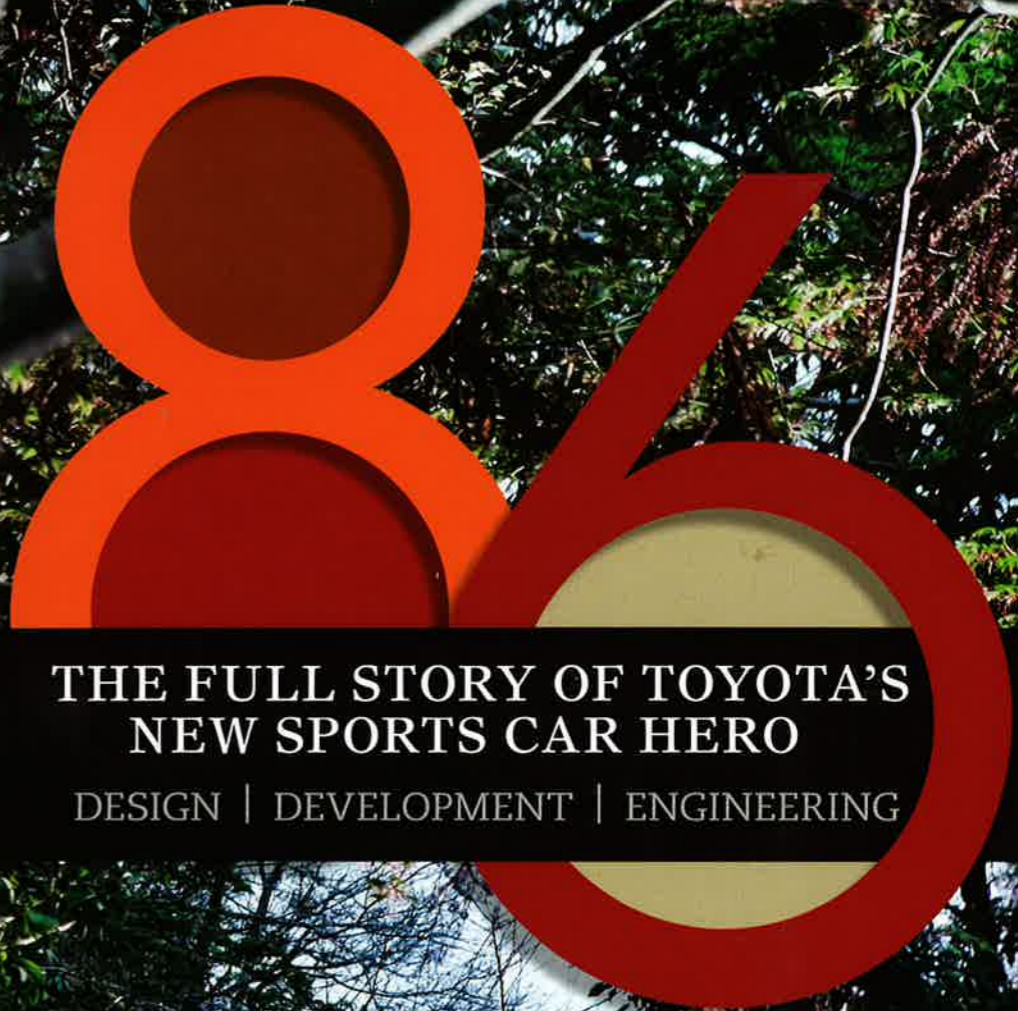


86



32-PAGE TOYOTA 86 **SPECIAL EDITION**



THE FULL STORY OF TOYOTA'S
NEW SPORTS CAR HERO
DESIGN | DEVELOPMENT | ENGINEERING



TOP TO BOTTOM
EPIC 3500KM DRIVE
THE LENGTH OF JAPAN



Contents



2012 IS SHAPING UP as a hell of a year for drivers' cars. In the 366 days of this leap year, the following future legends have launched and will debut either locally or globally: Porsche's seventh-generation 911 and third-generation Boxster, Ferrari's F12GT and 458 Italia Spider, the McLaren MP4-12C, BMW M5, Mercedes-Benz C63 Black and SLS Roadster. Plus Ferrari and McLaren are expected to reveal their new hypercar flagships before Santa visits again.

But among this star-studded line-up, one car has been more highly anticipated than all others. And the Toyota 86 has generated this interest without headline-grabbing power,

Priced from just \$29,990, the rear-drive Toyota 86 will shake up the predominantly front-wheel drive hot hatch segment with its unique driving flavour

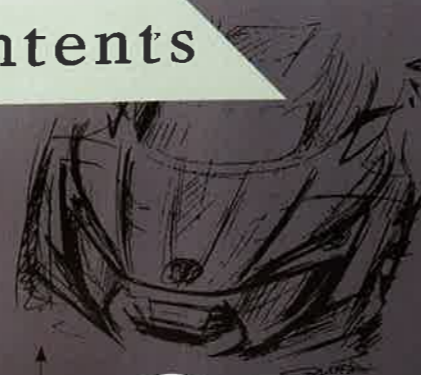
Veyron-frightening top speed, a brace of turbochargers, exotic materials or mid-engine layout.

Chief project engineer, Tetsuya Tada, explains the early thinking behind the 86: "We didn't want another MX-5, but a unique Toyota that was entirely bespoke. We never considered a mid-engine or 4WD layout. We weren't chasing speed or lap times, just 'the feeling of fun to drive'. We decided to abandon any numeric objectives; easy to say, hard to do, because we didn't want high-grip tyres or a turbo."

And the 86 also proves that a great drivers' car need not be expensive. Priced from just \$29,990, the 86, which went on sale in Australia on June 18, is within the grasp of most enthusiasts. At this price point, Toyota's rear-drive sports coupe will shake up the predominantly front-drive hot hatch segment with its unique driving flavour.

Enjoy *Wheels* magazine's 32-page special dedicated to the most exciting Toyota in a decade. Don't forget to download the free iPad app with extra material, videos, galleries and much more – just search 'Wheels showroom' in iTunes.

