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Contact: David J. Buchko
Product Communications Manager
201-307-3789 / dave.buchko@bmwna.com

William Scully
BMW Product Communications Specialist
201-307-3790 / william.scully@bmwna.com

NEW 3 SERIES SEDANS: The icon of sport sedans enters its fifth generation

Woodcliff Lake, NJ – March 1, 2005... The BMW 3 Series, as just about everyone who cares about cars and driving knows, is an icon. It's an icon for many reasons: Among them are its style; its quality; its unique combination of performance, practicality and European luxury in a compact package.

Yet above all, the 3 Series' iconic status derives from **how it drives**. Over the decades, the 3 Series has always been remarkably agile and pleasurable to drive, without compromising comfort and everyday usability. Though many have tried and are still trying, no one else quite knows how to match this constellation of attributes.

The new 3 Series, making its debut as the E90¹ Sedans, evolves this concept with –

- **An all-new design** that masterfully blends 3 Series character and tradition with progressive esthetics and enhanced functionality.
- **All-new engines** that retain the unique smoothness and sound character of BMW's inline 6-cylinder format while offering more power, greater torque, even more refined delivery of power, and new technology that's a story in itself.
- **All-new suspension** that combines the refined road manners of larger, more costly BMWs with the agility of the more compact 3 Series...plus innovations in steering, brakes and stability systems as well.
- **Even greater body rigidity**, more efficient aerodynamics and advances in the management of accident-impact forces.

¹ – Each BMW Series has a “platform number,” the “E” standing for *Entwicklung*, German for “development.” Subsequent body styles in this Series will be called E91, E92 and E93.

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Company
BMW of North America, LLC

BMW Group Company

Mailing address
PO Box 1227
Westwood, NJ
07675-1227

Office address
300 Chestnut Ridge Road
Woodcliff Lake, NJ
07677-7731

Telephone
(201) 307-3606

Fax
(201) 307-3607

Internet
bmwusa.com



- **More space** for rear-seat passengers and cargo.
- **Greater luxury and convenience**, including numerous features previously offered only in the 5, 6 and 7 Series.

As the first models of the 5th-generation 3 Series for the U.S., the E90 **325i** and **330i Sedans** enter production in March 2005 as 2006 models; European models (320d, 320i, 325i and 330i) began emerging from BMW production facilities in December '04.

New through and through, yet firmly grounded in 3 Series tradition

From their low, wind-slicing front end through an upswept silhouette to a high trunklid that enhances aerodynamics and cargo space, the '06 3 Series Sedans are a logical progression from their E46-platform predecessors. Not only does the first glance tell you that this is a BMW; it also tells you clearly that this is a 3 Series.

Incrementally larger and roomier, yet still truly compact

Compared to their predecessors, these new Sedans grow in nearly every dimension. Wheelbase is up by 1.4 inches; length is 2.2 in. greater; width is up by fully 3 in.; and the new models are 0.8 in. taller. These increases in exterior dimensions translate into enhanced luxury and comfort equipment, and greater passenger and cargo space: Shoulder room, front head room, rear knee room, and EPA passenger compartment and trunk volumes are all up, as shown in the table below. Yet there's not a hint of the 3 Series abandoning its tradition of compact exterior dimensions; and despite extensive new content, weight is up by less than 100 lb.:

	2005	2006	Difference
Wheelbase, in.	107.3	108.7	+1.4
Track, front/rear, in. (standard wheels)	57.9/58.4	59.1/59.6	+1.2/1.2
Length, in.	176.0	178.2	+2.2
Width, in.	68.5	71.5	+3.0
Height, in. (without Sport Package)	55.1	55.9	+0.8
Weight, lb. (preliminary data for 2006 model):			
325i with automatic transmission	3307	3351	+44
330i with automatic transmission	3362	3450	+88
Weight distribution, front/rear, %:			
325i with automatic transmission	50.9/49.1	50.7/49.3	0.2
330i with automatic transmission	50.6/49.4	51.1/48.9	0.5
Shoulder room, front/rear, in.	54.4/54.2	55.4/55.1	+1.0/0.9
Head room w/moonroof, front/rear, in.	37.0/37.4	37.4/37.1	+0.4/-0.3

	2005	2006	Difference
Leg room, front/rear, in.	41.4/34.6	41.5/34.6	+0.1/-
Rear knee room, in.	30.9	31.7	+0.8
EPA passenger compartment vol., cu ft.	90.8	93.0	+2.2
EPA cargo volume, cu ft.	10.7 ²	12.0 ²	+1.3

Technology and features:

some new to 3 Series, some altogether new

A new BMW platform always means exciting new technology and innovative, meaningful features. Compared to its predecessor, the new 3 Series offers abundant new technology and features in these two categories:

Already in other Series, new to 3 Series.

Standard –

- Engine with Valvetronic variable valve lift
- 6-speed manual transmissions across the board (previously only on 330i models)
- Double-pivot front suspension with more extensive aluminum components
- Run-flat tires throughout Series
- Exterior ground lighting
- Multi-function remote control with ID sender instead of conventional key
- Start/Stop button
- Galvanic interior trim
- Automatic climate control with –
 - Separate left/right temperature settings and Heat-at-Rest feature
 - Temperature and airflow-controlled air outlets for rear passengers
 - Climate-controlled console storage compartment
- Subwoofers included in standard audio system; located under front seats
- Front and rear Head Protection System
- Condition-Based Service scheduling

Optional –

- 6-speed STEPTRONIC automatic transmission
- Active Steering with Servotronic vehicle-speed-sensitive power assist
- Mixed tire sizes (225/45R-17 F / 255/40R-17 R) on 325i Sport Package
- 18-in. wheels and tires included in 330i Sport Package

² – Can be expanded via available folding rear seats; for '06, does not include underfloor compartment of approximately 1.75 cu ft.

- Xenon Adaptive headlights (previously Xenon, not Adaptive) (standard on 330i)
- Auto-dimming exterior mirrors
- Power folding exterior mirrors available in Premium package
- Digital compass in interior rearview mirror
- Sport seats with adjustable backrest width
- iDrive (with available On-board Navigation System)
- Voice Command system
- Sirius Satellite Radio as factory option
- Logic 7 surround sound audio system optional in 325i, standard in 330i
- Heated front seats with expanded heating area and balance control
- BMW Universal Transceiver (garage door opener) available in Premium Package
- Power rear-window sunshade with manual rear side-window sunshades.
- TeleService

Making first appearance in a BMW.

Standard –

- Engine with magnesium/aluminum composite construction, 3-stage variable induction system (330i), electric coolant pump and volume-controlled oil pump
- 5-link rear suspension
- Dynamic Stability Control with expanded functions
- Dynamic Cruise Control (can apply brakes lightly to control speed)
- Automatic safety-belt tensioners and force limiters at outboard rear seating positions as standard equipment (already standard on front seats)
- Decoupling of foot pedals in severe frontal crash.

The benchmark sports sedans set a new benchmark

“Few cars have inspired as much competition as this family of perennial pacesetters,” raves *Car and Driver* in its January '05 10Best award, “and fewer still have resisted competition so successfully. What’s the 3 Series’ secret? Smooth 6-cylinder power, exemplary ergonomics, silky-smooth shifting, supple ride quality, eager responses, superb seats, and proportions that never look out of date.”

