



THORNLEY KELHAM

THE DESIGN. THE DETAILS.  
THE DRIVE.

# THE EUROPEAN R S

A PORSCHE 911 STUDY

REDEFINED. RE-ENGINEERED. REIMAGINED.

THE MOST

# ENGAGING CAR

I'VE EVER

# DRIVEN

**Elliot Hughes**  
Magneto Magazine



THE NUMBERS

385 BHP  
peak power from 3.8 litre engine

24  
valves in 3.6 litre &  
4 litre engine options

1,070 KG  
weight including fuel

1,200  
hours spent in the paintshop



15  
strictly limited  
production run

6,000  
hours to restore and modify

10,000 RPM  
maximum rpm from 3.6 litre engine option

*Our mantra for everything we do is*

# THE DESIGN. THE DETAILS. THE DRIVE.

Reinterpreted and reimagined by our team of designers and engineers using cutting-edge technology, and meticulously restored by hand using the very same craftsmen and techniques that have won Thornley Kelham major concours awards throughout the world. Every one of these cars takes nearly 6,000 hours to refine in our relentless pursuit of perfection.



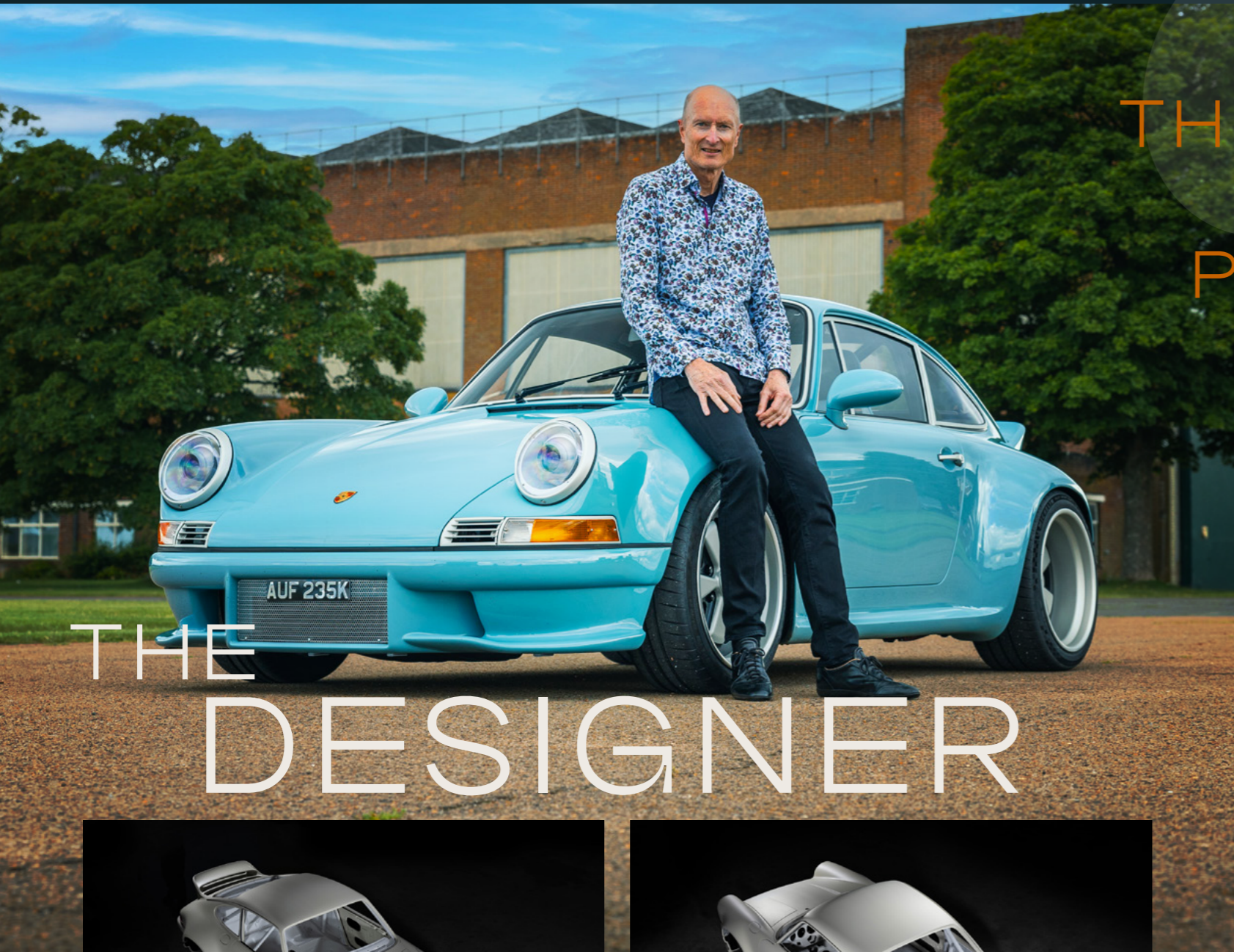


# WHY A EUROPEAN RS



Porsches are cool. Porsches are enduring. The 911 is arguably the ultimate, and certainly the most successful, sports car ever. The sheer number of original unmodified Porsches from 1965 to the present day being *driven* is testament to the eternal attraction of the Neunelfer. So it is no surprise that the 911 is also probably the most modified car on the planet – from highly personalised individual ‘Outlaw’ interpretations to re-engineered and detailed commercial reinterpretations produced in significant numbers.

So why another one? At Thornley Kelham we are long term classic – and modern – 911 owners and enthusiasts, and we have worked on many examples over the past 15 years. When we were approached by a (slightly fanatical) client, for whom we had previously painstakingly restored an Aston Martin DB4 from the ground up, with an idea for a new project – we had to listen.



# THE OBSESSIVE, SINGLE-MINDED PURPOSE AND QUEST FOR PERFECTION

## THE DESIGNER

“That was my aim from the start.  
Let’s break it down.

Thornley Kelham has demonstrated its talent by growing from a chance meeting between Simon Thornley and Wayne Kelham twenty years ago, to a team of over thirty of the most skilled people in their respective fields, restoring some of the world’s finest classic cars to the highest standard. However, utilizing breadth of ability to restore models across a wide range of marques slows recognition compared to concentrating on a single marque. That is about to change with the launch of their ‘European’ collection of highly modified classics.

To assess our direction, Simon Thornley and I often asked ourselves, why would one choose a Porsche 911 European RS over the established restomod brands? Why not one already famous for its style and build quality or one with an even lighter weight or higher rev limit?