JESSE TAYLOR
Project Editor



04

Design
The fascinating inside story of the most exciting Toyota in a decade



10

Development
Peter Robinson digs deep under the skin to learn the tech secrets of 86



16

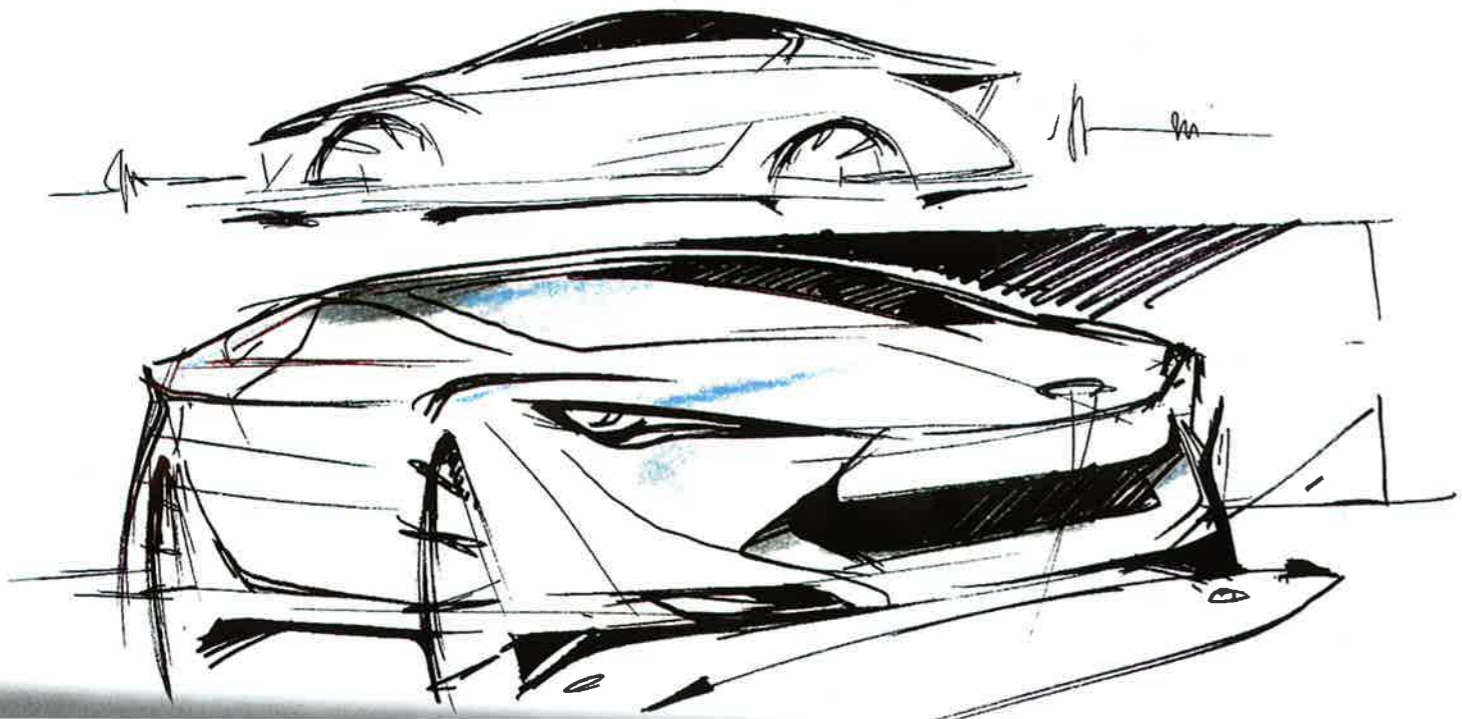
Top to bottom
Bill Thomas' epic 3500km tip-to-tip drive of Japan in Toyota's new hero



30

Winning ways
Toyota's 86 wins on debut at the gruelling Nürburgring 24-hour race





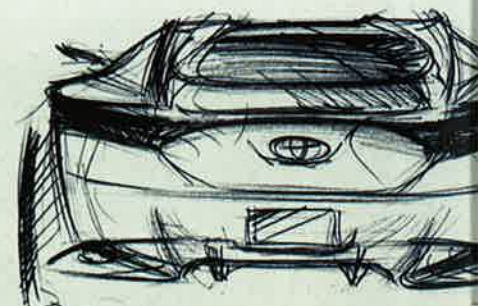
WORDS PETER ROBINSON

DESIGN

The brief was simple: no committees, plenty of passion. But there were still hurdles to be jumped

THE JANUARY 2007 board meeting made it official: Toyota approved the creation of a new sports car. To the relief of a small group of enthusiast engineers, whose proposed replacements for the Supra (last built in August 2002), Celica (April 2006) and MR-2 (July 2007) had all been rejected, Akio Toyoda, grandson of Toyota's founder and soon to be the company's president, had asked, "Where is the passion in our line-up? I want to build a sports car."

The battle within the car maker to create an affordable, mass-produced sports car began immediately after Toyota bought 8.7 percent of Subaru (from General Motors) in October, 2005 (increased to 16.5 percent in April 2008). A skunkworks faction within engineering



believed an entry-level sports car could serve as a symbol of the alliance. Having quickly rejected the idea of using an existing in-line four-cylinder, the engineers settled on combining Subaru's horizontally-opposed engine with rear-drive; Toyota to be responsible for vehicle planning and design, Subaru for development.

Project green-lighted, Toyota searched for a suitable chief engineer who, under the Japanese process, would run the entire program. A few weeks after the board meeting, Tetsuya Tada, until then chief engineer for the Wish – a compact MPV – was told he would instead make a sports car. He would spend the next year researching and eventually defining the project.

Tada had established with Akio Toyoda that Toyota's previously obligatory rule – that the chief engineer reported to the board through three layers of management – did not apply to Project 'Hachi-Roku', or 'Eight Six' in Japanese. "I started to ask Akio about this and he interrupted, 'Stop the discussion, you report directly to me'. I was told it was up to me."

They surveyed 1150 sports car owners in Japan and the USA, plus enthusiasts within Toyota. "They all told us the current models were so boring they didn't want to drive a Toyota," says Tada.

"We didn't want another MX-5, but a unique Toyota that was entirely bespoke. We never considered a mid-engine or 4WD layout. We weren't chasing speed or lap times, just 'the feeling of fun to drive'. We decided to abandon any numeric objectives; easy to say, hard to do, because we didn't want high-grip tyres or a turbo."

It was also crucial that the new sports car be ideal for track days and, inspired by the AE86 rear-drive Corolla from the '80s, the darling of the drifters and tuners.

"We wanted to keep the bonnet so low, for a low centre of gravity, that only a horizontally-opposed or rotary engine left enough room for pedestrian protection. And we never thought of an open version, it was only a coupe."

Toyota's involvement with Subaru gave access to the perfect engine layout, but their alliance partner's basic engineering philosophy opposed the concept of a rear-drive, normally-aspirated engine. "Subaru was very negative," says Tada. "They told us, 'You are crazy, turbos and 4WD are our priorities, we don't want to join your idea without either.'"

As the project developed, the reservations surfaced at a senior level. Toshio Masuda, a Subaru senior general manager in charge of development operations, questioned Toyota's basic concept.