BMW’s overarching goal for the new 3 Series was to improve on all these qualities. The new '06 325i and 330i go on sale in the U.S. in May '05, elevating the 3 Series’ iconic status to the status of the new icon.

**All-new 6-cylinder engines:
world's first contemporary magnesium/aluminum composite construction**

These days, most 6-cylinder engines are V-6s. By contrast, BMW's "sixes" are inline engines, noted not only for their layout, but also for exceptional smoothness and unique sound. BMW customers and independent critics treasure them for these attributes; BMW decided to retain the inline-6 while developing it toward reduced weight, more compact dimensions and even more brilliant performance, smoothness and sound. An increase in fuel efficiency and even tighter control of emissions were also goals for the new engines; official EPA mileage ratings, however, are not yet available.

The result of this quest is a new generation of 6-cylinder engines, named **N52**. Compared to its illustrious predecessor, the M54 engine family, the N52 achieves notable progress on all fronts (new vs. previous 330i engine):

- **Greater power**, 255 vs. 225 hp³. This amounts to an impressive 85 hp per liter.
- **Greater torque**, 220 lb-ft. vs. 214³, and even stronger torque delivery across the broad range of engine speeds.
- **Higher revving ability**. The new engine's redline is 7000 rpm, vs. 6500 for the predecessor.
- **Superior fuel efficiency**. Though official U.S. EPA mileage ratings aren't yet available, European ratings indicate 12% greater fuel efficiency.
- **Reduced weight** – 22 lb. less. Had BMW engineers evolved the existing engine to meet their goals, it would have added about 30 lb.
- **More compact** – because there is just one external drive belt vs. the previous two, overall engine length is about an inch less.

Here are some details of how this dramatic progress has been achieved – over an engine that was already outstanding in all these respects.

Valvetronic variable valve lift. This patented innovation, already enhancing the performance and fuel efficiency of BMW's V-8 and V-12 engines, appears for the first time in a BMW 6-cylinder engine, and in evolved form. Valvetronic varies valve lift to a far greater degree than other variable-lift systems – so much, in fact, that it replaces the traditional engine throttle. Engine breathing is controlled entirely by the valves themselves.

³ – 235 hp/222 lb-ft. with Performance Package, which has no counterpart in the new engine family.

The Valvetronic mechanism acts on the intake valves, imposing an additional control element between the camshaft lobe and rocker arm for each cylinder, called an **intermediate follower**. Upon contact by the lobe, this follower actuates a finger-type rocker arm and, in turn, the valve. The follower's pivot point is positioned by an eccentric shaft, rotated by a servo motor in response to the driver's accelerator-pedal movements; this varies the valve lift. The system's advantages include:

- **Greater efficiency.** As a throttle closes, it poses a restriction to incoming air. Valvetronic eliminates this restriction, reducing "pumping losses."
- **More spontaneous engine response** – again, because there is no conventional throttle.
- **More power**, because maximum valve lift can be higher than it could be with fixed valve lift.
- **A "fatter" torque curve.** Not only does the engine produce more torque; the torque peak occurs at a lower speed, 2750 rpm vs. the previous 3500.

Compared to the 1st-generation Valvetronic system of BMW's V-8s and V-12s, that of the N52 engine has evolved in several ways:

- **Higher maximum engine speed**, by making Valvetronic reciprocating parts more rigid.
- **Maximum valve lift increased**, contributing to the increase in power output.
- **Greater maximum valve acceleration.** Less time is spent opening and closing the valves; thus they are effectively open longer, further reducing pumping losses.
- **Phasing of intake valves.** A given cylinder's two intake valves now open at different rates, resulting in a more targeted, asymmetric distribution of the fuel/air mixture that enhances fuel economy under low-load driving conditions.

Additional developments contribute to the new engines' performance:

- **Combustion chambers** have been refined.
- **BMW's VANOS⁴ variable valve timing** has also evolved; the range over which it varies intake-valve timing has been increased by 10 degrees.
- **3-stage induction system** (330i engine only). BMW 6-cylinders have long had a 2-stage system, with one intake-path length for lower rpm, the other for higher rpm. By providing an additional "middle" stage, this system further optimizes torque and power delivery.

⁴ – VANOS = **VA**riable **NO**ckenwellen **St**euering = variable camshaft control, or variable valve timing.

- **Higher fuel-injection pressure**, increased from 3.5 to 5 bar (51.4 to 73.5 lb/sq in.), improves the injection spray, reducing emissions from a cold engine.
- **All-new engine electronics** to optimize engine behavior and performance under all operating conditions.

Unique new magnesium/aluminum composite engine construction

Current BMW 4-wheel vehicles (i.e. not motorcycles) utilize three types of engine construction, all with aluminum cylinder heads:

- **Regular-production 6-cylinder engines** (3, 5, Z4, X3 and X5 Series) – aluminum block with cast-iron cylinder liners.
- **V-8 and V-12 engines, new V-10** (5, 7 and X5 Series, M5) – aluminum block with integrally cast silicon-impregnated aluminum cylinder surfaces.
- **M3 engine** – cast-iron cylinder block.

With the N52 engine, BMW introduces a unique and pioneering engine structure:

magnesium/aluminum composite construction, the first in a contemporary automobile. Structurally, the all-new engine block consists of three major castings: **Bedplate (magnesium alloy⁵)**. This casting forms the lower portion of the block (crankcase), and is similar in concept to a construction element found in some racing engines – as well as the 500-hp V-10 engine powering the new BMW M5.

Upper crankcase (magnesium alloy⁵). Joining the bedplate at the level of the crankshaft (main) bearings, this too is a weight-saving casting. Mounted onto the bedplate from above; combines with the bedplate to form the cylinder block's outer shell. The result is an ultra-rigid, yet remarkably light engine structure.

Insert (aluminum alloy). Forms the cylinders and their coolant passages. Analogous to the V-8, V-10 and V-12 blocks themselves, silicon particles are cast into this insert; a "soft honing" machine removes just enough of the aluminum to leave the crystals as ultra-hard cylinder surfaces.

How it goes together. First, the aluminum insert is cast by conventional methods. Then, during a newly developed die-casting method, the magnesium upper shell shrinks onto the insert while cooling; structural rigidity and stability are ensured by interlocking ribs where the two castings meet.

In the next step, the upper crankcase, consisting of magnesium shell and aluminum insert, is mounted onto the magnesium bedplate from above. The sintered-steel main

⁵ – All magnesium castings in the block assembly are actually a magnesium-aluminum alloy, as pure magnesium would not have sufficient strength for these applications.

bearings' lower halves are in place in the bedplate, the upper halves in the upper crankcase. After the bedplate and upper crankcase have been bolted together, a liquid sealing compound is injected into a groove on the contact surface between the two components. Special aluminum bolts are used to attach parts, such as the engine mounting brackets, to the magnesium/aluminum castings.

