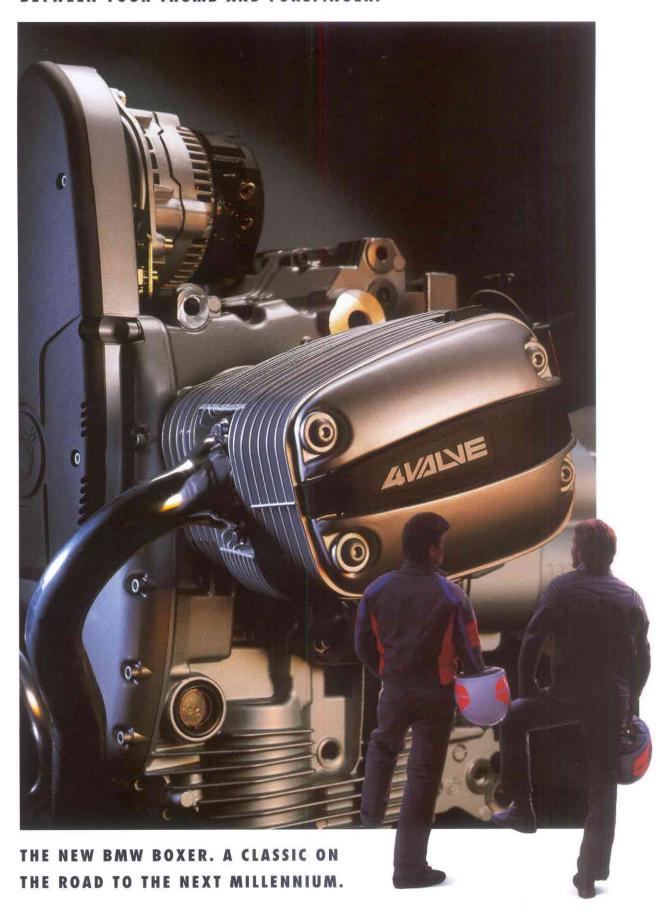
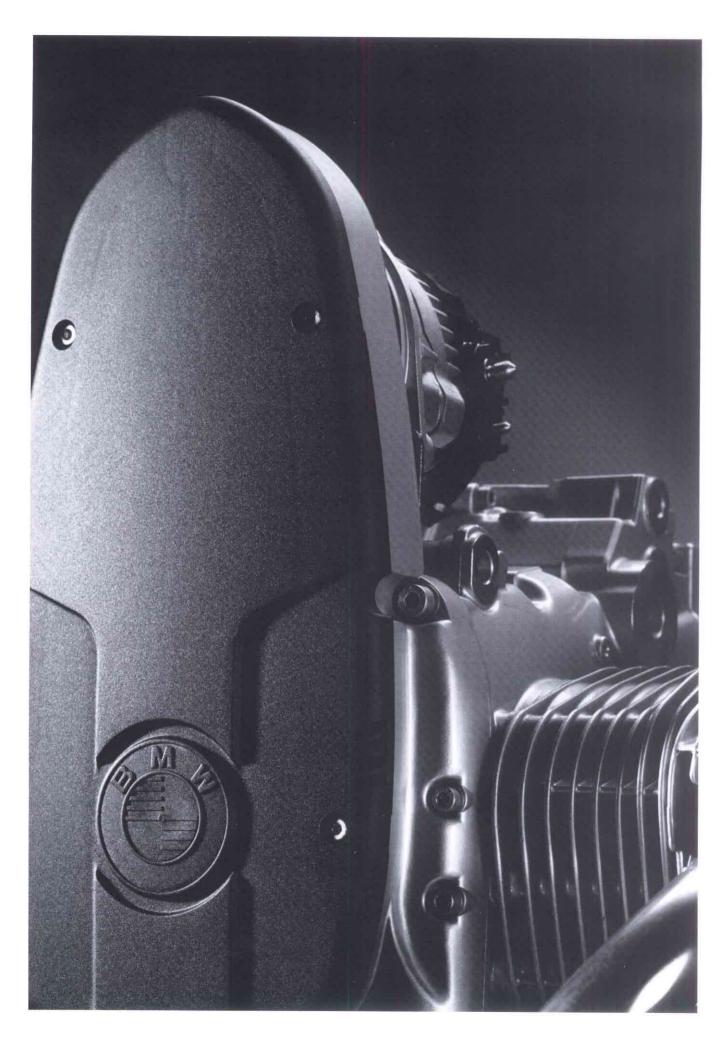
THE TWO-CYLINDER OF THE FUTURE IS LOCATED BETWEEN YOUR THUMB AND FOREFINGER.





