

Mobile Tradition live

Facts and background



Opportunity, crisis and success – the history of Bayerische Motoren Werke

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The innovations of the BMW Turbo study:

Much of what still smacked of a pipe dream in 1972 is now part of series production. BMW launched the BMW Turbo design study as the world's first safety sports car.

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BMW Tour d'Europe:

For the launch of the 635CSi in 1978, BMW sent journalists across Europe to experience the new car first hand as they criss-crossed the continent.

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Fuel for Formula One cars:

A key factor in the 1983 World Championship victory was a special kind of petrol. BMW was the first team to use fuel with an extremely high energy density.





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Dear Friends of the BMW Group,

It would probably take hundreds of pages to describe the 90-year corporate history of BMW. Even just an overview of BMW's myriad products – from aero-engines to motorcycles to cars – would fill several volumes. In this issue we have summarised the key developments and events, products and personalities – all on just eight pages, succinctly and transparently.

As part of BMW's successful history, the launch of the BMW Turbo caused a sensation in 1972. This unique design study paved the way for numerous innovations which were later implemented in production models. They were mainly safety features, such as the driver-oriented cockpit or hydraulic dampers, forerunners of the impact absorbers that found their way into BMW road cars. Read up on the other innovations that made their way into series production.

A year after the Turbo, the BMW Museum was inaugurated. Since then it has ranked among the most popular museums in Munich. It is currently undergoing comprehensive refurbishment, and the new-concept, significantly expanded museum complex will reopen at the end of 2007. The stars of the exhibition halls will be more than a hundred of BMW's most important and attractive original exhibits. We describe the immense efforts involved in getting these museum pieces restored and ready to go on display in their refurbished home.

And did you know that, back in the 1930s, BMW came very close to purchasing Maybach? Once again, this issue of Mobile Tradition live has some exciting, interesting and entertaining stories lined up on the brand with the famous blue and white logo.

Read and enjoy!

Holger Lapp

Director BMW Group Mobile Tradition

Below | Coveted prize: rides in historic BMW coupés during the Long Night of Munich's Museums as part of the BMW Museum exhibition.





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BMW Museum – the exhibits I For the reopening of the expanded BMW Museum at the end of 2007, many of the exhibits are undergoing extensive and authentic restoration.

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When BMW nearly bought Maybach I In spring of 1933, plans were afoot for BMW to take over Maybach Motoren Werke in Friedrichshafen on Lake Constance. Ultimately the efforts to merge the two southern German engine manufacturers failed.



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The innovations of the BMW Turbo study |

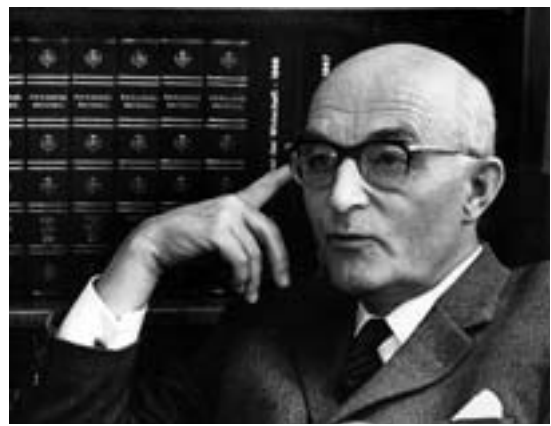
When it was unveiled, the BMW Turbo design study was a sensation. Its futuristic styling and innovative technology wowed amateurs and experts alike. Almost everything that seemed a pipe dream at the time is now available as a standard or optional feature.

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Gerhard Wilcke | As Herbert Quandt's right-hand man, Gerhard Wilcke played a pivotal role in the restructuring and revival of BMW – first as a member of the Supervisory Board, and then from 1965 to 1969 as Chairman of the Board.



Opportunity, crisis and success | After 90 years, Bayerische Motoren Werke looks back on a turbulent history. This feature summarises the significant stages and backgrounds of the company's history in short and concise form.



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BMW R 4 | 75 years ago saw the launch of the BMW R 4, a single-cylinder bike that also cut a fine dash off the beaten track. This model not only became a bestseller, but also garnered BMW numerous off-road racing triumphs.

Other topics

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Left | Hands-on designer: Albrecht Graf Goertz working in his New York studio.

and its classy sibling, the BMW 503 Coupé, Goertz was propelled into the ranks of the world's leading designers.

From that point on he was a firm fixture in the top design echelon. But his interests were not restricted to the design of a single type of product. "If I can touch somebody emotionally with a car, then I can do the same with other products," he once said. And so in the years that followed he came to design such diverse products as office equipment, radios, school furniture, jewellery, sportswear, clocks, cameras – the list goes on. In the course of his career he collaborated with at least 60 companies and was a highly sought-after design consultant to international companies up until an advanced age.

Naturally cars continued to play a role throughout this. Another of his automotive designs was the highly popular Datsun 240 Z, which became the biggest-selling sports car in the world, as well as a special edition of the Jaguar XJS to mark the Silver Jubilee of Queen Elizabeth II.

In 1989, aged 75, he returned to Germany, the home country he had left in autumn of 1935 for the USA. He moved back to his birthplace, his parents' estate in Brunkensen. It was here that he had been born on 12 January 1914, the son of a baron and a banker's daughter. In order to pass on his knowledge to up and coming designers, he taught at international design schools and in 1996 established his own foundation for the promotion of young talent. For his achievements he was awarded the Distinguished Service Cross 1st Class of the Federal Republic of Germany.

In 2005 he created the Steinway piano "125th Anniversary Limited Edition Grand Piano Designed by Goertz" to mark the 125th anniversary of Steinway & Sons Hamburg. It was his last major work. Albrecht Graf Goertz passed away on 27 October 2006 in Kitzbühel, Austria, aged 92. ■

Albrecht Graf Goertz, 1914 to 2006.

Munich. Great teachers don't always have to be right. In the late 1940s, legendary American designer Raymond Loewy gave his young charge Albrecht Graf Goertz this paternal advice: "You'll never make a decent designer. Make sure you marry a rich woman." He was wrong. In 1953 German-born Goertz set up his own design office in New York. Just two years later he produced a design for a car that ranks to this day as one of the most beautiful of all time: the BMW 507.

"The 507 is the star of the show! Congratulations!" wrote BMW's sales director Hans Grewenig in a telegram to New York from the 1955 Frankfurt Motor Show, since Goertz had chosen to follow the unveiling of his model from across the Atlantic. Thanks to this car,

Below | Albrecht Graf Goertz in 2005 with his two famous creations, the BMW 507 and BMW 503, both going back to 1955.



+++ BMW Art Cars on tour +++ BMW Art Cars on tour +++ BMW Art Cars on tour +++

BMW Art Cars on tour

They tend to be very colourful, painted, laminated or sprayed with stripes, patterns, circles, numbers, or even pictures and photos. They are the BMW Art Cars, works of art on four wheels. Designed by famous artists, these automobiles forge a unique link between art and technology while presenting a broad spectrum of stylistic idioms. The BMW Art Car Collection currently numbers 15 unique exhibits, eight of which have embarked on a global tour of international museums. The starting shot was fired in September, when these "rolling artworks" first headed for Kuala Lumpur, the capital of Malaysia. These four BMW Art Cars were on display at the Art Gallery of the Petronas Towers until 22 October: the 3.0 CSL by Frank Stella (1976), the 320i Group 5 race version by Roy Lichtenstein (1977), the BMW M1 Group 4 race version by Andy Warhol (1979) and the M3 Group A race version by Ken Done (1989). The four historic Art Cars travelled onwards to Singapore, to the Philippines and the Ayala Museum of Manila, and then to the Artsonje Museum in Seoul, Korea. The tour continued to the Art Gallery of New South Wales in Sydney, Australia, and into the Te Papa Museum in Auckland, New Zealand, and is gearing up to call on Delhi, India in 2007.

In parallel with this, the BMW Art Cars by Alexander Calder (1975, BMW 3.0 CSL), Matazo Kayama (1990, BMW 535i), David Hockney (1995, BMW 850CSi) and Jenny Holzer (1999, BMW V12 LMR) will tour Taiwan, China, Russia and Africa, stopping off at the National Taiwan Museum of Fine Arts in Taichung, the Museum of Contemporary Art in Shanghai, the Long March Space in Beijing, La Villa des Arts in Casablanca and the Central Exhibition Hall Manege in Moscow. From 2007 to 2010, the BMW Art Car Collection will then be on display, among other locations, in museums in Turkey and the USA before returning to Europe.

The idea of having a car's bodywork designed by an artist goes back to the French auctioneer and racing driver Hervé Poulain. It was on his initiative that American artist Alexander Calder designed a BMW race car in the early 1970s. Like this model, most of the BMW Art Cars took part in the traditional Le Mans 24 Hours. The experiment was soon continued: a year after Calder's car, New York artist Frank Stella endowed a BMW 3.0 CSL with the kind of grid pattern for which he was famous. "My design is like a blueprint that is transferred to the bodywork," Stella remarked of his BMW. In the 1980s the character of the Art Car collection diversified. Artists of other nationalities and styles were added, such as Austrian Ernst Fuchs, Australian Michael Jagamara Nelson and Japanese artist Matazo Kayama. Also, the cars being designed were not just racers but primarily models from series production. A striking example is the red BMW Z1 that A.R. Penck painted in spring of 1991, the first German artist to do so. ■



Top to bottom | BMW Art Cars tour the world: BMW V12 LMR by Jenny Holzer, BMW 850CSi by David Hockney, BMW 535i by Matazo Kayama, BMW 3.0 CSL by Alexander Calder and BMW M1 Group 4 race version by Andy Warhol.

+++ Review: Goodwood 2006 +++ Review: Goodwood 2006 +++ Review: Goodwood 2006 +++



Left | Fifties driving fun: Gertraud Mehlhase (right) of BMW Mobile Tradition in a 1958 BMW 600 with a model in period clothing.

Goodwood Revival

Goodwood. The Earl of March invites fans on a racing trip into the past, and they come in droves. Despite the changeable weather, the organisers counted more than 110,000 visitors to the 2006 Goodwood Revival. On the first weekend of September, around 360 classic automobiles of various classes competed with one another, including historic BMW models. The regulations stipulate that all classics must stem from the era before 1996. There were several BMW Mobile Tradition vehicles out on the track, among them the BMW Isetta and BMW 600, which took part in the daily parade of the “Magnificent Microcars”. Another tradition saw one-time policeman Gerd Milmer “on patrol” at the festival in the BMW 501, the legendary “Isar 12” patrol car of a popular German television series. The fastest lap of the entire weekend was recorded by a British sports car with a German engine: an Elva BMW Mk 8 powered by a BMW engine.

The race track at Goodwood has a long history. The circuit near Chichester, around 100 kilometres south of London, closed exactly 40 years ago. A year before, in 1965, the last Formula One race took place there. Charles Lord March was 11 years old at the time. Today the Earl of March is the owner of Goodwood, a stately home with its own airstrip, horse racing course, golf course and the legendary race track. In 1998 the Earl of March reopened the motor racing track, and the Goodwood Revival quickly caught on as one of the major classic racing events in the world. In keeping with the historic automobiles, numerous visitors turn up clad in fashions from the 1950s and 60s, lending the festival a unique atmosphere. The entire event is staged in the ambience of the post-war years, all the way from the décor to the historic market with its hairdresser’s, food and sales stands. Added glitter comes courtesy of the numerous celebrity guests and motor racing legends who would not miss this annual event for the world. ■

Below left | Arrest that man: Gerd Milmer of BMW Mobile Tradition next to the BMW 501 made famous in the TV series Funkstreife Isar 12.



Below right | The historic racing cars await their cue to take to the track at the Goodwood Revival.



+++ Review: Geneva Classics +++ Review: Geneva Classics +++ Review: Geneva Classics +++

Blue and white classics at Lake Geneva

Geneva. The classic car world and the city of Geneva have just become one event richer. The Geneva Classics celebrated its premiere from 6 – 8 October 2006. This fair for historic modes of transport covers cars, motorcycles, boats and aircraft. More than 15,000 visitors turned up over the three days to admire the stylish stands of the 100 exhibitors and their exquisite range of high-quality products.

In the exhibition complex beside Lake Geneva, BMW Mobile Tradition presented four stories from the rich heritage of the blue and white brand on a stand covering 550 square metres. The motto was “Sheer Fascination”, which has been at the heart of BMW’s roadster design for around eight decades. At Geneva, Mobile Tradition showcased the very first roadster, a Dixi 3/15 PS Ihle, along with what is arguably the most famous example of all, the BMW 328 Roadster. In addition to the production model, there was also a lightweight replica of the roadster on show. The second strand of the exhibition was focused on the coupé theme. With the 327 Sports Coupé, 503 Coupé and 3.0 CSi, visitors were able to see three of the most elegant coupés in BMW history in close proximity. Fans of the blue and white motorcycle badge were not disappointed either, with the BMW R 12, R 80 G/S and R 1100 GS exemplifying technical developments and solutions achieved by the brand. A year before its opening, special attention was also devoted to the BMW Museum, which will reopen at the end of 2007 with a new exhibition concept in a greatly expanded space. At the new museum, themes, architecture, design and “mediatecture” will complement each other to create an impressive exhibition composition. Info displays and an architectural model gave visitors to the Geneva Classics a taster of things to come.

Next to the exhibition at the Geneva Palexpo, an auction area drew the attention of visitors. More than 50 cars and motorcycles, as well as two historic aircraft, came under the hammer here. A particular highlight was an outdoor area on which more aeroplanes were parked, including the 1943 Catalina seaplane, which made a demonstration landing in the middle of Lake Geneva. After such a positive start, it seems certain that this event will be repeated. The exhibitors feel that the timing of the event in what is a quiet autumn period is particularly favourable. ■



Top | Innovations from off-road racing: the BMW R 80 G/S.

Above | A magnet for young and old: a replica of the BMW 328 MM Roadster.

Below | Elegance by tradition in the Geneva exhibition halls: (from left) BMW 3.0 CSi, BMW 503 Coupé, BMW 327 Sports Coupé.



+++ New publication: BMW Boxer +++ Review: BMW MOA +++ New publication: BMW Boxer +++



Above left | The exhibition of classic models – shown here, a BMW R 60/2 in police livery next to a BMW 2002 – was a highlight of the MOA annual meeting.



Above right | The expert guided tours by curator Peter Nettesheim (left) proved highly popular.

It's not flat – 9,000 BMW bikers in Vermont

Burlington. A membership of some 38,000 makes them the biggest BMW bikers club in the world: the BMW Motorcycle Owners of America (MOA). This year's meeting, held from 20 – 23 July in Burlington, Vermont under the motto "It's not flat", drew more than 9,000 BMW riders from the USA and Canada. The hilly landscape around Lake Champlain was blessed with mainly sunny weather and enticed the bikers into taking some extended outings. At the festival site, too, there were plenty of attractions laid on for visitors. Bikers were able to choose from more than 70 seminars and talks, for example. BMW Motorrad presented its latest models and offered test rides. In a spacious dealer area there was everything to make a biker's heart beat faster, from riding gear and accessories all the way to motorcycle tours. Needless to say, due trib-

ute was paid to the BMW biking heritage as well. Collector Peter Nettesheim presented around 20 motorcycles, starting with the BMW R 32, under the motto "The Mastery of Speed". This formidable display was complemented by numerous classic motorcycles that had made their own way to Vermont. Virtually every model in the 83-year history of BMW bikes was present in Vermont. Peter Nettesheim himself gave guided tours of the exhibition and delighted visitors by showing them that all of his classic two-wheelers were also roadworthy. BMW Mobile Tradition was on site with its parts service, as well as a consultant from the group's archive who was there to field any questions from fans on the history of BMW motorcycles. Further information on the MOA and the 2006 International Rally can be found at www.bmwmoa.org ■



BMW Boxer, Volume 1

In a format of 28 x 21 cm, the book covers 176 pages with 284 illustrations, alongside text, tables and a colour sample section. The volume (ISBN 3-9806631-4-0) is available at a price of €29.80 from:

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New publication: BMW Boxer, Volume 1

This newly released book by Andy Schwietzer is a mix of copiously illustrated textbook, informative guide and comprehensive motorcycle reference work. The author is devoting two volumes to the two-valve Boxers by BMW. The recently launched first volume covers all the models with two spring struts from 1969 to 1985. Volume II featuring the Monolever and Paralever models (from the R 80 G/S to phase-out in 1996) will appear in 2007. The books are written in German.