"We were manufacturing cars with turbo engines and 4WD," Masuda said. "We didn't think using a horizontally-opposed engine was enough alone to make a good car."

20
09

TOKYO SHOW



Toyota went public with its plans for a new sports car at the 2009 Tokyo show with FT-86 – FT being shorthand for Future Toyota.

20
10

TOKYO SHOW

At the January 2010 Tokyo Auto Show, a high performance turbo version was shown as the FT-86 G Sports.



THE TEAM



TETSUYA TADA
Chief engineer



KENJI KIDO
Chief designer



MINORU TAKAGI
Test driver



TOSHIO MASUDA
Product manager



**20
11**
GENEVA SHOW



A year later, at the 2011 Geneva show, a third concept car – FT-86 11 – along with the first viewing of the Subaru BRZ appeared. Slightly longer and wider than the original, it came with redesigned headlights and front bumper.



**20
11**
NEW YORK SHOW

Scion FR-S (for 'Front-engine, Rear-drive Sport'), the American version, was unveiled at the 2011 New York show.

Subaru submitted an alternative proposal that left room for a 4WD model, but Toyota pointed out the wasted space left by the Subaru engineers. Frustrated, that without changing the architecture, their long-honed skills in turbocharging and 4WD would be wasted, the Subaru team effectively rejected the Toyota plan and even questioned if Toyota was capable of building a true sports car.

At the end of 2007, Tada finally convinced Subaru to build a prototype, based on a short-wheelbase Liberty with a 2.0-litre non-turbo engine. It was only after driving the prototype early in 2008 that Subaru saw what the car was capable of and agreed to proceed. "They were really surprised," admits Tada, "and we agreed to divide the production – originally set at 60,000 a year – 10:1. Subaru, who would build the 86/BRZ in a new plant, needed to make 5000 a month to justify the investment in a new engine and chassis."

Toyota's three global design studios in Japan, America and Europe submitted styling proposals. Subaru was asked to contribute a fourth design but, according to Tada, told Toyota, "The design is up to you to decide".


A few months later, the Toyota board voted for the Californian model which Tada, who favoured the Japanese proposal, believed wasn't sporting enough. Finally, Akio agreed the decision was up to the chief engineer, who quickly approved the local design.

The 86's styling was largely driven by packaging that prioritised a low centre of gravity and low bonnet, yet in an exceptionally stiff structure. As exterior designer Kenji Kido remembers, "When you lower the position of the body, the tyres come up higher. This in turn necessitates fenders, and the direction of their flare becomes clear. I wanted to express ideas that were not fake, to express authentic beauty."

The styling, also driven by aerodynamic efficiency (Cd 0.27) and little changed from the early full-sized scale models, was frozen mid-2010, after the first showing of a concept version at the 2009 Tokyo show.

Tada sees the 86 as the first in a series of Toyota sports cars. "Toyota should have three sports cars: the 86 in the middle with one above and one below."

"Believe me, the Toyota boring era is over."

Among the many proposals currently under preliminary development within a resurgent Toyota engineering department, is a sedan that uses the 86's architecture. Based on the overwhelming global orders for the new sports car, who would dare bet against a future, compact rear-drive four-door Toyota rival for the BMW 1 Series? 



Box Fresh

While the obvious inspiration for the 86 was the Corolla AE86, much of the new car's DNA can be traced back to the tiny Toyota 800 (right). Like the new 86, the 1965 800 was powered by a horizontally-opposed engine – a 790cc twin making just 34kW.

Like the lightweight 86, the 580kg 800 made terrific use of its modest output, claiming a 160km/h top speed. Just 3100 800s were built from 1965-69.

The tiny two-pot engine was later used to drive the air-con in the Dyna Coaster bus.





Development

WORDS PETER ROBINSON

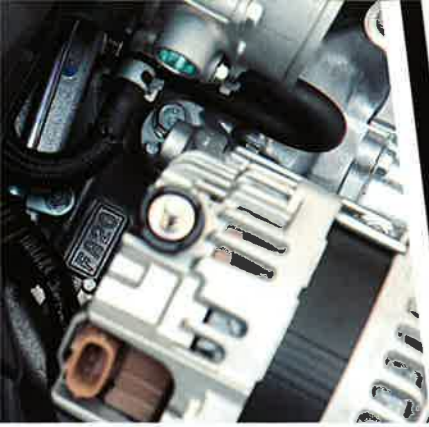
Automotive joint ventures rarely work. This one between Toyota and Subaru has produced a great driver's car

Toyota engineers set 86's front spring rates 10 percent softer than those on Subaru's BRZ

Modest 215/45R17 Michelin tyres are shared with Prius. Torsen LSD will be optional

Aisin six-speed manual or torque converter auto are similar to those used in Mazda MX-5

Weedy exhaust note is one of our very few complaints. Needs fatter pipes



Body builder

To help achieve effective aerodynamics – the cd with the optional spoiler is 0.27 or 0.29 without – the underbody is essentially enclosed. Small flaps in front of the wheels add stability at high speeds. The styling's been deliberately tuned not to create too much downforce that could impact on the car's adjustable handing.



1240kg weight and modest power means brakes can be smaller; 294mm front, 290mm rear,

Front axle lines up with rear pistons, helping achieve 53/47 weight distribution

Toyota's second-gen D-4S direct-injection system sits atop Subaru's 2.0-litre boxer

Mounted super low, the boxer engine contributes to 86's 460mm centre of gravity

A PEEK UNDER THE BONNET OF THE 86

– and its Subaru BRZ twin – reveals this imprint on the plastic induction cover: “Toyota D-4S Boxer Subaru”.

Explore further and you discover this is the only written confirmation you'll find on the 86/BRZ of the collaboration between Toyota and Subaru, a joint venture development that results in what is already regarded as a great sports car. In the simplest of terms, Toyota was responsible for the idea of a rear-drive sports car, the car's concept and design, while the engineering development and manufacturing were executed by Subaru.

Their creation transforms the Impreza/Liberty platform to rear drive and, in a major reworking of the Subaru horizontally-opposed engine, adopts Toyota's eight-injector direct (for mid to high revs) and

port (for low-speed driving) fuel injection to create a different Subaru 2.0 four.

In 2008 when, after much discussion and argument, serious development began, the joint venture partners agreed that the next generation of Subaru's FB boxer-engine was a natural to mount low down in the engine bay of both versions.

