are reasonable compared to some of the higher priced imports. And automotive parts recycling centers (translation: junkyards) are stocked full of parts-producing cars.

Everyone has different space needs. No problem since the 2-Series Volvo Turbo



was produced in two-door coupe, four-door sedan and even five-door station wagon configuration. Even the coupes have reasonable seating area for four, and the wagons have practically become cult classics. The 2-Series cars are roomy without being big cars, compact without being small cars. Don't forget the kinky 262C coupes, with their flat-top, Bertone-bodied styling. Though they did not come with the turbo powerplant or suspension upgrades, everything else still applies.

The clincher? They're cheap. Though pristine examples of some of the more limited-production models can command a fair dollar, 2-Series Volvo Turbos are plentiful, and inexpensive.

Which One?

As noted, the 2-Series was sold in the U.S. market for nearly 20 years. All manner of engines powered them, from straight four- and six-cylinder gas units to V6s and even a diesel. The first sign of performance stirrings in the lineup was the 242GT model of 1978. Available in coupe form only, it was powered by a naturally aspirated sohc four, rated at 101 hp. Not exactly a firebreather, but remember that automotive performance was on vacation at most manufacturers for the later part of the 1970s and the early 1980s. The 242GT did pack suspension upgrades, attractive alloy wheels, a special grille with integral fog lamps and a nifty silver-and-black paint scheme.

Inside there were striped corduroy-upholstered seats, a sport steering wheel and a tach to set the 242GT's interior apart from its workaday partners in the model roster. All in all, the packaging worked well at adding some spice to the 2-Series coupe, and it proved to be the basis for the Turbo models to follow.

Model year 1979 was pretty much status quo, but there were a few changes for 1980. The model was rebadged GT—not original, but descriptive nonetheless. Front and rear anti-roll bars were beefier yet, and gas-charged shocks replaced the standard units. Pirelli P-6 performance tires on larger 15-in. alloy wheels became standard, as did a deck-mounted spoiler.

Volvo came out with its first turbocharged model in 1980, and brought it to our shores for the 1981 model year as the GLT Turbo. The powerplant was based on the standard B21F four banger, but was equipped with a Garret TB-03 turbocharger. Logically dubbed the B21FT, the blown four was rated at 127 hp at 5400 rpm, with a torque production of 150 lb-ft at 3750 revs. Boost was limited to 5 psi, certainly conservative in this day and age of 10 psi installations, but electronic engine management was a bit less-developed science then than it is now. Volvo didn't want to do anything to compromise its reputation for dogged reliability.

Unlike many such applications at the time, it was more than just a bolt-on blower: There were sodium-cooled valves in the heads, and revised pistons dropped compression from 9.3:1 to a more turbo-friendly 7.5:1. Even then, Volvo realized that turbo wear was a potential issue, so it added

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an oil cooler which not only kept temperature in check but increased oil capacity.

Though a power increase of 25 percent sounds like a lot, it represented just 20 screamin' Swedish ponies over the now-standard 107-hp BF21 engine. Yet it was enough to transform the car from seriously staid to genuinely sporting. Magazine editors of the day raved about the car's performance; remember that a 1981 Ford Mustang of the same year, with its anemic 255 cu.-in. V8, put out about the same amount of power.

Besides a suspension set-up similar to that of the previous 242GT, the Turbo got vented disc brakes from the six-cylinder cars, a shorter first gear and a taller final drive ratio. A turbo boost gauge appeared on the instrument panel, part of a revised dash arrangement for all Volvos for '81. The exterior again followed the flavor of the prior GT models but without the stripes and with a bit more black trim. You could also get the same package in naturally aspirated form, a nice alternative for someone who wanted the sporty look and capable suspension without the turbo engine package. These models were simply dubbed GLT. Overall, these first Turbos did the job, giving Volvo a crisp, Euro-style sport sedan, stealing more than a few BMW 320 sales in the process.

For 1982, it was more of the same. Volvo expanded the GLT Turbo and GLT equipment levels to both the four-door sedan and five-door wagon models. A turbo wagon? You bet, and it sold gangbusters. Still does.

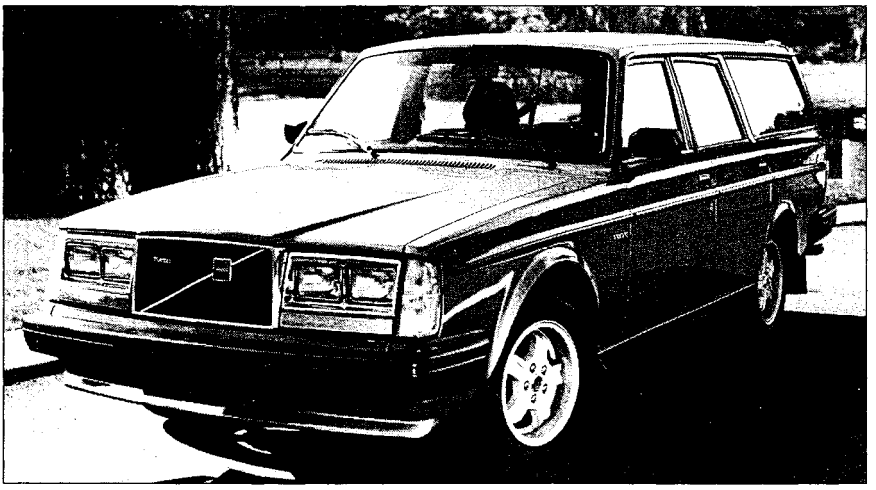
The beginning of the end for the 2-Series Volvos was 1983, though it would be a final performance that would play for another ten years. The company brought out its all-new 7-Series sedans and wagons which immediately began receiving the top hardware and most of the improvements. Though the year began with models essentially the same as the '82s, a much welcomed performance increase was on the way in the form of a factory intercooler, available mid-year.

The intercooler was offered at first in kit form, for either home or dealer installation. It became standard equipment beginning on 1984 models built after Dec. '93. An intercooler acts similarly to a regular radiator, but in this instance cooling the intake air as opposed to water. Volvo claimed that its Intercooler Boost System (IBS) dropped the temperature of the compressed air leaving the turbo by nearly 100°F. Power ratings were estimated at 157 hp when the kit was installed on an earlier car, and 162 hp for the factory 1984 models. Still impressive, as the aforementioned BMW (now the 318i) was good for only 101 hp, and the '84 Mustang, for all its 5.0-liter thunder, was up to very little more, at 175. Volvo's ads were certainly not ashamed to reference the GLT Turbo's 50-plus horsepower advantage over its German competitor.

Things wound down a bit for 1985, the last year the Turbo was available in the 2-Series lineup. The two-door model was dropped, but the Turbo could still be had as either a sedan or wagon. There were virtually no other changes for '85, and though sales were solid, it was clear that the newer 700-Series cars were the way of the future at least in terms of performance offerings. A new 2.3-liter turbocharged engine had been developed, but it was only offered in the 740 Turbo models. The 2-Series did get a considerable facelift for 1986, but the Turbo model was not to be a part of the offering. The 2-Series Turbo models bowed out at the end of the 1985 model year.

