

# MOTO GUZZI

*News Express*

The Ontario Guzzi Riders - 2018 SPECIAL EDITION - N°8



**The Midual Type 1**  
French Luxury in Motorcycle



## ONTARIO GUZZI RIDERS

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### COVER PAGE

The Midual Type 1  
Engine

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# SPECIAL EDITION MOTO GUZZI News Express



Not too many products can excite my senses the way the Midual Type 1 did. Once in a while a product rise to a level of perfection never achieved before.

Today I am bringing you to the world of the Midual Type 1. This French motorcycle is not for the regular Joe.

This bike is a jewel and like all masterpieces the price tag is there too. Think of it as the Bugatti of motorcycles.

After Dior, Cartier, Chanel, Don Perignon, Bugatti and Grey Poupon, France is also sharing another unique creation, that will put you above all if you can afford it...

In the following pages, you will discover the creation, the vision of a man, the knowhow of the workers, the excellence of the craftsmanship and the history behind the name.

Charles Jacob (an executive from Midual) has been kind enough to share his thoughts with us on the Type 1. His words will unveil a passion on the story of the bike, the people behind it. From the conception to the production, with him you will discover that excellence and savoir faire still exist in today's world.

I wish I could have a tour of the factory and feel the pulse and passion within all its workers when they are putting together the 1393 parts that makes the Type 1.

This bike is not a Guzzi, but this new flat twin motorcycle deserves the recognition and acknowledgement of a job well done. Bravo Midual...

I hope you will enjoy these pages on the Midual Type 1, it was quite exciting to put together this "Special Edition" and share with you a moment in the History of Motorcycle.

The Special Edition, delivers what the newsletter does not have... A view on the creativity of mankind...

Till next time... Ed.

*Pat Castel is known for his involvement with the MOA organization as well as his Editor position in many past and present club newsletters. He began riding five decades ago and spent his youth surrounded by BMW, Moto Guzzi, BSA, Motobecane and Peugeot motorbikes and remains as much in love with motorcycles as when he first got his first 49cc Mobylette.*

# THE STORY OF A MAN



## OLIVIER MIDY

INHERITED HIS GRANDFATHER'S LOVE OF ENGINES, DISCOVERING THE MOTORCYCLE AT A VERY YOUNG AGE.

An incurable enthusiast, Olivier rode on small country lanes. He learnt all about the history of the motorbike by reading and from the people he met, and at 26, he began designing an engine with a new architecture, bringing an engineer friend and then his older brother François along for the adventure.

In 1995, he filed a patent for a new “architecture of an internal combustion engine for the motorcycle”, which did not exist in the production processes of the time.

It would take some 18 months to make two life-sized models for presentation at the Salon du Deux-Roues motorcycle fair in Paris in 1999.

The MIDUAL 900, as it was named at the time, was a hit with both the public and the critics.

In the end, no financing was obtained to develop this first model, but the MIDUAL project was to continue with the construction of the first engine.

AFTER SEVERAL YEARS ON DESIGNING, SKETCHING AND MODELLING, THE FIRST PARTS WERE ASSEMBLED AND THE ENGINE FINALLY STARTED.

## AT THE TEST BENCH

EVERYONE HELD THEIR BREATH... AND IT WORKED LIKE A DREAM.

And the hours of endurance confirmed the engine's nobly born soul. High performance is rare and usually unobtainable for such a small team. It is normally the preserve of sizeable research and development departments supported by international companies.

And yet the MIDUAL engine is original: a closed-source machine that was fully developed in-house, a forward-facing flat-twin engine inclined at 25°, a unique architecture that fits perfectly with a modern chassis with a chain drive.

An engineer and perfectionist, Olivier did not believe that the mechanical qualities of an engine alone were enough to call a motorcycle exceptional, so he decided to combine the engine with an extraordinary chassis enhanced with a luxurious finish.

He decided on an aluminum load-bearing hull, a valve body cast with a double wall serving as the chassis and fuel tank, extended by a slit-design grille that fits elegantly around the radiator. The result goes far beyond aesthetic expectations. The design and technical qualities of the shell further contribute to the unique, exclusive MIDUAL character.

The way is open for the manufacture – in a limited edition – of a machine that exalts original freedom, noble materials and technological prowess. Designed to be customizable to the very last detail, the MIDUAL will be the expression of its owner's dreams, a luxury item of incomparable standards of excellence.



# THE MIDUAL TYPE 1

## French Luxury in a Motorcycle

*New French company Midual joined the limited-edition hyper-priced motorcycle marketplace, with an ingenious redesign of the century-old boxer-twin motor, an aerospace-quality cast monocoque frame, a rethink on the cooling system, bespoke personalization, a we-come-to-you service model, a rare standard of detail and craftsmanship, and a EUR140,000 (CDN\$190,000) price tag.*

*"Everything that can be invented, has been invented", or at least that's how the popular misquote goes. It is unquestionably untrue, but for devices that have been around as long as the motorcycle, with thousands of fertile minds having applied themselves to building a better mousetrap over the last 125 years, you'd think that all the viable configurations for achieving man-machine harmony would have been tried before now. Apparently not! An ingenious retake on the horizontally-opposed motor and chassis architecture has spawned a technological revelation in the form of the new French superbike, the Midual.*







# **The Midual Type 1**

*By Charles Jacob*



## **The Midual Type 1** *by Charles Jacob*

### **A LUXURY MOTORCYCLE**

#### **The mindset**

As mechanical buffs, our knowledge and admiration extend to cars and motorcycles from France in the 1930s and England in the 1950s.

We admire mechanical watchmaking, motorboats and prop-driven aircraft. We love metals, rare leather and instruments with needle gauges. We are sensitive to the texture of materials and the sensuality of their touch. We are mindful of the beauty found in an engraving or a screw.

We are devoted to genuine expertise and traditional craftsmanship.

We are driven by our consummate skill and passion for mechanics, engines and motorcycles and are knowledgeable about their history.

#### **A precious mechanical masterpiece**

Made entirely of metal and leather using only noble and refined production procedures and finishing techniques, the Midual Type 1 is a modern, high-performance machine developed for the pleasure of riding the open road.

Its 1,393 parts have been designed with the utmost care, making each and every component a precious treasure, even if hidden from view. Purity and clarity were watchwords throughout its development.

The attention paid to the design of the piece, both as a whole and in its every detail, is exceptional and highly rare for a motorcycle.

Its finishes express the renowned savoir-faire of the very best French craftsmen.

#### **A unique proprietary engine**

The Midual engineers took an engine design that fell into disuse 77 years ago and completely reworked this high-potential solution to create an engine that is specific to the brand and blessed with a number of strengths.

Their flat-twin engine with transversal crankshaft, 25° angled cylinders and a total displacement of 1,036 cc was developed to produce low- and mid-range torque, providing a very smooth ride. Its minimal inertia enables rapid acceleration and enhances riding pleasure.

