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911 & PORSCHE WORLD

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AN INDEPENDENT PUBLICATION



The perfect Porsche?

There has never been a better time to buy a 944, which despite its front-mounted, water-cooled engine – or perhaps that should read *because of its* front-mounted, water-cooled engine – is itself one of the very best all-rounders Porsche has ever built. The *911 & Porsche World* team explains the logic behind this apparent heresy, and offers all the advice you need to find a good one. Studio photography by Tom Wood



We last published a 944 buyers' guide way back in Issue 39 (now out of print), in January 1997. *The sensible supercar* was what we called it then, and even if on this occasion we've chosen a somewhat different title the fact remains that this now highly affordable Porsche really does offer the most extraordinary combination of performance and practicality.

Indeed, it's now, if anything, an even *more* sensible supercar. It's that much older, for a start, with a commensurate reduction in values across the board (which doesn't make it a bad investment; we can't see prices falling much further for the time being), but at the same time it's no less usable or desirable. And such is its obvious build-quality and durability (it was produced in an Audi factory, in far greater numbers than any 911 of the period) that barring natural wastage through accidents and so on it's hardly less plentiful today than it was 10 years ago.

The 944 also makes – to our minds, anyway – the ideal first Porsche. Now that may sound like nothing less than heresy to 911 devotees, but the truth is that although it's undeniably less fashionable than the classic air-cooled 911 it is also far better value for money – and certainly far better value than any 911 you might buy for roughly the same price. It will be cheaper to service, fuel and insure, too. Its perfectly balanced chassis handles as if it's on rails, and with prices ranging from £15,000 down to as little as



£1500 there really is one to suit (almost) every budget.

That's not to suggest that the 944 has absolutely no potential problems, or that you can buy one with your eyes wide shut. And it would be foolish to assume that all 944s invariably make an ideal first foray into the world of Porsche. Sixteen-valve engines can be expensive to maintain (and especially to repair if they do go wrong; see panel on page 99); and early cars don't now have quite the same visual appeal as the later so-called oval-dash cars (see page 98).

Read and digest what follows, though, and be prepared both to wait for the right car to come along and then to spend a modest amount looking after it, and you will have a classic and beautifully balanced sports car that even before recent events in the US could reasonably be expected to last for as long as there's the fuel to propel it.

BY THE END OF THE 1970S

Porsche's evergreen 911 was still sitting pretty at the top of the supercar heap, the new 928 was now offering Porsche performance in a rather more sybaritic package, and for those who wanted a first taste of the Porsche experience there was the entry-level 924. There was, however, an enormous price gap between the 924 and the other two models.

It was also true that the 924 hadn't been universally acclaimed. Nobody doubted that the Harm Lagaay-styled body looked pretty, albeit in a rather bland sort of way, and nobody doubted that it went very well (especially in Turbo form) or handled properly. The problem was that enthusiasts knew that the 924's engine was essentially the same

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Which is the best 944 for you?

Ignoring the obvious logic (applicable to any car) that the best 944 has to be the newest and best-specified that you can find within any given price range, then it's easy to suggest which models to go for (and which ones to avoid, too). That said, there's certainly no such thing as a bad 944, but equally there is no doubt that, all things being equal, some are somewhat better than others.

Eight-valve 944 (Lux); 2.5- and 2.7-litre engines

Potentially the oldest and simplest cars available (and, therefore, the cheapest), but no less worthwhile for that – assuming you don't mind the rather dated dashboard and ugly windscreen frame of the first 2.5 cars, and the fact that at this level you could simply be taking on someone else's insoluble problems. Post-1986 cars are clearly better in this respect, though, and the 2.7 is said by some to be the best four-cylinder motor Porsche has ever built. That alone would make it one of our best buys. Both 2.5 and 2.7 were the only 944s optionally available with automatic transmission. This is not a bad gearbox, but it – and certainly not the ugly great shift lever – hardly suits the car's essentially sporting character.

944S

A good idea at the time, perhaps, but its 16-valve engine is just as complex as the S2's (see below), and with only 2479cc and 190bhp it really doesn't have a huge amount of grunt. Current owners will disagree, of course, especially if they're trying to sell, but we would buy one only if it was particularly cheap (which they never are) and/or came with an exemplary service history proving beyond doubt that the crucial valvegear (see panel on page 99) had been attended to.

944S2

Complex 16-valve engine is basically an enlarged (2990cc) version of the 944S's, and subject to all the same problems (again see sidebar on page 99), but with 211bhp and 207lb/ft of torque a good one really flies, and has enough mid-range flexibility to satisfy even the laziest of drivers. Plenty of really good, affordable cars around, too, easily making this our all-round best buy.

944 Turbo

Not the most flexible of cars (which always surprises many newcomers), but get the thing wound up on an *Autobahn* and you'll be amazed by just how quick it is. Only a 2.5-litre engine, but its eight-valve cylinder head makes it much simpler and cheaper to maintain than a 944S or S2, and such is the expertise within the after-market tuning industry that turbochargers, wastegates and associated hardware are surprisingly cheap to fix. Earlier 220bhp cars probably slightly more driveable than later 250bhp versions, and arguably better as a basis for some serious tuning, too. A great alternative to an S2.

