

The Automobile

Racing in the snow
Goodwood Members' Meeting

The Southport LeaF
Lea-Francis 14/40 1LFS

Modifying the Mini
Specials based on BMC's baby



TATRA'S JUNIOR STREAMLINER

Did it really influence the Beetle?



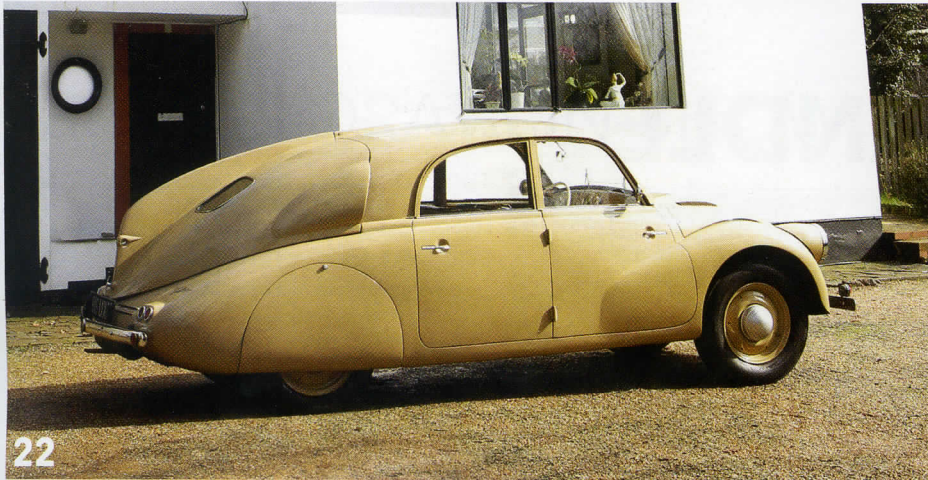
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**KAŽDÉMU AUTOMOBIL »TATRA« -
VŮZ SPLŇUJÍCÍ NEJVVYŠŠÍ POŽADAVKY**

ZÁVODY RINGHOFFER - TATRA A. S. PRAHA - SMÍCHOV

Front to back During the 1930s, Tatra built a wide range of both front- and rear-engined cars, but it is the advanced streamlined models which captured the public's imagination. Turn to page 22 for more



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Cover 1938 Tatra T97 at the Sun Houses,
Amersham (Nick Clements)

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TATRA'S JUNIOR STREAMLINER

The Tatra T97 is routinely presented as the basis for Porsche's Volkswagen project, but it's about time the model was judged on its own merits, says **Ian Tisdale**. Photographs by **Nick Clements**

At every stop, the unfamiliar shape of this regularly exercised 80-year-old generates impromptu conversation. A quarter of a century ago, pre-internet, the typical reaction in the UK was usually along the lines of "So, what on earth is it?", but its driver is just as likely now to be treated to a brain dump from spotters who are keen to demonstrate an imagined grasp of Tatra history. A V8? The design Porsche plagiarised? Lethal? The 'Czech secret weapon', so dangerous German officers were banned from driving them? Production halted by the Nazis because of its similarity to the Volkswagen?

So, how seriously should we take all that? Czechoslovakia's advanced engineering culture was much more closely aligned with Germany's and Austria's than with the under-developed Soviet industry. And yes, it's a Tatra, but its rear engine is a curiously long-stroke 1749cc 40bhp overhead-cam flat-four that fits so closely between the wheel arches that they require slide-down panels for valve clearance adjustment. Air-cooled, as might be expected, or air/oil to be strictly accurate, its expensive specification delivers a creditable 83mph top speed.

So, the design pinched by Dr Porsche for his people's car, then? Almost anything ever written about the streamlined Tatras has repeated this trope, but no, it really isn't. The talented Ferdinand Porsche had little need to look over anyone's shoulder. This hand-built vehicle, with its complex fabrication and four timber-framed doors sharing hinges on the B-posts and tensioned by cables and turnbuckles, couldn't be much further removed from a 'people's car'. It could certainly never have been mass-produced –

which, after all, was the whole point of the German KdF project.