My answer: the 911 European RS is like a Romanée-Conti wine: elegantly structured and perfectly balanced.

Style, detail, build quality, ergonomics, controls, handling, performance and durability are all at the same high level to give thrills and satisfaction in equal measure so that you will never think, ‘this is amazing; if only it was a little more...’.

Also, like a Romanée-Conti, it is a significant investment. To protect it, only the prototype and a maximum of 15 customer cars will be produced.



# MAXIMUM THROTTLE STEERABILITY IS A PRIORITY

More than half a century after its launch the 1973 Carrera 2.7RS is still regarded by many as the ultimate driver's car. It was used to homologate the '73 Carrera RSR 2.8, which dominated in endurance racing in its debut year. As the most highly evolved 911 in the original style, and with a naturally aspirated race motor, I find the 2.8 the most charismatic 911. It is also the most exciting I have driven. It is the primary inspiration for this design.

However being a race car, the motor is too highly strung for the road and refined detailing was not a priority. The beauty of a restomod is being able to combine classic rawness with refinement by keeping the light weight and involvement and adding drivability, elegance and improved aerodynamics. I chose my 997 GT3 RS 4.0 as the benchmark and together with Thornley Kelham worked to match its captivating performance, precision and progressive handling while ensuring The European RS still fizzes with old school character”.

**Hal Walter**  
Designer



RE-WRITING THE  
RULES FOR

# MODIFIED CLASSICS





# THE DRIVETRAIN

The 993 type G50 6 speed gearbox is the same weight as the G50 5 speed used from 1987 and is only 10kg heavier than previous type 915 5 speed. It will require less power to achieve the same acceleration as the 5 speed and will provide the pleasure of close ratios.

Lowering final drive from 3.44 to 4.00 combined with a higher rev limit than 6,800 rpm the European RS approaches maximum in-gear speeds of the 993 RS and gives shorter ratios for faster acceleration and a more involving driving experience. At equal revs, speeds in each gear are similar to the 997 GT3 RS 4.0 except our 4th and 5th are lower for same reason. At 3500 rpm in 6th, it equates to 125km/h / 79mph in the European RS and 127km/h / 78mph in the RS 4.0.



## Differential

Limited slip differential by Wavetrac. Unlike other gear differentials it provides torque to an unloaded wheel, under acceleration and deceleration. Unlike a plate differential it is maintenance free, and always transfers torque smoothly, ensuring predictable, progressive handling even with a short wheelbase and wide track.