Cabriolet

Both the S2 and the later 250bhp Turbo limited edition (see above) were available with a conventional folding roof which, as such, offers all the usual benefits and disadvantages. Great in the summer, though, and such is the high quality of the roof that it's really no less usable in the winter. Can be bought for less than half the price of even the earliest, cheapest Boxster (and has the advantage of rear seats). ■



This pic and above: 944 Lux



1989 model year 944



944S has 16-valve engine...



...as does later (and better) 944S2



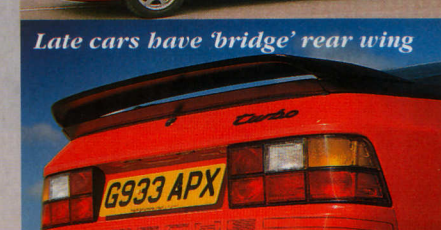
Early 944 Turbo has 220bhp, later cars 250bhp



Cabrio available as S2 or Turbo



Late cars have 'bridge' rear wing



What to look for Bodywork



Check the rear wings for suspicious creases, and also the box-sections behind the wheels. Cracked seam-sealer is a sure sign that the car's had a whack up the backside

Central-locking was fitted as standard from 1987. Check that it – and any alarm/immobiliser – work correctly

Sticking point

One of the most revealing clues about the provenance of your intended purchase can be found on the inside of the rear panel, behind the carpet and a few inches to the right of the left-hand light unit.

It might be nothing more than a self-adhesive paper sticker, but it can tell you not only what optional equipment the car had when it left the factory, but also whether it has ever been involved in that most common of traffic accidents, the rear-end shunt.

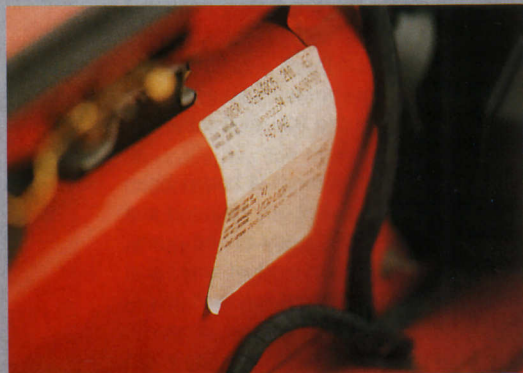
Why? Because the chance of finding one of these stickers on a rear panel that has been either replaced or even repaired is virtually nil. That said, the sticker's absence doesn't necessarily condemn a given car – it could simply have fallen off or been removed – but it should certainly alert you to possible problems.

Other evidence of repairs in this area – which is important to the car's integrity and long-term viability because it determines to a large extent whether the tailgate is watertight – includes suspicious-looking panel seams next to the tailgate lock mechanisms (they should be well defined, and certainly not look as if they've been filled).

Check, too, that the lower rear corners of the rear wings haven't been similarly bashed and repaired by lifting up the hinged side sections of the big, one-piece boot carpet. You won't be able to see much on the left-hand side if the battery's in the way, but it's worth a look none the less – even if only to check that the wells at the bottom aren't full of the water that accumulates if the drain holes become blocked.

As for those options we talked

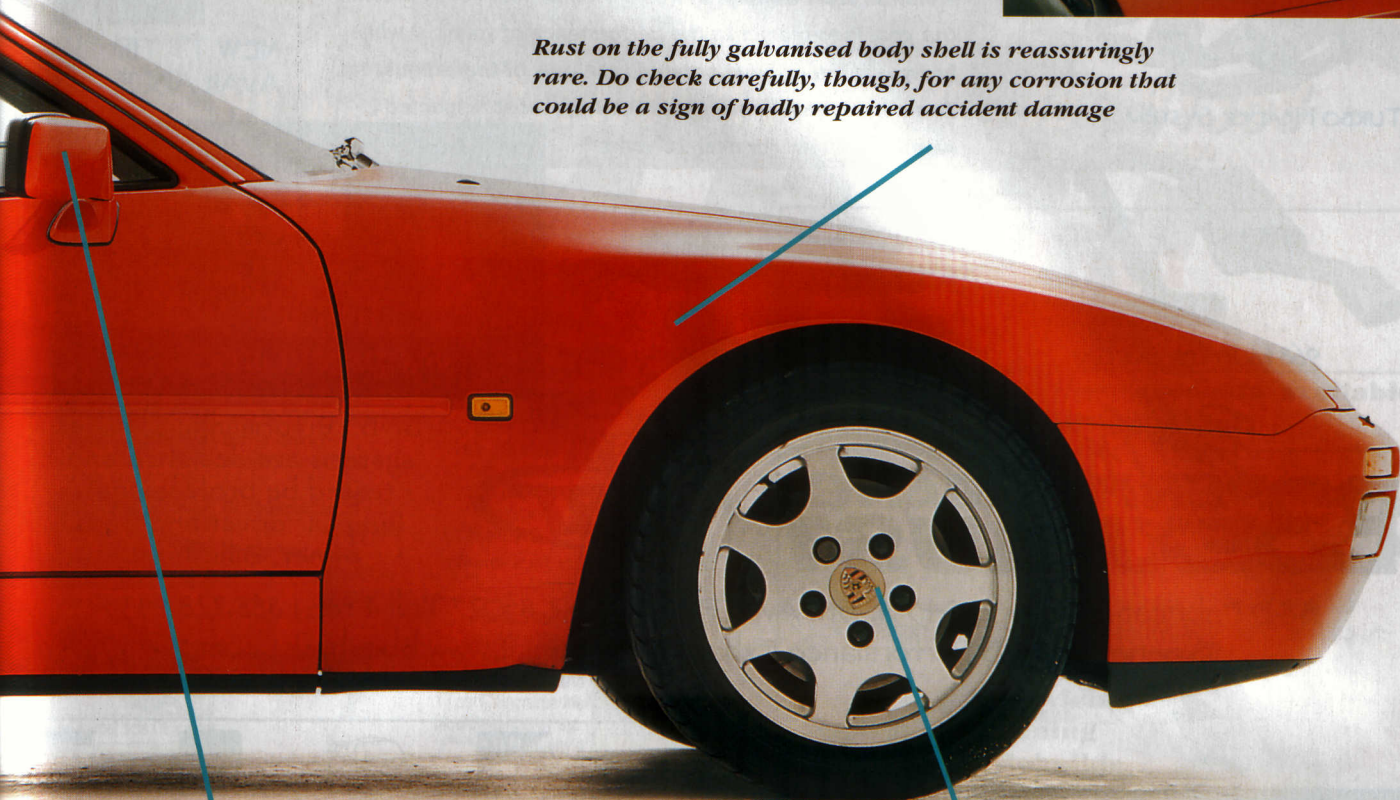
about, we don't have the space here to give an exhaustive list, but the most common, together with their meanings, are listed in Peter Morgan's excellent *Original Porsche 924, 944, 968*. Published by Bay View Books at £24.99, it's available (plus carriage) from our own *World of Books* service; telephone 020 8994 7054 or fax 020 8995 2624 for details. ■