However, chief engineer Tetsuya Tada's insistence on a high-revving, non-turbo engine capable of 100ps (1ps = 0.986bhp or 0.74kW) per litre forced a rethink. Subaru's initial reaction was to suggest an increase in engine capacity to achieve the desired output. Tada, wanting to retain the 2.0-litre capacity, asked Takamitsu Okamoto (who led development of the Lexus LFA's V10), how to achieve 200ps (147kW) from the Subaru engine, yet to combine the high revs with fuel efficiency. Okamoto saw a redline of at least 7600rpm as inevitable and, if Subaru retained the new FB20 engine's 84.0mm bore, believed it would be difficult

Toyota was responsible for the concept and design, while the engineering development and manufacturing were executed by Subaru

to get a sufficiently large valve diameter to achieve 100ps (73.5kW) per litre. To achieve this, combined with the need for decent economy, the engineers adopted Toyota's second-generation D-4S direct-injection system (a sensitive issue, this, for it provided a rival with a complete disclosure of Toyota's advanced engine technology years ahead of launch) to a 2mm larger bore, the new FA20's 86x86mm engine dimensions a brilliant coincidence.

Subaru engineers proved up to the challenges of adapting the injection system to the boxer and the first prototype easily exceeded 147kW (200ps). To Tada's delight the engine was immediately extremely smooth and capable of well over 7000rpm, finally developing 147kW (200ps) at 7000rpm and 205Nm between 6400 to 6600rpm. This is no conventional torque curve that rises progressively to a peak close to maximum power. Instead, after an early peak of 200Nm at 2800-3200rpm, it dips to



Getting a grip

Inevitably, it was the Nürburgring that threw up the biggest dynamic challenge. "The road surface is rough and low-friction," says Akihiro, chief test driver. "There are corners with a variety of shapes. There isn't a track in Japan with as much vertical motion. There are cars that break down the moment they're driven on the Nürburgring, even though they had performed satisfactorily on a domestic track. That said, if you were to tune the vehicle exclusively at Nürburgring, then you would end up with a car specialised for stability and it wouldn't be fun to drive. Our approach was first to drive on country roads in the surrounding area."

In a process of trial and error they alternated between the roads and the 'Ring while using local development drivers to verify their work and the desire to achieve a harmony of performance and handling in which no single aspect dominated.



Rear: Double wishbones and coil springs are borrowed from the current WRX STi



Front: suspension layout is from the Subaru STi but the new engine mount requires the lower arm to be reversed

around 180Nm at 4000rpm, rising again to a near-plateau of 200Nm-plus from 5000rpm.

Aisin provide both manual and automatic six-speed gearboxes that come from the same families as those transmissions used by the Lexus IS200 (and Mazda MX-5). Tada wanted extremely short throws, combined with a light action that he felt were critically important in any sport car's manual change. A year from production nobody was happy with the feel – the shorter they made the movements, the heavier became the change – and a team of engineers from Toyota, Subaru and Aisin went to work refining the gearbox so that via detailed modifications they finally achieved what is now seen as, "the ideal manual gearbox which reliably communicates the moment when its gears mesh to the driver."

Toyota claims the torque converter auto now shifts as fast as the best twin-clutch gearbox, and blips the revs on down-changes.

In adapting the Impreza WRX STi suspension for the 86/BRZ, the Subaru engineers made constant revisions to suit mounting the engine around 205mm farther back in the chassis and 120mm lower, compared to the 2012 Impreza. The top of the engine is remarkably low and the centre line of the front axle is aligned with the bore centre of the rear pair of cylinders, for a weight distribution of 53/47. The front suspension is by MacPherson struts while the rear gets a complex multi-link, double-wishbone with coils, setup. The column-mounted, electric power steering is combined with an extremely quick 13.0:1 rack ratio for instant responses and proves you don't need to integrate the electric motor with the steering rack to create superb steering.

Significantly, the new sports car was developed on 16- and 17-inch wheels, resisting the trend toward ever bigger wheels and lower aspect ratios. Smaller wheels means less unsprung weight and more precise control while the 205/55 R16s and 215/45 R17 Michelins (the same rubber from the Prius optional performance pack) offer both grip and gradual breakaway. The stability control has five settings, including one 'off' mode with no electronic safety net at all.

Initially, however, Minoru Takagi, Toyota's 'top gun' development test driver, wasn't happy with the handling of the prototypes, then code-named AS1. He asked the development team to achieve three things: "movement that defies the moment of inertia; ground hugging handling; and a smooth suspension stroke for a comfortable ride".

And he demanded that Toyota and Subaru engineers ride together whenever testing the car – even at the Nürburgring – so that they could discuss their thoughts and observations. Testing globally – including Winton Raceway in Victoria – they honed the suspension tune.

Now that the project has reached production, Toyota and Subaru are free to develop the hardware as they like. That's a truly intriguing prospect and one that is concurrently with the fast gathering group of tuners keen to exploit the car's obvious potential. We are left to ask: Is this the most successful joint venture automotive development ever? **W**

靈火

Top to Bottom

It's conquered Porsche's Cayman and won over Peter Robinson, now Bill Thomas takes the 86 on an epic 3500km drive the length of Japan



WORDS BILL THOMAS
PHOTOS THOMAS WIELECKI

W



WHEN we think of Japan, we tend to drop into default mode – Tokyo at night, the old *Blade Runner* cliché, dense skyscrapers dotted with twinkling red anti-collision beacons, neon light fizzing so thick in the air you can almost taste it, that sort of thing.

But Japan is about so much more than that – it's about mountains and coast and big views, ancient temples and rich forests and cherry blossom trees. And, not least, a humorous, hard-working people who really 'get' cars and know how to drive them.

Toyota's 86 is the most important driver's car to come out of this country in two decades. The Honda NSX, Japan's first supercar, was a revolution for the domestic industry in 1990 – the 86 is a revolution for Toyota and will likely be copied heavily. The least we can do is drive it the length of its home nation...

We'll run from north to south, from Sapporo, the capital of the main northern island of Honshu,

OUR ORANGE 86
IS DELIVERED
EARLIER THAN
EXPECTED, SO
I GRAB IT AND
TAKE IT
STRAIGHT OUT
INTO THE
BLINDING SNOW

to Cape Sata at the bottom tip of Kyushu, the southernmost main island. It's a journey of 2437km by the most direct route, but over six days we'll take a more winding path which will add 1000 kilometres to that total, via cities and spectacular scenery, a great racetrack, and some of the best driving roads in the world.

HOKKAIDO

Sapporo is Japan's central hub for skiing, as far north of the equator as Hobart is south, but much colder, with average minimum temperatures of -9C in the depths of winter and only just above freezing now. Our metallic orange Hachi-Roku is delivered earlier than expected on the afternoon before we're due to depart, so photographer Wielecki and I grab it and take it straight out into the blinding snow.

