BMW AG Presse

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1 SUMMARY OF BMW INNOVATIONS FOR THE 1998 MODEL YEAR

**A motorcycle for the joy of life - the R 1200 C:
BMW's first-ever cruiser**

**Now more attractive than ever before: The R
850 R and R 1100 R roadster models**

Like 1993, the year in which BMW's new generation of Boxer machines made its first appearance, 1997 will again go down in history as a milestone in the motorcycle world and with BMW in particular. For in autumn of this year BMW will be launching its first-ever cruiser, the new R 1200 C.

Europe's leading manufacturer of motorcycles in the plus 500 cc range is therefore entering the cruiser segment sometimes referred to in

Germany and a few other countries as the chopper market. In the. course of the '90s this segment has developed into the largest single specialist market worldwide, accounting for some 33 per cent of all new motorcycles registered in 1996.

The new R 1200 C is designed consistently as a genuine cruiser. Accordingly, BMW is adding further momentum to a new trend not focusing so much on the sporting features of a motorcycle, but rather on the experience of relaxed cruising with significant power reserves as the right style of motorcycling in our modern world.

Easy Rider or genuine freedom on two wheels

The origins of the cruiser date back to the early days of the "American Way of Bike" in the '50s and the birth of the original chopper. The cruiser story then continued in the US cult film *Easy Rider* in 1969, which brought the dream of freedom on two wheels over to Europe, where the motorcycle, already dismissed by many as obsolete, subsequently made a great come-back as a hobby and leisure-time occupation.

The styling message of the BMW R 1200 C underlines the smooth style of relaxed cruising free of any kind of aggression by emphasizing the typical design features of the "American Way of Bike". Examples are the wheel fork arranged at a very flat angle, the high-rise handlebars, long wheelbase, and low seat measuring only 740 mm or 29.1" in height, in this case in traditional saddle design. And then all this is rounded off by an upright seating position with your legs stretched out comfortably to the front.

With BMW two cylinders obviously mean a Boxer engine

There was no question from the outset that a BMW cruiser simply had to have two cylinders. And it was equally obvious that with BMW these two cylinders should not take on the usual V-arrangement to be found with nearly all other cruisers in the market. After all, two cylinders BMWstyle have always meant the Boxer engine in flat-twin arrangement, ever since the first BMW motorcycle appeared on the market in 1923. And since then, of course, this unmistakable concept has become a genuine myth the world over.

Unmistakable also in design and styling

Not only the Boxer engine of the R 1200 C provides a new and unique interpretation of the cruiser concept, but also the very special design and unmistakable styling chosen by BMW. The new cruiser excels through design features reminiscent of almost 75 years of BMW motorcycle history, consciously using top-quality materials and surfaces and just as consciously offering a high level of emotion.

All high-tech ingredients of the new Boxer generation

It goes without saying that the R 1200 C comes with all high-tech features of BMW's new Boxer generation ranging from Digital Motor Electronics through the fully controlled catalytic converter all the way to a highly efficient brake system with optional ABS.

Highlighting BMW's unique Telelever front wheel suspension, the running gear also sets standards in the cruiser market through its directional stability and handling. Enjoying life with the R 1200 C, you cannot only glide along in relaxed style, but also benefit from that swift

and dynamic riding experience on winding country roCids. So to put it in a nutshell, the R 1200 C is a curiser built for real motorcycling ...

A torque curve like the back of a buffalo

The Boxer engine has been appropriately modified for the R 1200 C and this new, relaxed style of motoring on two wheels. The increase in engine size from 1.1 to 1.2 litres serves exclusively to provide superior power throughout a wide speed range starting much lower down than usual. Engine output, therefore, has been significantly reduced on this cruiser model: While BMW's sports-oriented Boxers churn out a substantial 90 bhp or 66 kW at 7250 rpm, 61 bhp or 45 kW are quite sufficient for cruising in superior style, especially as the engine now reaches this peak output at just 5000 rpm.Maximum torque of 98 Nm or 72 Ib-ft comes accordingly at a low 3000 rpm versus the maximum torque of the R 1100 RS of 95 Nm or 70 Ib-ft at 5500 rpm. You might therefore say that the torque curve of the cruiser engine is reminiscent of the back of a buffalo with more than 90 Nm or 66 Ib-ft developed consistently between 2500 and 4000 rpm.

Like the new BMW K 1200 RS, the R 1200 C also comes with an automatic choke making the choke lever on the handlebar so common on nearly all machines unnecessary in this case.

Fully controlled catalytic converter and that typical Boxer growl

A real "gentle giant", the Boxer engine of the BMW R 1200 C is also very friendly to the environment. Fitted as a standard feature worldwide, the catalytic converter absorbs up to 85 per cent of all harmful emissions. The chrome-plated exhaust system, in turn, featuring two rear-end mufflers, complies with all of the new, even stricter sound -emission standards while nevertheless providing that typical, throaty Boxer growl. \~

Power is transmitted through a hydraulically operated single-disc dry clutch and a newly developed five-speed gearbox.

High-class materials and surfaces

Creating this brand-new cruiser, BMW has also taken on the commitment to offer that outstanding quality typical of the marque together with the most sophisticated materials. Stylish high-gloss chrome is to be found, inter alia, on the cross-spoke wheels, spring struts, handlebars, mirrors, headlight, fuel tank cap, air intake covers, cylinder head covers and exhaust system.

Finished in pearl-gloss chrome, the front subframe is made of cast aluminium and houses the two oil coolers, proudly displaying this additional function to the observer. And since the fully visible longitudinal arm on the Telelever is also an important design feature, it is made of polished aluminium.

The 17 -ltr (3.7 4-lmp gal) fuel tank, side panels and wheel covers are all made of hot-galvanised steel. Finished in particularly elaborate paintwork, these components are available in night black, canyon red metallic, and ivory. The fuel tank and wheel covers incidentally also come with white, silver or blue lines painted on exclusively by skilled female workers with a sure and calm hand.

The instruments on the R 1200 C above the chrome-plated round headlight are limited to a speedometer with its '50s-style face as well as some telltales housed in an aluminium plate.

Rider's seat in saddle design and finished in leather

Shaped like a saddle, the comfortable rider's seat is finished in highquality leather, just like the handlebar grips. Behind the rider's saddle a small seat cushion, again finished in leather, accommodates a passenger on short trips. And when the rider is riding solo, he can tilt up this cushion to a vertical position as a backrest.

Unique lifestyle the BMW way: the BMW cruiser world

With special motorcycle and rider equipment being very important on a cruiser and creating a genuine lifestyle of its own extending far beyond pure function alone, a special range of motorcycle and rider equipment

has been developed as a perfect match for the R 1200 C in terms of both design and function: the BMW cruiser world.

From extra-low handlebars all the way to leather saddle bags

With the cruiser enthusiast attaching particular importance to customisation, the R 1200 C comes with a wide range of individual features and special equipment extending from a high-comfort passenger seat through extra-low handlebars, heated handles, engine protection hoops all the way to saddle bags naturally made of leather.

Genuine and full of style: from the helmet via the rider's suit all the way to a pocket watch

It goes without saying that the rider of the R 1200 C has the choice of virtually anything he - or she - desires for cruising in genuine style. Just to mention a few examples, there is the open cruiser helmet in the three colours of the R 1200 C complete with aluminium and leather components, cruiser motorcycle goggles, a cruiser scarf and shirt, leather suits for male and female riders, a dust coat, gloves, short and long boots, a backpack, braces, and belt.

For particularly hot days there is even a breezy suit in jeans look made of a new, very abrasion-proof material called InoTex. Like leather suits, this brand-new motorcycle suit comes complete with protectors on your shoulders, elbows and knees.

And whether it is when using the gale-proof gas lighter with its matte chrome surface in design reminiscent of the cylinder cover or when casting a glance at the mechanical pocket watch in its brass housing ~:md with a face styled the same way as the speedometer of the R 1200 C, the wide range of accessories and lifestlye products offers lots of cruiser dreams even on long winter evenings. Dreams of a motorcycle built for pure fun and enjoyment...

R 850 Rand R 1100 R roadster models now even more. **attractive after a further facelift**

Having already been facelifted in spring 1997, the two R 850 Rand R 11 00 R roadster models are now even more attractive for the 1998

model year. The rear-view mirrors and arms as well as the handlebar weights are now chrome-plated, the brake and clutch levers as well as the grab handles for the passenger and the covers on the oil coolers are finished in silver. The footrest plate is finished in silver powder coating polished on the surface, the rear frame section also comes in silver powder. The direction indicator housings and support arms are painted in white aluminium, all these features coming together to provide a really glossy look.

2 THE F 650 SINGLE-CYLINDER MODELS

Great demand for the F 650 ST fun bike and F 650 funduro
Entering the 1998 model year without any changes

Launched in November 1993, the F 650, together with the F 650 8T added to the range in autumn 1996, accounts for total sales of approximately 44,000 units by autumn 1997. This makes this single-cylinder not only the absolute best seller within the BMW range, but also one of the best-selling motorcycles quite generally in many countries.

Twenty-seven years after the legendary R 27, BMW has once again taken up its heritage of singte-cylinder motorcycles with overwhelming success, sales of such one-cylinder machines between 1925 and 1966 amounting to approximately 230,000 units ranging in engine size from 200 to 400 cc.

At the same time BMW has added an attractive 650-cc entry-level model to the range, with engine output of 35 kW/48 bhp and an additional version in Germany and Italy developing a maximum output of 25 kW/34 bhp. Benefitting from its relatively low weight of only 191 kg or 421 Ib and its low seat height, the F 650 is particularly popular among newcomers and re-entrants in the motorcycle market as well as with female riders.

BMW also took a new approach in the development and production of the F 650, which may really be called a "genuine European on two wheels". As part of a European joint venture, the F 650 was developed jointly by BMW and Italian motorcycle manufacturer Aprilia, applying the <?riginal concept, quality standards and design provided by the whiteand-blue marque. The F 650 comes with a single-cylinder Bombardier

Rotax power unit modified by BMW and manufactured by the Austrian engine company in the town of Gunskirchen. Assembly of the F 650, in turn, is in Aprilia's modern production plant in the Italian town of Noale, and sales are taken care of worldwide by BMW's own dealer network.

The F 650 clearly stands out from other motorcycles not only through its heritage and unmistakable looks, but also in its unique concept. And offering practical qualities quite outstanding for a single-cylinder (for

example its ability to carry both the rider and a passenger, its touring qualities, and its environmental compatibility ensured by a catalytic converter either optional or standard in Germany, Austria, Switzerland, and the USA), making it a genuine BMW.

The suspension and running gear come between that of a fun bike and an enduro - which is why BMW refers to the F 650 as a funduro, on account of this combination and new concept.

In the 1997 model year, BMW set the stage for a continuation of this successful story:

Having been given the "once over", the F 650 received a styling facelift, while the running gear and engine remained technically unchanged.

A further significant point is that the F 650 funduro has been joined by the new F 650 ST, a genuine fun bike and pure-bred road model.

And last but not least, it is important to note that the F 650 ST is powered by the same four-valve single-cylinder as the F 650 (see also the description of the engine).

The F 650 funduro:
Celebrating its third birthday with a new fairing

To celebrate its third birthday, the F 650 funduro received a redesigned fairing extending up from the cockpit to the instrument level. The radiator cutout, in turn, is narrower than before, the direction indicators are fitted on "short arms", and no longer in the fairing itself. In all, this helps to slim down the fairing at the front, giving the F 650 an even more dynamic, slimmer look.

The radiator and cylinder covers are combined to form one re-designed unit starting out a bit higher up on the cockpit and forming a spoiler around the radiator nozzle, from where it merges into the cylinder cover. This dynamic styling of the spoiler also comes out very clearly from the side.

The new, higher and fully transparent windshield offers even better protection from wind and weather, while in the cockpit itself an analogue-face clock replaces the old coolant temperature gauge, since excessive water temperature is now displayed by a warning light. Formerly removable, the tank cap now rests in the filler manifold and swings open when required.

The seat already relatively low for a motorcycle of this kind at 810 mm or 31 .9" has now been lowered by another 10 mm thanks to its new design, thus reducing seat height to 800 mm or 31.5" without in any way detracting from the high standard of riding comfort.

Special kit reducing seat height by 50 mm

A special, retrofittable kit available for lowering the seat position serves to reduce seat height on the F 650 by 50 mm to 750 mm or 29.5". This kit comprises modified swinging-arm levers, a different spring strut rest point, and shorter main and side-stands.

The new side-stand is even more comfortable and safer than before, allowing the rider to move it into position also when seated and no longer folding back by itself. An ignition interruption switch makes it impossible for the rider to set out before retracting the side-stand. And

ever since the 1996 model year, the F 650 has come as standard with a main stand.

The F 650 ST fun bike:
Ensuring even more riding pleasure on the road

Three years after the launch of the F 650, a second model, as mentioned, joined this very successful single-cylinder in the 1997 model year. Unlike the F 650 funduro very suitable for comfortable touring on long distances - alone or with a passenger - and for riding off-track as well as in - not too rugged - terrain, the F 650 ST fun bike appeals more to riders with a penchant for a somewhat more sporting style and focusing to a greater extent on road use.

Differences in the suspension and running gear, fitments and looks

Accordingly, the two models in the F 650 range differ above all through their running gear, as well as through modifications in their features and looks.

Smaller front wheel and shorter spring travel at the rear

Compared with the F 650 (with data shown in brackets), the suspension and running gear of the F 650 ST is even more agile and sporting thanks to the smaller 18-inch front wheel (19-inch), road tyres, slightly modified suspension geometry with wheelbase reduced to 1465 mm/57.7" (1480 mm/58.3"), castor measuring 110 mm/4.3" (116 mm/4.6"), as well as the rear-wheel spring strut with modified damper action and 120 mm/4.7" (165 mm/6.5") spring travel. Spring travel on the front wheel, in turn, remains the same as on the F 650 at 170 mm or 6.7".

Seat height reduced if desired from 785 mm/30.9" to 735 mm/28.9"

The lowered suspension also reduces seat height to 785 mm/30.9" (800 mm/ 31.5"). Indeed, the lowering kit retrofittable if desired (see also description of the F 650) serves to reduce seat height even further to just 735 mm or 28.9". Clearly, this is a particular advantage for newcomers and somewhat shorter riders.

Overall weight of the F 650 ST in road trim is 191 kg/421 lb, ie, the same as with the F 650.

Narrower handlebar and thrilling handling on the road

Obviously, the new handlebar now slightly slimmer than before with the handles 760 mm/29.9" (800 mm/31.5") apart, angled further to the front, and without the typical enduro crossbar of the F 650, provides an even better seating position for riding on the road, at the same time ensuring even greater agility and supreme handling.

Small cockpit fairing and silver-painted engine spoiler

The new F 650 8T looks more sporting and dynamic right from the start, featuring a small cockpit fairing instead of the higher, transparent windshield typical of the F 650. This small fairing provides the perfect frame around the instruments with their re-designed dials illuminated from behind.

Unlike the matte-black paintwork on the F 650, the radiator and cylinder cover on the F 650 8T is painted silver. And contrary to the matte-black engine protection cover on the F 650 safeguarding the engine from stone-throw in rough terrain, the F 650 8T comes with an aerodynamic engine spoiler also painted in silver. The front mudguard, in turn, is narrower than before and there are no covers on the slide tubes.

Last but not least, the range of different body colours available (see appropriate section of this press kit) again distinguishes the F 650 8T from its "older" brother.

Optionally available: touring kit with higher windshield and hand protectors

In accordance with his personal taste, the customer may also order his F 650 8T with the higher, transparent windshield featured on the F 650 and hand protectors. Then he also needs a modified handlebar, all of these accessories being combined within one touring kit.

Same options and accessories as with the F 650

It hardly needs emphasising that the F 650 8T - optionally available in Germany and Italy with 25 kW/34 bhp engine output - is available also

with catalytic converter (standard in Germany, Austria, Switzerland, and the USA). Other special equipment includes engine protection hoops, case supports, side-cases, a topcase, a power socket, heated handles, and an anti-theft warning system.

POWER UNIT:

Water-cooled four-valve power unit with superior torque

Like the R 27, BMW's last single-cylinder produced until 1966 (250 cc, 18 bhp, air cooling), the F 650 and F 650 ST again feature a single cylinder four-stroke power unit in upright arrangement. Developed jointly by BMW and Rotax in accordance with the original concept from BMW, the new liquid-cooled four-valve engine displaces 652 cc (39.77 cu in) and develops an output of 48 bhp (35 kW) at 6500 rpm. Maximum torque is 57 Nm (42 ft-Ib) at 5200 rpm. In accordance with the new two tier driving licence regulations in Europe, the F 650 and F 650 ST are naturally also available with an output of 34 bhp (25 kW) at 5700 rpm in which case it has a maximum torque of 48 Nm or 35 Ib-ft at 4200 rpm.

Gearbox integrated in the engine housing

The five-speed gearbox is integrated within the two-piece light-alloy engine housing separated vertically into two halves. The engine housing covers with the clutch at the rear left and alternator at the rear right are also made of light alloy, while the chain pinion cover is plastic.

Box-type piston optimised for low weight

Made of cast light-alloy and designed in box configuration, the low weight piston features three piston rings and is cooled at the bottom by splash oil. Pre-defined balance serves to reduce vibrations on the weight-optimised crankshaft made of heat-treated nitrate steel. The crankshaft runs in two high-load anti-friction bearings, just like the forged connecting rods.

Overhead camshafts and cup tappets

The two overhead camshafts (DOHC) made of forged steel run in anti-friction bearings directly on the cylinder head and are driven by a timing chain straight from the crankshaft. A plastic tensioning bar and a hydraulic chain tensioner ensure a smooth and unproblematic flow of power. Direct power transmission from the camshaft via cup tappets to

the valves allows fast valve acceleration and keeps the engine revving smoothly even at high speeds.

Compensation shaft for superior smoothness and refinement

To reduce engine vibrations and increase running smoothness accordingly, the F 650 comes with a special compensation shaft. This shaft runs in two grooved ball bearings and is driven by gear drive with a direct 1: 1 transmission ratio straight from the crankshaft. The drive gear on the compensation shaft is designed as a spur gear to compensate for any gear flank tolerance and thus efficiently reduce any noise.

Oil reservoir in tubular frame

Oil is supplied to the engine by an intake pump and a high-pressure pump. Featuring dry sump lubrication, the engine of the F 650 does not have an oil sump as such. Instead, the oil reservoir required of about 1.5 litres is incorporated in the upper part of the tubular frame.

Easy-to-service intake system

Intake air is drawn into the engine behind the rear side panel and beneath the seat. The foam-material filter is easily accessible, fully washable and therefore easy-to-service. The air intakes leading into the intake air silencer (which also serves to purge air from the engine) have been carefully designed for extra torque and minimum noise; the overall capacity of the intake air silencer is approximately 6.5 litres.

Two Mikuni carburettors

"Fuel is supplied through two Mikuni constant-depression carburettors with a venturi measuring 33 mm (1.30") in width. Identical in design and configuration, the two carburettors have an idle, part load and full throttle system. The automatic choke is integrated in the left-hand carburettor.

Two spark plugs for better combustion

The contact-free high-tension capacitor ignition is masterminded by a special control map and features electronic ignition feedback control. Ignition timing is also controlled electronically as a function of engine speed. The use of two spark plugs serves to shorten flame travel, minimising pre-ignition, improving combustion under part load, and reducing the emission of pollutants.

Stainless-steel exhaust system

As on all BMW motorcycles, the exhaust system is made of stainless steel polished at all visible points. Silencer volume is approximately 7.5 litres.

Standard, non-controlled catalytic converter now standard or optional

As an option the F 650 is available with a standard, non-controlled catalytic converter (a standard fitment in Germany, Austria, Switzerland, and the USA) .

10,OOO-km (6,200-mile) service intervals

Like the new Boxer generation and all K-models, the F 650 comes with service intervals of 10,000 km or 6,200 miles substantially reducing the cost of ownership.

RUNNING GEAR:

Single-loop frame with load-bearing engine

The "backbone" of the F 650 is formed by a single-loop frame made of pressed section pieces and square tubing, the upper half of the frame housing the oil reservoir for dry sump lubrication of the engine. The frame is further reinforced by bolted-on round tubing, and the engine serves to provide an additional load-bearing function.

Rear wheel fitted on delta-box swinging arm

The front wheel runs on a conventional telescopic fork with stabiliser and a fixed tube diameter of 41 mm or 1.61". The rear wheel, in turn, is suspended on a delta-box swinging arm combining supreme rigidity with low weight.

Hydraulically adjustable spring strut

The centrally mounted spring strut is infinitely adjustable for spring pretension and outward-stroke damping. Spring pretension is adjusted hydraulically by means of an easily accessible adjustment wheel. The spring strut itself is connected to the rear-wheel swinging arm at its lower mounting point by way of a system of levers, the kinematic conditions obtained in this way providing progressive spring action.

Driven by a low-wear O-ring chain

The rear wheel of the F 650 is driven by an Q-ring chain running at a transmission ratio of 1 :2.93 (teeth ratio 16:47). This specific type of - drive chain comprises a permanent lubricant filling in the rollers, Q-rings between the rollers and the outer covers preventing the lubricant from escaping. Properly maintained, an Q-ring chain therefore guarantees optimum smoothness and minimum wear. Rubber mounts for compen- sating load change forces are integrated in the rear wheel chain gear support.

Disc brakes front and rear

The brake system consists of a single-disc brake (diameter 300 mm/11.81") with a two-piston floating calliper at the front and a single-disc brake (diameter 240 mm/ 9.45") with a single-piston floating calliper at the rear.

3 THE TWO-CYLINDER R SERIES MODELS:

THE NEW R 1200 C

From the easy rider chopper to the BMW cruiser

The story of the American Way of Bikeing and the R 1200 C

The American Motorcycle Revolution started about 50 years ago when the first desperado bikers expressed their dislike of the established motorcycle scene by wildly modifying their machines. "Chopping" off all seemingly superfluous parts such as the mudguards, fairings or windshield, they clearly showed that they wanted to be different. Precisely this is why they introduced new, quite unusual styling features such as the long front-wheel fork, extremely high handlebars, footrests moved far to the front, and chrome on as many parts as possible. Enjoying the ride while leaning back with both legs stretched far to the front at a relaxed, casual speed on the open road, these young rebels became the creators of the chopper.

One of the big events that brought the great dream of freedom on two wheels to Europe was of course *Easy Rider,* the American cult film that appeared in 1969. And in the years to follow, the motorcycle already claimed by many to be "dead" made a very successful come-back as a hobby and leisure-time activity.

Now, like their fellow-believers before them in the States, specialists on this side of the Atlantic started to create highly personal custom bikes based on the chopper philosophy. Do-it-yourselfers quickly turned mediocre production machines into spectacular choppers for the aficionado, with running gear so breathtaking in its geometry that many a rider had to swallow hard prior to each bend.

In the late '70s the Japanese large-volume manufacturers then discovered the chopper philosophy for their own purposes. Taking a very moderate approach, however, they created machines commonly referred to in Europe as "soft choppers". Still, these "softies" were at least based on the Classic American Motorcycle once produced by

manufacturers such as Indian or Henderson and still manufactured successfully today by Harley-Davidson.

The typical attributes of a cruiser

While enthusiasts in Germany and other European countries still use the term "chopper" for standard-production American-style bikes, the Americans switched over to the term "cruiser" a long time ago. Making this change, they were no longer referring primarily to the origin of the bike involved, but rather wanted to highlight the typical features and style of such a machine, with the emphasis on the concept of "cruising along", following the route, feeling the wind rushing by, and simply enjoying the long and winding road ahead. To see people and the countryside, and to be seen by others - these were (and are) the all important features in this context. And to enjoy this pleasant feeling of cruising in style, you require a suitable motorcycle not only easy to handle, but also standing out in particular through the following attributes:

First, of course, there has to be a high-torque V2 or V4 power unit with its muscular growl providing the right kind of input. The second essential point is to keep the seat as low as possible, allowing even the relatively short rider to put both feet squarely on the ground whenever necessary. Criterion number three is to position the footrests further to the front, requirement number four to fit the machine with large, highrise handlebars allowing a totally relaxed riding position with your body either upright or leaning back slightly. The fifth and last necessity is to use running and drive gear components not hidden behind plastic covers, but rather chrome-plated and highly polished as a token of the rider's pride in his machine.

Yet a further point is that a cruiser is a motorcycle simply begging for the addition of further items and components as well as special, custom-built parts expressing the personal style of the rider. And then, of course, it's a simple must to have the right boots, leather suit, open helmet, goggles, kerchief and many special accessories clearly indispensable with this kind of motorcycle lifestyle.

The 1990s - the decade of the cruiser

It is no exaggeration even today to call the '90s the decade of the cruiser within the long history of the motorcycle. Indeed, we see this clearly when comparing data on worldwide sales of new motorcycles in the plus-500 cc category in industrialised countries:

While in 1989 the super sport segment accounted for 36 per cent and the cruiser segment made up 18 per cent of the overall market, super sport machines had dropped to 21 per cent by 1996 and cruisers, with annual sales of approximately 200,000 new machines, were up to 33 percent.

The trend is particularly clear in the world's largest and second-largest markets: In the USA cruiser sales have virtually doubled from 58,000 to more than 100,000 units, and in Germany the number of cruisers sold - has even increased five-fold from 8,000 to 40,000.

Keeping a close eye on the market

BMW has been well represented ever since the '80s in the naked bike, enduro (off-road), sports tourer, tourer, and luxury tourer segments. But BMW is not to be found in the super sport and cruiser segments, which, taken together, make up about half of the overall motorcycle market.

Although it is by no means essential for BMW, a relatively small and exclusive motorcycle manufacturer with a world market share in the plus-750 cc category of about 10 per cent, to be represented in all segments, it is only obvious that the experts within BMW's Motorcycle Division have been keeping a very close eye on the development of the market for a long time.

A new interpretation of the cruiser concept - naturally with a two-cylinder Boxer engine

With the cruiser segment rapidly growing in size and significance, it was equally obvious for BMW to take a look at the cruiser, too. And it was clear from the start that a BMW cruiser simply had to have two cylinders, just as these two cylinders were not to be arranged in the

typical V-configuration to be found with nearly all other cruisers in the market.

After all, ever since the R 32 launched in 1923, the great-grandfather of all BMW motorcycles, the Company's two-cylinder philosophy has been based exclusively on the now virtually mythical Boxer or flat-twin engine so typical of the brand also through its special position within the frame, the cylinders of the engine fitted crosswise to the direction of travel.

A further, equally obvious point is that the first-ever cruiser introduced by the leading European manufacturer of large motorcycles simply had to be an all-new, absolutely unique interpretation of the cruiser philosophy as such.

On the one hand, this means using nearly all the high-tech ingredients of BMW's new four-valve Boxer generation, with features ranging from Digital Motor Electronics all the way to the fully-controlled catalytic converter, the BMW Telelever suspension and the highly efficient brake system with ABS available as an option.

On the other hand, this also means creating a very special look with unmistakable style and powerful emotion. And yet another obvious and essential criterion is to use high-quality materials and surfaces as well as discreet retro-design features drawing on almost 75 years of BMW motorcycle history.