A sunroof is a worthwhile option; expect to pay less for a (relatively rare) car without one – although given said roof's propensity to leak its absence could be said to be a plus point. Check that the electric tilting mechanism operates smoothly and that the catches that allow the panel to be removed work. Examine the rubber seal and check for signs of leakage. Originally there would have been a soft bag with which to store the sunroof in when removed – it's a rare bonus to find one of these today



Rust on the fully galvanised body shell is reassuringly rare. Do check carefully, though, for any corrosion that could be a sign of badly repaired accident damage



The large door mirrors are susceptible to stone-chips. Check that electric adjustment works correctly on both sides

Check alloy wheels for scuffing and corrosion. Non-standard wheels (either from a later model or after-market items) are often fitted, in which case check that they are a suitable size and do not foul the wheelarches. Pre- and post-1985 wheels have different offsets to cater for differences in the cars' hubs and are not readily interchangeable without spacers (which aren't a great idea). Good-quality tyres suggest that a car has been well looked after

as the one in a contemporary VW van, and they also knew that the car was assembled for Porsche by Audi at Neckarsulm. Somehow it just didn't seem quite like a proper Porsche.

So when Zuffenhausen decided to plug the gap above the 924 the company knew exactly what it needed. Chief engineer Helmut Bott explained the problem to journalists when the 944 was launched in 1981. 'We wanted to get away from the volume-car image that still affects the 924. And we needed a car that was better suited to the crucial American market; it takes over a third of our production. On the other hand, we could not afford to produce a completely new model. It was clear from the beginning that the 944 would have to use as many components from other models as possible, but that it should differ visually from them as much as possible.'

So the 944 was in many ways a grown-up 924, with virtually the same side profile, the same front-engine/rear-transaxle powertrain layout, and the same two-plus-two cabin. But it had a much more muscular appearance thanks to its wider track and extended wheelarches, which were visually similar to the plastic extensions on the limited-edition 924 Carrera GT, but in this case were made of steel. Inside, the dashboard was also much the same as the 924's, but upholstery and trim materials were more up-market to suit the car's pricing. And under the bonnet was the 'proper' Porsche engine that the 924 never had.

The first plan had been to make this engine a V6; a shortened 3.5-litre derivative of the 928's V8. Prototypes proved disappointingly rough and thirsty, however, and the anticipated cost of the new cylinder block and heads caused a rethink.

During 1977 Paul Hensler's engine team began to reconsider a large four-cylinder unit, essentially half of the 928's V8. This would provide much of the parts commonality that Weissach wanted in order to save costs. Although considerable extra design work was needed – not least to incorporate a pair of contra-rotating balance shafts to give the big in-line four acceptable refinement – the engine was close enough in its final form to the V8 to use the larger unit's cylinder-block and cylinder-head castings. It also used much of the 928's valvetrain, evidenced today by the '928' with which many of the part numbers are prefixed.

The original 944 (always sold as a 944 Lux in Britain) slotted neatly between the 924 and 911 in terms of price, and offered a very respectable top speed of 137mph. A 924 Carrera GT might have been quicker, but it

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A kinked chassis leg near the suspension towers in the engine compartment indicates that the car has been in a front impact. A common trick is to hide the damage with filler, but thanks to the heat from the exhaust system it rarely stays in place for long on the right-hand side

Check the windscreen for stone chips and for delamination around the edges, which manifests itself as a milkiness. The glass (of which there are two types) is bonded into position, and replacement isn't cheap

Make sure that the pop-up headlamps raise and lower smoothly and quietly. If the headlamps fail to work, or seem very dim, check the wiring. The continual flexing of the cables can eventually cause them to fracture



Look at the inside of the vertical panel between the lights. If it still has a self-adhesive paper label (however scruffy) stuck to it, the chances are either that the metal is original, or else that someone is making a very determined effort to pull the wool over your eyes. If it's missing, though, you can be fairly sure that the panel has been either replaced or repaired due to accident damage

Check the alignment of – and the gaps between – the bonnet, the headlamp covers and the front wings, and look for telltale signs of overspray. (Lift the window rubbers to look for traces of paint and/or cutting compound beneath it.) Don't be too worried if the nose-cone alone shows signs of having been repainted, though; it's very vulnerable to stone damage (and easy to remove for treatment)

was also more expensive and less refined; and, anyway, Britain was (officially, anyway) never allowed more than 75 examples.