# THE ENGINE

## STANDARD ENGINE

993 base engine architecture

102 mm x 76.4 mm bore and stroke – 3746 cc

11.8:1 compression ratio

Power 360+ bhp at 7,600 rpm, 310 ft/lbs torque at 5,000 rpm

7,800 rpm rev limit

996 GT3 steel crank, Pauter steel rods, Forged pistons with new cylinders. High capacity 996 GT3 oil pump assembly

Single mass steel flywheel with uprated clutch. Balanced both individually and then as an assembly for smooth running.

Billet CNC ported 12 valve cylinder heads, optimised internally by TK to increase flow and hit TK targeted port velocities. Larger intake and exhaust valves, factory Le Mans spec, closed by uprated valves springs and titanium retainers.

TK spec camshafts operating DLC coated forged mechanical rockers.

Crank cases modified to optimise internal air management. Bearing clearances optimised. All new case hardware fitted, along with new oil squirt jets.

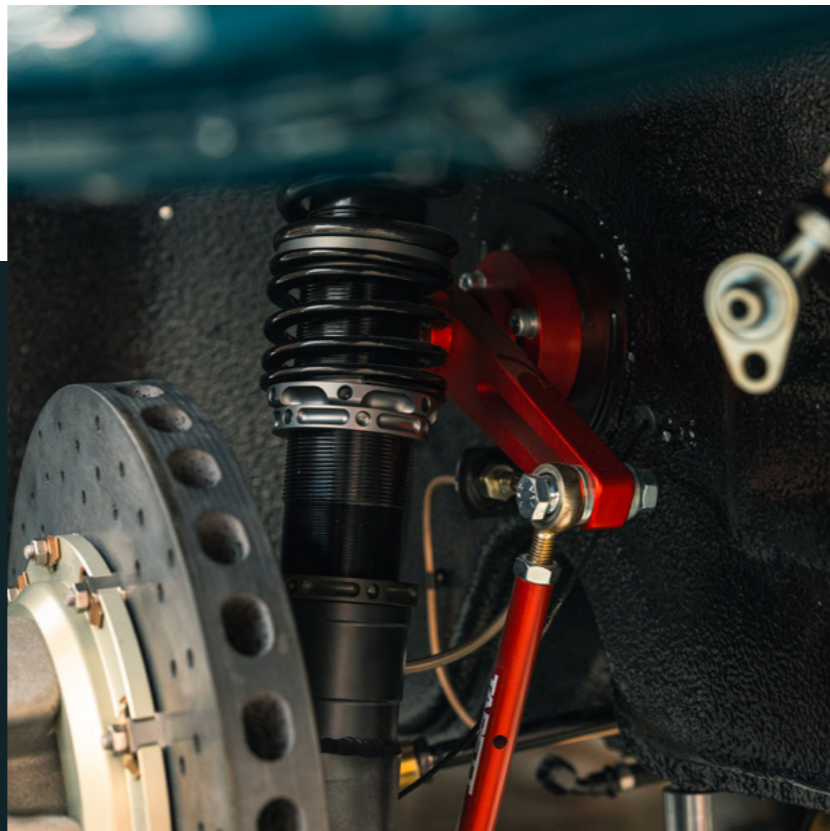
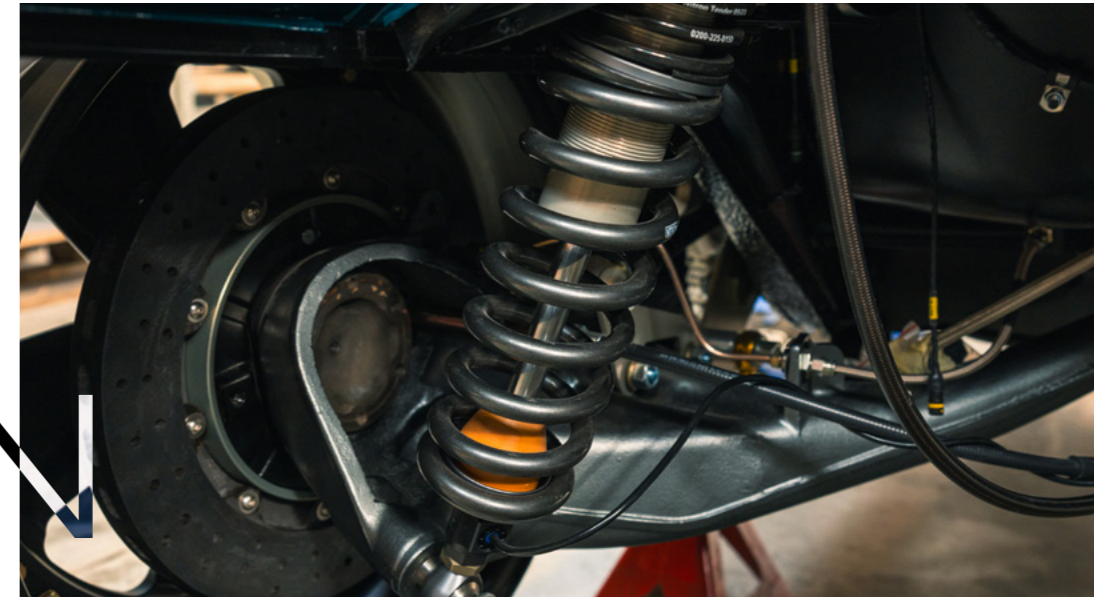
Breathing through individual 51 mm tapered throttle bodies, fed from a bespoke air filter housing per side and exhausted through a bespoke inconel/titanium exhaust system, the engine fuelling is optimised by a closed-loop Lambda sensor and thermocouple per bank. Closed-loop knock sensing per bank included.