1993: the final go-ahead for the BMW cruiser

After launching the R 1100 RS sports tourer in spring 1993 as the first model in the new Boxer generation, BMW completed the range by autumn 1995 with the enduro roadster and tourer models so typical of the brand (and planned from the outset).

The day of the cruiser also came in 1993 when Or Waiter Hasselkus, the new President of BMW's Motorcycle Division appointed in autumn of the same year, quickly expressed his support of the concept and became what we might call the "godfather" of the forthcoming BMW cruiser.

One year later, in 1994, the Board of Management of BMW AG also gave the project code-named R 259 C within the Company the go ahead for ongoing development of the first-ever cruiser in the history of BMW motorcycles.

POWER UNIT:

Given the challenge to find the right engine for the new cruiser, BMW's engineers logically opted for the Company's new flat-twin as the basic engine configuration, a Boxer of this calibre already comprising all the essential characteristics of a typical cruiser power unit: Superior development of power and torque for cruising in relaxed style, that typical two-cylinder sound as an acoustic message of superior strength and performance, and the ideal balance of all masses provided by the Boxer in the interest of optimum running smoothness. Yet a further point, of course, is that through its looks alone the Boxer engine conveys all the style and class of a BMW right from the start.

BMW's engine specialists also realised, however, that while the Boxer in its conventional form is most certainly a very muscular, sporting machine, it is still several thousand revs away from the ideal cruiser engine in the true sense of the word. Accordingly, the engineers decided to make some fundamental changes to the Boxer and its concept as a whole, thus turning a fast sprinter into an equally superior, but more relaxed muscle runner.

Increase in engine size

The first and most important step in creating the right kind of power base was to increase engine capacity, especially as the engine of a real cruiser can never be too large. So enlarging bore from 99 to 101 mm (3.90 - 3.98"), and extending stroke from 70.5 to 73 mm (2.78 - 2.87"), the Motorcycle Division's engine specialists were able to beef up the original power unit from 1085 cc to 1170 cc for the BMW R 1200 C, in the process creating the largest BMW motorcycle engine ever built.

The torque curve - like the back of a buffalo

The obvious result of this exercise is that the engine now develops even more thrust with even greater superiority - but even that was not enough for BMW's specialists in establishing their own specific definition of the optimum cruiser. Rather, they also wanted to dedicate a kind of monument to this high-torque power unit, giving it a torque curve which, by way of analogy, follows the profile of a buffalo back. And the

result is a power unit so independent of high engine speeds that it does not even require a rev counter.

Minor modifications in further support of the cruiser concept

BMW's engineers have succeeded in changing the fundamental character of the Boxer engine by introducing a whole range of small but important modifications, without changing the fundamental configuration of the four-valve Boxer engine in the process.

Among others, the following modifications are worth noting in this context:

- Reduction in valve diameter

(intake valves 34 mm (1.34"), outlet valves 29 mm (1.14") on the R 1200 C as opposed to 36 mm (1.42") and, respectively, 31 mm (1.22") on the R 1100 RS)

- New camshaft configuration

with shorter valve timing (2560 on the R 1200 C versus 3000 on the R 1100 RS) and shorter valve stroke (R 1200 C intake and outlet: 8.23 mm (0.32")/R 1100 RS intake: 9.85 mm (0.39"), outlet 9.4 mm (0.37").

- Intake system optimised for maximum torque

with intake manifold diameter measuring 38 mm (1.50") as opposed to an intake manifold diameter of 50 mm (1.97") on the R 1100 RS, thus ensuring optimum torque

A further feature in this context is the configuration of the throttle butterfly manifolds (diameter 35 mm (1.38") versus 50 mm (1.97") on the R 1100 RS), which are connected to one another and integrated in the intake system to provide sufficient space for an automatic choke function. Accordingly, this means that the R 1200 C, just like the K 1200 RS, is able to do without the usual choke lever on the handlebars.

- New programming of the Motronic engine management system

ensuring a significant improvement of the special Motronic control concept (MA 2.4 as on the K 1200 RS) and, accordingly, a torque curve optimised for maximum torque at low engine speeds.

A gentle giant

This process of "taming" the sporting Boxer for cool cruising in genuine style creates exactly the right machine for stress-free motoring on the highway, wherever that may be, an ample 61 bhp (45 kW) at just 5000 rpm providing ideal power and performance for the BMW R 1200 C. For what counts here in real-life cruising with lots of power available whenever you need it, is supreme torque at low speeds. Precisely this is why the engine develops its peak torque of 98 Newton-metres or 72 Ib'-ft at just 3000 rpm. And throughout the entire range from 2500 to 4500 rpm, you constantly have more than 90 Newton-metres or 66 Ib-ft at your fingertips as soon as you move to full throttle.

The full range of substantial torque and useful power extends on the BMW cruiser from 1500 rpm all the way, if really necessary, to 6500 rpm. Which means that when riding in the fifth and highest gear available on the BMW R 1200 C, you can accelerate smoothly and in style from a docile 50 km/h (31 mph) in city traffic all the way to the machine's top speed of more than 160 km/h (100 mph) without even changing gears in the process. And the very special feature of motorcycle cruising BMW-style is that you can always forget about the gearshift while riding, although if you wish you can shift gears quickly and powerfully at any time for even more superior style and performance.

To further underline the relaxed style of cruiser riding at low engine speeds by adding a very special technical feature, BMW's engine specialists have also opted for a traditional concept that has always ensured the superior smoothness of BMW's old Boxers: By significantly increasing the centrifugal mass on the crankdrive, the engineers have succeeded in giving the flat-twin power unit superior smoothness and refinement from just about 1000 rpm.

That throaty, powerful Boxer growl

The exhaust system combines classic style with up-to-date technology, at the same time contributing through its precise balance to the engine's torque curve. A further important point is that a design concept environmentally friendly in two respects lurks behind the powerful look of the exhaust with its two short tail pipes in high-gloss chrome. This is the combination of a pre-muffler in the middle and two compact silencers at the side, reducing drive noise to the strict European standard now in force of 80 dB(A). And at the same time the system still maintains that typical BMW sound also characteristic of a cruiser, that is the throaty growl of power and muscle.

Fully controlled catalytic converter fitted as standard in all countries

As another outstanding feature, the pre-muffler of the R 1200 C comes with BMW's fully controlled three-way catalytic converter now fitted as standard on BMW motorcycles worldwide - and offering a much more thorough cleaning effect outperforming even the strictest legal standard. Indeed, up to 85 per cent of the carbon monoxide (CO), hydrocarbon (HC) and nitric oxide (NOx) in the exhaust emissions is filtered out by the catalyst.

Made completely of stainless steel and finished in glossy chrome, the entire exhaust system is both rustproof and offers a long service life. Able to withstand even very high temperatures, the manifolds between the cylinder heads and the pre-muffler feature a combination of inner and outer walls. The insulating effect of this double-wall structure not only avoids discolouring with the pipes turning blue, but also keeps exhaust temperature upstream of the catalytic converter at a maximum fn the interest of a faster and better catalyst response.

Hydraulic clutch and the new five-speed gearbox

Power is transmitted on the BMW R 1200 C by a hydraulically operated single-plate dry clutch leading straight into the new five-speed gearbox derived from the newly developed six-speed box on the K 1200 RS. It excels through its superior shift comfort and precision, just as it is even more compact then before, since the swinging arm on the R 1200 C is

mounted not on the gearbox, but rather on the frame itself. And yet a further advantage is that service intervals are up from 20,000 to 40,000 km.

This new five-speed gearbox naturally features exactly the right gear increments for a cruiser: The first two gears are extra-short and close to one another for fast sprinting on winding country roads, while fifth gear has a much longer transmission ratio for ideal cruising between 80 and 120 km/h, with maximum torque and optimum power at the rider's disposal whenever he needs it.

Like all BMW Boxers, the rear wheel is obviously driven by a drive shaft running in this case in the hollow swinging arm of the Monolever and featuring not only two universal joints, but also a torsion damper.

THE SUSPENSION AND RUNNING GEAR:

A simple and straightforward rule applied for centuries by sailors on the seven seas is that "length means smoothness". And it is also a fact that land vehicles follow this old rule, too, long wheelbase ensuring
smoothness and refinement, plus superior directional stability and smooth, docile behaviour in bends. Indeed, this rule emphasizing the significance of an extra-long wheelbase applies to both the automobile and the motorcycle alike.

Extra-long wheelbase for that typical cruiser style

Long wheelbase is simply ideal for a cruiser in creating the qualities typical of such a motorcycle. After all, cruising means riding in a calm and relaxed style both on straights and winding roads. And unerring directional stability is far more important under such conditions than the process of spontaneously shifting your riding position from one low angle to another.

A further advantage of the extra-long wheelbase is that it provides ample space for the rider himself, allowing him to adopt a superior posture on his machine. This is precisely why BMW's engineers creating the cruiser have moved the rider's saddle-shaped seat even further to the back, while placing the footrests a lot further up front. This creates a comfortable seating position between the two wheels making even transcontinental tours a genuine pleasure without tempting the rider to try his hand at any kind of foolhardy racing ambition.

Growing as described, the wheelbase of this BMW Boxer has increased from a short 1473 mm or 58.00" on the very sporting R 1100 RS by
.almost 20 cm to 1650 mm or 64.96" on the R 1200 C. Reflecting this longer wheelbase, the overall length of the new machine has increased accordingly, from 2175 mm or 85.63" on the R 1100 RS to 2340 mm or 92.13" on the R 1200 C.

New dimensions and a new concept

It is only obvious that these new dimensions also called for a new design concept fundamentally different from the start. Accordingly, the frame of the R 1200 C is made of dynamically styled cast aluminium up front and a rather inconspicuous steel tube structure at the rear, with the engine and transmission serving as a load-bearing element in between.

Over and above its actual function as such, the front frame section made of light alloy and finished in pearl-gloss chrome-plating like the housing of a classic camera, also serves as an important design feature clearly demonstrating its additional function with the two air intakes for the oil coolers further behind being clearly visible, just like the air outlets.

The Telelever also serving as an important design feature

The front end of the frame also accommodates the upper mounting point for the front-wheel Telelever. For it was obvious from the start that the R 1200 C, like all models in BMW's new Boxer generation and also like the new K 1200 RS introduced in the meantime, was to come with this highly innovative, exclusive front wheel geometry. And since the triangular control arm fully visible in this case is also an important design feature, it now comes in polished aluminium for the first time on the R 1200 C.

The damper tubes on the Telelever fork with its low steering angle of 60.5° typical of a cruiser are finished in the same high-gloss effect. Front-wheel castor, in turn, is relatively short at 86 mm or 3.38" in view of the long wheelbase serving to maintain directional stability and in the interest of good handling. The spring action required is ensured by a central spring strut with coil springs and a single-sleeve gas-pressure damper, spring travel amounting to 144 mm or 5.67".

Extra-long Monolever instead of the Paralever

Apart from the lower angle of the Telelever fork, the rear-wheel swinging arm extended in length by 90 mm or 3.54" also contributes to the much greater wheelbase of the BMW R 1200 C. Since a long swinging arm is

just as efficient in balancing the reaction of the shaft drive as a short, but more complex double-joint single swinging arm, the BMW
Paralever, BMW's suspension and running gear experts have chosen a longer version of the original single swinging arm, the BMW Monolever, for the R 1200 C for reasons of function and design. Here, too, smooth and superior suspension is ensured by a central spring strut with a
single-sleeve gas-pressure damper mounted on the swinging arm. Yet a further feature is that pre-tension of the coil spring may be adjusted mechanically according to load conditions, spring travel being exactly 100 mm or 3.94".

Two rear-end silencers

Last but not least the extended Monolever provides sufficient space for the right kind of tail silencer, which could not have been fitted if the motorcycle featured a Paralever. Accordingly, this is the first new BMW motorcycle to enter the market in more than 10 years with two tail silencers running on either side.

The long wheelbase of the R 1200 C not only ensures a smooth and quiet style of riding, but is also absolutely essential for a cruiser, the extra length providing the basis for a low seat position of just 740 mm or 2~.13" just right particularly for the short rider.

Stylish and strong: BMW cross-spoke wheels

With the wheels always being crucial to the character of a motorcycle, its particular look and performance, BMW's designers and running gear experts creating the new machine also made a great effort to find the right kind of wheels. The solution, accordingly, is a positive combination <?f traditional looks and modern technology, the wheels of the BMW
R 1200 C coming in classic wire spoke design finished in this case in the modern high-gloss chrome of the BMW cross-spoke wheel - a very stable structure that has clearly proven its merits in no less than 10 years ever since the launch of the R 100 GS. In this case the wire spokes do not extend through the rim base, but rather connect a ring on the outside of the rim with the hub in the middle. The big advantage of this design is that it creates a self-contained rim base allowing the use of tubeless tyres.

Moving on to the subject of tyres, we see right away that finding the right tyre dimensions is an important way of expressing that special cruiser style. Accordingly, the front wheel (rim dimensions 2.50 x 18) comes with a relatively slender 100/90 - 18 tyre, while the rear tyre measuring 170/80 - 15 is a genuine "heavyweight" running on a 4.00 x 15 rim.

Highly efficient brake system with optional ABS

Although dynamic riding characteristics are not so significant on a motorcycle of this type, optimum brake response and stopping power is still a crucial feature of every BMW motorcycle, even if it is a cruiser. And precisely this is why the R 1200 C comes with extra-large and powerful brakes, the two perforated stainless-steel discs on the front wheel measuring 305 mm or 12.00" in diameter, as on the R 1100 GS. Brembo four-piston fixed callipers then hold the brake discs firm and tight whenever necessary, interacting with the single brake disc at the rear (dia 285 mm/11.22") featuring a two-piston floating calliper (as on the R 1100 GS).

It almost goes without saying that the R 1200 C - like all of BMW's two-cylinder models - is available as an option with ABS, standard on the R 1100 RT and, of course, on all of BMW's four-cylinders.

The obvious conclusion, based on all the features presented, is that the Telelever running gear of the R 1200 C sets new standards in the cruiser segment. The R 1200 C allows the rider not just to cruise along in style, but also to enjoy a really dynamic riding experience on winding country roads. Or, to put it in even more simple terms, the BMW
R 1200 C is a cruiser that still enables you to enjoy all the pleasures of riding a genuine motorcycle wherever you are and wherever you go.

DESIGN AND MODEL FEATURES:

The specific design philosophy underlying a BMW motorcycle is always of great significance - also when it's a cruiser. Accordingly, the design of the machine must reflect the basic values of the brand, giving the motorcycle its own specific identity. Precisely this is why the R 1200 C, in its design, interprets all of BMW's traditional values, such as innovation, clarity in model features and styling, functions which are both sensible and meaningful, and superior reliability all round. And added to all this we then have the most important factor: emotion.

Ultra-modern technology plus a touch of nostalgia

A further point is that the R 1200 C combines the most advanced technology with all the nostalgic attributes and features typical of a cruiser. It does not seek to present or represent a specific era in the history of the motorcycle, but rather focuses, in its core values, on BMW's almost 75 years of motorcycle tradition, without making a "historical" message in the process.

Almost every component can be seen and appreciated as such, proudly displaying its specific function. And the overall context of the individual components is so convincing and harmonious that everything forms one complete whole, the various parts and modules literally flowing into one another at their transition points. This elegant design is indeed so powerful and even sensual in appearance that you immediately feel the urge to touch the various parts, your fingers running along their flowing lines.

The springs - right there in front of you

Despite the compact look of the entire motorcycle oriented around the classic triangular frame in the middle, certain points and spaces have intentionally been left open to create a feeling of transparency when admiring the R 1200 C in its silhouette from the side. You can clearly see the Telelever spring components at the front and the Monolever at the rear creating a feeling of lightness, of a machine reduced to the essential. A genuine cruiser, a motorcycle in its purest form.

The materials used on a cruiser are selected not just for the specific purpose they have to fulfill, but also for their design and appearance, in this way presenting not only the spirit of the times, but also the character of the rider and his machine. Precisely this is why the
R 1200 C comes exclusively with the most sophisticated, top-quality materials all round.

Quite unique through its Boxer engine alone

The unique position of the BMW R 1200 C in the fiercely contested cruiser segment is emphasized from the start in both technical and
visual terms by the unparalleled flat-twin power unit standing out, also in a quite literal sense, on either side of the motorcycle. And the newly designed cylinder head covers are of course chrome-plated for extra style.

The quest for clear design reduced to what really counts is also expressed by the high cruiser handlebars made of 25-mm high-gloss chrome-plated tubing and contributing significantly to the rider's upright, relaxed posture on his machine. Further features to be mentioned in this context are the new-generation handlebar controls and instruments giving the R 1200 C the same high standard as the
K 1200 RS. The philosophy in this case was to retain the proven concept, but at the same time to further improve the arrangement of switches and, accordingly, the overall standard of control ease offered to the rider. All controls are therefore integrated in the handle unit, while you will look in vain for the choke lever still typical even today of so many motorcycles. For like the new BMW K 1200 RS, the R 1200 C comes with automatic choke control. The hydraulic clutch, in turn, enables the rider to set the clutch lever to four different positions just like the handbrake lever also finished in pearl-gloss chrome and offering a choice of four different settings.

For the first time with BMW, the grab handles themselves are finished in top-quality leather colour-matched to the seat.

Concentrating on the essential

The only instrument on the R 1200 C above the high-gloss chrome plated round headlight is the speedometer fitted on the left and housing

the oil pressure and fuel reserve telltales. Again, as a reflection of the machine's particular style, the numbers on the speedometer come in the retro look of the 1950s.

With the 1200-cc Boxer engine offering all the qualities of a genuine sledgehammer, there is no need for a rev counter on the R 1200 C. Indeed, all the additional information required by the rider is provided by 7 telltales fitted flush at the right and in two rows on an aluminium plate. The dual-function ignition and handlebar lock, in turn, comes right in the middle between the speedometer and telltales, the key featuring a matte-silver handle as yet another plege to the glorious classic days of motorcycling.

The underlying philosophy to reduce everything on this new motorcycle to the essential also comes to bear in the design of the seat, the very comfortable rider's seat intentionally being conceived for the rider alone as a genuine monoposto. Reflecting the overall design of the R 1200 C, the seat is shaped like a saddle and is finished in top-quality leather.

The passenger seat serving als() a rider backrest

A small, again leather-covered seat cushion for a passenger accompanying the rider on short trips is featured right behind the rider's seat as such. A special touch in this case is that when riding solo the rider can move up this seat cushion to a vertical position, using it as a backrest with inclination manually adjustable to three different angles. With the seat bottom moved up, the rider has direct access to a pearl gloss chrome-plated cast aluminium rack serving as a luggage support.

Individual components with clearly recognisable functions

Most of the components on the BMW R 1200 C are, as already mentioned, specially accentuated in their styling and thus clearly recognisable in their function. One example is the air duct on the intake side with its high-gloss chrome-plated air intake cover beneath the tank and the pearl-gloss chrome-plated frame at the front. The latter also houses the two oil coolers, clearly displaying this additional function by the openings for drawing in and expelling cooling air.

The tank with its high-gloss chrome-plated filler cap positioned to the right is yet another characteristic feature of the R 1200 C further enhanced in its looks by the matte-chrome-plated components arranged around the tank as such - the cast aluminium frame and the air intake covers. Since a cruiser is not built for covering long distances at high speeds, the tank itself is a bit smaller than usual although its capacity of 17 litres (3 % Imp gals), with 4 litres reserve, may be regarded as quite sufficient for a motorcycle of this type.

Top-quality materials and surfaces

The sophisticated but relaxed elegance of the BMW R 1200 C is also underlined by the careful use of materials providing a perfect match for this unique cruiser.

Consistent use of hot-galvanised steel plate on the tank, wheel covers and side panels is more than "just" the come-back of old traditions. Steel plate is very strong and long-lasting in everyday use and provides the ideal foundation for high-quality paintwork retaining its perfect gloss throughout a long running life.

Lines applied with a calm and experienced hand

All parts and components of the R 1200 C are painted in a very elaborate process with painstaking care: No less than two layers of clear topcoat ensuring lasting gloss throughout a long running life come on top ot the primer, filler and the actual surface colour. And it almost goes without saying that the cruiser, like all BMW motorcycles, benefits from a special paint application method already well-known to the connoisseur visiting BMW's motorcycle production plant in Berlin Spandau, where female workers show incredible skill and dexterity in applying colour-coordinated lines along the tank and on the wheel covers.

The colour range: from night black all the way to ivory

The BMW R 1200 C comes with a choice of three different colour schemes:

The most elegant version is in night-black with white lines and a black seat, bearing clear testimony to the classic BMW colours already famous for so many years and decades.

Another elegant but perhaps more down-to-earth colour scheme is canyon red metallic with silver lining and a black leather saddle. In this case the seat is also available as an option in brown canyon leather.

Last but of course not least, the R 1200 C also comes in a warm, avantgarde and extravagant ivory with the lines along the tank and the wheel covers as well as the seat in navy blue. As an option for this colour scheme the seat may be finished in black or canyon brown, in which case the blue lining is dropped.

Lots of chrome and polished aluminium

Reflecting all the values of a superior cruiser, the BMW R 1200 C comes with a lot of chrome finished to the highest quality standard in three layers of copper, nickel and, finally, the chrome plating itself. So regardless of whether the chrome surface is in high gloss or matte, this combination of materials ensures lasting quality throughout a long running life even under the toughest conditions.

Polished aluminium is to be found, for example, on the longitudinal Telelever arms, adding additional gloss and style to that typical cruiser look.

Seats and handles finished in leather

As already mentioned, the rider's saddle, the passenger's seat cushion, and the handles at either end of the handlebar are finished in topquality weather-proof leather. Taking on a certain patina in the course of time just like the saddle on a horse, this leather nevertheless retains its superior quality and offers that wonderful experience of a natural material throughout many years of hard riding in all climates.

This generous use of high-quality materials is also a clear pledge to BMW's traditional assets of lasting value and a long running life.

Highly advanced maintenance in every respect: BMW MoDiTeC as a world-first achievement in the motorcycle market

BMW is the first motorcycle manufacturer in the world to introduce a Mobile Diagnosis Test Computer (referred to as MoDiTeC for short) not only on the new K 1200 RS, but also on the R 1200 C. Connected to the motorcycle via a diagnostic plug, MoDiTeC is able to consistently check and monitor all electronic modules and the motorcycle's onboard electrical system.

After selecting the component or function he wishes to examine, the mechanic is guided by a display in locating possible defects and receives all the technical information he needs in the process. Troubleshooting is facilitated significantly by a comprehensive catalogue of possible symptoms. Accordingly, all the mechanic has to do is enter the problem or deficiency perceived and the diagnostic system will automatically guide him on, clearly presenting the various steps to be taken.

The BMW MoDiTeC computer is not only a diagnostic and measuring unit, but also an electronic information system. It will help to shorten service and repair times and, accordingly, to reduce the cost of ownership for the proud rider of a BMW motorcycle.

THE BMW CRUISER WORLD

Everything you and your motorcycle need for cruising in genuine style

no

For many years BMW has offered the widest range of both motorcycle equipment and rider wear offered by any motorcycle manufacturer.

Following sports models, tourers and off-roaders, a cruiser is now entering the BMW line-up as an entirely new kind of machine. And it is particularly here that equipment and accessories go far beyond purely functional requirements, creating a lifestyle of their own.

Accordingly, an entire range of features tailor-made for the R 1200 C in both optical and functional terms is available to supplement this outstanding new machine: the cruiser world.

Special equipment and options for the R 1200 C

Far more than other motorcyclists, cruiser enthusiasts attach very great importance to an individual, customised machine. Indeed, this kind of customisation calls for exclusive styling features clearly underlying the typical look of such a motorcycle. So equipment experts have created an all-new range of stylish extras for the R 1200 C.

High-comfort passenger seat

The first point was to improve seating comfort for the passenger on long distances. This is ensured by a larger seat offering all the creature comforts your passenger will desire. And if the leather grab strap is not enough, you can also retrofit a chrome-plated railing on the R 1200 C.

Heated handles, lower handlebars and a small windshield

Heated handles are very pleasant and convenient on cool days. And if you do not always want to brave the wind rushing by in an upright position with the standard high-rise handlebars, you have the choice of a lower and wider version creating an even more active feeling of riding in style. In the interest of even greater streamlining comfort and to provide better protection from wind and weather, the BMW R 1200 C will furthermore be available with a small windshield, two further options being an on-board power take-off and an engine protection hoop naturally finished in high-gloss chrome-plating.

The cruiser baggage system: from saddle bags all the way to the tank bag

The superior long-distance comfort expressed by the name "cruiser" alone is further accentuated by a set of bags matching the motorcycle in stylish design, such a wide range of bags and cases always having been typical of BMW. Instead of solid plastic cases, the R 1200 C comes with saddle bags made of water-repellant, impregnated leather fitted on integral supports next to the rear wheel. A stable plastic backplate ensures vibration-free attachment and offers a functional and attractive storage space concept in conjunction with the leather bags. Tidiness and convenient use of the lockable saddle bags is ensured by additional, water-tight inner bags made of a particularly hard-wearing material with a canvas-look surface. Then there is also a canvas-ware/ leather roil-up bag as well as a small, water-repellant bag fitting on the tank as a backpack and most suitable for strolling in town.

Rider equipment and accessories for the R 1200 C

The lucky rider of the R 1200 C can also express his or her pledge to cruising by choosing the right wear from head to toe. Because BMW's accessories and clothing experts have created a wide range of rider wear and equipment simply perfect for this new machine.

An ideal match for the R 1200 C: cruiser helmet and goggles

With the BMW system helmet, a fully enclosed integral helmet, not really matching the cruising concept in proper style, BMW's designers and engineers have developed a very special, open helmet (a jet helmet) allowing you to really feel the wind rushing by your face.

Made of a special thermoplastic material, the shell of the helmet is painted at the top in one of the three colours of the R 1200 C plus arctic grey metallic. The lower part of the shell, in turn, is finished in leather, again in the right colour matching the leather seat upholstery. All visible metal parts on the helmet are made of pressure-cast aluminium, the surface of the helmet thus reflecting the structures to be found on the motorcycle itself. Inside, the helmet is finish,ed in leather and colour-matched silk acetate. Finally, a special chin strap with pushbutton lock always keeps the cruiser helmet firmly in position.

Again as a reflection of cruiser motorcycling, the cruiser goggles efficiently protect your eyes from wind, stones, dust or insects. And special cruiser sunglasses are also available for the discerning rider.

Traditional and functional: the *Canyon* leather suit

The two-piece *Canyon* leather suit combines traditional design with modern and functional details. Opening via two zippers, the jacket fits tightly and snugly on your body. When cruising in relaxed style on a warm summer day, in turn, the rider can open the jacket on the outer zipper, creating not only a breezy effect, but also an entirely new, much more casual look in blouse-like style. Made of high-quality cowhide, the
- suit comes complete with protectors on the shoulders, elbows and knees, a back protector and hip protectors being retrofittable if desired.

The *Canyon* jacket is also available in a special ladies' style and may be combined with the *Endeavour* ladies' pants.