The success story of the BMW two-valve Boxers built in Berlin began with the BMW /5 models and ended – after more than a quarter of a million motorcycles had been built – in 1996 with the last R 80 GS Basic. Not only are these "recent classics" still being ridden and repaired, increasingly over recent years they have been restored to their original condition. This book gives owners and potential buyers information from technical details all the way to the design of the machines. Co-author Werner R. Reiss has collected and analysed comprehensive statistics as well as numerous dealer and workshop circulars on the subject. It has enabled the book to offer a list of all production runs, technical modifications as part of model updates, and the paint finishes available for each model year. Motorcycle fans will find this book a sheer delight. The stories and descriptions of the two-valve BMWs are enhanced by numerous photos, plus there are some special treats in the form of interviews with key contemporary witnesses who were directly and substantially involved in the development, design and testing of these BMW two-wheelers. ■

+++ Review: Route des Maîtres 2006 +++ Review: Route des Maîtres 2006 +++

Route des Maîtres 2006

Baden-Baden. Brenner's Park-Hotel & Spa, the Park Hotel Vitznau, Martin Fritz Marketing Kommunikation GmbH and Clas-sique jointly staged a luxury-class classic event from 15 – 17 September 2006 – the Route des Maîtres 2006. Classic fans with pre and post-war vehicles gathered in Baden-Baden on the evening of 15 September ready to take part in a fascinating outing over the following two days. The Route des Maîtres, staged for the first time this year, took the participants along Europe's most attractive byroads – from Brenner's Park-Hotel & Spa in Baden-Baden to the Park Hotel Vitznau on Lake Lucerne and back again to Baden-Baden.

There was no need for participants to bring along their stopwatches. Free from the pressures of a purely competitive event, the drivers – all professionals from fields such as watch making, banks and entertainment – were able to savour the glorious countryside between the northern reaches of the Black Forest and the heart of Switzerland for two days. With wonderful panoramic roads and twisty stretches, the Route des Maîtres 2006 had plenty to offer. Apart from the magical landscapes, there were also plenty of sights to see along the route, including the early Gothic Allerheiligen monastery ruins, Lake Titisee in the Black Forest and Lake Lucerne. En route, participants were spoilt by the exclusive service that formed part of the programme of this 5-star classic rally. All in all the Route des Maîtres 2006 was an overwhelming success, as confirmed by participants and organisers alike, and needless to say there will be another Route des Maîtres in 2007. Where it will lead has not yet been confirmed. But one thing is certain: next year's Route des Maîtres will be another 5-star event linking two or three of Europe's leading grand hotels. ■



Top | Holger Lapp, Director of BMW Mobile Tradition, talking to singer/actor Peter Kraus.

Above | At the start of the rally outside Brenner's Park-Hotel in Baden-Baden, where the superbly preserved classic cars caused quite a stir.

Below | The BMW 507 of 1955, driven by Peter Kraus and Holger Lapp, was one of the stars of the tour.



+++ Exhibition: BMW Pavilion +++ Exhibition: BMW Pavilion +++ Exhibition: BMW Pavilion +++



Top left | The BMW 3.0 CS, shown here in Fjord metallic, was the first 3.0 Series model. It debuted in 1971.



Below left | The long tradition of BMW coupés began with the BMW 327/28 Sports Coupé.

Irrepressibly elegant: BMW coupés in the brand's shop window

Munich. The glass showroom of the BMW Pavilion at Lenbachplatz has been the shop window of the BMW brand for almost 50 years. Around 300,000 visitors a year are drawn to this attraction in the heart of Munich.

Since the middle of September, a new and exciting display has been pulling in the crowds. BMW is showing a selection of what are arguably its most elegant automobiles, the BMW coupés. The exhibition "BMW Coupés. Experience Innovations" brings together historic and current models. Over two levels, innovative technology, powerful engine performance and extraordinarily elegant design are showcased – the hallmarks that have defined these coupés for decades. It's a tradition that began with the legendary streamlined BMW 327/28 Sports Coupé of 1938, which can be viewed at the

lower level of the Pavilion. Another milestone of coupé history, the BMW 3200 CS, takes up its position beside its predecessor. Designed in 1961 by Nuccio Bertone of Turin, it is compelling for its elegant design coupled with Italian flair as well as its light-alloy V8 engine. The third exhibit from BMW Mobile Tradition's Historic Collection is the four-seater BMW 3.0 CS of 1975. Apart from the cars, further information on other historic coupés is also available on the lower level of the Pavilion. Three models from the latest BMW product range round off the exhibition on the upper level: the sporty Z4 M Coupé, the new luxury 6 Series Coupé and the latest 3 Series Coupé. All the models are atmospherically staged courtesy of the light installations of the artist James Turrell, the big-city shots by the well-known photographer Uwe Düttmann and images from BMW Mobile Tradition's latest campaign "The perfect line. BMW coupés – a tradition of elegance".

The history of the coupés also played a significant role at the opening of the exhibition on 13 September. Around 600 guests attended the German premiere of the new 3 Series Coupé as part of a fashion show held in the Ludwig Beck department store and accompanied by an intriguing laser show. The connection between fashion and cars strongly highlighted the design aspect and elegance of the BMW coupés. "Sensuality, desirability and the claim to exceptional quality determine the design of automobiles and the fashion sector," explained Christopher E. Bangle, BMW Group's design director, during a discussion on design with Wolfgang Mosebach, purchasing director at Ludwig Beck. The unique lines of all BMW coupés were graphically displayed in the film *The perfect line* as well as in the latest coupé images from BMW Mobile Tradition. Manfred Bräunl, BMW marketing director for Germany, summed it up: "Since 1938, since the BMW 327, we have been building coupés – beautiful, elegant cars with powerful engines. That has not changed to this day." ■

Below | A glimpse inside the ground floor of the BMW Pavilion. Photos by Uwe Düttmann frame the film *The perfect line. BMW coupés – a tradition of elegance.*



+++ New publication: BMW Classic Calendar 2007 +++ New publication: BMW Classic Calendar 2007 +++



Above | The BMW 3.0 CSi still exudes a timeless elegance even 30 years after it was launched.

BMW Classic Calendar 2007

BMW coupés are admired for their linear design and desired for their innovative, powerful technology. This combination of elegance and dynamics has earned them enduring enthusiasm.

To mark the launch of the new BMW 3 Series Coupé in September 2006, BMW Mobile Tradition turned to the fascinating history of BMW coupés. In a book, a film and, in particular, through new photographs, the models are paid broad tribute while being presented in their social context. In this way the "tradition of elegance" embodied by the BMW coupés is revealed in an entirely new light, namely as

the search for the best expression of elegance and style in each case. The design and elegance of these cars comes across particularly vividly in the large-format shots of the Classic Calendar 2007. The calendar by BMW Mobile Tradition shows 12 images of the following BMW coupés: the 327/28 Sports Coupé, 503 Coupé, 3200 CS, 2000 CS, 3.0 CSi, 628CSi, 850CSi and the latest 3 Series Coupé. The cars are presented in their relevant historical context through aesthetically sophisticated photographs that harmoniously blend these elegant cars and their imposing architectural backdrops. ■



BMW Classic Calendar 2007, BMW coupé book, BMW coupé film

BMW Classic Calendar 2007

12 images of the most beautiful BMW coupés in a historical context.
Format 70 x 54 cm. €29.90 plus p&p.

Film The perfect line. BMW coupés – a tradition of elegance.
9 minutes, short version 3 minutes, Eng./Ger. €7.50 plus p&p.

Book The perfect line. BMW coupés – a tradition of elegance.
112 pages, hardcover with dust jacket, format 25.5 x 21 cm.
€21.00 plus p&p.

The book and film as well as the BMW Classic Calendar 2007 can be ordered from:

HEEL Verlag, Gut Pottscheid, 53639 Königswinter,
Tel. +49 / (0) 22 23 / 92 300, www.heel-verlag.de



80 years ago | Walter Mittelholzer flies across Africa



Above | Stopover: Walter Mittelholzer's Dornier Merkur bearing the name "Switzerland" on its trans-African flight from Zurich to Cape Town in December 1926.

Below | An employee carries out a final check on cylinder liners at the Allach plant.

Names like Charles Lindbergh and Amelia Earhart are still familiar to many people today. What may be less well known is that, as a key German aero-engine manufacturer, BMW was also involved in the quest for aviation records and peak achievements.

In 1926, for example, BMW supported the Swiss aviation pioneer Walter Mittelholzer on his first crossing of the African continent in a seaplane. For this venture, BMW supplied its new 12-cylinder BMW VI aero-engine. The aim of the expedition was not only to enhance the prestige of the people and companies taking part, but also to glean important insights that would aid the topographical survey of the continent. After extensive preparations, Mittelholzer set off on his intrepid journey. He aimed to fly from Zurich to Cape Town in just 22 daily stages. This risk-laden venture succeeded not least thanks to the trouble-free performance of the BMW engine. Mittelholzer's flight proved a textbook example of the reliability of BMW's aircraft engines. ■

70 years ago | Founding of Flugmotorenfabrik Allach GmbH



Due to the rising demand for aero-engines to bolster the German air force, BMW was forced to steadily expand its production capacity from 1933 onwards. It wasn't long before the two plants in Milbertshofen outside Munich and in Eisenach were operating at the limit, and so the board of management decided that new production facilities must be built.

The largest of the new plants was built in 1936 in woodland near Allach, west of Munich. By 1944, staff numbers at the Allach plant had swelled to more than 17,000, which meant that around 30 per-

cent of the entire BMW workforce were employed there. Limited companies were required to publish a range of statistics in their final balance sheets, from which it was possible to deduce the number of aero-engines manufactured by BMW. The Nazi regime, however, not only demanded more and more aircraft engines but also required war matériel to be camouflaged. From 1934 onwards, BMW consequently hived off its aero-engine production in separate limited companies from the group. The newly built Allach factory was affiliated to the BMW Group in 1936 as a limited company (GmbH). ■

20 years ago | Art and the automobile – BMW 635CSi by Robert Rauschenberg



Above | The BMW Art Car 635CSi by American artist Robert Rauschenberg, 1986.

Below | A 1990 poster captioned "BMW environmental offensive" to mark the launch of the first fully controlled motorcycle catalytic converter.

In 1986, the BMW Gallery in New York presented Art Car number six – a BMW 635CSi designed by Robert Rauschenberg. Born in Port Arthur, Texas in 1925, Rauschenberg was among the pioneers of pop art in the United States. His Art Car departed from its predecessor in a crucial way: Rauschenberg was the first artist to apply photographic techniques to transfer existing images onto the car's bodywork.

Rauschenberg's enthusiasm for photographic methods found fresh expression in the Art Car he designed. He was the first to take existing images – some of them famous – and process them using photographic techniques before transferring them onto the car. The left side of the Art Car, for example, shows Bronzino's Portrait of a Young Man, flanked by Rauschenberg's own photographs of the swamp grasses of the Everglades. The right-hand side shows Ingres' Odalisque, while the hubcaps feature photographs of antique dishes.

In 1988 Rauschenberg drew on the motifs of his Art Car once again for the six-part "Beamer" series. This time they were detached from the car, individually mounted on enamelled aluminium as transparent films and manipulated using collage techniques. ■

15 years ago | The first three-way catalyst in motorcycle history

In May 1991, as part of an environmental offensive, BMW was the world's first manufacturer to offer a fully controlled catalytic converter for its four-valve K 100 RS and K 1 motorcycles, highlighting the company's role as an environmental pioneer as well. This three-way catalyst dramatically reduced exhaust emissions: nitrogen oxides were cut by 80 percent, hydrocarbons by 70 percent and carbon monoxide by 60 percent. For an extra DM 850, bikers

could acquire this highly effective means of exhaust gas cleaning. But customers were prepared to dig even deeper into their pockets, and by 1992 one in two four-valve BMWs was delivered with a catalyst. With the successive introduction of Digital Motor Electronics, the other models were also gradually equipped with catalysts, and by the year 2000 BMW was the only manufacturer to boast a complete product range featuring catalytic converters. ■



Innovations in the BMW Turbo study

1972: the future – today: the norm

The BMW Turbo was a combination of design study and technological guineapig and had a finely developed sense of active and passive safety. BMW presented the Turbo in 1972 as the world's first safety-oriented sports car. And this research laboratory on wheels allowed a glimpse into the future with innovations which were gradually to find their way into series production.

Niklas Drechsler





In the early 1970s, the BMW Turbo provided a stunningly sleek riposte to the prevailing wave of ponderous safety prototypes and their bulky add-ons. This was a time when manufacturers were even testing roll bars fixed above the painted bodywork. The Turbo saw BMW go firmly on the offensive – and reinforce the school of thought that “only clearly structured, agile and manoeuvrable cars really have a genuine chance of making it” in the future. The fresh design penned by Paul Bracq, head designer at BMW at the time, opened up a whole new dimension in the debate surrounding safety and gave the public a preview of the BMW M1 sports car to be launched in 1978. Only two examples of the BMW Turbo were ever built – both at Michelotti in Turin. In October 1972 the first of the two was fêted as the star of the Paris Motor Show. The second Turbo was produced with minor modifications in July 1973 and unveiled for the first time at the company’s annual general meeting. It also caused quite a stir at the 1973 International Motor Show in Frankfurt.

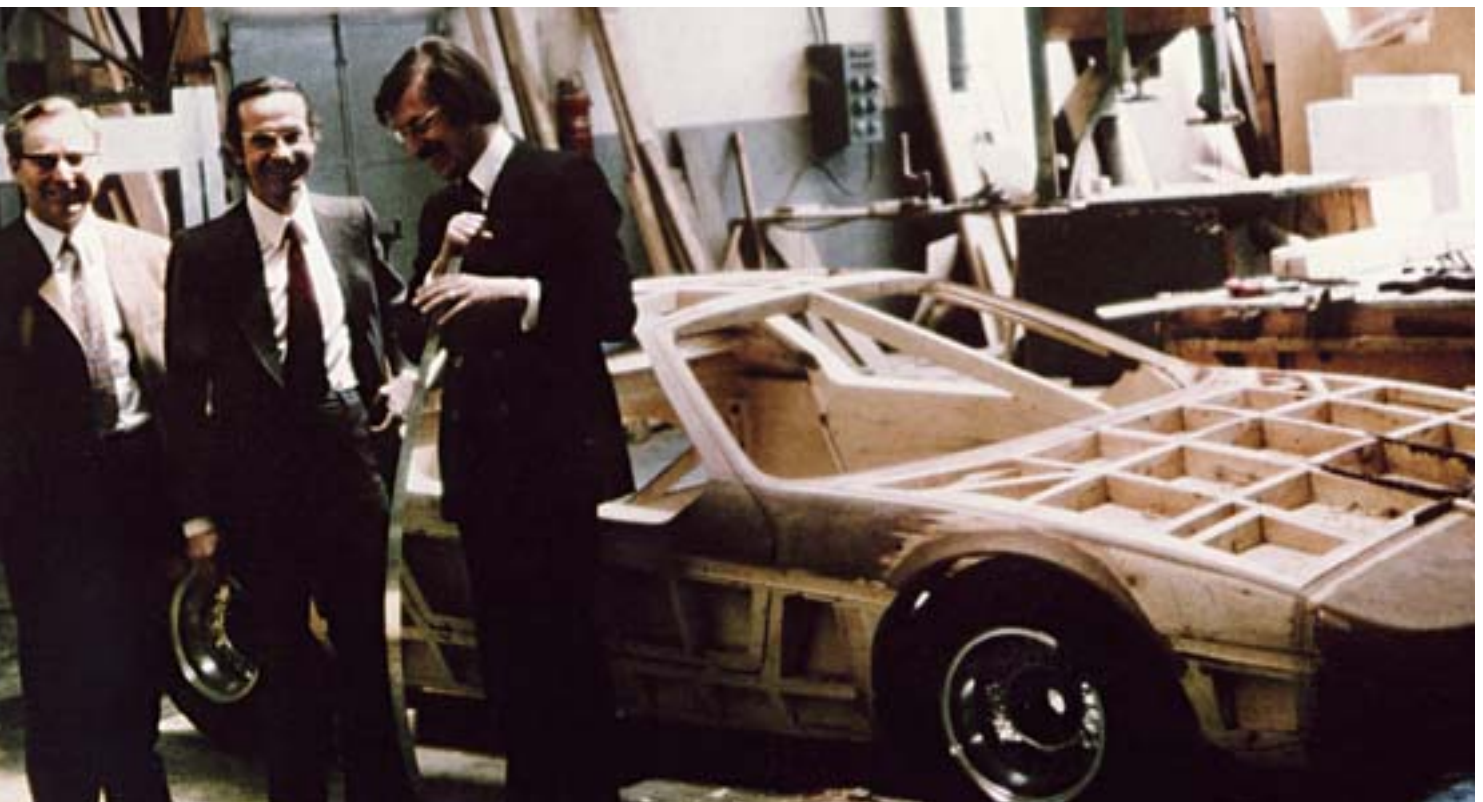
The BMW Turbo was a technological test case and styling concept in one. The design of the car made safety a priority, Bracq ushering in a completely new and pioneering way of thinking for the basic conception of the modern car. The designer explained how his approach put the human element at the heart of the development process: “People are our reference point. Today we build cars from the inside out. The machine we drive should represent an intimate human cell. A car should fit us like a second skin.” The Turbo’s commitment to safety was illustrated by characteristics like its all-round visibility (the idea was to eliminate blind spots), well-balanced axle load

distribution and a paint job which positively screamed safety. Wolfgang Seehaus and Hans A. Muth were heavily involved in the interior design process. Muth later became BMW’s first head of motorcycle design, with the BMW R 90 S and BMW R 100 RS – whose designs had a lasting influence on overall motorcycle construction – both conceived on his watch.