Whichever model you chose, there was a lot of basic goodness that came with the package. All 2-Series Turbos had power rack-and-pinion steering and power four-wheel disc brakes. The Turbo was available with a four-speed-plus-overdrive manual transmission or a three-speed-plus-overdrive automatic. As the Turbos were considered top-line models, they could be had with options such as sunroofs, leather interior, power windows and locks, and a host of other features that even now allows them to serve as contemporary, everyday transportation.

There was also a unique Turbo model that appeared along the way. It's unofficially called the Limited Edition 240 Turbo and has been colloquially dubbed the "flat hood" Turbo. Volvo was homologating certain models for the FISA European Touring Championship. Though the ins and outs of homologation rules and the loopholes through them go way beyond the scope of this article, the net result was approximately



500 late-1993 Turbo coupes with the IBS system, and a more aerodynamic "flat" hood and shorter grille from the 1978-80 models. They can be identified by notation of the "Intercooler Trim Package" at $995 on the window sticker, and, according to John Matras, author of "The Illustrated Volvo Buyer's Guide," by an "SXXXXX" identifier on the number plate. Though these cars did not include some of the improvements made to the 1984-85 cars, their limited number and racing-connection cache make them the most sought-after of the 2-Series Turbos.

Which to Buy, What to Watch For

There's nothing particularly problematic about any of the 1981-85 2-Series Turbos, though with the intercooler and associated power increase, the 1984-85 models are certainly the most desirable. One particular pearl might be an '84 two-door, as it is the only model that combined the two-door body style with the 162-hp engine. The '83 Limited Edition flat hood Turbo is also desirable, but be prepared to pay more. Don't disregard a good 1981-83 car over the horsepower difference however, as the intercooler is available both from Volvo and the aftermarket.

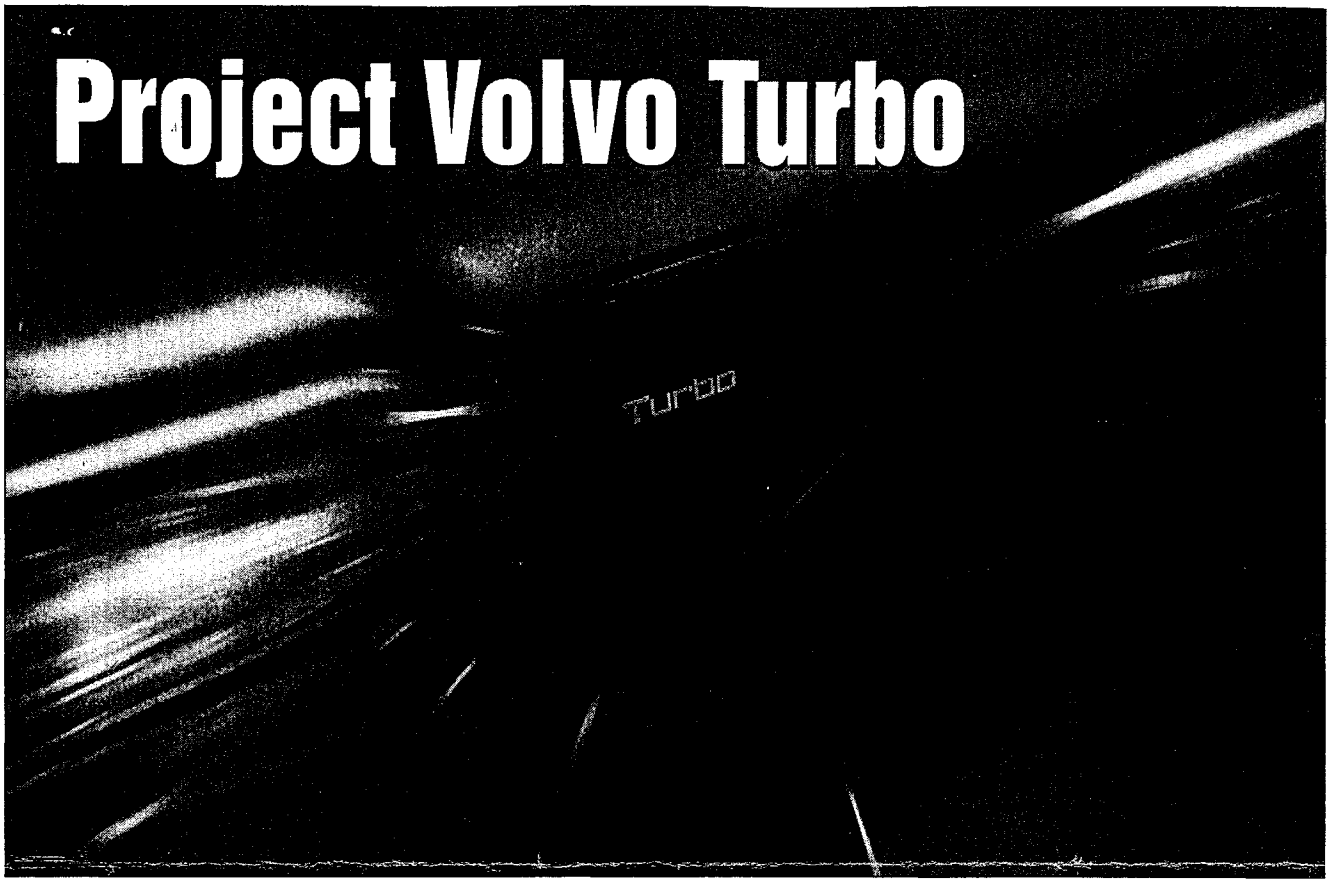
As noted, the chassis and drivetrain are exceptionally long lived; but turbo life is an issue to be mindful of. With average maintenance (meaning oil changes) they seem to be good for about 80,000 miles. They can also go 50,000 or 150,000, depending upon the care they have had. The Garrett turbo is a common piece and can be rebuilt or found used in the junkyard; figure $500-750 for a minor rebuild. Cam belts are important, as Volvo fours are "contact" engines. This means that if the cam timing belt breaks, the valves will contact the pistons, and this unfortunate occurrence could ruin the engine. The belts are also good for about 80,000 miles, but if the owner doesn't know when or if it was changed, add $250 to your budget.

Unfortunately, Volvo interiors don't tend to fare as well as the engines and chassis do. A cracked dash is almost standard equipment on an older Volvo, and even if the seat upholstery has held up well, the foam and cushions beneath it are probably flat and unsupportive. Interior panels are held in with a number of plastic clips, most of which will have broken, causing numerous rattles. The plastic map pockets on the doors tend to break. All of this is easily fixed but again needs to be factored in to your time and money allocation.