All but possibly one or two T97s were built before the outbreak of World War Two. They were selling in 1939 for 5600 Reichsmarks, or nearly six times the *Käfer's* admittedly improbable RM1000 target price. The T97 and bigger T87 were developed from 1936-37 and readied by the autumn of 1937. The orders from Ringhoffer-Tatra's administration in Prague to build two prototypes of each are both dated June, 1936, and the first photographs appeared in October, 1937. Far from being nipped in the bud by the invader two years later, the factory sign-off was only ever for 500 units. Once war was declared, the company's resources were unsurprisingly committed to military materiel for the Axis, although 706 of the bigger V8 cars were built for VIP use from 1940 to 1942, after which production ceased until the German defeat. Some 122 T97s were reportedly sold between February and October, 1938, the month the Sudetenland was occupied, and the final 378 were delivered under the occupation, the last one in November, 1939, two months after war was declared. Total production including prototypes is disputed, but was either 508 or 511. Production has been reported as: 1936, two prototypes; 1937, five; 1938, 188; and 1939, 316 – making a total of 511. The discrepancy will probably never be settled.

Anything but proletarian, T97 customers were *avant-garde* members of a well-heeled bourgeoisie in the aspirational, optimistic but short-lived Czechoslovak First Republic that, along with annexation of the German Ruhr and a westerly shift of Poland's border, had been created post-WWI as part of the victors' punishment for defeated Germany

and Austria-Hungary. This particular example was registered on the day before Christmas Eve, 1938, to a lady in Bratislava. Painted pink before it left the factory, we believe, it would surely have been an ostentatious gift. She'll have cut a stylish dash in her Barbie car during the last few months before the world descended again into barbarity only two decades after the Great War armistice.

The four-cylinder ohc boxer engine is one of a catalogue of features that catch out the over-confident observer. Almost everyone seems to expect a V8 in a rear-engined Tatra, but the T97 was a junior sibling. The longer six-light V8-engined T87, with more than 3000 built, is the better known today and remained in production until 1950, or 1953 if you include possibly 14 T87/603 models that were modernised T87s with a new engine to demonstrate to the authorities Tatra's intentions for a large car in the hope of winning approval. This compact four-light T97 shares a large number of body parts and mechanical components with its big sister. The air/oil-cooled engine, with individual finned cylinders, was assembled from many more components than water-cooled contemporaries with their monobloc cylinder banks and heads, so it lent itself to forming part of a modular range. The two models, flat-four and V8, established a policy at Tatra that also encompassed commercial and military diesels in which different engine configurations were comped up, Lego-fashion, from common components. In due course, big air-cooled Tatra diesels would include modular V8, V12 and even W16 formats.

Under the T97's enormous and rather ridiculous finned rear cover, the big squirrel fan housing that dominates the compartment is recognisably one of the two found under the cylinder banks of its V8 sister. Pistons and con-rods are the same, along with valves, rockers, double valve springs and other ancillaries. Curiously, though, the individual finned iron cylinders aren't identical, and that's because this four, unlike the V8, is puzzlingly long-stroke, sharing the 75mm bore but with a stroke of 99 rather than 75mm, or $\frac{1}{16}$ in longer than the T87's. Puzzling? Well, yes, not just because Continental Europe wasn't saddled with the British RAC horsepower formula that encouraged antique dimensions, but particularly because a long stroke is seldom associated with the overhead camshafts that are more usually exploited to allow an engine safely to rev. There is a reason, albeit not generally remarked.

Clearly, the concurrent development of

T87 and T97 was to target two classes and two price points using as much shared component inventory as possible. At some point, though, it will have dawned on Tatra's decision makers that the smaller car, if offered with only 1.5 litres, half the T87's 2968cc and half its cylinder count, could be expected to deliver no more than 30bhp – not good enough when a budget Ford of about the same size could already muster the same output. Stroking out the Tatra, at the cost of bespoke cylinders but retaining the V8's pistons and cylinder spacing, will have provided a solution. *In extremis*, it is possible to assemble a T97 engine with V8 barrels, but with their shorter skirts the result, we are told, is unacceptably smoky.

The result of all this is rather agreeable. The long stroke, generous swept volume and single exit transverse silencer entirely conceal any hint of the engine's configuration. It feels and sounds very smooth, so there's another spurious VW similarity scotched. And, even

type that has two turn clicks for sidelights and main beam. With no solenoid or Bendix, starting is performed with what looks like a smaller second handbrake lever that moves the whole starter motor into mesh before enlivening it, a simple and reliable arrangement shared until 1939 with the T87.