For ladies only: the *Endeavour leather* suit

The *Endeavour* leather suit is strictly for ladies. A three-piece combination made up of the jacket, waistcoat and trousers, this suit in three-layer look is stylish and refined at the same time. True to its name, the waistcoat is cut tightly round the waist to accentuate your figure. The catches and buttons come in an aluminium look reflecting the special design of the R 1200 C. Again in the interest of extra safety, this suit also features shoulder, elbow and knee protectors, with back and hip protectors being retrofittable on request.

In that special jeans look: the *Maverick* motorcycle suit

Denim is a perfect match for American-style cruising - especially when it comes with leather appliquees like BMW's new two-piece *Maverick* suit in black jeans look. In cooperation with fabric experts from Schoeller, a specialist Swiss manufacturer, BMW has made this classic cotton material suitable for the motorcycle. Reinforced by Kevlar and Dynafil fibres, this material developed exclusively for BMW and now marketed as IlnoTex" offers outstanding protection from abrasion. And once again, the suit comes with shoulder, elbow and knee protectors, with hip and back protectors being retrofittable. Accordingly, you can now enjoy motorcycle tours on hot summer days even in casual clothes without a bad conscience. In a suit that looks and feels like jeans but offers all the passive safety of a genuine motorcycle suit.

Ideal for cruising in genuine style: the *Dusty dust* coat

Introducing the cruiser, BMW is also bringing back the motorcycle coat. Indeed, the *Dusty* cruiser dust coat comes in the same style as the classic riding coat worn by cowboys way back when. And again reflecting the tradition of horse riding, the idea here, too, is to button up the two sides of the coat round your legs left and right before getting on to your horse or motorcycle. Water-repellant cotton fabric provides certain protection in bad weather, although this dust coat fitting conveniently into an integrated bag when not required cannot replace genuine rainwear. In the interest of added safety at night, reflector strips come in the colour-coordinated shoulder areas.

Cruiser gloves and boots

It goes without saying that the range of cruiser wear also includes your hands and feet. Accordingly, there are not only light summer gloves *(Ranger)* and Gore- Tex gloves *(Indian Summer)* for cool days, but also two different kind of boots: short boots *(Ranger)* for short trips or a ride into town and long boots *(Rambler)* in classic style for long tours. Getting into the long boots is easy thanks to the zipper at the side, while laces at the back keep the boots resting firmly on your legs.

The cruiser backpack

Riders who do not wish to take along the cruiser saddle bags on a short trip may opt for the compact, 1 O-litre (0.35 cu ft) cruiser backpack complete with waist belt and two additional bags at the side, which also fit on the belt individually. The material is water-repellant canvas fabric with leather trimming, again reflecting the special style of the cruiser.

The cruiser lighter

The most outstanding features of the gale-proof cruiser gas lighter are the matte chrome plating, a watertight screw-on cap and the top cover reflecting the design of the R 1200 C's cylinder protection covers.

The cruiser pocket watch

Since cruising also means escaping the pressure of everyday life, the cruiser pocket watch in savonette design is actually intended for use only when, once in a while, you have to be really punctual also in your leisure time. The face of the watch designed like the cruiser
- speedometer, a wind-up wheel shaped like the trip counter reset button, a watertight brass housing and the mechanical movement visible through a small window in the face all express features typical of the BMW R 1200 C cruiser itself: value, honesty and quality.

Other outstanding highlights in the cruiser collection

The cruiser collection also comprises the following items specially made for the R 1200 C: cruiser shirt, cruiser cap, leather waistcoat, windcheater, kerchief, T-shirt, sweat-shirt, leather belt, braces, key

bag, tie-pin and lapel-pin. And to provide the final touch, all these accessories and T-shirts come in beautifully embossed high-quality tin cans.

4 THE R 1100 RT:

The tourer exceeds all expectations
Entering the 1998 model year without any changes

As the fourth model in its new generation of Boxer machines, BMW launched the R 1100 RT tourer in autumn 1995. By autumn 1996 production had already exceeded 23,000 units, going beyond all expectations. And now the R 1100 RT is entering the 1998 model year without any changes.

Combining traditional virtues with future-oriented innovations

Like all of BMW's new Boxers, this full-fairing tourer follows in the footsteps of its predecessor: Launching the R 100 RT in 1978, BMW became the first manufacturer to introduce a genuine production tourer with full fairing developed in the wind tunnel, in this way establishing the tourer segment. Up to the end of the 1995 model year, production of the R 100 RT and R 80 RT amounted to more than 50,000 units - a clear sign of outstanding success in the market.

Applying vast experience and competence in this area, BMW has now re-defined the tourer concept in general. Proven virtues of the classic RT models such as excellent protection in wind and weather as well as ideal riding characteristics for long distances, plus the robust design and reliability of the machine have been maintained, future-oriented innovations have been added.

As a result, the new machine meets the highest standards also in terms of up-to-date engine technology combining superior performance with environmental compatibility, active riding safety and road comfort naturally also meeting the highest standards. And last but not least, the R 1100 RT establishes a new benchmark in the tourer market through its outstanding agility and supreme handling.

The R 1100 RT is surprisingly nimble and light-footed in dense city traffic, while offering sporting performance on winding country roads. Indeed, it is also very agile on Alpine passes and offers extreme riding comfort on long stretches of motorway.

Given all these qualities, the R 1100 RT may therefore rightly claim to be the tourer of the future in every respect.

The drive train and running gear of the R 1100 RT come primarily from the wide range of high-tech components introduced for BMW's new generation of Boxer machines. Reference is made in the following primarily to the specific model highlights of the R 1100 RT.

POWER UNIT:

Same performance data and characteristics as the R 1100 RS

In terms of its performance data and characteristics, the power unit of the R 1100 RT is identical to that of the R 1100 RS: The air- and oilcooled two-cylinder Boxer machine displacing 1085 cc, with four valves per cylinder and Digital Motor Electronics (Bosch Motronic 2.2), develops a maximum output of 66 kW (90 bhp) at 7250 rpm and a maximum torque of 95 Nm (70 lb-ft) at 5500 rpm.

The five-speed gearbox and clutch are also the same as on the R 1100 RS, the only difference being the final drive ratio of 1 :2.91 on the R 1100 RT, compared with 1 :2.81 on the RS model.

The chrome-plated exhaust system made of rustproof stainless steel is also the same as on the R 1100 RS.

Fully-controlled catalytic converter either standard or optional

In Germany, Austria, Switzerland, Japan and the USA a fully-controlled catalytic converter is fitted as standard. In all other countries it is available as an option.

RUNNING GEAR:

Telelever and paralever ensure superior riding safety and road comfort

Like the other models in the range, the R 1100 RT benefits from the outstanding riding safety and road comfort provided by the BMW Telelever, an entirely new front wheel suspension concept, as well as the BMW Paralever, the proven double-joint swinging arm on the rear wheel propelled by drive shaft.

The front wheel features the same central spring strut as the roadster model, while the central spring strut at the rear, as on the GS, can be

adjusted for spring tension hydraulically by a hand wheel and for outward damping by an adjustment bolt (infinite adjustment in both cases). This ensures optimum adaptation of the suspension to various loads.

Spring travel, as on all of BMW's new road Boxers, is 120 mm (4.72") at the front and 135 mm (5.31") at the rear.

The main components of the R 1100 RT's frame come from the R 1100 GS, the rear subframe and supports for the pillion footrests are the same as on the R 1100 RS.

The suspension geometry, on the other hand, ie, wheelbase, caster, and steering assembly angle (see the section on specifications), have been slightly modified versus the other models.

Brakes fitted as standard with ABS

Like all new Boxers in the BMW range, the front wheel comes with a double-disc brake featuring four-piston fixed callipers and floating stainless steel discs measuring 305 mm or 12.00" in diameter. The rear wheel, as on the enduro and roadster models, is fitted with a single disc brake (disc diameter 276 mm or 10.87") and a two-piston floating calliper.

To ensure optimum use of this highly efficient braking system in all situations, the R 1100 RT (like the K 11 00 LT as of the 1996 model year) comes worldwide with ABS or, to be more specific, the special electrohydraulic anti-lock brake system developed by BMW. To be even more specific, this is of course ABS 11, BMW's second generation of ABS brakes introduced in 1993 first on the R 1100 RS and then on the K 1100 models.

MODEL FITMENTS:

Full fairing for perfect form and function

In its styling and design, the R 1100 RT ensures supreme harmony of form and function. Full fairing, for example, provides not only excellent protection from wind and weather, but also an unmistakable, elegant look at first sight.

With its integrated headlight rounded off at the corners and the oil cooler in BMW's discreet "kidney" look, the fairing was developed and optimised in its streamlining in BMW's wind tunnel. With the windshield in its lowest position and the system cases fitted as standard, overall air drag (Cd x A) is only 0.494 - an excellent figure considering the very good protection from wind and weather offered by the fairing.

Windshield electrically adjustable

The extra-large windshield is electrically adjustable for rake by 22° and for height by 155 mm or 6.10", thus guaranteeing an optimum, individualised riding position depending on the height of the rider and his style of riding. Adjustment is just as easy as on the K 11 00 LT by means of a toggle switch on the left of the handlebars.

The two rear-view mirrors are fully integrated in the fairing, serving at the same time to protect the rider's hands. The front direction indicators are fitted directly in the mirror housings.

Warm air supply to the handles

The fairing of the R 1100 RT features a special warm air supply with individual on/off control: Warm air emerging from the oil cooler can be directed as an option straight to the two handles, air flow being controlled by two flaps in the cockpit opening and closing according to the rider's individual requirements. A small, lockable storage compartment on the left-hand side of the fairing also serves to accommodate a cassette radio available as special equipment.

26-litre fuel tank providing a long cruising range

As befits a genuine tourer, the R 1100 RT comes with a large fuel tank with a capacity of 26 litres or 5.7 Imp gals providing a long cruising range. As soon as the fuel level drops to about four litres, a telltale comes on and the bottom light in the rider information display (RID) goes out to inform the rider accordingly.

Made of forged aluminium and highly stable steel tubes, the two-piece tourer handlebars are 775 mm or 30 1/2" wide, feature ideal ergonomic design and therefore allow an upright, comfortable and fatigue-free riding position. As on the R 1100 Rand R 1100 GS (see description of those models), the handlebars are mounted separately to avoid vibrations. The handbrake lever, in turn, may be adjusted to four different positions.

Seat adjustable for height

The re-designed seat also serves to offer the driver and passenger maximum riding comfort. Like on all of BMW's new Boxers, the seat on the R 1100 RT is split up into two halves and is adjustable for height for the rider. And as on the R 1100 RS, the various seat heights available are 780 mm (30.7"), 800 mm (31.5"), and 820 mm (32.3").

For design reasons the seat covers feature a different surface structure: While the rider's seat comes with somewhat coarser surface grain, the surface on the passenger's seat is finished in fine grain matching the surface of the side panels and case covers. The footrest unit, in turn, is fully integrated in the fairing by an aluminium plate, the foot shift lever being adjustable to two different positions. A folding handle facilitates the process of moving the machine on to its main stand and back on to its wheels. The complete range of features in the cockpit (all instruments, telltales, and switches), finally, is the same as on the R 1100 RS (see description).

System cases and luggage rack fitted as standard

As you would expect of a genuine, sophisticated tourer, the R 1100 RT comes as standard with case supports and a luggage rack, plus two system cases each with a capacity of 33 litres or 1 .16 cu ft.

Like the storage compartment, the central ignition and handlebar lock, and the seat lock (where the rider may also fasten his helmet), these cases can be opened and closed with one single key.

It almost goes without saying that the R 1100 RT comes with standard features such as a main stand, side-stand with automatic starter interruption, hazard warning flashers, a socket (power take-off), onboard toolkit, and a tyre service kit.

In road trim, that is with fuel, oil, cases and tools - as well as with ABS fitted as standard (which, in all, means an extra 7 kg) - the R 1100 RT weighs 282 kg or 622 lb. Given its maximum permissible weight of 490 kg or 1080 Ib, this means a service load of 208 kg or 459 lb.

Options and special equipment

Over and above the wide range of standard fitments, the options available from the factory include heated handles as well as a radio installation kit including two loudspeakers and a second power take-off. And a very important feature not to be forgotten is the fully-controlled catalytic converter, unless it is already fitted as standard.

Special equipment available from the BMW dealer comprises an antitheft warning system, a second power take-off, a cassette radio, soft rubber handles, and a cylinder protection hoop. Then, for taking along ample luggage, there's also a topcase with inner bag with a capacity of 30 litres or 1.1 cu ft, inner bags for the system cases fitted as standard, and a tank bag.

5 THE R 1100 R AND R 850 R:

The roadster models now more attractive than ever before in the 1998 model year after yet a further facelift

As the third model in the new Boxer generation, BMW introduced the R 1100 R in autumn 1994, thus launching a roadster version representing the classic, "naked bike" without a fairing. You might therefore call this a genuine, grass-roots machine of the type BMW has always offered in all model series. Technically and optically almost identical with the R 1100 R, the R 850 R entered the market at the same time as the first model of a new Boxer generation with a downsized engine.

Production of these roadster models up to autumn 1997 amounts to more than 23,000 units.

In spring 1997 the roadster models were given a facelift, meaning a new face and a new cockpit. Since then they have also featured a larger, chrome-plated headlight. The headlight support and the all-new instrument support are made of aluminium, the chrome-plated instrument console housing not only the speedometer, but also the rev counter now fitted as standard. Right at the top in the middle comes a small analogue-face clock which, like the other two instruments, is surrounded by a polished stainless-steel ring.

Entering the 1998 model year, these two roadster models are now more attractive than ever before thanks to yet another facelift. As an example, the rear-view mirrors and supporting arms, as well as the handlebar weights, are now chrome-plated, the brake and clutch lever as well as the passenger grab handle and oil cooler covers are finished in silver paintwork. The footrest plate comes in silver powder coating polished at the surface, the rear frame section is also finished in silver powder. The direction indicator flasher housings and their support arms are in white aluminium paintwork, all these features coming together to ensure a truly glossy appearance.

Same high torque as the R 1100 GS

In principle, the drive system and running gear of the R 1100 Rare based on the technical features of the R 1100 RS and R 1100 GS. Once again, therefore, this new machine is driven by BMW's air- and oil-cooled flat-twin Boxer featuring Digital Motor Electronics (Bosch Motronic MA 2.2) with a displacement of 1085 cc and four valves per cylinder.

Like the R 1100 GS, the R 1100 R features a power unit built not so much for maximum output (as in the case of the R 1100 RS), but rather for extra torque and pulling force. And it also comes with the high-rise exhaust system of the R 1100 GS.

The change in power and output characteristics versus the R 1100 RS is provided by the same measures as on the R 1100 GS (for details, see the description of the R 1100 GS).

Accordingly, the engine specifications of the R 1100 R are the same as those of the R 1100 GS, that is a maximum output of 59 kW (80 bhp) at 6750 rpm and a maximum torque of 97 Nm (71 lb-ft) at just 5250 rpm.

In Germany both the R 1100 R and the R 1100 GS are optionally available for insurance reasons with a maximum output of 57 kW/78 bhp.

In contrast to the R 1100 RS, RT and GS, where the oil cooler is integrated beneath the headlight, the R 1100 R comes with two smaller oil coolers left and right above the cylinders.

The R 850 R: BMW's first new Boxer with a downsized engine

The R 850 R, the entry-level model leading into the new Boxer generation, comes with an 848-cc power unit almost identical in technical terms with the engine of the 1100 cc models. Maximum output is 52 kW or 70 bhp at 7000 rpm, maximum torque 77 Nm (57 lbft) at 5500 rpm. And in accordance with European driving licence regulations, a 25 kW (34 bhp) version has been available since spring 1995.

The final drive ratio of the R 850 R is 1 :3.36 (R 1100 R 1 :3.00). Another difference between the two models is the diameter of the intake and outlet valves in the engine, while all other technical features, data, dimensions and weights are the same on both the R 1100 Rand R 850 R. Accordingly, there is no need for specific reference to the R 850 R in the following description.

A totally unique and independent look

The R 1100 R roadster not only offers superior power and performance, but also looks great in its unique, unmistakable appearance. Among other things, it comes with a rounded steel plate fuel tank with a capacity of 21 litres (4.6 Imp gals).

Adjustable seat with a minimum height of only 760 mm (29.9")

The two-piece stick-on seat offers ample space plus excellent riding comfort for both the rider and passenger. And as with the other models of the new Boxer generation, the rider's seat is again adjustable for height: from 760 to 780 and 800 mm (29.9 - 30.7 - 31.5"). Otherwise, the features and model fitments on the R 1100 R are limited to the essential.

Wider handlebar for easy handling

Made of forged aluminium, the two-piece handlebar is 729 mm (28.7") wide and contributes to the rider's ergonomic seating position while at the same time making the motorcycle very easy to handle. As on the R 1100 GS, the handlebar is mounted separately to avoid vibrations and may be tilted to the front (see also the description of the R 1100 GS).

Weighing 235 kg or 518 Ib in road trim, the R 1100 R comes with the three-spoke light-alloy wheels of the R 1100 RS. Wheel and tyre dimensions are also the same as on the R 1100 RS, and are described in greater detail in the specifications.

Cross-spoke wheels available as an option

As an option, the R 1100 R is available with the cross-spoke wheels of the R 1100 GS, although in this case front wheel diameter is not 19 inches (as on the GS), but rather 18 inches.

The front wheel brake operated by a handbrake lever adjustable to four different positions is the same as on the R 1100 RS, while the rear wheel brake comes from the R 1100 GS (again, details are to be found in the descriptions of these two models).

Advantages of the BMW Telelever

It goes without saying that the R 1100 R offers all the advantages of the BMW Telelever, the new front wheel suspension described in detail in the chapter covering the R 1100 RS. A central spring strut is fitted at both front and rear, respectively, outward-stroke damping on the rear spring strut being infinite, while spring pretension may be set to 7 different positions. Spring travel is the same as on the R 1100 RS and R 1100 RT, that is 120 mm/ 4.72" at the front and 135 mm/5.31" at the rear.

Due to the lower front wheel load, a handlebar damper is fitted on the R 1100 R to improve ride comfort on extremely bad roads.

In terms of its major components, the frame of the R 1100 R comes from the R 1100 GS.

Optionally available with ABS and catalytic converter

The R 1100 R also meets the strictest demands in terms of riding safety and environmental compatibility and is available as an option with ABS anti-lock brakes as well a fully controlled catalytic converter (the latter being fitted as standard in Germany, Switzerland, and the USA).

6 THE R 1100 GS

The enduro continues the successful story of the GS
Entering the 1998 model year without any changes

As the second model in the new Boxer generation, BMW launched the R 1100 GS at the Frankfurt Motor Show in September 1993, this new machine then entering the market in spring 1994.

The enduro version of the new Boxer has continued the successful story of BMW's GS models and immediately became a best-seller in the market.

The No 1 enduro in terms of engine size and torque

By and large, the R 1100 GS is based on the technical concept and design of the R 1100 RS successfully launched in spring 1993. The heart of this new machine is therefore once again the air/oil-cooled twocylinder Boxer with four valves per cylinder, high-camshaft control and 1100 cc displacement. The engine has nevertheless been modified for somewhat less power at high speeds, but more torque and pulling force in the medium range. Accordingly, output of the R 1100 GS is 59 kW (80 bhp) at just 6750 rpm, the maximum torque being 97 Nm (72 ft-Ib) at a low 5250 rpm.

For insurance reasons, the R 1100 GS is optionally available in Germany with a maximum output of 57 kW/78 bhp at 6500 rpm.

This makes the R 1100 GS not only the largest enduro in the market, but also the most powerful off-road machine in terms of torque.

It almost goes without saying that the R 1100 GS is also available with fully controlled catalytic converter fitted as standard in Germany, Switzerland, Japan, and the USA.

This modification of the engine's torque and power is made possible by an adjustment to the Motronic MA 2.2 engine management system, modified camshafts, different valve timing, modified exhaust manifolds and silencers (now made of stainless steel), different pistons also providing a reduction in the compression ratio from 10.7 to 10.3: 1, and a final drive ratio of 1 :2.81 instead of 1 :3.00 (as with the R 1100 RS starting in the 1994 model year).

Like the R 1100 RS, the R 1100 GS comes with a three-piece frame concept on the same scale as before, the engine and transmission housing forming one load-bearing unit. Front wheel suspension is once again ensured by BMW's novel Telelever with its central spring strut also offering all its benefits in the enduro version (see also the description of the R 1100 RS).

Front spring strut adjustable

Due to the very different conditions under which an off-road machine must prove its merits, the front, centrally mounted spring strut with 190 mm/7.48" spring travel allows spring pretension to be adjusted to five different levels by means of a hook spanner in the on-board toolkit.

The 820-mm (32.3") wide handlebar of the R 1100 GS is mounted separately, the fork bridge and handlebar being connected with the fixed-position tubes of the Telelever through two ball joints in the fork bridge and thus not following any tilt motion of the Telelever. Unlike the handlebar of the GS model rising upwards at a steeper angle, such tilt or swivel motions are hardly perceptible, anyway, with the sports-style handlebar of the R 1100 RS, which therefore does not have to be mounted separately.

Hydraulic adjustment of the rear spring strut

Like its RS counterpart, the GS comes with its rear wheel running in a Paralever swinging arm with central spring strut and (200 mm/7.87") spring travel. Spring pretension is infinitely adjustable by way of a setting bolt, outward-stroke damping also being infinitely adjustable by way of a hydraulic adjustment wheel.

Like the R 100 GS, the R 1100 GS also features BMW's patented cross-spoke wheels excelling not only through their superior stability on the road, but also through the possibility to exchange spokes individually and use tubeless tyres.

Modified brake system on the rear wheel

While the front wheel features the double-disc brake of the R 1100 RS with four-piston fixed callipers and floating stainless-steel discs measuring 305 mm or 12.00" in diameter, the brake system on the rear wheel features a single-disc brake measuring 276 mm or 10.87" in diameter and equipped with two-piston floating callipers.

ABS with optional deactivation for riding off-road

As an option the R 1100 GS is available with BMW's further improved ASS 11 already featured on the R 1100 RS.

Contrary to regular riding conditions on the road, where ASS always offers the advantage of preventing the wheels from locking and thus helping the rider to avoid a fall, it may well be desirable when riding off-road or on loose gravel to lock the wheel completely. Precisely this is why ASS 11, as featured on the R 1100 GS, may be deactivated by the rider.

Deactivation is only possible before setting out by pressing the ASS deactivation switch and firing the ignition at the same time. The rider is then informed by the ASS telltale that the anti-lock brake system is currently not in operation. To re-activate the system, all the rider has to do is switch off the ignition and then switch it on again.

MODEL FEATURES:

The R 1100 GS comes with a 25-litre (5.5 Imp gal) fuel tank. The front wheel cover is fitted directly to the cockpit fairing and makes a significant contribution to the motorcycle's exceptional looks. The lower wheel cover, in turn, is fitted to the lower fork bridge, thus following the steering and acting as a mudguard. The rear wheel, finally, is covered by a separate plastic mudguard fitted directly to the rear wheel drive.

Fitted as standard: adjustable windshield and seat

Like the R 1100 RS, the R 1100 GS is available with a special ergonomics package: The windshield may be adjusted infinitely by 13° (using the toolkit) and the two-piece seat may be set to a height of either 860 mm (33.86") or 840 mm (33.07"), this latter height being remarkably low for an off-road machine.

Another feature common to the R 1100 GS is the integrated ignition and handlebar lock. The ignition key, which may be turned round and inserted from both sides, also locks the tank cap, seat and helmet fastening catch. The instruments, controls and switches are the same as on the R 1100 RS, while the handbrake lever may also be set to four different positions. Further standard features are the main stand and side support with starter interrupter function, the plastic cylinder protector, the aluminium protection plate beneath the engine, the hazard warning flashers and luggage rack.

Luggage rack enlargeable

A special feature is that after removing the rear half of the two-piece seat normally intended for the passenger, the rider may enlarge the luggage rack accordingly. The grab handle for the passenger may also be removed and there is a separate box for the on-board tool kit beneath the luggage rack.

Options and accessories

Reflecting BMW's usual philosophy, the R 1100 GS is available with a wide range of options and accessories. The options available straight from the factory range from ABS 11, a fully controlled catalytic converter (standard in Germany and Switzerland), and a rider information display all the way to case supports and heated handles. Accessories include various cases and panniers, an anti-theft warning system, soft-foam handles, hand protectors, a handlebar impact protector, and cylinder protection hoops.

7 THE R 1100 RS

BMW's sports tourer wins awards the world over No changes required for the 1998 model year

The beginning of 1993 marked the start of a new era in BMW's 70-year motorcycle history: On the Spanish island of Lanzarote, BMW presented the R 1100 RS, the first model in an all-new Boxer generation, to the international motorcycle press. This sports tourer then entered the market in spring 1993, creating quite a stir in the motorcycle world.

In the USA, Japan, and Australia, as well as in several European countries, the R 1100 RS quickly became a prizewinner and was voted "Motorcycle of the Year", the innovative BMW Telelever being lauded as a unique achievement in motorcycle technology. By autumn 1997, production of the R 1100 RS amounted to more than 22,000 units.

POWER UNIT:

Environmentally compatible and easy to service

BMW's motorcycle managers and engineers started considering in the mid-eighties what an all-new BMW Boxer for the future should look like. And naturally, this also meant an all-new engine.

One point obvious from the very beginning was that the new Boxer was to offer more power and torque than its predecessor. Accordingly, there was no doubt that it had to have four - and no longer two - valves per cylinder. Top priority was also given to the improvement of fuel economy, the minimisation of exhaust emissions and engine noise, as well as the ease of maintenahce offered by the new machine.

90 bhp from 1085 cc

The air- and oil-cooled two-cylinder Boxer combines even more power with an even better torque curve from low engine speeds. Its specifications are therefore most impressive: 1085 cc capacity, 90 bhp (66 kW) at 7250 rpm, maximum torque 95 Nm (70 ft-Ib) at 5500 rpm.

There was no doubt from the very beginning that only a four-valve power unit would be able to provide the superior performance, emission management and fuel economy taken for granted with the new engine. Accordingly, two intake valves in each cylinder guarantee an optimum cylinder charge and fuel/air flow.

Thanks to the symmetrical arrangement of the two outlet valves, the spark plugs with their three electrodes have ample room in the middle ~f the cylinder head. Featuring specially contoured pressure edges at the sides, the roof-shaped combustion chambers are extremely compact.

Oil cooling along the cylinders between the outlet valves

To ensure optimum cooling particularly on the hot exhaust section, the. outlet valves in the cylinder head are tilted to the front in the direction of travel, thus having the full benefit of the air flowing around the cylinders. For even greater efficiency, the cylinder bank developing temperatures

of up to 300°C (570°F) is cooled by oil flowing between the two outlet valves.

The advantage of this additional oil cooling is that both the valves and valve seat rings now have a much longer service life. In addition, the intervals between valve adjustment are up from 7500 to 10000 km. To avoid coking along the hot cooling ducts after switching off the engine, the ducts are designed to remain filled with cooling oil at all times. Thanks to this efficient combination of air and oil cooling, the engine is far more resistant to high temperatures and hot weather, runs more quietly, and offers an even longer service life.