As with most automobiles, especially those with unibody construction, I recommend staying away from cars that have suffered major accident or rust damage. When it comes to an ultra-rare car, you may not have much choice, but even the Turbo models were produced in large numbers and remain fairly common, so there's no reason to have to spend a fortune straightening out a bent one. Besides, unless you or your body shop really knows its stuff, the car is not likely to be 100-percent right again, anyway. In short, even though you plan on doing some work and upgrading, buy the best car you can find and afford: It will probably be cheaper in the long run.

Next up: I'll talk a bit more about models, pricing and shopping, and then introduce you to the car that will be the subject of this project. Better brush up on your Swedish.

Project Volvo Turbo



Part Two: And the winner is...

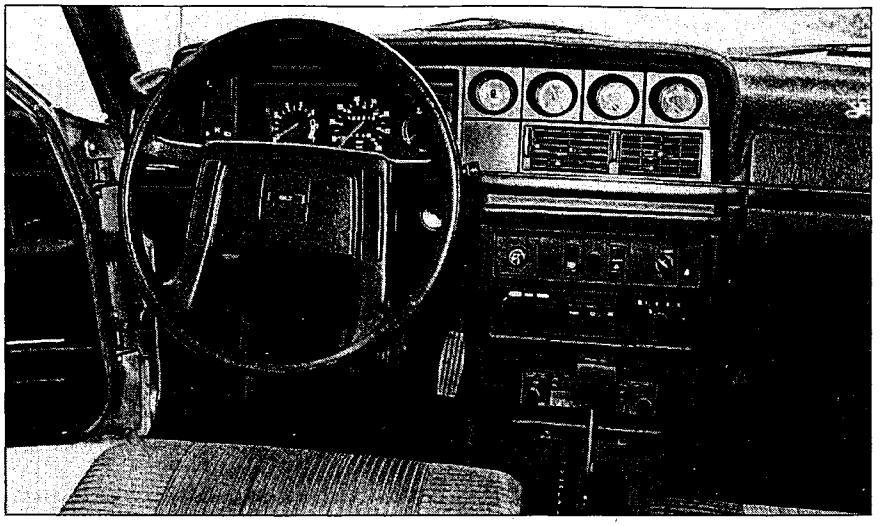
by Matt Stone
PHOTOS BY THE AUTHOR

In the first installment I covered the thought process behind Project Volvo Turbo, and took a look at the various 2-Series Volvo Turbo models built between 1981 and 1985. Now, it's time to go shopping.

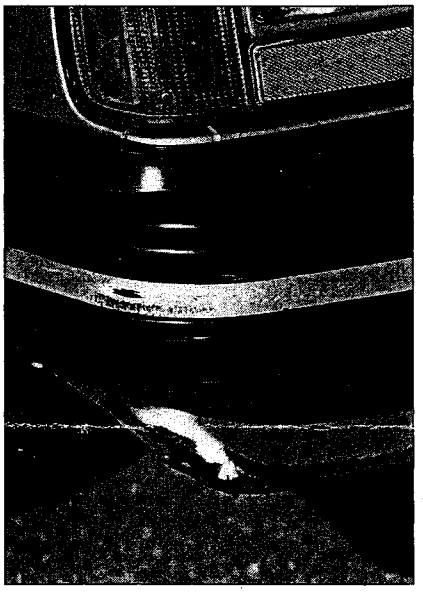
I decided at the outset to focus on either a four-door sedan or a five-door wagon. Though coupes are generally the most performance-oriented model in any car lineup, I like the practicality associated with four doors. They are more plentiful and generally a bit less expensive. There's a small weight penalty, but I'm not looking to build a race car here—just something practical, cost effective, different and fun.

While the notion of a high-performance wagon might really set you on your ear, Volvo has made hay with five-door performance models for 15 years now. The Volvo wagon has become somewhat of a cult machine, and to Volvo's credit, it still offers its highest-performing model, the S70 R, in both sedan and wagon forms. Remember Volvo's Showroom Stock racer wagon from a decade ago, driven by former contributor, the late Len Frank? Volvo also ran an 850 Estate in the BTCC series during the 1994 season, and it performed admirably. So either sedan or wagon would do.

As previously noted, the goal would be to find a rust- and accident-free 1984 or '85 model, as these cars have the intercooled engine good for 157 hp as opposed to 127 ponies found in the 1981, '82 and most '83 240s. The cooler can be retrofitted, however, so the later car wasn't a requirement, just a desire. A stick shift would be my obvious choice, as the Volvo manual is a smooth-shifting tranny and comes with an overdrive standard. But the automatic would be okay, as they too had overdrives and somewhat replicated today's four-speed automatic units in operation.



Other than the cracked dash panel, which is practically standard equipment on Volvo 240-Series cars, the dash is in great shape. All gauges, switches and controls work fine, even the power mirrors. The AM/FM/Cassette is an older aftermarket unit, and plays on only one speaker, so a trip to the stereo will come down the line. Stock steering wheel would look right at home on a bus or a tractor; it will have to go.



A word about pricing: It seems that to a great extent the value of these cars boils down to willing buyer, willing seller. I tried several sources and just got more confused. One standard reference is the *Old Cars Price Guide.* I picked up the latest issue, turned to the "Volvo" heading of the imported car section, and was greeted with: "NOTE: Pricing will return in a future issue." Thanks a lot.

Next up, I tried the Kelly Blue Book Web Pages, as reviewed herein a few issues ago. This website works great as it gives both "retail" and "wholesale trade-in" values, and is as close as your modem. The problem is, however, that it is really not geared for collectible or semi-collectible cars. The retail prices assume the car is in outstanding condition, not likely when searching for 12- to 16-year-old Volvos. The trade-in values seem to be a bit low, but this makes sense, because if you've ever tried to trade in a 15-year-old car on a new one, you know what kind of dollars you get offered for it. All in all, a good and reliable source of value information, but one not particularly suited to the project this time.

While on the Web, I pulled up the homepage for ipd. You can't get involved with Volvos without knowing ipd. This Oregon-based parts supplier has everything for the Volvo owner, from coffee mugs to turbochargers, sway bars to seal kits. Its site (www.ipdusa.com) has a classifieds section, so I checked in. More confusion, as prices seem to be all over the map. I found an '84 Turbo coupe replete with four-speed trans, leather interior and 155,000 miles for $1,000, billed as a "needs work or excellent parts car." I found another '84 Turbo, this one a wagon in excellent condition for $5,000. There was a nice-sounding '82 GL wagon (the luxo model) at $1,500 obo, but it wasn't a turbo. And if you want cheap, I found cheap: A '79 224 DL sedan parts car in running condition replete with a second engine and more parts for a grand total of $300. Nothing that seemed to be a direct hit, but ~~at least~~ I guessed I'd be looking in the $2,000 to $4,000 range for good runners.

