

The spirit of the mighty GTHO lives...

Mike Vines's latest turbocharged Falcon epitomises the character of its creator to a tee.

Innovative, purposeful and totally individual. Like the methodical refrigeration engineer from Queensland, the car is quite a bit different to any of its competitors.

Vine has spent many painstaking hours taking the best engineering designs from around Australia and then converting them and altering them to suit his ideals and market strategies. Unlike so many of the turbo experts around today, Vine is totally practical. He will never build or design a car from an engine dyno and refuses to use anybody else's gear without his own stamp of approval on it, which comes from many hours of hard testing.

Basically, Vine has a real feel for his market and his dedicated band of buyers in the Sunshine State. Among the top three turbocharging businesses (in actual turn over and cash sales) in this country, Vine has learnt the hard way just what the very difficult Queensland market wants from a performance car — and his latest offering is a living example of this.

In short, the Falcon kit, named the Limited Edition Turbo 4.1 XE Sports Sedan, is a total performance package.

It's stunningly quick and totally aggressive. Vine readily admits the conversion is not cheap, but then with the sort of power increase he is providing, he wants to make sure he has reliability and long term driveability from the car — which from something so drastically fast — is an expensive attribute to achieve.

"There's no use at all building a rocket that's only going to last six months.

People will soon get sick of this and the word will get around — then you're out of business," says Vine.

"We give the utmost performance — and then back that with the utmost in reliability. What more could you want. Sure, this combination is not cheap — but it works."

So exactly what does Vine do to the XE 4.1 litre Falcon to make it so special?

He starts with the Normalair-Garrett kit, originally developed for the Falcon and makes a number of alterations to suit his own requirements. This includes stopping the turbo spinning too quickly so as to stop eventual bearing failure. It also includes getting the temperature of the oil down through using a bypass cooler so that the overall temperature of the engine is kept lower and thus more efficient. In fact the three main differences Mike Vine obtains over the Garrett set-up are in the control of exhaust temperatures in the engine through better flow efficiency at the turbine wheel; pre-cooling the oil as we mentioned before, before it enters the bearings and lastly controlling the rate of acceleration of the rotating assembly.

These modifications in the Vine set-up are aimed at making the turbo live longer under strain. In essence, Vine is controlling the rate of rise in boost in relation to the engine rev rise.