As the "conventional" part of this construction, the cylinder head is of aluminum; however, the head of an inline 6-cylinder engine must be cast with great precision because its length implies relatively large contraction during the cooling-down process after casting. The casting process used here is called "lost-foam"; because all BMW gasoline engines since the 1960s have had aluminum heads, BMW's experience in this regard is long and successful; BMW has used the lost-foam method for cylinder heads since 1997. This process, which employs a polystyrene "dummy" of the head to form the mold into which the aluminum is poured, results in an extremely precise casting of this critical engine component.

Other weight-saving materials. Though the magnesium/aluminum composite crankcase construction is the most conspicuous example, other materials and production innovations also help pare weight from the N52 engine. One is the adoption of **hollow camshafts**, which save a remarkable 2.6 lb. Beginning as steel tubes, the camshafts are shaped in a hydroforming procedure, subjected from the inside to a water pressure of 4000 bar (58,000 lb./sq in.) against outer forms to achieve the cam profiles. All this takes place in a cold state – nothing melts – and as a final step the cams are polished to a finish quality of 1/1000 mm.

The engine's **camshaft cover** is of weight-saving magnesium. And the chain camshaft drive – a high-durability, low-maintenance feature of all current BMW engines– has an **aluminum chain tensioner** that also saves weight. Instead of being a separate casting, the camshaft drive's housing is integrally cast into the magnesium structure, eliminating a production step and sealing components. As one final weight-reducing element, the **exhaust headers' flanges** are formed from 2-mm-thick steel, significantly lighter than the 12-mm flanges used previously; for a secure seal of this steel to the aluminum head, graphite rings are employed.

Electric coolant pump. A conventional engine coolant ("water") pump is driven by a belt, and always runs at a speed directly proportional to engine rpm. This innovation, **another world's first**, is electrically driven and electronically controlled according to the

engine's coolant and oil temperatures at any moment. Thus it runs only as much as needed, and in doing so consumes a maximum of 200 watts vs. up to 2 kilowatts (10 times as much) for a conventional pump. This pump has further benefits:

- By requiring less power, it contributes to the engine's increased power output.
- Faster engine warmup, because it doesn't circulate coolant when the engine is cold.
- Provides coolant circulation for the Heat-at-Rest feature now included in the climate control. (With a conventional coolant pump, this needs a separate electric pump.)
- By eliminating an external drive belt, makes the engine shorter.

Variable-volume oil pump. Conventional oil pumps, too, deliver oil in direct proportion to engine speed. In order to supply the VANOS system (which employs oil pressure to vary valve timing) at all speeds and temperatures without excess capacity at high engine speeds, BMW engineers developed a new type of oil pump. By varying the output of its pump element according to engine oil pressure, the engineers achieved a pump that always delivers sufficient pressure to lubricate the engine and operate VANOS, yet never pumps more oil than is necessary. Thus it –

- Contributes to usable power, by requiring less power from the engine.
- Doesn't require a bypass to divert excess flow, which can be up to 80%. This also avoids possible excess oil temperatures and oil foaming.

Oil/coolant heat exchanger. Another feature that speeds engine warmup; during this phase it transfers heat from the coolant to the oil circuit. Under conditions of high engine power and high oil temperatures, it performs the reverse, transferring heat from the oil circuit to the coolant, from which the engine cooling system then removes excess heat.

325i and 330i: the two engine versions

In contrast to the initial European palette of 4-cylinder 320i, 6-cylinder 330i and 4-cyl. diesel 320d, the 3 Series launches in the U.S. with two models. Both use a 3.0-liter N52, equipped and calibrated for two levels of performance:

- **325i** – 215 hp @ 6250 rpm, 185 lb-ft. torque @ 2750 rpm
- **330i** – 255 hp @ 6600 rpm, 220 lb-ft. torque @ 2750 rpm.

Significant differences between the 325i and 330 engines are as follows:

- Whereas the 330i engine has the 3-stage induction system, the 325i unit has a single-stage intake manifold.
- Engine software differs between the two models.

Both engines meet U.S. ULEV2 (Ultra Low Emissions Vehicle) emission standards.

6-speed manual transmission

A 6-speed manual transmission is standard on both models. The new 330i continues with the Type H unit found in other current 3-liter models; the 325i introduces a new version, called the Type I. Compared to the already excellent earlier BMW manual transmissions, both units offer tangible customer benefits:

- Even more effective gear spacing for better responsiveness and efficiency
- Lighter and more pleasing feel as the shift lever is moved from gear to gear
- Firmer engagement of gear once selected
- Sportier shifting, via shorter shift “throws” from neutral to each gear
- Use of lifetime transmission oil, which never needs to be changed
- “Clean bearings” design for main transmission bearings; protects bearings from contamination, ensures adequate lubrication at all times and therefore enhances durability.

6-speed STEPTRONIC automatic transmission

With the new models, the 3 Series joins the 5, 6, 7 and X5 V-8 models in offering a 6-speed automatic. Compared to the 5-speed unit it replaces, it’s fully 10% lighter, has a more efficient torque converter, actually operates with fewer internal clutches, and can reduce fuel consumption, particularly at cruising speeds when 6th gear is in frequent use.

As in all other current BMW automatics, the STEPTRONIC feature offers drivers a choice of Normal, Sport and Manual modes. Park, Reverse, Neutral and Drive ranges (P-R-N-D) are in the shift lever’s right gate. The Sport mode, in which shifts occur at higher engine speeds, is engaged by moving the lever leftward from D; from here, the Manual mode is engaged when the driver manually chooses a gear by tipping the lever forward (for downshifts) or rearward (for upshifts).

6-speed Sequential Manual Gearbox

Available on the 330i as of September ’05 production, this is an electrohydraulically shifted, electronically controlled rendition of a 6-speed manual transmission, including an automatic clutch – a wholly different transmission from the STEPTRONIC automatic. There is no clutch pedal; the driver selects the desired mode (N, R, D, S) with a console-mounted selector lever, and can execute manual shifts via that lever or two “paddles” on the steering wheel. SMG fully preserves the performance of a manual transmission,

entails little or no penalty in fuel economy, and facilitates both automated and very sporty driving.

Features and characteristics of the SMG driver interface includes the following:

- A **Drive** mode (D) in which shifting is automated
- A **Sequential** mode (S) in which shifting is mostly driver-controlled
- A **Sport button** on the console, which selects the SMG Sport program
- An **instrument-panel display** of the gear currently engaged.

In D, shifts are automatic, programmed according to how the driver is currently driving; more aggressive driving effects shifts at higher speeds. D is not a substitute for the D of a fully automatic transmission, but rather a convenient operational mode for those times when the driver values ease of driving over maximum performance.

With S selected, the driver essentially controls all shifting by means of the shift lever or paddles –

- Tip lever or paddle(s) rearward = upshift
- Tip lever or paddle(s) forward = downshift

– with the following exceptions:

- If the driver takes the engine up to its rpm limit, SMG will automatically shift to the next higher gear.
- Upon deceleration, as the engine comes down to approximately 1100 rpm, SMG selects the next lower gear. When the vehicle comes to a stop, SMG selects 1st gear automatically; upon moving off, the driver again chooses each upshift.

Engaging the Sport program via a console button influences shifting as follows:

- In S, shifts occur more quickly (sharply).
- In D, shifts occur not only more quickly, but at higher road speeds. This is parallel to the Sport mode of BMW automatic transmissions.