Every market has a "free ads"-type newspaper; SoCal's is called the *Recycler.* A scan of the "1985 Autos" section turned up an '85 Turbo sedan with leather and a sunroof; the proverbial "looks-and-runs-great" kind of car, for $2,900 obo. A quick phone call; gone. The other '85 was a non-turbo wagon at $4,900. The 1983 section contained a fully loaded sedan with a new turbo and lots of new parts for $2,750. It was still available, but had 274,000 miles on it.

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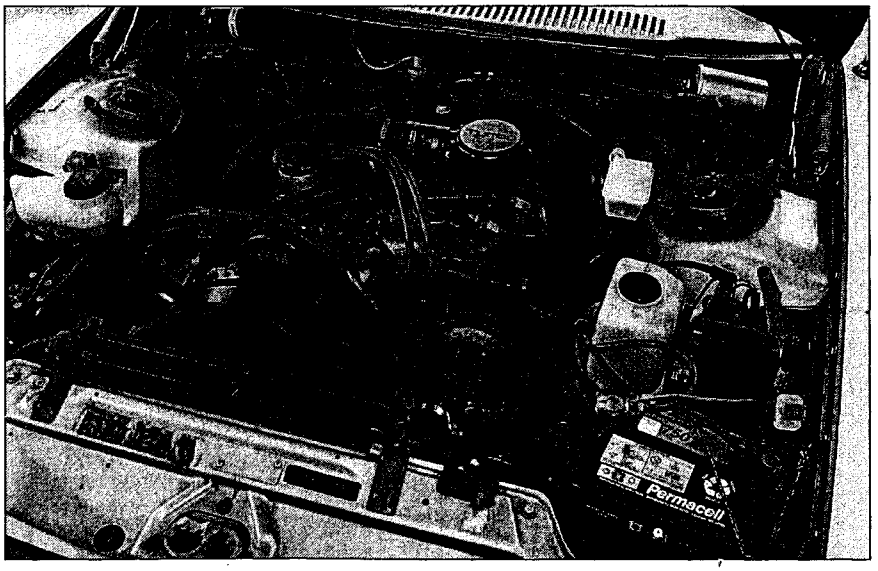
Project Volvo Turbo is far ~~from perfect. Though~~ it has not been the victim of a major incident, nor been purposely abused, it does show its 15 years' worth of wear. A bit of "spraycan detailing" will fix all this up, however; and it's easier and cheaper than dealing with things such as rust repair.



Engine compartment as it appeared when car was purchased; nothing pretty but all there. Note missing cap for coolant tank, "high-tech" bungee cord battery holdown bracket and cheap, non-functioning alarm siren. Clips that hold grille in place are also missing and, while the engine bay looks a bit scruffy, it's all original, evidencing no previous damage and that the car is a genuine Turbo model, not an engine swap. I'll first focus on bringing things up to mechanical snuff; underhood cosmetics is way down the road at the moment.

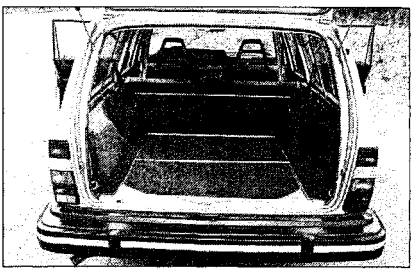
Project Volvo Turbo is in amazingly original condition, right down to the mudflaps (which will hit the driveway real soon). Note tiny stock exhaust pipe. Rear window wiper works fine.

Now these cars have long legs, and if you've owned one and chose to maintain it and keep it on the road that long, fine. But there's little need to go out and buy one with that much use on the odometer. There were no '82s listed, but there was an '81 GLT wagon with 134,000 miles, advertised by a local used-car dealer. The price was right at $1,950, but at least $500 of that was spent on Bondo just to glue this poor hulk together. There were also several $500 and $750 running non-turbo models that would be good sources of parts if required.

All in all, nothing that jumped off the page at me, but I was now getting more comfortable with the range of prices; I really didn't want to spend more than $3,000 or so if possible and needed to conserve some money for go-fast and handling goodies.

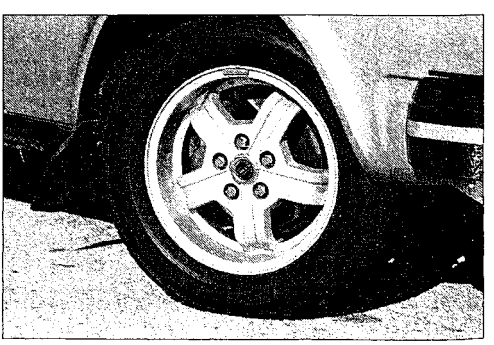
Then I found it.

Sitting at my local "lemon lot." The metallic silverblue 1982 Turbo wagon you see photographed here. It was parked in front of a shopping center, among the usual raft of 10- to 15-year-old cars for sale. Hmm, looks straight. All original paint. No rust visible. Original blue velour interior quite nice. Automatic trans, power windows and mirrors but no sunroof. Windshield cracked. Factory turbo wheels intact; these would be fine for now, and great swap-meet trade bait for later on when I can get into some 16-inchers. Only 106,000 miles, just about break-in usage for a Volvo. The sign in the window said $2,500 or best offer. I felt myself twitch just a bit.



Rear compartment area is complete and in good shape, though most of the plastic clips that hold the side panels and trim are broken. Lots of rattles are the result. This car does not have the third-row rear seats.

A call to the owner indicated that it was owned for six years—bought it from the original owner and was selling two older cars to buy one new one. Didn't know of any accidents, but the mileage was correct and original. The current owner had replaced brakes, shocks and the overdrive relay over the last few years, and the A/C did not work. I also noticed that the registration was up within 30 days, so if it wasn't sold soon, new tags would have to be paid for. We agreed to meet for a test drive.

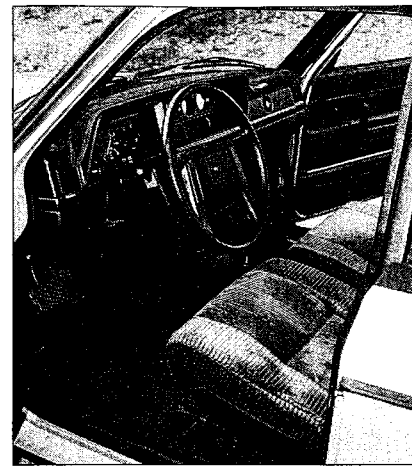


Volvo's 15-in. interpretation of the five-spoke alloy wheel has held up amazingly well, don't you think? They add a decidedly performance look, both when new and now. Fortunately, this car has all four stock wheels in perfect shape, including decent 195/65-15 tires with many miles left in them. This rolling-stock package will do just fine for now, but a modestly priced set of 16-inchers are likely on the horizon. At that time, I'll decide if I keep these for future use (like racing tires?) or swapmeet them away to help offset some other costs.