Support for the driver. BMW used the Turbo to present a number of driver assistant systems for the first time. The new technology was designed to warn and support the driver in extreme situations. The Turbo’s basic concept provided the motorist with an inherent layer of safety padding. A low centre of gravity, wide contact area, specially developed chassis and driver-oriented cockpit were all designed to make critical situations a seldom experienced eventuality. If things did get a bit hairy, the driver assistance systems fitted on the BMW Turbo, such as ABS, the radar-based distance warning device and lateral acceleration sensor, were there to save the day. Should an accident be unavoidable, however, the driver would be protected by an extensive range of passive safety features. These included safety belts which had to be put on before the car would start, a safety steering column with three universal joints, door pillars reaching up into the roof – which performed the function of a roll bar – and safety crumple zones with hydraulic dampers at the front and rear.

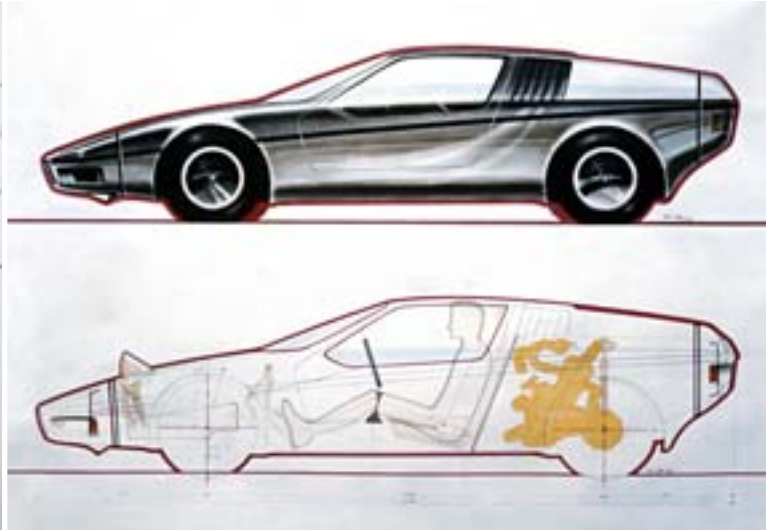
The driver takes centre stage. Stage by stage, the safety features unveiled in the Turbo were fed into series-

Below | Meeting in Italy: Paul Bracq (right) and Giovanni Michelotti (centre) with a wooden model of the BMW Turbo in the workshop.





Above left | Then BMW head designer Paul Bracc with design sketches of the BMW Turbo.



Above right | This sketch illustrates the mid-engine concept with horizontally mounted engine.

produced BMW cars. First to make the grade was the driver-oriented cockpit. As early as 1975 the first-generation 3 Series was kitted out with a cockpit which curved in an arc around the driver. The idea was to make driving easier with a safety belt on. The new cockpit allowed the driver to reach all the buttons and switches without having to lean forward. One of the arguments tendered by the anti-safety belt brigade at the time highlighted the difficulty in using the controls when you were wearing a belt.

The cockpit of the BMW Turbo embodied another new philosophy, as a press release explained: "In order to enhance the feeling of comfort and inner safety, hard edges were avoided and all interior components were padded with foam." This idea, too, was transferred to all series-produced BMW cars from the mid-1970s.

Self-regulating technology. Another notable feature of the BMW Turbo was the "secondary display 2" – a precursor to Check Control, which checked the functioning of safety-related systems using glass-fibre optics. In January 1976 the new BMW 6 Series arrived in the showrooms armed with Check Control as standard. With the ignition switched on, both the 630CS and 633CSi allowed the driver to check the following functions by pressing the "Test" button: engine oil, brake fluid, coolant and windscreen wash levels, plus brake-pad wear and, when the headlamps were switched on, the functioning status of the rear lights. The functions covered by Check Control have since been extended significantly and Check Control has been fitted as standard in all BMWs since the early 1990s. Plus, it now keeps a permanent watch on the car's systems rather than operating on request.

The first BMW with ABS. The Turbo saw BMW unveil the Anti-lock Braking System (ABS) on one of its cars for the first time. The system then went into series production at BMW in November 1978 as an optional extra for the 7 Series, and today a BMW without anti-lock brakes would be unthinkable. Maintaining the driver's ability to steer even under full braking has given vehicle safety a considerable boost. The ABS sensors also provide the basis for all anti-skid programs such as DSC and DTC – or ESP, as some of

BMW's competitors prefer to call it. Here, the Turbo's lateral acceleration display comes to the fore. Although today's BMWs do not come with an indicator showing this value, a yaw rate sensor is at the core of all anti-skid systems. The principle of measuring a vehicle's lateral acceleration was the first step along the road to DSC. Today the driver is still alerted if DSC has stepped in, but only via a warning light rather than a needle and dial.

The BMW Turbo included a raft of innovations which drivers take for granted today. A handbrake connected to the rear brake callipers – rather than to a drum brake, as previously – was a case in point, and ventilated disc brakes all round, a safety steering wheel and automatically retracting safety belts also fit into this category. However, the belts in the BMW Turbo boasted another string to their bow, completing the electrical circuit for the ignition lock when engaged. This meant that the Turbo could not be started until the driver was strapped in.

The precursor to the impact absorber system. Joining in the innovative spirit was the BMW Turbo's bodywork. Progressive safety crumple zones regained their shape after minor collisions thanks to solid, foamed U-sections fitted to hydraulic dampers at the front and rear of the car. This construction paved the way for the crash boxes which made their series production debut in the newly developed BMW 7 Series in 1986. Not long afterwards, these boxes were modified and renamed "impact absorbers". This system, which has been fitted as standard on every series-produced BMW since the late 1980s, allows the bumpers to withstand an impact at up to 4 km/h (up to 6 km/h on some models) without any lasting deformation. Deformation elements set further back absorb all the energy generated by frontal crashes at up to 15 km/h, without damaging the front structure or passenger cell. The impact absorber elements can be replaced relatively inexpensively. At speeds up to 15 km/h, the crash structure helps to absorb energy or divert it around the passenger cell. When the system was introduced in the BMW 7 Series, it was claimed that 70 percent of all front-to-rear collisions took place at a maximum 15 km/h. This means that the impact absorber system also helped to keep the car's insurance rating low. ▶



The lights on the Turbo were integrated into the bumpers in such a way that they would not be damaged in minor collisions. Wind tunnel tests showed, however, that this placement had a negative effect on the car's aerodynamics.

The great grandfather of Active Cruise Control. One feature of the BMW Turbo never made it into production, but did serve as the basis for a much wider-reaching system. A radar-controlled distance warning device was already on the menu for the Turbo in 1972. A display was designed to show the distance – between 0 and 100 metres – to the vehicle in front. Depending on the car's speed, if the gap fell below a certain level a buzzing sound would be triggered, and the car's acceleration checked. Engineers returned to this idea repeatedly in the years that followed. The range of functions expanded enormously and were gradually channelled into production. Active Cruise Control went into series production as an option for the BMW 7 Series in 2002. This system not only shows the distance to the vehicle in front and warns the driver if the gap is getting too small, it also maintains a preset distance between the two vehicles. The current system brakes the vehicle as well as throttling back the engine.

A mid-engine concept – but not as the M1 knows it. As well as its design and safety features, the basic concept of the BMW Turbo was also genuinely remarkable. The mid-engined sports car was powered by a horizontally mounted 4-cylinder turbocharged engine with displacement just shy of two litres. The mid-engine concept was then taken up again in 1978 for the series-produced BMW M1. However, at the heart of the M1 was a naturally-aspirated straight-six powerplant with displacement of almost 3.5 litres, which was mounted longitudinally. The 4-cylinder unit in the BMW Turbo did make it into production, though, under the bonnet of the BMW 2002 turbo in 1973. Peak output was 170 hp. In the BMW Turbo, the 2-litre engine developed a maximum 200 to 280 hp – depending on the charge pressure of the turbocharger. The two-valve engine was designed with petrol injection and had a compression ratio of just 1:6.8, so as to ensure that the turbocharger and engine compression remained in tune. The turbo principle appealed to the BMW engineers because it meant greater efficiency and allowed environment-friendly combustion. BMW had already gathered a wealth of experience with turbocharged engines for aircraft before the end of the Second World War. However, the BMW Turbo marked the first time that the brand had used this type of powerplant in a car.

The engine was mounted on a subframe and fixed to the floor assembly by four large rubber mounts. The aim was to prevent, as far as possible, the engine from sending through vibrations. The subframe also supported the rear axle, whose construction was described in press information at the time: "The McPherson rear axle works with trailing and transverse links. Fitted in addition to the transverse link, a trapezoidal rod with ball joints controls the rear-axle kinematics." The press release also explained the effect of this construction: "The setting and arrangement of this additional link can be adjusted precisely to achieve the desired axle kinematics. The double wishbone arrangement sees the wheel move parallel to the centre of the car on the longitudinal suspension, suppressing the occurrence self-steering effects."

Post-presentation. After the BMW Turbo was unveiled to the public it was given a thorough inspection by engineers of various specialities. Since its ongoing tour of the international shows meant Turbo no. 1 was otherwise engaged, in September 1972 the Board of Management decided to build a second example for testing purposes. Prototype no. 2 was at work in the wind tunnel as early as autumn 1973. The influence of various modifications to the car was also explored. Tests were conducted on 17 variants in all. Tellingly, the most aerodynamically effective version had a similar Cd value to the BMW M1 which went into production some time later.

An internal test report from 1974 confirms that prototype no. 2 also underwent intensive dynamics tests at the Aschheim proving grounds, with improvements applied stage by stage to problem areas. The use of different tyres, for example, allowed progress to be made on the car's straight-line stability. The build-up of heat in the engine compartment and the oil temperature were other potentially serious problems to emerge from the first round of testing. In-depth tests were also carried out on the car's handling, possible improvements worked out and the limits of the concept discovered. The anti-lock braking system was added to the Turbo at a later stage, and this round of testing also took place without the radar-based distance warning system.

While vehicle number 2 was deeply immersed in testing, its older brother was midway through a major tour. Once the test programme had been completed, the two cars became a frequent sight at shows and in museums. In the winter of 1973/74, car no. 1 embarked on a tour of America, stopping off at the Los Angeles Auto Show, the Import Car Show in San Francisco and the Boston



Facing page left | The second of just two BMW Turbos ever built in dynamics testing in 1974.

Facing page right | The arcing cockpit of the BMW Turbo. The precursor to Check Control is to the left of the driver's seat.

Above | The BMW M1 production sports car (from 1978) takes styling cues from the BMW Turbo study.

Below | Futuristic (for the time) locations were favourite venues for photo shoots with the innovative BMW Turbo.

Auto Show. Following the “documenta6” in Kassel, one of the cars also popped up in Munich in 1977 under the slogan “Vehicles: utopian design”. From 1982, car 1 went on show for a good number of years at the Auto+Technik Museum in Sinsheim, while the second car could generally be seen in the BMW Museum in Munich. The first BMW Turbo also guested for several years at the Musée National de l’Automobile – Collection Schlumpf in Mulhouse, as the only representative of the BMW brand. Then, in 1989, it was unveiled once again as part of the press presentation for the BMW 850i. On 12 and 13 September 1992, the then freshly restored BMW Turbo won first prize in the Concours d’Elegance de Bagatelle in Paris, before returning to its home-from-home in Mulhouse. Another notable appearance came at an exhibition at the Kunsthaus Wiesbaden art gallery in April 1993, where the Turbo was displayed along with paintings and sculptures by Paul Bracq. The former head of design at BMW has always been a keen painter, illustrator and sculptor. His oil paintings, depicting cars from various manufacturers and eras, are particularly well thought of in specialist circles.

In early July 2006, the BMW Turbo went on show once again in front of an audience of some 70 international journalists. The scribes were attending the BMW Group Innovation Day 2006 to find out more about driver assistance systems. As the first BMW to be fitted with these systems, the BMW Turbo provided a bridge between the past and the future at the event. ■



When the journey is the reward...

The 1978 BMW Tour d'Europe

In July 1978 Bayerische Motoren Werke invited the motoring press to the launch of its new top-of-the-range coupé, the BMW 635CSi. The occasion was not marked by a press conference, however, nor by gleaming vehicles on spot-lit turntables and a theoretical treatise on the virtues of the muscular in-line 6-cylinder engines. Instead the cars simply took to the road.

Max Bauer

In 1978 invitations were sent to 250 journalists from 10 different European countries, offering them the chance to take part in a three-week test drive of the new BMW 635CSi that would take them from Munich across the length and breadth of Europe. With 15 of BMW's flagship coupés at their disposal, the objective for each group of journalists was to drive the fleet of cars from the company's Munich headquarters to a predetermined relay point, where they would hand over the keys to the next group of journalists before flying home. The benefits of this type of event were self-evident: not only would the coupé be subjected to thorough practical testing over long distances, it would also give journalists the opportunity to experience the car as both driver and passenger.

In the late 1970s the BMW 635CSi was the top-of-the-range 6 Series model, being sportier, faster and more powerful than either the 630CS or 633CSi versions. Its 3.5-litre straight-six engine delivered 218 hp, 21 more than the 633CSi. Maximum output was achieved by the four-valve direct injection version with reduced revs (5,200 instead of 5,500 rpm). The short-stroke unit was derived from the M 49 racing engine and catapulted the 1.5-tonne coupé from 0 to 100 km/h in 7.6 seconds. Top speed was 222 km/h. To match the performance requirements of the engine, the springs/dampers had been firmed up and torsion bars strengthened. In addition, front and rear spoilers were fitted to further improve the sports car's aerodynamics. Pin-striping down the sides completed the car's dynamic visual impact.

The tour got under way on 10 July 1978. The starting groups, all representing the German motoring press, set off from Munich or Frankfurt for the Netherlands, covering distances of 900 to 1,500 kilometres between them. A flat tyre and a broken shock absorber were all that hindered progress. Just a few days later the BMW had already made headline news. "Luxurious and strong as an ox, two characteristics rolled into one in BMW's new flagship, the 635 CSi Coupé," enthused the Hessische Allgemeine newspaper. And auto motor sport magazine ran with the headline: "The Bavarian lion roars again." A report appeared in the Süddeutsche Zeitung that gave its backing for BMW's decision to stage such a tour: "The fact that BMW could launch the 635CSi with a programme of this sort – nine hundred kilometres of hard driving, interrupted only for driver changes and refuelling stops, followed by ►







specialist presentations and discussions – without drawing protests from those involved is proof of the car's quality."

The 635CSi shared the characteristic long, flat body of its predecessors. The front view was dominated by the double halogen headlights. The BMW kidney-shaped grill was angled forwards to emphasise the car's dynamic qualities and the large, expansive windows also slanted steeply inwards. While no higher than their predecessors, the 6 Series models were appreciably wider and longer and, as a result, considerably more spacious inside. The new model also featured for the first time the concept of a driver-oriented cockpit, with the centre console both aesthetically and functionally inclined towards the driver.