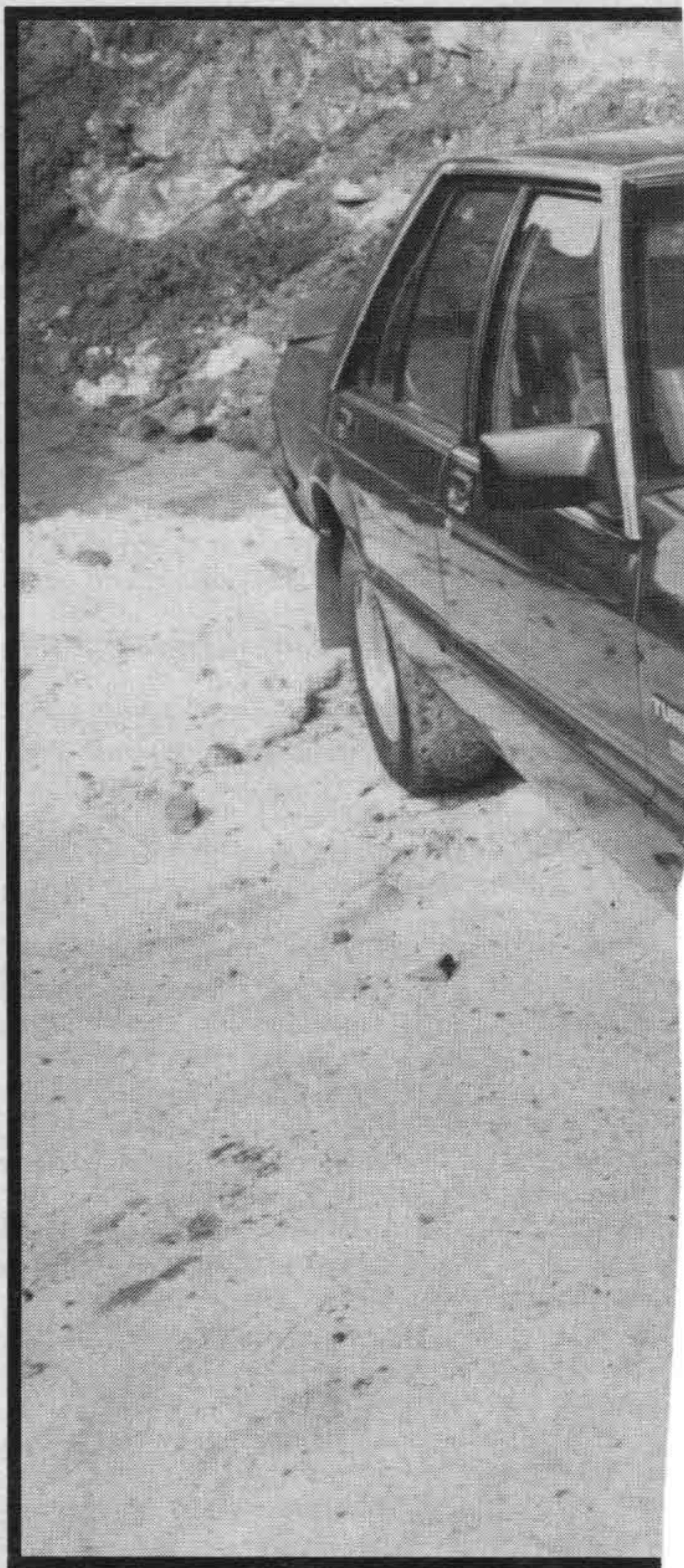
This controlling force in turn makes for a far more lasting and reliable installation overall. Vine is emphatic in his ideals about reliability and credibility. His methods and designs are all based around making the turbo last reliably for as long as the engine does.

Getting down to a little more detail, Vine's Falcon kit comprises more than 25 features in its intricate design, not to mention the critical fine tuning Mike does

himself to make the car just perfect. A more durable camshaft is used as Vine claims the Ford cams wear out quite early. Lifters, springs and pushrods are replaced and the head is blueprinted. A heavy duty clutch is used and is balanced before going on. An idle down timer is fitted so you can automatically leave the car to idle down after switching it off for either one, three or five minutes depending on what its use has been.

A "Nycal" turbo lube is used so that when the engine stops, a reserve of cool oil is fed through the turbine. As we said before, the bypass oil cooler is used to bring the oil temperature down.

Obviously a more efficient three inch exhaust system is fitted by Vine which runs right to the back of the vehicle. The turbo used is Vine's favourite single-entry housing, Garrett T04 model. The engine is decompressed and new turbo exhaust and inlet manifolds are used. The T04 Airesearch turbocharger is matched for a fairly broad power band and the



wastegate controls the boost pressure to a maximum 10 psi. The car features Stromberg carburettion, which Vine claims is simple and reliable, while a remote heavy duty air filter and a full flow engine oil cooler are standard. As well as the idle down timer, which we mentioned before and is mounted on the dash for easy driver use, the driver also gets a dash-mounted turbo boost pressure gauge — a must according to Vine so as to watch for any tell-tale signs of malfunctions before they turn into major worries. The battery is boot-mounted because of the position of the air filter and a long range water injection unit is fitted with a dash-mounted pilot light to show when the injection unit is in use.