New valve control keeping the engine slender and compact in design

Since the valve control system used on the former Boxer (featuring a central camshaft, tappets, very long push rods and rocker arms) would have been quite unsuitable for a four-valve power unit on account of its inadequate strength and stiffness, BMW's engineers had to take a new approach in designing the valve drive system,

Classic valve drive systems with one overhead camshaft (OHC) or a double overhead camshaft (DOHC) and cup tappets, as used on BMW's K Series engines, had to be ruled out from the start since they would have increased the width of the Boxer engine by approximately 4 centimetres, in this way making it quite impossible for the rider to take bends at an angle of up to 49°, as required in the brief given t,o BMW's engineers.

A vertical drive shaft, in turn, would have been too elaborate, difficult to service and expensive. Accordingly, BMW's engineers eventually opted for the following solution:

Via a chain, an auxiliary shaft with a reduced ratio of 2:1 is driven directly from the crankshaft. Located deep within the engine beneath the crankshaft, this auxiliary shaft running at half the crankshaft speed incorporates a further chain on either side driving the respective camshafts running within the right and left-hand cylinder heads at the back next to the inlet valves.

While the use of an auxiliary shaft may appear to be a kind of "detour", the advantage in this case is that the sprocket within the cylinder head is smaller than usual and therefore keeps the cylinder head slender (although even so, space within the cylinder head is very limited). A light-alloy sub-frame is bolted directly to the cylinder head to accommodate the valve drive.

The camshaft and rocker arms run directly on the sub-frame. Contrary to the conventional design, the camshaft is no longer made in one single piece - instead, the cams are sintered and forced on to the specially hardened and heat-treated steel shaft.

Working against the cup tappets, the rotating cams transmit the forces converted from a rotary to an up-and-down motion via push rods to the forged rocker arms. The rocker arms, in turn, transmit this drive force to the valves to be opened with a pressure of 27 kg or 59 *Y2* lb. They also feature adjustment bolts for the pivoting slides driving the valves in pairs.

This special valve control system referred to as a high-camshaft design offers yet another advantage with the new Boxer: It makes the engine look particularly dynamic with its wedge-shaped cylinder heads pointing downwards like an arrow.

The two typical Boxer cylinders sticking out at the sides are made of cast light alloy. To obtain a larger outside surface and thus to dissipate heat more efficiently, they have special cooling fins on the outside.

Inside, the cylinders are finished with a high-strength, low-wear, extrasmooth layer of Gilnisil, a special nickel silicon lining ("Gil" stands for the n:anufacturer, the Italian company Gilardoni) minimising frictional losses on metal surfaces running against each other. Further advantages of this design are minimum oil consumption, high strength and stability also at high speeds and, as a result, a long running life.

Modern piston design

Each featuring three piston rings (one for removing the oil, two for compression and sealing), the two pistons in box shape are made of cast light alloy. Measuring 99 mm (3.9") in diameter, the pistons weigh almost a third less than the former pistons in the old Boxer. This slim design reduces mass forces and allows higher running speeds, a pleasant side-effect being the reduction of vibrations.

Sintered connecting rods for less vibration

The connecting rods link the pistons with the crankshaft and are made of sintered and forged steel with BMW's new Boxer engine. Compared with the old steel con rods merely forged but not sintered, the new con rods have much more accurate dimensions, a better surface contour and, quite generally, a higher standard of quality at the surface. Precisely this gives the connecting rods one of their main advantages, sintered conrods having virtually exactly the same weight following production, without any deviation from one rod to another. While the old steel connecting rods had to be subsequently machined and then' categorised in 7 weight groups, the new far more precisely manufactured sintered rods all come in one and the same weight group. Thanks to this almost perfect balance of weight from one connecting rod to the other, the counterweights on the crankshaft ensure optimum compensation of all mass forces.

A world innovation in motorcycle technology: the intentionally fractured conrod boss

The connecting rods of the new Boxer are made with the fracture or crack technology introduced for the first time on BMW cars. Accordingly, this is the first time in the history of motorcycle engine production that the large conrod boss encompassing the cra'dkshaft is intentionally fractured and not simply sawn in half.

The advantage is that the two surfaces along this intentional fracture provide a perfect fit when subsequently re-joined.

Indeed, when subsequently bolted together the fracture lines provided by this cracking technology form a larger common surface with even better alignment of the two halves than with a sawn conrod. Unlike the former design, there is no need for adjustment pins or bolts to provide a perfect fit. The substantial advantages of this new crack technology are therefore greater precision, a better fit, lower weight, quicker machining, and easier fitting.

The crankshaft running in two bearings

Representing the "heart" of the new engine, the crankshaft is made of one piece of top-quality heat-treated steel and runs in two slide bearings, the rear bearing being of double collar design. The advantage in the event of repairs is that there is no need for time-consuming alignment of the bearing and crankshaft.

The crankshaft drives the alternator and the layshaft controlling the valves and the two oil pumps, and extends directly into the five-speed gearbox.

Intake system

Through a snorkel beneath the tank, fresh air is drawn into the intake system air chamber, where it is cleaned by a paper filter. From the pure air chamber downstream of the filter, the air then flows on through two specially designed intake manifolds via the intake valves into the two combustion chambers. In their length and shape, the intake IT!anifolds are designed to provide superior output and an optimum torque curve thanks to the resonance within the intake system.

Digital Motor Electronics

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To further enhance engine output and torque while at the same time reducing fuel consumption and exhaust emissions, it was obviously necessary from the start to equip the engine with an electronic management system. Doing this, BMW's engineers were able to resort to the Digital Motor Electronics already featured on the four-valve power units> of the K 100 - to be more precise, they have decided to use Bosch Motronic MA 2.2 also featured on the K 11 00 LT as of the 1994 model year.

The advantages of the new engine with electronic fuel injection are obvious:

- Improved performance thanks to the special design of the intake system
- Better engine response ensured by the significant reduction of flow losses within the intake manifold
- Superior economy and reduction of fuel consumption: whenever the throttle butterfly is closed and when the engine is in overrun above 2000 rpm, the supply of fuel is totally interrupted - Grid control for extra smoothness and refinement - Superior ease of service provided by a diagnostic chip memorising any defects subsequently read out by the BMW Diagnostic Tester
- Superior reliability and failsafe functions built into the Motronic system, allowing further - albeit restricted - operation of the engine in the event of a deficiency - Absolutely no wear in the case of electronic systems - Ideal conditions for using a fully controlled catalytic converter

Motronic and its systems:

The fuel supply system

Housed in the fuel tank, the electric fuel pump conveys fuel to the electromagnetic injection valves within the throttle butterfly manifold, a pressure regulator keeping the pressure required for the injec~ion process consistent. Fuel is discharged into the two intake manifolds through the two electronically controlled intake valves. It is injected intermittently, ie, once every rotation of the crankshaft simultaneously into the two intake manifolds. The compression ratio of *1p.* 7.1 requires unleaded premium fuel (95 ROM).

The ignition

The ignition system consists of the terminal stage and coils. The ignition angle specified by the control unit is communicated by the system as a high-voltage pulse to the two spark plugs.

The control unit and sensors

The sensors determine the engine's current operating conditions, the information obtained in this way being fed into the control unit where it is compared with the data stored in the CPU's (Central Processing Unit's) EPROM. This comparison of data shows the exact amount of fuel required and the duration of the injection period.

Three-way catalytic converter available as an option

The three-way catalytic converter fitted as an option (and standard in Germany, Switzerland, the USA and Japan) is the most efficient emission control system available today. The process of conversion, reduction and oxidation is however only possible as long as the lambda 1 engine data are strictly observed. This stochiometric ratio between the amount of fuel actually supplied and the amount of fuel theoretically required is based on an air:fuel mixture of 14:1. To maintain this mixture regardless of running conditions, the oxygen sensor (sometimes also referred to as the lambda probe) measures the amount of oxygen in the exhaust gas emitted by the engine.

Oxygen sensor fitted upstream of the catalytic converter

On the engine of the new Boxer the oxygen sensor is fitted upstream of the catalytic converter and is therefore activated quickly and efficiently. The optimum operating temperature of the ceramic probe is 600°C or 1112°F, temperatures in the region of 300°C ensuring that the sensor will be activated within seconds. To provid~an even faster response, the sensor is heated by a 12 W heating system.

Immediately after the engine has been started, the oxygen sensor is switched off until the engine reaches its normal operating temperature, the fuel/air mixture being enriched in this start or warm-up phase in order to make the engine run smoothly. When the engine is in this operating condition, engine speed is increased by the choke adjusting the position of the throttle butterfly. As soon as the engine has reached its normal operating temperature, this assistance is of course no longerrequired.

The catalytic converter is recyclable

The three-way catalytic converter used on the new engine is already well known from the K 100 Series, the precious metals required for oxidation (platinum and palladium) as well as reduction (rhodium) being applied to a metal substrate. As is generally known, oxidation converts carbon monoxides into carbon dioxide, and hydrocarbons into carbon dioxide and water. The withdrawal of oxygen then allows the breakdown of nitric oxides into nitrogen and carbon dioxide.

Compared with a ceramic-based catalytic converter, the metallic converter offers advantages in terms of both space and time: It is smaller and responds more quickly, since the metal substrate is more efficient in absorbing the heat from the exhaust gas.

The catalytic converters are recyclable and are taken back after their service life by BMW workshops.

Stainless-steel exhaust system

Made completely of stainless steel and chrome-plated in addition, the exhaust,system is extremely resistant to corrosion.

Measured according to the ECE standard, the new engine develops a noise level of 79 dB(A), the current limit in the European Union (EU) being 80 dB(A).

The clutch and gearbox

The clutch is a single-plate dry clutch with the lowest possible inertia for a smooth and easy gearshift. Made of metal plate, the flywheel incorporates the starter gear.

The dog-shift five-speed gearbox is derived from the gearbox already featured on the K-models.

700-Walternator

The new generation of BMW Boxers comes with a new alternator offering particularly high output: Operating with regulator voltage of 14 V, the new alternator develops 50 amps equal to an output of 700 Watt. A particularly important point is that the new alternator generates a surplus output of up to 70 Watt even at idling speed, in this way ensuring a very good battery charge at all times. This, in turn, makes sure that the motorcycle will always start easily and smoothly, at the same time giving the battery an extra-long service life.

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RUNNING GEAR:

The BMW Telelever - a brand-new front wheel suspension concept

The progressive design of the running gear is hardly visible from the front, but stands out clearly from the side, where the first thing to catch your eye is the BMW Telelever, an all-new front-wheel alignment and bearing system providing a synthesis, as it were, of the telescopic fork and swinging arm.

Design and function of the BMW Telelever

With its main tube measuring only 35 mm or 1.38" in diameter, the telescopic fork pivots on a ball joint in a slide tube on the longitudinal control arm at the bottom and a fork bridge within the frame of the motorcycle at the top. A central spring strut providing 120 mm (4.72") spring travel measured perpendicular to the road, connects the longitudinal control arm with the front section of the frame. As of the 1997 model year, the spring strut is infinitely adjustable on the output stroke by way of an adjustment bolt.

The telescopic fork shafts now only contain fluid to lubricate the two tubes running inside one another, and no longer comprise any spring or damper components. As a result, the response of the telescopic fork to road and riding conditions is particularly smooth and soft, the fixed tubes running in slide bushes with teflon coating for minimum friction.

The maintenance-free ball joints running without any play within the slide tube and fork bridge efficiently transmit the steering movements on the telescopic fork. The other ball joint bolted on to the longitudinal control arm feeds most of the forces generated when applying the brakes into the stable engine housing. The longitudinal control arm, in turn, is fitted on a swivel mount on either side of the engine housing, meaning that the telescopic fork on the BMW Telelever system is only required for guiding the front wheel and, of course, for steering (maximum lock angle 32° on each side).

The advantages of the BMW Telelever

0 Compared with conventional wheel guidance systems, the wheel alignment geometry achieved in this way substantially reduces the dive effect of the telescopic fork. In fact, it works like a mechanical anti-dive system, ensuring that spring travel remains adequate even when braking in an extreme situation.

0 Even with the springs strongly compressed, the wheelbase and castor remain largely unchanged throughout the motorcycle's spring travel. This guarantees superior stability in all situations, ie, also when applying the brakes in a bend.

0 The substantial overlap of the fixed-position tubes and long slide tubes further enhances the Telelever's outstanding stability.

0 The absence of fork springs no longer required helps to minimise frictional forces and ensures an excellent response of the telescopic fork.

0 Compared with a conventional telescopic fork, the centrally mounted spring strut allows greater flexibility in tuning the springs and dampers and provides a progressive kinematic response of the entire spring and damper system.

0 With its anti-dive and superior longitudinal rigidity, the BMW Telelever offers ideal conditions for anti-lock brakes and excellent ABS control. CJ

0 Since the space between the front wheel and the engine is smaller than with a conventional telescopic fork, the entire power unit has been moved further to the front to provide optimum front-to-rear weight distribution (52.7 per cent at the front, 47.3 per cent at the rear).

0 The entire Telelever system requires no maintenance or oil change. Only the ball joints have to be checked after 100,000 km or 62,000 miles.

The BMW Paralever - proven rear wheel geometry

The rear wheel suspension is already well-known to the connoisseur, since it features BMW's proven Paralever concept. The double-joint swinging arm made of aluminium, which debuted in BMW's new offroad GS models in 1987, reduces the load change response of the drive shaft and therefore ensures optimum rear wheel grip at all times.

Unlike BMW's existing models with Paralever technology, the spring strut is mounted in this case in a central position, allowing spring travel of 135 mm or 5.31". Damper action on the outward stroke is adjusted by a bolt, spring pretension is infinitely adjustable (hydraulic).

Engine and transmission housing with load-bearing function

The entire front end of the frame is made of chill-cast aluminium for extra stability. Securely fastened to the engine housing, the front subframe holds the central spring strut of the Telelever in position. The frame itself is very light, easy and inexpensive to produce, and allows maximum precision in production. It also offers ideal conditions for the Telelever, as only direct forces have to be transmitted at this point (and not any twisting forces generating torque in one or the other direction). The big advantage of this concept is that it allows numerous variations of the motorcycle's suspension geometry, the front subframe being additionally supported by two steel tubes leading to the rear end of the engine housing.

The rear subframe is a steel-tube structure connected both to the transmission and engine housing. A transverse bridge between the upper tubes of the frame supports the spring strut at the top, while at the bottom the spring strut is connected directly to the monolever swinging arm. The rear subframe is also easy to manufacture and therefore particularly practical.

Brakes with ABS fitted as an option

The highly efficient Brembo brake system is the same as on the K 100 models, meaning that the front wheel features the same hydraulically operated double-disc brake with four-piston fixed callipers. Mounted in floating arrangement, the stainless-steel discs with compensation for uneven wear and sintered metal brake linings to eliminate fading even in wet conditions measure 305 mm (12.00") in diameter and 5 mm (0.20") across. The swept area is 100 cm2, brake piston diameter 32 and 34 mm (1.26 and 1.34"), respectively.

The rear wheel features a single-disc brake with two-piston fixed callipers (diameter: 38 mm/1.50"). The disc measures 285 mm (11.22") in diameter and 5 mm (0.20") in width; its total swept area is 40 cm2. BMW ABS anti-lock brakes are available as an option to significantly increase safety when applying the brakes.

Excellent riding characteristics

The ideal centre of gravity of the Boxer engine, the relatively low weight for a sports tourer of just 239 kg/52? Ib with tools, tyre service kit, fuel and oil, the light but ultra-stable frame, and the new Telelever combined with the proven Paralever and its centrally mounted spring strut, all come together to provide excellent riding characteristics. Handling is smooth, crisp and secure, tracking stability absolutely excellent.

As is appropriate for/ca sports tourer of this calibre, the R 1100 RS allows a sporting style of riding without requiring the rider 'or passenger to compromise on riding comfort or touring amenities. The maximum I<?ad of 211 kg/465 Ib is another outstanding feature, again making the machine very suitable even for long tours.

FEATURES, STYLING AND COLOURS:

Sports fairing developed in the wind tunnel

True to its concept as a sports tourer, the BMW R 1100 RS comes with a fairing developed for perfect streamlining in BMW's wind tunnel. The particular advantage of this fairing is that it combines relatively small dimensions with very low air drag and relatively good protection from wind and weather. Fitted as standard, the fairing improves the motorcycle's drag coefficient (Cd x A) to 0.400 with the rider leaning forwards, and to 0.439 with the rider sitting upright.

All fairing components are marked to indicate the specific type of synthetic material used, and can be fully recycled.

As an option the R 1100 RS is also available with a full all-round fairing extending down beneath the cylinders and largely encompassing the engine housing. In this case there is also an additional panel in front of the slide tubes.

The fuel pump with fuel level sensor and fuel filter is fitted in the 23-litre (5.1 Imp gal) fuel tank.

Central lock with two-sided key

An advantageous feature carried forward from the K 1100 Series is the combined ignition/handlebar lock in the upper fork bridge, allowing the front wheel to be secured both in left and right-hand lock after removing the key. A new improvement is the two-sided key, which may be inserted into the lock on either side. The same key also fits the tank cap and seat lock, and touring cases may be ordered with the same locks allowing the rider to use one key all round.

The ergonomics package

One of the most outstanding innovations on the R 1100 RS is the ergonomics package fitted as standard. In this way the motorcycle can be modified individually for the rider, different purposes and riding conditions, and various ergonomic requirements.

In all, the ergonomics package comprises three components:

1. Adjustable fairing windshield

The fairing windshield is adjustable by means of a rotating knob throughout a range of *20°* and is streamlined to minimise drag resistance. The lowest position is intended above all for cruising on highways and country roads, the topmost position offers optimum wind protection at high speeds.

2. Adjustable handlebar

Incorporating forged precision teeth, the adjustment mechanism allows adjustment of the handlebar in 7 stages by up to 20 mm (0.79"), plus three adjustment angles at increments of 6° each. The adjustment mechanism is easily accessible, requiring the rider to merely loosen one bolt.

3. Adjustable seat

The adjustable seat is subdivided into two sections. The rider's section may be adjusted in three stages by a total of 40 mm (1.57"), thus allowing the rider to choose a seat height of 780 mm (30.71"), 800 mm (31.50"), or 820 mm (32.28").

Easy-to-read instruments and warning lights

Clearly standing out as the two most important instruments, the speedometer and rev counter are fitted right in the middle of the cockpit, exactly in the rider's line of vision.

An instrument cluster with numerous functions is fitted a bit lower down, providing a clear indication of the following items:
Direction indicators, idling speed, high-beam headlight, fuel reserve (as soon as the fuel level has dropped to approximately 4 ltr/0.9 Imp gals), oil pressur~ battery on charge (from the alternator), ABS telltale.

Information display with oil temperature and fuel gauges, telltale for the gear in mesh, and clock

The R 1100 RS also comes as standard with BMW's rider information display: In a special housing fitted in the right-hand interior fairing panel, this liquid-crystal display indicates the oil temperature, fuel level, time,

and the gear currently in mesh. The interior fairing panel on the left, in turn, houses three switches for the hazard warning flashers, heated handles and ASS cancellation switch standard ever since the 1994 model year.

8 THE FOUR-CYLINDER K SERIES MODELS:

THE K 1200 RS SPORTS TOURER
Entering the 1998 model year unchanged

In 1976 BMW launched the first production motorcycle in the world with aerodynamic fairing developed in the wind tunnel. And whether it was the K 100 RS in 1983 or the R 1100 RS in 1993, BMW's sports tourers then set new standards time and again, quickly becoming the most successful machines of their type.

Since, as the old saying goes, all good things come in sets of three, BMW launched the new K 1200 RS as the third and so far most significant evolutionary step in the 13-year career of this sports tourer for the 1997 model year. Not only the "heart" of the K 1100 RS, the four-cylinder power unit, has become even larger and more powerful, but rather the suspension is almost brand-new and the motorcycle features have been renewed entirely from the ground up - meaning that the K 1200 RS is an all-new motorcycle also in terms of its looks.

The K 1200 RS excels through its dynamic, emotional, unmistakable design. Even at very first sight, therefore, it clearly reveals its high standard in terms of function and ergonomics.

The debut of the Telelever in a K-model, a new frame concept with the engine totally separated to avoid any vibration, a new six-sp~ed gearbox, standard fitment worldwide of a fully-controlled dual catalyst and ABS, the adjustable windshield, handlebar, seat, and rider footrests - "these are the most outstanding innovations featured on the K 1200 RS.

The K 1200 RS is even more dynamic, sporting, and comfortable than the K 1100 RS, while at the same time it retains the superiority and touring qualities so typical of BMW. Weighing 285 kg or 628 Ib in road trim, for example, and with maximum permissible weight of 500 kg or 1102 Ib, BMW's new machine offers a service load of no less than 215 kg or 474 lb.

Dynamic performance K 1200 RS-style means in particular superior muscle at all speeds, ultra-powerful and seemingly effortless torque and acceleration, and freedom from any vibrations possibly affecting the rider and passenger. This is also reflected by the dynamic behaviour of the running gear, the motorcycle's precise and agile handling in bends, and its virtually perfect stability in all situations on the road. And last but not least, this supremacy also comes out in a brake system which, thanks to ASS, offers optimum safety at all times.

POWER UNIT:

The biggest and most powerful so far in the history of BMW motorcycles

For the second time BMW's development engineers have enlarged the size of their four-cylinder power unit. Increasing stroke from 70 to 75 mm (2.76-2.95"), they have enlarged the overall displacement of the engine to 1171 cc, making the power unit of the K 1200 RS the largest - and most powerful - in the history of BMW motorcycles so far.

Another first-time achievement: an engine developing more than 100 bhp

The launch of the K 1200 RS also marked another first-ever achievement, this being the first BMW motorcycle engine in the history of the Company to exceed the voluntary limit imposed so far of 74 kW/100 bhp. For now there is also a special version developing no less than 96 kW/130 bhp at 8750 rpm.

98 bhp remains the limit in Germany and France

It still remains to be seen whether the anticipated introduction of EUwide homologation regulations for motorcycles will impose a power limit or not. Pending the introduction of such a general rule within the' member states of the European Union, BMW will naturally remain within the statutory 100-bhp limit in countries such as France, and will stick to the voluntary 100 bhp gentlemen's agreement made by manufacturers and importers in Germany, offering only one version with a maximum output of 72 kW/98 bhp in line with the appropriate insurance 'categories in the German market. This less powerful engine of the K 1200 RS develops its maximum output at a lower speed of just 7000 rpm.

In the lower engine speed range the power curves of the two engines are relatively similar, rising quickly and steadily to 6000 rpm, from where the 96 kW/130 bhp version rapidly adds even more power up to almost 9000 rpm, giving the K 1200 RS very substantial thrust. The engine is

not switched off electronically until it reaches 9400 rpm, while on the K 1100 RS the electronic speed governor cuts in at 9000 rpm.

Maximum torque up once again by approximately 10 per cent

Both versions of the engine benefit from an increase in maximum torque by approximately 10 per cent - certainly a very significant point, considering that maximum torque was already most substantial at 107 Nm or 79 Ib-ft at 5500 rpm. Indeed, the entire torque curve has become "beefier", both versions of the engine now developing 1 00 Nm or 74 Ib-ft from just 3500 rpm.

The 72 kW/98 bhp engine develops torque even more rapidly from a speed of 3500 rpm, reaching its peak of 118 Nm or 87 Ib-ft, like the K 1100 RS, at just 5500 rpm, which means fascinating power and pulling force from moderate engine speeds.

The even more dynamic sports version developing a maximum output of 96 kW/130 bhp achieves not only this higher power at higher engine speed, but also requires higher engine speed to develop its maximum torque of 117 Nm or 86 Ib-ft, a peak reached at 6750 rpm.

In technical terms the 130-bhp version differs from its 98-bhp counterpart by shorter intake manifolds with a larger diameter and a modified control map for the electronic engine management.

Refinement and free-revving performance also improved

As a result of the increase in engine size and the wish to improve not only the engine's performance, but also its running smoothness, refinement, response and free-revving riding characteristics, several modifications were obviously required.

To begin with, all moving parts inside the engine were checked with utmost care for any possible reduction in weight. After all, every single gram above the minimum limit means less agility, refinement, and smoothness. Accordingly, shaft diameter of the 16 valves has been reduced from 6 to 5 mm in order to save weight and reduce flow resistance in the intake duct. The new box-type pistons with lighter

piston pins, in turn, also help to reduce the masses accelerated when giving gas.

With engine size being increased by a larger stroke, an obvious requirement was to use a new crankshaft which also had to be stronger and stiffer than the old one. And this also meant using pistons with shorter compression lift, while the connecting rods are still made of forged steel, as before.

Engine compression has increased from 11.0:1 to 11.5:1, serving not only to provide extra power, but also more torque - and at the same time this enhances the engine's thermal efficiency, which means greater fuel economy, too. Valve timing, the valve drive system, the auxiliary shaft and air purge from the engine block have also been changed completely, the auxiliary shaft bearings have been modified, and the volume of the airbox increased from 6 to 7 litres.

Ram charge effect ensuring an optimum supply of air

Since an optimum supply of fuel and air to the cylinders is absolutely essential for genuine power and performance, the engine of the K 1200 RS uses the ram charge effect to draw air into the intake system. In other words, the engine draws in the air required for combustion through an opening in the front end of the fairing, a procedure which provides two advantages: First, the air at this point is cooler than the air, say, beneath the tank and therefore contains more oxygen molecules. Second, the air rushing by the motorcycle is pressed (or "rammed") even more efficiently and with greater force into the intake system.

~wo **radiators and one oil cooler guarantee healthy operating temperatures**

The radiator of the new, even more powerful engine has also been modified in the interest of maximum efficiency and function. As a result, the K 1200 RS comes with a twin-radiator system (previously only one radiator), the two radiators being positioned at exactly the right point for an optimum flow of air. So while the overall radiator surface as such is smaller, overall efficiency of the radiator system is a lot better than before. Whenever necessary, two fans cut in automatically at low

speeds or when the machine is at a standstill. Warm air coming out of the radiators flows through discharge grids on both sides of the fairing, thus passing by the rider without creating any unpleasant effect.

Another new feature is the oil cooler with thermostat control, ensuring not only that the engine quickly reaches its normal operating temperature, but also that the oil itself never gets too hot when running under full load or in hot summer weather.

The third generation of Digital Motor Electronics: Motronic MA 2.4

While electronic engine management is still quite unusual with motorcycles - as opposed to cars - BMW is now introducing the third generation of its Digital Motor Electronics on the power unit of the K 1200 RS. This sophisticated control system is indeed absolutely ideal in meeting important requirements such as the reduction of fuel consumption and exhaust emissions, and obviously provides exactly the right technical foundation for the use of a fully-controlled three-way catalytic converter.

Over and above these improvements, the new Motronic MA 2.4 offers a number of trendsetting innovations certainly worth mentioning.

First-ever electronically controlled automatic choke

The K 1200 RS is the first motorcycle in the world incorporating an automatic choke with electronically controlled throttle butterfly adjustment (TBA). Since, therefore, there is no longer the usual choke lever, the rider benefits from even greater comfort and control ease, optimum idle speed stability, and the good feeling that he cannot make any mistakes in controlling the choke.

Last but not least, the automatic choke significantly improves the engine's emission behaviour in the warm-up phase.

