ipd turbovolvo

Volvo's image gets a much needed boost

ipd

Readers who have only started their subscriptions to R&T within the last two or three years might get the impression that turbocharging automobiles is a phenomenon of the last few years, spurred on by Porsche's Turbo Carrera. In fact, we've had turbocharged cars brought to us almost since the beginning of the emissions era, but many of them were pretty wretched machines. Perhaps a turbo is basically too easy to install, especially if you don't care that most pure production engines aren't happy with 15 psi of boost and that stock drivelines and suspensions are equally ill-designed for such dramatic increases in power. How about a Datsun 710 with 14 psi of raw boost for its stock engine and nothing more than its standard rear leaf springs?

Happily, the turbocharger has gained acceptance for street automobiles through the work of auto manufacturers and some of the better aftermarket tuners. The creation displayed here is by Richard Gordon, of ipd (Import Parts Distributing Co Inc, 2762 Broadway N.E., Portland, Ore. 97232). Gordon's specialty is Volvos, a fact that reflects the marque's popularity in the northwest as much as Gordon's personal tastes.

This time ipd has produced a turbocharged Volvo 242, or turbovolvo as they like to tag it and, considering the rumors out of Göteborg, that puts them one step ahead of the Volvo factory. Working with a standard Volvo B21 Lambda-Sond 4-cylinder engine, ipd started by doing nothing to the engine's inners. All the additions to the engine are external, which is not to impy their conversion to turbo power is a simple bolt-on, as we shall shortly see. One of the points of the ipd conversion was to leave the emissions system intact, which should please the feds, and rely on the flexibility inherent in the Lambda-Sond 3-way catalyst system to keep emissions down. This is similar to the present Saab turbocharging system and not unlike the upcoming Ford turbo 4-cylinder system, which also uses a 3-way catalyst combined with an oxygen sensor and an electronically controlled carburetor.

The basic theory is that you are able to add the turbo to the system and the built-in oxygen sensing system will continue to adjust the fuel metering to meet emissions. It isn't quite that easy, but ipd started by adding the Schwitzer turbocharging and all necessary plumbing, but using the stock exhaust manifold. Instead of a wastegate, they added an IMPCO boost restrictor to the air inlet to keep boost between 9 and 11 psi. For the system would go to 15 psi without it. When the exhaust finally gets a chance to escape the engine, it leaps into an ipd Big Bore tailpipe.

At this point, ipd found they needed extra mixture enriching as the boost and rpm rose and to accomplish this they added their own variable enrichening device which starts when boost reaches 2.5-3.0 lb and increases with the boost. The next problem was detonation, resulting from the low-octane unleaded fuel they had to use with the 3-way catalyst. To solve that, ipd added a water-injection system which cools the intake charge when the boost rises above 6 psi.

Without an engine dynamometer, ipd uses a chassis dyno to compare pre- and post-turbo horsepower figures, which they say rise from 70 rear-wheel horsepower at 5000 rpm to 120 at 5000 rpm. Behind the engine is a stock 4-speed transmission with overdrive and a standard 3.91:1 rear axle ratio, though ipd has added a Spicer Pow-r-Lock differential.

Now, before we describe how this increase translates to on-theroad performance, we should tell you what ipd did with the Volvo 242's suspension to deal with that 70-percent increase in power. As you no doubt notice from the photos, the ipd Volvo is quite a bit lower than stock. It has shorter coil springs (40 percent stiffer than stock up front and 20 percent stiffer in back), lowering the car 2.5-3.0 in. The anti-roll bars are appropriately beefier than the 242 GT model, the front one now being 1.13 in. thick instead of the standard 0.82 in. and the rear one up to 1.00 in. from 0.74 in. The disc brakes are stock, but with Repco pads and Safety Brakers to reduce wheel lock-up. The tires are 225/50VR-15 Pirelli P7s on very expensive Jongbloed 3-piece 15 x 8-in. wheels. (ipd does have a less expensive alternative with 195/70SR-14 Pirelli P3s on 14 x 6-in. Intra alloys.) The front end, by the way, has been set at 1 degree negative camber and 2 degrees positive caster, compared to the normal settings of 2-3 degrees positive camber and 1.0-1.5 degrees positive caster which are not con-

60 ROAD & TRACK
turbocharged mount in stock exhaust manifold. Personalized air is passed into the intake manifold via a chrome pipe running in front of the engine. Exhaust system is in place and operational.

due to spirited driving, Bilstein gas-filled shock absorbers are used to clamp all this motion.

Becoming a purveyor of automotive goods, Gordon was not about to let the Volvo package go at this, of course, and so his turbocharged is filled with a long inventory of interesting add-ons, including... an ICP flow air dam to improve fuel mileage and stability; Paddy Hopkirk racing seats; extra instrument such as clock, oil pressure, boost gauge and pyrometer for exhaust temperature; European Volvo rectangular halogen headlamps; the usual things like a leather-wrapped steering wheel and special AM/FM stereo/cassette player and, potentially most important of all, a Whistler X-K, Band radar detector.