We first set eyes on it in the dark hotel car park. Our close companion for the coming week is smaller than it looks in photos, like an old Porsche 911 in that way – taut, with no added fat. Same applies inside. Compact, but not too small, function over form, with everything aimed at the driver. This would be our 'office' for many, many hours, over which time I knew even the slightest annoyance would start to grate and potentially spoil the car. Don't let me down, 86.

We hit Sapporo's slippery streets and head north to Otaru, our only sighting of the Sea of Japan (in effect, the west coast) on this trip. The 86 is all about feedback, and the less grip you have, the



Food

Even in remote freeway service centres, the food is fantastic, often cooked as you watch in outdoor stalls. There is also a lot of weird stuff, like octopus in otherwise standard-looking lolly bags, and things you can't recognise at all...



more fun it seems to be. On these slush-covered roads, on summer tyres, the little Toyota beams the signals you need straight from the road surface into your hands, feet and posterior. It's a bit silly, venturing out in this blizzard on standard tyres, but serves to emphasise how vividly the car sends messages to its driver and how natural the steering feels when you need to correct your line.

Next day, winter tyres now wrapped around the 17-inch alloys, we head south, onto the snap-frozen Sapporo streets to dodge oversteering Toyota Crown taxis. The road from here to the ferry port at Hakodate is a smooth-surfaced four-laner, running in full view of tall, snow-capped mountains on the spine of the island.

By the time we roll onto the Aomori ferry, which takes us across a calm Tsugaru Strait to the largest Japanese island of Honshu, we have been photographed and videoed at least 10 times. The car had only gone on sale earlier this week, with the Japanese domestic media launch late the week before, so it was still all over the TV and newspapers.

We'd continue to cause a stir all the way down Japan, and the cars that tracked us for longest were, naturally enough, driver's cars: fast Toyotas like Supras and Celicas, of course, but also Subaru WRXs and Libertys, BMW M3s, Nissan 200SXs, even a couple of Porsche 911s and a single red Ferrari 355. Anything customised had a good look, too.

When the car bounced over the ferry's front door and onto Aomori dock, it was dark. A 360km freeway stretch to our overnight stop at Sendai revealed powerful headlights, dependable straight-line stability at a 130km/h cruise, and a well-lit, comfortable

cockpit. No annoyances, happily, other than my slight pining for a driver's armrest above the centre console.

SENDAI

Next morning we visited the coast at Sendai. The Japanese are a stoic people but the earthquake and subsequent disasters that hit the country in 2011 have left them shaken. A year on, the recovery is in full swing, and the work done already is amazing, but it'll be five more years before it's complete and the sheer scale of the disaster is impossible to comprehend until you set eyes on it.

When we arrive at Yuriage, just north of Sendai Airport, our Japanese support crew – keen for us to capture the best possible story – seem almost apologetic when they tell us there was “more damage farther north”.

It's hard to imagine a more damaged place than this. Once a vibrant little seaside suburb, it is now deserted. Rectangles of concrete and low walls are left where houses once stood, and in this area, only a single building remains erect, apparently salvageable – an old fish mincing factory, with its lower storey destroyed, a set of stairs leading down from the top floor to nothing and only the sparrows making a sound. The birds could take off when the water hit...

The deep silence is as unnerving as the desert-like landscape. A boat lies on its side a long way inland, which is frightening enough, but small details hit you harder, like a scarred sign on the footpath telling children to look both ways before



Service Stations

Service stations in Japan actually give you service. Most are staffed by attendants who will guide you into your spot, clean your windscreen and fill your car – and there's no tipping, so it's free. You can't buy even a chocolate bar, though, unless it's from a vending machine.