Its low centre of gravity and low longitudinal inertia give this motorcycle delightful handling.

Extremely compact and elegant, its design is protected by five international patents.

#### **A remarkable chassis**

An extraordinary, sculptural load-bearing frame produced from a single piece of cast aluminum comprises the chassis of the Type 1.

This unique and exceptional piece is sand-cast in a French aeronautical foundry.

Its outer layer, with its fluid, refined design, is perfected by hand and serves as the body of the motorcycle, while its double wall acts as its fuel tank. The frame masterfully incorporates the motorcycle's cooling system and features a superb dashboard with seven instruments.

Several thousands of hours were devoted to its design and the complexity of its production is mind-boggling, with innumerable finishing operations required to perfect it.

The obviousness and purity of its final design obscure its extreme complexity, illustrating the brand's expertise and its vision of French luxury mechanics.

### **Personalization**

Midual motorcycles can be personalized in a number of ways.

Their monocoque frames can be given a range of finishes: sand-blasted, glossy, brushed, polished-patinated or even engine-turned.

A choice of over 45 types of leather is available as standard, and can be coordinated with 25 shades of sand-blasted casted parts, available even for engine parts.

The dashboard itself has many different finishing options. Its casing can be sheathed in leather, fashioned from different metals with different finishes, produced from numerous types of wood, made of carbon or lacquered metal... The cast dashboard frame can also be given various finishes, as can the instrument backgrounds.

Non-standard requests are also considered.

Each machine bears its date of creation, its number and the name of its owner.

### **Service**

Every Midual is delivered by the manufacture to the owner's home, so that he or she can become familiar with the motorcycle.

Every motorcycle benefits from four years of customized service, which includes the guarantee and maintenance of the machine by the brand's specialists, at the factory, on the European market.

Collection from and return to the customer's address are carried out by Midual upon

## **A FRENCH CREATION PRODUCED IN FRANCE**

### **A French inventor and designer**

Born in 1967 to a family of teachers, Olivier Midy's childhood was marked by apprenticeships and the joys of mechanics. After finishing his military service, the young mechanical engineer drew on the knowledge he had amassed to design a motorcycle engine.

His older brother François joined him and before long, in order to make use of the patent filed in 1995 to protect his new engine design, Olivier became a businessman and created an automotive engineering centre in Angers.

After the success of the 1999 Salon du Deux-Roues motorcycle fair in Paris, where he presented two life-size models, Olivier concentrated on the development of the engine, which he financed through his work for the automotive industry.

In 2007, the engine successfully started on the test bench.

Encouraged by this, Olivier, whose mechanical interests had become more and more diverse, chose to steer his motorcycle towards the exceptional, and undertook the research and design of an extraordinary chassis. This gave rise to a load-bearing frame produced from a single piece of cast aluminum, which set the standard for the finishes of the entire motorcycle. Even the most minute details were subjected to design decisions and produced with meticulous care.

Since August 2013, the creator has continued his journey astride the brand's very first prototypes.

### **The French art of mechanics**

During the Art Deco period of the 1920s and '30s, the French luxury automotive industry, with names such as Voisin, Bugatti, Delage, Delahaye, Figoni et Falaschi, Saoutchnik and Chapron, elevated mechanics and bodywork to an art form.

The same was true of the most prestigious motorcycle models produced by brands such as Gnome et Rhône, Alcyon, Monet-Goyon, Peugeot and the Art Deco MGC and Majestic motorcycles, which earned worldwide recognition after being selected for the 'Art of the Motorcycle' exhibition at New York's Solomon R. Guggenheim Museum in 1998.

Today, by presenting its vision of a French motorcycle brand, Midual is following in the footsteps of this prestigious dynasty.

### **A French motorcycle manufacture**

The engine that powers the motorcycle was designed, developed on the test bench, and then put through its paces on roads across France.

It is carefully assembled and checked in a dedicated workshop under the supervision of its creators.

The frames, which are cast in France, return to the workshop for their finishing operations. These infinitely spectacular pieces are then stored before being individually selected according to each specific order.

These frames are then combined with the machine's 1,393 specific, duly approved components, the most significant of which are sourced from French companies committed to



noble and specialized expertise, who supply the aeronautical, precision mechanics and luxury sectors, in particular.

The motorcycle is carefully assembled in the manufacture, with the precise and attentive manual work being carried out by two standing constructors.

The machine, made from industrial-quality components, comes into being in the workshops, where the expertise dedicated to the design and production of its parts truly brings it to life.

This repeatable and approved construction phase ends with the adornment of the machine's metallic shell. A constructor at heart, the manufacture has designed everything down to the shape of the screws on the frame, ensuring a harmonious end result and fully mastered details.

An active participant in its creation, the owner selects the type of finishing and coordinates the colors, thus personalizing his or her machine. They are invited to the workshop, where they can discover the brand's first motorcycles displayed in the showroom complete with metal frame windows, and experience the world of Midual and its creator for themselves.

Each motorcycle is uniquely original. Individually numbered, it displays the name of its first owner and its creation date, testifying to its authenticity.

#### **A PROPRIETARY ENGINE WITH AN INNOVATIVE DESIGN**

#### **The origins of the transversal flat-twin**

In the early 1900s, English brand Fée created the first motorcycle with a flat-twin engine, which it installed parallel to the road with a transversal crankshaft. This flat-twin engine has two opposing cylinders whose pistons move in opposition to each other (the boxer configuration in question).

This gives rise to two indisputable natural advantages, which are cyclic regularity (the firing intervals are evenly spaced) and a very high degree of natural balance.

In its original configuration, the flat-twin was installed horizontally in the frame. Forty-two motorcycle brands went on to use this engine design, the most iconic of which was the English brand Douglas, whose name has gone down in the annals of motorcycling history.

Despite its undeniable advantages, this manner of positioning a flat-twin engine in a motorcycle was abandoned towards the end of the 1930s for one overriding reason: the gradual increase in the power of engines – cooled by air at the time – made it critically difficult to cool the second engine cylinder positioned further to the rear and thus sheltered from the wind.

This was the primary reason why the design was discarded in favor of a flat-twin mounted across the motorcycle, the only solution providing efficient air cooling for both cylinders placed in direct contact with the wind.

Later on, a second factor came into consideration: the increasing popularity of swinging-arm rear suspensions on motorcycles in the early 1950s. At the time, this technological advance could not be combined with a flat-twin engine mounted parallel to the road, and this prevented the return of the transversal flat-twin for a considerable amount of time.

For these reasons, production was restricted to motorcycles equipped with a flat-twin mounted across the frame. This solution is extremely attractive for air-cooled engines and cardan shaft transmission, but the resulting engine is bulky, which limits inclination and creates a torque effect that is noticeable by the rider.