MoDiTeC: the first-ever mobile test computer

Introducing Motronic MA 2.4, BMW also became the first manufacturer in the world to use a mobile test computer (MoDiTeC), a laptop-size tester, for the motorcycle. In the workshop, the BMW dealer connects MoDiTeC to the motorcycle by way of a diagnostic plug and is able, as a result, to perform a 100 per cent check of all electronic modules and the electrical system. After selecting the items he wishes to consider, the mechanic is guided by the display and a catalogue of symptoms all the way to a clear analysis of any defects, receiving all the technical information he needs in the process. And at the same time the diagnosis system presents the individual steps to be taken by the mechanic.

BMW MoDiTeC is not only a diagnosis and measuring system, but also an electronic information unit helping to speed up service and repair work.

Electric power supply on the K 1200 RS is now even more efficient and substantial than before, the optimised alternator delivering 720 W in order to meet all requirements.

Dual catalytic converter fitted as standard worldwide

Creating the exhaust and silencer systems of the K 1200 RS, BMW's development engineers have really established a new benchmark. For this sophisticated system not only fulfills the strictest noise emission standards in the world, but also combines optimum power and torque characteristics with equally outstanding emission control - and it does !his equally well with both versions of the engine.

Enlarged in their diameter, the four exhaust pipes form one fan-shaped manifold exactly tuned to the new engine. .In each case two of the stainless-steel pipes merge straight into the two fully-controlled threeway metal-based catalytic converters positioned directly next to each other. Introducing this dual-catalyst concept featured worldwide as standard on the K 1200 RS, BMW is indeed once again paving the way into the future of emission management technology.

The extra-large rear muffler also made of stainless steel comes complete with an aluminium cover easy to replace whenever necessary.

Newly developed six-speed transmission

The K 1200 RS is the first-ever BMW motorcycle to feature a six-speed transmission. With increments between gears on this new transmission developed by the South German company Getrag obviously being smaller, the result is an even smoother, more direct flow of power from one gear to the next. Shift comfort and precision have also been improved significantly, the new gear lever mechanism supporting the rider's shift movements and allowing the gears to come into mesh with even greater precision.

Another advantage of the new gearbox is its optimised noise control, the Paralever rear-wheel swinging arm now resting on the central frame, and no longer in the gearbox housing. The gearbox itself is more compact, noise-emitting surfaces are far smaller. And the service intervals for the gearbox have been doubled from 20,000 to 40,000 km.

RUNNING GEAR:

A significant innovation from the new Boxer generation: the BMW Telelever

One of the most significant innovations in running gear technology is now featured for the first time also in a K-model: the BMW Telelever.

This unique front-wheel guidance system made its very successful debut back in 1993 in the R 1100 RS and has clearly substantiated its merits in the meantime in the subsequent models of BMW's new Boxer generation.

A detailed technical description of the design and functions of the BMW Telelever, as well as its important advantages, is provided in Chapter 7 (R 1100 RS) of this report.

Clearly, the Telelever had to be modified in order to provide a perfect match for the four-cylinder power unit, the forks and longitudinal control arms being all-new. With the longitudinal arms resting in this case not on the engine block - as with the Boxer - but rather on the frame of the motorcycle (for details, see the technical description of the new frame), the arms are rectangular in shape, and no longer look like a letter A.

As on the Boxer models, a central gas-pressure spring strut provides both the necessary spring and damping action, with spring travel measured vertically to the road of 115 mm or 4.53".

Anti-dive compensation on the K 1200 RS, as on the R 1100 GS, is 90 PE?r cent - which is much more than on the new Boxers for road use only, with anti-dive compensation reduced to just 70 per cent.

Although 100 per cent anti-dive compensation would have been possible in technical terms, BMW's development engineers intentionally did not go this far, since they believe that while braking the. rider should still receive certain feedback telling him how great the anti-dive effect really is.

Handlebar damper almost entirely free of friction in the interest of optimum riding safety

The newly developed handlebar damper suppresses all vibrations around the handlebar centrepoint, which might otherwise have a negative effect on riding safety. The special feature in this context is that the handlebar damper is almost entirely free of friction, meaning that the motorcycle offers optimum directional and tracking stability, handling and agility.

All this is made possible by the special design of the dual piston: whenever the handlebar is moved slowly, oil flows through both parts of the two-piece piston. With the flow cross-section being relatively large and hydraulic damper forces small, the dynamic inner pressure within the handlebar damper and, accordingly, pressure behind the seal crucial to friction on the piston rod remain at a minimum.

As soon as handlebar movements exceed a certain level, on the other hand, the two halves of the dual piston merge with one another, significantly restricting the flow cross-section and increasing the hydraulic damper forces.

Improved once again: the BMW Paralever

Featured for the first time in the R 100 GS back in 1987, the Paralever now fitted on all BMW motorcycles - with the exception of the new R 1200 C and the chain-driven single-cylinder F 650 models - ensures optimum guidance of the rear wheel. A double swinging arm, it substantially reduces the load change response of the drive shaft, in this way ensuring optimum traction of the rear wheel at all times.

On the K 1200 RS the Paralever swinging arm rests on the new frame, and no longer on the transmission housing itself.

Like the new Boxers, the K 1200 RS features a gas-pressure spring strut resting on the frame on the right-hand side, slightly offset from the centrepoint of the motorcycle. On the opposite side, in turn, the spring strut is now connected to the frame at roughly the same point as the swinging arm itself, and no longer rests on the final drive, as is the case with the K 1100 RS. This configuration and the inclined position of the

spring strut ensures ideal progression in spring and damper action, the entire rear wheel suspension responding more sensitively and significantly improving riding comfort. The gas-pressure spring strut allows 150 mm or 5.91" of spring travel and can be adjusted for spring pre-tension and outward-stroke damping with the help of the tools in the kit.

Entirely new frame concept to avoid vibrations and maintain supreme riding stability

As already mentioned when describing the engine of the K 1200 RS, the increase in engine capacity means even more power than with the former four-cylinder models. Given the previous design concept of the K-models, where the engine was connected firmly to the frame as one of the load-bearing components, it was impossible to separate the engine perfectly by means of elastic mounts in order to avoid vibrations, since this would have detracted from the motorcycle's riding stability.

Seeking to solve this conflict of interests between riding comfort and riding safety, ie, trying to avoid unpleasant vibrations on the one hand and achieve supreme riding stability on the other, BMW's development engineers eventually created an all-new frame concept.

Cast aluminium frame forming a stiff backbone
Engine specially mounted to avoid vibrations

A compact cast aluminium frame fitting snugly around the engine now resting on special mounting points to avoid vibrations altogether, forms the flexurally and torsionally-stiff backbone between the T elelever and the Paralever. At the rear, the frame incorporates the so-called "silent b.locks", extra-large rubber mounting points for the engine, as well as the rear frame section made of steel pipes and the Paralever swinging arm. At the front the Telelever longitudinal arm rests on a swivelling bearing point; this is also where the silent blocks on the front engine mounts are supported on the frame head by steel bars.

Welded out of four sections, the die-cast aluminium frame is referred to in technical terms as a "free-form casting" allowing in each case an optimum design making full use of the space available in the interest of supreme stiffness and rigidity. The thickness of each wall, for example,

may be varied according to specific strength and stability requirements. The hollow frame, in turn, features reinforcement baffles inside forming a kind of honeycomb structure maintaining maximum rigidity within the most compact dimensions.

Engine fitted higher up to allow an even more extreme riding angle in bends

In the interest of sporting performance with riders leaning over to an extreme angle in bends (up to 50 ^{0} on the K 1200 RS as opposed to 46 ^{0} with the K 1100 RS), the engine is now fitted approximately three centimetres higher.

Beautiful and light: wheels in five-spoke design

The lighter 17 -inch cast aluminium wheels in almost delicate (but very sturdy) five-double-spoke design provide a perfect match for the
K 1200 RS. C

Brake system carried over from the K 1100 RS

Offering virtually perfect function and optimum efficiency, the brake system of the K 1100 RS also featured on the new Boxer series has been carried over to the new motorcycle without any significant modifications.

Accordingly, the front wheel features a hydraulically operated doubledisc brake with four-piston fixed callipers. Mounted in floating configuration, the stainless-steel discs measuring 305 mm or 12.00" in diameter are however, in the interest of lower weight and, as a result, lower unsprung masses, fastened directly to the spokes of the aluminium wheel, and no longer to a brake disc support. The rear wheel, in turn, comes with a single-disc brake featuring two-piston fixed callipers and a brake disc measuring 285 mm or 11.22" in diameter.

ABS standard worldwide

Like the R 1100 RT and K 11 00 LT, the K 1200 RS also comes as standard worldwide with BMW's second-generation ABS originally launched in 1992.

With BMW becoming the first motorcycle manufacturer in the world to introduce an electrohydraulic anti-lock brake system back in 1988, more than 130,000 BMW motorcycles have been equipped with this safety technology in the meantime.

Ideal partnership of the Telelever and ABS

Since brake forces at the contact point between the front tyre and the road can only be used in full with wheel load at a maximum, the Telelever featuring the only really effective anti-dive concept provides ideal conditions for perfect interaction with ABS. In other words, as long as the suspension and dampers have their full effect even when applying the brakes on a bumpy surface, the wheel thus maintaining its full contact with the ground, the brakes will ensure optimum deceleration and stopping power.

DESIGN AND FEATURES:

Once again a distinct face in the crowd

In its design it nevertheless hints discreetly at its successful sports tourer predecessors, the K 100 RS and K 1100 RS, by intentionally taking over K-RS design features now re-interpreted in their styling. The new design excels through its well-balanced overall concept avoiding anyone-sided extremes and exuding an air of superior, independent style instead of any short-lived trendiness. The lines of the machine are soft and smooth, clear and comprehensible, but not aggressive.

From the front, the K 1200 RS looks sporty and muscular. And, as is appropriate for a BMW, it once again has a new, different and unmistakable face - quite simply, a distinct face in the crowd. The typical K-RS design features come out again in the windshield pillars and hand protectors with their integrated direction indicators, as well as the aerodynamically optimised front area.

New headlight with "double-eye effect"

The face of the machine is dominated by the new tandem headlight offering innovative light technology to be explained in greater detail later after this description of the motorcycle's design. With the low beam switched on, the headlight also offers the beholder a powerful image of the motorcycle coming closer, creating a kind of "double-eye effect".

A powerful and dynamic appearance

Seen from the side, the new K 1200 RS again looks powerful and dynamic. At the front the complex unit formed by the fairing and the fuel tank follows immediately behind the front wheel with its delicate-looking five double spokes. This is where the touring character of the machine comes out most clearly, showing the direct interaction of ergonomics, wind and weather protection.

A harmonious blend of function, ergonomics, and aesthetic design

Whether it's the transition from the tank to the seat, the particular design of the tank cover and fairing reflecting the anatomy of the rider's knee, or the side radiator air nozzles indicative of the perfect flow of air - the side view of the K 1200 RS reflects the harmonious blend of function, ergonomics, and aesthetic design.

Two small, shop-window-like cutouts on either side of the fairing show once again quite clearly that this is where the four-cylinder K-engine with its unique looks does a reliable job, as usual. Right behind the fairing, the rear section of the new cast aluminium frame with the footrests at the bottom provides a technical highlight blending perfectly with the overall styling of the machine. Rising slightly from front to rear, the seat has a slender look particularly where the passenger sits, merging into the high, somehow light-looking rear end. And last but not least, the passenger grab handle, direction indicators, rear light and number plate support form one compact unit creating a particularly clear-cut design around the rear wheel really accentuating the machine's styling in this way with its muscular stance on the road.

Right in front of the rear subframe on the left-hand side, the cylindrical, large-volume rear muffler again follows a clear line, characterising the sporting side of the K 1200 RS. Even the case supports, the cases themselves and the luggage rack available as an option blend harmoniously with the overall looks of this sports tourer.

Three colour variants, each providing a highly individual touch

The three different colour schemes available for the new K 1200 RS 9ive the machine a very distinctive, characteristic look in each case.

The dakar-yellow and arctic-grey-metallic- version, for example, will catch your eye at first sight, the twin-tonepaintwork with appliques emphasizing the motorcycle's sporting, dynamic character. Particularly this paintwork accentuates the lines of the machine, creating an image both extravagant and convincing in one.

Marrakech-red non-metallic is an almost classic colour for a sports tourer from BMW. Exuding strength, sportiness and self-confidence, this paintwork arouses powerful emotions.

The third paintwork variant, dolphin-blue-metallic, is of more reserved, discreet elegance. The flowing lines of the dolphin express dynamism and aesthetic looks again reminiscent, if we may say so, of the unmistakable styling of the K 1200 RS.

Optimum ergonomics and streamlining

Inter alia, BMW motorcycles excel through their carefully conceived, ergonomic design and outstanding tourer comfort. You might indeed say that this reflects the consistent development of BMW motorcycles using all high-tech facilities available at BMW AG's Research and Development Centre.

As an example, BMW's motorcycle development specialists use the most advanced computer simulation methods in the interest of optimum ergonomics. This allows them to systematically examine the basic concept as well as all kinds of modifications right from the beginning, in the first step of the development process. Accordingly, not only the windshield, handlebar, clutch pedal, brake pedal, and seat are adjustable on the K 1200 RS, but also the rider footrests as well as the gearshift lever.

In optimising the machine's streamlining, wind and weather protection, it is above all the painstaking attention to detail in the wind tunnel and comprehensive road tests that ultimately ensure the high quality of BMW motorcycles also in this area.

For your well-being and active safety

The fundamental point behind this development process is BMW's philosophy to see man and machine as one homogeneous unit. For we are convinced that the rider's comfort and well-being have a great influence on his stamina, concentration and response, and are therefore crucial to active safety on the road.

Fairing with an adjustable windshield

With its somewhat smaller frontal area, the fairing of the K 1200 RS looks more delicate than that of the K 1100 RS, but nevertheless offers good protection from wind and weather. With the rider leaning forward on the motorcycle, overall air resistance Cd x A is 0.38, while with the rider sitting upright the overall drag factor is 0.42.

The windshield adjusts easily and conveniently to two different positions: a more dynamic, sporting position and a higher, more upright setting for comfortable touring. In this position, the special design of the windshield at the upper edge efficiently deflects the flow of air away from your shoulders in the interest of extra comfort.

As on various other BMW motorcycles, the direction indicators on the K 1200 RS also serve as hand protectors. And thanks to the sporting, slimmer and more dynamic design of the fairing, the rear-view mirrors can be perfectly positioned on the handlebar to provide optimum visibility to the rear.

Greater light intensity thanks to the new tandem headlight

Right in the middle of the fairing comes the headlight with its new light technologyy', the tandem headlight representing a genuine highlight in the most '-cHrectsense of the word.

While 'conventional headlights incorporate a parabolic reflector with a scatter lens to eliminate any deficiencies, the headlight reflector used her;eapplies free-form technology calculated and designed with utmost precision by a computer. The H 7 bulb for the low beam comes right in t~e ,middle, with a small spot reflector incorporating an H 3 bulb for the high beam just in front and added on to the low beam whenever re~uired.

It ,is this configuration with the high beam in front of the low-beam refl.ector'that leads to the term "tandem headlight". On the road, it ensures not only better illumination to the side and round bends, but also a much higher standard of light intensity in general.

Apart from this important safety aspect, the tandem headlight also creates - as a kind of additional feature - the "double-eye effect" already mentioned in the context of motorcycle design, in this way helping to give the K 1200 RS a unique look also in this respect.

A cockpit telling the rider everything he needs to know

Again totally re-designed, the cockpit is clear and logical in its structure and graphic presentation, giving the rider all the information he needs to know at first glance. As the largest instrument, the rev counter next to the speedometer dominates the cockpit, emphasizing the sporting character of the K 1200 RS. The faces of both instruments have intentionally been arranged in such a way that both the optimum engine speed range as well as the 100 km/h mark are shown right at the top in the middle, that is in the "12 o'clock" position.

Two further analogue-face instruments show you the coolant temperature and fuel level. And apart from a digital clock and gear display there are several telltales and warning lights, one of which comes on when the fuel level in the 21-litre (4.6 Imp gal) fuel tank drops to four litres (0.9 Imp gals).

Adjustable handlebar for sports riding or comfortable touring

Measuring 700 mm or 27.6" across, the handlebar of the K 1200 RS is adjustable to three different fore-and-aft and height positions, the adjustment process as such being very simple and requiring only the tools already on board. Accordingly, the rider can choose between a more sporting or touring-oriented seating position, as is befitting for a genuine sports tourer.

Optimised handlebar controls

The new K 1200 RS also comes with a new generation of BMW handlebar controls. Proceeding from the existing ergonomic concept, the arrangement of the controls and switches has been optimised where necessary, thus ensuring even greater comfort than before. On the left-hand side, for example, the push button for the horn is now placed in an even better and more ergonomic position, while the - now

illuminated - switch for the hazard warning flashers fitted as standard has moved from the cockpit to the handlebar and is therefore even easier to reach. On the right-hand side, in turn, the light switch is in a new, again even more accessible, position. And the switch for the heated handles available as an option is now integrated into the handlebar control unit on the right.

The logical position of the thumb-operated direction indicator switch, on the other hand, remains unchanged, ie, on the left-hand side of the handlebar for the left, on the right-hand side of the handlebar for the right direction indicator. And both direction indicators are cancelled, as before, by the switch on the right. There is also, as in the past, an automatic indicator cancelling function activated out of town at speeds over 50 km/h after about 10 seconds or in town after a distance of approximately 210 metres.

The clutch and brake pedals are anatomically designed and may now be adjusted to no less than four different positions. Hydraulic operation of the clutch keeps operating forces consistently at a low, comfortable level.

Seat and footrests also individually adjustable

The contoured design of t~e comfortable seat around the rider and the way the seat merges into the tank and fairing gives you the feeling of sitting not so much on the motorcycle, but right inside the machine. The rider has more body contact with the K 1200 RS and, accordingly, feels even more a part of it. Even when accelerating and braking all-out, this relieves a lot of pressure from your body.

Once again, the height of the single-piece seat may easily be adjusted iri the rider's area between 770 and 800 mm (30.3 and 31.5"). In conjunction with the footrests also adjustable by way of three bolts, the rider may choose his knee angle according to his own personal taste, the overall range of adjustment being 30 mm or 1.18" in horizontal and 26 mm or 1.02" in vertical direction. The specific position of the footrests for the passenger also ensures superior seating comfort, giving the passenger a comfortable ride even on long distances.

SPECIAL EQUIPMENT AND ACCESSORIES:

From the baggage range all the way to the anti-theft warning system

Although the K 1200 RS comes with a very wide range of standard features to begin with, it is nevertheless available with an attractive choice of special equipment and accessories. Just some examples are the case supports with luggage rack, cases, heated handles, an antitheft warning system, a tank bag, as well as inner bags for the side cases.

Starting with the 1998 model year: Wider rear wheel available as an option

As of the 1998 model year, the rear wheel is optionally available in new, wider 5.50 x 17 MTH size with an 180/55 ZR 17 tyre.

9 THE K 1100 LT AND K 1100 LT HIGHLINE:

The luxury tourer enters the 1998 model year without any changes

The luxury tourer is entering the 1998 model year in two versions, as in the past: The K 11 00 LT and, as a special model, the K 11 00 LT Highline. And it almost goes without saying that both models remain the only luxury tourers in the world fitted as standard with ASS and, as an option, with a fully controlled three-way catalytic converter (standard in Germany, Switzerland, Japan and the USA).

Standard version of the K 11 00 LT without pannier cases and topcase

The standard version of the K 11 00 LT now comes without the pannier cases, topcasesupport and topcase featured until the 1996 model year. Obviously, these fitments no longer provided as standard remain available as special equipment.

Special K 1 tOO LT Highline with particularly elaborate looks and model features

The special K 1100 LT Highline model launched in the 1997 model year excels through its particularly sophisticated looks and model features.

Inter alia, it comes with twin-tone paintwork in fjord grey metallic and canyon red metallic also comprising the case and topcase covers, with double silver lining on the tank and fairing. The fork side tubes are polished for a high-gloss surface effect, the windshield supports and s>prings on the spring struts are painted silver, the levers for the clutch and brakes are finished in silver with eloxy coating, and the tank cover comes in special silver powder coating.

Other "features fitted as standard include a saddle seat in black, a cassette radio with aerial and four loudspeakers, two pannier cases and one topcase with backrest for the passenger.

The story of the K 11 00 LT:
A larger engine for extra torque

Even the model designation - K 11 00 LT - shows that in updating this luxury tourer for the 1992 model year BMW (the actual launch of the K 11 00 LT was in February 1992) went a step beyond the K 1 and K 100 RS: Engine capacity of the four-cylinder power unit was increased by more than 10 per cent from 987 cc (60.2 cu in) to 1092 cc (66.6 cu in) by increasing engine bore from 67 mm (2.64") to 70.5 mm (2.78"), the largest growth in engine size up to that time in the history of BMW motorcycles. Otherwise identical with the 16-valve power unit of the K 1100 RS, the four-valve power unit also develops 100 bhp (74 kW), this time however at a relatively low 7500 rpm. More importantly, the increase in engine size helped to boost torque significantly.

The K 11 00 LT features Digital Motor Electronics (Motronic MA 2.2) for optimum fuel efficiency and as the ideal technology for the fully controlled three-way catalytic converter available as an option (and standard in Germany, Switzerland, Japan, and the USA).

Another outstanding feature of the K 11 00 LT is BMW's proven fivespeed gearbox. The 5th gear transmission ratio, as on the K 1100 RS, is 1.61, while the final drive ratio is 2.81:1 ever since the 1994 model year.

Inspection intervals are 10,000 km or 6,000 miles.

In creating the K 11 00 LT, BMW's engineers followed the same policy as two years before when updating the K 100 RS, thus taking over important innovations and features from the K 1. Examples are the BMW Paralever, the highly efficient double disc brake with four-piston fixed callipers on the front wheel, the three-spoke light-alloy wheels, the slightly modified telescopic fork with 135 mm (5.31") spring travel already featured on the K 100 RS, the stainless-steel silencer, and the central ignition and handlebar lock.

Yet another special feature of the K 11 00 LT is the spring strut with progressive spring action, infinitely variable outward stroke damping and base spring pretension adjustable to five different positions. Spring travel is 120 mm or 4.72".

Fairing with electrically adjustable windshield

The fairing, seat and storage compartments of the K 11 00 LT present the most conspicuous innovations versus the K 1 00 LT. Indeed, BMW's large tourer fairings developed in the wind tunnel have always set standards in the luxury touring range, for example on the R 100 RT in 1978 and the K 100 RT in 1984.

In the meantime the fairing has been optimised to provide the best conceivable protection from wind and weather. First, it comes with new panels at the side supplemented as the second new feature by electric adjustment of the windshield itself: By means of two adjustment rails arranged at an angle to one another, the transparent windshield can be moved up and down by 75 mm (2.95") and swivelled for angle by 24°, in this way providing a total height adjustment range of 112 mm (4.41").

Topcase and touring cases with a total capacity of 1011tr or 3.5 cu ft

The topcase has a capacity of 35 litres or 1 .2 cu ft. The integral cases have a capacity of 33 ltr or 1.16 cu ft each, providing a total capacity together with the topcase of 101 litres (3.54 cu ft).

The world's only luxury tourer with ABS and catalytic converter

The K 11 00 LT is the only luxury tourer in the world fitted as standard with ABS and available as an option with fully controlled three-way catalytic converter (also standard in Germany, Switzerland, Japan, and the USA).