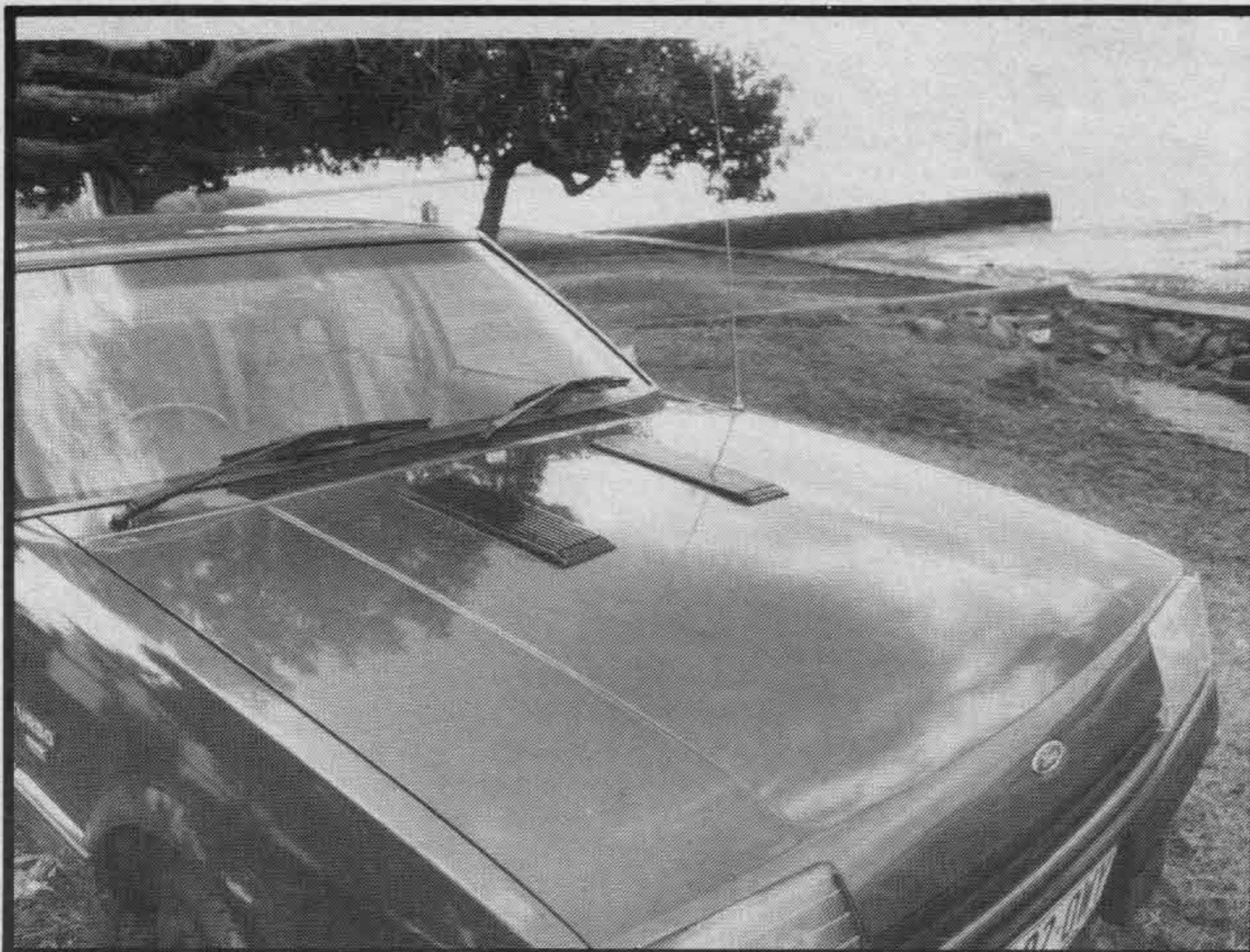
The new exhaust system we mentioned before is a high volume heavy-duty system with a turbo muffler and three inch chrome tailpipe.

Getting down to the final touches of this very special conversion and it's worth mentioning the modifications to the