#### A unique and rational design

In late 1992, motorcycle enthusiast and trained mechanical engineer Olivier Midy wanted to build a motorcycle and sought a high-potential technical solution that could provide the brand with its own identity.

After studying the various possible engine solutions in great detail, he decided on the flat-twin with transversal crankshaft. The advantages of this type of engine are undeniable, and it is probably the best way to build a road twin-cylinder. However, this solution could not be used in a modern motorcycle because the design of its chassis is completely unsuited.

He knew one thing for certain: the engine had potential.

He therefore had to invent a new way of inserting a transversal flat-twin engine in a modern motorcycle.

His chosen solution draws on two main technical decisions:

- A water-cooled engine
- Cylinders angled at 25°

which enable:

- Optimal rear cylinder cooling.
- The gear box to be housed beneath the rear cylinder and the swinging-arm pivot of the rear suspension to be inserted in accordance with standard practice.
- The front cylinder to be lowered and fitted beneath the engine cooling radiator.
- The engine to be shortened, allowing for a short motorcycle with easy handling.
- The engine's centre of gravity to be lowered and moved forward to improve the motorcycle's stability.
- A low level of longitudinal inertia to be obtained, which enhances maneuverability.
- The complete removal of torque effect, thanks to the transversal crankshaft.

Thus, the MIDUAL engine design was born!

This innovative and rational new motorcycle engine design is protected by five international patents

## AN EXTRAORDINARY CAST ALUMINUM FRAME

### A desire to create the exceptional

In 2009, Midual decided to create an exceptional chassis worthy of the brand-new engine that had been so carefully designed.

The aim was to offer a distillation of nobility, luxury and refinement capable of embodying the brand's image. The chassis had to be nothing short of exceptional.

### Its creation

Before long, the vision of a sculptural single-piece cast aluminum frame became the obvious choice, combining the functions of body, chassis and fuel tank.

This decision was quickly confirmed by the first 3D sketches, which gave the motorcycle its character and style.

Considerable resources in terms of R&D and industrial investments were pooled to achieve the desired goal.

In consequence, the frame required over 7,000 hours of design, styling and calculations in the brand's engineering centre. It is also subject to two international patents.

The result is indicative of the amount of time and money invested: it is simply unique.

### A sculptural piece with multiple technical functions

The finished frame is made from a single piece of aluminum alloy weighing 24 kg. Its outer surface, which has been meticulously designed and styled, serves as the motorcycle's body.

The frame has a double wall that follows its outer contours and serves as its fuel tank, with a capacity of 14 litres.

The steering column is machined directly from the front of the frame, as this also constitutes the motorcycle's chassis.

The engine air intakes pass through the double wall to provide the engine with fresh air.

Two streamlined, banana-shaped sections cast from the same alloy are screwed onto the front of the frame and support the fully integrated cooling radiator. On either side of the steering column, two wide openings cool the top of the radiator. Several fasteners housed in the lower section of the frame receive the motorcycle's lower plates. The cantilever-type rear suspension pivots directly on the aluminum frame. The rear section of the frame supports the driver and a passenger. The double wall acting as a fuel tank opens up a vast inner space, enabling all the ungraceful features inherent to the production of a modern motorcycle to be hidden.

### A complex production process

Casting



This piece, whose rough casting weighs 80 kg, is cast using a high-purity AS7G06 aluminum alloy in a French aeronautical foundry, and requires 2 m<sup>3</sup> of sand each time. Fifteen core boxes are required to repeatedly recreate the frame's various shapes and inner volumes, and to enable it to perform all the technical functions required of a modern motorcycle. The piece undergoes multiple finishing operations, thermal treatment and inspection tests.

#### Machining

The frame's technical interfaces are machined on a 5-axis machining centre, which ensures that its geometry remains within very strict dimensional tolerances. The frame is then subjected to a sealing treatment in a vacuum.

#### Finishing the body

Depending on the finishing options selected, the external layers are perfected by hand by master pattern makers or using specific processes. The sand-blasted areas are coated in high-resistance paint.

### THE DREAM OF A CREATOR AND DESIGNER

Olivier Midy was born in 1967 to a family of teachers. He inherited his grandfather's love of mechanics and nurtured this sensibility during his childhood in Neuville, in the heart of the Poitiers lowlands of France.

He discovered motorcycles and became fascinated by their history. Time and time again, he read his father's

encyclopedia devoted to the topic, and showed particular interest in the developments and various innovations that marked the epic history of two-wheeled vehicles.

One particular encounter, with his neighbor Roger, proved decisive. It was with Roger that Olivier discovered the joys of mechanics and the restoration of vintage motorcycles. He spent hours in his neighbor's workshop, whose metal frame windows and the light they produced made a lasting impression on Olivier. These windows have since been recreated in the brand's first showroom.

From the age of 14, he started to restore his first motorcycle, a 350 Monet-Goyon MG35 from 1931. When his parents were away, he used the money left for food to buy parts and became obsessed with painting his beloved bike.

An incurable enthusiast, Olivier rode his motorcycle on small country lanes and completed his training as an engineer in the Pyrenees, admittedly riding more than he studied.

Olivier learnt about the history of the motorbike by reading and from the people he met, and decided, as soon as he finished his military service, to embark on the design of a completely new engine. He enlisted the help of an engineer friend and then of his older brother François. In 1995, he filed a patent for a "combustion engine design for a motorcycle". The patent presented a four-stroke flat-twin engine with a high total displacement, a transversal crankshaft and cylinders angled at 25°, a design that was inexistent in engine production at the time.

To give the project the ambition it deserved, Olivier moved to Angers in early 1998 along with his brother, their families and their first employee. He had a contract for the engineering centre they had just created, which would enable them to finance the development of the Midual.

It proved difficult to convince the enthusiastic visitors to the 1999 Salon du Deux-Roues motorcycle fair in Paris that the brand's first two motorcycles were only life-size models and that they still had to be developed and industrialized.

In the end, they did not secure the financing they needed for their dream, but it endured nonetheless. As François was still willing to pursue their adventure, Olivier decided to finance the research and construction of the engine himself.

In March 2007, after six years of work behind the scenes, the engine finally started.

At the test bench, everyone held their breath...and the flat-twin worked like a dream!

Olivier and his very small team had succeeded in financing and building a completely innovative engine that impressed specialists. Its performance was simply outstanding.

As hours of endurance at the test bench passed, it became plain for all to see: the engine had truly come to life.

It was then that Olivier decided to steer the brand in a new direction.

His knowledge of the finest 1930s French motorcycles and cars, his love of noble mechanics and his appreciation of hard work and a job well done led him to explore new horizons.

A firm admirer of fine watchmaking manufactures, whose watches are remarkable both for the complexity of the calibres they house and the beauty of the cases and dials they present, he decided to create an eminently desirable motorcycle that was both innovative and carefully considered, down to the smallest detail.