THE JAPANESE ARE A STOIC PEOPLE BUT THE EARTHQUAKE AND SUBSEQUENT DISASTERS OF 2011 HAVE LEFT THEM SHAKEN

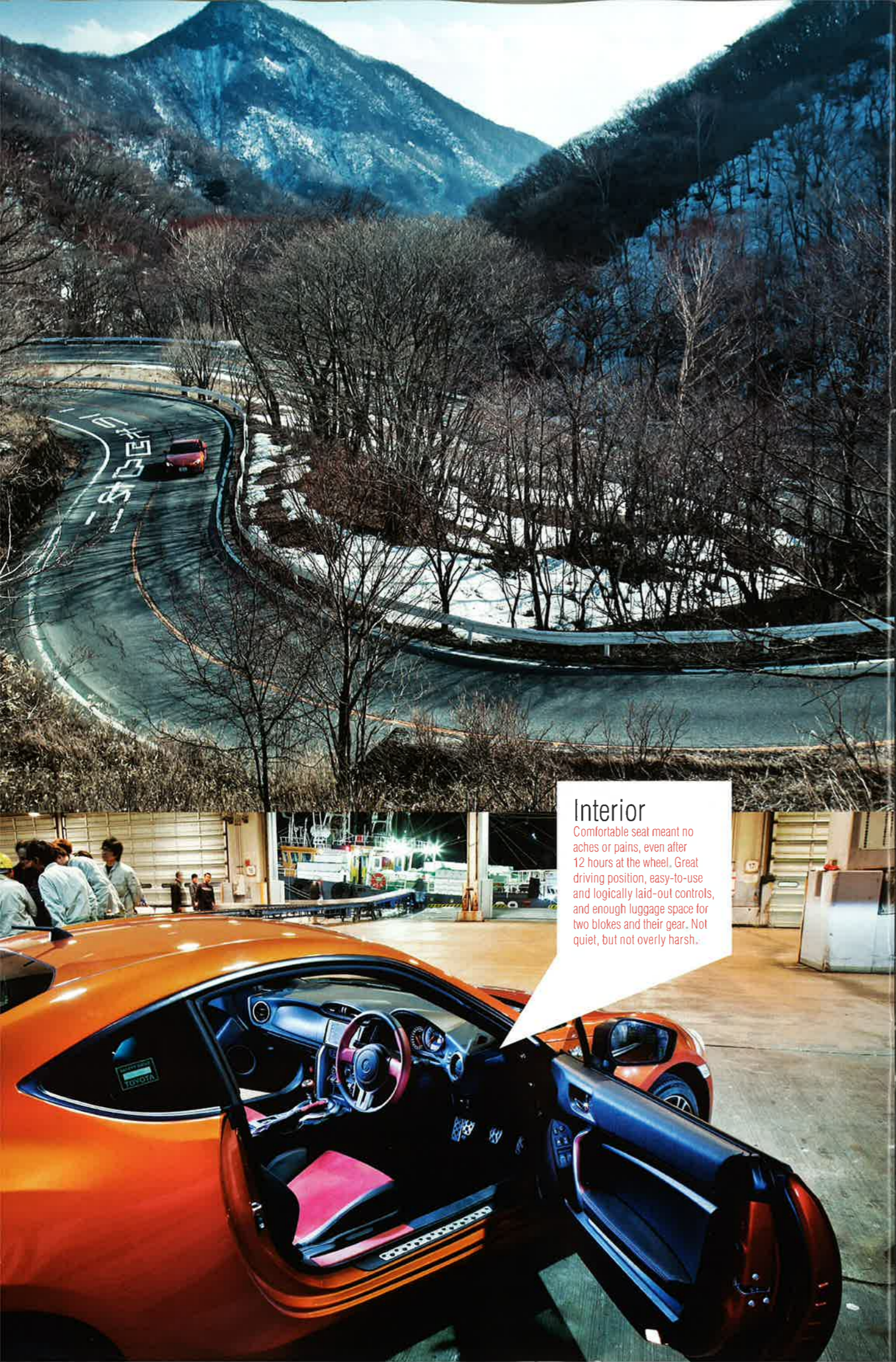


Cartoon figures

Cartoon artwork is used everywhere in Japan – from the back of trucks, to warning signs on the road, to company logos and official documents. The warnings for impending dangerous corners are often brilliant, with a large explosion marking the tricky bit.



Total cover Total 273.5 Fuel 7.7L/h



Interior

Comfortable seat meant no aches or pains, even after 12 hours at the wheel. Great driving position, easy-to-use and logically laid-out controls, and enough luggage space for two blokes and their gear. Not quiet, but not overly harsh.

crossing, an old motorbike left in a garden, small shrines and statues. A gigantic pile of debris lies nearby, three storeys of it. And this is but one spot along 600 kilometres of stricken coastline, hit by a wave that in places was 40m high.

Hironori Adachi, a Toyota engineer accompanying us in the support car, tells of how he and his wife came to a place north of here from his home in Nagoya, 700km away, to help. He did it for seven weekends – Friday night on the bus overnight, clearing up Saturday, back overnight and home Sunday morning – and there were many thousands like him.

Heroes like Adachi and the work he did make our journey seem insignificant, but it was important to come here.

AKAGI

Another fast 350km freeway stretch took us to meet Akagi and Tsuchiya. Akagi is an 1828m mountain in Gunma Prefecture, while Keiichi Tsuchiya, the Drift King, is one of Japan's most famous racing drivers (see panel, right). Running up the side of Akagi to Lake Onuma is a 'tougé' or 'toge' road – 'toge' is Japanese for 'pass' – made famous by the popular Initial D drifting cartoons and console games. The manga cartoons draw this stretch of road, and the games digitally capture it.

Tsuchiya pays me the great honour of letting me drive his personal AE86. Tuned to 150kW and fitted with trick TRD (Toyota Racing Development) suspension, it is a masterwork of old-school simplicity. Short wheelbase, quick but heavy unassisted steering, lightning-fast gearshift, limited-slip diff, plenty of power delivered by a screaming 1.6-litre donk. The old Hachi-Roku is a raw animal, full of the spirit Toyota is trying to capture with the new one.

Tsuchiya tells us he learned to drift on a road like this. Young guys come up here to attack it most nights, he says, but the cops tend to leave them alone. No doubt the roar of boxer fours will be a more common sound echoing through these hills before much longer...

A few runs up the road demonstrate the supreme poise of the new 86, which has plenty of grunt for this kind of work and always feels light and nimble. Use the gears, rev the engine, and it delivers – with an ideal balance between chassis, power and tyre grip. A turbo is not necessary. We bid farewell to Tsuchiya – we'll see him again soon enough.

Our overnight stay is in Takasaki. Here we are on the western fringe of the giant Greater Tokyo metropolis, 13,555 square kilometres and home to 35.6 million souls. With a population this size, traffic is often horrendous, but we hit none of it, even at peak hour in the afternoon.

The driving standards in Japan are high – common courtesy and strict adherence to the rules keep things moving, and despite most people's need to make progress, we encountered no aggression or impatience. Takasaki, like every other Japanese city, is comfortingly quiet, too. No blaring horns, very few sirens. If you've never considered this country for a driving holiday, I recommend you start planning it now.

FUJI

It's raining at Fuji Speedway and that suits us just fine. We're here for some drifting on the small, custom-built drift circuit beside the main straight of the GP track. The design was overseen



THE DRIFT KING

YouTube search 'Keiichi Tsuchiya Drift Bible' and you'll soon learn what the Drift King is all about. One of the pioneers of the D1 drift series in Japan, and the chief instigator of its introduction to the United States, 56-year-old Tsuchiya is a major celebrity in his home country and one of the most celebrated Japanese racing drivers ever.

He taught himself how to drive through illegal street racing in an AE86 Sprinter, before trying his hand as a professional. He was soon winning races and worked his way through Japanese F3

and touring cars, before going on to works drives for Honda and Toyota in endurance racing.

His most famous result was in the 1999 Le Mans 24 Hours. His Toyota works team mate Ukyo Katayama was gaining on the leading BMW in the final hour, before being forced off the track. Tsuchiya and Toyota were forced to settle for second.

Tsuchiya is closely involved with motorsport and manages Japanese drivers. "They tend to lack aggression," he says, a quality the Drift King was never short of himself...





TADA: MR 86

The Chief Engineer of the 86 program, Tetsuya Tada, is frank about Toyota and how his sports car is changing its image.

"For too long, everybody has been saying Toyota is really boring," says Tada. "And of course, they had a point. But the boring era of Toyota is now over."

"Making that change isn't down to individuals – it's a corporate direction. The company itself is trying to actively change, under (CEO) Akio Toyoda's guidance."

One of Tada's earliest memories was of his father bringing home

a twin-cylinder Publica coupe, forerunner to the classic boxer 800 sports car which partly inspired Tada's thinking on the 86.

"I thought, wow, that's a car! I was talking to my father about my making a car like the one he bought that time. It's fate."

How will this new driving spirit manifest itself in other Toyotas? "Keeping the centre of gravity as low as possible, for example – that has been done on the Prius C hybrid as a direct result of our work on 86. Mr Toyoda wants us to utilise this kind of thinking."



by the Drift King himself and it's all you need, with two wide corners at each end for long power slides, and a series of switchbacks between them for transition work. There is enough length to get deep into third gear at one end of the straight, while the corners are taken in second. Tyre barriers line the perimeter and they look worryingly close at speed...

First, I ride shotgun with Drift King in a red Hachi-Roku. He is all precise motion and economy of movement as he sets up a perfect slide into the first switchback with a jab of throttle, boxer-four roaring near the limiter, then transfers from one yaw angle to another with a throttle lift to take the next apex, inside front wheel running over the kerb neatly. He is working way ahead, lining up apices from what seem like vast distances away, correcting quickly, sideways pretty much all of the time.