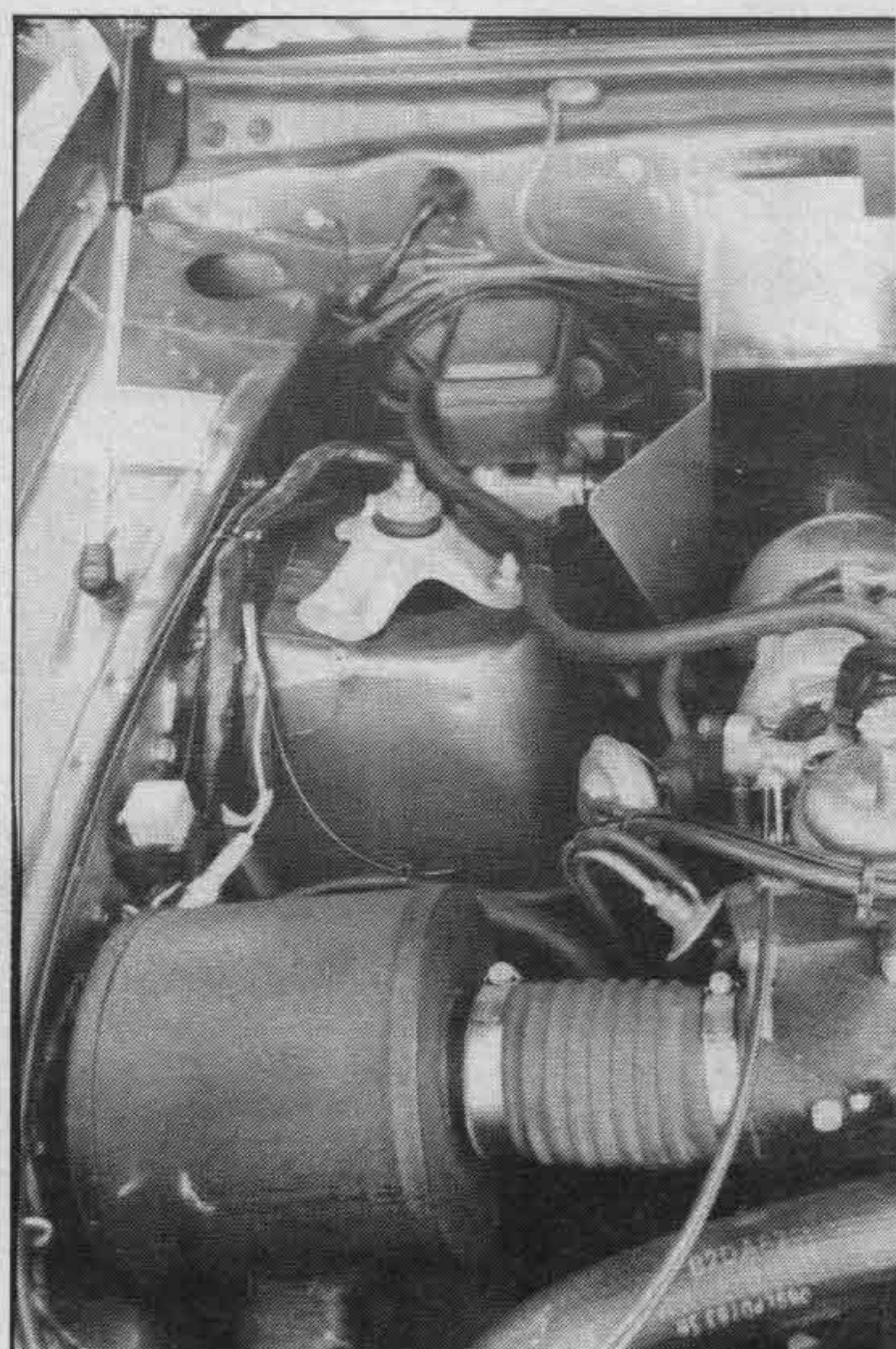


That elusive dream — to get the legendary 'H0' grunt from an economical six cylinder powerplant — is at last truly available, but at a cost.
SIMON HAMMOND REPORTS.





"Where the AIT conversion was taking the place of popular V8-type performance and doing it very well, Vine has sought the famous GTHO get-up-and-go."