To achieve his goal, he housed the engine in an extraordinary frame, which he researched and designed himself.

He opted for an exceptional aluminum load-bearing hull, a valve body cast with a double wall serving as the chassis and fuel tank, extended by a slit-design grille that fits elegantly around the radiator.

These decisions set the standard for the finishes of the entire motorcycle, with each and every part and detail being designed in line with the same exacting standards and care, forming the vision of a French luxury motorcycle brand.

The team was then able to bring its very first motorcycles to life.

With Olivier at the controls, prototype no. 1 started up on 8 August 2013. The creator and his team were overcome with emotion.

## **ECONOMIC HISTORY**

### **Late 1992 to late 1997**

The project began as an amateur venture.

It was started by Olivier Midy, a young engineer aged 25 engaged in military service at the time, who was assisted by a friend at first, before being joined by his brother François, four years his elder.

The idea of the flat-twin engine mounted parallel to the road, a preliminary draft and the design of the first 900 cc engine with belt-driven camshaft date from this period. A patent relating to the engine's design was filed in 1995.

### **Late 1997 to mid-2001**

After completing a training program at HEC Paris, Olivier decided to leave his job and the French capital to set up his own business with the aim of developing Midual. To earn a living and finance Midual, the company sold R&D on behalf of automobile manufacturers and several patents were filed in this capacity.

Initial external financing from ANVAR and local authorities boosted the company's resources.

In 18 months, the company, which had an average of four employees, produced two life-sized models of a motorcycle and its new flat-twin engine and presented them at the Mondial du Deux Roues motorcycle fair in Paris in October 1999.

Clients demonstrated interest, as was confirmed the following year by Marcel Seurat, the late head of SIMA who supported Midual by ordering 2,400 motorcycles from the company.

In spite of this, it was not possible to raise the capital required to launch the business. At the time, investors only had eyes for the internet and Voxan was experiencing severe difficulties.

### **Mid-2001 to March 2007**

Olivier and François decided to continue the project by building a prototype engine at the very least.

The various contributions donated to the previous program were repaid in their entirety, and a new project focusing on the construction of two engines was launched.

The company moved to the Ecole des Arts et Métiers in Angers.

For six years, the company worked without renown. Based on the engine models created in 1999, it designed the "P1" version of its entirely new engine made up of 528 original parts. When the engine was first started up on 31 March 2007, the six-person team was overcome with emotion.

The company self-financed this development through its work in the automotive sector, assisted by its initial partners, who have since been reimbursed.



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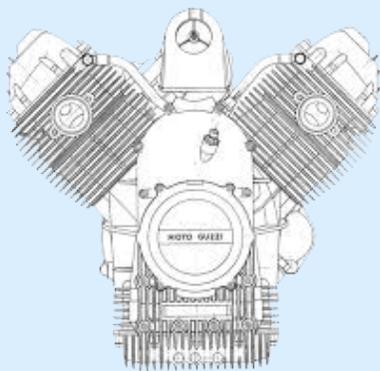
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**April 2007 to June 2010**

Building on its work in the automotive sector, the company continued to make headway.

The development of the P1 engine began secretly on the test bench.

This period also gave rise to the thought processes and first sketches that would later lead to the current Midual Type 1.

A complete draft of the new motorcycle was designed by Olivier, including all the distinctive features that characterize the machine today, particularly its single-piece aluminum frame.

The development of the P1 engine enabled them to achieve the desired results and a "P2" version was designed.

A new strategy began to take shape, which would ultimately lead to Midual becoming a luxury brand.

Spurred on by this new strategy, the company went in search of external funding.

**June 2010 to August 2014**

On 8 June 2010, 24 private investors from the region acquired stakes in Midual.

The consortium was completed by OSEO, the Pays de la Loire region, the

Angers Chamber of Commerce and Industry, and the ERDF.

The company then began to research, build and develop its Type 1.

Seven patents protecting the engine and the frame were drafted.

The very first frame was cast on 21 March 2012.

The first prototype of the Midual Type 1, devoid of finishes and equipped with a new P2 engine, started up on 8 August 2013.

Olivier took the motorcycle, wrapped in 25 metres of duct tape, on a 10-day holiday, during which he covered 4,500 km. To celebrate its first 1,000 km, he posed with the motorcycle in Dijon in front of the former factory of Terrot, which was a leading French manufacturer for a long time.