PEAK POWER 385BHP  
AND 295LB-FT  
OF TORQUE



# THE CHASSIS SUSPENSION



## OVERVIEW

Chassis fully seam welded with additional strengthening gussets

Bespoke braced rear roll cage with harness bar

Full front quick change strut brace system

Suspension fully rose-jointed

Hollow adjustable anti-roll bars front and rear

Rear coilover crossmember reinforcement kit

Rear torsion tube spring plate mounting bosses. ASP rear adjustable spring plates. Factory spring plate poly bronze bearings.

Trailing arm sealed monoball cartridges

Racing Bump steer kit, weld-on steering knuckle

Turbo tie rod kit. GT3 Front suspension system.

Quick-change camber plates. 935 X quick change front strut brace system.

Rear trailing arms: Later model, aluminium to save weight and increase stiffness.

# THE ELECTRONICS

## OVERVIEW

Life Racing F88 motorsport ECU.  
Time and event-triggered internal data logging that can monitor hundreds of channels at up to 1000Hz including input voltages, calibrated sensor readings, intermediate results and control outputs.

Life Racing PCM (powertrain control module)

Life Racing X10 expander box

Life Racing PDU-C06 – PDUX2 – High-Performance Power Distribution Unit

Drive by wire E46 BMW M3 actuator and tps sensor

Life Racing bespoke motorsport-grade loom

Wiring connectors: Deutsch auto sport for the three connectors visible with engine lid open

ECU Map switch

Traction control: 12 stage, supported by ECU and operated by a rotary switch — see INTERIOR Switches.

Immobiliser: Thatcham Category 2 approved. 2 coded transponder tags. Passive immobilisation 60 seconds after turning off ignition, or instantly once driver's door opened.

## AS FITTED SENSORS

GPS/G

MAP (manifold absolute pressure) sensor for each bank

Barometric pressure sensor for altitude compensation

Air temperature

Oil pressure

Oil temperature

Fuel pressure

Crank position

Lambda probe

EGT

Engine temperature (head) to be calibrated by Life racing in Environmental chamber

Engine knock

Belt failure warning

Throttle position

Wheel speed

Brake pressure for data logging

Suspension travel sensors





INDIVIDUALLY  
TAILORED TO  
YOUR PERFECT  
DRIVING POSITION

#### OVERVIEW

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Redesigned throughout

---

One piece carbon seats for lightness

---

Connolly leather interior with various combinations of materials

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Alcantara/cloth headlining

---

Full sound-deadening throughout cabin

---

4-point harnesses or 3-point inertia reel seatbelts

---

Air conditioning/climate control

---

Original gauges, fully reengineered

---

Choice of dashboard finishes: painted, engine-turned, engraved

---

Upgraded ICE/communication system with Bluetooth etc

# THE INTERIOR

# WEIGHT SAVING PROGRAMME



Reducing weight creates a virtuous cycle. Every saving reduces the power and braking required, reducing the engine and brakes sizes required, which reduces their weight, cooling requirements and loads on the suspension and chassis so they in turn can become lighter, further reducing the power and braking required and so on.

Most important is unsprung mass: the suspension, brakes and wheels. Olaf Manthey of Manthey-Racing says a reduction in unsprung weight is equivalent to removing six times that amount from the body of the car. It improves throttle and steering response and especially ride quality.