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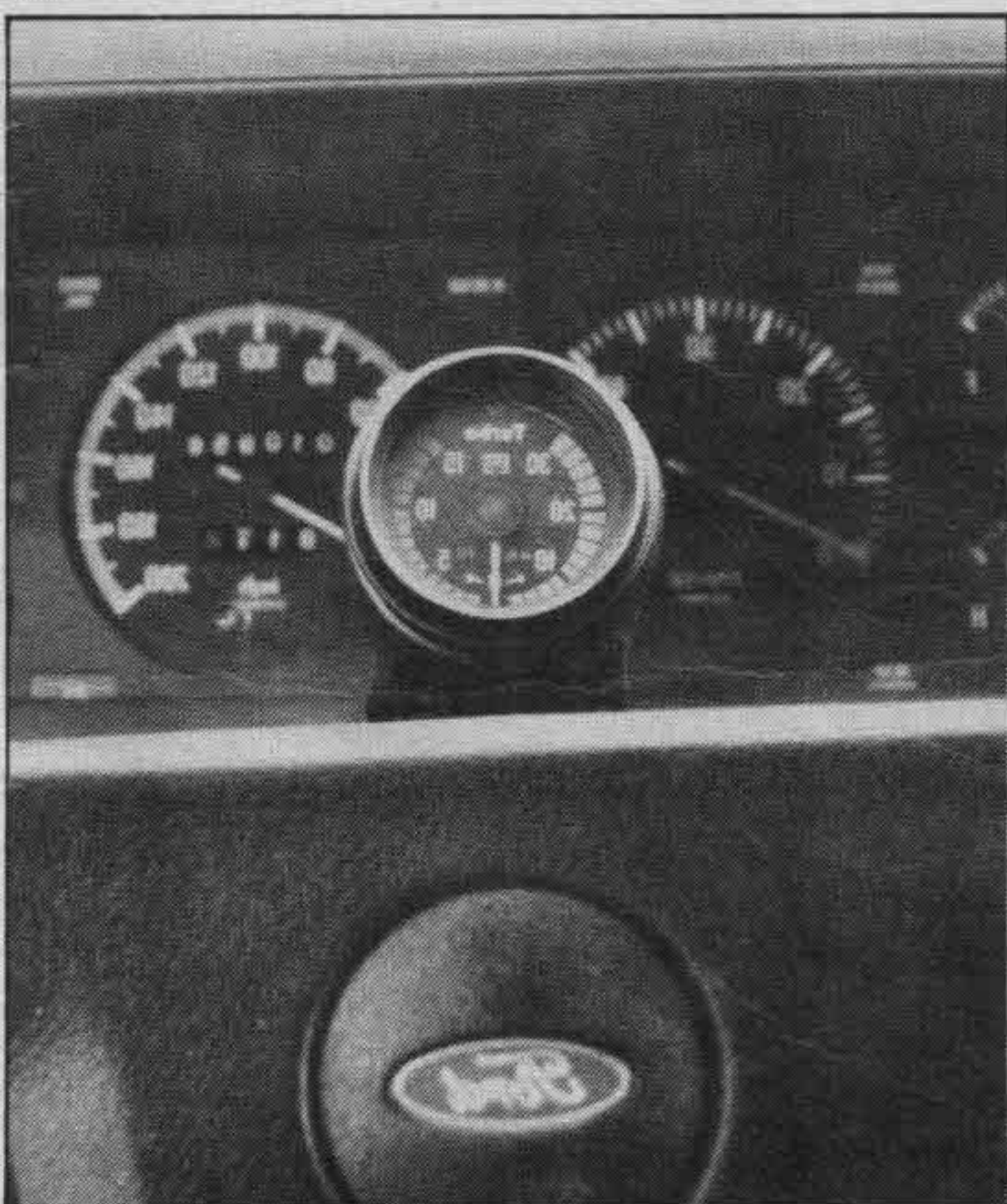
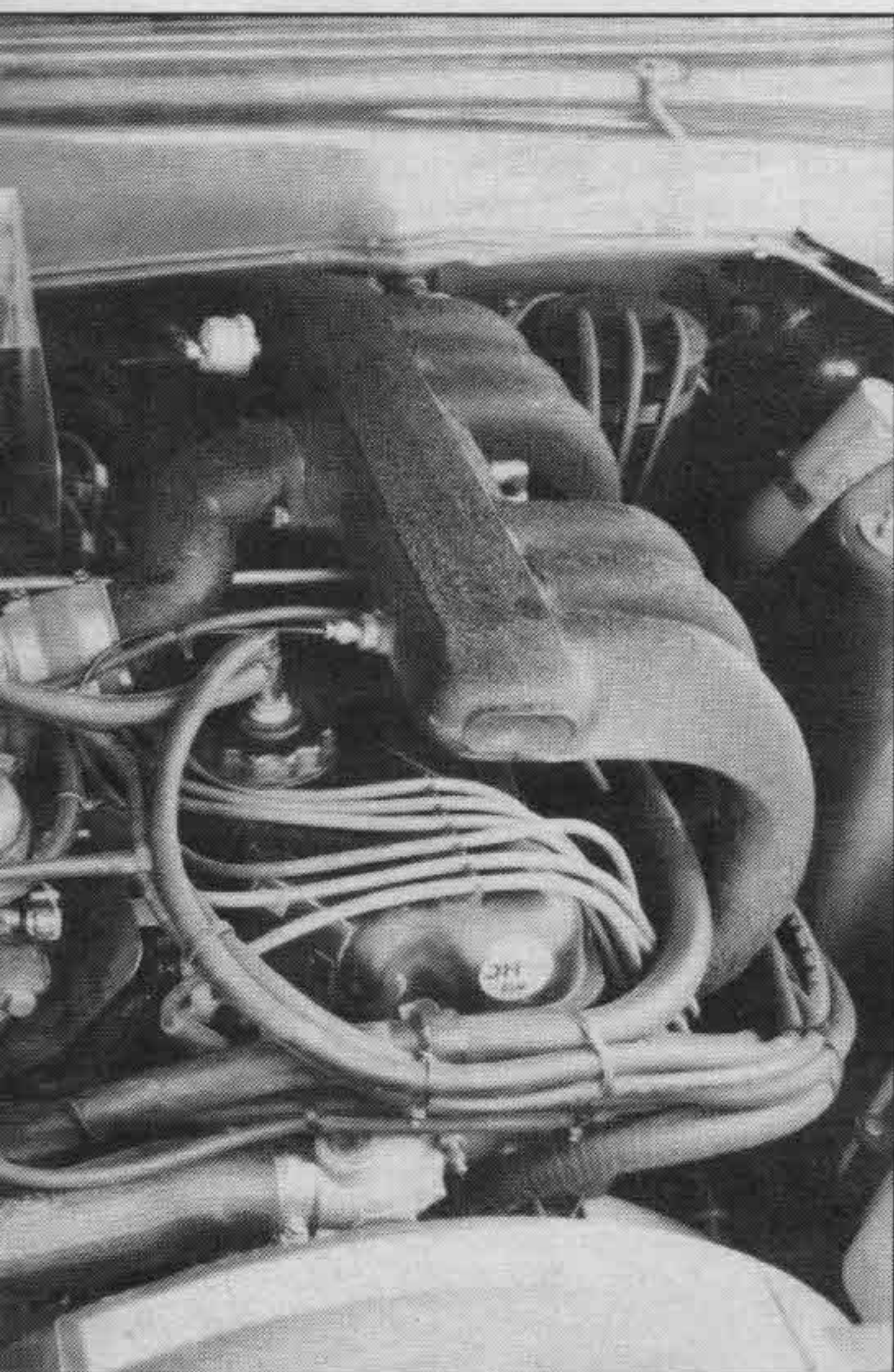
Also, in the process of doing that, we have also done a lot of work on the car's suspension, steering, and braking systems. We have also done a lot of work on the car's interior, including the seats, dashboard, and gauges. We have also done a lot of work on the car's exterior, including the body panels and paint. We have also done a lot of work on the car's engine, including the cylinder heads, pistons, and valves. We have also done a lot of work on the car's transmission, including the gears and shafts. We have also done a lot of work on the car's drivetrain, including the axles and wheels. We have also done a lot of work on the car's chassis, including the frame and suspension. We have also done a lot of work on the car's body, including the doors and windows. We have also done a lot of work on the car's interior, including the seats, dashboard, and gauges. We have also done a lot of work on the car's exterior, including the body panels and paint. We have also done a lot of work on the car's engine, including the cylinder heads, pistons, and valves. We have also done a lot of work on the car's transmission, including the gears and shafts. We have also done a lot of work on the car's drivetrain, including the axles and wheels. We have also done a lot of work on the car's chassis, including the frame and suspension. We have also done a lot of work on the car's body, including the doors and windows.