The Tour d'Europe took the Dutch journalists along the coast via Calais to England. The stage destination was the historic Leeds Castle. The Dutch party's enthusiasm for the tour grew as on arrival at Calais they drove their BMW 635CSi aboard the hovercraft. At speeds up to 100 km/h they skimmed across the English Channel in just 25 minutes, a nautical equivalent to the 222 km/h top road speed achieved by the 635CSi. The Dutch drivers were unstinting in their praise for the coupé's ride characteristics. "Overweldigend!" ("overwhelming") exclaimed the *Schlager Courant*. The magazine *autorevue* ran with the headline: "Munich's Dynamite". Stage Three was firmly in British hands, the journalists driving the cars back to the European mainland from London and

Above | Crossing the continent in a BMW 635CSi: the BMW Tour d'Europe took in seven European countries.

Below | Early morning fuel stop: the 635CSi fleet and a group of journalists.



reaching Antwerp exhausted but exhilarated on 14 July. "The car is a joy to drive," wrote the *Express&Echo*, "even under extreme circumstances." And the magazine *Autosport* added, "Let's hope there are no speed restrictions in Belgium."

The Belgians, who picked up the relay along with the Swedish journalists in Antwerp, then pointed the BMWs towards northern France and the stage destination in the Champagne region. As the coupés were prepared for the challenges that lay ahead, the highly regarded auto hebdo gushed: "One is forced to acknowledge that the 635 is truly extraordinary... one of those cars that gives you a real feeling of joy."

Enjoyment in driving the car was not just a function of its improved comfort. Serious thought had also been given to new safety features. The interior compartment had been conceived as a safety passenger cell in which high torsional rigidity and bending resistance was designed to offer maximum protection. Crash tests and computer analyses had also led to the reintroduction of B-pillars as torsion bars, although these did nothing to detract from the coupé's elegant, flowing lines. A particularly interesting feature in the 6 Series and appearing for the first time in a BMW was the Check Control system, an electronic panel which enabled the driver to call up information such as brake fluid or oil levels and even brake pad integrity at the touch of a button.

The French journalists enjoyed pushing the BMW 635CSi to its limits, driving the coupés flat-out along the A5 motorway stretch from Paris to Dijon. On this stage the first of the cars was forced to abandon the tour with radiator damage caused by a flying stone. For the rest of the French media, however, Geneva was the end of the road. Describing the tour event as "an innovative idea", the magazine *Sport-auto* went on to tell its readers: "The coupé is without doubt one of the most exceptional vehicles of its day," adding nevertheless that they would have liked to see "just a touch more sportiness."

12 days into the tour it was the turn of the press pack from Switzerland, Spain and Austria. From Geneva the route followed Alpine roads to Stresa on Lake Maggiore. The stage was without incident and on the winding mountain roads the firm chassis of the 635CSi really came into its own. The drivers were amazed at the cars' roadholding ability on corners and safe, unfussy handling. After such a testing stage, BMW was also the toast of *Sonntags-Blick*: "This is a car that will turn heads like a beautiful woman. People will talk about it like winning the lottery... What you've produced here is nothing short of a dream car!"

27 July saw the start of the final stage. It was left to the Italian journalists to manoeuvre the fleet of coupés through a long line of caravans heading over the Brenner Pass from Milan to Munich. But the drivers and cars made it safely back over the mountains to the Bavarian capital, with just one 635CSi suffering minor damage after an aquaplaning incident.

The BMWs might have been quick – but the journalists were even quicker. Just 17 days after the start of the tour, reports had already begun proclaiming a unanimous message across large sections of the European press: The Tour d'Europe had been an outstanding success and the BMW 635CSi was hailed a true "dream car".



Above left | Photo shoot in France: a BMW 635CSi at the Airport in Paris.



Above right | Belgian journalists take the BMW coupés from Antwerp to northern France.

History of the first 6 Series 1976-89

On 8 March 1976, the international press was invited to the restaurant Le Moulin des Evaux near Geneva to attend the official launch of the BMW 6 Series. "The new coupé we are unveiling today represents an evolutionary step, not only in terms of comfort and safety, but also in terms of performance and engine output – and as such it is the top model in our range," said the BMW chairman of the day, Eberhard von Kuenheim, at the launch ceremony.

The BMW 6 Series was the result of consistent and successful model policy-making at Bayerische Motoren Werke since the Second World War. The 1950s had begun with the optimism of the nation's rebirth and reconstruction and ended in crisis, but throughout the 1960s BMW remained faithful to the brand's traditional values and in so doing paved the way for future successes. Then in the 1970s BMW laid the foundations for those model series that continue to characterise the brand even today. In 1972 the company launched the 5 Series as a successor to the "New Class". And in 1975 the BMW 02 Series was superseded by the first generation of BMW 3 Series models. The logical extrapolation of this model strategy was to replace the large coupés with the two top models, the BMW 3.0 CSi and 3.0 CSL. The success of the mid-range cars enabled BMW to get to work on new luxury automobiles.

Introduced in 1976, the BMW 630CS and 633CSi models set new benchmarks for the 1970s in terms of design and technology. Drawn by BMW's chief designer of the day, Paul Bracq, they were built on the floor assembly and running gear of the 5 Series. With the 6 Series, BMW paid special attention to sportiness, comfort and safety in equal measure. The first engines fitted were the large volume straight-six units particularly favoured

for their low noise levels and long service life. The 630CS was offered with a 185 hp 3.0-litre normally-aspirated engine, the 633CSi with a 197 hp 3.2-litre direct injection variant. As such, then, the coupés were athletic without reaching the sporty extremes of a BMW 3.0 CSL. From the outset the two coupés also came with a ZF 3-speed automatic transmission, an option that attracted roughly one third of customers.

After the 635CSi of 1978 came the BMW 628CSi – a 2.8-litre direct injection variant which replaced the 630 CS the year after. Subsequent variants appeared, including those specifically for the US market. In 1982 the 6 Series coupés underwent a revision programme. An onboard computer, service interval indicator, new instruments and a more advanced chassis lent the vehicles even greater exclusivity. The most powerful version was the BMW M635CSi, modified in 1983 by BMW Motorsport GmbH and given the legendary 286 hp four-valve engine from the BMW M1. With a top speed of 255 km/h, the sports coupé was the fastest BMW four-seater of all time. All models were later electronically limited to 250 km/h. The three-way catalytic converter was fitted to the coupés in 1985, as well as Electronic Damper Control (EDC) from 1988.

For capacity reasons, body production and final assembly of the cars were initially outsourced to the Karmann firm of body specialists in Osnabrück, before production of the 6 Series was transferred to BMW's Dingolfing plant in 1978. Finally in 1989, 14 years after production start-up, the last of the 86,216 635CSi Coupés from the first 6 Series came off the production line. BMW breathed new life once more into the highly successful 6 Series in 2003, establishing a new generation of gran turismo coupés with the 645Ci. ■

New addition to the collection:

The BMW 320i WTCC driven by Andy Priaulx



Above | Leading the pack: the world championship-winning car in race action.

Andy Priaulx is one of the most successful touring car drivers around, and his career is closely linked to the BMW brand. After winning the European Touring Car Championship in 2004, he went on to take his first world championship title in 2005 in the BMW 320i, before repeating that success in November 2006. BMW managed to defend its manufacturers' title again. BMW Group Mobile Tradition has acquired the world championship-winning car of 2005 for its historical collection.

Niklas Drechsler

The championship. Alongside the Formula One World Championship and the World Rally Championship, the WTCC (FIA World Touring Car Championship) is one of the three official world titles up for grabs on the motorsport calendar. The WTCC was born in 2005 out of what was the European Touring Car Championship (ETCC). The winner of the last three series was Andy Priaulx in a BMW 320i, which explains the number 1 that reappears on the bodywork of the world championship-winning model. Sharing the grid with BMW were rival manufacturers Alfa-Romeo, Seat, Honda and Chevrolet. The 2005 and 2006 World Touring Car Championships saw the excitement continue right up to the final race. Both times the destiny of the title was only decided in the final race of the season in Macau. The appeal of the series, a true fans' favourite, was summed up by BMW Motorsport Director Mario Theissen: "In the last year we've seen no

end of door-to-door racing and a lot of great action. There was never much in it, and that makes for unbeatable touring car racing in my eyes. Plus, the new international slant to the championship has added extra spice."

The 2005 car. The BMW 320i was adapted to the demands of the series regulations. Since only cars with at least four doors are eligible for the WTCC, the 2005 car was based on the 3 Series Saloon and not the Coupé. The BMW 320i Saloon has significant aerodynamic benefits over a 5-door car, which means it had to carry 30 kg of ballast. Another 30 kg were added to compensate for the substantial advantage provided by rear-wheel drive, which gives the BMW an edge over its rivals both at the start and under acceleration out of tight corners. In order to avoid a further 30 kg penalty, the Munich brand's cars were fitted with a 5-speed

“H” transmission. As Theissen explains, although a sequential transmission would save time when changing gear, its benefits would be more than cancelled out by the speed lost through the extra weight. The race-trim 320i tipped the scales at 1,140 kg including the driver – bang on the minimum weight stipulated by the WTCC regulations for this type of car. All the runners on the grid were powered by 6-cylinder in-line engines developing peak output of 275 hp at 8,800 rpm from their almost 2-litre displacement. The regulations set the maximum engine speed for the 6-cylinder engines at 9,000 rpm and also banned electronic assistant systems such as ABS and traction control. And now this racing machine has been snapped up by BMW Group Mobile Tradition for its collection.

The driver. Guernsey’s Andy Priaulx is one of the outstanding touring car drivers in the business. After enjoying considerable success in motocross, hill-climb championships, British Formula 3 and British touring car racing, he stepped up to the international touring car stage in 2003. After finishing third in his first season in the ETCC, he took the championship crown the following year. With the series morphing from the European championship into the world championship, the Channel Islander lined up for 2005 with car number 1 next to his name. The season once again finished in victorious style for Priaulx, yielding the WTCC title and making him only the second ever touring car world champion. 2005 also saw him make his debut in the 24-hour race on the world’s most challenging circuit – the Nürburgring Nordschleife. The team of Priaulx, Pedro Lamy, Boris Said and Duncan Huisman duly topped the overall standings. The same year, he got to sample the BMW power in a Formula One car during an extended testing session, setting some eye-catching lap times in the process. And if that wasn’t enough, his native Guernsey brought out a special collection of stamps to commemorate his success.

The importance of the world championship title.

There have only been three world championship series in the history of touring car racing – and all have been won by BMW drivers. The first tin-top world champion was Roberto Ravaglia in 1987 at the wheel of a BMW M3, with Andy Priaulx following in his tyre tracks to repeat the feat in 2005 and 2006 with a BMW 320i WTCC. True, these titles are snapshots in time. However, the fact that all of them were won with BMW cars is no coincidence, just the visible result of the brand’s unyielding and impressive commitment to touring car sport. ■



Above | The two touring car world champions: Roberto Ravaglia (left) and Andy Priaulx.

Below | Priaulx celebrates another win in trademark style.





BMW





A concise company history

Opportunity, crisis and success – the history of Bayerische Motoren Werke

In a history that now goes back some 90 years, Bayerische Motoren Werke has developed in varied and exciting ways. From its beginnings as a small business in Munich with a single product, it has evolved into a global operator marketing cars and motor-cycles throughout the world. Along the way opportunities opened up, crises had to be overcome and successes were celebrated.

Dr Florian Triebel

In 1917, at the height of the First World War, the business known as Bayerische Motoren Werke GmbH was founded as a private limited company. Only a year later it was converted into a corporation. Its chosen symbol, which has represented the company and its products ever since, was the blue and white circular logo, based on the colours and design of the Bavarian coat of arms. ▶

In 1922, two years after the company had been sold to the brake manufacturer Knorr-Bremse AG, the financier Camillo Castiglioni acquired the engine building business with its workforce and plant as well as the company's name and badge, and transferred everything to his "Bayerische Flugzeugwerke AG" (BFW), whose factory was on Munich's Oberwiesenfeld (now the Olympic Park, besides of BMW's present headquarters). Since then, the founding of BFW in 1916 has been regarded as the date on which BMW was born.

During the First World War the company only made one product: the BMW IIIa aero-engine, which displayed exceptional performance characteristics – especially at high altitudes. Following the end of the war Germany was initially forbidden to build aircraft engines. BMW kept afloat by manufacturing brakes for railway wagons and engines for installation in boats and vehicles. Not until the transfer of engine building to the "new BMW AG" in 1922 could production of BMW aero-engines be resumed. Only a short time later – in autumn 1923 – BMW products could be seen for the first time running on roads as well as in the air. With the BMW R 32 the young company launched its first motorcycle, which offered two remarkable design features: a flat-twin engine whose cylinders were located at right angles to the direction of travel, and a cardan drive with a shaft instead of a chain or belt transmitting the power to the rear wheel. To this day, both features are hallmark design principles of BMW motorcycle construction.

From the early 1920s there were also attempts by BMW to develop a motor car, though these efforts were initially not crowned with success. Then finally, in 1928 the opportunity arose to acquire the vehicle builders Fahrzeugfabrik Eisenach, which was successfully manufacturing the small British Austin Seven saloon under licence. BMW took over the production of this model and renamed it the BMW 3/15 PS, but from 1932 onward it built cars to its own designs. In a few short years BMW's range of cars had significantly altered and expanded. Instead of small cars, customers were now offered a broad and varied range of sporty medium-sized cars whose striking features were the kidney-shaped radiator grill, the elegant bodywork design and, not least, the 6-cylinder engines with their excellent running qualities.

From the start, BMW's aero-engines, motorcycles and cars became a talking point on account of their sporting triumphs. In 1919 it was an aircraft driven by a BMW IV engine that carried a man to an altitude of 9,760 metres for the first time. Numerous other firsts and endurance flights proved the operational safety and reliability of the BMW power units. As early as the 1920s, BMW motorcycles took away the laurels in many races and won a string of German championships. The culmination of these activities came in the later 1930s. Riders on BMW machines won three international titles in six-day trials. In 1937 Ernst Jakob Henne set up an absolute record by achieving a speed of 279.5 km/h, while "Schorsch" Meier won the 1939 Senior TT on the Isle of Man – the first non-Briton to do so on a foreign-built motorcycle. In the 1929 Alpine Rally, BMW's first car – the diminutive 3/15 PS – surprised hardly anyone by cruising to victory. Its successors, the sports cars of the 1930s, continued this run of success. From 1936 onward, the BMW 328 dominated the 2-litre class and in 1940 won the Mille Miglia, at the time the toughest road race in the world.

Yet until the end of the Second World War, aero-engine construction remained the mainstay of the company. Under the Nazi regime both the piston engines and jet engines built by BMW acquired a special significance for military planning. Along with the privileges accorded to a "key armament business", this status did, however, mean dependence on the state and the restriction of its entrepreneurial scope through measures of governmental control. And so in 1941 the car making business had to be closed down in favour of aero-engine production, and in 1942 motorcycle manufacture was relocated to Eisenach. What is more, BMW became involved in the criminal policies of the Nazi state. When war began, the company relied heavily on prisoners-of-war, as well as foreign forced labour from the German-occupied territories, to work on its aero-engine production. After 1942, concentration camp inmates were also forced to work on aero-engines in the BMW factories.

Up to the end of the Second World War, BMW turned out almost nothing but aircraft engines at its plants in Munich and Eisenach and, from 1939, in Berlin and in several "shadow factories". After Germany's surrender on 8 May 1945, BMW lost the Eisenach facility, which was located in the Russian zone of occupation, and





Above | A BMW R66 sidecar combination in the 1938 Alpine Trial.

Facing page left | In June 1919 Zeno Diemer, in an aircraft powered by a BMW IV engine, achieved the world altitude record of 9,760 m.

Facing page right | In the 1920s and 1930s the brand was known for its racing successes.

Below | In the mid-1930s BMW car design acquired its individuality: the models, like this BMW 327 Cabriolet, were distinguished by their elegance and sporty performance.



with it all the documentation, equipment and know-how required for the manufacture of cars and motorcycles. This fact, and the large-scale dismantling of production facilities, made a new start in Munich considerably more difficult. In the first years after the war, BMW was engaged only in “substitute production” (cooking pots, household utensils and agricultural machinery) and the repair of US Army vehicles.

Nonetheless, the company wanted to get back on the road again with its own vehicles. In 1948 it introduced its first post-war motorcycle, the BMW R 24, and in the years that followed extended the range with flat-twin machines. Even before the start of series production in 1947, BMW motorcycles were creating a sensation on the race track. BMW sidecar combinations were especially notable in establishing the sporting pedigree of the marque, winning the world sidecar championships 20 times between 1954 and 1974. Not until 1952 was car manufacturing resumed. For technical production reasons BMW decided to start with luxurious top-of-the-range saloons, and later to expand its output with sporty mid-range cars. However, these plans were to fail: the “big cars” proved to be too heavy and un-sporty, and had certain quality defects. This meant they did not match the traditional values of the BMW marque. The company could not even sell enough of these vehicles to cover development and production costs. The only way to get out of the red was to purchase a licence. It was from an ▶

Italian company that BMW acquired the right to manufacture the Isetta – an almost spherical bubble car. Thanks to the production of the Isetta “Motocoupé” the company was able to provide employment for part of its valuable skilled workforce, who otherwise would have been laid off and lost to BMW.

