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Contact:

THE NEW BMW 5 SERIES GRAN TURISMO

A unique blend of style, space, luxury and sportiness.

Woodcliff Lake, NJ - May 23 2009... The BMW 5 Series Gran Turismo adds new facets to BMW's Ultimate Driving Machine tradition and refines the concept of first-class travel. For the first time, attributes of an elegant sedan, a contemporary Sports Activity Vehicle and a classic Gran Turismo are masterfully melded into a single, harmonious vehicle concept.

The traditional European term Gran Turismo (Grand Touring) was first applied by Italian carmakers in the 1950s when they combined the performance, handling, and style of a 2-seat sport car with luxurious amenities and luggage room for each occupant. BMW's new Gran Turismo nurtures this tradition in its own contemporary way, providing exceptional space, style, luxury, and comfort for four passengers[1], plus the performance and driving pleasure of a BMW.

It does so with 21st-century performance. BMW's wide-ranging EfficientDynamics initiative endows this new automobile with an outstanding balance between performance and efficiency. Thanks to its innovative twin turbo V-8 engine and 8-speed automatic transmission, the 550i Gran Turismo can accelerate from rest to 60 mph in just 5.4 seconds, yet delivers remarkable fuel efficiency in everyday driving.

[1] Standard configuration includes seating for 5 passengers.

Design: Abundant sportiness, elegance, luxury and versatility.

- Typical BMW proportions communicate dynamic character and sportiness.
- Long wheelbase and graceful, coupe-like roofline.
- An interior with contemporary design, generous dimensions and premium materials.

The BMW 5 Series Gran Turismo radiates a unique blend of sportiness and stylish presence. Typical BMW proportions, four doors with frameless windows, and a coupe-like roofline combine into a harmonious, highly distinctive silhouette that visually represents this vehicle's unusual blend of capabilities.

This vehicle's visual presence is a captivating fusion of established BMW identity and new elements. Its elongated hood and long 120.7-inch wheelbase coalesce with a "greenhouse" set well aft and a fastback roofline into a profile that's immediately recognizable as a BMW, yet at the same time communicates a new vehicle concept. From the first glance, it's clear that this is an exceptionally roomy conveyance, yet also a highly dynamic one.

Inside the 5 Series Gran Turismo, users find generous dimensions, inspired contemporary design, and individualized luxury. Sweeping contours – such as those of the interior door panels – combine with elegant and premium-quality materials to create an ambiance that's equally satisfying to front and rear occupants.

At the front: thoroughly modern, traditionally BMW.

The Gran Turismo's frontal aspect has a marked forward thrust, with its traditional BMW "kidney grille" leaning slightly forward and emphasized by its separation from the flanking (also traditional) four round headlights.

BMW's signature corona rings have taken on several functions: as parking lights, as an identifying element when the headlights are on, and as Daytime Running Lamps – this last with 100% of their lighting power, the other functions with just 10%. For the first time, on the Gran Turismo they employ LED technology.

In profile: frameless door windows and a new form of "Hofmeister Kink."

The 5 Series Gran Turismo is also the first 4-door BMW to have frameless door windows – a feature BMW usually reserves for Coupes and Convertibles. These give an "open" look to side and angled views of the vehicle.

Over the years, another window detail has become a tradition: BMW's so-called "Hofmeister Kink," named after Wilhelm Hofmeister, who headed BMW design when this shape first appeared. On the Gran Turismo, it appears in "6-window" (3 windows per side) form in the rear quarter windows aft of the rear doors, framed in matte black plus chrome or optional high-gloss Shadowline black trim.

At the rear: aesthetically and functionally distinctive

Another BMW design tradition, in evidence since a new-generation 7 Series was introduced for 1988 is the freely interpreted L-shape of the rear lighting clusters. On the 5 Series Gran Turismo this theme is retained but newly interpreted LED lighting wraps far around the body sides and provides yet another recognizable BMW design cue. Together, these elements reinforce the impression of the Gran Turismo's wide stance, which is further enhanced by strong horizontal lines spanning the bi-modal trunk and likewise tying in with character lines of the side profile.

Function, more even than the handsome aesthetics, is the main attraction of the 5 Series Gran Turismo's interesting rear view. Below the rear window is a conventional, though shorter-than-usual, sedan trunklid that opens separately to reveal a fully enclosed trunk – sealed off from the passenger cabin by a movable partition that renders the interior as quiet as that of a sedan.