## WEIGHT SAVING MEASURES INCLUDE

- Lightweight early chassis
- Bespoke carbon fibre front and rear bumpers and engine lid and ducktail
- Polycarbonate rear quarter screens with scratch resistant coating
- Lightweight suspension
- AP Racing brakes
- Forged wheels
- Titanium wheel studs
- Motorsport wiring loom
- Lithium-ion battery with carbon case
- Later model door handles in MAZAK rather than brass
- No rear seats, ABS, power steering\* or media system  
\*available as options
- Rear roll cage in chromoly lightweight steel alloy
- Refined interpretation of RS 2.7 Lightweight interior detailing and insulation
- One-piece carbon-fibre bucket seats
- Aluminium seat mounting brackets with machined weight-saving openings
- Billet aluminium pedal box
- F1 quality bespoke full inconel and titanium exhaust system
- Lightweight single mass flywheel
- Aircraft grade billet fan pulley

## WEIGHT SAVING OPTIONS

- Air conditioning delete, which saves 14kg
- Carbon-ceramic brake discs. These save 17kg in unsprung mass over our standard system and 22kg over Porsche 'Big Red' brakes. As well as the six-fold importance of unsprung mass, carbon-ceramic discs last considerably longer and produce much less brake dust.
- Polycarbonate rear screen (non-heated)
- Aluminium doors and bonnet

## DIMENSIONS

- Height: 1,270mm
- Length: 4,166mm
- Width at front wings: 1,732mm
- Width at rear wings: 1,833mm
- Front track: 1,471mm  
(this is 112mm wider than the '72 911T)
- Rear track: 1,555mm  
(this is 214mm wider than the '72 911T)
- Wheelbase: 2,271mm
- Front wheels: 18 x 9" 18" is at the bead; overall rim diameter is 496mm. 3.5" outer rim, 5.5" inner rim
- Rear wheels: 18 x 10.5" 18" is at the bead; overall rim diameter is 496mm. 6" outer rim; 4.5" inner rim
- Front wheel offset: +18mm

# DETAILED ENGINE SPECIFICATION



## CAPACITY

Capacity 3745.7 cc

Bore 102.0 mm

Stroke 76.4 mm

Nominal compression ratio 11.8:1

## PISTONS

Mahle Motorsport forged pistons and Nikasil coated cylinders, 109mm spigot diameter

RS O ring cylinder sealing rings

TK bespoke second cylinder sealing O ring solution

## BOTTOM END

Crankcases are gas flowed ('boat tailed') to achieve less internal pumping resistance.

Genuine Porsche 996/7 GT3 crankshaft with 53mm big end bearings for lower surface speeds, combined with a wider big end width to gain back lost surface area.

Porsche Motorsport big end bearings

Porsche OE main bearing set

Pauter steel conrods to suit smaller diameter, wider big end pin and 22mm piston pin.

Lightweight single mass RS style steel flywheel saves 9kg and improves engine response and weight distribution.

Uprated heavy duty clutch assembly

Rothsport Racing RS style crank pulley

Rohler RS style lower speed alternator drive pulley

## HEADS

Billet cylinder heads

993 RSR factory 51.5mm intake valves

993 RSR factory 43mm Nimonic alloy exhaust valves

Bronze valve guides

Bronze valve seats for heat conduction

Filled port floor to optimise scavenging

Club race camshafts ground by Schrick GmbH, 300-degree x 12.5mm lift 110 LCA

Forged DLC coated rocker arms

Top end converted to solid lifters

Camshaft modified for oil feed due to deletion of hydraulic rocker arms

Titanium valve spring retainers

Club race springs to suit club race camshaft profiles

## HEADS CONTINUED

New timing chains and sprockets on both banks

New timing chain guides on both banks

New timing chain tensioners on both banks

New crankshaft timing chain sprockets

New crankcase studs and nuts

New cylinder head studs

New intermediate shaft bearings

New 996 GT3 high capacity oil pump assembly

## FUEL AND IGNITION

Jenvey individual throttle bodies. 51 mm taper bodies, low mounted to minimise negative cam characteristics at low rpm.

BMW E46 M3 throttle body actuator

Bosch fuel injectors

Cast intakes, CNC machined to match ports and throttle bodies

Ram pipes

Sytec fuel pump

Sytec fuel filter

3.0 bar fuel pressure regulator

Swirl pot to ensure no fuel surge

Sytec lift pump x2

Twin plugs

12 individual ignition coils on plugs

175A high output 6 phase alternator

Belt warning switch linked to ecu for safety trip action, engine to limp mode.