Besides the dead A/C and broken windshield, the O/D still didn't engage consistently, but the biggest problem seemed to be a distinct lack of power. The owner also noted that the car needed premium gas or it would ping. A call to one of the local Volvo experts indicated, with almost 100-percent certainty, a plugged catalytic converter. This is common on any Volvo with 100K or more miles on it, and explains both the pinging and power loss. The bushings also felt a bit tired, again common on just about any car past the 100,000-mile mark in our smog-laden environment. There were lots of rattles in the interior due to the myriad of little plastic panel retainer clips that tend to break on Volvos, as well as the practically standard-issue cracked dashboard. The paint was showing minor checking and crazing, and some of the black-painted trim also needed attention.

On the plus side, the body was arrow straight, save for one minor indentation on the left-front fender. Oil pressure was high and no smoke of any color traced from the exhaust pipe. The already-replaced Turbo wound up and down smoothly, the transmission shifted perfectly, and as mentioned, the upholstery and headliner were in amazingly good shape. Further inspections confirmed that the car had never been in an accident, and not a stitch of rust was found when I put the it up on a lift for an underside inspection.

The price was fair, but this is America and at least a bit of negotiation is expected. I advised the owner that I liked the car, but was concerned about the cost of the glass and catalytic converter replacement. I did not hesitate to point out the soon-to-expire license, and how really expensive Freon had become these days. He said, "Look, I want to sell it—now—so I'll save us both the BS and take $2,000 cash if I don't have to buy the new tags." As they say in the auction business, "S-S-S-Sold!"

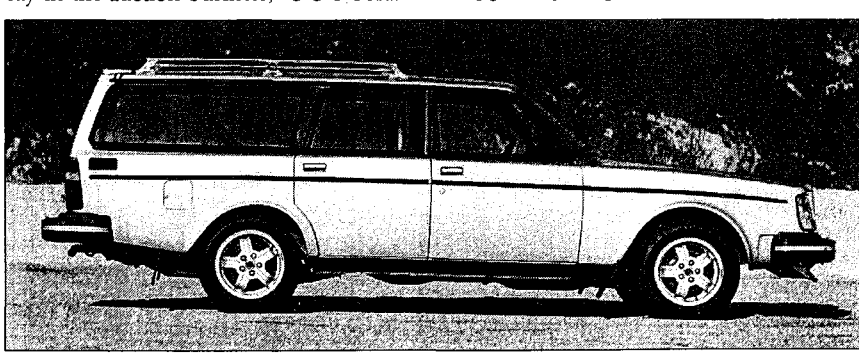


Interior condition is quite good enough. The upholstery has no tears and the carpet is also in decent shape. The foam and springs in the seats leave something to be desired, so I'll investigate either a seat kit or maybe swapping in seats from a later series 240. As the cars were made through 1993, there are many trim upgrade possibilities.

Even with the plugged cat and having no knowledge of its state of tune, the car passed its California smog test with flying colors. A quick trip to the DMV, and I walked out the new owner.

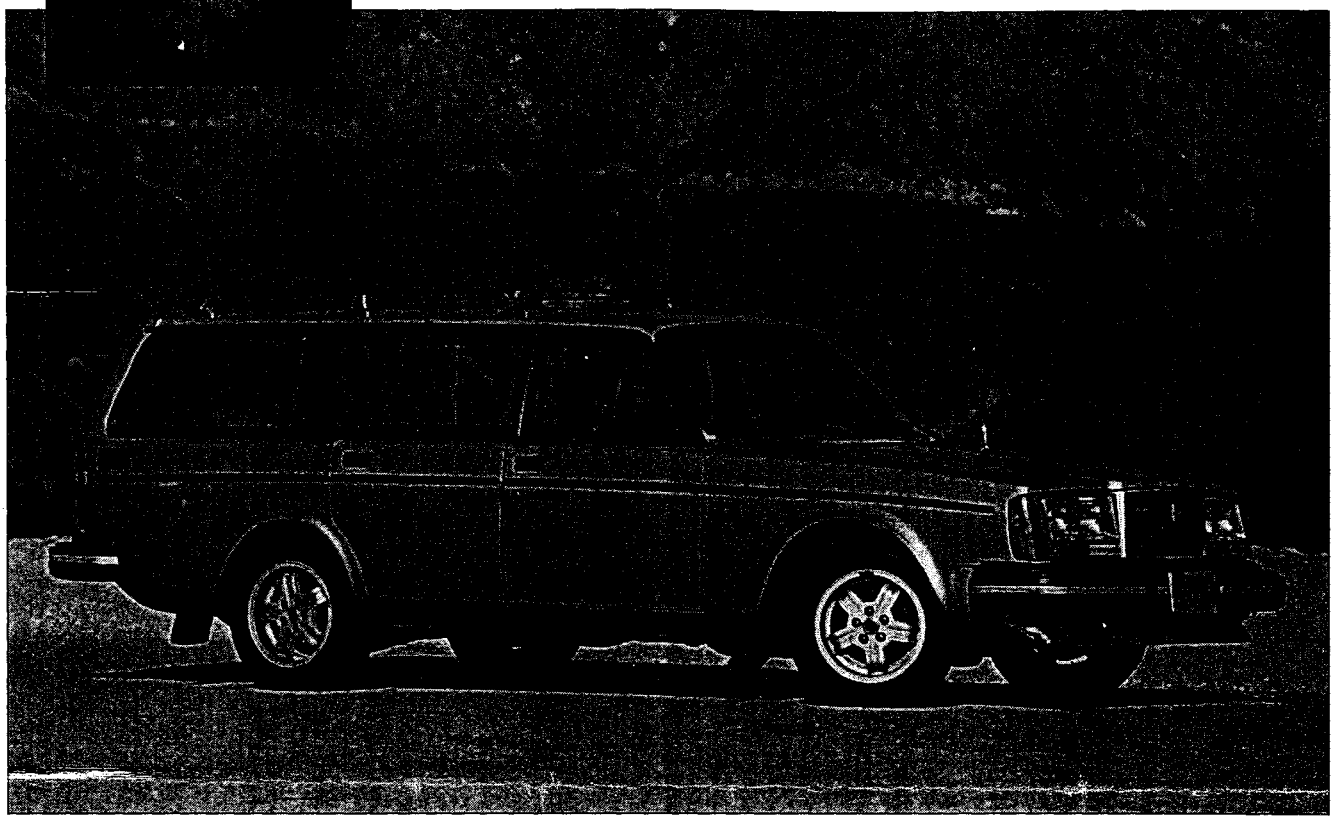
The photographs were taken of the car in the exact condition it was received in, other than taking the signs out of the window and a wash job. The only other item done immediately was the installation of a new windshield for safety reasons (the cost will be included in the next installment). The next order of business will be a complete flush and changing of all the fluids so I know where I stand with those maintenance items. Then, I'll begin servicing the obvious repair irems, many of which will not be photo-documented here as they are routine and covered in any shop manual.