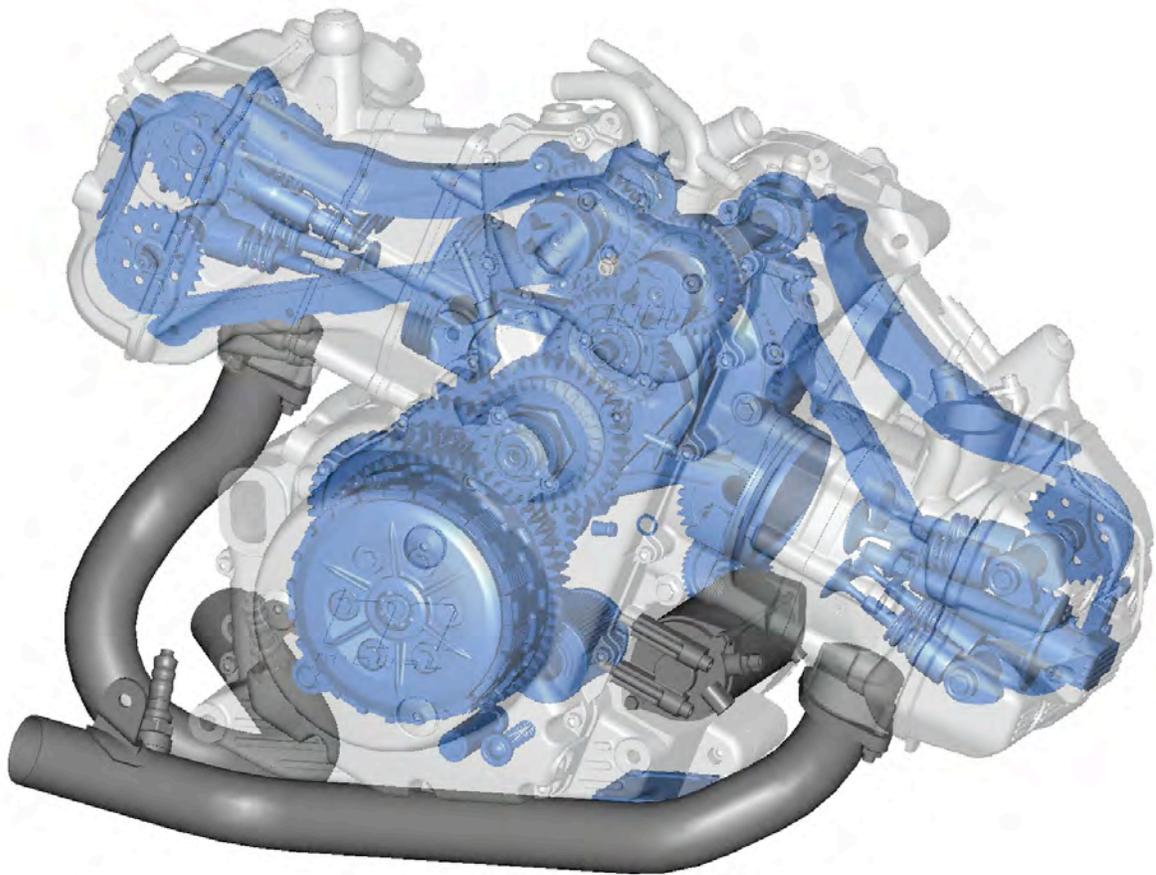
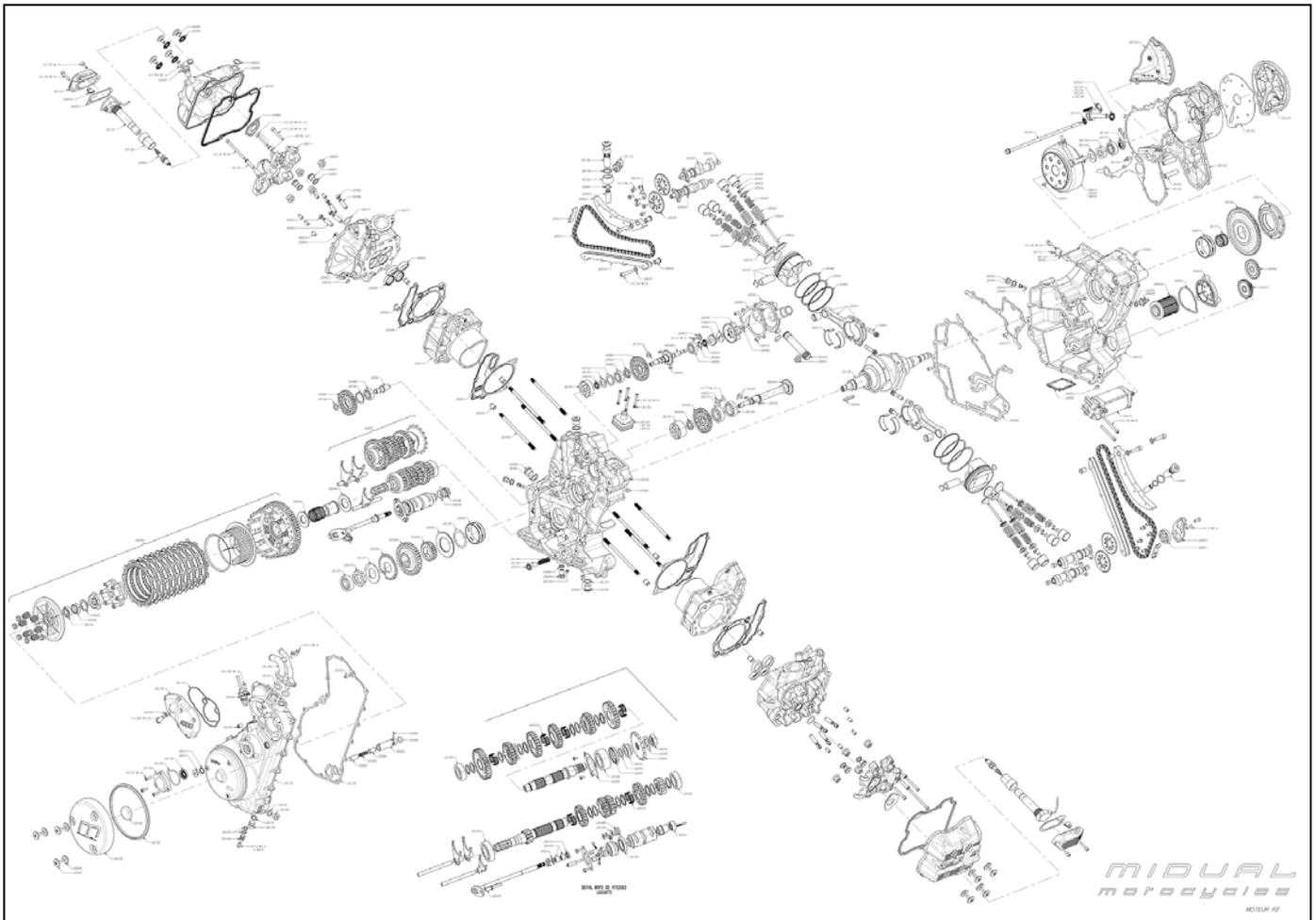
On 10 October 2013, prototype No. 2 was assembled and confirmed the finishes of the Midual.

In late July 2014, prototypes No. 2 and No. 3 were started up, already incorporating the lessons learnt from the No. 1 prototype, which was clocking up the miles.

On 21st July, Alan Cathcart, a famous English motorcycle journalist and test driver, tried out prototypes No. 1 and No. 2 for the brand.

On 17th August, prototypes No. 2 and No. 3 were unveiled on Pebble Beach golf green in California, marking





# Midual's remarkable US\$185,000 Type 1 takes its place among the world's most expensive motorcycles

By Mike Hanlon

*Before we get started, please be warned that the Midual is not for the faint of wallet. Production of the technological masterpiece will be limited to just 35 units, each with a price tag of €140,000 (US\$185,400). If the price-tag isn't enough indication of Midual's intended hyper-elite marketplace, showing the company's two working Type 1 prototypes at Pebble Beach 2014 left no doubt.*

*Other companies to unveil machinery on the Pebble Beach Concept Lawn included Bentley, Hennessy, Lamborghini, Maserati, McLaren, Porsche, Renovo, Rolls-Royce, Saleen, BMW, Mercedes-Benz, Infiniti, Toyota, Alfa Romeo, and Lincoln, a strong indication of the company this new French company hopes to keep.*



*As the sole motorcycle on display on the concept lawn at the world's most important upmarket automotive event, and one with a price tag equivalent to the median price of a home in the United States, Midual is the latest boutique manufacturer to address the needs of wealthy motorcycle enthusiasts seeking something more and different. These manufacturers produce limited edition two-wheelers and charge enough for each of them to create a viable business on small volumes.*



[www.midual.com](http://www.midual.com)



*At the pointy-end, this elite category now includes the likes of the US\$300,000 Ecosse Titanium RR (clockwise from top right), the US\$178,000 Icon Sheene, the US\$175,000, 250 mph (402 km/h), 320 hp MTT Turbine Superbike and the latest Lauge Jensen Viking, which is designed by Henrik Fisker with a price tag anticipated between \$50,000 and \$55,000. That's a significant step down from the normal limited edition*