8 THE 1998 COLOUR RANGE

R-models:

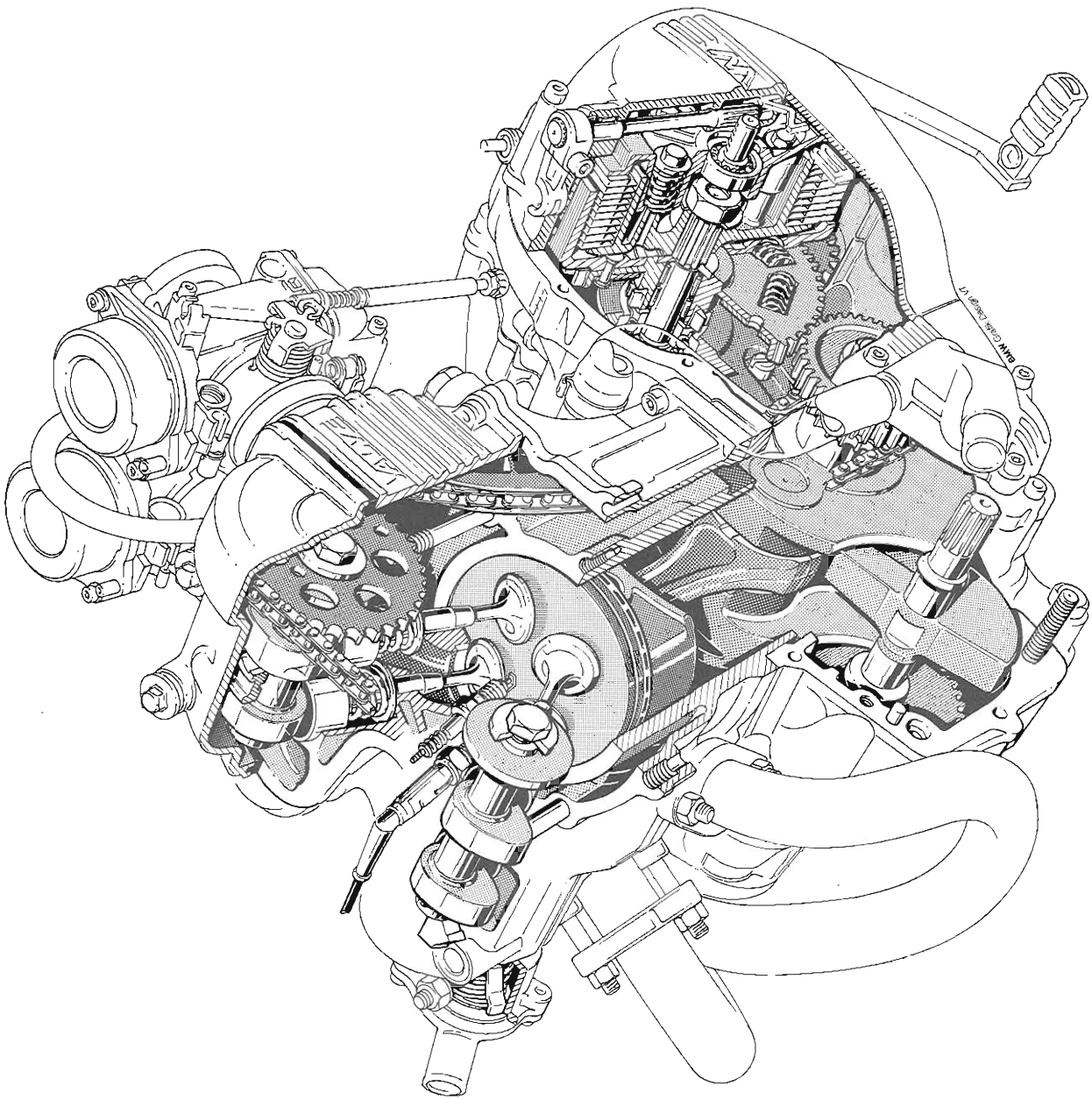
		Seat:
R 1100 R	dolphin blue metallic	black or classic red
and	mystic red metallic	black
R 850 R:	ascot green metallic	black
	twin-tone paintwork: aspen silver metallic/ night black	black
R 1100 GS:	night black	black or trinidad red
	marrakech red	black
	kalahari yellow	black
R 1100 RS:	night black	black or red
	marrakech red	black
	cobalt blue	black
	dolphin blue metallic	black
R 1100 RT:	:sinus blue metallic	black or terracotta/black
	charcoal grey metallic	black or terracotta/black
	glacier green metallic	black or terracotta/black
	amarena red metallic	black
R1200C*:*	night black	black or canyon brown
	canyon red metallic	black or canyon brown
	;ivory	black or canyon brown or blue

K-models:

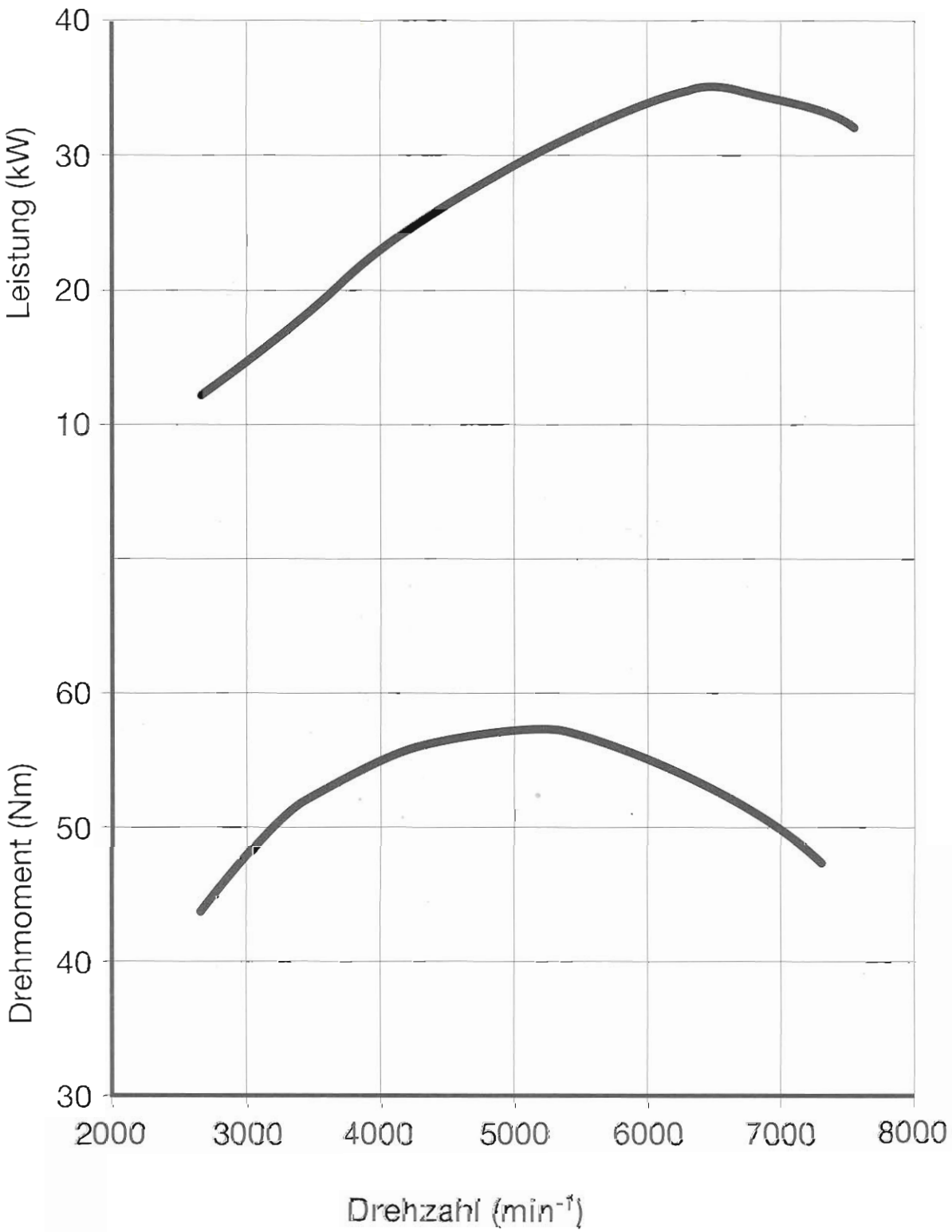
		Seat:
K 1100 RS:	dolphin blue metallic	black
	marrakech red twin-tone	black
	paintwork: dakar yellow/arctic grey metallic	black
K 1100 LT:	graphite metallic morea	black
	green metallic mystic	black
	red metallic	black
K 1100 LT Highline:	graphite metallic morea	black
	green metallic mystic	black
	red metallic twin-tone paintwork: fjord grey metallic/ canyon red metallic	black
F 650:	deep black	black or orange
	aura white	black
	flame red	black
	majala yellow	black
F 650 ST:	orlando orange	black
	flame red	black
	midnight blue	black or blue or black