Rather comically, the T97's junior status is messaged by the niggardly deletion of one of the T87's horns and provision of just a single windscreen wiper, although this example has gained a second slave wiper. Both right- and left-hand drive T97s were offered in order to accommodate export markets but, until it was invaded, Czechoslovakia was one of several European territories that drove on 'our' side. This domestic market Tatra has been converted to left-hand drive and given its second wiper at some point postwar. Its eight fuses, eight more than the Hillman Imp 25 years later, are behind the front passenger's glove compartment lid in this car instead of the driver's, which, along with its only door key locks being on the front right and rear left, bears witness to its altered laterality.

This junior streamliner lacks some more of its big sister's bells and whistles, too, including the trademark third headlamp, inherited from the ash-framed coachbuilt T77a that remained in production alongside the T87 and T97 until 1938. To those of us who see cars as anthropomorphic, three eyes are somewhat disturbing and the absence of the central one is possibly no bad thing. This example's front compartment lid has plainly been

donated by a larger V8 car, because there is clear evidence of a hole for a central headlamp having been welded up, and the trunking for its wiring survives. Instead of the bigger car's attractive three-piece windscreen we have a single flat pane, resulting in a shorter scuttle that explains the greater intrusion of the front wing mouldings on the otherwise interchangeable front doors. The engine compartment's different air management regime sees the 87's enigmatic see-through rear louvres replaced by windows. There's no big sliding roof panel, either, and the fascia is more austere populated but, that said, it's anything but all bad news.

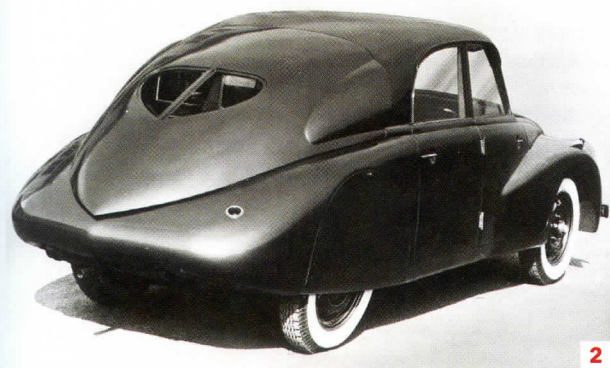
While the bigger car has superior acceleration and sounds wonderful with its combination of V8 'woofle' and two fans contributing to a sophisticated turbine-like soundtrack, size isn't everything. The more modest and shorter T97 has a 2.5in narrower body on the same track, a 250mm shorter wheelbase and a much reduced rear overhang with an engine only half the length.



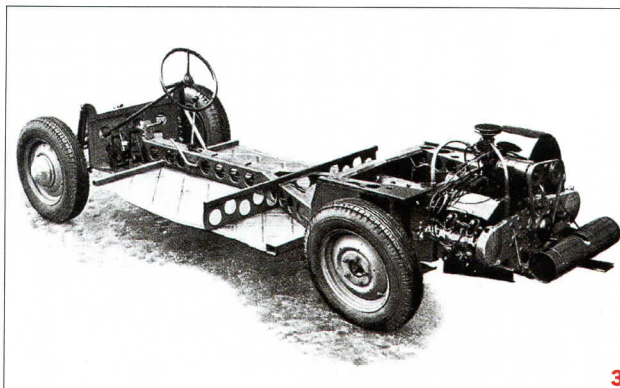
though the synchromesh on all four gears (a premium feature in period) is now just a memory in this example, the floor change, necessarily managed these days by double de-clutching, is rifle-bolt precise and gives no clue to the gearbox being several feet behind the driver, a characteristic sadly abandoned for the big postwar column-change T603. Precise, light rack-and-pinion steering and 12-volt Bosch or Scintilla electrics (two separate wiring diagrams were published) confirm the impression of quality, while effective four-wheel ATE-Lockheed hydraulic drums reassure, all the more so in a rear-engined car that offers superior traction in powdery Central European snow. The ignition key, still familiar to drivers of old Mercedes Bremen vans and JCBs, is the simple one-size-fits-all Bosch push-in-for-on

1 The T97 was marketed as a 'second car' and one that would appeal to the woman driver. The first owner of our featured car, originally painted pink, was a lucky lady in Bratislava





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2 The T97 prototype was devoid of the rear fin which became such a trademark of these cars