Once I have the car mechanically up to snuff and ready to serve as a solid foundation for performance and appearance upgrading, I'll get busy.



Square as square can be: Project Volvo Turbo sits level and doesn't seem to have any serious suspension sagging. This profile will really sharpen up when I drop the car an inch or two, lose the luggage rack, smoke the windows and get rid of that 4-ft-tall radio antenna.

Project Volvo Turbo



Part Three: First things first

by Matt Stone

PHOTOS BY THE AUTHOR

Hopefully, this will be the most boring installment you'll read concerning my low-buck Volvo project car. Not that I think this will be boring; it's just that I know things will get more exciting from here on out. I'd have loved to jump right into a suspension upgrade, big wheels and tires, more horsepower and other cool upgrades, but spending my hard-earned bucks on speed stuff prior to getting the car up to basic snuff would be a waste. As the old expression goes, "you'll never build a strong building on a shaky foundation." So this installment will deal with the realities of getting the car up to scratch, not only so it's usable as transportation—a very real issue—but so it can make the most of the modifications that come later.

It's not that my car was "shaky" at the time of its acquisition, but it was far from perfect. My silverblue box had not been abused, and major things had apparently been attended to when required. But it still had just about zero power, pinged on anything but premium unleaded, and the windshield had a crack the size of Montana running down the middle. The overdrive was not engaging, so 60 mph on the freeway was a less-than-relaxed 3000 rpm—not to mention what this was doing to my gas mileage. There are a million little rattles. I had no idea what condition the fluids, belts and hoses were in, so it was time to reset the car's meter to baseline with respect to the basics. This would also give me the opportunity to begin making a more comprehensive list of what was needed.

You'll note the photo documentation of this segment is on the light side; simple enough, as everything covered here is fairly routine. Most of these procedures are basic, and of a maintenance rather than modification nature, so they're more than amply covered in any shop manual. I'm not inventing anything new here. This also brings up a good point: I recommend having a shop manual handy for any such job; there's always a trick or hint not visible to the inexperienced eye, and "the book" can usually save a lot of headscratching. Factory manuals are available from your Volvo dealer and are also offered by aftermarket publishers such as Haynes, Chilton and others.

The turbocharger itself sounded like it was working perfectly, and there were no obstructions in the intake tract. The timing was also spot on, but the exhaust note sounded strange. A trip to J&G Muffler in Pasadena, Calif., evidenced what I suspected: a plugged catalytic converter.

Cats are usually good for 100,000 miles or so and my car rolled 107,000 the day I drove it home, so no surprise here. The original factory cat was still in place and it was plugged tighter than tight. Though I intend to install (or build) some sort of high-performance exhaust system at a later date, the car was virtually undriveable the way it was. I popped for an aftermarket—but correct-fit replacement— for $240 including labor, clamps and gaskets.

One twist of the key and I knew I'd done the right thing. The exhaust note sounded normal, and I was able to get almost full boost under hard acceleration. You won't confuse its performance for that of a Porsche 959, but at least now the little wagon pulled well, particularly on the 1-2 shift and through most of second gear. A switch back to regular unleaded evidenced no pinging under all but the toughest conditions (uphill, A/C on, hot August day). Mid-grade (89 Octane out west) seems to be ideal.

Next up was the windshield. No magic here just a trip to the glass shop, and $225 later that problem was solved. The previous owner noted that he had recently replaced the relay switch that operates overdrive, and "sometimes it works, sometimes it doesn't." I'd also checked the shifter-mounted switch that turns the O/D on and off and found that it appeared to be okay. Svenska Volvo service in Montrose, Calif., knew the trick on this one. While it could be a faulty overdrive unit itself, Sako and Joe reported the chances were good it was the wire that powers the O/D causing the problem; this wire runs above the transmission, and years of use and heat cause an intermittent connection. The wire was replaced and the O/D has not missed a shift since.

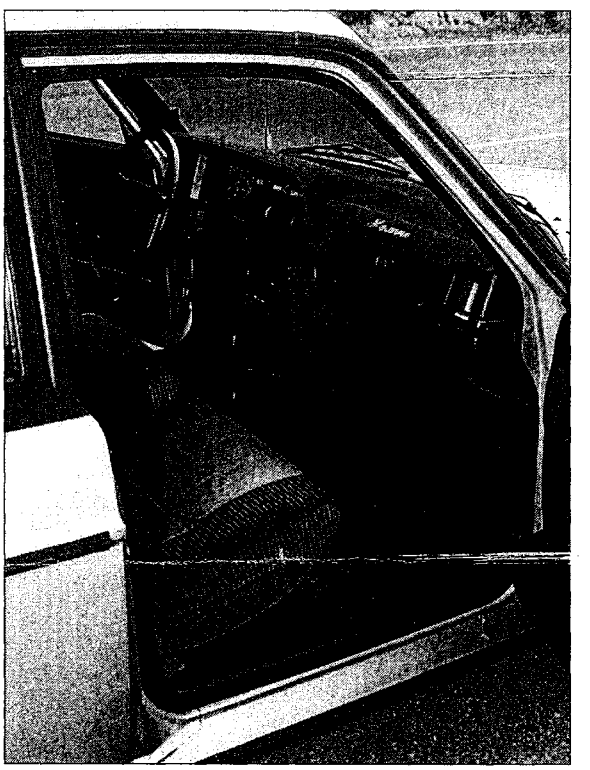
Sako also noted a few other problems: a failing master cylinder, two leaky fuel injectors and a marginal timing belt. The master was replaced, all the fuel injectors were removed and cleaned, and the O-rings were replaced, as was the timing belt. Svenska also noted a few cracked vacuum lines, one being to the Turbo boost gauge, so those were replaced with fresh hose.