BMW F 650 und F 650 ST

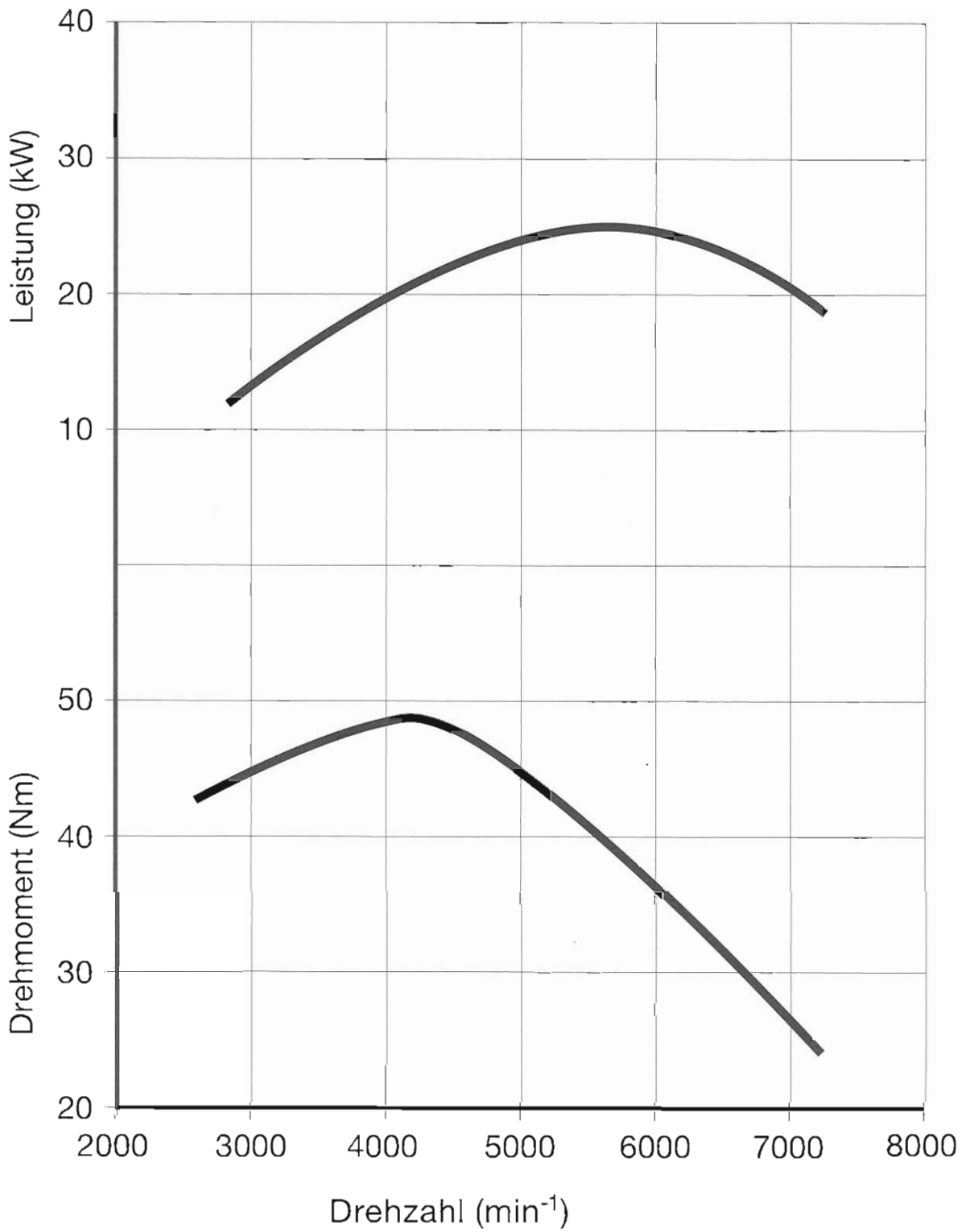
M 98/1



BMW F 650 und F 650 ST	35 kW/48 PS	M 98/2

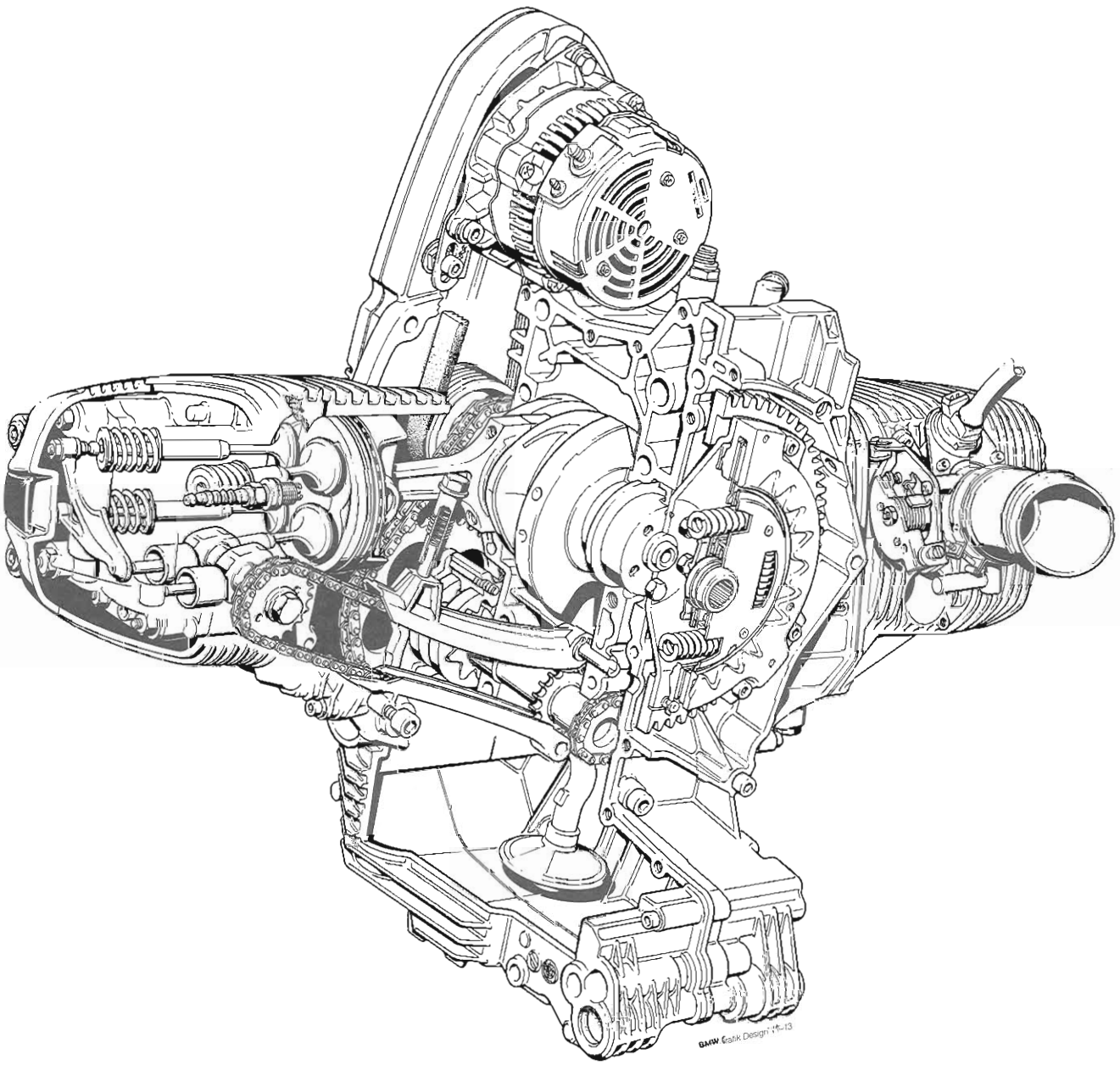


BMW F 650 und F 650 ST	25 kW/34 PS	M 98/3



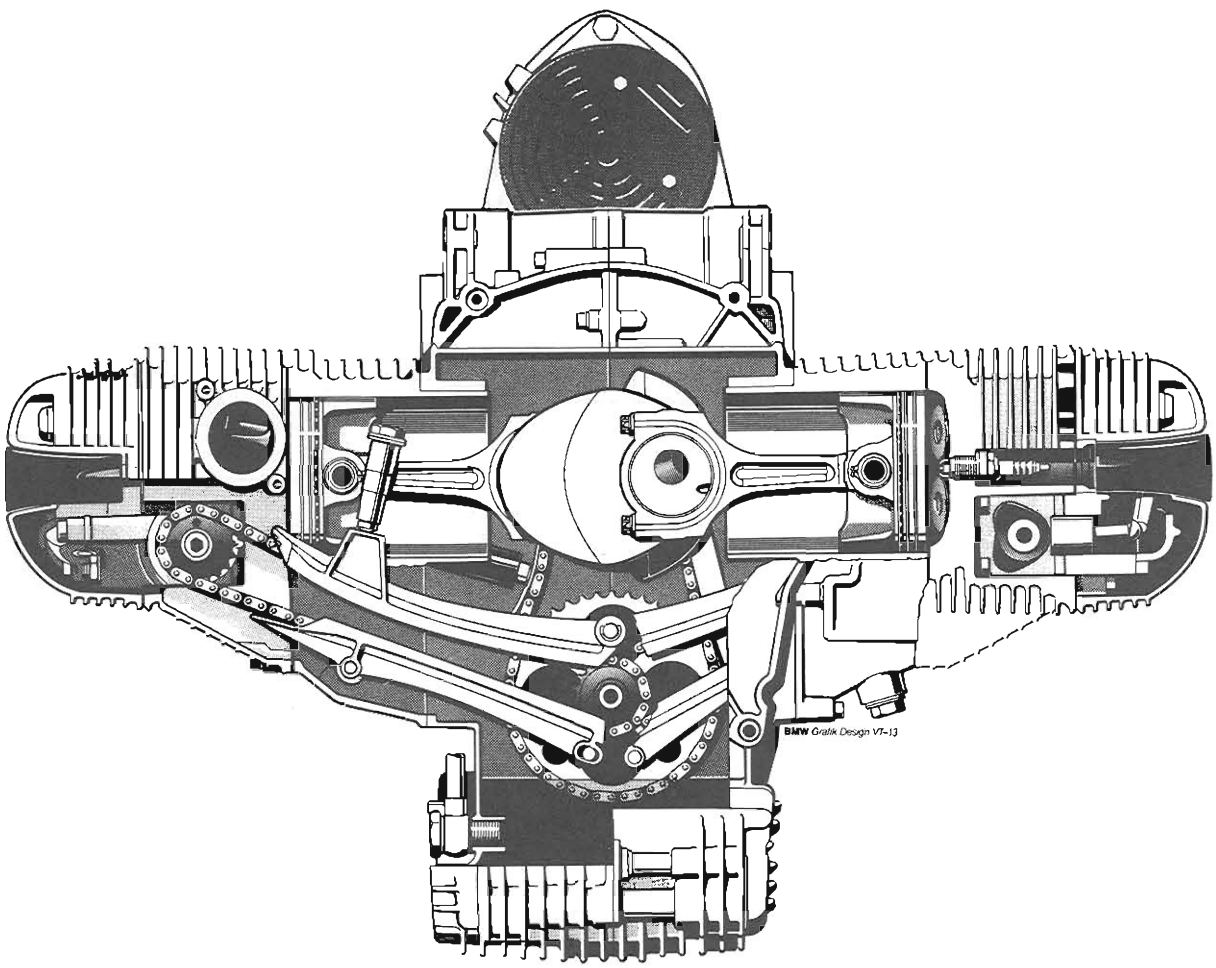
BMW R 1100

M 98/4

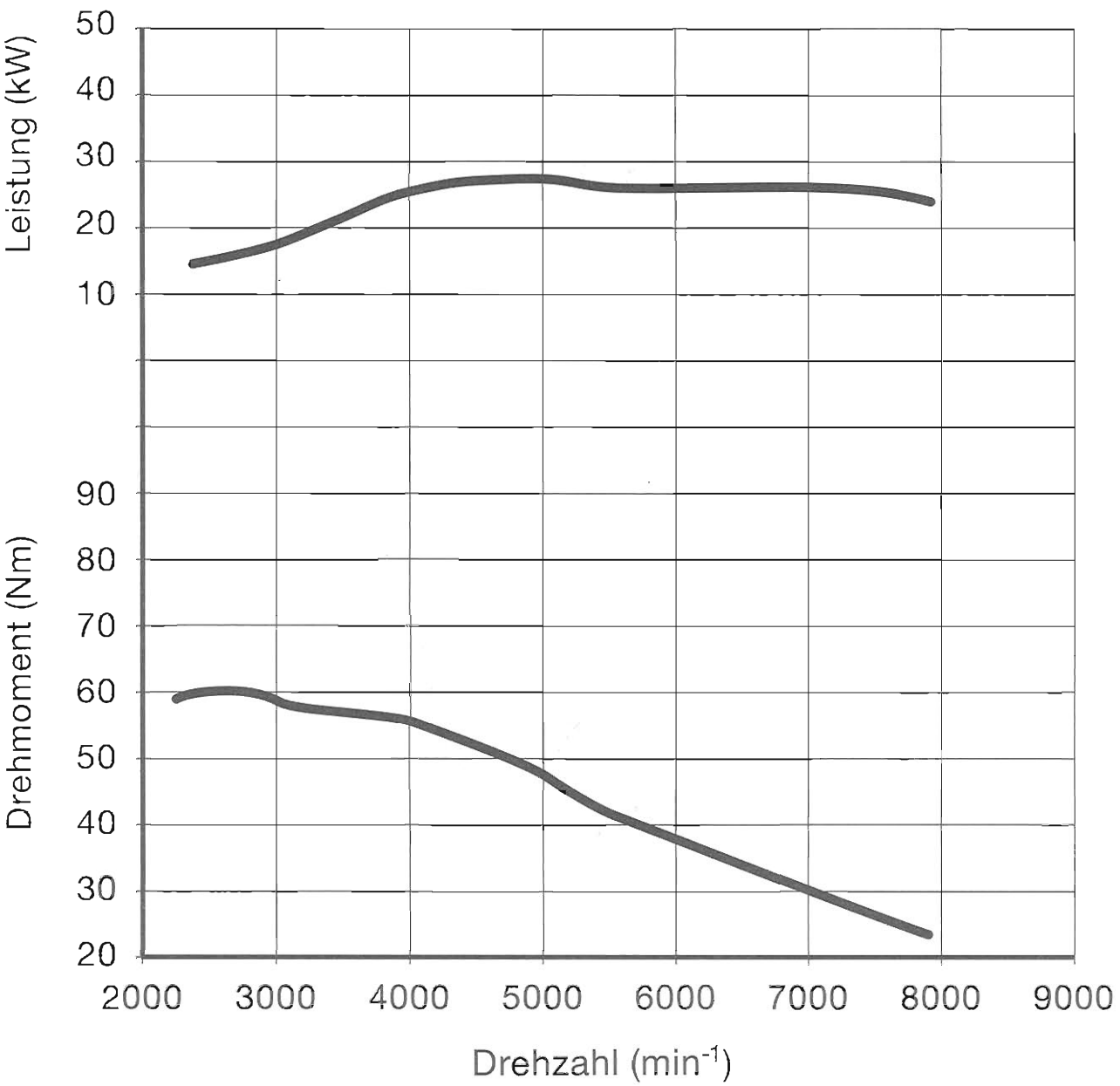


BMW R 1100

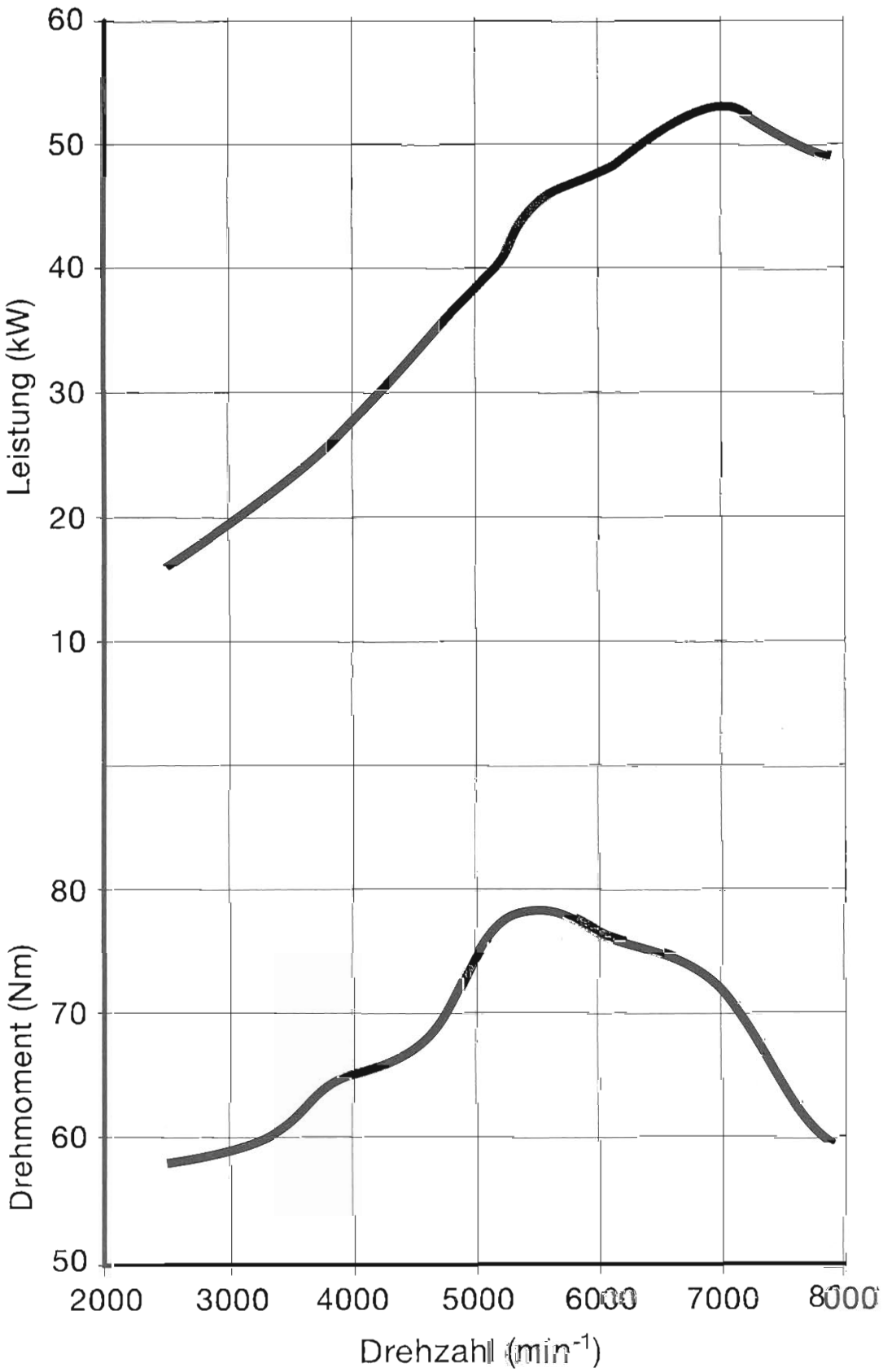
M 98/5



BMW R 850 R	25 kW/34 PS	M 98/6

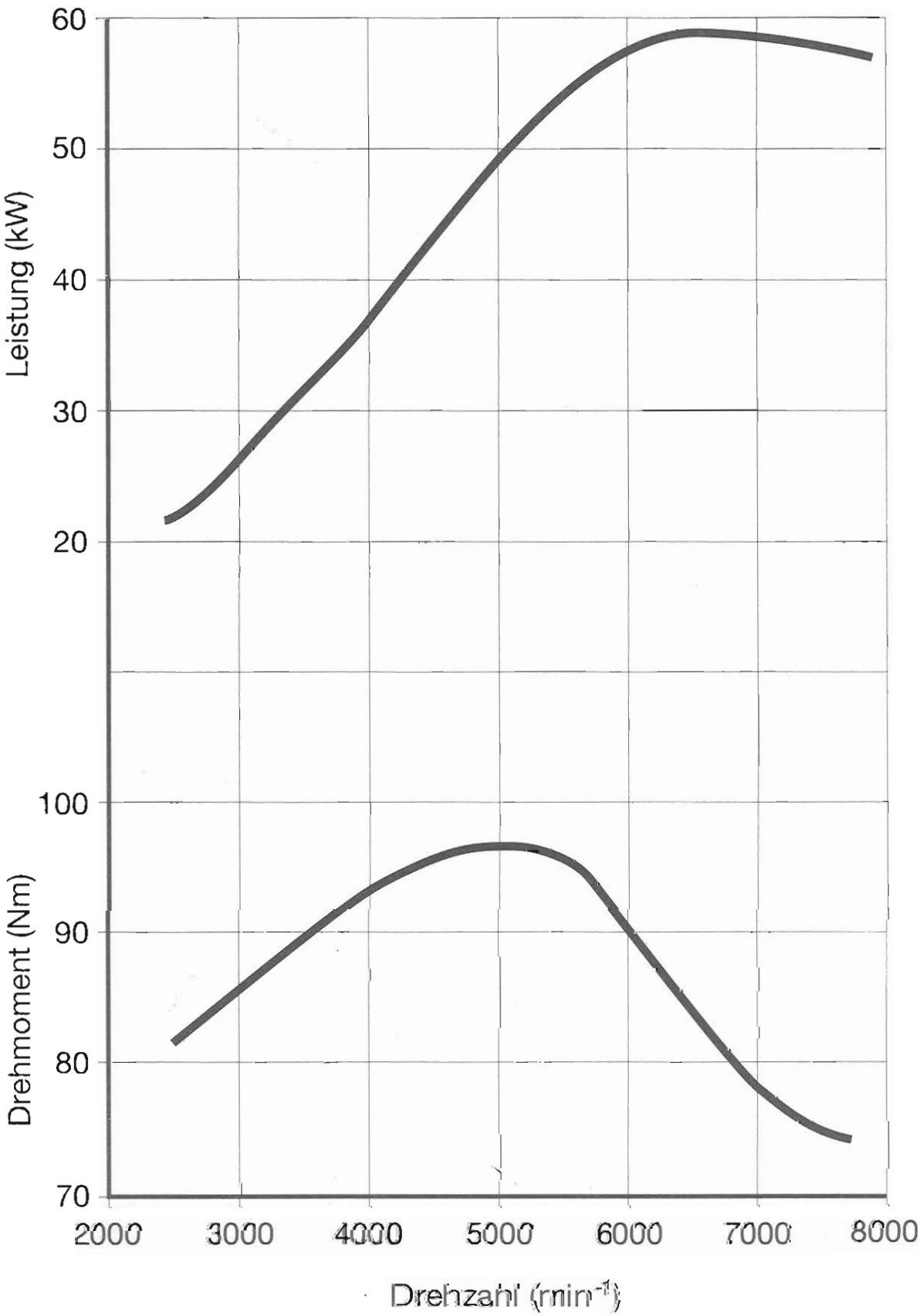


BMW R 850 R	52 kW/70 PS	M 98/7

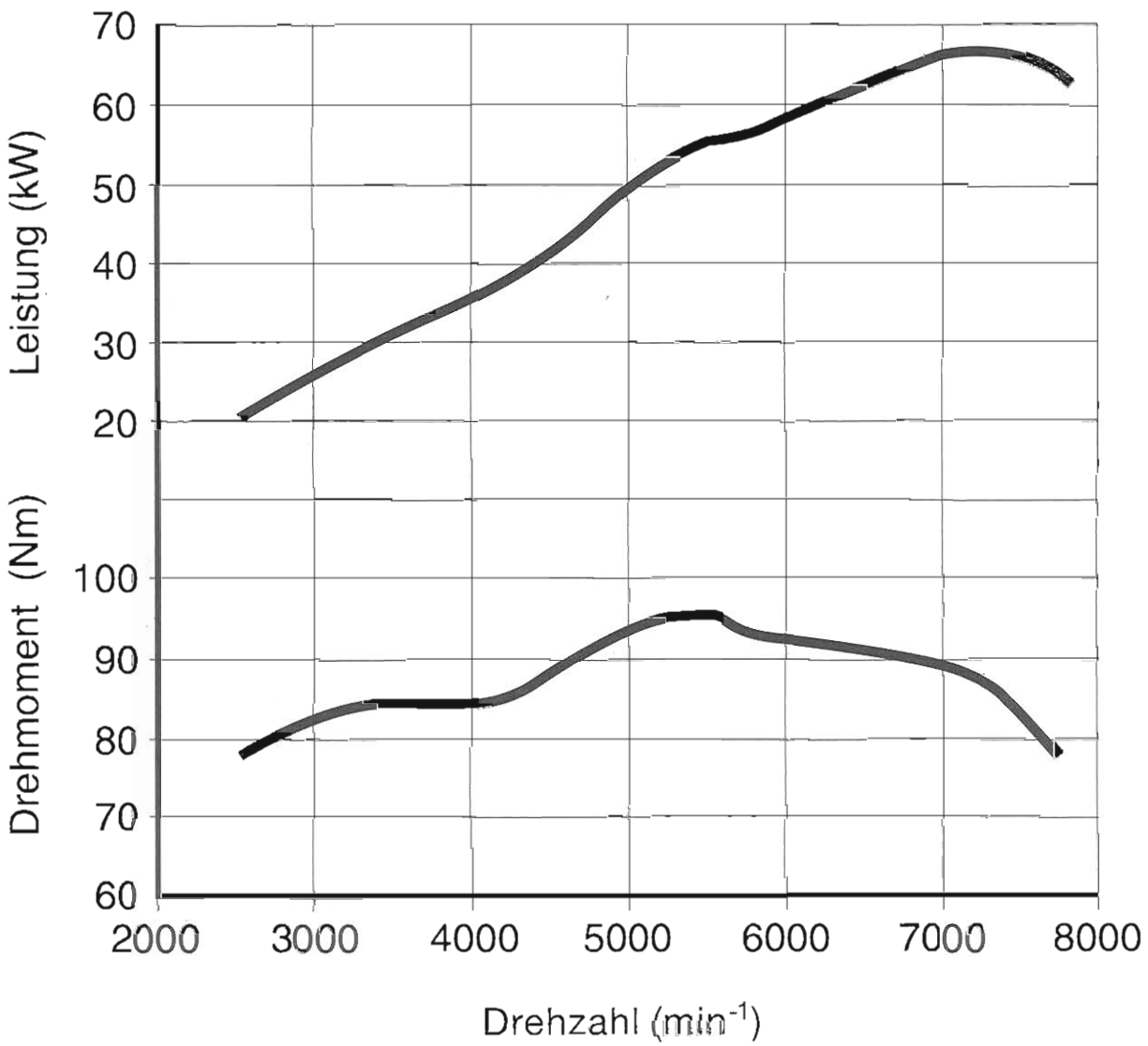


BMW R 1100 GS und R 1100 R

M 98/8

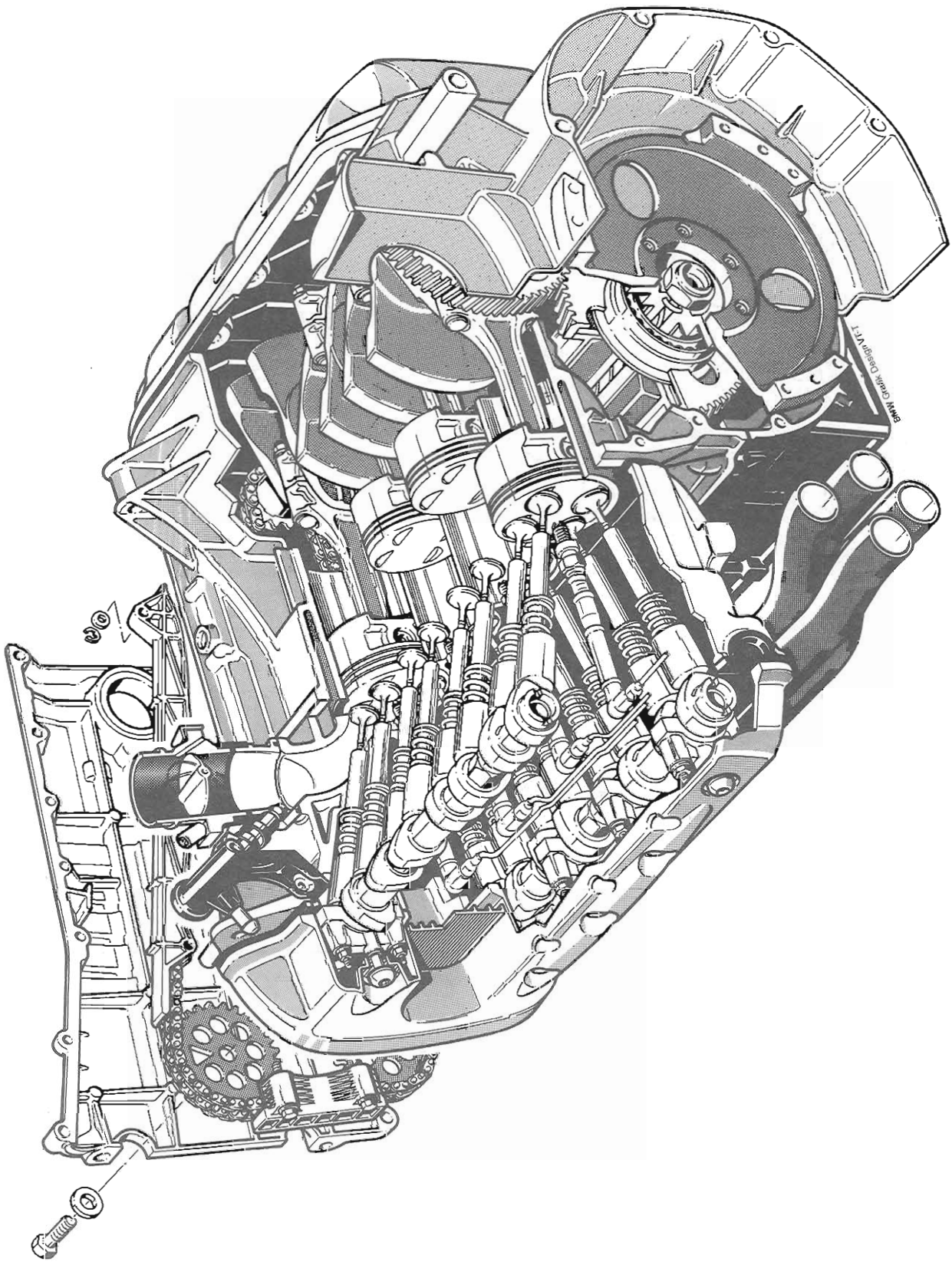


BMW R 1100 RS und R 1100 RT	M 98/9



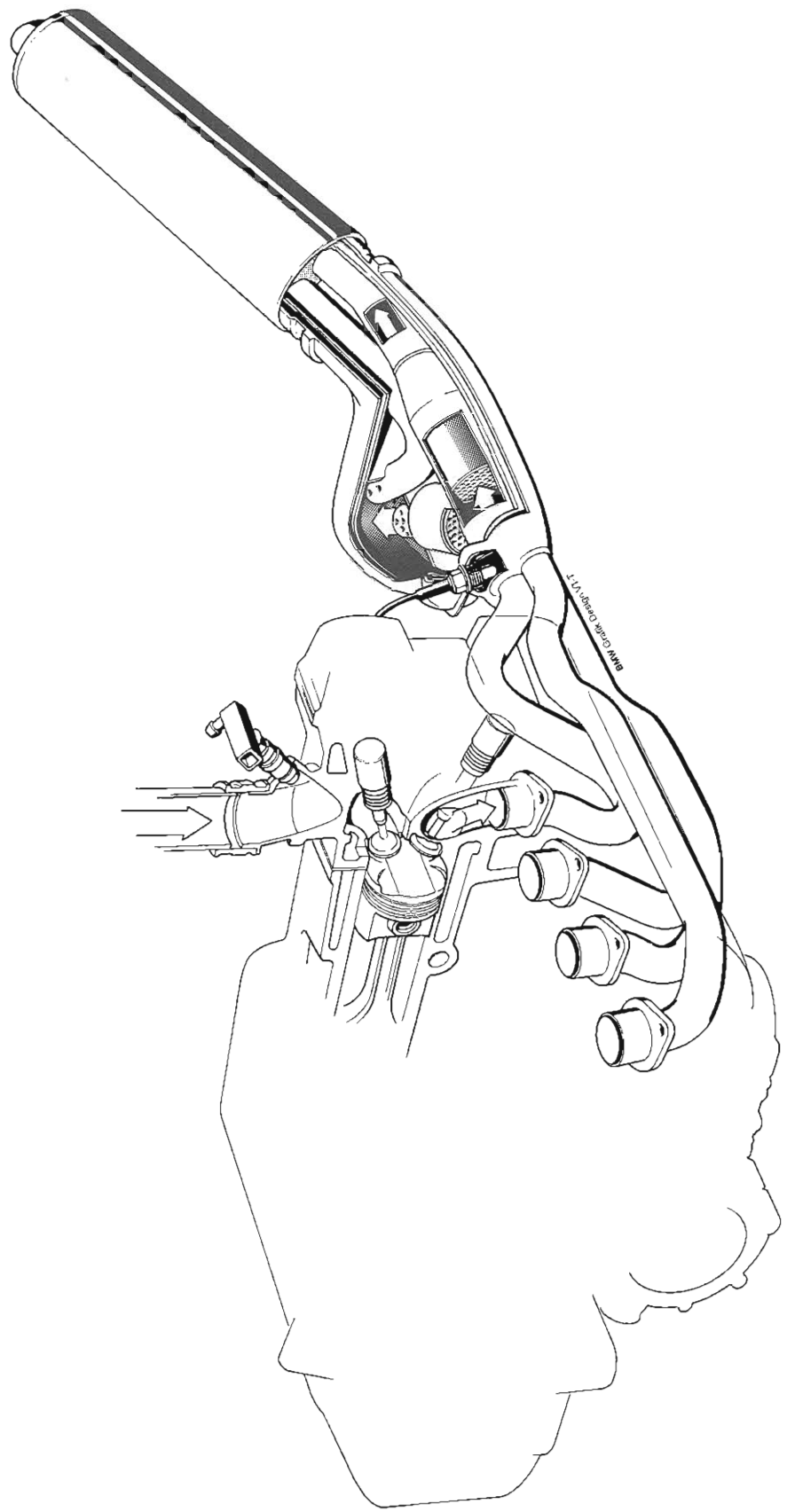
BMW K 1200 RS

M 98/10



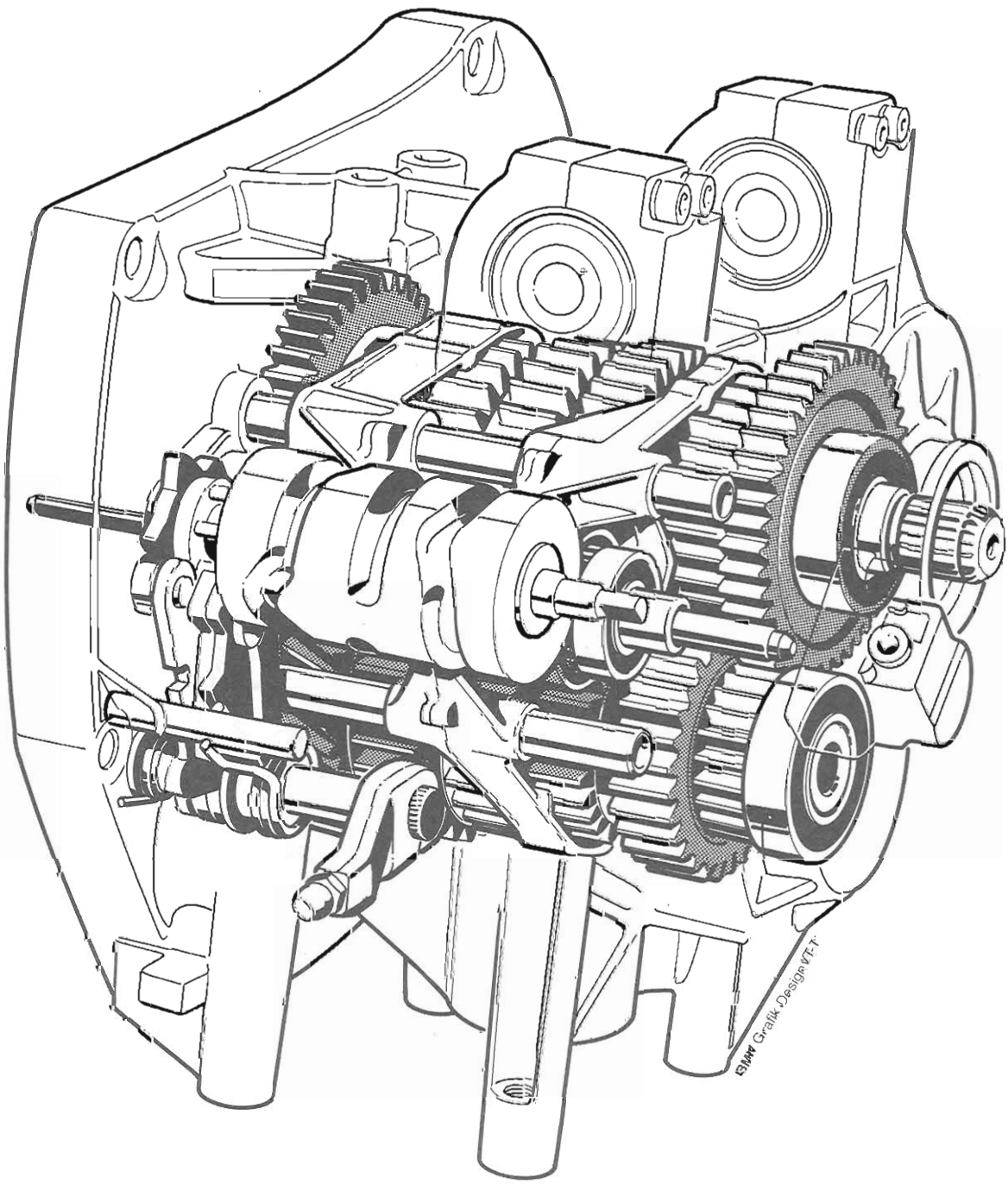
BMW K 1200 RS

M 98/11



BMW K 1200 RS

M 98/12



BMW K 1200 RS

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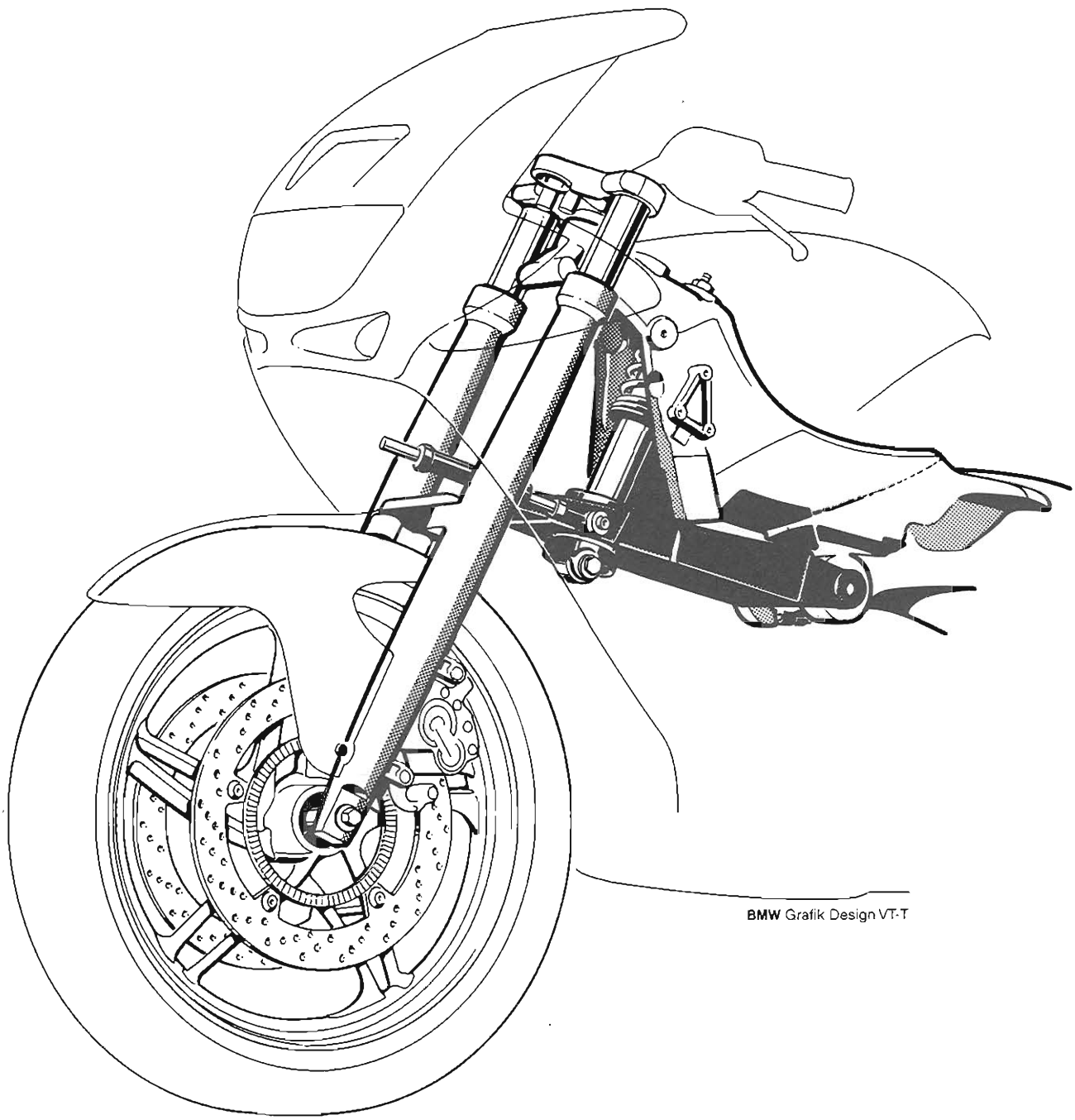
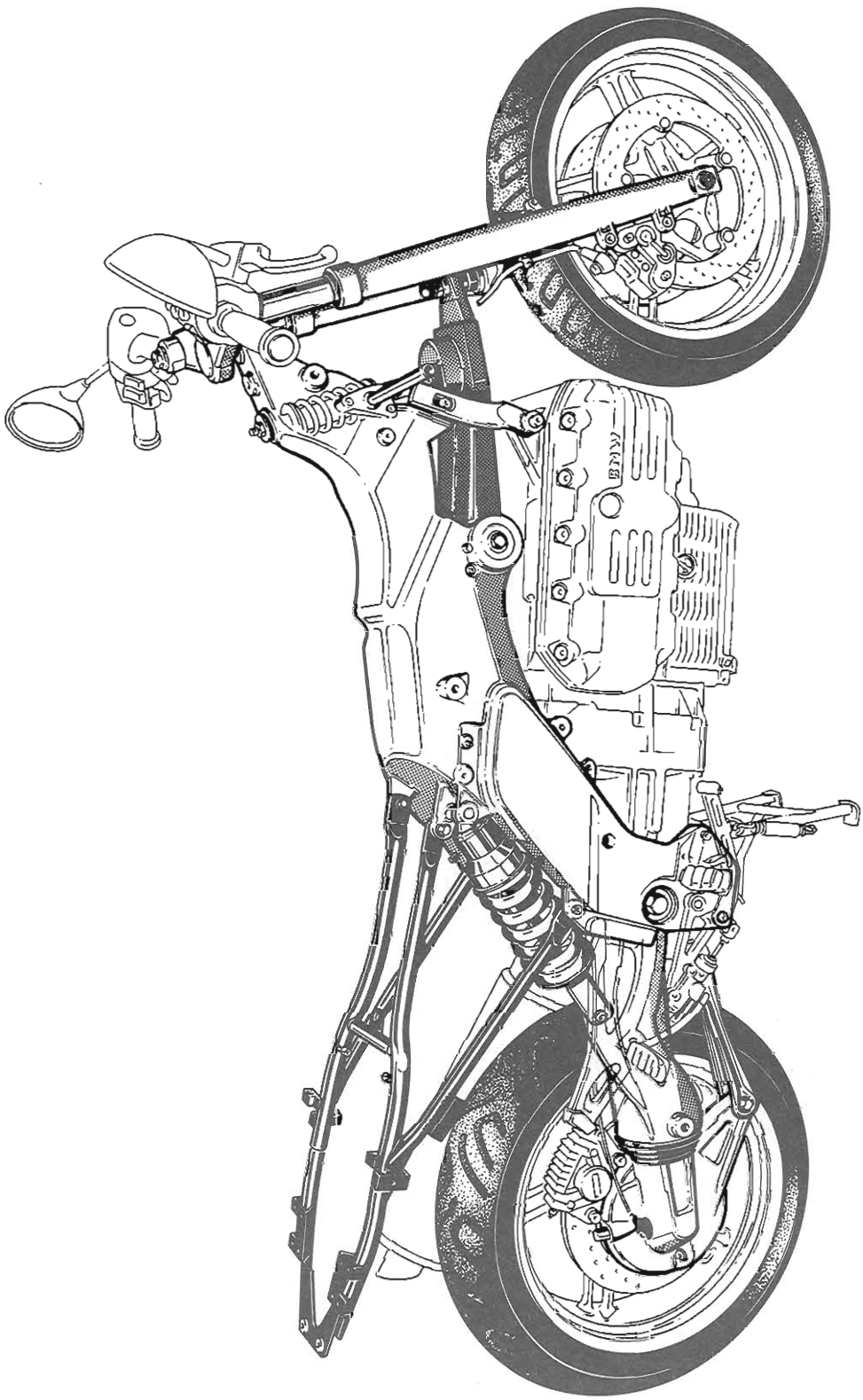