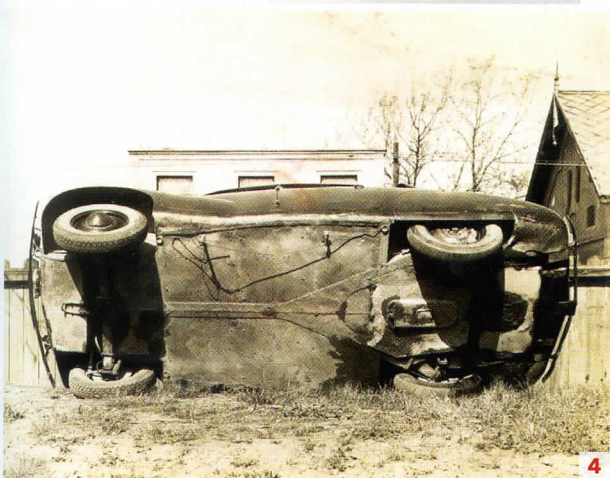
3 The Tatra-patented Y-shaped backbone chassis of the T97. The engine's position aft of the rear wheels is evident

4 The T97's aerodynamics extended to the underside, which was remarkably flat for the period

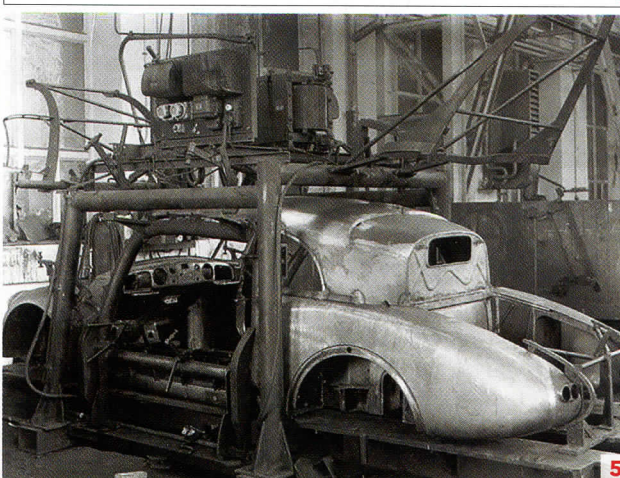
5 A T87 body on the welding jig. Construction of the streamlined Tatrás was somewhere between handmade and series production

6 Beautiful colour advertisement from 1938 showing the whole range of streamlined Tatrás

7 T77A, T87 and T97 were only briefly available concurrently. The T87 and 97 in this advertisement are both prototype cars, evidenced by their flat-topped windscreens



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Nové modely Tatra 1938

Tatra typ 97.40 ks a typ 87.75 ks proudnicové, pěti-sedadlové, jakostní vozy spolehlivého výkonu, s motorem, chlazením vzduchem, který je zavěšen vzadu do samostatného karosování

Tatra nákladní vozy 4 a 6 válcové, s Diesellovými a benzinovými motory, dokladné, hospodárné, rychlé, osvědčené

Závody Ringhoffer-Tatra a. s., Praha-Smichov, Kartouzská 36



7

The engine's not much more than half the weight, either, and the half that's absent is conveniently the wayward outboard end. Along with fuel, battery and a big oil cooler, the T97 can only accommodate one spare wheel for balance under its front bonnet compared to the T87's pair. Nonetheless, its polar moment of inertia is still a lot less of a concern. So, the smaller car has a better stance, is more planted, and contemporary journalists in period remarked on its impressive roadholding. Its inability, incidentally, to carry two spares under the shared front lid arises from that shorter scuttle in the absence of the bigger car's three-piece screen. A T87-style recess in the fuel tank to accommodate a second wheel would drastically reduce its already limited capacity.

Nazi officers being ordered not to drive the T87 'Czech secret weapon' is regarded by many students of the marque as 'a canard' in Karl Ludvigsen's words – although Ivan Margolius's revised *Tatra: the legacy of Hans Ledwinka*

offers us the word of contemporary service agent Ing Albert K Richter as corroboration, and T87 production was halted at the end of 1942. In any case, the smaller T97 is certainly less of a handful than its V8 sibling. As for speed, the extra 10 or 12 miles per hour theoretically available with the V8 are surely academic. When Delwyn Mallett's T87 was tested in the MIRA wind tunnel a while back, it was confirmed that its aerofoil silhouette generates significant and unwelcome front-end lift, so the T97's 83mph is really quite fast enough. Back in the '30s, the streamlining promoted by Hungarian Zeppelin alumnus Paul Jaray was focussed on optimising straight-line performance from the power available, improving fuel economy, reducing noise and even reducing bodywork soiling, rather than what we'd recognise today as aerodynamics. At which point we might consider that rear engine cover.