agerly awaited by enthusiasts and experts alike, the new Boxer is about to arrive. Just in time for BMW's 70th birthday. In fact, almost precisely to the day, in 1993.

It's a celebration unlike any other. A special breed of event. Because 70 years of BMW motorcycles also means 70 years of the BMW Boxer. An impressive episode in the history of the motorcycle. Perhaps, many say, even the most important.

The BMW Boxer. The embodiment of the large, robust two-cylinder. And

the thrill it offers ished. On the age of increasingly cycles, the Boxer thrill more and



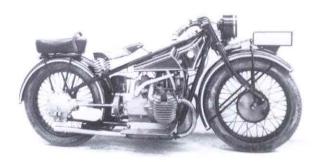
has never dimincontrary: in an faceless motorcontinues to more enthusiasts

by its charisma and unmistakable character. And not only devotees of the motorcycle, but also many others who have never as much as sat on one before. Think of it: seven decades. Full of endless adventures, even legends. And now the Boxer is taking off into the future, on course for the next millennium. Where yesterday, today, and tomorrow all merge.

### THE BOXER'S CHAMPIONSHIP CAREER GOES BACK 70 YEARS.



1923: engineer Max Friz designs the prototype of all BMW Boxers. The 500-cc, 8.5 bhp BMW R 32, already featuring shaft drive. The motorcycle that propels BMW into the era of motoring. A remarkable success from the get-go, exceeding 3,000 units of production.



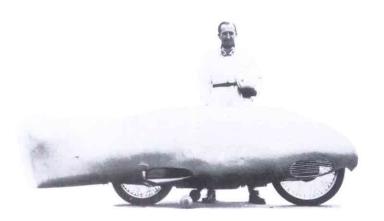
**B**MW's first 750-cc flat-twin engine enters production in 1928. The R 62. Featuring contemporary side control, this high-torque powerplant is produced in great quantities and a number of models right up to the end of the war. Its superb qualities make it a significant chapter in BMW's success story.



On to the '60's: Between 1960 and 1969, the BMW R 50/2 and R 60/2 hit the road 36,000 strong. Joined by another best-seller, the sporty BMW R 69 S with its 42 bhp, 600-cc flat-twin powerplant.



Screaming onto the scene in 1973 with its 900-cc engine, the BMW Boxer enters a new dimension. In the same year, the R 90 S becomes the first production machine of its type to achieve 125 mph. While on a more practical level, its design makes it remarkably easy to handle.



Gunning for titles in the '30's: Ernst Henne jacks up the world speed record repeatedly on his 500-cc supercharged Boxer. He outdoes himself in 1937, when his 100 bhp streamlined machine rockets him to a sensational 173.3 mph, a record that will stand for 14 years. Also in the '30's, Schorsch Meier wins the Isle of Man Tourist Trophy on his supercharged BMW rensport.



A scant three years later, the largest and most powerful Boxer ever roars into the ring, weighing in at 70 bhp and 1000 cc. And BMW also sets standards for riding comfort, fitting both the R 100 RS and RT with a special fairing developed in the wind tunnel. A concept way ahead of its time.