However, this was not enough to cure the group’s profound financial crisis. In the late 1950s the losses on large car manufacture had eaten up a considerable part of the company’s capital. Added to this, a slump hit the German motorcycle market, which even led to a decline in sales of BMW two-wheelers. In this seemingly desperate situation, the company’s top management decided to take a momentous step. At a shareholders’ meeting on 9 December 1959 they proposed, as a way of saving the company, to sell BMW to its Stuttgart-based rival, Daimler-Benz. But for 10 long hours representatives of the small share-

holders, along with BMW’s dealers, resisted the plan and finally prevailed: the company remained independent. Impressed by this determined resistance, the strength of the marque and the highly skilled workforce, the industrialist Dr Herbert Quandt worked out a plan for the reconstruction of BMW which, among other things, took account of the interests of the dealers and small shareholders.

The key factor in this was a new product range, based on company plans that were already well advanced. Under these plans the small BMW 700, launched in the crisis year of 1959, was to carry the principal load in the years of reconstruction and, for all its modest dimensions, was once again a “genuine BMW”, a fact proved by its competition successes. Finally, in 1962 BMW once more introduced a sporty mid-range car, something the market had been waiting for since the end of the Second World War. With this “New Class” and, from 1965, the smaller “02 Series” models, the company picked up the developments that had brought BMW success and prestige in the 1930s – and in doing so created a promising niche in the automotive market. It was not long before production capacity at the Munich plant was outstripped by demand. When the chance came up to acquire the Lower Bavarian carmaker Hans Glas GmbH, with factories in Dingolfing and Landshut, BMW seized it with both hands. The initial plan was to continue manufacturing cars with the Glas badge, but in the end it was BMW models that rolled off the production line in the newly built Dingolfing plant. In 1969, as a further step in streamlining production, the company transferred motorcycle production from Munich to the plant in Berlin’s Spandau district.

The company’s growth through the 1960s meant that space became tight, and not only for production. Management also needed to expand. In the middle of the decade the company drew up plans for a new headquarters, which finally took shape with the famous BMW Tower (also known as the “BMW four-cylinder”). In 1973, in tandem with the head office, BMW opened its museum in the round “bowl” right next door.

In the early 1970s, BMW reorganised the designation of its car production series. From now on a common theme would be recognisable in the model designation of all BMW cars. Since then the BMW models of the 3, 5 and 7 Series have stood for sporting and high-quality cars in their respective categories. In between these core production series there was still plenty of room to allow for other automobile concepts to be slotted into the system. With the addition of “Z” models to this nomenclature, BMW has, since 1988, offered sports cars such as roadsters and sports coupés. And with the “X” production series launched in the late 1990s, BMW introduced a vehicle segment unique to BMW: “Sports Activity Vehicles” – cars that offer BMW’s proverbial driving pleasure both on and off the road.

Below | Sporty, compact and eye-catching, the BMW 2002 put a decisive stamp on the marque.

Bottom | An exceptionally handsome vehicle, but not a commercial success: the BMW 507.



Facing page | The BMW 700 not only made a crucial contribution to BMW’s recovery, but also performed convincingly in competitions.

BMW 700 *sport*





Above left | Nelson Piquet driving the Brabham BMW Turbo in the 1983 Monaco Grand Prix.

Above centre | The BMW G 650 Xchallenge is put through its paces.

Above right | Since 1999 BMW has been turning out the BMW X5 Sports Activity Vehicle in Spartanburg, South Carolina.

With the competition successes of the small BMW 700, BMW once again made its mark in motorsport. Ever since then, BMW cars have proved their high sporting prowess in touring car racing by winning the World Touring Car Championship in 1987, 2005 and 2006, the only three WTCC events to be held up to then. Since 1967 BMW has been involved in Formula 2 racing as a supplier of engines. The experience gained here provided a good launch pad for entry into the highest realm of motor racing – Formula One. In partnership with Brabham they achieved a success that was unique at the time: just 630 days after the first trial run, Nelson Piquet won the World Championship for the 1982-83 season driving the Brabham BMW BT 52. In the year 2000, after a long interval, BMW returned to Formula One as an engine supplier with Williams as its partner. From the 2006-07 season onwards BMW is entering its own works team in motor racing's top-echelon event.

Alongside its car-making activities, BMW had since the early 1980s been expanding its business in the motorcycle field. In 1980 the company launched its first big touring enduro model, the G/S, which was able to prove its overland qualities with four victories in the Paris-Dakar Rally. But in design as well, BMW was entering completely new territory. Whereas up to that point BMW machines had been powered exclusively by single-cylinder engines (until 1966) or flat-twins, with the new "K Series" 3 and 4-cylinder in-line engines were being offered as standard. But here too BMW used its own design: for the first time in motorcycle manufacturing the power unit was mounted horizontally and in line with the direction of travel. BMW introduced other innovations

as well, such as ABS and catalytic converters, as well as improvements to the frame design. Since 1993 BMW has returned to producing single-cylinder motorcycles, and starting in 2006 is manufacturing two-wheelers with in-line twin-cylinder engines for the first time.

The expansion of the car and motorcycle ranges required a gradual but steady increase in production capacity. In addition to enlarging the existing sites in Bavaria, new plants have been set up since the late 1970s both in Germany and other countries. Important milestones were the engine plant in Steyr, Austria in 1979 as well as production facilities in Regensburg, Bavaria (1982), the American town of Spartanburg, South Carolina (1992) and Leipzig in eastern Germany (2003). In addition to these, BMW runs assembly plants throughout the world, some of them in partnership with importers or other local companies. The group has also been strengthening its presence in the market in order to optimise sales of cars and motorcycles. Starting in 1973 it has established its own subsidiaries in the key export markets. Today these companies serve the needs of dealers and customers in 35 countries.

In 1993 BMW had the opportunity to buy the Rover Group, and thereby considerably enlarge the choice of cars it offered. The British subsidiary owned a wide array of time-honoured marques, including those of MG and Land Rover. However, it turned out that, at the time of the purchase, the possibilities for developing these marques had been overestimated. In order to avoid big losses the BMW Group decided, at the beginning of 2000, to sell its British subsidiary again. Only the MINI marque was retained in the business and since 2001 it has experienced a successful renaissance. In addition



to vehicles bearing the BMW and MINI badges, BMW's family of products also took on the luxury cars of the Rolls-Royce marque in 2003. Since then, these strong brands have provided the company with an excellent basis for a non-overlapping range of vehicles in the pre-

mium segment of the market. The output of this manufacturing combine will continue to be optimised so as to facilitate a flexible response to market conditions. In 2006, under its three badges, the group produced 1.3 million vehicles in 22 locations.

Below | The handover of 50 BMW 320d Touring models to the Bavarian police in Munich, April 2006.



Fuel for Formula One cars in the 1980s

Special petrol for more power

The choice of fuel was a significant factor in the outcome of the 1983 World Championship. Against a background of relatively liberal regulations, BMW was the first manufacturer in Formula One to sound out the potential of petrol with maximum energy density. Today, there's much less room for manoeuvre.

Niklas Drechsler



In 1958 the fuel regulations in Formula One dictated that only commercially available 4-star petrol would be permitted for the cars on the grid. However, as the 1970s dawned, the calls for change became ever louder. The engine manufacturers wanted to demonstrate what they were capable of, and needed higher octane ratings to do so. For their part, the oil companies were looking to showcase their ability to produce higher-grade petrol of the type already available in several F1 host countries. These demands led to the octane rating for Formula One petrol being fixed at 101 RON, with a tolerance of plus/minus one octane. By the time BMW joined the grand prix fray in 1980, Article 14 of the Formula One regulations had im-

posed an upper limit of 102 RON. Maximum oxygen content stood at two percent, with nitrogen capped at one percent. The use of performance-enhancing nitrates, alcohols and other additives not based on hydrocarbon molecules was banned altogether. Everything else was left to the discretion of the suppliers.

All of which made the development of a race fuel which met the series regulations and was optimised for use in turbocharged engines a crucial factor in achieving success in Formula One. BMW was the first manufacturer in grand prix racing to pair up with a partner from the chemical industry – namely BASF subsidiary Wintershall – in an attempt to squeeze the maximum out of its fuel. ▶



The aim was to extract as much energy as possible from each litre of petrol. Insiders at the time talked of the “optimisation of energy content”, and that meant pushing up the engine’s knock limit while using fuel with the same octane rating. In simple terms, “knock” describes the effect of unwanted spontaneous ignition in the combustion chamber, which very quickly leads to engine damage and is therefore usefully avoided.

In-depth investigations into knock resistance were conducted in supercharged aircraft engines before the end of the First World War. A scientific paper came up with the following conclusion: “In tests with supercharged engines, two types of aircraft fuel with the same octane rating but containing different substances – e.g. paraffins and aromatics – produced... very different knock characteristics.” Added to which, fuels with identical octane ratings were accurately shown to have clearly divergent knock limit curves – not only in terms of their lowest point, but also in the steepness of the curve. The test report describes an additional phenomenon: “Another interesting aspect is the change in the knock limit curve when

you add another fuel to a basic fuel, in this case benzole, in a different mixture ratio... The lowest point of the knock limit curve rises – i.e. there is an improvement in the knock characteristics – and the knock limit curves of the mixed fuels are steeper than those of the basic petrol.”

Important knowledge was gained through tests carried out at the time with pure isooctane, and these findings were dusted down once again in the 1980s. In 1982 BMW Motorsport conducted experiments with various mixtures, including blends of isooctane and avgas (aviation gasoline) with an isooctane content of almost 95 percent.

The comments in the scientific report indicated that petrol was not defined by a chemical formula, but instead consisted of various different components. For the fuel suppliers involved in Formula One, the trick was to pick out the constituent elements which maximised energy content. With the octane rating stipulated by the regulations, components had to be chosen which would achieve the highest possible density. BMW partner Wintershall, for example, was

Below | 1983: Nelson Piquet’s Brabham BMW Turbo is refuelled from barrels printed with the team’s title sponsor.



clearly a master when it came to raising the density of its race fuel. Its secret could be found in the use of aromatics (toluole, benzole, xylene) and olefins (unsaturated hydrocarbons). Increases in the levels of aromatics and olefins pushed up the density of the petrol to the point where 220 litres of Formula One petrol reached the calorific value of around 250 litres of 4-star fuel.

Tests were run on a range of different mixture ratios, while the additional injection of water was also looked into. The water was intended to lower peak combustion temperatures, raising the knock resistance of the fuel-air mixture and enhancing the combustion process. However, the sessions on the test rig failed to yield the desired results. In his book *BMW Formula Racing 1966 – 2000*, Stefan Knittel informs us that an up to eight per cent addition of water produced no discernible reaction, while higher mixture ratios resulted in a drop-off in performance. The book also contains a self-deriding quote from former BMW Motorsport boss Paul Rosche: “We came to the conclusion that water doesn’t burn.”

Another interesting point was the lack of a partnership between BMW and one of the established oil companies. Wintershall developed the fuel and gave precise directions on where the components could be sourced and how they should be mixed. The experts at BMW Motorsport had to procure the substances, mix and check the fuel, and find a haulage company to handle transportation to the circuits off their own back. Internal reports reveal that, in late 1983, moves gathered pace to get together with one of the oil majors after all. The new partner was to take over development of the race fuel, as well as transportation to the test facilities and race circuits. However, Wintershall remained BMW’s fuel partner and broadened its role within the team. Indeed, other motorsport teams subsequently agreed deals to source their fuel from Wintershall as well.

Stringent controls were in place to ensure that the regulations governing fuel were observed. A sample of each fuel charge was sent to the military science institute for materials research at the Erding air base, where they were tested with maximum precision. In addition to the octane rating, these checks also analysed the alcohol and nitrogen content of the fuel. In his book, Knittel highlights the importance of these tests when he points out that the testing processes provided clear evidence which allowed the F1 authorities to comprehensively dismiss a protest lodged by Enzo Ferrari.

Today, the maximum octane rating for the race fuel used in Formula One is still set at 102 RON. However, Article 19 of the technical regulations stipulates in relatively precise terms what is and what is not permitted when it comes to the composition of the fuel. The quantities of each component are also clearly defined. The primary aim of these guidelines is to stipulate a fuel which meets the classical definition of what constitutes “petrol”. And that means the components in race fuel should generally reflect those which make up conventional petrol, without the use of special chemical additives to raise output. ■



Top | Tests were conducted to establish which petrol mixture produced the best performance.

Above | The engine that powered Nelson Piquet to the 1983 Formula One World Championship.



The first commercial off-road sports machine from BMW

BMW R 4

BMW established the large touring enduro class of motorcycle with the introduction of the R 80 G/S back in 1980 – a class in which the brand has continued to set the pace until the present. But 75 years ago BMW had already developed a motorcycle for use both on and off the beaten track – the BMW R 4.

Fred Jakobs

In December 1924 BMW introduced its first single-cylinder model – the 250 cc R 39. Technically elaborate in design, the motorcycle rapidly proved to be a hit both for its performance – it won the 1925 German Road Championship in the quarter-litre category – and in terms of build quality. However, BMW quality came at a price and the R 39's tag was only marginally lower than those of the large Boxer models and the more powerful German and foreign competition. As a result just 855 examples were sold before production was abandoned in 1927. And with that the whole subject of an entry-level motorcycle with the BMW badge was effectively put on ice while the company concentrated on the large Boxer models that were proving increasingly popular in both touring and sports versions.

When BMW subsequently returned to the idea of an entry-level model, the reasons were rooted in the general economic depression of the late 1920s – or more precisely, in measures taken by the German state to prop up the economy. In order to give the automotive industry a much-needed boost, motorcycles up to 200 cc were exempted not only from tax but also from the need for riders to own a driving licence. BMW saw enormous potential in this small market segment and developed the R 2, which was launched in 1931. This 6 hp single-cylinder machine with a pressed-steel frame was built to the same exacting quality standards as the larger models, and with a price tag of 975 reichsmarks it was about 20 percent more expensive than competitor models. But over 4,000 customers were prepared to pay the extra, knowing that for the price they were getting a genuine BMW.

By this time, however, there was a gaping hole in the BMW product range. With the introduction of the pressed- ▶

steel models in 1930 there were now only 750 cc Boxers, since production of the 500 cc models had been discontinued in 1929. In order to close this gap it was decided to develop a 400 cc single-cylinder engine which could be fitted to the R 2 chassis. Since this development ran largely in parallel to the 200 cc machine and borrowed the chassis almost without modification, production of the BMW R 4 could begin at the Munich plant as early as December 1931.

Publicity material in the company's 1932 brochure hailed the R 4 as "The German motorcycle for German roads." The specific reference to Germany pointed to taxation regulations in force in the country which the R 4 with its 399 cc exploited to the full. The brochure also informed the customer: "Output is close to that of a 500 cc machine, while fuel consumption remains within the parameters of a 350 cc machine. In every respect the performance fulfils everything one would expect from a sports motorcycle with considerable reserves of power."

The bald technical data demonstrated that these were no empty promises. Its 12 hp output was identical to that of the BMW R 52, the latest 500 cc tourer. And at 1,250 reichsmarks the R 4 was priced somewhere between the R 2 and the R 52, which by the end of its production boasted a list price of 1,450 reichsmarks. With that, the R 4 proved itself to be the ideal complement to the BMW range – especially since the 750 cc BMW R 11, with its 18 hp and price tag of 1,750 reichsmarks, was in a league of its own. Demand was correspondingly high, the 1,100 or so units built in the first year representing approximately one quarter of total production.

Like its sister model the BMW R 2, the R 4 underwent continuous improvements. An adjustable friction damper, 4-speed transmission, a larger-capacity tank and output increased to 14 hp were the most important modifications over the next few years. However, such improvements were not reflected in the price – on the contrary, from 1933 until production ceased in 1937, the price of the R 4 was cut to 1,150 reichsmarks.