Minor improvements were gradually introduced in the car's first few years, but the first major changes came in 1985. In this year the 944 was treated to smarter upholstery and an all-new so-called oval dashboard (see panel on page 98), the 'telephone-dial' light-alloy wheels similar to those of the 928 and, with the battery relocated to the luggage compartment, it also gained slightly better weight distribution, too.

But the big news was that a turbocharged model would now be available alongside the normally aspirated version. Porsche-watchers had guessed that a 944 Turbo would be coming ever since a prototype car had com-

peted in a race in Ohio in the USA – and won it convincingly – during June 1984.

The production car's engine incorporated redesigned combustion chambers, a relatively high compression ratio to give good off-boost performance, a KKK turbocharger, and an air-to-air intercooler to lower the temperature of the intake charge and thus increase its density for maximum efficiency.

Maximum power shot up from 163bhp to 220bhp – an astonishing 35 per cent increase – and maximum speed increased to well over 150mph. The car handled like a Porsche should, and was docile enough to be perfectly acceptable as a town runabout as well.

Weissach let the effect of that one sink in for just 12 months before following through

with another blockbuster. This time the car was called a 944S, and its principal innovation was a completely new top end for the engine, with twin overhead camshafts and four valves per cylinder. Power went up to 190bhp, maximum speed was over 140mph, and the 0–62mph dash could be covered in around seven seconds.

The 944S was available alongside the 944 Lux and the 944 Turbo for two years before there were any more major changes. But it would be only a year before a fourth model would join the 944 line-up in the UK. This was the 944 Turbo SE, marketed as a limited edition and painted in a fetching metallic pink, but in reality a taster for the more powerful mainstream Turbo which would arrive in September 1988. That car – which had



Glass tailgates can leak if the catches are not correctly adjusted, or if the rubber seals are damaged or corroded. Not only can this lead to water damage to the boot area and rear seats, it can also cause dangerous exhaust fumes to be sucked into the car. On that note, it's not unusual to smell said fumes when one of the front windows or the sunroof is open and the car is travelling at relatively low speed



The polyurethane bumpers of S2 and Turbo models should withstand low-speed impacts. If there's any sign of damage, therefore, you can assume that the car has been in a reasonably hard smash, so investigate further

The hydraulic struts supporting the bonnet and tailgate often fail, but replacements are inexpensive and simple to fit

250bhp instead of the 220bhp of the original 944 Turbo – came with a number of other improvements to make it the fastest and best-handling 944 variant yet.

But Weissach hadn't forgotten the basic 944. At the same time as the uprated Turbo

appeared the 944 Lux was given a bigger-bore 2.7-litre engine, which generated only a little more power than the earlier 2.5-litre type but certainly felt crisper on the road – whatever test figures might suggest. For the remaining months of 1988, there were, therefore, three different engines in the 944: the 2.7-litre eight-valve in the Lux, the 2.5-litre 16-valve in the 944S, and the turbocharged 2.5-litre eight-valve in the Turbo.

Rationalisation was bound to follow, though, and from January 1989 the 16-valve 944S was replaced by the 944S2 (also with a 16-valve engine), and the basic 944 Lux was discontinued that summer, leaving only the S2 and the Turbo. Even so, there were now still three models on offer, because the S2 could be had not only as a 2+2 coupé, but also as a Cabriolet with an electrically powered soft-top.

The essence of the S2 was a further enlarged and even more powerful engine, although the car was also distinguished by somewhat smoother and more integrated front-end styling (similar to that of the Turbo). This time the stroke of the big four-cylinder had been lengthened in order to give a capacity of 3.0 litres (2990cc, to be precise). And given the 16-valve cylinder head of the earlier 944S power went up to 211bhp, to give performance not far off that of the original 944 Turbo.

Further realignment of the range followed in 1990, when the Turbo ceased production. The top model did not disappear altogether, though, for the turbocharged engine re-emerged early the following year in the Cabriolet body shell to create what was undoubtedly one of the most charismatic

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The oval office

You'll hear much talk among 944 aficionados about so-called oval- and pre-oval-dash cars – frequently with the implication that the former are by far the more desirable. But what does this jargon mean? And are those who use it correct in their assumption that an oval dash – whatever it might be – is somehow better?

In fact, this seemingly arcane terminology is nothing more than a reference to the style of the car's instrument panel – or dashboard, if you prefer.

Cars built before September 1985 have what amounts to the now rather old-fashioned-looking, three-dial instrument pack that started life in the 924 (and which was also found in the 924S). In cars built after that date, however, the dash – even if it isn't actually oval – is definitely a much more modern-looking affair.