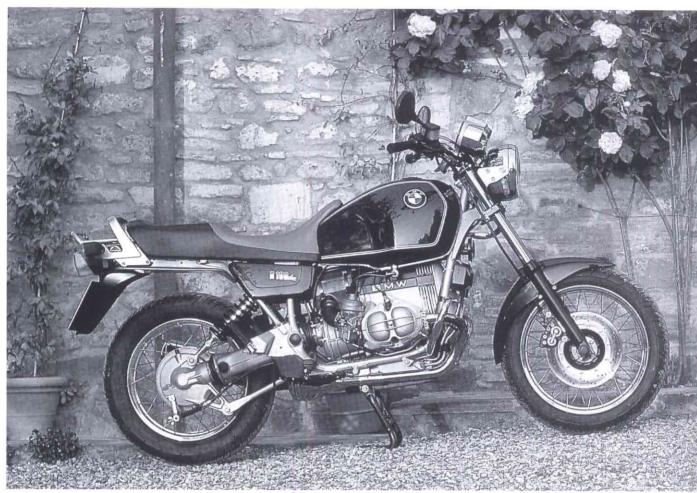


After the war, the BMW Boxer was, quite simply, the way to get around. The standard two-cylinder machine of the early '50's: the 24 bhp R 51/3, with a production run of more than 18,000 units. High-performance road machines, like the '52 100-mph R 68, further boost BMW's image.

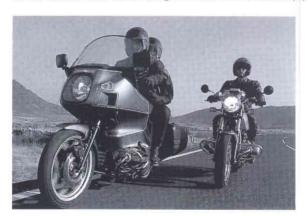


Throughout the '80's, the string of thrills provided by the Boxer remains intact. A new trend begins with the BMW R 80 G/S. The first large off-road machine in the history of the planet. And, not surprisingly, the BMW GS wins the Paris-Dakar Rally no fewer than four times.

## TODAY'S BOXER IS THE CLASSIC RIDING MACHINE. SO WHY BUILD A NEW ONE?



Success breeds success: the best-selling R 100 R confirms the unabated popularity of the BMW Boxer.



The world endurance champion – the BMW Boxer. Attested by the fact that every other BMW ever built is still on the road today. Which also explains why there is a 500,000-mile club in the USA.

Even a glimpse at today's motorcycle world will quickly reveal that the success of the BMW Boxer is by no means yesterday's news. Fact: purring at the top of the current list of best-selling motorcycles in Germany is the BMW R 100 R. Fact: BMW's prize-winning off-road enduro, the GS model, remains one of the top ten best-sellers of the past 13 years. Despite an onslaught of competitors vainly attempting to outperform the original. End of discussion. But given all this success, why in the world does BMW need a new Boxer?

Wouldn't it have been just as easy to improve it here and there? To eliminate its minor weaknesses and add onto its strengths? Our answer: "probably, if you enjoy being short-sighted."

Naturally, the recent success of the Boxer confirmed our decision to catapult this concept into the next millennium. When, as now, more and more dedicated riders – particularly young enthusiasts – can discover the Boxer, the ideal concept that reflects the essence of riding. "Back to one's roots", as they say.

**\$** o why can't the Boxer stay put, considering that it has already climbed to the proverbial top of the mountain? A fair question many riders might ask. Which demands a fair answer. For us, it's a matter of principle, in both senses of the word; we're not looking merely at short-term sales success.

Rather, we think in terms of total concepts and look into the future. Focusing on the development of traffic and environmental conditions that become increasingly difficult. Then drawing appropriate conclusions from each particular challenge.

While others wait for events to happen, we prefer to be proactive. Because one thing is certain: freedom on two wheels will be different tomorrow from what it is today. Which is why our thinking has to be more critical, more innovative.

And why we simply can't leave the Boxer the way it is. Instead, we must ensure that it fits snugly into the world of tomorrow. Ergo: the new Boxer will be a completely new motorcycle. One that represents the absolute state of the art. One that, in many ways, leads the way. But still fundamentally the same Boxer that riders have been appreciating for the past 70 years.

The legend lives on. As does the principle behind the BMW Boxer engine, inherent in all our development tests: as long as there are two-cylinder motorcycle engines, none will be better than ours.

None will be as robust, reliable, or easy to service.

None with better or smoother performance. None that can hope to emulate the unique character of the BMW Boxer.

So without further ado, we proudly present the new BMW Boxer. A classic for the future.



Tougher and more successful than the rest: the original, the progenitor of an entire motorcycle market. The BMW GS, the large off-road Boxer.