Fuel: minimum octane 97, maximum ethanol 5%

## CAMSHAFT COVERS

Rohler machined aircraft-grade aluminium billet. These replace original plastic covers to avoid leaking and allow weld-on bosses to hold coils for coil on plug conversion.

## ENGINE FAN

Porsche 993 RS magnesium. RS fan does not have central bearing for higher geared alternator of Carrera, which would overspeed with higher redline.

## ENGINE FAN PULLEY

Rohler machined from 7075 aircraft alloy, hard black anodised, half weight of Porsche pulley saving 115g.

TO ACHIEVE LIGHTNESS AND A  
PERFECT FINISH, OVER

2,500 HOURS

GO INTO THE BODY RESTORATION,  
PREPARATION AND PAINT







PORSCHE 911 EUROPEAN RS  
**OPTIONALS LIST**

CATEGORY	STANDARD SPECIFICATION	OPTION FITMENT
<b>Mechanical</b>		
Engine	3.8 litre 12v flat six (993-base architecture)	3.6 litre 24v 4.0 litre 24v
Engine Performance	385bhp; 295lb-ft torque, 7800rpm rev limit	3.6 litre: 380bhp+; 290lb-ft torque; 10,000rpm rev limit 4.0 litre: 425bhp+; 325lb-ft torque; 9000rpm rev limit
Transmission	5 speed manual 993 based; revised ratios	6 speed manual 993-based; revised ratios
Suspension / Damping	Reinforced chassis, GT3-derived suspension: JRZ Motorsport 4 way coil overs	Adaptive damping
Braking	Discs: Ventilated and cross drilled 2 piece steel by AP Racing, front 355 x 32mm, rear 330mm x 26mm  Callipers: AP Racing CP555 6 piston front, CP6603 4 piston rear, in red finish	Discs: Carbon ceramic, 322 x 32mm front, 322 x 28mm rear  Callipers: AP Racing CP5570 Family 6 piston front and rear, in red finish. Other colours optional.  Weight saving over standard spec. 17kg of unsprung weight
Exhaust System	Bespoke stainless steel sports system	Titanium/Inconel bespoke lightweight race system
Steering	Quaife quick rack and pinion kit with 2.5 turns lock to lock, down from standard 3.1 and a ratio of 14.4:1, down from 17.8:1.	Switchable speed weighted Electrically Assisted Power Steering
Wheels and Tyres	Wheels: Fikse 18" FFR model (Fuchs style), matt metallic nickel-coloured paint on petals on black anodised centres and on outer rims with bright lip, black inner rims), Soft Lip (Fuchs shape), 18" x 9"fronts; 10.5" rears  Michelin Pilot 4 S – All Weather	Various finishes eg. champagne gold, RSR silver  Michelin Cup 2 Connects- other tyre options available

CATEGORY	STANDARD SPECIFICATION	OPTION FITMENT
<b>Exterior</b>		
Paint Finish	See attached colour chart	Paint to sample, Two tone etc
Paint Engine Bay Body Colour	Black	Body colour
Decals / Lettering / Stripes		To customer specification
Exterior Bright Trim Finishes	Various paint finishes or chrome or bright nickel	Dark chrome, anodised, special finishes
Glass / Polycarbonate Windows	Clear laminated glass	Rear quarter windows in polycarbonate
Electrical	Smart Lithium Lightweight Battery	Superlight Lithium Motorsport Battery including charger
<b>Interior</b>		
Rollcage	Black	Body colour
Interior Bright Trim Finishes	Various special paint finishes, eg. RSR silver	Chrome, dark chrome, bright nickel, anodised or special finishes
Interior Trim Finishes	Premium leather	Connolly Leather, Alcantara, woven leather, two tone, cloth seat inserts (eg. Pepita) etc
Seats	Recaro Podiums – GRP Shell	Recaro Pole Position – Carbon Fibre Shell
Seatbelts	3-point inertia reel – black	RB Torino touring style seat with headrest Paint to body colour OR Touring style seat 4 point harnesses – black no cost option Other belt colours available
Air Conditioning	Twin condenser system	No cost delete
In Car Infotainment	Porsche Classic Media unit	Premium audio system
Comfort Package		To include heated seats, electric windows, central locking, heated front screen