An Acceleration Assistant function (also referred to as Launch Control) is available for very sporty driving: With Sport activated, the driver presses and holds the DSC button (on the dash) for 3 sec. or more, then presses the accelerator to the floor. The engine is automatically revved to the optimum rpm for a wheel-spinning start and the vehicle is “launched.” The Owner’s Manual cautions: “Do not use the Acceleration Assistant too frequently, as this could cause premature wear of the components.”

With all transmissions, a new generation of differential is employed in the 3 Series. Its main distinction is a new type of bearing, called “double angular-contact ball bearing.” These bearings reduce oil temperatures within the differential, with benefits for both function and durability. Power losses due to oil flow are reduced and gear design has been adapted to the new bearings, with the overall results that efficiency is increased (meaning a small increase in fuel economy) and durability is enhanced.

Improving on tradition: all-new chassis engineering

In concert with the new and more powerful engines, an all-new chassis brings the benefits of BMW’s double-pivot front suspension to the 3 Series for the first time. Completely new 5-link rear suspension further perfects the 3 Series’ unique blend of agility and stability; chassis/body rigidity has been further improved, and run-flat tires are standard across the board. Four-wheel ventilated disc brakes have been refined extensively, and a new-generation Dynamic Stability Control adds an array of new functions.

Double-pivot front suspension. Though familiar from BMW’s larger models (5, 6 and 7 Series as well as the X3 and X5 Sports Activity Vehicles), the double-pivot front suspension concept is new to the 3 Series. It is a more elaborate system than that of the existing 3 Series, featuring two lower arms (hence the appellation “double-pivot”) that work in concert with the spring/shock-absorber strut. The system provides –

- **Small positive steering offset**, for best steering feel and control under all road conditions. The two arms don’t actually intersect; if their axes are extended to a point where they intersect, you find a “virtual pivot point” that is ideal for achieving this result. Steering offset is the “lever arm” through which road forces act on the suspension system.
- **Large steering caster**, for outstanding stability in straight-line driving and excellent steering return action coming out of curves.
- **Space for large brakes**, by virtue of the arrangement of the two lower arms.

Further advantages are found in the details:

- **The trailing (forward) lower arm** has a rubber/hydraulic cushion, which provides highly effective “compliance” for enhancing riding comfort.
- **The transverse (rearward) lower arm** is cushioned by a finely tuned rubber element that fosters direct and precise steering response in curves and corners.

- **Extensive aluminum componentry** for low unsprung weight. This improves the suspension's response to bumps and other road irregularities; it can markedly improve riding comfort and, on any irregular road surface, handling as well. Aluminum components on each side include –
 - Both lower arms (forged aluminum)
 - Steering knuckle (also forged)
 - Brake caliper (not part of suspension, but part of unsprung weight)
 - Brake shield (a stamped piece; also not part of suspension, but part of unsprung weight).

In addition, the subframe that carries the front suspension is of aluminum, as is the steering rack; these are not unsprung, but do contribute to overall weight reduction – and being up front, also to the “typical BMW” near-50/50 weight distribution. The new aluminum subframe adds rigidity, enhances steering precision and is also an integral element in the vehicle's management of energy in a frontal crash.

The previous 3 Series' aluminum components were its single lower arm and brake shield; thus there is now more extensive use of aluminum. All things considered, the new front suspension enhances the 3 Series' already legendary road qualities.

New 5-link rear suspension

In its concept, this brand-new system could be described as a double-A-arm system with an additional lateral track rod; the upper and lower A-arms actually consist of two links each, their vertical positions differing. (This is analogous to the front suspension's dual lower arms.) Advantages are extensive:

- As at the front, there is a virtual pivot point for each pair of links, giving the engineers similar freedom in optimizing the system's geometry for best handling. Also as at the front, the axis connecting these virtual points is configured to ensure that driving, braking and road forces all act effectively on short leverage. The result is very precise handling, especially insensitive to road disturbances.
- Under cornering forces, the system controls geometry in such a way as to achieve great agility while also ensuring predictable, stable handling. These are fundamentally contradictory qualities; the degree to which they are mutually achieved is a measure of a suspension's excellence.

- Contributing to this outstanding geometry is the wide and rigid basis on which the rear tires are “planted” on the road. The lateral links are extremely rigid too, as is the subframe.
- For the first time, all suspension links connect to the subframe; no longer does any link pivot directly from the body structure. This further reduces any effects of road irregularities on passenger comfort, and improves handling precision as well.
- Here too, a large and elaborate subframe contributes to energy management in a crash – including the more severe rear-end impact that the E90 has been designed to withstand. (See **engineering and features**).

As always with BMWs, the final drive (differential) is also mounted to the subframe through rubber, creating acoustic decoupling that minimizes the transmission of driveline noises into the body. Widely spread mounts to the body, in an area where the body structure is particularly rigid, further help optimize the combination of handling precision and riding comfort.

The rear suspension system, subframe and brake calipers are all of steel. BMW’s decision to employ aluminum extensively at the front, but not at all at the rear, relates to BMW’s typical ideal weight distribution of nearly 50% front/50% rear.

Steering: evolution standard, revolution optional

The 3 Series’ engine-speed-sensitive variable-assist power rack-and-pinion steering system has generated universal praise; an auto magazine once described it as “nearly telepathic.” This standard steering system continues essentially unchanged, although with a somewhat less direct overall ratio of 16.0:1. Yet numbers don’t always tell the entire story, for the new suspension and subframe have actually sharpened the new models’ reaction to steering inputs.

The “revolution” here is the newly optional **Active Steering**, previously available only on the 5 and 6 Series. For details on Active Steering, offered as a stand-alone option and incorporating evolutionary refinements, see **options**.

Ventilated disc brakes: upgraded dimensions, new technology

The brakes continue with ventilated cast-iron rotors all around, and aluminum calipers at the front as a contribution to balanced weight distribution. Braking power has been enhanced by larger diameters:

325i – rear discs upgraded from 294 mm/11.6 in. to 300 mm/11.8 in.; front discs remain at 300/11.8.

330i – front discs upgraded from 325 mm/12.8 in. to 330/13.0; rear discs upgraded from 320/12.6 in. to 336/13.2.

A new Geomet steel coating eliminates rusting on portions of the rotors not swept by the brake pads. And in the context of Condition-Based Service, which comes to the 3 Series for the first time, there are separate front and rear wear sensors via which the mileage remaining on the front and rear pads can be displayed and appropriate service scheduled.

New-generation Dynamic Stability Control: remarkable new braking functions

All BMW models are standard-equipped with Dynamic Stability Control, which provides a wide range of traction and stability functions.