## THE NEW BOXER: NOT FUNDAMENTALLY DIFFERENT, BUT FUNDAMENTALLY NEW.

Anyone who has ever ridden the Boxer knows precisely what makes it so special. Its unmistakable purr. The unique way it develops its power. The superior acceleration at all engine speeds. Its refinement and running smoothness. All of which, technically, are indeed just as convincing today as they were years, even decades ago.

For starters: no other two-cylinder, four-stroke powerplant has such a perfect balance of masses created by oppositionally placed pistons. So that the Boxer can dispense with needlessly heavy compensation shafts (1).

The flat arrangement of the cylinders provides a low center of gravity crucial to the Boxer's matchless handling (2).

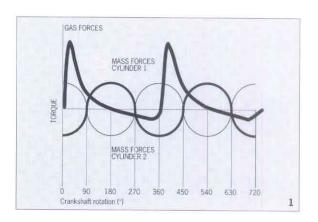
The longitudinal crankshaft provides a direct flow of power through the transmission and drive shaft to the rear wheel. Without the traditional pivots that just take up engine power.

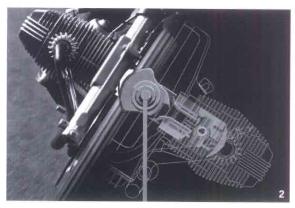
The concept of the powerplant also offers ideal thermal stability. Both cylinders are cooled efficiently by onrushing air, one of the factors contributing to the Boxer's reliability through years of carefree riding (3). In addition to avoiding the need for elaborate, heavy, and maintenance-demanding cooling systems.

Overall, the simple, straightforward design of the engine avoids problems from day one. Service and maintenance are a snap. Vital parts, like cylinder heads, are within easy reach from the outside. All of which naturally helps

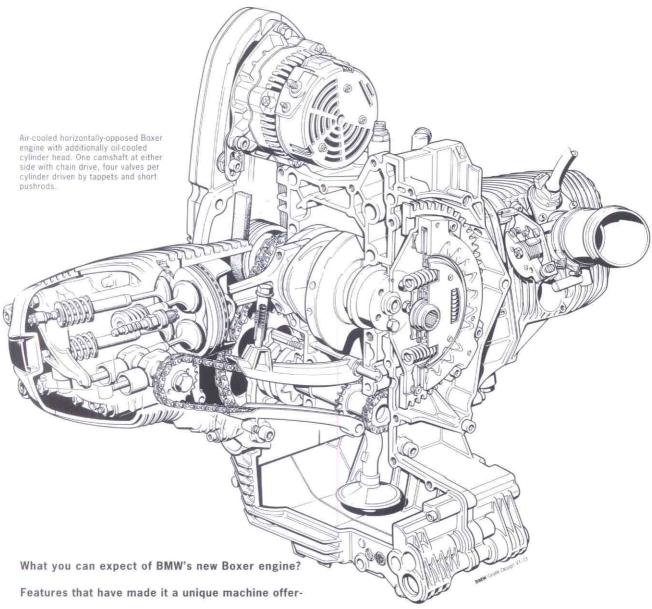
minimize the cost of ownership.

So, is it any wonder we decided to stick with the Boxer and take it to a higher level? Especially considering that the concept itself possesses boundless potential for improvement and enhanced performance. And that for us, it represents the two-cylinder powerplant targeted for the future.









ing benefits beyond the year 2000:

- Substantial improvement of power-to-weight and torque-to-weight ratios
- · Overall weight unchanged
- . No concessions in terms of reliability and longevity
- Improved fuel economy
- Exhaust and noise emissions complying with all standards worldwide well into the future
- Large range of engine sizes with differing performance
- Even greater running smoothness and refinement
- Longer inspection intervals reducing cost of ownership.

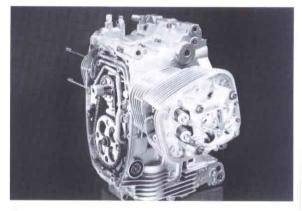
The Boxer is back. Not fundamentally different. But fundamentally new.