Less obvious (unless you know about it, in

which case it stands out like a sore thumb), but no less important, is the difference between the two cars' windscreens. The pre-oval-dash cars (again like the 924) have a rather ugly set-up in which the glass is set back from the surrounding metalwork, and the joint is finished (if that's the correct word) with a metal strip.

The later cars, though, have a much neater arrangement in which the glass (which also incorporates a radio aerial) is virtually flush with the framework, and finished with a much more discreet (and aerodynamically more efficient) rubber moulding.

It's worth noting, incidentally, that (in theory at least) any car with an oval dashboard and that flush-fitting windscreen should also have a battery mounted beneath the carpet in the left-hand corner of the luggage compartment.

Wrong. There was, in fact, a short changeover period (evidenced by editor Horton's own oval-dash 944, which was first registered in Italy some time during early 1986) when the battery remained in the engine compartment. ■



Interior

The 944 interior is basically well put-together and a generally pleasant place to be, especially in the case of the oval-dash cars (see panel above).

Check for wear on the seats, especially in the case of early cars, and also on the gear lever and handbrake gaiters which are relatively simple to put right. Leather seats are an attractive option.

Look for worn or water-damaged carpets – lift any overmats. Water can leak in via the rear hatch and sunroof so check the boot carpet and rear seats, too. Later cars were often fitted with cream carpets which, while looking good in the showroom, soon became scruffy; a darker

colour is a better choice.

Make sure that the electric windows, mirrors, and – where applicable – sunroof and seats all work as they should. Oval-dash cars have complex vacuum-operated heater controls that should be tested carefully to make sure they operate as they should. In the same vein air-conditioning, where fitted, needs checking. Both can be expensive to put right.

The tops of rear seats are prone to fading due to sun shining through that large rear hatch. Sun and heat can also damage the roller-style luggage cover, so make sure that this is intact and works correctly.

Under the armrest you may find a holder for cassette tapes. This is made of brittle plastic and often cracks, as does the hinge that retains the lid. ■

Mechanical checks

The 944 engine is a basically tough unit and, if properly looked after, is capable of covering well in excess of 250,000 miles before needing any major surgery.

However, if an engine has not been well-maintained potentially expensive problems can, and indeed will, occur. As with any Porsche, therefore, a good service history (with receipts to back it up) is a useful start to assessing an engine's condition. Of course, though, you shouldn't rely on paperwork alone; a close inspection is essential. And if you're not confident in your own capabilities in this area get a Porsche specialist to look the car over.

Camshaft and balance-shaft belts are dealt with in the panel on the right and we can't stress too much how important it is to check that these items are in good condition.

Check the engine for oil leaks. Although most are not likely to be serious, the balance-shaft oil seals can fail (especially on early cars) and require much work to replace. S2 cars tend to leak oil from the oil-pressure sender, which is simple to put right. Any sign of oil, though, should be investigated further.

Check also for fluid leaks from the so-called hydraulic engine mounts which, in their original form at least, are prone to fail. This is a particular problem on the right-hand side because of that mount's close proximity to the hot exhaust manifold. When a mount fails the vibration of the engine is transmitted straight



Check coolant for oil contamination

to the body with an inevitable increase in noise and vibration throughout the car. Porsche solved this problem with a modified mount which many cars now have had fitted – look for the distinctive orange base of these more reliable items. Post-1983 cars were also fitted with a heat shield to protect the right-hand mount from the hot exhaust manifold – make sure this is in place.

Oil-coolers in pre-1989



cars can be problematic. Unlike most coolers which rely on air passing through a radiator, this one is a small intercooler inside the block's main water jacket. These originally used red plastic seals which have been proven to have a limited life and often fail, causing oil to leak under pressure into the coolant. Check the radiator cap for the brown sludge which is a sure sign that the coolant is contaminated; it's a problem that will naturally lead to premature engine wear. Replacement seals are green, more durable and relatively simple to fit.

Oil in the coolant can also indicate a failed head gasket, a problem that occurs with age more than anything else; expect to replace the gasket after 10 years. Further indication of problems in this area are the water in the header tank always being low and the engine running hotter than normal.

It's worse having a compression or leak-down test done on an engine. Not only will this indicate valve wear, it can also highlight worn piston rings and/or worn cylinder bores; the latter effectively means the engine block is scrap. Wear in this department also manifests itself with a smoking exhaust at high revs.