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distributor done by Vine — if we knew what they were. Mike wouldn't tell us all his secrets, but we can assure you the distributor is fiddled with for better and more reliable performance. You also get bonnet vents, which are both functional and good-looking.

Lastly to the ADR and legal side of things. The Falcon has full emission controls in line with ADR standards and the whole shooting match is in fact in full compliance with ADR standards. The turbo system gained compliance courtesy of the Garrett design some time ago — so everything is above board and legal — something a little unusual from the Sunshine State.

Pricewise, the Falcon kit on a new car with full emissionisation and 12 month or 20,000 km warranty covering the turbo, engine and drive train in the event of Ford refusing a claim because of the turbo conversion, costs \$4500. In an aftermarket arrangement, in other words if you already own the car and want the conversion, it will cost you \$3500 which includes warranty of the conversion only. In real terms, this means a total package for a new Falcon, with an "S" pack (including the 4.1-litre engine, manual transmission, four wheel disc brakes, limited slip diff, heavy duty cooling system, factory stereo system and long range fuel tank) plus the complete Vine conversion, will come to an all-up price of around \$18,500 including the 12 months registration and on road costs. (The rear deck spoiler and mag wheels are extra.)

For that sort of money you get one hell of a motor car — which will last just as it would in standard form. Insurance is not a problem if you're over 25 as the car complies with ADR standards. Air conditioning and power steering are options you can add.

To us, this vehicle package is a winner. We drove an example while in Brisbane recently and not since we tested the first of AIT's Falcon kits have we been so impressed with a conversion. But this is not to say the Vine Falcon is not as good as the AIT kit. Far from it. It is in fact far more practical in real terms for the market it is intended. Where the AIT conversion was taking the place of the popular V8-type performance and doing it very well, Vine has intelligently thought a little more about the needs and found out what people — especially in his direct marketplace — really want. That is not the V8 performance — but rather the famous GTHO get-up-and-go. Vine believes that giving people the equivalent of V8 performance is not good enough and in fact that sort of extra power can easily be achieved by other methods apart from an expensive turbo installation.

However, the famous and exhilarating "HO" performance can only be really matched with a high-powered turbo conversion. "This approach has worked

beautifully. People honestly want more than just a V8 if they are forking out big dollars like this. A lot of them have driven or owned the old "HOs" in the past — and they are looking for similar experiences again," said Vine.

"We don't get many young hot-heads in here anymore — it's rather the older businessmen who want something a little special to have some fun in — like they did in the old days.

"Brisbane-Queensland market is a unique one made up of a lot of enthusiasts as a lot of the time the conversions done up here are totally illegal and have no compliance. Therefore, if they're going to break the law anyway — they want to go all the way.

"I aim to provide this type of kit for long-term usage, not just a six-month hot machine. We get the kit right from the start, using all the best components so that it's expensive, but it sure as hell lasts well. The cars are set up as all rounders with good highway and off-the-line abilities.

"This Falcon kit is quite an achievement in this state as it is the first non-factory package that's legal in Qld using a turbo. Obviously we developed it and did it this way because it is a good means to do legal cars. We in fact have three stages of conversions and this Falcon kit is only the first. The next one is for a combination of street and competitive car and the third stage is outright competition stuff.

"I have been doing turbocharging for nine years but I'm what you'd call a self-taught turbo engineer. A lot of people would probably laugh at my qualifications — but it's the points on the board that count and the satisfaction of my customers.

"I don't look at conversions and market trends from within a lab while staring at a dyno. I test and develop in the marketplace where I know the cars will be used. My sales have shown I can't be too wrong."

After driving the car, one can't help but admire Vine's achievements. The Falcon is undeniably smooth and efficient with heaps of grunt in a controllable form.