#### Specifications of the new 1100-cc Boxer powerplant:

No. of cylinders	2
Capacity	1085 cc
	(66.2 cu. in.)
Output	90 bhp at 7250 rpm
Max. torque	70.0 lb/ft at 5500 rpm
Bore/stroke	3.90 x 2.78"
Stroke:bore ratio	0.71
Compression ratio	10.7
Width, overall	28.9 in.
Length, overall	11:4"
Height, overall	22.9"
Weight	139.8 lb.

### SO WHAT'S NEW ABOUT THE NEW BOXER? EVERYTHING, ACTUALLY.

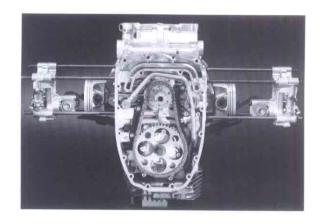
The basic concept of the Boxer has remained unchanged. And, as you can see, for some pretty compelling reasons. The fact remains, however, that the new Boxer is an entirely new engine. The four-valve technology is new. Many mechanical parts and ancillaries are new. Numerous materials and production methods are new. We've even refined its looks without, of course, changing its unique character.



One of the innovative highlights of the new Boxer is a four-valve technology that produces a considerable increase in output and torque. Two intake and two outlet valves per cylinder provide a much-improved cylinder charge and a smoother flow of the fuel/air mixture. As well as optimizing the energy yield obtained from the fuel, thus reducing consumption while providing equal power.

The four-valve cylinder heads feature HC (high camshaft), a special kind of valve control that combines extremely compact dimensions with low weight and a long service life. Not to mention the fact that it's particularly suitable for air-cooled engines and functions with minimum noise.

An important feature of HC control is that the camshaft, tappets, pushrods, and rocker arms all run in one pressure-cast light-alloy "box" bolted onto the cylinder head.



(The tappets are made of heat-treated castings, the aluminum pushrods are highly stable, and the rocker arms are forged.) Valve adjustment bolts with pivots maintain valve clearance throughout the motorcycle's long running life and facilitate maintenance at the same time.

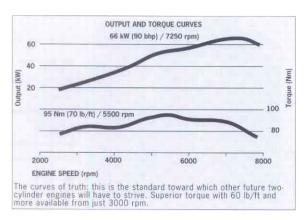
Another innovative and unique feature of the new Boxer is the construction of the camshafts; sintered cams pressed onto a nitrided steel shaft. A production method that guarantees extraordinary resistance to wear. Camshaft drive emanates from timing chains driven by a layshaft located beneath the crankshaft itself. The interior of the cylinders is coated with Gilnisil, an ultra-strong nickel-silicon alloy combining minimal frictional loss, superior stability at high speeds, and a long-running life to reduce oil consumption to a minimum. Cast light-alloy pistons, reduced in weight by 30 percent and featuring three piston rings, help to minimize mass forces and thus minimize vibrations. So they can run smoothly and reliably even at high speeds. The connecting rods are made of forged, sintered steel, a production process ensuring excellent surface

steel, a production process ensuring excellent surface quality and precise contours. And with both conrods having exactly the same weight, engine vibrations are further reduced.

Yet another innovation: the connecting rods are now intentionally fractured in production at their bearing point on the crankshaft. Creating unique, unmistakable fracture surfaces that allow the rods to be reconnected with unprecedented accuracy and without the need for alignment pins.

Reducing weight and avoiding the inconvenient process of adjustment in reassembly. The single-piece, forged, and nitrided crankshaft made of top-quality heat-treated steel runs in two high-load anti-friction bearings.

Combining supreme reliability with low weight and compact dimensions.



The new Boxer is the first machine of its kind to feature combined air/oil cooling for superior engine reliability, despite the substantial increase in output. The lightalloy cylinders are conventionally air-cooled; the components around the outlet valves feature additional oil cooling to reduce temperatures with maximum efficiency. Oil, supplied from the engine block, is pumped from the oil sump via two separate circuits for lubrication and cooling. An external oil cooler then serves to cool the heated oil on its way back to the sump.