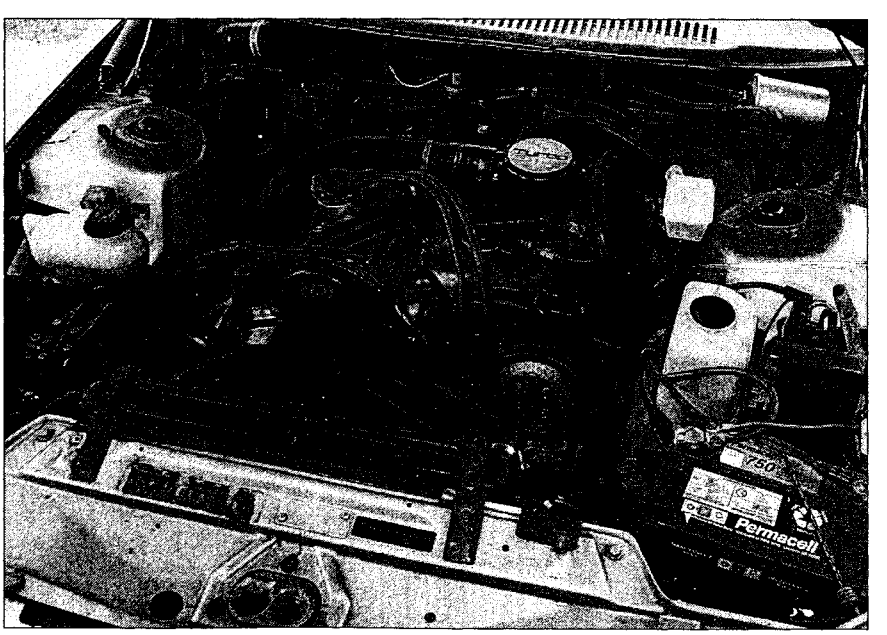
Fluids are the life blood of any car, so I drained and replaced the lubricants in the differential, serviced the automatic transmission with new fluid and a filter, changed the engine oil and filter, flushed the entire brake system with clean fluid as part of the installation of the new master cylinder and flushed and re-filled the cooling system with a 50/50 mix of water and antifreeze.

As a matter of course in went new spark plugs, plug wires, a distributor cap, new fans belts, new cooling hoses, fresh air and fuel filters, and I replaced three burnt out fuses. All said and done, the car now runs well and has been reliable as gravity so far. There's much work to be done, but at least I feel I can drive the car around with confidence, and know that I'm building upon the aforementioned solid foundation. All of the above repair and preventative care ran about $1,200 (including my labor for the tune up and many miscellaneous items), so for a grand total of $3,200 to date, I'm on the road.

Though its always best to focus on mechanicals first, I couldn't resist just a few quick and dirty cosmetic touches. Those famous, ugly, heavy rubber mudflaps hit the dumpster, as did the metal grid for the luggage rack: practical, but not exactly sporty accouterments. I had a "VOLVO" vanity plate left over from another car, and I scraped a bunch of decals out of the windows.

The front spoiler had contacted more than a few bricks in its time, so I sanded it down and painted it with a can of import car touch-up paint, ($2.99 at Pep Boys). I'm still trying to decide what will end up chromed, body-colored or blacked out, but that will all come when I make the trip to the paint and body shop;





easily two to three installments down the line. I also plan to fix up the cracked reflective tape on the bumpers—and these wagons look much sleeker with their windows tinted, so these changes will happen soon. Still, replete with its still-attractive factory Turbo I wheels, these few little tweaks—plus those all important european car magazine decals—the boxy Swede is looking a bit more special than before.

With the engine stock but running fine, the interior clean and presentable, and the body good enough for now, I've decided to concentrate my initial efforts on a suspension overhaul. Horsepower can come later.

The shocks feel like they are working reasonably well, but they appear to be cheap no-name units, so who knows what they are really doing for the car's handling. Every suspension bushing is shot, as are the ball joints. Turbos came with anit-roll bars front and rear, but larger ones will control what is still more body roll than I'd like. And I'm researching cost-effective "plus-one" wheel and tire combinations. On this car, that means a 16-in. rolling stock package.

As always, I'm keeping one eye poised on the budget, and may offer other cost effective alternatives to go along with my actual choices. See you next time, when Project Turbo goes up on the lift.

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Project Volvo Turbo

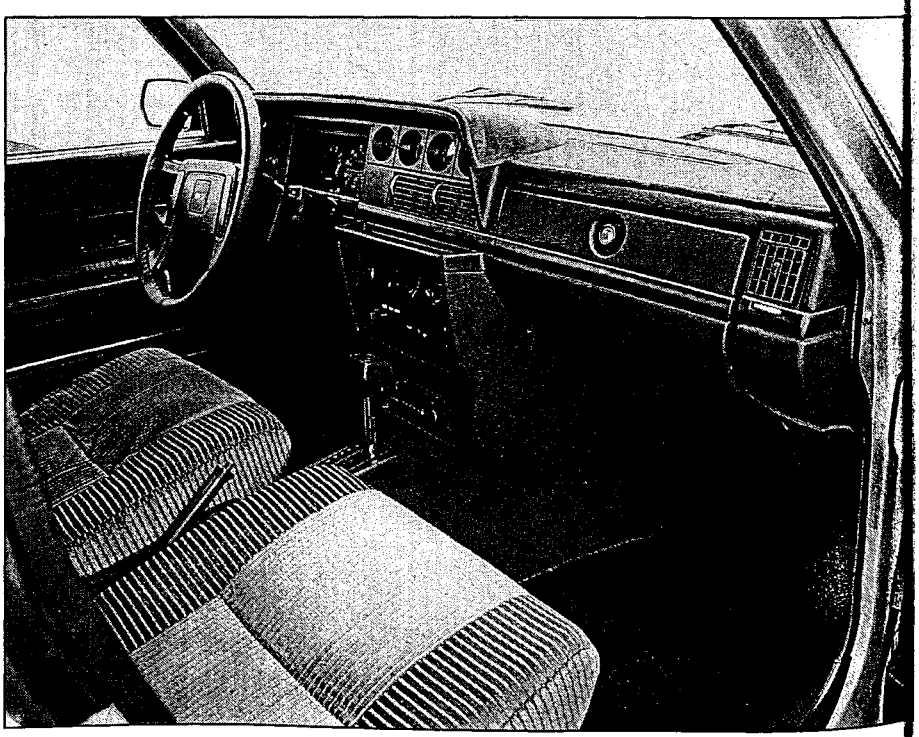
Part Four: Sprucing Up the Appearance

by Matt Stone

PHOTOS BY THE AUTHOR

Okay, I lied. At the close of the last Project Volvo Turbo installment, I told you the car was on its way to the shop for a suspension overhaul. And it is. Really. But while I was gathering up the goodies (Tokico shocks, ipd springs and sway bars, new Volvo suspension bushings and the like), I kept running into, and constantly moving, all the interior accessories I'd acquired. I figured why keep pushing this stuff around the garage; why not put it in the car, and enjoy it. So, I did. Therefore, another title for this installment might be How To Make Your Old Volvo Interior Look a Helluva Lot Better for Less Than $500.

Most folks think that the only reason for tinting an automobile's windows is that it looks cool. True enough: Done



properly, and with tastefully selected colors and tint densities, a good window tinting job can add a nice detail touch to most any car or truck. But there are other reasons to do it, besides appearance.

Those in sunny climates know that constant exposure to the sun, and its harmful ultraviolet rays, can wreak havoc on a car's interior (and exterior, for that matter). Quality tint products contain built-in UV blockers—much like sunscreen—which reduce the sun's damaging effect on your leather, vinyl and carpeting. If the car's interior doesn't get as hot, then your air conditioning doesn't have to work so hard to cool things down each time you hop in and take off. Some folks see tinting as a bit of a security measure, as it's not quite so easy to see who, or what, is in the car.