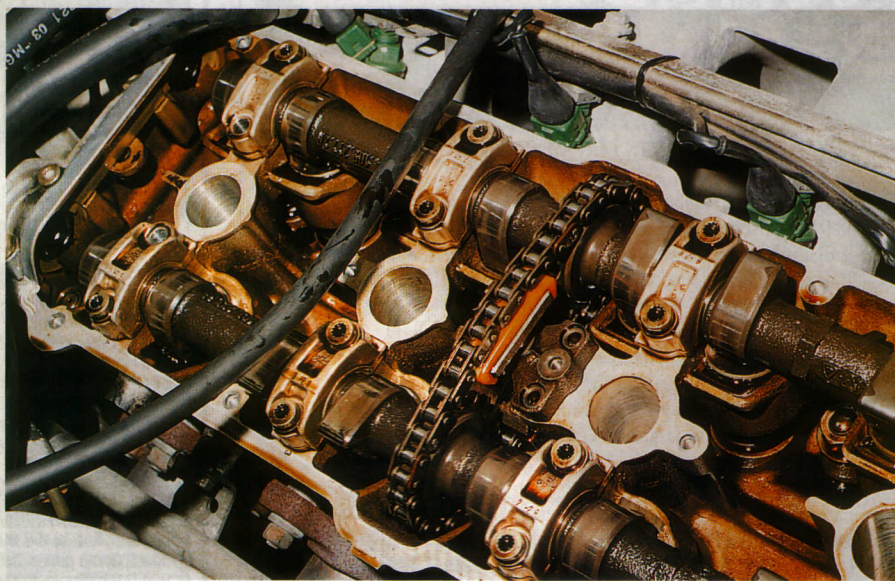
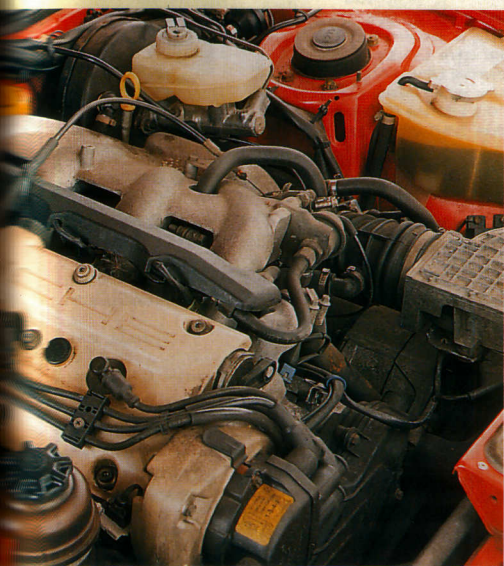
Transmissions are basically tough, but there are things to look out for. A worn clutch is time-consuming to replace, so check carefully for slipping under load and for juddering.

Check also the action of the gear lever, which can become sloppy or stiff if the long linkage (the gearbox is at the rear of the car, remember) is worn or not lubricated. Such problems are simple enough to put right so long as the gearbox itself is sound.

It's not uncommon to hear a whine from the combined transmission/transaxle. This is caused either by wear in the differential bearings or by the main pinion bearing. In either case, expect to pay around £400 to have the problem put right.

Moving out from the transmission, the propeller shafts are basically trouble-free but their constant velocity joints benefit from cleaning out, packing with fresh grease and treating to new rubber covers every 80,000 miles or so.

As with any car, the brake discs should be checked for excessive wear and the lines for corrosion and damage. The S2 has aluminium brake calipers that can corrode leading to the pads binding; the solution is to dismantle each assembly and repack with copper-based grease. ■



Eight valves or sixteen?

All Porsche 944 engines are based around an aluminium-alloy cylinder block that is effectively the right-hand half of the 928's big V8 (see also panel on page 103). Cylinder heads, however, feature either a single overhead camshaft and eight valves (Lux and Turbo models), or twin overhead camshafts and 16 valves (944S, 944S2).

In both cases drive from the crankshaft to the valvegear is primarily by means of a toothed rubber belt – exactly the same as you'll find in many other modern engines, and offering all the obvious benefits of cheapness, longevity, simplicity, low noise and not least relatively easy maintenance.

It is vitally important to observe Porsche's servicing requirements, though. Belts can – and do – snap in service (usually because they've been run way beyond their intended 48,000-mile or five year lifespan) and the resulting damage can be very expensive to fix. In eight-valve engines you'll be looking at bent valves and damaged guides at the very least, and even if you do the repair work yourself (which actually isn't that difficult) the parts and machining alone could cost £500.

Typically, any of the UK's Official Porsche Centres will charge around £240 including parts, labour and VAT to replace an 944S2 camshaft and balance-shaft belts, plus another £200 or so if it turns out that you need new idler wheels and tensioners (which are a sound investment if you're having the work done). Independents vary, but reckon on about £140 all in for the belts, plus another £130 or so for the tensioners and idler wheels.

The real problem, though, comes with 16-valve engines. Here the camshaft primary drive is precisely the same as in the eight-valve units, but in this case only the exhaust camshaft is driven directly by that rubber belt. The inlet shaft, over on the left-hand side of the cylinder head, is driven by means of a short, endless chain running on sprockets on the two camshafts positioned between cylinders two and three.

And this is where it starts to get complicated. Not only is that rubber belt no less likely to snap than in eight-valve motors, but when it does the close proximity of the valve heads in the combustion chambers almost invariably causes some of them to break away from their stems, leading to massive (and often irreparable) damage to both the cylinder head and pistons. What's more, the chain and its tensioner are prone not only to breaking (with similar results), but also to excessive wear.

That in itself wouldn't be a problem if they were regularly inspected, but since they're not part of the factory's servicing schedule it's really only those independents who know about the implications (such as Lancashire-based Hartech) who ever bother. So it's all too easy to buy a 16-valve car whose camshaft chain and tensioner are on the point of catastrophic failure.

And even if you attend to this area of the engine as soon as you buy just such a car there's still no guarantee that you won't face big bills. Renewing both the chain and its tensioner is neither particularly difficult (for a specialist, anyway) nor expensive, not least because the part of the tensioner that fails, a tiny plastic 'blade', is now available separately for a few pounds (time was when you had to buy the complete hydraulically actuated tensioner assembly for about £250...).