This concept guarantees lasting reliability at all tempera-

tures. A factor crucial to the powerplant's long service

life and low noise emissions. The newly-developed crankcase breathing system with oil separator allows all the oil in the blowby gas to be fully recycled into the oil circuit. Which is great news for the environment.

As a result of this superior design, engine inspection intervals are up from 4000 to 6000 miles, meaning a considerable reduction of service and running costs.

Made of two halves separated vertically, the engine housing – made of ultra-strong light alloy cast by the mid-pressure process – forms a load-bearing component together with the transmission.

Apart from the crankshaft and layshaft driving the valves, other important components are housed in the engine compartment to save space and ensure optimum protection. The alternator cover, made of pressure-cast light alloy, is right at the front of the engine. Not coincidentally, so are the ignition system, alternator belt drive and the alternator itself.

The air intake system with its easily accessible filter is housed between the engine casing and fuel tank. In the interest of simple and straightforward service, the electric fuel pump is fitted on a special plate at the bottom of the tank accessible from outside. And a pressure valve further downstream ensures consistent fuel pressure at all times.

Clearly, virtually everything about the Boxer is new and different.

And BMW wouldn't be BMW if the new Boxer didn't boast the most advanced electronics imaginable. Which brings us, naturally, to the section you're about to read.

# GREAT BOXERS AREN'T JUST POWERFUL. THEY'RE SMART, TOO.

Different, even contradictory requirements call for intelligent solutions. Witness the new Boxer: conceived to be fuel-efficient and clean on the one hand, while offering more power reserves for a more active riding style on the other. Mechanical solutions alone can no longer provide the answer to such a challenge. Instead, advanced engine electronics are required to achieve more output and safety. Combined with enhanced reliability, environmental compatibility, and economy.

BMW is a pioneer in this area. Indeed, years ago, BMW was the world's first motorcycle manufacturer to elevate Digital Motor Electronics (Motronic), already featured in the automobile, to the even higher standard of reliability required for the motorcycle.

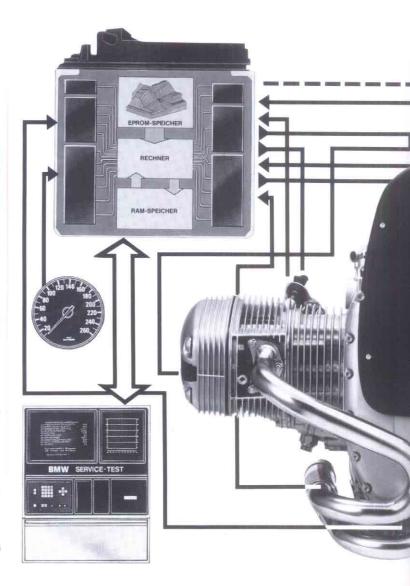
So it's no surprise that DME now comes in the new Boxer. Providing what might be termed "intelligent" power for the right kind of modern performance. Not surprisingly, since the BMW K-Series has demonstrated for a long time that truly great motorcycles demand sophisticated engine electronics.

BMW Motronic is capable of adjusting the engine's control systems precisely to all prevailing conditions, optimizing the powerplant's performance and efficiency. While at the same time providing an even higher standard of reliability and practicality. And BMW Motronic is the precondition for using the fully controlled three-way catalytic converter.

In other words, an engine without Motronic is simply unsuitable for the future, since it lacks the most important criterion a motorcycle must possess today and tomorrow: the ability to meet the increasing requirements

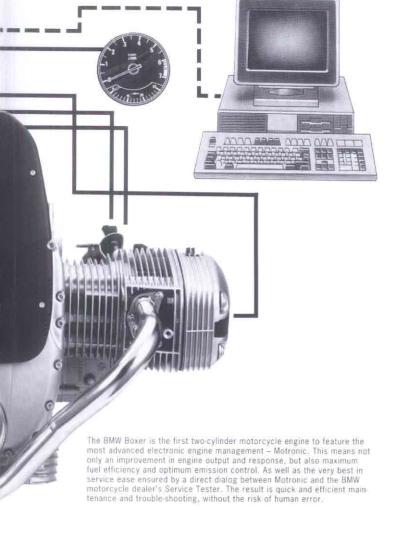
made by our environment. So it really is good news that following BMW's three- and four-cylinder in-line powerplants, the two-cylinder Boxer is now also built for the future in every respect. Featuring the most advanced MA 2.2 Motronic, a system that combines all those functions that used to operate independently of one another, in a single, complete control system.