CLASSIC ICONS  
MEET

# CONTEMPORARY DESIGN AND ENGINEERING



THE BEGINNING

# THE BEGINNING BE



TO A 9-YEAR  
OLD IT LOOKED  
LIKE A SPACESHIP

**B**ack in 1965, growing up in the North of England, my uncle turned up at my gran's house one cold December night to take me for a ride in his new car. A pale blue metallic Jaguar E Type coupe. And on those grey streets, parked among Rovers, Fords and Vauxhalls, to a 9-year old it looked like a spaceship – a mythical supercar I'd only stared at in magazines, and never expected to actually see – let alone ride in. It was a 'life moment' for me, and one that's undoubtedly informed the European Collection of cars we've spent the past four years perfecting. How do we recapture that glamour, that wide-eyed excitement and overwhelming sense of experiencing something familiar, but entirely different?

One thing I knew was that the current line up of legislation-restricted hypercars wouldn't do it. Astonishingly capable and technically brilliant, yes, but lacking in purity, thrill and emotional connection. Instead, we imagined a range of '50s and '60s automotive icons. Taking original examples of each model, we work with professional designers and then restore and modify each example, harnessing modern technology and the highest engineering methods. We apply the same concours -winning standards that we have applied to every classic car restoration over the past 16 years.

In a 'European' model, character and nostalgia meet today's engineering and technology, combined with world-class craftsmanship and attention to detail. A joyous celebration of one of the greatest eras of automotive innovation and design, crafted for the 21st Century enthusiast owner.

**Simon Thornley**  
Co-founder

# THE EUROPEAN COLLECTION

A celebration of a golden era in European car design – the mid-twentieth century; a period that delivered some of the most beautiful cars of all time, including the Jaguar XK120, Aston Martin DB4, Lamborghini Miura, Lancia Aurelia B20GT, Ferrari 250 GT, Porsche 356 and Mercedes 300 SL ‘Gullwing’.

Our European models take everything that made these cars so special and redefines them for the conditions – and expectations – of today. More practical, more spacious, faster, sharper, and more reliable, but just as beautiful and engaging as the cars that inspired their creation.



THE EUROPEAN RS



THE EUROPEAN GT

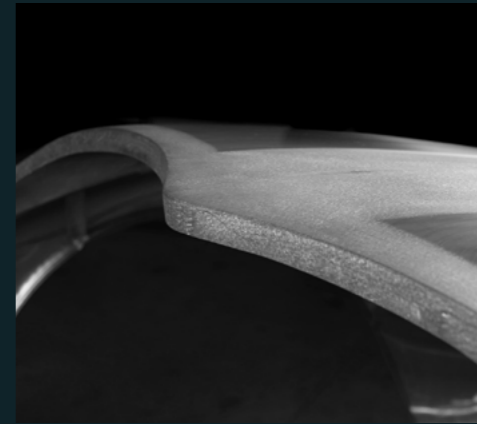


LANCIA AURELIA B20GT OUTLAW



THE EUROPEAN SL

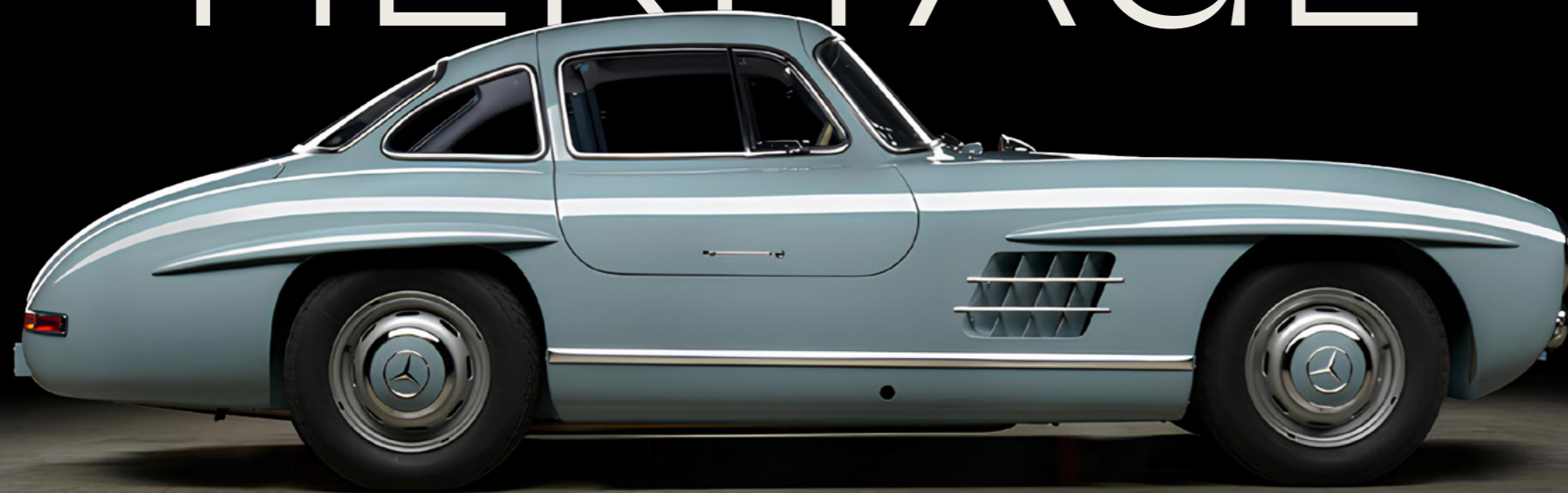
## EACH CAR TAKES AROUND 6,000 HAND CRAFTED HOURS TO PERFECT