While retaining all these functions, a new-generation DSC system, appearing for the first time in the new 3, adds a wide array of customer-relevant functions that make driving even safer and more pleasant. They are:

- **Fading Compensation.** Brake fade occurs as the brakes heat up under hard use; a given degree of deceleration requires more pressure on the brake pedal. As brake temperature rises, Fading Compensation automatically compensates by increasing the hydraulic pressure relative to pedal force.
- **Brake Standby.** When the driver lifts off the accelerator pedal abruptly, DSC recognizes that sharp braking may be about to occur and applies just enough pressure in the brake system to snug up the pads against the rotors. Thus when the driver's foot reaches the brake pedal, the short lag time normally resulting from bringing the pad to the rotor is eliminated; the reduced stopping or deceleration distance could reduce the likelihood of an accident.
- **Brake Drying.** Acting on input from the rain sensor (an element of the standard rain-sensing windshield wipers), the pads are periodically brought up to the rotors – just enough to eliminate any film of water between pads and rotors, but not enough to cause a brake application.
- **Soft Stop.** Especially with an automatic transmission, unless the driver consciously eases off on the brake pedal, a jerk can occur as the vehicle comes to a stop. Soft Stop automatically eases off, making for smoother stops.
- **Start-off Assistant.** Keeps the vehicle from rolling backward when stopped facing uphill. The driver can then start up without doing a ballet with the clutch, brake and

accelerator (manual transmission) or doesn't have to hold the accelerator or brakes while stopped on a hill (automatic transmission).

- **Modulated ABS function.** Thanks to new "analogized" control of the DSC brake valves, the anti-lockup function (ABS) is smoother. Instead of simply being fully on or off, the application and release of these valves are now modulated.

All-new wheel designs; all-season or performance tires, all run-flats

Maintaining a BMW tradition, each model offers a choice of standard or Sport Package wheel-and-tire equipment. Fresh wheel designs complement the new body design; standard 330i wheels and tires are wider than before. Differentiated front/rear sizes are part of the 325i Sport Package for the first time; the 330i's Sport Package includes 18-in. wheels for the first time and continues with differentiated front/rear sizes. For details on wheel designs, wheel and tire sizes, tire type and tire speed ratings, see **standard & optional features**.

Every new 3 Series Sedan comes with BMW's run-flat system, which consists of self-supporting tires and wheel rims shaped to help keep a flat tire securely in place. In their design and construction, the tires are distinguished primarily by their sidewalls, which include specific inserts and highly heat-resistant rubber compounds. These features allow a deflated tire to maintain its essential shape and guidance characteristics for a considerable distance, so that when confronted with a flat tire the driver can continue on until reaching a convenient and safe place to have the tire repaired or replaced. All functions of Dynamic Stability Control remain fully active.

A Flat Tire Warning system is newly standard on the new 3 Series Sedans. Until now, it came with the run-flat option on the 330i Sedan; this feature was (and remains) standard on 3 Series Coupes and Convertibles, which continue as '05 models.

The new 3 Series Sedans have no spare tire. Under the trunk floor is a deep compartment providing about 1.75 cu ft. of additional storage space.

The new exterior design: 3 Series tradition, newly expressed

The E90 3 Series consistently reflects the new direction set by BMW design with the 7 Series in 2002 and evolved with the new 5 Series in '04. At the same time, the new 3 is true to its heritage, radiating the dynamic presence that has increasingly characterized this Series with each new generation.

At the front. A face with strong character, radiating agility and alertness. Distinctively formed headlight units, with the traditional four beams behind clear covers, wrap around decisively and taper to a precise point, emphasizing in the front view the vehicle's width and in profile its short front overhang. With the Xenon Adaptive headlights (optional 325i, standard 330i), BMW's distinctive and popular luminous rings function as the parking lights and also illuminate when the headlights are on.

In profile. There is much "swing" in the side view. The hood cut line slopes upward, becomes the beltline and continues on past the C-pillar. A strong character line corresponds to that of the previous 3 Series, but sets up a stronger convex/concave intersection. Taillights that wrap well around into the body sides create an esthetic "punctuation" while enhancing visibility of the vehicle from the side.

At the rear. No less eye-catching than the other views, the rear aspect has its own interplay of interesting surfaces. A graceful arc connecting the taillights' edges through the integral spoiler's lower edge is at the top; the top of the spoiler is the continuation of a line that begins in the C-pillar. Below the spoiler, the surface goes concave toward the license-plate recess. The trunk's outer edges sweep down into the bumper, making a conveniently low loading height also a visual treat. Functional/esthetic shapes are sculpted into the lower bumper area to help organize airflow at the back of the vehicle. The taillights' red sections – including BMW's Adaptive Brake Lights and segments that illuminate amber when the turn signals flash – recall a recent but popular BMW tradition, the L-shape first seen in the '88 7 Series.

Aerodynamics. At 0.30, the U.S. models are a "point" better than the previous Sedans' 0.31. The overall shape is calibrated to maintain low aerodynamic lift at higher speeds; a visually interesting and also functional sharp edge at the taillights' corners helps ensure efficient airflow at the rear.

Improved corrosion-proofing and paint processes

In preparing to produce the new 3 Series, BMW has further developed its rustproofing and paint processes. The refinements include:

- **Body shell now virtually fully galvanized**, for further enhanced corrosion resistance. Standing behind this claim is BMW's Rust-Perforation Warranty, which was recently upgraded to 12 years/unlimited mileage.
- **Pre-paint preparation further improved.** Bodies for the new 3 are cleaned and prepared for priming in a new 12-zone process.

- **Rotation dipping** is used in both pre-paint preparation and primer application. This improves the cleaning process, and means that primers and corrosion-proofing coats reach even more fully into the body's nooks and crannies.

All this means that more than ever, the beauty of this new 3 Series will be satisfyingly durable.

Ergonomics and luxury: more space, enhanced functionality, new elegance

In addition to greater space, the new 3 Series interior offers reduced noise levels, improved climate control and a host of new features – standard and optional – that enhance luxury and convenience. And the design of this new interior is just as fresh as the exterior.

As always in BMWs, the driver enjoys his or her experience at the wheel partly because BMW has designed the interior to optimize that experience. All operational and informational elements essential to driving are grouped on and around the steering wheel; although many aspects of the control layout are updated, the most central informational element remains the traditional pair of round analog instruments directly in front of the driver.

Like the exterior, the new interior design presents a visually appealing interplay of convex and concave surfaces. The instrument panel has a new, more horizontal format with a larger expanse of trim material, which as in '05 is elegant wood. Also as before, standard leatherette upholstery comes in Black or Beige; there are four colors for the optional leather. Detail trim elements are in the "galvanic" finish that has recently appeared in other BMW Series: Pearl-gloss metallic-coated material for the instrument rings and the new Start/Stop button are examples of this material.

Door design is new and elegant. A sharp eye will note that the two front door panels differ: On the passenger side there's a sloped vertical door pull; on the driver's side, where the power-window controls are newly grouped on the armrest, the door pull is integrated into that armrest. Both front doors include large storage bins.

In a choice exclusive to the 3 Series, the instrument panel is offered in two forms: standard, with a single hood above the main instrument cluster; and optional, with a double-wave theme creating a second hood over the optional Navigation/iDrive control

display. With the latter configuration, there is also the iDrive controller between the front seats.