The amount of fuel to be injected, the ideal ignition timing, and the ignition angle are all determined by the same micro-computer for each individual combustion process, depending on current load conditions.



To achieve this supreme precision, external sensors constantly feed the computer with all relevant information on the condition of the engine. Throttle butterfly angle (engine load). Engine speed. Air temperature and pressure. Oil temperature. On models fitted with a catalytic converter, the data coming from the oxygen sensor is also taken into account. Applying a multi-dimensional control map stored within its CPU, the computer then determines optimum running conditions in fractions of a second. Passing on the appropriate signals to the electronically controlled injection valves and coils.

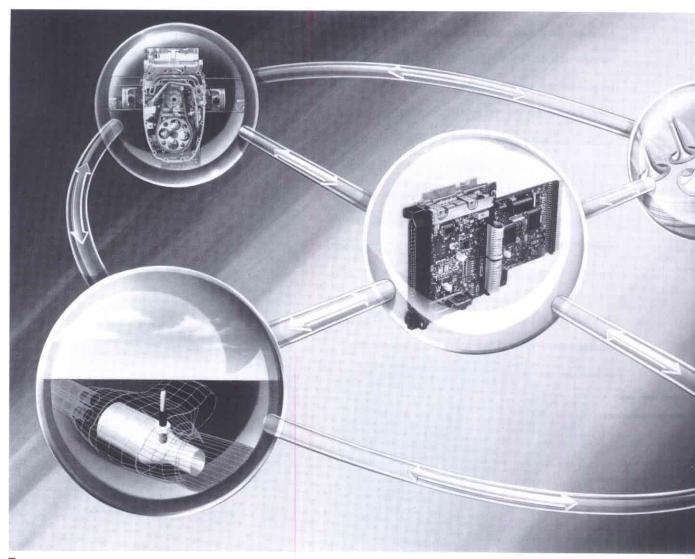
The practical benefits of this sophisticated engine management system are more than impressive:



- Engine performance is enhanced by the optimized shape of the intake system.
- The reduction of flow resistance to a minimum ensures even better engine response.
- Engine map control helps to optimize fuel efficiency at all speeds, particularly compared to conventional carburetor engines.
- Fuel economy is enhanced even further by engine overrun control interrupting the fuel supply when coasting above 2000 rpm.
- Greater fuel economy also means cleaner exhaust emissions. Since Motronic also makes it possible to use a fully controlled catalytic converter, emission management is improved to an even higher standard.
- The built-in defect memory provides even greater ease of service, as information is retrieved quickly and easily through the dealer's Service Tester.
- Motronic also offers a fail-safe function to keep the engine running even if individual components cease operating.
- We know from years of experience that Motronic keeps running perfectly throughout the entire service life of the engine, without requiring the slightest maintenance. Unlike mechanical systems, Motronic cannot suffer any deficiencies resulting from wear, contamination, or poor maintenance.
   In a nutshell, the new Boxer is as reliable as a

motorcycle can get. Which is saying a lot.

#### THE NEW BOXER - THE GREATEST ALL-AROUND CHAMPION EVER.



Take a critical look at traffic and the environment both today and in the projected future, and you'll also get a good idea of the future of the motorcycle.

To maintain freedom on two wheels in the long run, the only solution is to combine riding pleasure with common sense. And this is precisely where BMW makes a significant contribution.

With an increasing number of riders looking for futureoriented concepts, BMW has become the first manufacturer to give answers today to the questions of tomorrow. The key issues: safety and greater compatibility with the environment. Our solutions: ABS, Motronic, and the catalytic converter.

Now we're taking yet another giant step into the future with the new Boxer. A motorcycle opening up new dimensions in two-cylinder engine technology by introducing a powerplant for the year 2000.