All these pieces have been added to a stock 240 in the usual clean-finished finish. The engine conversion being particularly neat and obviously well thought out with little of the cobbled look these non-factory parts sometimes have. The turbo engine isn’t a quick starter, whether cold or warm, and it sputters a bit when first hit, but after getting a chance to clear its throat it’s ready, a small price to pay for what you’re about to get. The boost starts smoothly around 3000 rpm and by 4500 rpm it’s really huffing, the engine feeling very strong right through the redline, which we pushed to 6000 rpm. As long as you aren’t yoking around at 2000 rpm, driving this Volvo is like having a built-in passing gear in all four speeds. The gears and boosts are arranged so you are almost always into both the front and on the edge of it, which makes for excellent around-town flexibility.

All this isn’t meant for indulging around town, of course, because the turbocharged lives best on the open road, where its flexibility and four speeds plus overdrive again mean you are always on the boost. Given enough room and the correct conditions, 215 mph in 4th gear conceivable. Getting up there requires 8.8 sec to 60 mph and 17.0 sec through the quarter-mile, compared to 11.3 sec and 18.5 sec for the standard 240 GT we tested last March.

On the skidpad, the turbocharged generated an impressive 0.87g, while on the slalom it managed 61.5 mph, a performance combination which is in Ferrari territory. Yet you can’t quantify the fun of a car like this, which feels so nicely balanced, very stable and ready to work with you down any sort of twisty road. Once again the Pirelli P7s proved their worth, sticking like candy while soaking up most road irregularities with relative ease. The turbocharged isn’t smooth riding but it isn’t terribly harsh either. Interestingly, it’d specialize enough negative wheel offset that the P7s fit within the wheel wells without any flaring, needing only a -
duive to spirited driving. Bultsine gas-filled shock absorbers are used to clamped all this compression.

Being a purveyor of automotive goods, Gordon was not about to let the Vo1kswagen go at this. of course, and so his turbocharged is filled with a long inventory of interesting add-ons, including... among others... front fenders to improve fuel mileage and stability; Paddo Hopkirk racing seats; extra instruments such as clock, oil pressure, boost gauge and thermometer for exhaust temperature; European Volvo reticulated halogen headlamps; the usual things like leather-wrapped steering wheel and special AM/FM stereo/cassette player and, potentially one of the most important of all, a Whistler X-K, Band radar detector.

All these pieces have been added to a stock 242 in the usual disorganized fashion, the engine conversion being particularly snug and the road noises causing a bit of a concern sometimes. The turbo engine isn't a quick starter, whether cold or warm, and it sputters a bit when first lit, but after getting a chance to clear in, it's ready, as you would expect for what you are about to get. The boost starts smoothly around 3000 rpm and by 4500 rpm it's really huffing, and the engine feeling very right up to the redline, which we pushed to 6000 rpm. As long as you aren't yoking something around 2000 rpm, driving this Volvo is like having a built-in passing gear in all four speeds. The gears and boost are arranged so you are always into the middle or on the edge of it, which makes for excellent around-town flexibility.

All this isn't meant for islanding around town, of course, because the turbocharged lives best on the open road, where its flexibility and four speeds plus overdrive again mean you are always on the boost. Given enough room and the correct conditions, that could mean 125 mph in 6th gear. Spilling up there requires 8.8 sec to 60 mph and 17.0 sec through the quarter-mile, compared to 11.3 sec and 18.3 sec for the standard 242 GT we tested last March.

On the skidpad, the turbocharged generated an impressive 0.87g, while on the slalom it managed 61.5 mph, a performance combination which is in Ferrari territory. Yet one can't quantify the fun of a car like this, which feels so nicely balanced, very stable and ready to work with you down any sort of twisty road. Once again the Pickett's P7s proved their worth, sticking like crazy while soaking up most road irregularities with relative ease. The turbocharged isn't smooth riding but isn't terribly harsh either. Interestingly, it sports several negative wheel offsets that the P7s fit within the wheel wells with no say, handling only needing a little bit in the fender lip to prevent swerving. Our only major complaint from a driving standpoint is that the car is so low you ought to keep a few spare front spoilers around, and anticipating that problem idp is developing a shorter air dam for lowered Volvos.

The brakes were also quite impressive with stops of 140 ft from 60 mph and 250 ft from 80 mph with excellent control. Even with the Safety Brakers, which modulate line pressure during heavy braking to prevent wheel lock-up, we got a little rear wheel hop from 80, but still the stops were easy to control.

Inside, the driver is held snugly by the contours of the racing bucket seat and with all the added gauges there is plenty to keep him or her entertained on the longer straightaways. In the city you can watch the pressure gauge as exhaust temperature. The small diameter padded steering wheel is just right and the general environment excellent... and there's always that radar detector to hold your interest.

Ah, that's all very nice, you're probably saying, but what's it like when you total the tab for this toy? When you consider how much you can change on the car, you might well start with a basic Turbo 242, which costs $8485 PDE. The major items, of course, the turbo kit at $1150 (not including approximately 12 hours labor), with the P7's at $220 each and the Whistler a book changer per corner (which is why Gordon offers the P3 alternative). By the time you add in the gauges and seats and Bultsine and air dam and shock cores, etc. the accessories come to $4962 for a total bill of $11,337 plus tax, license and a radio.

Now if the thought of 11,337 for a 240 series Volvo makes you wonder if Gordon has created a shorter overkill, consider what else you might buy at that figure. Including Volvo's own 242c at $14,700.