*designer models from the Danish brand which usually run to US\$100,000*

*Lauge Jensen recently sold the gold-plated, diamond-encrusted "Goldfinger" (pictured) for US\$850,000, which is believed to be a record price for a new road-going motorcycle.*

*Realistically, it's more a piece of art than a practical conveyance, but it is no less likely to see road usage than many of the other bikes listed in this article.*

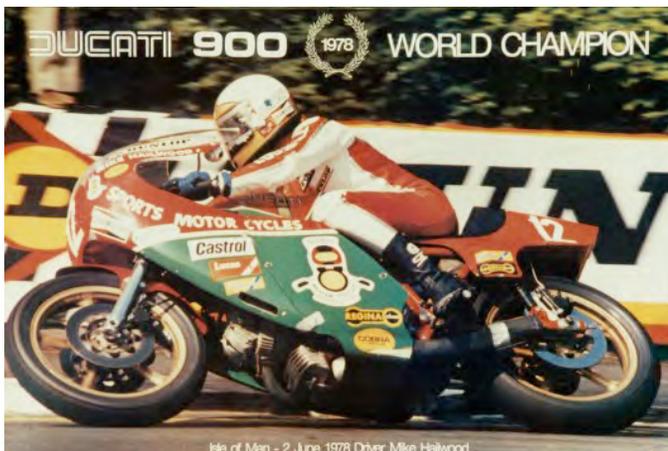
*This is the domain of exquisite, hand-crafted motorcycles that are extremely desirable and close to unobtainable*



*unless you have the wherewithal to drop US\$200 grand on a whim.*

*Then there's the entire range of NCR, an Italian company located close to the Ducati factory in the Borgo Panigale district of Bologna. NCR was Ducati's original, albeit external, racing department and has been re-engineering Ducati's finest models for a third of a century. It is best known for having built the small batch of 25 homologation machines for the Formula 1 class of the 1978 Formula TT World Championships.*

*when he emerged from an 11-year self-imposed exile from mainstream motorcycle racing at the geriatric (at least in racing terms) age of 38 years. That small batch of machines enabled Ducati to take the first of its now 30 plus world titles and Hailwood his last. In early 2014, one of this batch (pictured below) was sold by the world's foremost rare motorcycle auctioneers (Bonhams) for US\$175,500.*



*Mike Hailwood rode one of this batch to his now-legendary comeback win at the Isle of Man in 1978,*



*NCR still makes extraordinary bikes based on existing Ducati models, such as the US\$110,000+ Leggera*



*Extreme and the US\$220,000 Macchia Nera – 134 kg (295 lb) of titanium, magnesium and carbon with 187 rear-wheel horsepower – but the US\$200,000+ M16 is the closest example of what the Midual will be competing with in terms of cost and rarity.*



*The NCR M16 is a carbon showpiece with MotoGP-level forks, rear shock, electronics and wheels and it weighs 144 kg (318 lbs) – 16 kg (35 lb) lighter than a 2014 MotoGP bike but with lights, turn indicators and a number plate – with its highly modified Desmosedici motor producing 200 rear-wheel horsepower. The price is actually US\$159,000 PLUS a Desmosedici motor, if you can find one, but with those specs, it's the closest thing you can get to a real MotoGP bike for the road.*

#### ***Heritage Replicas from Brough Superior and Crocker***

*There's also a heritage sub-category in the hyper-elite motorcycle price range which involves authentic replicas of Brough Superior and Crocker motorcycles. With 24 bikes in the top 100 auction prices ever fetched for a motorcycle, Brough Superior is the most sought-after collectible motorcycle in the world. Vincent, with 17 bikes is next, with several marques fighting out third spot on the podium: Harley-Davidson (10 bikes), Crocker (seven bikes) and BMW (seven bikes).*

*Both the Brough Superior and Crocker brands have now been successfully reincarnated and both have healthy businesses creating replacement parts for, and entire recreations of, the most sought-after models of yesteryear.*



*Crockers are extremely rare. While roughly 3,000 Brough Superiors were produced and around 1,000 are still known to exist, only 72 Crockers are still in existence, and whenever they reach auction, they invariably sell for more*

than US\$200,000. Given that many concours Crockers predominantly contain parts manufactured by original processes at the Los Angeles workshops of the reincarnated Crocker Motorcycle company, the US\$150,000 price tag for a complete replica (above) is seen by enthusiasts as a bargain.



Brough Superior has also taken the gamble of building a modern day motorcycle with the same brand values and plenty of heritage styling cues, with the price of the first 2015 production models to be somewhere between €50,000 and £50,000 (US\$65,000 - US\$83,000). This is considerably less than an almost atom-perfect replica of Lawrence of Arabia's 1925 Brough Superior SS100, plus it goes faster, handles better, stops quicker but ... it's not exactly the same as the bike the famous warrior often rode 500 miles in a day just for fun.



Indeed, just as in days of yore, you can now have your bespoke Brough Superior made to your own period design and exact specifications, such as this 1283 cc, 1930's Basel Brough, which was purchased by Ralph Lauren Paris for advertising purposes. There is no price list for such bespoke wares, but count on spending upwards of US\$150,000 for the privilege. That's less, by the way, than you'd pay at auction for one made 80 years ago.

In terms of appreciating assets, the replicas being hand-crafted by Brough Superior and Crocker are almost

certain to hold their value better than any contemporary two-wheeler you can purchase for road usage.

### The evolution of the Midual

Hence there's definitely a marketplace for genuine exotica, and Midual's Type 1 already appears to be just the first of a series of technologically fascinating motorcycles the new marque has planned (a search of patents indicates a V-twin and an electric motorcycle are in development).



The Type 1 has been mooted for 15 years with the styling of the first Midual having been done by highly respected L.A.-based motorcycle designer Glynn Kerr. Kerr was commissioned by Midual principal Oliver Midy to develop a series of concept sketches for his horizontally-opposed twin in the late 1990s.

As can be seen from the sketches of the time, Midy had hoped to use the name Douglas (more on the famous British marque later in this article), but efforts to secure the rights to the name failed and some publicity was garnered in the name Midual and some in the name Douglas. The boxer-twin debuted as a 900 (though some earlier mock-ups show an 860 logo) at the 1999 "Mondial de l'Automobile" show in Paris.