No other two-cylinder offers the same far-sighted perspective. No other engine offers the same unique combination of up-to-date performance, environmental responsibility, and all-around economy. And in making



Digital Motor Electronics on the new BMW boxer: a perfect communication system. It controls the flow of information between the engine and all other important assemblies.

all this possible, we can proudly claim to have retained the Boxer's classic values of character, reliability, and ease of service.

This combination of a unique concept and progressive technology makes the Boxer the ideal machine of the future. Featuring the consistent harmony of advanced mechanical components and intelligent electronics, along with the environmental technology so vital today. Motronic gives the Boxer everything it needs to utilize the fully controlled

three-way catalytic converter, the most efficient emission management system available today. Now also available, needless to say, on BMW's two-cylinder Boxer.

The heart of this highly efficient emission control system is the long-life metal-based monolithic catalyst with approximately 200 cells/square inch. Ultra-thin layers of catalytically active platinum, palladium, and rhodium are applied within these cells. Serving to oxidize and reduce hydrocarbons, carbon monoxide, and nitric oxides through a unique chemical process.

The only way to guarantee optimum function, however,

is to have a consistent fuel/air ratio fed to the engine.

Achieved via an oxygen sensor control, a special measuring unit in the exhaust: the lambda probe permanently measures the oxygen content in the exhaust gases.

Showing Motronic how to optimize the fuel/air mixture for maximum efficiency.

With Motronic and the oxygen sensor responding quickly and precisely, the catalytic converter of the new Boxer is able to reduce the amount of carbon monoxide and hydrocarbons by a very substantial 85 percent. While cutting back nitric oxides by about 80 percent, according to the ECE R40 measuring cycle.

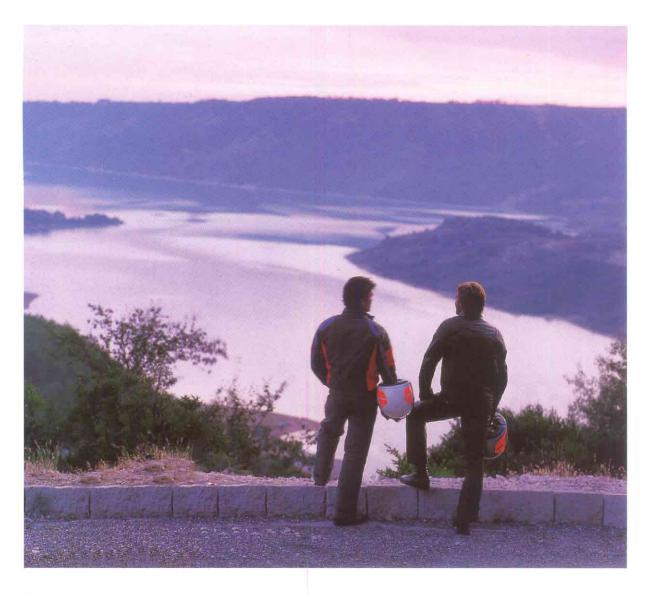
Yet, despite this highly efficient emission control, the rider enjoys virtually the same performance, top speed, and fuel economy as before.

The three-way catalytic converter will be available as a factory option on the new Boxer.

The new BMW Boxer: a classic entering the future. The new Boxer generation is powered by a peerless two-cylinder, four-valve engine, proven concepts deliberately retained and further enhanced by new, progressive technology. This unique combination of experience and far-sightedness has created a powerplant combining past, present, and future with a standard of excellence until now inconceivable. A powerplant heralding a new era in a unique decades-long success story.

BMW and the Boxer: the legend continues.

#### THE NEW BOXER - JUST AROUND THE CORNER.



The new Boxer is on the way. An idea with a great past poised for an equally great future. It's a new engine far superior to other two-cylinders. But it will also be a completely new motorcycle with other advanced technologies for the years to come. Features conceived to

provide more safety, more comfort, more riding pleasure of the caliber many riders demand in today's world. The new BMW Boxer is coming soon.

So start counting the days until the Big Day. We're counting, too.