Among other issues, the T97 engine cover

is twice as large and more than twice as heavy as it need be – the more surprising when, in so many other respects, the car is carefully configured to mitigate potential handling problems that might arise with a rear-engine layout. The crankcase and gearbox casing are cast in expensive Elektron magnesium alloy (Mg 89.7 per cent, Al 8.0 per cent, Zn 2.3 per cent), far lighter even than aluminium and employed in airship frameworks for that reason. The flat-four engine is little more than half the length of, say, the straight-four of the contemporary Mercedes-Benz 130 and 170H *Heckmotors* and, being air-cooled, significantly lighter. Yet that wretched rear cover overlaps the cabin, bizarrely, by 57cm, nearly two feet and about twice as much as the T87's. Pivoting on a single bolt, it is beautifully stitch-welded, almost like Savile Row tailoring, from no fewer than eight steel sheets, six fillets and two locating pegs, and includes a lamp assembly, two panes of glass, a latch and a prop. But why?

It's that shared inventory again. Other than being finished with windows in lieu of louvres, the finned T97 engine cover is exactly the same basic assembly and has the same dimensions as the T87's. Either could be fitted on the same car, although a swap would compromise engine cooling. What is hard to understand is why this shared component survived into production, particularly when hand-made and incorporating unique details for each of the two models. Indeed, the T97 prototypes' lids didn't even feature the integral fin but were already twice as big as needed. The same shape for the smaller car could so easily have been achieved with a much smaller, lighter model-specific cover with its shutline coinciding with the firewall bulkhead further aft, and the weight at the back of the car usefully reduced. In contrast, the much more expensive T77 predecessor's hingeing was far better conceived and the KdF's well-hinged little lid was complimented at a time when front-engined cars still usually had floppy centre-hinged bonnets. Quite apart from handling issues, the big cover is really quite dangerous. It is supported when open by a simple prop, and if raised just half an inch, in the workshop or at a show, could come crashing down, damaging itself and possibly causing serious injury. And then, of course, there's that fin.

Routinely referred to as a 'stabilising dorsal fin' the Tatra's most striking feature's stabilising contribution is not straightforward, and it isn't 'dorsal'. If we're going to employ the not inappropriate fish analogy it's unarguably a caudal fin, positioned as it is on the tail rather than the roof, but its functional contribution is debatable. Paul Jaray's designs, mostly prototypes or specials apart from those he influenced rather than penned at Tatra, usually bore a central tail fin, though not usually as large as a Tatra's and sometimes little more than a rib. Aviation inspired, as might be expected in view of his background, these tail fins can seldom, if ever, function on cars in the same way as when airborne because, other than when encountering turbulence or deliberately crabbing as a stunt or to manage a cross-wind landing, planes do not experience side winds. Cars generally do, to some extent, unless in still air or a direct head or tail wind.

Entirely below roof height and in the slipstream, the big Tatra fin is in an area of low pressure and limited influence. The car, in any case, cannot reach a speed at which it could act as a straight slicing rudder, as might a fast jet's or the fin added to Donald Campbell's final *Bluebird* Land Speed Record-breaker when rebuilt after its roll-over accident. There are only two ways this fin can contribute. It can help to concentrate and bleed off the vortex of departing air after it has flowed over the car, reducing drag and improving economy and performance like a modern plane's wingtip devices, but any benefit is unlikely to be measurable. Its more significant potential is to act as a helpful sail in a sidewind. Even otherwise safe-handling rear-engined cars often tend to be unsettled by crosswinds as the lightly loaded front end is easily blown off-course. Increasing the tendency for the heavier rear to be similarly pushed is a potentially

more elegant solution than ballasting the front, and enlarging the car's rear profile was intended to achieve this. At flow angles of more than 11deg, beyond which the fin is under increasing pressure, it helps to stabilise the car by reducing yaw. The effectiveness of this theory remains untested in recent times, but even on its crossply tyres the T97 does seem indifferent to crosswinds. Unconnected with the dynamics, though, the fin does improve the car's profile and visual proportions, as its absence on the prototypes demonstrates. Preceded by John Tjaarda's 1931 Sterkenberg proposal and featured on the coachbuilt Tatra T77, it had already become a symbol for Tatra's new rear-engined car concept.