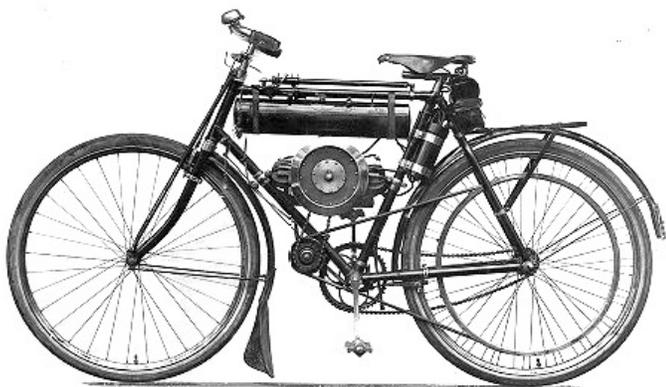
*The new Midual Type 1 displaces 1036 cc.*

*Midual redefines the horizontally-opposed twin Midual's choice of the boxer twin motor, and the ingenuity of its engineering require a look back in history to fully understand how cleverly it has sidestepped the engine layout's disadvantages, while retaining its strongest features.*

*The virtues of the horizontally-opposed motor (primarily excellent primary balance and a low center of gravity), have been evident to motorcycle, car and aeronautical engineers since Karl Benz first patented the design in 1896. In cars, they have become the signature engine of such landmark creations as the Volkswagen Beetle, Porsche 911 and the entire Subaru range. In aircraft, the opposing cylinders were ideal for air-cooling and the primary balance made for excellent reliability, a mandatory quality in an aero engine.*

*In the motorcycle arena, the boxer-twin has become synonymous with BMW motorcycles, but many other marques have used the configuration, and in the beginning, the horizontally-opposed motor was usually fitted lengthways in the frame.*

*BMW's now signature transverse boxer-twin engine configuration dates back to 1923, but it was by no means the first manufacturer to use the boxer twin – it was not even the first to use it in the across-the-frame orientation, with the British ABC motorcycle of 1916 preceding it by a full seven years.*



*There's a wonderful "fairy story here" about the origins of first horizontally-opposed motorcycle engine (the 1905 Féé nee Fairy motor cycle above), and how it led directly to the Douglas motorcycle range of the same configuration, the success of which spawned many other similar motorcycles.*



*The Douglas twins built a fine reputation and helped the company become one of the first mainstream motorcycle manufacturers, building 70,000 military motorcycles for the British war effort during WWI.*

*Immediately post-WWI, BMW's engine designer Max Friz was faced with designing a motorcycle engine as the German aircraft company was forbidden from producing aircraft engines due to the provisions of the Treaty of Versailles and the company quickly had to find new commercial endeavors. Luckily, BMW's foreman, Martin Stolle, had a 1914 Douglas 500cc flat twin motorcycle and Friz, according to legend, stripped the bike down and copied the horizontally-opposed twin.*

*As a result of this plagiarism, which to be fair was rampant in the industry at the time, the BMW M2 B15 500 cc side-valve engine was born and sold to numerous German motorcycle manufacturers of the day to power their motorcycles.*

*Motorcycles that employed BMW's M2B15 included Bison, Corona, Victoria, SMW, SBD and the Helios. The Helios was built by Bayerische Flugzeugwerke, a company which was later merged into BMW AG, so it could be argued that it was indeed BMW's first motorcycle (using the same logic which accredits the pre-1926 racing exploits of DMG and Benz & Cie to the company they merged to become: Mercedes-Benz).*



*The 1920 Helios (pictured above) was one of many motorcycles made using BMW's M2B15 500 cc side-valve engine that had borrowed heavily from the Douglas flat twin.*

*When BMW finally decided to build entire motorcycles, Friz used all the know-how he'd accumulated in building aircraft engines, plus no doubt valuable feedback resulting from supplying the M2B 15 to other makers, to create an entirely new engine, turning it 90 degrees in the process.*

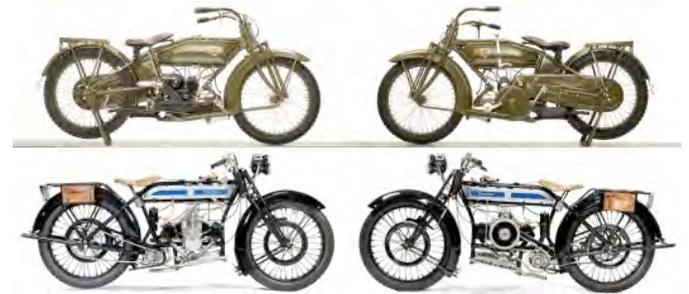


*In 1923, he took all those lessons and produced the R32, which became the first of an unbroken lineage of boxer twins that have been deeply loved by motorcyclists across the world for the nine decades since.*

*It's interesting that, despite such seemingly wonderful personality traits as a low center of gravity and great balance, the design has never lent itself particularly well to the motorcycle form factor, mainly due to the problem of fitting such an inconveniently-shaped motor into a motorcycle frame without compromising one of the key aspects of riding.*

*Mount it lengthways in the frame and it will provide a wheelbase that's simply too long, making the motorcycle a handful around town and compromising the sweetness of the motor. Those early horizontally-opposed motorcycles engines that had their cylinders mounted in-line with the frame often suffered from the rear cylinder overheating. Mount the engine sideways and the protruding cylinders immediately compromise ground clearance and expose the vulnerable cylinder heads to damage in the case of mishap. There's also the torque reaction that comes when a motor's crankshaft is in line with the wheels, though I've done a lot of miles on Beemer twins, and once you're*

*accustomed to it, it's never the problem that theory suggests it might be.*

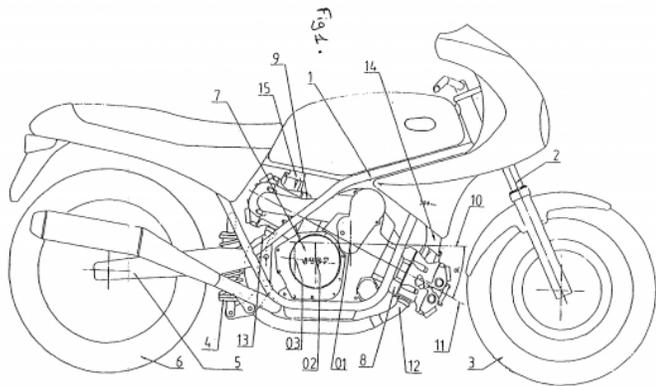


*The above illustration shows two of the best known early horizontally-opposed twins which used a longitudinal mounting: a 1919 Harley-Davidson 584cc Model W Sport at top left and right, and a 1925 Douglas 2 3/4 HP (350cc) Model CW. Click the image for access to the photo library and more detailed images of each of the machines.*

*Once BMW began developing its boxer-twins and began winning hearts and races, other transverse flat-twin motorcycles followed, such as Germany's Zundapp, China's Chang Jiang and the mass-produced Russian marques Ural and Dnepr.*



*The ingenuity behind Midual's new variation on the theme is that it has tilted the engine forward at a 25-degree angle, enabling the rear cylinder to clear the swinging arm pivot and enabling the wheelbase to be kept within compact dimensions, completely removing the torque reactions associated with the inline crankshaft of transverse boxers, and enabling the exceptionally-low center of gravity of the engine to be used to full benefit. Midual claims that the resultant handling "makes negotiating curves a delight" and it is confident enough of this new variation on the theme to have patented it.*



According to Midual, the 1036 cc (63.2 cu in) flat-twin has been developed to produce strong torque at low engine speeds with a broad power spread, which the claimed figures of 106 hp @ 8,000 rpm and 100 Nm (74 lbf·ft) @ 5,300 rpm suggest has been achieved.