Control strategy: an overview

The control layout encompasses familiar and new elements:

- **Start/Stop button**, new to the 3 Series.
- **“Keyless” remote**, dispensing with the conventional key. The user actuates buttons on the remote to lock or unlock the vehicle, and inserts the remote itself into the ignition switch.
- **Manual tilt/telescopic steering wheel**, a familiar feature with its release lever newly located on the left side of the steering column. Both steering wheels, standard and sport, are new 3-spoke designs.
- **Traditional pull-up handbrake**, a sporty element of all 3 Series BMWs.
- **Driver orientation** of the control center, though not quite to the extent of the predecessor Series. This new “light” orientation of the center dash area toward the driver accommodates the Navigation/iDrive control display, which is accessible to the front passenger as well as the driver.
- **Cruise control** on a steering-column stalk, serving the Dynamic Cruise Control, which has the new capability of gently applying the brakes if necessary to maintain the set speed. Also new: The speed setting is indicated in two ways: digitally in the instrument cluster when first set, analog on the speedometer face.

New automatic climate control with many enhancements

Though the existing 3 Series has excellent automatic climate control, the new models’ system moves to an even higher level of performance, sophistication and features. New features include –

- **Separate left and right temperature controls** vs. the predecessors’ single temperature control.
- **Temperature- and volume-controlled rear air outlets** that give rear passengers greater control over their environment.
- **Climate-controlled center console compartment**, as in the 5 and 7 Series.
- **Mist sensor**. Via the windshield wipers’ rain sensor, misting of the windshield is sensed visually and system operation adjusted automatically to clear it up.
- **Heat at Rest**. Allows heating the interior for a limited time with the engine off. This feature, familiar from larger BMW models but new to the 3 Series, is facilitated by the engine’s electric coolant pump.
- **Maximum a/c setting** for rapid cool-down at a single touch of a button.

- **Dramatically increased blower power**, 9.0 kilograms of air per minute vs. 6.5 before. This means not only increased maximum cooling or heating power, but also quieter operation at the normal blower speeds that are now a smaller proportion of maximum.
- **Further optimized design of ducts and outlets**, also reducing airflow noise.
- **Automatic reduction of blower speed** when vehicle comes to a stop, for yet another reduction in noise.
- **Indirect airflow** via outlets atop the dash. These outlets are for pleasant, draft-free climatization, not defrosting or demisting.
- **Recall of individual users' settings** via Key Memory:
 - Temperatures
 - Manually selected air distribution (windshield, body-level, footwells)

Other thoughtful features continue from the previous system:

- Active-charcoal microfilter ventilation
- Bi-directional solar sensor for front compartment (takes into account the intensity and direction of solar heat in determining cooling of interior)
- Automatic recirculation control, with specific sensing capability for diesel exhaust.

All in all, this is a significantly upgraded system and one of the best on the market. And its combination of soft-touch keys for mode and function selection and rotary knobs for the dual temperature controls is convenient and logical.

Two models, two audio systems, two subwoofers

As before, two audio systems are offered. One is the 10-speaker system that's standard in the 325i; the other is the acclaimed 13-speaker Logic 7 system – optional in the 325i, standard in the 330i and making its 3 Series debut. Both systems include two subwoofers in BMW's patented positions, in cavities at the bases of the B-pillars (generally referred to as "under the front seats"). The systems are newly MP3 CD-capable, including ID3 tag display of artist and song information in the MID.

Both systems continue with BMW's reception-enhancing diversity antenna system; a fin-type roof antenna serves the phone system and/or GPS navigation, as well as the GPS aspect of the available BMW Assist telematics system. The housing for this antenna also accommodates an antenna for Sirius Satellite Radio, which becomes a factory option in the 3 Series for the first time. See **options** for details.

To the 10 speakers of the 325i standard system, Logic 7 adds a center-fill speaker to the instrument panel and two midrange speakers in the rear doors; all speakers are upgraded. Logic 7's digital Surround Sound process provides uniquely realistic reproduction, generating a 360° sound field and accurately re-creating the acoustic intent of the original studio master.

Upholstery and trim: standard wood, optional leather

Leatherette upholstery is standard in both models; leather is available in four colors, two of them new. Wood interior trim had been made standard in the '05 model year and remains so: dark Burl Walnut is the standard wood; lighter-tone Poplar Natural Wood and Aluminum trim are available as no-extra-cost options. Following a lead set by the 5, 6 and 7 Series, new "galvanic" trim appears on the instrument and Start/Stop button outer rings and several other interior detail elements; this "pearl-gloss" material has a plastic core, with a true metallic surface applied galvanically in several layers and a clear top coat to protect against corrosion.

Seating choices, including sport seats with adjustable backrest width

Height-adjustable, 6-way manual front seats are standard in the 325i; 8-way power seats are optional in the 325i and standard in the 330i. New are available sport seats with adjustable backrest width – a feature BMW first introduced in the M3 Coupe, and included in the multi-adjustable Comfort seats that are available in the 5 and 7 Series. Available in both models are split folding rear seats and an interior-to-trunk pass-through with ski bag.

New seating choices are only one amenity among the many enjoyed by drivers and passengers in the new 3 Series. Others include –

- Available auto-dimming interior **and exterior power folding** mirrors, the latter offered on this Series for the first time.
- A standard 2-way power moonroof with more opening area than before.
- Voice Command, included in the Navigation/iDrive option.
- Available Bluetooth interface for compatible cellphones, available in conjunction with BMW Assist.
- Front and rear overhead consoles, both including separate left/right reading lights, BMW Ambiance Lighting and other features. Predecessor models had an overhead console and Ambiance Lighting only at the front.
- Front footwell lighting
- A fold-up rear center armrest.

A roomier trunk

Elimination of the spare tire and jack, possible because run-flat tires are standard across the board, has helped create approximately 12% more cargo space than before.

Moreover, the official EPA measurement on which this claim is based does not include a deep well under the trunk floor that encloses about 1.75 cubic feet and offers a place to store smaller objects without worry of their moving around when the vehicle is in motion.

Safety engineering and features: improving on a star performer

The existing (E46) 3 Series' safety performance has long been recognized by authoritative, independent observers:

- After conducting its own offset crash test of a 3 Series Sedan for its March 11, '99 issue, Germany's authoritative *auto motor und sport* magazine concluded, "Occupant protection by the new 3 Series is already at such a high level that only marginal improvements can be imagined."
- And in the U.S., the Insurance Institute for Highway Safety, after conducting its own crash test of the 3 Series Sedan, concluded simply, "A Best Pick."

In developing the all-new body/chassis structure, BMW's safety engineers set out not just to match, but to improve on, the predecessor's excellent safety performance.

Integrated into this overall goal were specific targets, including –

- Achieving 5 stars in the Euro-NCAP (New Car Assessment Program) offset frontal crash test
- Meeting the new U.S. FMVSS (Federal Motor Vehicle Safety Standard) 301, which specifies a brutal 50-mph rear-end offset crash. The impact is taken by 70% of the test vehicle's width; not only must stringent injury criteria be met, but the fuel system must remain free of leaks.
- Meeting the new IIHS (Insurance Institute for Highway Safety) "SUV side-impact" test, in which an impact from a tall vehicle at 50 km/h (31.1 mph) is simulated. In the case of the 3 Series, the entire impact occurs above the side sill (rocker panel).

Various engineering approaches toward the new 3's even higher-performing structure included:

- Use of **new high-strength steels** in the large-section structural elements.
- Targeted application of **new types of steel**, including multi-phase types, at various points of the structure to promote effective energy management.