Before leaving the fin and tail, let's observe the lighting arrangements. A single bulb in the fin's trailing edge provides a rear-facing red pilot light and in period, through holes on either side, white illumination of registration and nationality plates. That would have been the only rear running light on earlier examples, with single lamps on the rear corners acting as brake lights only. This car may have been retro-fitted, at some point, with paired lenses on raised mouldings from a later T87, providing indicators and extra rear lights in addition to the stop lights. More likely, though, by the end of 1938, is that the German occupation of the *Östsudetenland* and incorporation of the Moravian Tatra factory into the economy of the Reich will already have resulted in an edict to adopt German lighting protocols. There are wartime photographs of standard production cars with two lamps on each rear wing. T97s were variously fitted with semaphores in the front scuttle, behind the rear doors or not at all. The blinkers on the front wings of the prototypes did not survive into production. This one had non-functioning semaphores behind the rear doors, but they were plainly not original, had been poorly retro-fitted and were not reinstated during restoration.

With the front of the car a non-weatherproof repository for fuel, batteries, spare wheel and oil cooler, and with space-consuming double transverse leaf spring independent suspension, a full-height luggage compartment is concealed behind the rear seat. The seat back pivots forward on pegs and can be quickly lifted out altogether for a bigger load. A top-hinged upper bulkhead, with its own window, has a retaining stay to keep it up while loading and the driver's rear view is through three layers of glass in the bulkhead panel, the firewall and the engine cover. It is often remarked that the view offered is scarcely fit for purpose, but how many cars before WW2 had more than a token rear window? A matching pair of unobtrusive after-market door mirrors is essential today for 21st century traffic and for reversing. The body narrows towards the front, making attempts to reverse in a straight line uncomfortably counter-intuitive with only one mirror, and possibly apocryphal contemporary wisdom observes that 'in-line parking with a Tatra streamliner is always a two-man job.'

A surprising number of Tatra's finned streamliners survive around the world, including certainly more than 45 of these much rarer T97s, probably 10 per cent of

“Anything but proletarian, T97 customers were avant-garde members of a well-heeled bourgeoisie”





8

8 Near-symmetrical metal dashboard with large central speedometer was similar to that of the contemporary T87

production, several of which are in museums. This one doesn't tick all of *The Automobile's* preferred boxes because it isn't in patinated unrestored condition and it isn't a low mileage survivor. When found in the Czech Republic nine years ago it was in disturbingly glossy bright blue two-pack, cheerful but unconvincing. After recommissioning, it was pressed into regular service, including a German club meeting in its second year. "Where have you left your trailer?" asked the rally host, who took some convincing that the car had just been driven from north Oxfordshire. In due course, the cheap blow-over started cracking with the rigours of regular summer and winter use, eventually coming off in sheets. Something had to be done and, despite the reshaping and new paint, it would be nice to think that this journal might acknowledge our efforts at conservation rather than restoration, if not originality.

Steve Miller, in Four Marks, Hampshire, was the answer. Now a one-man band, but with a lifetime of hands-on automotive involvement ranging from running a racing team to caring full-time for a wealthy extended family's fine cars, Steve's approach may be unique. Working alone in a single workshop unit, strictly one project at a time, he'll tackle anything mechanical but mainly breathes life back into bodywork, structurally and cosmetically. His formula is very cost-effective, partly because during most eight hour days

he'll only pause for a sandwich or his tea flask, and partly because he only dismantles as a last resort. A now-routine restoration in the Czech Republic typically takes 14 months and results in something as-new, which may suit many clients but much history can end up in the dumpster.

This car was transformed in just 20 weeks from an informal old survivor, with what turned out to be up to 14 layers of unstable paint and filler, into a straight strong driver with nice shutlines and precision door fit. There are no stripping chemicals in Steve's workshop. All the paint is ground back to metal, so no reactions lurking down the line – and no electric welding, either. Steve's gas shaping and welding comes so naturally that he often scarcely needs much rod; old and new metal becomes one in the light of his torch. There was only one small hole in the body, but the shell seemed to have been beaten all over with a ball-ended hammer, maybe as a key for skim filler. It was astonishing to see how much Steve proved it was possible to planish out, and the pre-paint skim was very light. The paint I decided on was durable two-pack but, with the gun finish rubbed off with fine grit and soap, the result looks remarkably like fresh cellulose.