In 1934 the R 4 enjoyed a sharp rise in sales, the figure of 3,700 more than doubling previous results and placing the motorcycle well ahead of the entry-level model, the R 2. The reason for this was in part due

to rising demand from the German military, which from spring of that year saw the R 4 as an ideal motorcycle for training purposes and from the second half of the year ordered large numbers also for courier work. But in addition, the R 4 had shown itself to be a highly capable off-road machine. With a full tank, the BMW R 4 weighed just 137 kg and this factor in combination with its powerful engine and robust chassis made the R 4 manoeuvrable and surefooted, whether over difficult terrain or on proper roads.

The BMW works team starring Ernst Jakob Henne, the three-times winner of the International Six Days Trial, picked up medal after medal riding the R 4 at national events such as the Three Days Harz Trial and showed that under certain circumstances the R 4 was at least the equal of the heavy Boxer models, if not their superior. But the R 4 also had a special place in the heart of another BMW motorcycle racing legend. In the late 1930s Georg Meier was Europe's outstanding road racer, winning both the European Championship title and the Senior TT. Meier began his career in 1933 on the BMW R 4, forming the Munich Police team along with his colleagues Josef Forster and Fritz Linhardt. Thanks to their off-road successes riding the BMW R 4 they soon became better known as the Gusseisernen – "men of iron".

In those days, more so even than today, there was truth in the adage: Win on Sunday – sell on Monday. In other words, sporting success made for better sales. In 1934 – with a new 4-speed transmission and beefier 14 hp engine – BMW stopped selling the model under its real model designation. Instead the brochure hailed the arrival of "... a new model developed from the R 4, the machine that had itself proved so successful over numerous reliability trials". The brochure went on: "The BMW Geländesport is an extremely manoeuvrable and powerful machine, equally suited to the daily grind of solo use as to the demands of tough off-roading."

With that, BMW had designed the perfect symbiosis for road and off-road use, just as they would do five decades later with the R 80 G/S. And these two models have one other thing in common – for just like the BMW R 80 G/S, the R 4 was also a great commercial success, exceeding all expectations with more than 15,000 examples sold.

Below left | Unveiling of the BMW R 4 at the Milan Motor Show in January 1932.

Below centre | Two BMW R 4s during a hill-climb trial, 1935.

Below right | Ernst Henne (No. 13) rode one of the three BMW R 4s entered by the BMW works team in the Three Days Harz Trial.

Facing page | Off-road sporting success boosted sales of the BMW R 4.



3 große Siege

in den 3 größten Dauer-Prüfungsfahrten

BMW R4

400 ccm „Geländesport“

setzt die im Jahre 1934 errungenen Erfolge in den schwersten Zuverlässigkeitsfahrten und Geländeprüfungen auch 1935 fort und beweist damit aufs neue ihre

unbedingte Zuverlässigkeit und überragende Leistung
Kraftfahrzeug-Winterprüfung 1935:

Einzige bewertete Solo-Motorradmannschaft. BMW R4
Ostpreußenfahrt 1935:

2 Goldmedaillen auf **BMW R4**

3 Tage Mittelgebirgsfahrt 1935:

26 Medaillen, 5 Mannschaftspreise auf **BMW R4**

Was könnte mehr überzeugen, als eine solch ununterbrochene und überragende Erfolgserie, die mit Serienmaschinen erzielt wurde? Wenn Serienmaschinen so schwere Materialprüfungen mit derartiger Überlegenheit bestehen, dann bieten sie auch im täglichen Gebrauch für Beruf und Reise Gewähr für höchste Dauerleistung, unbedingte Zuverlässigkeit und größte Lebensdauer. Die Sparsamkeit der BMW R4 im Betriebsstoffverbrauch und ihre Wertbeständigkeit infolge der vielbewundernten Güte des Materials macht sie zur **wirtschaftlichen Gebrauchsmaschine von unbedingter Zuverlässigkeit!**

Wählen Sie also die erprobte 400 ccm BMW R4, wenn Sie ein Motorrad zu besitzen wünschen, das Ihnen immer ein treuer, dienstbereiter Helfer sein soll.



Eine 400er Maschine mit der Leistung einer 500er und dem Verbrauch einer 300er. Sowohl auf der Straße als auch im schwierigen Gelände infolge der ausgezeichneten Fahreigenschaften als Solo- und Sozius-Maschine bestens geeignet. Der überaus kräftige und reichlich gekühlte Motor sowie das Viergang-Getriebe mit bequemer Fank-Kulissenschaltung und das geringe Gewicht der Maschine gewährleisten Handlichkeit, Elastizität, gleichbleibende Dauerleistung und ausgezeichnete Bergtauglichkeit. Dreidüsen-Sum-Vergaser mit Luftfilter, trockene Einscheibenkupplung, hängende Ventile, Boschlicht-Batterieanlage 45-70 Watt. Brennstoff-Verbrauch Solo 3-3 1/4 Ltr. auf 100 km, Ölverbrauch ca. 1/4 Ltr. auf 100 km.



BAYERISCHE MOTOREN WERKE AG MÜNCHEN

Gerhard Wilcke – right-hand man

In the 1960s, Bayerische Motoren Werke had its own belated “economic miracle”. The initial relaunch after the Second World War was a failure and led in the late 1950s to a profound corporate crisis. Then from 1962 onward, with the committed support of the new major shareholder, Dr Herbert Quandt, BMW went through a phase of successful, and at times even frenzied, growth. As Herbert Quandt’s trusted lieutenant, Gerhard Wilcke played a key role in shaping these years.

Dr Florian Triebel

Gerhard Wilcke was born in 1907, in the Berlin suburb of Adlershof. After school and university he qualified as a lawyer, passing the advanced examination at Berlin’s Humboldt University in 1933. He immediately joined the Prussian Ministry of Justice as an Assessor, or junior judge, working in the criminal law division. After only a year, Wilcke switched to industry and acted as an independent legal advisor to the Berlin pharmaceutical company Schering-Kahlhaus AG. One of the major aspects of his work was the setting up of subsidiaries of the German parent company in foreign countries. When war broke out in 1939, Schering-Kahlhaus offered Wilcke a permanent position and secured his exemption from military service. Within a short time he had risen from the position of Prokurist (roughly equivalent to Company Secretary) to that of Director with full executive powers. In 1943 Wilcke moved to Philips, where he became Commercial Director. In the final months of the war, when the total defeat of the German Reich was looming, he transferred the Philips headquarters from Berlin to Wolfsburg, Lower Saxony, in order to save the company from threatened seizure by the Soviet occupying authorities.

In 1945 the American occupation forces briefly appointed him mayor of Alt-Wolfsburg, where the Volkswagen plant also came under his authority. In the same year Wilcke moved to the state Ministry of Culture for Lower Saxony, where he ran the central department until the summer of 1948. In this period he built up the adult education system and founded the Leibniz Academy.

In 1949 Wilcke resumed his career as a lawyer in private practice. He initially opened an office in Hanover, the state capital of Lower Saxony. In addition to his legal assignments he continued to act as chief executive of the Leibniz Academy and Lower Saxony’s federation of adult education institutions. One of his legal clients was the Accumulator-Fabrik AG (AFA), a company in the Quandt group, which at that time was also headquartered in Hanover. When the Quandt head office moved to Frankfurt in 1950, Wilcke continued to be retained by the company and after a while transferred his own office to Germany’s financial capital on the river Main. At that time, one of his chief professional activities was the re-establishment of foreign contacts for the battery manufacturer Varta AG. In this capacity he worked closely with the chief executive of Varta, Herbert Quandt. The great industrialist came to appreciate Wilcke and put his trust in him.

In December 1959 Wilcke travelled to Munich to attend an Extraordinary General Meeting of BMW AG, where he was to represent a small block of shares which Quandt held in the company. It had previously been agreed that all Quandt’s representatives should accept the motion put by the Board of Management and Supervisory Board, in other words agree to the sale of BMW AG to Daimler-Benz AG. According to Quandt, who held a fairly large block of Daimler-

Benz shares and sat on the company’s Supervisory Board in Stuttgart, it was he who had initiated the takeover by Daimler-Benz of the Munich-based BMW and had paved the way for this in discussions with representatives of both firms.

The turbulent course of the General Meeting on 9 December made a strong impression on Wilcke. In his memoirs he gives a vivid account of the atmosphere and of the distressing picture that the Management and Supervisory Boards presented in the face of these developments.

When a motion to adjourn the meeting was finally passed, it meant the plans to sell the company to Daimler-Benz had failed, but a solution to BMW’s unhappy predicament was certainly no closer to being found. Daimler-Benz had not extended their offer, and faced with the hostile mood of the General Meeting, they had no intention of making a new bid. Even Deutsche Bank, which since 1926 had strongly influenced the direction taken by BMW, was now clearly taking a back seat.

In the same month, December 1959, Herbert Quandt seized the initiative. Just before New Year’s Eve he went to see Gerhard Wilcke in his office and asked him formally to represent the interests of the Quandt Group in further dealings with BMW. It seemed that Quandt had changed his plans: he was now proposing to sell the engine-building business and bring the company back into profit as a manufacturer of cars and motorcycles. All the parties involved were agreed that this would only be possible with a strong partner in the same sector. Wilcke’s task was therefore to act on Herbert Quandt’s behalf and see to it that these plans were put into effect and the right partners found.

Following the Extraordinary General Meeting quite a number of members of the Supervisory Board resigned. Among those appointed to replace them was Gerhard Wilcke, whose term of office began on 1 February 1960. At the first session of the Supervisory Board he was appointed its Deputy Chairman and head of the reconstruction committee. In this capacity he accompanied the chief executive in all negotiations with potential partners in a reconstruction. Together with the Finance Director, Ernst Kämpfer (see MTL 03/2005), he negotiated successfully with the Bavarian state government and MAN AG to find a viable future for BMW’s aero-engine subsidiary, BMW Triebwerksbau GmbH, based in the Munich suburb of Allach. Vehicle-builder MAN AG acquired 51 percent of the firm’s capital and took over the operational management of its business. In return, BMW received a purchase price of DM 17 billion and a long-term, low-interest loan of DM 20 billion – important start-up capital, which enabled it to begin restructuring its car and motorcycle business.

In order to rescue the company, Wilcke and Kämpfer spent the first half of 1960 conducting negotiations with potential partners. ▶





The sole stipulation made by the BMW delegation was that no more than 50 percent of the company would be sold to an investor – with one exception approved by Herbert Quandt: if Daimler-Benz were after all to become involved with BMW, the Stuttgart company was to acquire a 51 percent stake. Yet even this offer, which would have guaranteed Daimler-Benz de facto control of BMW, was turned down in Stuttgart. Negotiations with other potential partners – including Ford, Fiat and Borgward – were either broken off or came to a standstill during the summer of 1960.

At this point the senior figures in BMW reached the decision to risk a reconstruction with their own resources. Wilcke and Quandt had by now become convinced that the commitment of the team in the Munich development workshops and production plant, and that of top management, was such that they would succeed in achieving a turnaround, even without the help of an industrial partner. A key element in this was the “Programme for the Future” presented in 1957 by Heinrich Richter-Brohm (see MTL 02/2005), which saw a sporty “mid-range” car as the solution to BMW’s problems. All they needed was the necessary capital. Herbert Quandt proposed a financial reconstruction that also included the existing shareholders who had so vehemently opposed the sale of BMW at the General Meeting.

As it turned out, the sporty mid-range car – designated the “New Class” from 1962 – and its smaller brother, the 02 Series, did indeed transform the company’s fortunes in the second half of the 1960s.

In the years leading up to that, Dr Karl-Heinz Sonne was the company’s chief executive (see MTL 01/2006). But at the end of February 1965 he suddenly resigned. The company was still in the middle of its reconstruction and a new chief executive had to be found urgently so that the successful progress of the restructuring would not be put at risk.

In the view of the Supervisory Board, the best solution was to delegate one of its own members, Gerhard Wilcke, to manage the company. Wilcke had known BMW for five years – and as chairman of the reconstruction committee he was aware of the pitfalls and difficulties in putting the rescue package into effect. Furthermore, he continued to enjoy the trust of Herbert Quandt, who by now held more than 40 percent of BMW’s shares. Initially Gerhard Wilcke combined his new post with his seat on the Supervisory Board, but gave up his position as its Deputy Chairman.

During his term of office BMW continued to be successfully put back on its feet. However, the introduction of the 02 Series presented the company with challenges of a kind never before experienced. The unexpected scale of its success took the group by surprise and forced top management to improvise and make some quick decisions. It soon became clear that the capacity of the Munich plant would be too small to turn out the number of cars demanded by the market. In 1966, when the opportuni-

Top | Gerhard Wilcke, Production Director Wilhelm Gieschen, Chairman of the Works Council Kurt Golda, and the mayor of Munich, Dr Jochen Vogel, at the topping-out ceremony of the Munich body shop in 1968.

Centre | Members of BMW’s Supervisory and Management Boards at the launch of the BMW 2500: (from left) Kurt Golda, Friedrich Pollmann, Paul Hahnemann, Dr Hans Peter, Bernhard Osswald, Dr Rolf Draeger, Wilhelm Gieschen and Gerhard Wilcke in 1968.

Bottom | The Bavarian premier, Dr Alfons Goppel (centre), with Eberhard von Kuenheim (left) and Gerhard Wilcke (right) around 1973.



Above | Every reason to rejoice – Dr Herbert Quandt (sitting in the car) and Gerhard Wilcke in 1966. After some difficult years, the once more healthy BMW celebrated its 50th anniversary.

ty came up to buy Hans Glas GmbH, a car manufacturer in Lower Bavaria, BMW seized it. Gerhard Wilcke joined the Glas company's Supervisory Board. The plan was to continue production at the new subsidiary, but to keep things under much tighter control. In addition, its factories in Dingolfing and Landshut were to take over production of some components and sub-assemblies from the overloaded Munich plant.

However, any hopes of being able to continue producing vehicles with the Glas badge were dashed during the recession of 1966-67. Sales of Glas cars slumped and the management, under Wilcke's leadership, no longer saw any possibility of maintaining the production programme. Meanwhile, sales of vehicles with the BMW badge remained unaffected by the economic downturn. In fact, the 1966 financial year saw sales reach one billion deutschmarks for the first time.

At the same time, new plans were maturing for the erstwhile Glas plant in Dingolfing. In future, it would manufacture components for BMW's car and motorcycle production. In addition, plans were put in hand to set up an assembly line in Dingolfing for the successor to the "New Class", the first of the BMW 5 Series. It was not just the production facilities in Munich that were bursting at the seams in this period – management also needed more space. So, under Wilcke's leadership, the company decided to build a new headquarters (see MTL 01/2006).

Wilcke saw himself as an organiser and coordinator working in the background. It was from this position that he ran the company and its workforce. He was happy to let others take centre stage, especially the charismatic Sales Director Paul G. Hahnemann. The latter's high public profile earned him the nickname "Mr BMW". Wilcke's reticence in public may also have been due to his failing health. The back pain he suffered grew worse year by year, prompting him, in late 1969, to request that his contract be terminated at the end of the year. His successor, from 1 January 1970, was Eberhard von Kuenheim.

Wilcke's contribution to the reconstruction of the BMW company after 1960 cannot be overestimated. As negotiator with BMW's partners and with the Bavarian state government, as well as being Herbert Quandt's right-hand man, he played a central role in the first half of the 1960s. During his term as chief executive in the second half of the decade a whole series of epoch-making decisions were taken whose effects have shaped the company to this day.

From 1972 to 1974 Wilcke returned once more to BMW. At Herbert Quandt's request he returned for three years to his seat on the Supervisory Board. After that he wrote his memoirs, which were mainly devoted to describing, from his standpoint, the exciting first phase of BMW's renaissance. Gerhard Wilcke died in Murnau on 17 October 1986.



The Long Night of Munich's Museums 2006

Drawn by elegance

This year's Long Night of Munich's Museums was held on 21 October, and the BMW Museum Exhibition played its part in the event for a third successive year. On this occasion the spotlight was on BMW coupés, focusing in particular on the theme of elegance and aesthetics. And once again, with visitors encouraged to compete for prizes, large crowds and a party atmosphere were guaranteed.

Sinja Kaiser





From left | Winners of this year's Long Night of Munich's Museums Rally could look forward to a trip in one of the historic BMW coupés on display. At key sites dotted around the BMW Museum Exhibition visitors were offered expert guidance and insights from BMW Mobile Tradition employees.

The assembled crowds looked on in wonderment at the lineup of BMW coupés outside the BMW Museum Exhibition next to Munich's Olympic Tower. Standing alongside one other, their very presence seemed to lend tangible meaning to the theme chosen by BMW for this year's Long Night of Munich's Museums – "the perfect line". For these are cars which truly embody the special elegance and design aesthetic that instantly quickens the pulse of anyone with an appreciation of exquisite automobiles.