Marco Garcia has been tinting windows for most of his adult life, and has mastered the many tricks of this trade. Garcia owns Professional Window Tinting, and we went to him to size up Project Volvo Turbo's many pieces of glass. Firsr of all when it comes to tinting, it's best to find out what's legal in your area. There seems to be two schools of thought here: what is absolutely, technically legal, and what you can get away with without raising the ire of the local law enforcement officers. Most states allow just about any level of tinting on the rear side windows of an automobile. Tint on the back window is OK too, but not so much as to inhibit visibility. Darkening the front side windows is usually not allowed, but is seldom a problem in most areas. Tinting the windshield is definitely a no-no.

Determine the best level, or combination of levels, of darkening desired. Garcia uses and recommends Sun-Gard products, which come ptimarily in light, medium, dark and extra dark (often referred to as "limo" tint). I chose to use light gray on all the side windows, with medium gray on the wagon's rear hatch window. Think about what looks most appropriate with your vehicle, not only in terms of darkness, but in terms of color. Some companies offer tint film in a variety of colors, though gray and dark bronze are the most common.

Cheap tinting film looks great when first installed, but can turn an icky purple in as little as a year. The Sun-Gard material is guaranteed in writing for as long as you own your car. In the event the original installer has moved or is no longer in business, Sun-Gard will even pay the labor to have someone else do the job. Seemed like a solid warranty, so I went with it.

According to Marco, the key to a well-done job (besides training, skill and years of practice) is ultra-clean windows. He'll use soapy water, alcohol, vinegar, EasyOff, razor blades or any combination of the above to get the glass as clean and smooth as possible.

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Cost Update:

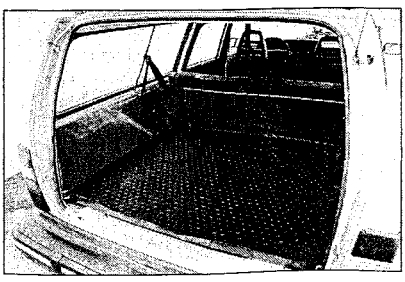
Acquisition price:	$2,000.00
Initial repairs (outlined in articles parts 3 & 4	$1,200.00
Window tinting (including material and installation)	$200.00
Dash cover	$44.95
Floor mats, 4 piece set	$93.90
Rear cargo mat	$69.95
Steering wheel glove	$29.95
Total to date	**$3,638.75**

Once the glass surface is pristine, which is not too difficult on new cars but can require a bit of work on older ones, Garcia begins the ritual of cutting, trimming, spraying and smoothing on the tint material. Various size rubber squeegees are used to press out each and every last bubble...another secret to a long-lasting job. Most cars are not that expensive to tint; our blue box rolled out of Professional's shop, looking quite a bit more stealth in the process, for a mere $200.

The ipd catalog is a shopper's paradise for Volvo owners. If you are not already on ipd's mailing list, you should be. I ordered the following: a Dash Designs custom-fit dash cover, set of ipd's own DuPont Antron Nylon carpet mats, a genuine leather Wheelskins steering wheel wrap, and a Swedish-made autoform rubber rear cargo area mat.

Older Volvo's seem to come with a cracked dashboard as standard equipment. There are at least three ways to remedy this problem. The first would be to remove the dash and have the cracked plastic professionally upholstered. Might look nice, but this job is very pricey, and more work that it could possibly be worth. Another solution is a hard plastic dash cover offered by ipd, that with a little bit of work basically slips over the existing surface. The plastic is grained to match the original material, and can be painted to match or left in its original black finish.

A third option is a soft fabric dash cover that just Velcros on to the old surface. I went with this choice, as it's easy to install, available to match the color of the interior, and is the cheapest solution of the three. The cover lays down flat, with no bunching, and required Velcro in only a few spots. So much for ugly dash.



Project Volvo's carpets are intact, showing reasonable wear and tear with only a bit of fading. Though not perfect, the rugs are a bit too good to replace, given our budget aspirations. ipd offers a nice quality custom-fit floor mat set, replete with screw-down lugs to help keep the mats from sliding around under foot. The mats seem to offer a bit of sound deadening as well. They're a good value if you don't need something extra lux, like genuine moose fur, or your initials or a Volvo logo sewn in.

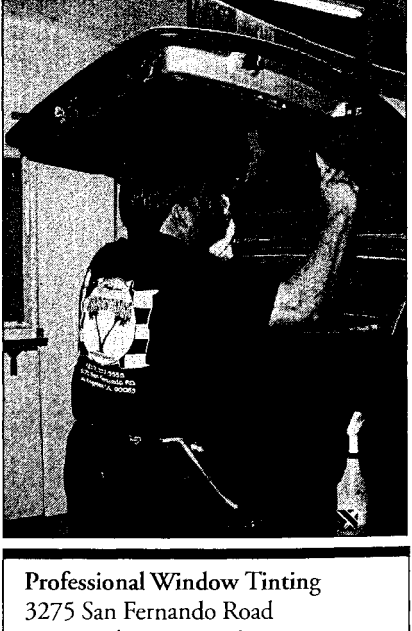
ipd also offers autoform brand trunk and cargo mats. These units are made of a heavy duty though still pliable rubber. While the rear cargo area of Project Volvo is in pretty decent shape, it is comprised of many pieces of carpeting and aluminum edge trim. The tin is showing some wear, and this is another area where noise seeps into the Volvo passenger compartment. This cargo mat fits perfectly, and has a standup edge that will hold plenty of water and gook so it won't stain the upholstery. A neat addition.

Somewhere along the way, this car's original Turbo steering wheel evaporated. Too bad, as that unit is an inch smaller than the GLT wheel that replaced it on Project Volvo Turbo. The factory Turbo wheel also has a leather pad, nicer than the hard plastic center on this one. Anyway, I'd like to replace it with a proper, smaller-than-a-bus's, leather-wrapped three spoker at some point. But for the time and the price, I strapped on a genuine leather wrap. It's a perfect fit, and offers better grip and more comfort. It'll do until

there's money for a fancy custom piece; buy one from ipd, Wheelskins, or your Volvo dealer.

Speaking of your Volvo dealer, it's worth mentioning that they too are a good source of parts for your older Volvo. This may seem obvious, but the option is often overlooked, as the perception is that parts may no longer be offered, and/or the prices will be astronomical. As the 240 series was made through 1993, an amazing amount of factory parts are still made and available. If you're a member of the Volvo Club of America, or get to be buddies with the folks at the parts counter, you may be able to get a discount. And there's a lot to be said about the quality and warranty that comes with factory pieces.

At some point, it would be neat to swap in a leather interior out of a later GL, and a stereo upgrade is also in the works. The Turbo is also in dire need of an exhaust system, as the replacement system on the car is made of small diameter tubing, and has more holes in it than a cheese grater. But this round of goodies brings the interior up to snuff enough for now. On to the underpinnings.



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