And then there was the machinery. Recommissioning involved an electric fuel pump, a new bespoke aluminium front oil-cooler from Serck Motorsport in Hayes, Spax telescopic dampers that bolted straight on,

new brake slave cylinders and linings, and the first of several attempts to configure the distributor. That much made the car a legal runner. Shortly after its eventual bodily refresh the engine overheated due to a fanbelt failure. In a fortuitous loop of serendipity, it has been carefully rebuilt by Tim Bishop whose team reconfigured, updated and 'Westernised' Tatra's last cars in the 1990s. It had been speculated that this might be a low-mileage, relatively unmolested car, but it became plain from parts markings and some *ad hoc* shimming that its engine had been cobbled together from probably three donors. Fortunately, the magnesium crankcase had not deformed, as do many of the V8 engines' longer casings. Unlike the flat engines in Tatra's front-engined cars, this is a genuine smooth four-throw crankshaft boxer rather than a two-throw 180deg vee. Unusually, a single chain drives overhead camshafts that rotate in the opposite direction to the crank, and is driven off just a quarter of the crankshaft sprocket's circumference and tensioned by phenolic Pertinax guides.

There have been a number of challenges along the way, but the ignition curve has been set up on Tim's dyno where the refreshed engine delivered its factory outputs. It is now very sweet, and even breathes through the correct Zenith carburetter, discovered as new old stock on German eBay by T87 owner Robert Kiel. The front transverse and rear quarter-elliptic leaf springs ought really to be dismantled and greased; it's a known characteristic of these streamliners that the leaves seize and bind, sometimes even to the extent of jacking up at the back, but the ride is firm and almost modern, with no roll.

So, an even rarer car than most people imagine and, like much creative engineering when judged honestly, something of a curate's egg. This is the result of imaginative and innovative professional design rather than oft-claimed 'genius' in the sense that Berners-Lee, Magellan, Leonardo or Galileo's works demonstrably were. The formula includes much experimental compromise. Porsche's and Mercedes-Benz's suspension was better and that engine cover really isn't at all clever, although it is also one of the car's most entertaining visual delights. Without even comparing construction methods, if one looks beyond the sloping bonnet there's little that actually resembles a Volkswagen. Indeed, ladies are often first to observe that the centre section looks more like

a Morris Minor's, so it's interesting to reflect that Issigonis's Mosquito was conceived with a flat-four. Did he have an eye for the Tatras, as Gerald Palmer acknowledged he'd had when penning the Jowett Javelin?

It would be good to know more about the individual contributors, particularly Viennese engineer Erich Übelacker, who was clearly central to the streamliner projects but of whom little prior to his move to Borgward has been written. Along with almost all of Tatra's people, apart from those generously credited in