Boost starts at around 1400 rpm with maximum horsepower and torque at 4000 rpm. On the dyno, Vine claims the modified kit is 40 per cent better at 4000 rpm than the standard Garrett kit. As is shown on the performance graphs the Garrett kit tends to copy the powerband of the old V8 engines and thus gives more low-down power and runs out at the top end. Vine's kit however is far more efficient throughout the range.

On the road and in all conditions — highway and around town in rain and fine conditions — we found the car always totally driveable. This is probably

the most impressive trait of the conversion. You can drive it sedately if you wish with no problems, or you can put your foot into it and get real power. The standard suspension is retained from the Falcon "S" pack and this is surprisingly good. The car we tested did have a rear deck spoiler which obviously helped matters and can be purchased as an option if you desire, but the neutral handling of the car — obviously from the inherent Ford capabilities — is excellent. At high speed it doesn't wander or shake and cornering is extremely neutral.

On the test strip we achieved some pretty impressive times from the beast — and it's worth adding that after an hour or so of very hard driving, the Falcon was behaving perfectly. Our best time in the car over the quarter mile from a standing start was 14.7 seconds, compared to the AIT kit we tested in Turbo 3 which did a 15.3, 400 metre run and the Garrett Falcon ESP in its basic form, which we tested in Turbo 1, which did the quarter in 15.4. 14.7 seconds is a decent time for such a well-behaved and well set-up car in anyone's standards. The vehicle has the same characteristics as Inall's developments both at AIT and when he was with NGA. The car by Vine is similarly responsive, smooth and driveable. However it has just that extra amount of grunt which Vine believes people want, with no apparent risk of failure over the long term.

In other times on the test strip the Vine Falcon won the day from every angle. To 60 kmh it took 2.8 seconds compared to 3.2 from the AIT car and 3.6 from the Garrett ESP. To 80 kmh it took 4.9 seconds compared to the AIT car's time of 5.2 and 5.4 seconds from the original Garrett car.

To 100 kmh the Vine Falcon was a clear 1.5 seconds faster than the AIT car and a clear two seconds better than the Garrett vehicle. To 120 it dropped its lead and was only 0.6 of a second better than both competitors but to 140 it again lept ahead to show what Mike described as a broader power band. At this stage it is interesting to also note that the AIT kit fell behind the original Garrett car for the first time. The AIT car did 0-140 kmh in 14.1 seconds; the Garrett vehicle did it in 13.8 and Vines modified Garrett kit did it in 11.3. To 160 that story continued with AIT's offering doing a time of 18.8 seconds; the original Garrett kit car did 17.7 and Vine's kit car did 14.8.

Quite impressive figures all round, especially when you remember that the

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AIT vehicle was also fuel injected. Generally the figures backed up what Vine says to a tee. The AIT vehicle especially, is obviously aimed more at the V8-type powerband and falls off in performance as things get faster. The original Garrett design was the same to a certain extent — while Vine's modified vehicle beats both its competitors throughout the range.

Figures don't lie, so the proof of the pudding is right there in front of you.

This type of example plus the features Vine uses to make sure his conversions last and stay reliable, certainly impressed us. We said the fuel injected AIT kit was the most complete and impressive aftermarket kit we had seen when we tested it in Turbo 3. Now, Vine's offering has to take the cake.

Certainly, Mike is not alone in his success. He is undeniably using the basis of the Garrett kit — but adding the right refinements to make things just that much better for the real needs of his market. In fuel consumption also, Vine's vehicle was slightly better than the original Garrett car we tested — returning an average 20 mpg compared to 18 from the Garrett-mobile.

So there you have it — a man who has had the initiative to see his true market needs and supply a product for those needs. The kit is legal, effective and pricey, but for good reason. Vine has every base checked with this kit and from the activity around his workshop during our visit — it appears the response to the modified Garrett kit has been great. We can't predict what will happen after six months with the converted car — but it appears the conversion is sound and well designed for a long life. There were certainly no complaining customers there when we visited — just quite a few people queueing up with money in their hands.