More often than not, though, the worn chain, by impinging on the sprockets at the incorrect working angle, will have worn said sprockets, too. (And it's by no means unusual to see entire teeth completely missing.) If you're lucky you can fit just a new chain; if you're unlucky you might well have to fit a pair of new camshafts as well. And the bill for the parts alone could well amount to £700, never mind the labour to fit them.

So you can probably see why we're so cautious about recommending 16-valve 944s unless – as is the case for the car shown on these pages, and also on page 123 – the previous owner can prove that the work has been carried out within the last few thousand miles. ■



Distortion here is a sure sign the car has suffered a frontal impact

and desirable 944 variants of all.

And so the 944 range – S2 coupé, S2 Cabriolet and Turbo Cabriolet – continued into 1992, when it was replaced by the 968. And by that time the car that had started as the mid-range model had itself become the entry-level Porsche, for the last 924 had been built in 1989. ■

What have you bought?

Porsche 944 chassis numbers, or vehicle identification numbers (VINs), are found on the right-hand side of the engine compartment, on the vertical stiffener just forward of the windscreen. They consist of two groups of code letters followed by a six-digit serial number. A typical example is 94FN420001. This translates as follows:

First group

94 All models except Turbo
95 Turbo models

Second group

CN 1982 model-year
(ie September 1981–August 1982)
DN 1983 model year
EN 1984 model year
FN 1985 model year
GN 1986 model year
HN 1987 model year
JN 1988 model year
KN 1989 model year
LN 1990 model year
MN 1991 model year
NN 1992 model year

Third group

420001 serial number



944 key dates

The 944 was announced in Germany in July 1981. The dates and other information shown below and elsewhere in this feature refer to UK models only.

April 1982

944 Lux introduced

September 1982

Optional econometer added to tachometer

October 1982

Colour-coded body-side mouldings added

September 1983

Power-assisted steering standard in cars with automatic transmission, optional in manual-transmission vehicles. Electric release for rear hatch added, plus brake-pad wear indicator. Porsche seat logo in black; optional seat inserts in brown, grey and beige

September 1984

Power-assisted steering standard in all models; electrically heated screenwash nozzles added

September 1985

Battery relocated at rear; fuse box relocated in engine bay; new telephone-

dial alloy wheels; flush-fit windscreen with integral radio aerial; three-speed windscreen wipers; heated electric door mirror on left-hand side; grey- and black-pinstripe seat inserts; electric height adjustment for driver's seat; new fascia with four main gauges; 'gear selected' indicator within tachometer in automatics

October 1985

944 Turbo introduced

September 1986

944S introduced; electric height adjustment added to passenger seat in Turbo

September 1987

Central locking added; new cassette and coin holder for all models; underbody spoiler added to 944S; new disc-style forged light-alloy wheels for Turbo; 944 Studio limited edition of 30 cars based on 944 Lux manual, with silver paint, split rear-seat back, luggage cover and automatic heating control

October 1987

944 Turbo SE limited edition of 70 cars based on 944 Turbo, with 250bhp engine, disc-style alloy wheels (7.0-inch front, 9.0-inch rear) and Rose Silver metallic paint

September 1988

944 Turbo power output rises to 250bhp; 2.7-litre engine for 944 Lux, ABS

standardised; new automatic heating control; alarm standardised; stronger five-speed transaxle with exterior oil-cooler for Turbo, plus limited-slip differential and wider rear wheels; electric height adjustment for both front seats now standard in all models

January 1989

944 S2 introduced

July 1989

944 Lux discontinued

September 1989

Catalytic converter standardised; 959-style rear spoiler added to Turbo; 7.5-inch front wheels added to Turbo

September 1990

Turbo coupé discontinued; Turbo-style spoiler added to rear window hatch of S2; split rear-seat backrest now standard; courtesy-light delay added

February 1991

Turbo Cabriolet introduced (100 right-hand-drive cars only)

September 1991

RDS radio now standard, with provision for CD autochanger

May 1992

944 range replaced by 968

Engine notes

Conventional automotive wisdom suggests that around 2.3 litres is the maximum practicable capacity for a four-cylinder engine; anything much larger can become lumpy and unrefined, particularly at low speed.

But despite the fact that it has only four cylinders and a relatively large capacity (up to just short of three litres in the S2, remember), the 944's engine is remarkably smooth-running.

Porsche's solution lay in a pair of contra-rotating balance shafts – one beneath the inlet manifold, the other lower down on the other side of the block, below the exhaust manifold – and both driven at twice engine speed by means of a toothed rubber belt from the crankshaft. A separate toothed belt drove the camshaft(s) and water pump.

This idea of separate shafts to smooth the engine's out-of-balance forces had first been tried by Frederick Lanchester in the early years of the last century and were subsequently patented by Japanese car manufacturer Mitsubishi. Porsche's tests showed that it inevitably absorbed some 3–4bhp at maximum revs, but this was considered acceptable for an engine that was in every other respect so efficient.

The 944's cylinder block was made from lightweight aluminium alloy. Ingeniously, and with the help of the Reynolds Aluminium company, Porsche dispensed with the need for

separate cylinder liners by the use of both a special high-silicon alloy (Nikasil) for the block and chrome-plated piston skirts.