Tsuchiya uses three main techniques to get the car out of shape: throttle, hitting it early and sending the rear wide or lifting off to do the same mid-corner; clutch kick, a quick jab at the clutch to momentarily cut drive to the rear wheels and unsettle the car; and handbrake, of course, which locks the rear wheels. He is effusive about the balance of the car, especially the accuracy and directness of the steering. That's to be expected – he was a close consultant during the development of the 86 and knows chief engineer Tetsuya Tada well.

Now it's my turn, with Japan's greatest drifting legend in the passenger seat. He's brave, this Tsuchiya bloke. It's only now, once I'm attempting the techniques myself, that I appreciate how skilled the man sitting beside me is. The handbrake requires the most deft, delicate touch imaginable – a tiny lift of the lever with the car under load,



and the rear end is set free and you need to correct instantly or you're spinning. I spin a lot. It's hellishly difficult to get the feel for it.

Still, the car makes me look better than I am and is faithful to the end, seemingly happy with this kind of abuse. Tsuchiya is polite and compliments me on my timing. I am realistic and declare myself a muppet.

Tada arrives and we take his photograph with 12 AE86s, whose owners have joined us for some fun on the track. It's the most memorable part of the trip, seeing these sensational little cars screaming around, engines at peak revs, opposite lock dialled in, Tsuchiya out among them in the new 86.

Watching all this going on before we leave for Kyoto, 380km to the west, I put it to Tada that in 20 years, this kind of event may be dominated by many of his own 86s, tuned and bodykitted and loved.

"That is my dream," he says with a smile.

TAIHEIYO

Next morning we take in the sights of Kyoto, ancient capital of Japan and home to myriad temples. It is cherry blossom season and the car is admired by the crowds wherever it goes, artistically Japanese in style, but not trying too hard. The sharp, raised wings on either side of the bonnet are one of my favourite features, especially viewed from the driver's seat. A year wouldn't be enough to fully take in this magnificent place – we have an hour.

Back to the Sanyo Expressway. We're heading for Shimonoseki, 550km away at the far end of Honshu. We are now deep into the Taiheiyo Belt, the long strip of densely populated industrial cities running 1200km along the Pacific coast from Tokyo to Fukuoka, home to 83 million of Japan's 127 million

WE STOP AT
HIROSHIMA
AND VISIT THE
PEACE MEMORIAL
BUT THE LOCALS
ARE MORE
INTERESTED IN
THE TOYOTA 86



GENERATION

Are the young people of Japan falling out of love with cars? Ask Tetsuya Tada and Keiichi Tsuchiya that question and they'll tell you it's mostly down to young drivers not having the right type of cars to buy. The owner of the Supra (below) was just one example of many young blokes we met on this trip who'd held on to older rear-wheel-drive cars because they had no choice with new ranges.

"It's not that people are finding other things to do," says Tada. "It's more that the

manufacturers, including Toyota, have not been producing fun-enough cars. If we people would be interested

He's confident the 86 can change all that. And options like customisation, from colour like TRD, have been made available from the very start the car went on sale.

"We spoke to tuners who developed the car," says Tada. "We made sure we provided a good base for them to work on. We hope that buying the 86 is just the start, especially for younger customers."





THIS ROAD IS
TREMENDOUSLY
ENTERTAINING,
WITH STICKY
DARK TARMAC
AND YELLOW
MARKINGS FOR
THE SNOW

people. The car is unstressed at 130km/h, rolling along at 40km/h per 1000 revs in sixth gear. Importantly, the 86 does the boring stuff with ease. While far from quiet, the noise in the cabin isn't wearing. There's plenty of space for the two of us and our gear, and we remain comfortable in these terrific seats for hours on end. One of the car's most endearing qualities is its unending focus on the critical things about driving. Perfect seating position, lovely-feeling wheel, a tight, short-action gearshift and smaller touches like the padded doors and centre console to rest your legs against. Visibility is good in all directions. It's clear this car has been created by enthusiasts and I have no real complaints, other than the engine note, which is too weedy and thin at lower revs. Could do with a deeper thrum. A new exhaust system would do the trick... We stop at Hiroshima and visit the Peace Memorial and the Atomic Bomb Dome, a government building which survived the blast in 1945 and the starkest reminder anywhere of the horror of nuclear weapons. The locals are more interested in the car... After crossing onto the southern island of Kyushu the next morning at Kanmonkyo Bridge, the scenery changes to rolling brown egg-shaped hills wrapped in cloud, much like the Scottish Highlands. Is there no end to the surprises this country serves up? Day five has been easy and short, so we photograph the car at night in a forest. The more I look at it, the more I like this 86's lines.

KYUSHU
The car's exhausts are steaming as it warms up in the morning air of Yufu, in the hot spring zone in the centre of the island. We roar through the rich forests of Aso-Kuju National Park and on to our last 'tough' road approaching Mt Aso, the largest active volcano in Japan, 1592m above sea level.

Again, this road is tremendously entertaining, one of the best I've tried anywhere, with sticky dark tarmac, yellow markings for the snow and plenty of positive camber through the corners. A few more hours and we're on lower ground, spearing due south on the Kyushu Expressway towards Kagoshima. We can sense the end of the trip now and it spurs us on. A long tunnel at Mt Kunimi ejects us into a tropical paradise, with palm trees lining a sparkling sea. From rolling, cold highlands to the tropics in half a day? That's Kyushu. At the town of Kajiki we turn left to head around Kagashima Bay towards Cape Sata, past the active volcano Mt Ontake, spewing sulphur far into the sky. This feels a long way from the snowstorm back in Sapporo. The narrow Sata Highway meanders its way around the coast, past fishing villages and paddy fields. The car is still immensely popular. When we arrive at the entrance to Cape Sata car park, we discover that after 3510km and a week of driving, we are 10 minutes late. A woman is guarding the gate from a position of ultimate power in a wooden hut, and no amount of argument will convince her that we should be allowed to drive 200m farther up the road to the end. We'd driven all the way from Sapporo in a flash car but that didn't mean we were more important than her. She was simply doing her job - another day of work among millions from one end of this great country to the other. So we take a photo and our 86 waits for one last time, somewhat more patiently than the woman in the hut. It had transported us here with deft ease, through ice, snow, rain, sleet, sun and sulphur, and averaged an astonishing 7.7L/100km doing it. If I'd ever felt more attached to a car, I couldn't remember it. Our trip was at an end, but I sense the Hachi-Roku's journey is only just beginning... ♡