- Developing and improving **energy paths** by which the immense forces of frontal crash impacts are led through the structure and dissipated. Here, the engineers concentrated on optimizing the interaction between front-end deformation and the ability of the passenger space to remain intact. For severe frontal collisions – especially offset, when one side of the vehicle takes the brunt – they found ways to transfer the forces into the other side, so that the more heavily impacted side doesn't have to absorb all the forces. This helps protect the all-important foot space for front-seat occupants. The resulting extremely high energy-absorption capability is the basis for keeping the passenger space intact – and for optimum calibration of safety systems such as safety belts and airbags.
- In **side impacts** as well, the structure is similarly designed to transfer impact energy to the side away from the impact. Here the IIHS's "SUV test" raised the bar for occupant safety in severe side collisions. Elements that manage this massive impact energy include the –
 - floor structure
 - doors, which retain BMW's effective interlocking door anchoring system
 - reinforced B-pillars
 - dash structure, which functions as much more than just a carrier for instruments, climate control, etc.
 - roof framing.
- In **rear-end impacts**, the deformable area consists of –
 - two longitudinal structural members
 - the trunk floor and lid
 - the trunk's side walls, as integral elements of the overall body-side structures
 - various additional reinforcements.

Here, the engineers worked to ensure that even in the radically severe offset rear-end crash specified by FMVSS 301, the passenger space would remain intact, the doors could be opened and the fuel system would still be sealed.

The structure is virtually fully galvanized, enhancing its corrosion resistance and thus helping preserve its strength and energy-management capabilities over the years.

New Head Protection System. This is the first front-to-rear Head Protection System to be offered in the 3 Series; now all BMW Sedans have this feature. In contrast to the 5 and 7 Series' inflatable-tubular/sail system, the 3 Series employs a curtain-type system, which takes up less space in the headliner – a key advantage for the compact 3 Series Sedan. Like the tubular system, BMW's curtain-type HPS can remain inflated for several

seconds after the initial impact and deployment (which takes just 20-22 milliseconds), an especially important function in case of rollover.

New seat-mounted front side-impact airbags. The 3 Series is BMW's first to employ seat-mounted side-impact airbags, as opposed to the door-mounted type of the predecessor and other current Series.

In their function of protecting occupants' pelvis and thorax regions in side impacts, the seat-mounted airbags are equal to the door-mounted type, but offer greater freedom for the interior designers to achieve their functional and esthetic goals:

- Because the airbag is always positioned exactly the same relative to the occupant regardless of seat adjustment, it can be smaller.
- Door-panel design can be further optimized with respect to esthetics and placement of functional elements.

Rear side-impact airbags not offered. BMW has offered rear side-impact airbags as an option at nominal cost in most models, giving customers the choice of having them or not. With the new 3 Series, advances in side-impact safety are such that it is no longer necessary to offer rear sidebags. Those riding in the rear are appropriately separated from side impacts, without having to make a decision that can be difficult.

Further optimized front-impact airbags. In recent years, BMW front-impact airbags have been intensely developed to optimize their 2-stage, accident-severity-dependent deployment characteristics, inflated shape, and interaction with surrounding surfaces and components.

In this last regard, a subtle evolution took place with introduction of the 6 Series and is also evident in the new 3 Series: The passenger's-side airbag involves no visible "break line" in the dash surface; at the same time, the (invisible) airbag opening was configured to optimize the airbag's unfolding sequence and protective capability.

Automatic safety-belt tensioners and force limiters front and rear. Long standard on BMW front safety belts, these features now enhance the outboard rear belts' effectiveness as well.

New occupant-detection sensor. BMW has long employed a sophisticated electronic control strategy for managing the deployment of airbags and safety-belt tensioners. This approach to optimal effectiveness of safety systems now becomes even more precise, thanks to a new sensing mat in the front passenger seat. Called OC3, the mat is more highly sophisticated than its predecessor; it measures the weight and analyzes the pressure distribution of the occupant in order to distinguish between an adult and an infant in a child safety seat.

New features for protecting the driver's feet and knees. Two measures have been taken to reduce the likelihood of injuries to the driver's feet and legs:

- The footrest is designed to crush under the force of the driver's left foot in certain frontal impacts, so that the full impact force is not transmitted to his or her foot and leg.
- The Mastervac (brake master cylinder) is mounted so that as the front end deforms, it rotates, and with it the brake and clutch pedals. The pedals move forward, canceling much of the force transfer to the driver's feet and legs if they are on the pedals.

Options: an expanded range offers new and appealing choices

The program of factory options for the new 3 Series Sedans is notable not only for its extent and variety, but also because many features formerly available only on or in the "higher" 5, 6 and 7 Series now become available in this more accessible Series. Among these are a 6-speed automatic transmission, Active Steering, Active Cruise Control, Comfort Access, window sunshades for the rear and rear-door windows, Xenon Adaptive headlights, iDrive, Voice Command, the Logic 7 audio system and factory-installed Sirius Satellite Radio. **Features new to the 3 Series are denoted with an asterisk.**

Packages:

Premium Package. Adds familiar and new features to both models:

- Leather upholstery
- 4-way power lumbar support on the front seats
- Auto-dimming exterior* and interior mirrors
- Power folding* exterior mirrors
- Digital compass* in the interior rearview mirror
- BMW Universal transceiver, a 3-function remote for garage doors and other external devices
- BMW Assist, BMW's comprehensive system of customer services and in-car telematics.

- Bluetooth cellphone interface (connects vehicle phone features with approved cellphone models)

For the 325i model, this Package adds features that are standard on the 330i:

- Power front seats
- Auto tilt-down feature for the right-hand exterior mirror (mirror tilts down when reverse gear is engaged).

Sport Package. Accents the inherently sporty handling, esthetics and ergonomics of these archetypal sports sedans. Included are:

- Sport suspension, consisting of firmer springs, shock absorbers and anti-roll (stabilizer) bars as well as a 15-mm (0.6-in.) lowering of the vehicle.
- Sport wheels and tires in distinctive designs and differentiated front/rear sizes:
 - 325i – 17 x 8.0 front/17 x 8.5 rear wheels with 225/45R-17 front / 255/40R-17 rear V-rated run-flat performance tires
 - 330i – 18 x 8.0 front/18 x 8.5 rear wheels with 225/40R-18 front / 255/35R-18 rear W-rated run-flat performance tires
- Sport seats with power-adjustable backrest width*. Depending upon model and other equipment choices, the other seat adjustments can be manual or power.
- 3 spoke sport steering wheel
- 155-mph top-speed limiter, instead of the standard 130-mph limiter.

Cold Weather Package. Identical for both models, this Package includes –

- High-intensity headlight cleaning system with retracting jets
- Heated front seats, with expanded heating area* and (in combination with the Navigation/iDrive option) variable heating balance between different portions of the seats*.
- Split folding rear seats
- Ski bag, for carrying skis and other long objects “indoors.”

Stand-alone options:

6-speed* STEPTRONIC automatic transmission. Until now, 3 Series automatic transmissions have been 5-speed units.