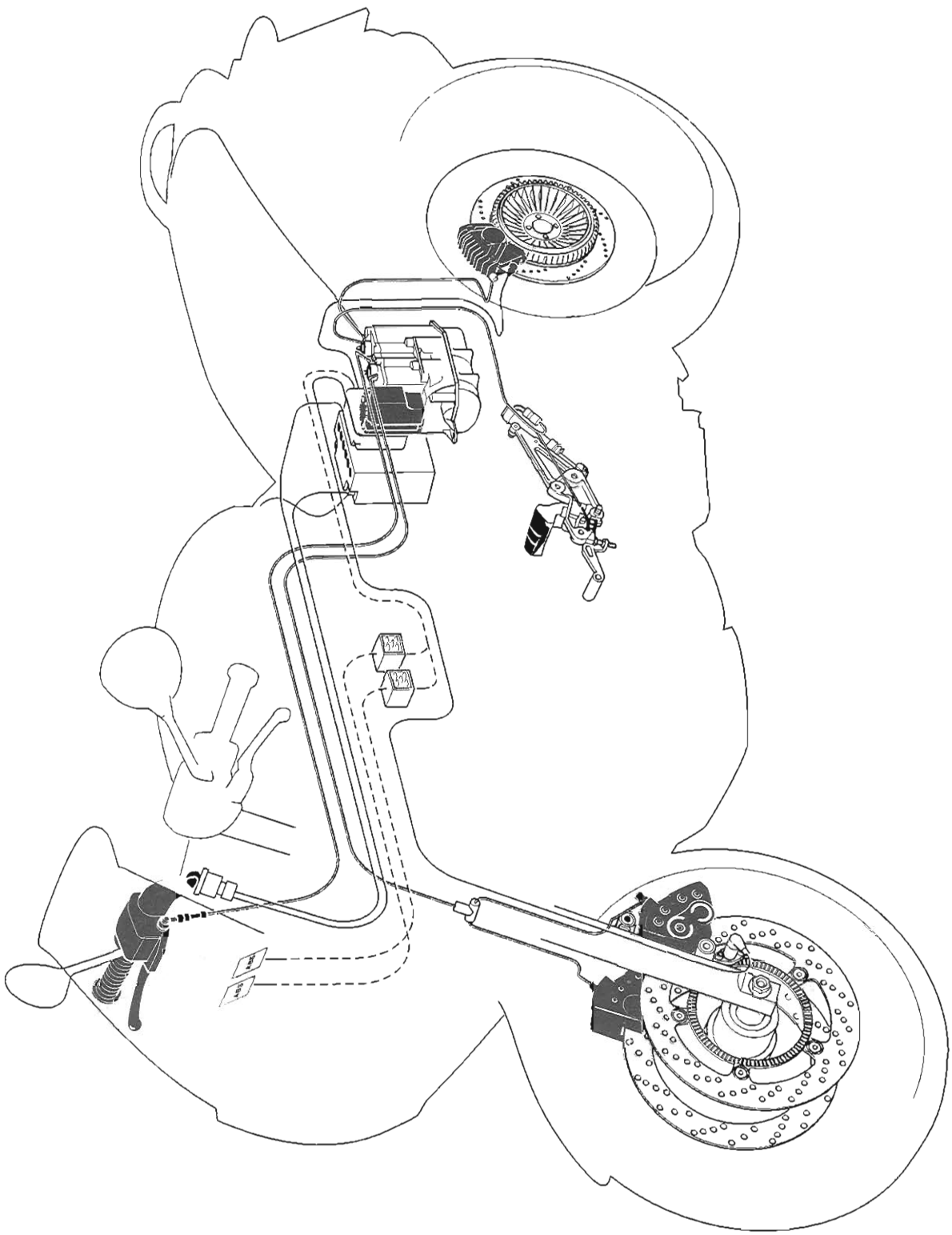
BMW Grafik Design VT-T

BMW K 1200 RS

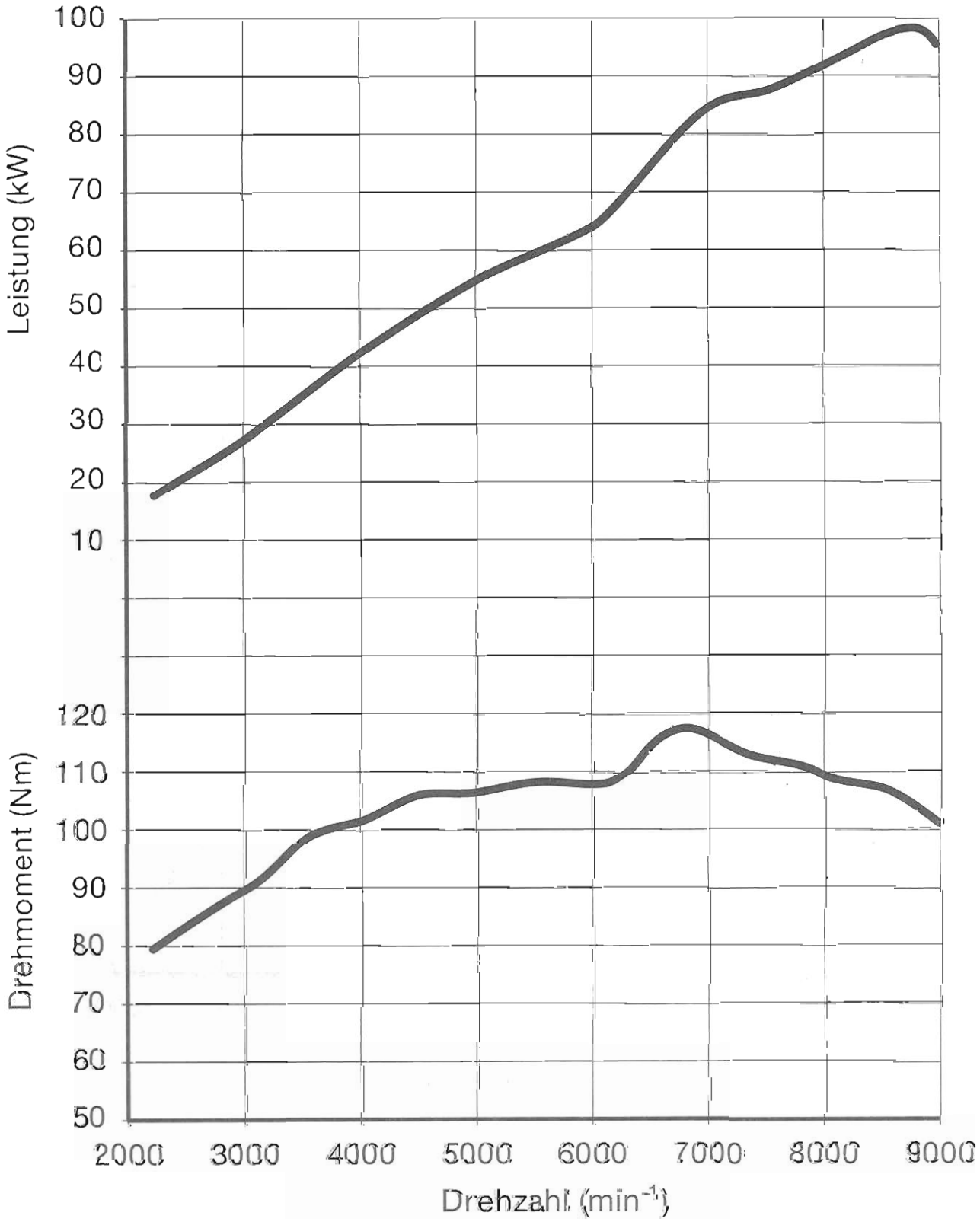
M 98/14



BMW K 1200 RS ABS	M 98/15

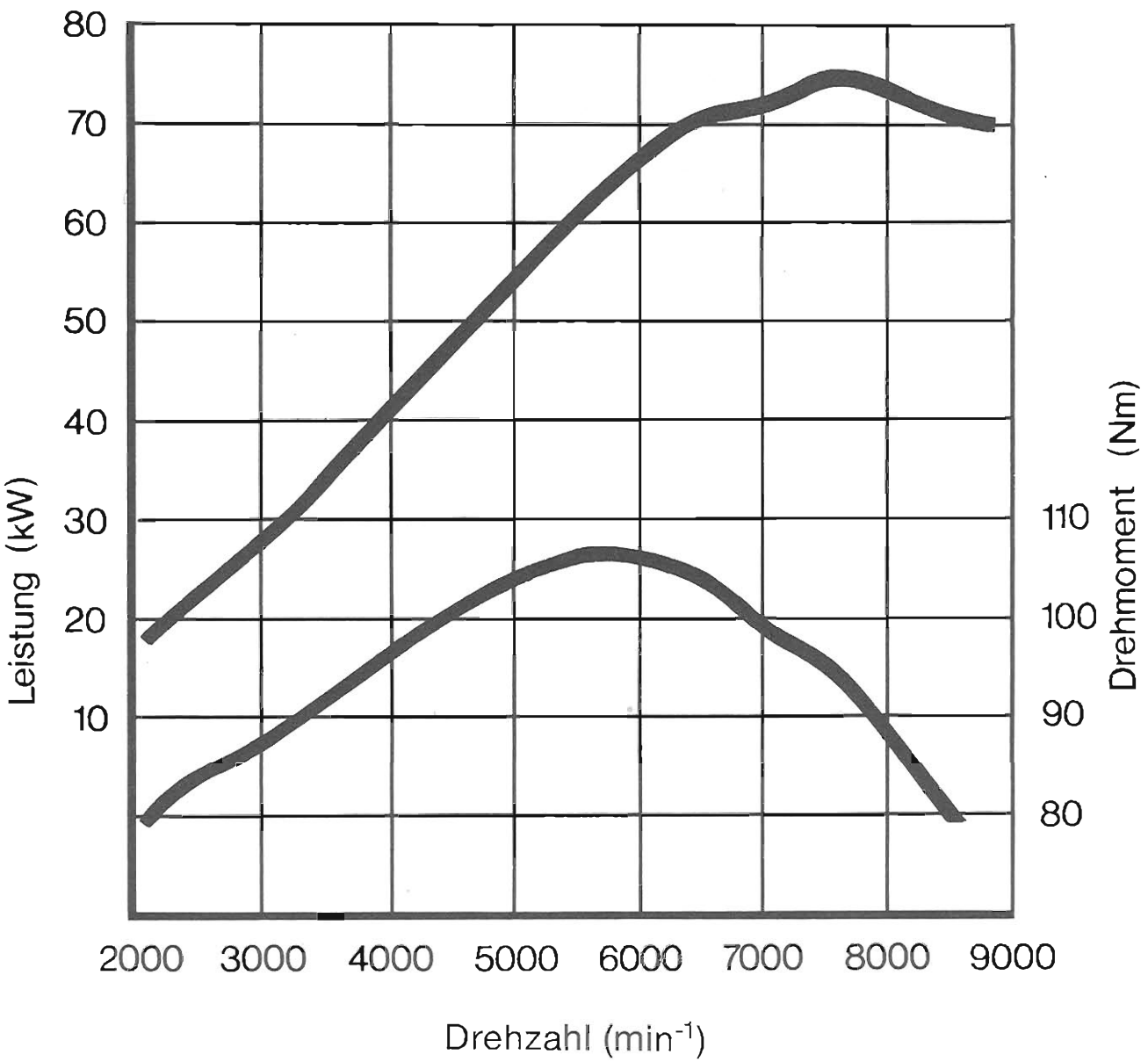


BMW K 1200 RS	96 kW/130 PS	M 98/17

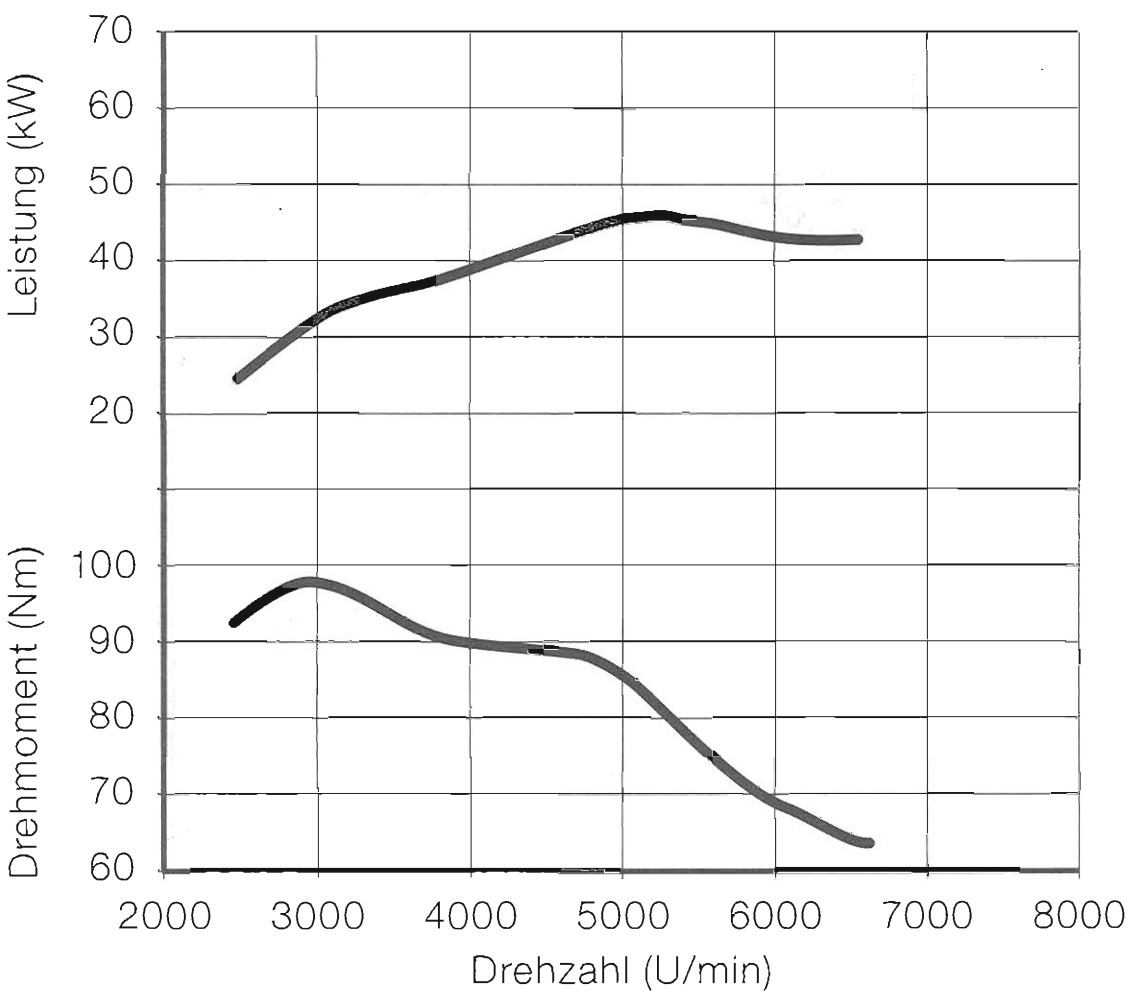


BMW K 1100 LT

M 98/18

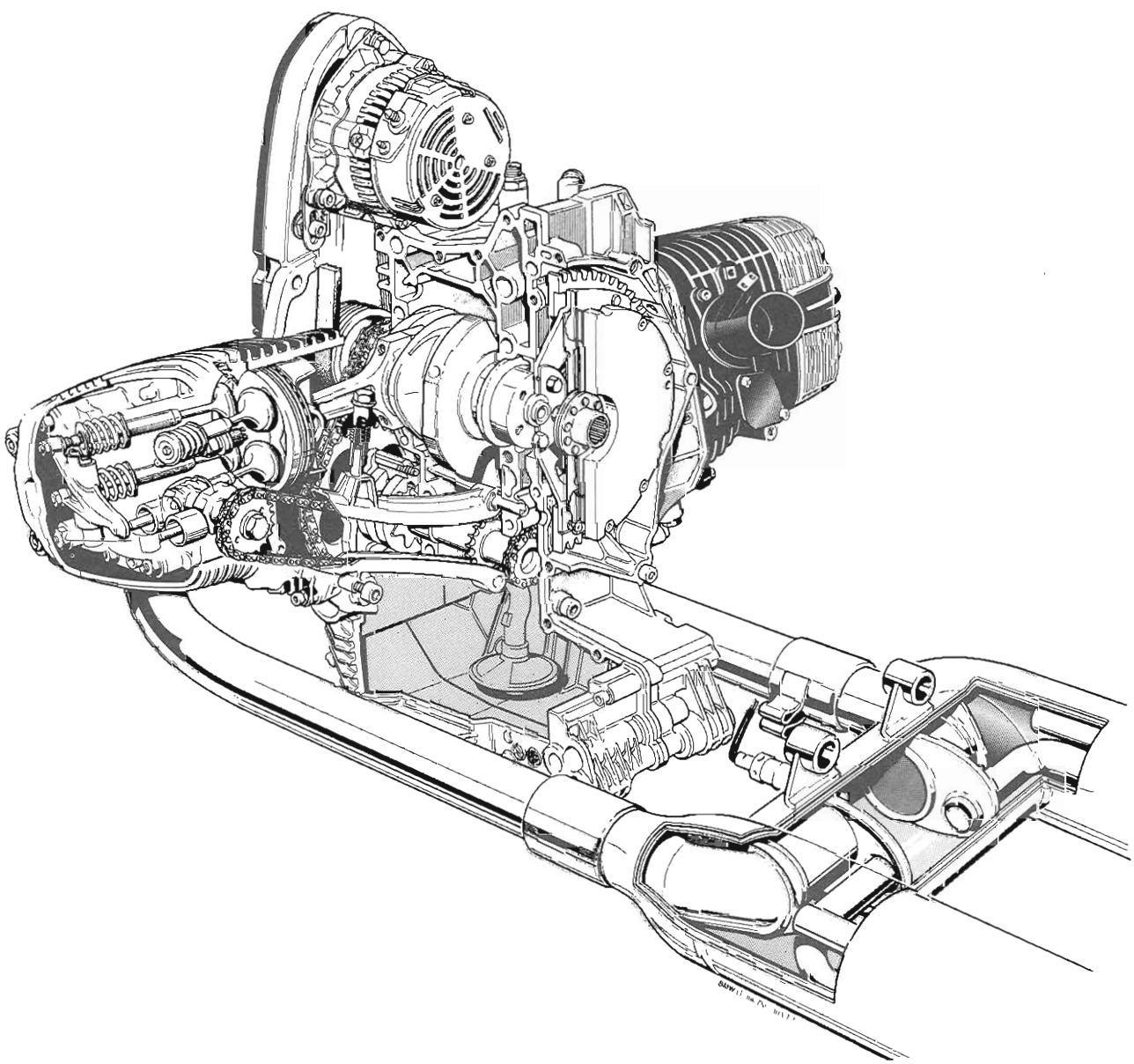


BMW R 1200 C | M 98/19



BMW R 1200 C

M 98/20



BMW R 1200 C

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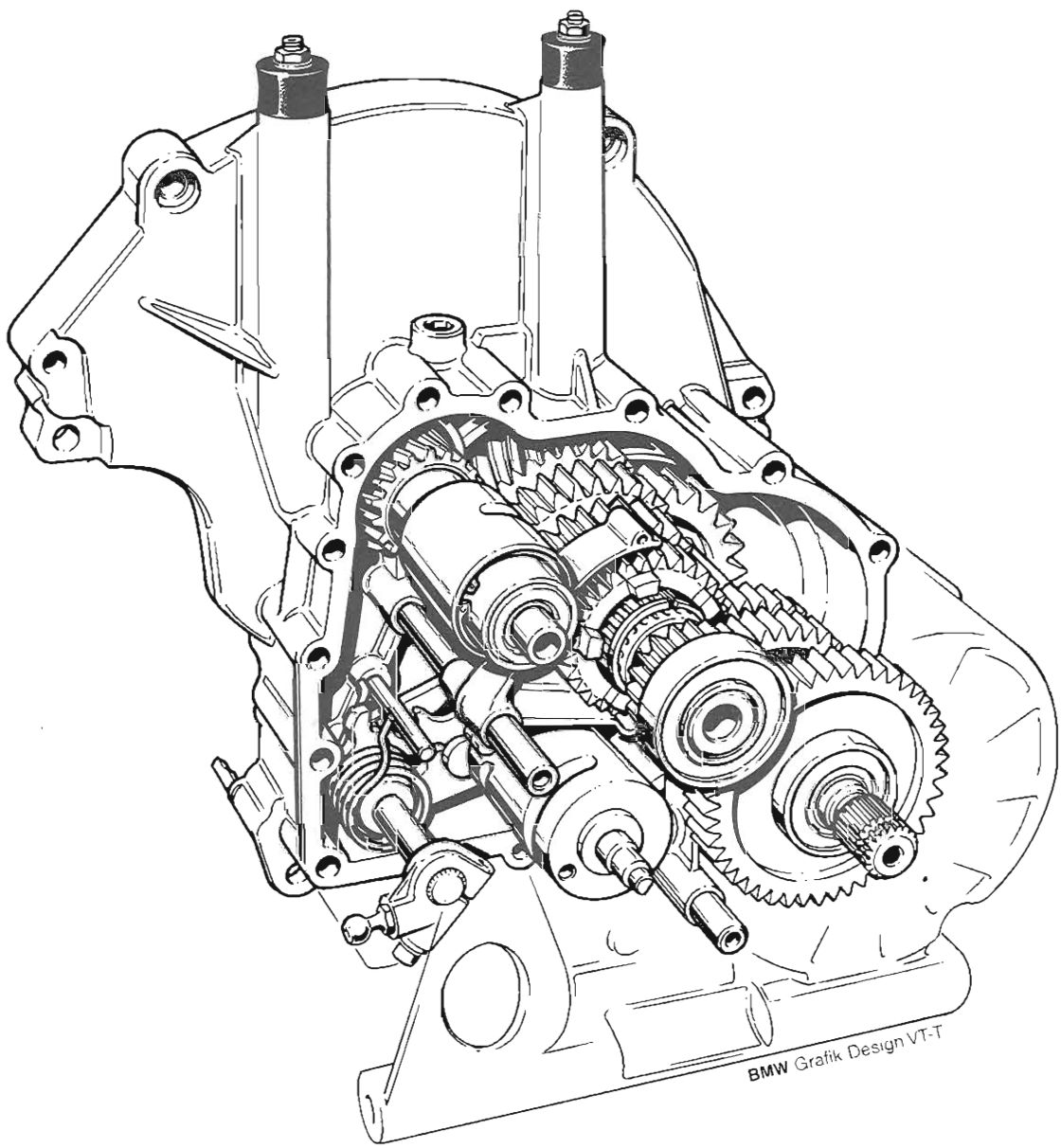
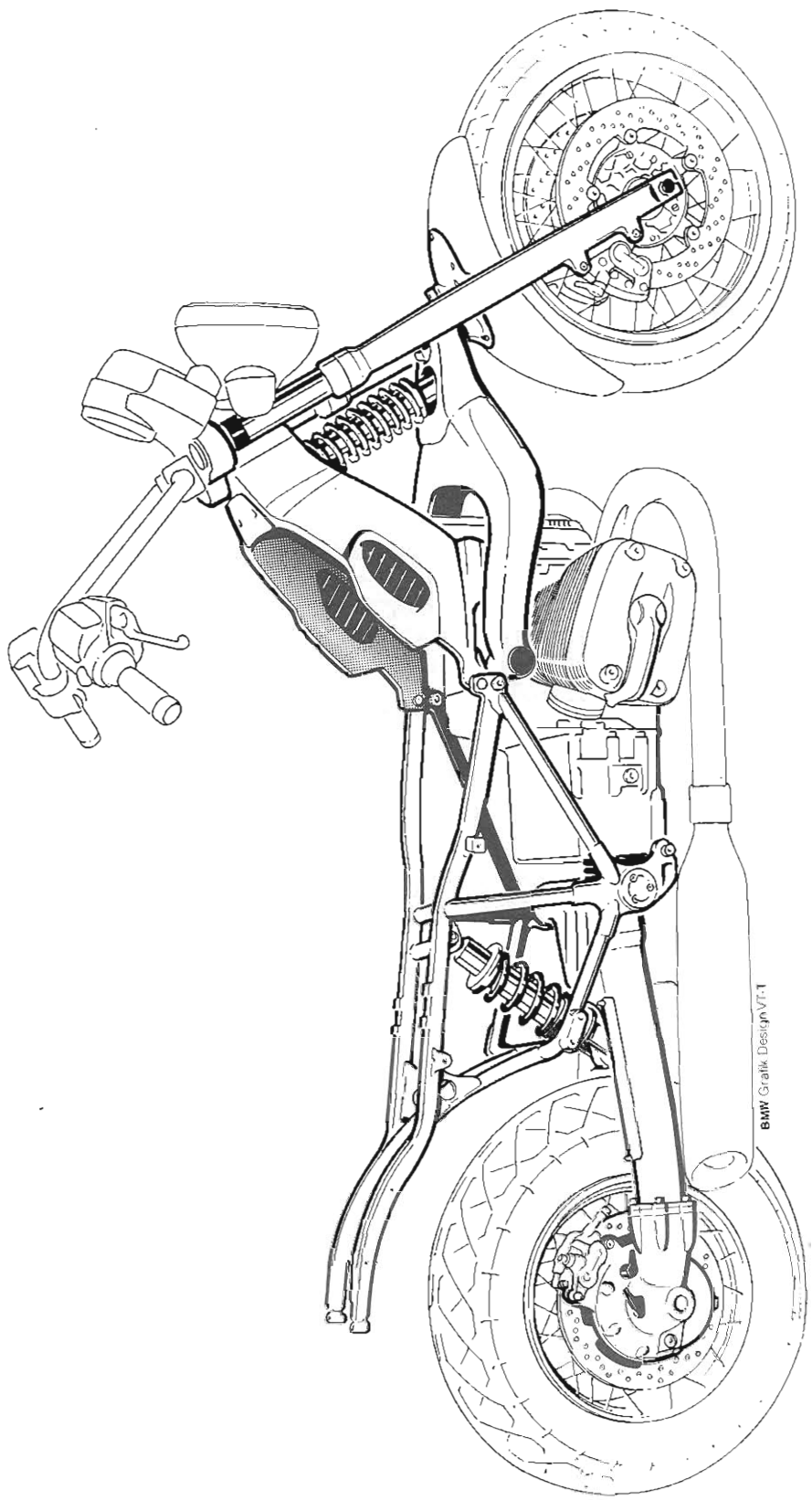
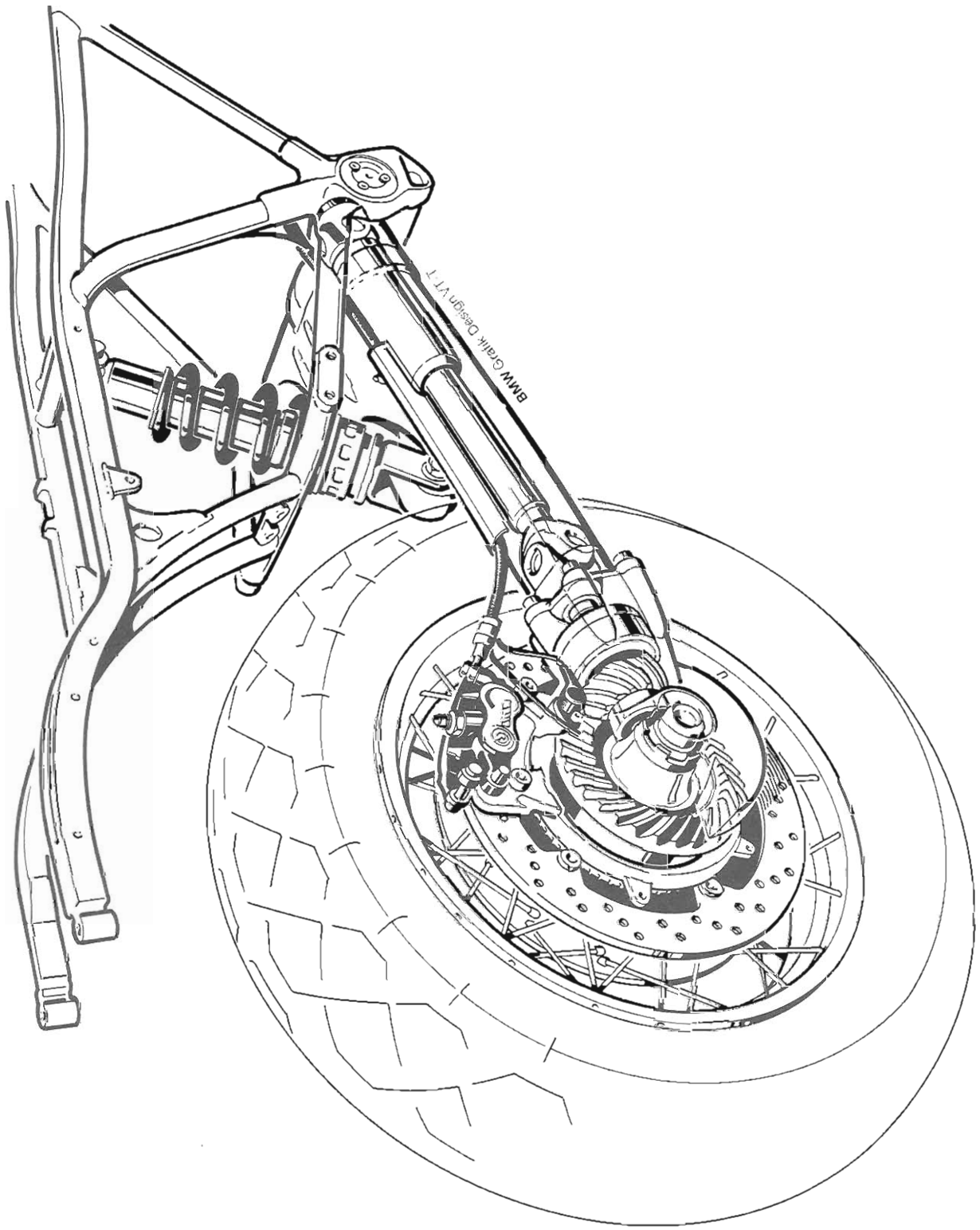


BMW R 1200 C

M 98/22



BMW R 1200 C

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