THE EUROPEAN COLLECTION  
HANDCRAFTED BY THORNLEY KELHAM



# THORNLEY KELHAM OUR CONCOURS HERITAGE



MERCEDES 300SL 'GULLWING'

THE DESIGN. THE DETAILS. THE DRIVE.

All the engineering, design and hand craftsmanship for the European line-up is undertaken in Thornley Kelham's workshops in the heart of the Cotswolds in England.

From this base, the team of over 30 has been restoring, upgrading and rallying some of the rarest and most iconic classic cars for more than 15 years. Passion and perfection defines everything Thornley Kelham does.

Where many businesses choose to outsource their craft, Thornley Kelham has in-house bodywork, paint, engine and fabrication shops to closely monitor the quality of every piece of work that goes into completing a car.



# WORLD-CLASS SPECIALISTS IN THE ART OF RESTORATION

PORSCHE 356A SPEEDSTER



FERRARI 250 GTE



BIZZARRINI GT STRADA 5300



Thornley Kelham are world-class specialists in the art of restoration, working on historically significant cars from Alfa Romeo, Aston Martin, Bentley, Ferrari, Lancia, Lamborghini, Mercedes-Benz, Rolls-Royce and Porsche, as well as lesser known marques such as Amilcar and Bizzarrini.

The attention to detail and quality of the craftsmanship in each restoration has ensured our work has won awards from globally renowned concours events, including Pebble Beach, the 'Royal Concours' at Hampton Court Palace, Chantilly, Villa D'Este and Salon Privé. Its Bizzarrini 5300 GT Strada restoration was also named 'Restoration of the Year' at the International Historic Motoring Awards.



# MINUTE THE GREAT HOUR COURT FOOT

## CONTACT US

We believe that every step of specifying and ordering your European RS should be as enjoyable and memorable as the moment you settle into the driver's seat for the first time, and our expert team will be delighted to discuss your requirements and work with you to tailor the perfect specification for your commission.

We take great pleasure in inviting customers to visit our Cotswolds Headquarters to show them around the workshops and introduce the people who will be responsible for handcrafting their car.

To discuss your requirements or to make an appointment to visit our headquarters, please contact us by telephone or via email:

Call: **+44 (0)1285 869791**  
Email: **simon@thornleykelham.com**

**thornleykelham.com**

## COME AND SEE US

Our headquarters is well-served by road and train services from London and regional airports. There are also two private airfields nearby, suitable for aircraft and helicopters respectively. We will be delighted to help you with your travel arrangements.

Thornley Kelham  
Drake House  
Lakeside Business  
Park Broadway Lane  
South Cerney  
GL7 5XL, UK

## OUR GLOBAL DISTRIBUTORS

To ensure we also offer the highest levels of customer service for our customers worldwide, we are in the process of appointing an exclusive network of specialist overseas distributors, all committed to delivering the same unrivalled standards that Thornley Kelham is renowned for.

US Distributors:  
O'Gara Coach Inc  
8484 Wilshire Blvd  
Beverly Hills  
CA 90211 USA

Call: **+1 (858) 454-1800**  
Email: **parris@ogaramotorsport.com**

ROW enquiries:  
LaSource.co.uk

Call: **+44 (0)7554 499480**  
Email: **james.banks@lasource.co.uk**





# THORNLEY KELHAM

THE DESIGN. THE DETAILS.  
THE DRIVE.

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