6-speed Sequential Manual Gearbox (SMG) – available as of September '05 production, on 330i only; requires Sport Package.

Active Cruise Control*. Employing a radar sensor unit at the front of the vehicle, ACC senses the speed of vehicles traveling ahead, adjusts the BMW driver's speed to maintain following distance, and offers the driver additional control choices over the standard (and new) Dynamic Cruise Control.

Active Steering*. Exclusive to BMW in the U.S.; offers heretofore unheard-of benefits:

- Widely variable steering ratio; steering-wheel movements for parking maneuvers, U-turns and sharp corners are greatly reduced for amazing agility. With increasing vehicle speed, the steering becomes “slower,” favoring stability over agility.
- Vehicle stabilization; in critical situations, can intervene to preserve stability. For example, if the driver applies the brakes while driving on a surface with uneven traction (one side of the road slick, the other grippy), Active Steering can recognize incipient instability and steer against it.

Park Distance Control employs ultrasonic sensors in the rear bumper to detect obstacles that may not be visible to the driver, and emits an acoustic warning. When combined with the Navigation/iDrive option, PDC includes a vehicle diagram in the iDrive display*, which graphically depicts obstacles' locations.

Xenon Adaptive* headlights with auto-leveling. Stronger, daylight-like illumination; headlights “steer” to enhance the driver’s view around curves and corners. Standard on 330i.

Comfort Access*. Eliminates the need to activate a remote to unlock or lock the vehicle, or to insert it into the dash slot before starting the engine. The user enters the vehicle merely by pulling a door handle; mere presence of the remote (say, in the user’s pocket or purse) confirms that the user is authorized. The driver starts the engine by pressing the Start/Stop button. Upon leaving the vehicle, the user need only press a door handle to lock the vehicle. Available as of 9/05 production.

Leather upholstery is available as a stand-alone option, in addition to being part of the Premium Package. New, more luxurious Dakota* leather.

Alternate interior trims at no extra cost: in place of the standard dark Burl Walnut Wood*, buyers can choose lighter Poplar Natural Wood* or Aluminum trim with a brushed effect*.

Power front seats and memory system. In addition to being part of the Premium Package, available as a stand-alone option for the 325i. The option includes automatic tilt-down of the right exterior mirror for reversing.

Heated front seats as a stand-alone option (also in Cold Weather Package).

Split folding rear seats and ski bag as a stand-alone option (also in Cold Weather Package).

BMW On-board Navigation System/iDrive*. With this option, the instrument panel gains a “second wave” that houses the iDrive monitor; the iDrive controller is on the center console. The comprehensive system includes –

- 8.8-in. Control Display (color monitor), high-resolution 640 x 240 pixels

- Controller with Force Feedback (incorporates tactile feedback into controller movements)
- GPS Navigation with DVD database
- Voice Command system.

The four main-menu choices are:

Communication – phone functions, BMW Assist and certain TeleService functions.

Entertainment – radio, Sirius Satellite Radio when present, and CD functions. If the optional Logic 7 audio system is present, this menu also leads to its Surround Sound effect and Digital Sound Processing.

Climate – Functions beyond those provided via hard controls include heating balance for the available heated front seats, and (for when the car is parked) automatic ventilation.

Navigation – GPS Navigation, on-board information, trip computer, speed limit and stopwatch.

Additionally, the **i-menu** (reached by pressing the controller while in the main menu) offers choices for vehicle display and control settings as well as vehicle service. Here, under the Condition-Based Service menu option, one can observe the remaining miles to selected service and maintenance procedures, as well as legally mandated inspections. (Examples: front and rear brake pads, brake fluid, sparkplugs, engine coolant.) Under

TeleService, key vehicle data are transmitted automatically to the BMW center when the Condition-Based Service sensors detect an upcoming service need, or manually when the driver activates the Service Request button under BMW Assist in the control display. The BMW center then contacts the customer to set a service appointment.

Sirius Satellite Radio. Formerly available as a BMW center-installed accessory, this appealing path to entertainment, news and information channels is newly available as a factory option. A subscription fee is required for Sirius service. The first year of service is included in the option price.

Logic 7* sound system, with 13 premium speakers, Surround Sound, Digital Sound Processing; standard in 330i, optional in 325i.

Power rear-window sunshade with manual rear side-window shades*. The power rear-window shade is controlled from a console switch; the side-window shades are easily raised or lowered by rear-seat passengers.

BMW Assist: extra security and convenience for the BMW owner

This comprehensive program of safety- and convenience-oriented customer services is available as part of the Premium Package, or as a stand-alone option.

The in-vehicle equipment for BMW Assist includes GPS technology and SOS/Assist functions in the front overhead console. Vehicle occupants may request emergency or other services simply by pressing a button; the BMW Assist system then transmits the location and vehicle information to the BMW Assist Response Center. A response specialist will then speak with the occupants to coordinate dispatch, notify emergency contacts on file, and link BMW Roadside Assistance or emergency services as needed and requested. Deployment of an airbag automatically activates BMW Assist as well.

A year's subscription to BMW Assist is included with the option; after the initial year, there is an annual fee. In addition to the safety-related benefits, subscribers can call a toll-free 800 number to avail themselves of many BMW Assist Concierge services, from travel planning to dining reservations, shopping assistance and event tickets.

Like all current models, each 3 Series vehicle is covered by BMW's 4-year/50,000-mile limited warranty and continues to come with the a 4-year/50,000-mile Full Maintenance Program for convenience, peace of mind and economic benefit.

Performance with a conscience

BMW strives to produce its motor vehicles and other products with the utmost attention to environmental compatibility and protection. Integrated into the design and development of BMW automobiles are such criteria as resource efficiency and emission control in production; environmentally responsible selection of materials; recyclability during production and within the vehicle; elimination of CFCs and hazardous materials in production; and continuing research into environmentally friendly automotive power sources. Tangible results of these efforts include the recycling of bumper cladding into other vehicle components; water-based paint color coats and powder clear coats; near-future availability of hydrogen-powered models; and various design and engineering elements that help make BMWs easier to dismantle at the end of their service life.

BMW Group In America

BMW of North America, LLC has been present in the United States since 1975. ROLLS-ROYCE Motor Cars NA, LLC began distributing vehicles in 2003. The BMW Group in the United States has grown to include marketing, sales and financial service organizations for the BMW, MINI and ROLLS-ROYCE brands; DesignworksUSA, an industrial design firm in California; a technology office in Silicon Valley and various other operations throughout the country. BMW Manufacturing Co., LLC in South Carolina is part of BMW Group's global manufacturing network and is the exclusive manufacturing plant for all Z4 Roadster and X5 Sport Activity Vehicles. The BMW Group sales organization is represented in the U.S. through networks of 340 BMW passenger car centers, 327 BMW Sports Activity Vehicle centers, 148 BMW Motorcycle retailers, 80 MINI passenger car dealers and 25 ROLLS-ROYCE Motor Car dealers. BMW US Holding Corp., the Group's sales headquarters for North, Central and South America, is located in Woodcliff Lake, New Jersey.

Information about BMW Group products is available to consumers via the Internet at <http://www.bmwusa.com> <http://www.bmwmotorcycles.com> and <http://www.miniusa.com>

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