By comparison, the latest liquid-cooled 1170 cc BMW 1200GS performance figures come in at 123 hp @ 7,750 rpm and 125 Nm (92 lbf·ft) @ 6,500 rpm.

### The Midual Frame



The Midual Type 1 frame is the result of "several thousand hours" of design and development according to Midual's press documentation. It uses a unique single-piece aluminum chassis cast in a French aerospace foundry and then hand-shaped after numerous intermediate operations. The external double wall serves as a fuel tank and this too has been patented.

### Detail, Personalization and SERVICE

While the price tag might seem very high for a motorcycle, the Midual is aiming at an entirely different marketplace than currently exists, with a level of service designed partially to overcome the lack of a dealer network, and

partially to deliver amenity levels previously unheard of. The 35 machines available for delivery in 2016 are destined solely for the European marketplace.

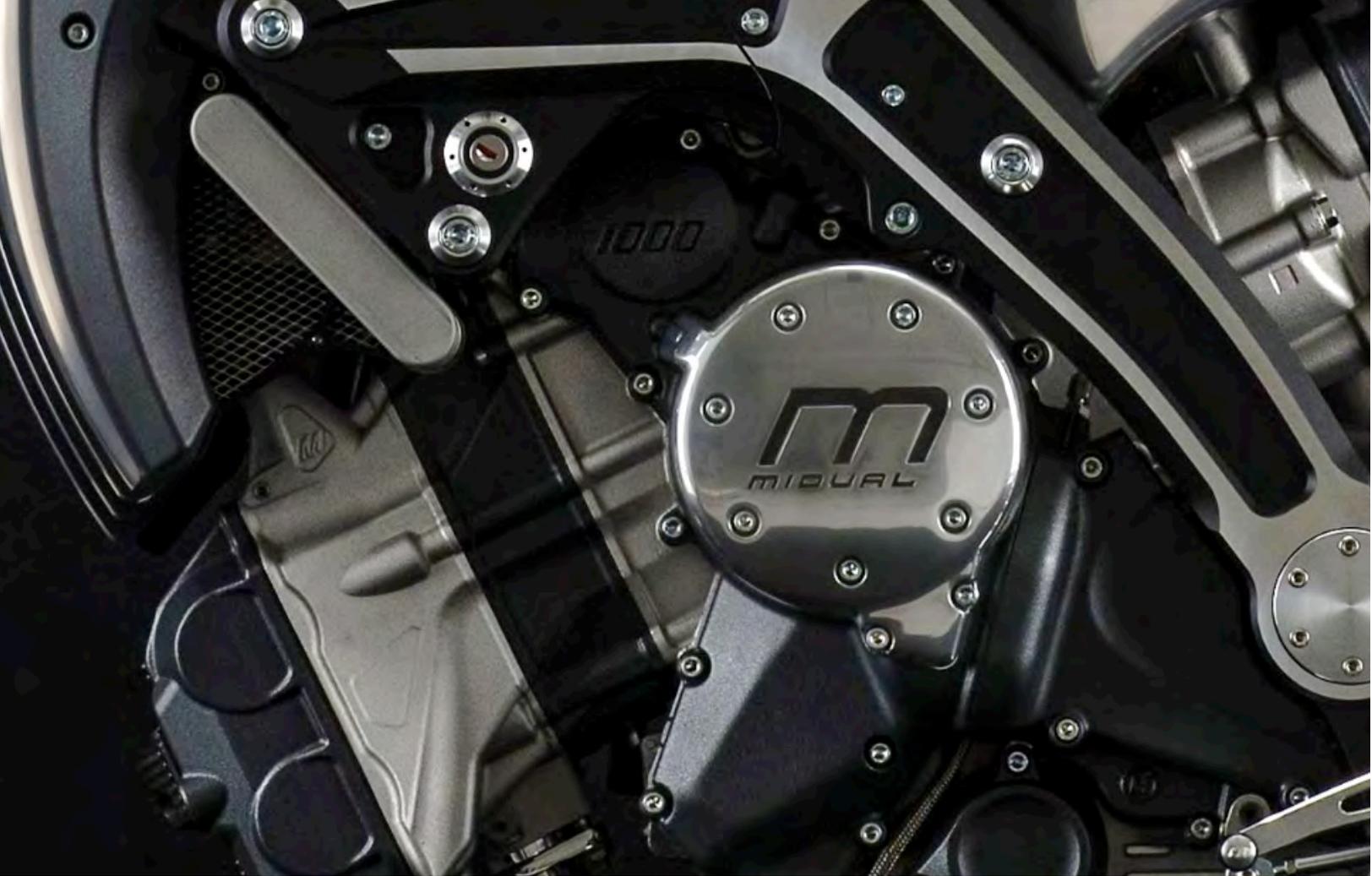
That price includes a four-year contract for maintenance and warranty support, including collection of the motorcycle directly from the customer's (European) home for delivery to the manufacturer's workshops and back again. According to Midual, "in this way, full guarantee of careful, thorough after-sales maintenance can be assured."

All metallic components of this motorcycle show a level of detail far beyond the norm. From the press blurb, "the machine's instrument panel and analogue gauges, all the leather trim, the handlebar controls, side plates, kickstand ... each element is specific, noble and refined. The finishing reveals the highly expertise of the most skilled French workers."

"A Midual is designed to be personalized to the point where each machine's personality can be modified to be completely in tune with its owner. Thus, he will be able to choose between many different types of body finishing, from brushing and cap design to a polished/patina look. More than 45 types of leather are offered standard and can be matched to 25 sand casting shades, which can be applied even to the engine parts. Each machine is marked with its creation date, number and owner's name."

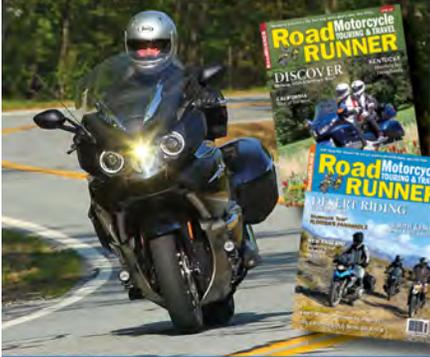
Let's hope there's a proletarian version planned.





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