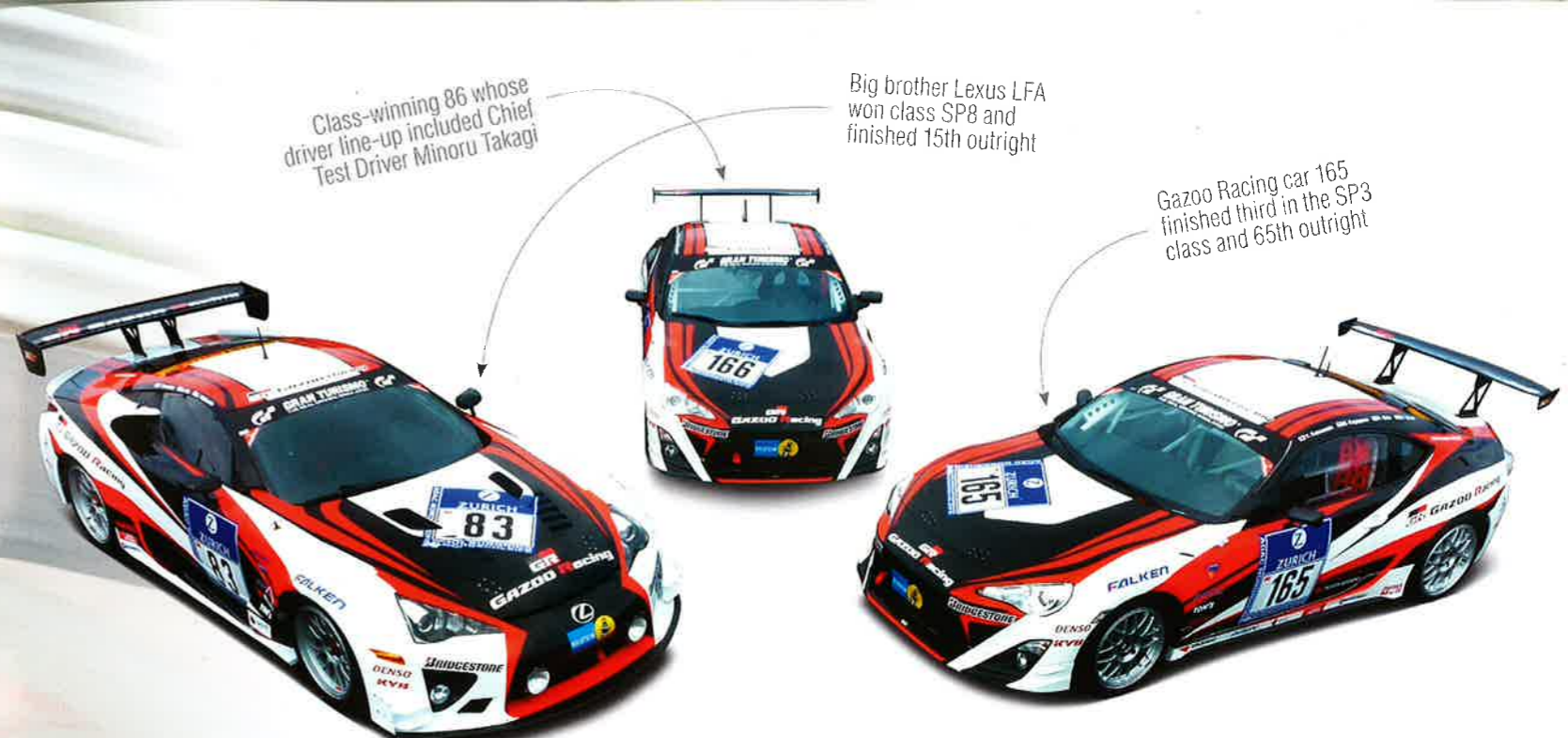
ようこそ
かごしま
黒潮あどる本土最南端佐
WELCOME TO KAGOSHIMA
SURGING THE BLACK CURRENT THE MOST SOUTHERN
POINT OF JAPAN PROPER. CAPE SATA.



Vending machines
There are about 5.5 million vending machines in Japan, selling everything from soft drinks to underwear. It says everything about the society that although they are outdoors, we didn't see a single one that had been vandalised or graffitied.



佐多岬展望公園
入園券売場
料金 大人 500円 小学生 250円



Winning ways



WORDS JESSE TAYLOR

Two weeks after the European launch of the 86, Toyota gave the car a very public outing at the Nürburgring 24-hour

AFTER THOUSANDS

of test kilometres at Germany's Nürburgring, it's little surprise that four Toyota 86s lined up in late May for the 40th running of the Nürburgring 24-hour endurance race. Two lightly modified 86s were fielded by the semi-factory Gazoo Racing team in the SP3 class, while two near-standard showroom 86s contested the V3 class under the umbrella of Toyota Swiss Racing.

Unfortunately one of the Toyota Swiss entries DNFed after just 11 laps of the 25km circuit, which combines both the Formula One Grand Prix track with the infamous 21km of the Nordschleife. Better news for the second Toyota Swiss entry (car 200 below left) which won the V3 class completing 119 laps for a total distance of 2975km.

But it was Gazoo Racing's day with a first and a third for its brace of 86s in the SP3 class. The winning car (number 166) was driven by Hiroaki Ishiura, Kazuya Oshima, Takuto Ihuchi and 86 chief test driver Minoru Takagi. Having started in 117th place with a 10minute 13.87 qualifying lap, car 166 steadily worked its way through the

240-car field and completed 129 laps for a total race distance of 3225km; or just 26 laps behind the outright winning Audi R8 V10 LMS Ultra. Of the 240 starters, the three surviving Toyota 86s filled positions 46, 65 and 78. Who says you need bulk horsepower to have fun and be quick?

Completing the brilliant day at the office for Gazoo Racing, its Lexus LFA (car 83) won the SP8 class and finished 15th outright on 147 laps.

Expect more than four Toyota 86s to line up for next year's Nürburgring 24-hour. You'd also have to bet that Australian race teams will soon be preparing 86s for the 2013 Bathurst 12 hour...

Trophy cabinet

It's no secret *Wheels* thinks highly of the 86's dynamics, but perhaps the highest praise the 86 has earned so far is Car of the Year from *Vehicle Dynamics International*. The 86's engineering team also took out *Dynamics Team of the Year*.

Graham Heeps, editor of *Vehicle Dynamic International* magazine explained the decision: "In the face of rising power outputs and greater levels of complication in the drivetrain and suspension, cars that take a less-is-more approach and offer fun at legal speeds have been thin on the ground. Tetsuya Tada has created a car that eschews the never-ending quest for ultimate grip in favour of balance, response and driving pleasure at realistic speeds."