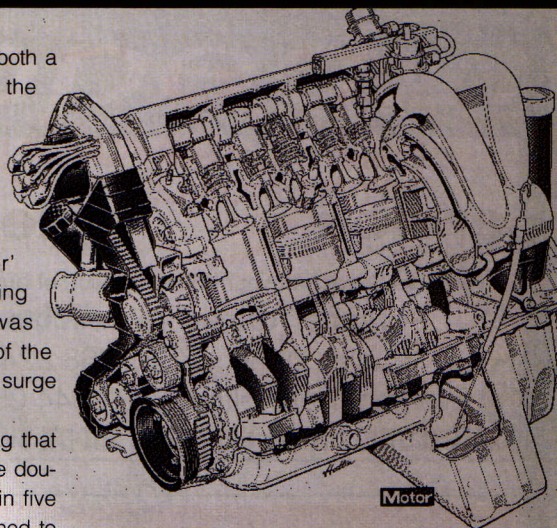
The block was arranged so as to extend downwards to the centre line of the main bearings for improved strength, and still more rigidity came from the use of a one-piece 'ladder' casting incorporating the main-bearing caps. Even the aluminium sump was designed to increase the stiffness of the block, and was baffled to prevent oil surge during hard cornering.

The crankshaft itself – a steel forging that was designed from the outset to handle double the standard power output – ran in five main bearings. The pistons were attached to equally strong sintered-steel connecting rods.

The cylinder head, located by a couple of dowels and secured by 10 long bolts, was similar to that of the 928, apart from a minor modification to the shape of the combustion chambers. The camshaft was a separate unit complete with its own oil gallery, and designed to be both easy to fit at the factory and later removed for maintenance. The valvegear, featuring maintenance-free hydraulic lifters, differed from the 928's in detail, but in principle was almost identical; both valves and guides are interchangeable, for example.

The result was a maximum power output of 163bhp at 5800rpm, an increase of 30 per cent over the 2.0-litre 924. Torque, too, was excellent: a maximum of 151lb ft and a practically flat 'curve' which contributed in no small measure to the 944's superb mid-range flexibility. Later the same basic design would produce 190bhp in the 16-valve 944S (and 211bhp in the 2990cc S2) and 250bhp (once again from the original 2.5-litre eight-valve block and head) in the 944 Turbo.

In its ancillaries, too, the 944 engine was a mould-breaker. Porsche pioneered the use of an ingenious oil-to-water intercooler built into the cylinder block and surrounded by coolant. This both allowed the oil – and thus the engine – to reach its operating temperature much more quickly for optimum performance and economy, and then at high speeds and ambi-

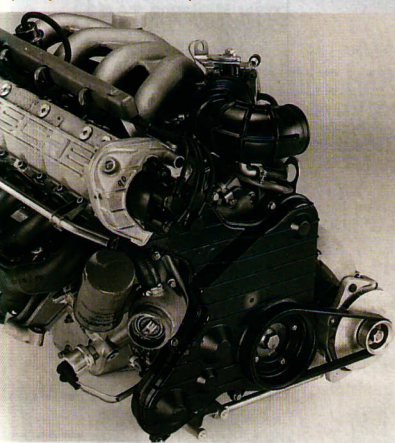


ent temperatures to maintain the oil temperature at a safe level.

Even the engine mounts came in for a major rethink. Those fitted to the 924 had been shown to have a relatively short lifespan – which was thought to be due to the continual thumping as the car passed over the slightly raised bitumen seals between the concrete sections of many German and US motorways – so the 944's were revised to incorporate hydraulic dampers.

If the original eight-valve 944 engine had been similar to half of a 928's V8, the 2.5-litre 16-valve 944S unit announced in 1986 was almost identical, now that the V8 had acquired both a capacity of 5.0 litres and a four-valves-per-cylinder layout. Indeed, both engines shared the same bore and stroke measurements of 100.0 and 78.9mm, and parts commonality, one of the design team's goals from the very beginning, was now even wider.

Each row of valves – inlets on the right-hand side of the cylinder head, exhausts on the left – was operated by its own camshaft. The exhaust camshaft was positioned where the single shaft would have been on the eight-valve engine, and driving the inlet shaft by means of a short chain. And the exhaust camshaft was driven by means of a wider and stronger toothed belt running up from the crankshaft, as before. Other features included an inlet tract with magnesium passages and a larger-capacity oil pump. ■



How much should you pay for your 944?

This depends on a number of factors, not the least of which (as for best buys; see panel on page 91) are obvious points such as age, condition, mileage, specification and service history.

Such is the current state of the used-car

market, however, that while even the scruffiest 911 of the period still commands probably £5000 at the very least, a running 944 (albeit with a high mileage and probably not much history) can be had for as little as £1500. Believe us. We know. And that was for an oval-dash car, too.

Around the £4–5000 mark gives you rather more choice, though. You'll be looking at reasonably well-preserved 2.5s or higher-mileage 2.7s, and maybe even an early 220bhp Turbo.

Stretch yourself a little further, however,

to around £7–10,000, and you'll have plenty of really good 2.7s and Turbos to choose from, and virtually any S2. The best of the latter (including Cabrios) can usually be had for around £10–11,000, while for £15,000 you'll be looking at a low-mileage Turbo Cabrio.

All these figures assume that the cars in question have right-hand steering. You'll often pay quite a bit less for left-hand drive, although the car will, of course, be worth that bit less when you come to sell it. ■