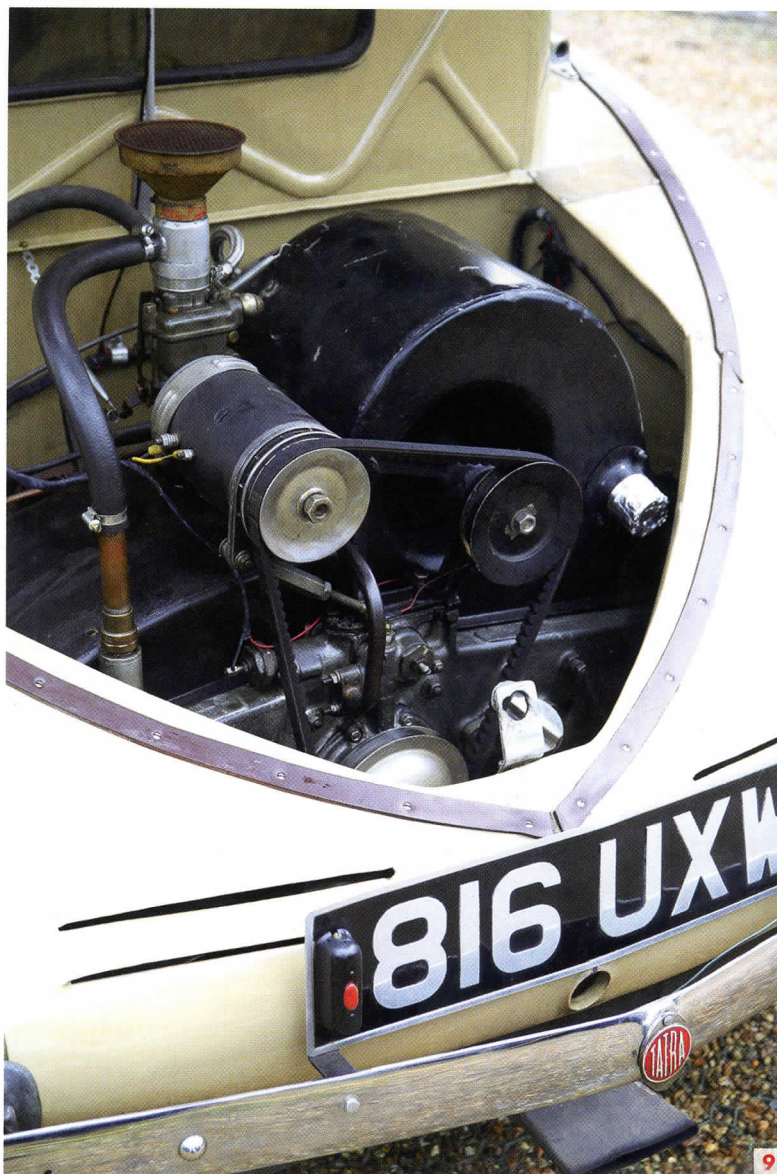
to streamlining, these cars were only ever a low-volume flagship line until after WW2. In the two decades between 1933 and 1953, Tatra built just 10,257 rear-engined streamliners, 6453 of which were postwar four-cylinder T600 Tatrapians, compared to more than 24,000 front-engined cars, both luxury and bread-and-butter, with their trademark tubular chassis, clever suspension and integral drivetrain.

As for the Volkswagen question, the saga that led to that constantly referenced VW settlement (1m Deutsche Marks in respect of three suits, not 3m DM for 'the VW concept', as repeatedly claimed) with the Ringhoffer heirs (not Tatra, itself) is not at all the simple *mea culpa* that's assumed. The prolonged process was begun after negotiations with VW by a liquidator responsible for the 'Ringhoffer-Tatra foreign fortune' failed. A claim for detail infringements by VW was the only remaining option. The Serényi-Ringhoffer brothers, the men behind the postwar Ringhoffer-Tatra, as opposed to the now-nationalised vehicle builder, got the modest award eventually and Ledwinka was never paid anything.

Sources conflict. Somehow, the VW money paid has risen threefold, but all has now been properly researched and will be clarified in due course. The litigation was complex, technical, political and even mendacious. Meanwhile, we can consider the flat-four-powered Mercedes-Benz 120 Heckmotor prototype of 1931 that preceded Tatra's scarcely streamlined third two-cylinder V570 prototype and was much better resolved. And then there are its 130 and 170H production offspring, along with the 1935 W30 150 that looks just like a mid-engined Beetle. Ferdinand Porsche needed little inspiration from outside Germany and had his own rear-engine beetle-shaped back catalogue by the time the T97 came

along, so let's just enjoy the Tatra for what it is, an expensive premium compact and an entertaining part of quite a widespread experimental *zeitgeist* rather than whatever might be invented or imagined.

As to legacy, well, that's no more or less than the astonishing number of Tatra streamliners that survives due to the company's persistence with a layout widely attempted and abandoned in the '30s. And today's cars, had there been no Tatra streamliners? They'd be no different. The industry just moved on. With cars, as with so much else, the truth is usually more interesting than legend. ■



project engineer Milan Galia's story of the T613's development in the '60s and '70s, the talented Übelacker is lost in a Ledwinka personality cult that has developed out of pre-internet obscurity. Another thought-provoking avenue is to consider some figures, as the Tatra car stereotype is so widely interpreted as being rear-engined. In contrast to Chrysler's mid-1930s commitment

9 The long-stroke flat-four powerplant is barely visible in the engine bay, buried underneath fan housing, carburetter and generator