The historic BMW coupés at the entrance included those which over the decades have turned heads with their looks alone – the BMW 700 LS of 1965, the BMW 1600 GT of the New Class, the BMW 6 Series Coupé, the mighty 3.0 CSi of the 1970s in period golf-yellow and, of course, the new 3 Series Coupé 335i.

On this occasion, however, these design icons were not just star turns in a museum exhibition – because with ingenuity and a little bit of luck, visitors to the Long Night were in with a chance of winning a ride in one of the classics cars.

The Long Night Rally has become something of a tradition at the BMW Museum Exhibition, and to have a chance of winning this year's prize, entrants first had to solve a series of puzzles and challenges. But with the museum open from 7 p.m. until 2 a.m. visitors had plenty of time to put their minds to even the knottiest of problems.

This year the challenges also turned the spotlight on BMW coupés – the BMW 327 of 1938, for example. This was the first "large" coupé in BMW history and with its two-tone body, luxurious interior and generously proportioned, flowing lines the car set a visual benchmark for the design of coupé vehicles for many years to come. Early points to be added to the Rally tally were available to anyone making a passable drawing of this elegant creation, a challenge enjoyed in particular by the many children present. Many of these design studies were subsequently exhibited on a display wall for the appreciation of other visitors.

Also displayed were a number of international interior design classics presented in conjunction with the book *The Perfect Line. BMW Coupés 1938 to 2006*, published to coincide with the exhibition. This attractive publication draws parallels between contemporary design trends and individual coupé designs throughout BMW history. Those taking the time to study the book in detail may also have been rewarded with answers worth several extra points towards those star prizes.



Facing page | The star of the show was the latest BMW 3 Series Coupé – the quintessential blend of design aesthetic, precision and power in contemporary vehicle design.

Right | Professional dancers demonstrate how elegance can be distilled from total body control.



Of particular appeal to visitors is the opportunity to experience a museum with an interactive dimension, and as in previous years this concept met with a huge response, with several thousand visitors passing through the doors of the BMW Museum Exhibition at Spiridon-Louis-Ring.

The special Elegance exhibition displayed a number of classic vehicles as well as the BMW 3 Series Coupé, a car which in terms of design aesthetic and performance represents a con-

scious evolution of BMW coupé design history. But other themed exhibits proved equally popular, including the many publications, posters, displays and a special film for the exhibition documenting BMW coupés.

Other highlights of the evening included performances by a pair of professional dancers, who presented the theme of elegance in a different light. The pinpoint accuracy of their Latin and ballroom routines drew unprecedented crowds to the circular

Below | The roulette table specially brought in for the event seemed to exert an irresistible pull on some visitors and added a touch of Monte Carlo magic.





Above, from left | Audience participation is the name of the game – visitors were encouraged to try their hand at automotive design and make sketches of the vehicles on display. Centre: Part of the special exhibition for the Long Night of Munich's Museums, showing some of the design classics also found in the book *The Perfect Line*. BMW coupés – a tradition of elegance. Right: The event provided fun for all the family and demonstrated the magnetic appeal historic vehicles can have for even the youngest visitors.

Right | Large crowds in no way dampened the enthusiasm: visitors visibly enjoyed the opportunity to interact with exhibits in a museum environment.

Bottom right | The "glass workshop" was another of the evening's attractions. Here visitors could observe at first hand expert restoration work on a BMW 5 Series.



structure housing the BMW Museum Exhibition. To a stirring accompaniment and eye-catching visuals, the dancers demonstrated how elegance can be distilled through perfect body control.

One special visitor attraction was an authentic roulette table that conjured up the elegant atmosphere of the grand casinos of Monte Carlo, Baden-Baden or Aachen. It was also a chance for visitors to boost their points score for the Rally.

Once again visitors to this year's event were entertained by a winning formula that combined attractive exhibits, displays that engaged the senses on various levels and opportunities for individual interaction. Despite the 75 other museums participating in the Long Night of Munich's Museums, many people have already come to regard a visit to the BMW Museum as a regular fixture. Other factors that helped turn the evening into an unforgettable experience were the elegant jazz accompaniment, fine culinary offerings and ready insights provided by so many articulate and knowledgeable staff. The relaxed atmosphere continued until the Long Night of Munich's Museums officially drew to a close at 2 a.m. But the momentum it generated has already left many looking forward to next year's event.



BMW Museum: the exhibits

328, R 32, Isetta, 507, 2002, H2R record-breaking vehicle: when the BMW Museum opens up again, the star attractions, as before, will be the original exhibits. More than 120 of them will await visitors to the museum complex on Petuelring at the end of 2007. Automobiles, motorcycles, racing cars, engines and components will illustrate the product diversity, continuity and innovative power of the brand. They represent key events and achievements. They stand for development lines and successes in 90 years of BMW history. Numerous exhibits are being comprehensively and faithfully restored in keeping with the high international standard of the BMW Museum.

Walter Zeichner







Above | Final adjustments on the M 88. Engine specialist Franz Renner at the BMW plant, Landshut.

Parents will show their children the first BMW cars they owned – a mid-range vehicle in the 02 Series, an R 75/5 or a model in the first 3 Series. Grandparents will show their grandchildren the Isetta or the BMW 327 that took them across the Alps in an awesome adventure for the time. Contemporary eyewitnesses will narrate their stories spanning nine decades, ranging from overwhelming successes through tough races and difficult times to fascinating innovations. From late 2007, the BMW Museum will present a wide-ranging platform like no other that has gone before. The complex will provide access to the entire history of BMW, retelling the story of the products, the company and the brand – from aero-engine and single-cylinder 250 cc motorcycle through to the 12-cylinder saloon and the concept car for the future.

Since the end of 2004, when the internal concept of the museum had assumed concrete shape, exhibits have been identified and selected from the extensive BMW

collection of classic vehicles and power units. BMW Mobile Tradition was fast confronted with the enormity of the mission it had embarked on. Many exhibits first had to be restored in order to meet the exacting requirements of the BMW Museum for quality and originality. More than 30 years of stalwart service in the old museum had taken their toll on some of the exhibits. The numerous events and exhibitions had left their traces on the paintwork and engineering of many of the vehicles. In addition, automobiles, engines and motorcycles were to be purchased in order to bring the BMW heritage to life with as wide a range as possible of attractive and significant original exhibits from BMW's history. BMW Mobile Tradition has even initiated reconstruction of a complete bodywork structure from the 1930s.

Each selected exhibit underwent a thorough inspection. A distinction was drawn between vehicles that were permanent exhibits in the museum and those that were intended for occasional outings to events and rac-

es. However, one factor was paramount in everyone's mind: to ensure maximum originality.

It quickly emerged that the scope of the work would overwhelm the capacity of the restoration workshop run by BMW Mobile Tradition: there were more than a hundred major exhibits that required restoration. Specialist workshops were therefore carefully selected right across Germany to take on the onerous task. They were chosen for their track record of experience and expertise since this would be essential if they were to restore the BMW vehicles within the scheduled time frame. Specifications were drawn up to define all the minute details required for restoration work. Colours and materials were selected that corresponded most closely to those used in the original. Partners were also found within BMW itself, and they were extremely enthusiastic about supporting the project with dedication and commitment. For example, around a dozen engines that have written the annals of BMW history are currently undergoing an intensive programme of restoration and overhaul at the Landshut engine plant. They will emerge completely refurbished and ready for display in the museum. Employees who have been working at the plant for decades have the requisite experience because many of the BMW engines – now more than 20 years old – passed through their hands when they were originally manufactured.

One of the outstanding sports production engines that will be presented in the BMW Museum is an M 88, first installed in the legendary BMW M1 mid-engined sports car in 1978. After slight modifications, it soon went on to power the M5 and M635CSi to superior dynamic performance. This is the first four-valve mass-produced engine manufactured by BMW, packing 205 kW/277 hp in the M1. When used in racing with a turbocharger, the engine generated up to 1,000 hp. This 6-cylinder in-line engine is reminiscent of a muscle-bound sculpture rippling with performance, a typical engine for very special BMW cars with the distinctive "M" in their model designation. A great deal of work on the engine was required in order to ensure that this classic would once again radiate its fascination after almost 30 years. BMW engine specialist Franz Renner at the BMW engine plant in Landshut has been spending a lot of time restoring this gem to its former glory. The spares service run by BMW Mobile Tradition was in a position to supply the small number of missing parts required. However, the golden paintwork on the cylinder head posed more of a headache. The precise shade had to be specially mixed to match the original sample.

Apart from the production cars and motorcycles, a major challenge is presented by BMW's one-off models that competed in classic races and notched up record-breaking wins. This is where the BMW Group Archive faces a special challenge, because it is only possible to carry out a genuine restoration to recreate

the original vehicle if intensive research work is carried out by looking at old photos and contemporary documents. Passionate BMW enthusiasts and former employees also play an important role when they delve into their collective pool of experience.

Pride of place in the BMW Museum will be given to the legendary BMW 328 Mille Miglia Coupé Touring. Between 1936 and 1940, the BMW 328 was the most successful racing car in its class. Huschke von Hanstein and Walter Bäumer drove this car to win the world's toughest road race against much more powerful competition in 1940, and the exciting odyssey of this racing coupé is intimately bound up with the long history of ▶

Below | The extremely lightweight tubular space frame of the BMW 328 Mille Miglia Touring Coupé before (top) and after (bottom) restoration.





Sequence above | The fine art of bodywork construction. Sheets of aluminium are shaped for the BMW 328 Mille Miglia Coupé Touring over a wooden mould. The individual components of the body are then precisely mounted on the filigree lightweight frame in a process involving numerous steps.

Sequence below | No part of the BMW 315/1 Roadster remained untouched during its complete restoration. It was almost a year before the classic sports car was ready to receive its new livery.

its faithful restoration (see MTL 02/06). After the war, the car was continually being patched up to compete in races before an American collector finally embarked on a comprehensive restoration. But when the coupé finally came home to BMW Mobile Tradition in 2002, many of the racing car's details were far removed from the original state that was the museum's aim.

All the details were examined anew. Authentic documents were scrutinised once again, comparisons were made and measurements were taken before specialist company René Grosse located near Berlin was commissioned to reinstate this legend. The aim was to return the car to the condition it was in when it drove across the Alps to the Mille Miglia in 1940. A comprehensive restoration was carried out, because the 328 Mille Miglia Touring Coupé is not simply destined to be a gleaming highlight in the BMW Museum but also to continue taking part in historic races.

The mission was quite different when it came to one of the most beautiful roadsters in the history of BMW, the Type 315/1 manufactured in 1934. At the time, 40 hp generated by an engine with 1.5 litres capacity was sufficient to get the heart of any racing driver beating faster. The power of the smooth-

running 6-cylinder accelerated the car to 120 km/h, a breathtaking speed at the time that was not at all commonplace because of the poor conditions of the roads. The vehicle selected for the exhibition started off a complete wreck of a car, although it was the forerunner of the modern Z4 and a key element in presenting the evolutionary line of the BMW roadster. Eminent restoration company Feierabend in Würzburg took on the mission of turning the "wreck" into a highlight of the exhibition. Reconstruction of the body frame made of ash presented a unique challenge because the original frame had perished. Restoration of the roadster is now very nearly complete, but it has yet to receive its unusual two-tone paintwork. Since the old production records for cars have withstood the test of time in the BMW Group Archive, it is possible to read in neat handwriting that the roadster bearing the chassis number 48903 rolled off the production line at Eisenach in October 1934, painted in the colours – but we'll keep that a secret for a little longer.

A keen challenge is presented by one of the oldest exhibits in the BMW Museum. The Viktoria KR 1 motorcycle manufactured by Viktoria Werke in Nuremberg dating back to 1921 is fitted with the first Boxer





engine developed by BMW. At that time, there were no BMW motorcycles, although a number of manufacturers used the 6.5 hp BMW 500 cc “Bayern-Kleinmotor” designated M 2 B 15 to power their vehicles. At first sight, the BMW Mobile Tradition exhibit appeared to be in an attractive condition. However, some intensive research revealed rather a different story. The previous restorer hadn’t paid much attention to the concept of originality in the Viktoria KR 1, while some damage also came to light under the gleaming paintwork. A total restoration was on the agenda. Specialist company Hans Keckeisen from Friedberg had to draw on all its skill and ingenuity to meet the stringent requirements of the BMW Museum.

In the meantime, more than half of all the exhibits are ready to go on display. The valuable classic cars, motorcycles and engines are stored in warehouses, preserved and protected against dust, ready to be installed in the museum. Over the coming year, the first vehicles will be transported to the expanded and completely redesigned BMW Museum where they will take up their new positions.



Right | One of the first BMW Boxer engines from the year 1921 is restored according to the paramount principle of maximum originality.



Diesel engines from Lake Constance

When BMW nearly bought Maybach

“Franz-Josef Popp will be in Friedrichshafen tomorrow and Friday,” noted the secretary to the chairman of BMW’s Supervisory Board, Emil Georg von Stauss, in May 1933. The documents show that it was not the mild spring weather or the apple blossom that drew BMW’s managing director to the shores of Lake Constance. No, he was paying a call on Maybach Motorenbau GmbH.

Dr Florian Triebel



The company with the double M in its logo was founded in 1909 by Wilhelm Maybach and Count Ferdinand Zeppelin in the town of Bissingen an der Enz as "Luftfahrzeug-Motoren GmbH". Zeppelin needed reliable and high-performance engines for his airships and hoped that in Maybach he had found the right designer. Zeppelin himself provided the start-up capital for the business.

Wilhelm Maybach brought plenty of relevant experience with him. Together with Gottlieb Daimler he had designed the first fast-running petrol engine and played a key part in the development of the first motor cars in Daimler's workshops. A few years later,

however, Maybach resigned from Daimler-Motoren-Gesellschaft (DMG). His design ideas no longer chimed with the vision of Paul Daimler, son of the firm's founder and now DMG's chief development engineer.

Thus Count Zeppelin's proposal came at a very opportune moment for Maybach. Joining him in the move from Stuttgart to Bissingen was his son Karl, who was also devoting himself to the design of engines for airships. Very soon Wilhelm handed over the running of the business to his son, who in 1912 renamed the company Maybach Motoren GmbH and moved the plant to Friedrichshafen on Lake Constance, where Zeppelin's airships were built. The engines from Maybach's workshops not only drove airships but also aircraft and high-speed launches. Very soon he settled on diesel technology and the engine format of a 6-cylinder in-line unit, which by virtue of its smooth running soon established itself as the standard for aero-engines. It was not long before the engines from Friedrichshafen earned themselves a good reputation and were considered the technological leaders in many fields. For example, Maybach was the first company in Germany to test the design of a high-compression, over-square engine for high altitudes. This concept was adopted in 1917 by Max Friz for his aero-engine, which, under the name BMW IIIa, was to create a sensation as the first product launched by Bayerische Motoren Werke.

In the First World War, Maybach engines were used to drive Zeppelins, aircraft and high-speed naval launches. When the war ended orders initially dried up after the Treaty of Versailles banned Germany from producing aircraft and their components. Maybach switched to the manufacture of high-specification engines for cars and railway locomotives, among which was again a diesel engine with an output of 150 hp. Maybach had hoped that quite a number of automobile producers would buy his engines to build into their own vehicles. But since demand was below expectation, Karl Maybach decided to design his own car. The vehicle he launched at the Berlin Motor Show in 1921 attracted a great deal of attention – both for its modern technology and for its luxury. As well as the generously proportioned 6-cylinder engine, people were impressed by the highly advanced gearbox. It made driving a great deal easier and is regarded today as the forerunner of the automatic gearbox. The car designated the W3 had fulfilled Maybach's claim that it could offer the best car in technical terms to meet the highest customer demands.

In the years that followed, Maybach introduced further models in the luxury class. With those of Daimler-Benz, his automobiles were considered the most exclusive on the German market. The car that particularly matched this description was the 12-cylinder "Zeppelin" model launched in 1930. At the time it was the most expensive car in Germany. Priced at about 50,000 reichsmarks, it cost as much as 20 of the first BMW car, the small BMW 3/15 PS manufactured from 1928 onward. In addition to its cars, from the mid-1920s Maybach returned to manufacturing engines for aircraft and airships, as well as for trucks and buses. Furthermore, a number of German car makers were using the excellent Maybach gearboxes.

The stock market crash in October 1929 and the economic depression that followed had a shattering effect on the company in Friedrichshafen, as on so many others. Orders for cars, engines and gearboxes slumped. In the financial year 1929 the company was already 1.3 million reichsmarks in the red. From 1925 to 1931 the losses totalled some 4.1 million reichsmarks. In 1932,





Above | Two Maybach speedboats giving a demonstration off the lakeside promenade at Friedrichshafen in 1930.

for the first time in years, the management succeeded in more or less breaking even. But it seemed that, given their highly specialised and over-exclusive output, a return to healthy trading from their own resources could only be achieved with difficulty. Support from an industrial partner was the only way to guarantee a sustainable future in the long term. And for this Bayerische Motoren Werke was a possible candidate.

In the spring of 1933, the Munich-based corporation BMW AG was facing great challenges. Shortly after Hitler's appointment as Reich Chancellor, the new regime had set up a Reich Ministry of Aviation under the leadership of Hermann Göring. His most important task was to build up a powerful air force, the Luftwaffe. As a leading supplier of aero-engines, BMW AG represented an important element in the Ministry's plans. With its BMW VI the company offered a tried and tested liquid-cooled engine. What is more, in 1928 Franz Josef Popp had acquired a licence to manufacture an American air-cooled engine. However, the Nazis' rearmament plans required a rapid expansion of BMW's production programme, which immediately necessitated greater research and development capacity. Specifically, the entry into diesel technology represented a promising new avenue for BMW's aero-engine division. Early trials had already been carried out in Munich to study the fuel injection and combustion processes. But whereas the Munich engineers would first have had to laboriously work up their knowledge in this field, Maybach had been gathering experience in building diesel engines since 1909.

That is why, on 18 May 1933, BMW's managing director Franz Josef Popp drove to Friedrichshafen to take a look at the

development workshops and manufacturing plant of Maybach Motorenbau GmbH. Preliminary discussions had already been held prior to the visit. On 10 May 1933 Max H. Schmid, a member of BMW's Supervisory Board and for many years an advisor to Maybach, reported in writing to the chairman of the BMW board, Emil Georg von Stauss, on the essential outcome of these initial talks.

From Schmid's report it emerges that he had already spoken to Karl Maybach and his senior management. Schmid had even worked out a purchase price: he arrived at a figure of some 2 million reichsmarks for the takeover of all tangible and intangible assets, including the plant, the company's name and marques, as well as all its patents and "know-how", by which he probably meant the staff. From Maybach's production programme Schmid picked out chiefly the fast-running diesel engines. These and the patented Maybach "high-speed gearbox", which was also fitted in vehicles not built by Maybach, would in Schmid's view make a "suitable and valuable" addition to BMW's product range. However, in a takeover, the petrol engines "and the famous Maybach motor car itself" would be of less interest to BMW.

Since the purchase in 1928 of the Eisenach vehicle factory, BMW had also been a motor manufacturer, though at first it only produced small cars. Between those modest vehicles and the big Maybach saloons there would have been a yawning gap in the range. Furthermore, it seemed doubtful whether the luxury motor cars would have proved profitable in the medium term.

However, Maybach vehicles certainly featured in the deliberations of the Supervisory Board. Schmid stressed to von

Stauss that the luxury Maybach models would represent competition for Daimler-Benz. This fact came as no surprise to von Stauss, who was chairman of both the BMW Supervisory Board and that of Daimler-Benz. However, it is possible that von Stauss was unaware that Maybach, as Schmid also reported, was thinking of expanding its own range with the addition of a “mid-market” car. With these plans, Maybach posed a threat to the success of Daimler-Benz’ new mid-range models, which had been launched in 1933. Schmid made the point that “it would be easier, from Daimler-Benz’ point of view as well, to curb these threats” if BMW were to buy the company. After all, Bayerische Motoren Werke and Daimler-Benz had been linked since 1926 by contracts of mutual interest and friendship.

It was not least for that reason that Schmid’s proposals appear to have convinced von Stauss. He instructed Popp, BMW’s managing director, to drive to Friedrichshafen and get a picture of the business for himself. In the week following his visit Popp travelled to Berlin and gave von Stauss and Schmid a report on what he had seen. Sadly, no records of this have survived, but the results seem to have been extremely positive.

In June 1933 Popp disclosed the detailed plans for BMW in a letter to Göring’s number two in the Ministry of Aviation, Erhard Milch. Under the heading “Strengthening of our aero-engine production with regard to the present situation and imminent needs”, Popp explained that, as he saw it, there were two possible ways to accelerate the development work on BMW aero-engines and catch up with Britain and the USA. Either the laboratories and the design and test departments at the Munich plant had to be expanded, or BMW could buy in the necessary capacity. The first option had the advantage of concentrating development in one place, but it would mean investing a lot of time and money. The second solution, on the other hand, would offer the opportunity of making more rapid progress in development work through close cooperation. Popp’s letter went on to say that the acquisition of Maybach Motorenbau GmbH would be the ideal way of supplementing BMW’s experience and facilities:

“a) because of Maybach’s first-class research and test facilities,
b) because of their general experience in the diesel field
c) because of Dr Maybach himself, whose knowledge and ability I rate as an exceptional asset in any collaboration on our aero-engine construction.”

However, Popp hastened to add that he would not take any steps without the consent of their most important customer, the Reich Ministry of Aviation, and asked Milch for his opinion.

Popp’s letter had far-reaching consequences for the plans to take over Maybach. The first thing Milch did was approach BMW’s Supervisory Board chairman von Stauss in Berlin about the matter, mentioning Popp’s letter, which Stauss had no knowledge of. In some irritation von Stauss asked Popp to “kindly send him a copy immediately”. There were further discussions and finally Milch consulted Göring, whereupon a stop was put to the plans. The Ministry feared that BMW would get bogged down in aero-engine development. Furthermore, the integration of Maybach would throw up a series of problems, which might initially have the effect of hampering BMW’s progress. From the Ministry’s point of view, priority had to be given to design work on the big water-cooled engines. The application of the diesel principle in aero-engine construction was, of course, an important task, but it could just as well be taken forward by another company as by BMW. The



Above | Poster for Maybach’s luxury “Zeppelin” coupé, described as a “mountain tamer”, 1930.

Below | At the time a symbol of modern engine technology: a 12-cylinder diesel engine built by Maybach Motoren Werke, 1930.

Munich company, declared the Ministry, would do better to concentrate on the agreed development contracts. To draw a line under things, Air Minister Göring ordered the following statement to be issued: “The moment for such a merger or takeover of Maybach has not yet come.”

After this word from the mighty minister, the plans to take over Maybach disappeared into the bottom drawer. BMW continued to expand its research and development departments in Munich, while the Friedrichshafen company remained a subsidiary of Luftschiffbau GmbH. Assisted by government rearmament contracts, Maybach continued for some years to enjoy greater commercial success as an independent business. ■



BMW WR 750 – the first supercharged works racing motorcycle from BMW

After successful test outings in Italy and at the Nürburgring, a replica BMW WR 750 celebrated its official premiere at this year's Festival of Speed at Goodwood in southern England.

Fred Jakobs

Whenever people talk about BMW compressor motorcycles they generally mean the vertical shaft DOHC works racers that carried the likes of Georg Meier, Karl Gall and Jock West to a string of victories on European circuits from 1935 onwards. But the history of BMW superchargers in competition motorcycles actually goes as far back as the 1920s, although to begin with engineer Rudolf Schleicher was unable to realise his plans to boost engine output using supercharging technology. It is uncertain whether the rea-

sons for this lay in the high financial risk involved or fundamental reservations on the part of chief designer Max Friz. Whichever the case, Schleicher drew the obvious conclusions and in 1927 moved to Zwickau to join automotive manufacturers Horch.

However, Rudolf Schleicher's concept was followed up by two colleagues – the racing mechanic Sepp Hopf, a close friend of Schleicher's, and the works rider and 1926 and 1927 German Champion, Ernst Jakob Henne. Henne, himself a gifted mechanic with his



own BMW motorcycle dealership, had set his sights on the absolute world speed record and believed that the only way he would achieve his goal was with a supercharged engine. So work continued after Schleicher's departure and in 1928 the project also received the approval of Max Friz. WR 500 and WR 750 were the semi-official designations, the two letters standing for "Werks-Rennmaschine" (works racer) and the figures denoting respective engine size.

BMW unveiled the brand new machines ahead of the 1929 season. Each had a modified frame, new front and rear brakes and a supercharged engine at its heart. Expectations for the season were high – after all, this was the most expensive development ever to come out of the motorcycle racing department. But the season was one of ups and downs. Hans Soenius and Josef Stelzer took the German Championship titles in the 500 cc and 750 cc class and made enormous progress in catching the international competition, but the superior British riders always managed to keep their nose in front when it really mattered.

Proof that the team was working along the right lines with supercharger technology came with Ernst Jakob Henne's first world record set in September 1929. His speed of 216.75 km/h beat the

previous best mark set by the Englishman Herbert Le Vack by almost 10 kilometres per hour. The 1930 season also got off to a promising start, with Karl Stegmann notching up two wins at Eilenriede and in the Hungarian Grand Prix. Then fate took a tragic twist. Stegmann, a BMW works rider since 1929, was fatally injured in practice for a hill-climb competition in Czechoslovakia. And when Karl Gall, the second works rider, was involved in two serious crashes in Rome and at the Nürburgring, BMW announced its retirement from official competition.

In 1931 Schleicher moved back to BMW. But as head of the test department he was now also the man responsible for car de- ▶

Main picture | Jürgen Schwarzmann takes the rebuilt BMW WR 750 for a spin around the grounds of Goodwood House at the Festival of Speed.

Below | A focus of attention even for the youngest spectators: the BMW WR 750 as it appeared in 1930.

Bottom | Getting your hands dirty: Karl Gall (left) and his mechanic make final preparations for the 1930 Eilenriede race.



velopment, so further progress on the supercharged competition machines was initially very slow. One key problem was the relative weight of the drive system as a whole. This, combined with an already aging chassis design, meant other more agile models had the competitive edge over BMW. Moreover, as soon as efforts were made to boost output, the engineers immediately came up against the problem of engine reliability. As a result the motorcycles were raced only sporadically during this period, leaving the international race scene largely to BMW's competitors.

Thanks to Henne's world records and growing success in off-road events, BMW was nevertheless able to raise its sporting profile. A key role in this respect was also played by the private drivers, who with backing from the BMW race department – and relying on naturally-aspirated engines – continued to garner race victories and championship titles at national circuit events. BMW was also able to enjoy the sweet scent of victory one last time, when Josef Stelzer took the 1933 German Grand Prix on the Avus track, finishing over three minutes ahead of his nearest rival with a new course record (166.5 km/h). Henne achieved an average speed on the same circuit of 204 km/h during a demonstration ride with his world record-

breaking machine, a feat that provided ample proof of the potential of supercharger technology.

But these were to be the two last real outings for this engine, since under Schleicher's guidance, development of a new works racing machine was already well advanced. From now on the WR 500 and WR 750 motorcycles served predominantly as test vehicles for exposing new developments such as the telescopic fork to the rigours of race conditions.

In 1935 BMW could finally unveil its new vertical shaft works racing motorcycle, the 255. Suddenly it was clear why so little effort had been invested in developing the pushrod compressor motorcycles further: Schleicher and his team had taken a radical step and designed a completely new motorcycle. To get there BMW had taken a few years out from international road competition and invested its resources in this new development. But it proved to be a sound decision, for in the years to come BMW would carve its way to the very top of international motorcycle racing.

It is a success story which to a large extent was built on experiences and insights – both positive and negative – gained from the first generation of supercharged motorcycles. ■

Below | Josef Stelzer on the Avus track at the 1933 German Grand Prix, a race he won convincingly riding the WR 750.



“You start with an Isetta and end up with a Rolls-Royce” – Jürgen Schwarzmann on rebuilding the WR 750



Above | Burnouts are not just for today's machines: Jürgen Schwarzmann entertains an enthusiastic crowd with his show at Goodwood.

Mr Schwarzmann, how did the whole WR 750 project come about?

I'd been racing BMW models from the 1920s and 30s for a number of years. Then one day I had the idea with a couple of friends, Alfons Zwick and Erich Frey, to rebuild a supercharged engine and fit it to a series chassis – although it wasn't our intention at the time to rebuild a complete motorcycle.

What made you choose this early engine?

Although you still come across examples of vertical shaft assemblies, even ones in working condition, there are no records of any complete – let alone functional – forerunner engines. So although that made the project very challenging it also gave it more appeal.

What particular problems did you come up against?

Virtually all design documentation for the motorcycles has been lost. To begin with we had only a handful of parts. BMW helped us with photos from the archive and allowed us to take measurements from a supercharged unit. We also had the original drawings by Sepp Hopf, who was the mechanic at the time, and were able to talk directly to the motorcycle's designer, Rudolf Schleicher.

Clearly you had your work cut out?

We started searching seriously for parts back in the early 1990s and followed up every lead – even those that took us as far afield as eastern Europe. Gradually we were able to get hold of bits and pieces, but it was when we met an Italian who owned many original parts that we really started to make progress. When we put everything together we almost had a complete machine – and replicas could be made for the rest. In total it took us about 10 years, although there were periods when no progress was made for weeks on end and others when I seemed to be spending all my free time in the workshop.

Did you cut any corners with the rebuild?

No, we managed to reproduce everything authentically so that any original parts we got our hands on later could be fitted to

our motorcycle without any problem. But it wasn't just a case of making things fit – we also remained true to the original in terms of materials and build quality. When you've put so much effort and money into a project like this, you give up worrying about the time factor. You don't think twice about manufacturing a special thread instead of making do with standard bolt sizes. Perfectionism is something that grows on you: you start with an Isetta and end up with a Rolls-Royce.

The burnout you performed for spectators at Goodwood demonstrated how much power the bike has.

Yes, although we actually limited boost pressure to 0.4 bar, roughly half of what was normal for races in the 1930s. Ernst Henne used as much as 2 bar for his record-breaking rides, generating almost 95 hp. But it's not our intention to put our motorcycle under that kind of stress. We want to be riding it for a few more years yet – after all, we're no longer chasing records or German Championship titles. ■

Below | Randy Mamola (right), four-times World Championship runner-up and long-serving ambassador for the BMW Power Cup, talks shop with Jürgen Schwarzmann.



Dates and events

January 2007



18 – 21 January 2007
Winter Marathon / Madonna di Campiglio (Italy)

26 – 28 January 2007
Hamburger Motorradtage / Hamburg (Germany)

February 2007



02 – 04 February 2007
Bremen Classic Motorshow / Bremen (Germany)

09 – 11 February 2007
Motorradmesse Leipzig / Leipzig (Germany)

28 February – 04 March 2007
Motorräder Dortmund / Dortmund (Germany)

March 2007



09 – 11 March 2007
Retro Classics / Stuttgart (Germany)

28 March – 01 April 2007
Techno Classica / Messe Essen, Hall 12 (Germany)

29 March 2007
Techno Classica Evening Event / Messe Essen, Hall 12 (Germany)

April 2007



20 – 23 April 2007
Concorso d'Eleganza Villa d'Este / Cernobbio (Italy)

Preview Issue 01.2007



- > BMW Museum – ongoing developments
 - > BMW in India
 - > Women in BMW advertising
- and much more

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Art and individualism

The entire BMW range embodies the individualistic concept of a high-performance motor car with functional, straightforward styling and compact dimensions. It is because of this that BMW cars appeal to the discerning motorist, who wants to express his individualism through the vehicle he drives. Perhaps for the same reason, they have provided a medium for leading artists to express their individual point of view.

Prominent artists like Alexander Calder, Frank Stella and Roy Lichtenstein have produced their own interpretations of the dynamic, sporting image of BMW cars.

The BMW racing cars which they have turned into works of art are not for sale. But

the superior technology which inspired Frank Stella, the joy of motoring which Calder expressed, and the dynamic styling which Lichtenstein produced are an unmistakable part of every BMW which is bought.

The activities of the artist and the engineer are entirely different, but they both work on the same assumption – that art is the product of skill.

BMW cars

The BMW range of fine automobiles: the ultimate in performance, comfort and safety. Designed for the man who appreciates the excitement of driving.



BMW – Sheer driving pleasure

www.bmw-museum.de



Sheer
Driving Pleasure

The BMW Museum.

Streets, squares, buildings – the traffic flows. And it leaves tracks in its wake, traces of a history in motion, a moving heritage. The BMW Museum has been part of this heritage since 1973, and is currently undergoing expansion and internal redesign ready to thrill visitors anew with its dynamic architecture, exceptional concept and authentic exhibits. Experience the fascination from the end of 2007.