To take full advantage of the 5 Series Gran Turismo's great cargo capacity, though, the liftgate – including the lower trunklid, rear window and an upper section reaching a few inches above the window – can also be opened. There are two releases, one for the trunklid alone, the other for the entire liftgate including trunklid.

Interior design: spacious luxury at its finest.

The BMW 5 Series Gran Turismo interior combines space, luxury and stylish materials to create a premium ambiance. In the rear seats as well as up front, there's a sense of generous space and comprehensive amenities, promoting relaxed and accommodating travel.

The outstanding feeling – and reality – of spaciousness is enhanced by design and materials. Dash and instrument panel lines are decidedly horizontal; door panels sweep dramatically and harmoniously from front to rear. Thanks to their frameless design, the door windows are larger than they would be with frames, adding to the openness of the remarkable cabin; the dual-panel panoramic moonroof, standard on the U.S. model, also contributes to these effects.

In standard form, the rear seating accommodates three passengers, with a 40-20-40 split of the backrest allowing for selective fold-down. In addition, the entire seat cushion can be adjusted 3.9-in. fore and aft and the individual backrest sections can be adjusted over a range of 15˚-33˚. Yet there's more here than just adjustability: there's also outstanding personal space, with legroom on the scale of BMW's 7 Series Sedan and headroom comparable to the BMW X5 Sports Activity Vehicle. Indeed, first-class comfort is afforded all occupants of the Gran Turismo.

Optional as part of the Luxury Rear Seating Package are individual, multi-adjustable power seats, separated by a center console with cupholders and a storage compartment; here the backrest range is 15˚-40˚ and even the fold-down function is powered. In addition to the power adjustments, a further attraction of this configuration is that it transforms the cabin into a sportier, strictly 4-seater configuration that some customers will prefer for its aesthetics, intimacy and greater luxury.

Accompanying the variable seating accommodations is variable cargo capacity, ranging from an already generous 15.5 cu ft. in the sedan-style enclosed trunk to fully 60.0 cu ft. (DIN rating) with folded rear seats and SAV-style long cargo floor. A variable partition between the trunk and passenger compartments provides occupants with sedan-type climate and noise insulation even when the trunk is being loaded, yet moves with the seats when they are adjusted and folds flat when the greatest capacity is needed.

Optimum outward view for the driver.

Thanks to its ideal front seat height, the BMW 5 Series Gran Turismo driver and front passenger enjoy excellent outward visibility. For comparison, the Gran Turismo's standard seat height from the ground is 22.6 in., vs. the previous-generation 7 Series' 20.8 and the X3's 26.6. In other words, the Gran Turismo seat is higher than the typical BMW sedan for easier access and an enhanced outward view, yet not so high as to require "climbing up." Rear seating is also slightly higher than in BMW Sedan models.

As in all BMWs, thoughtfully researched ergonomics allow for optimum operation of driving controls and other functions. All displays, knobs and buttons serving

comfort functions are situated centrally for use by the driver and front passengers; controls for the driver's use only are to the left of the steering wheel, on or near the steering wheel, or on the front center console. The steering wheel has power tilt and telescopic adjustment and tilt-away for exit and entry; and of course both front seats come standard with 10-way power adjustment including head-restraint height.

Instrument panel in Black Panel technology.

Like so many aspects of the 5 Series Gran Turismo, its instrument cluster combines BMW tradition with advanced, beautiful new executions. Here the entire cluster is in a high-resolution Black Panel display, in which four classic circular instruments are most prominent; other driving-relevant displays and readouts – including Navigation if present, vehicle-monitoring functions, upcoming service requirements and other information – also appear here in their various (and function-related) graphic forms. Climate-control settings and controls are located in a second Black Panel display in the center console stack.

So it is that the advantages of mechanical and electronic displays are ideally combined with eye-catching visual and graphic effects. As the user enters the vehicle, the circular instruments' "chrome rings," until now open at the bottom, close and become brighter. Once the ignition is activated (by pressing the Start/Stop button), the numerals plus all other displays and warnings illuminate. As the engine starts, functions that have been previously activated by the driver are then revealed as well.

4th-generation iDrive: more user-friendly, more intuitive, faster.

With the 5 Series Gran Turismo, BMW's all-new, 4th generation iDrive system appears in two versions: with 7.0-in. dimensions and 800 x 480-pixel resolution in standard form, or with the optional Navigation system, in a dazzling 10.2-in., 1280 x 480-pixel version with a wider range of features and functions as in the new BMW 7 Series. Displays are transreflective so that light from the sun actually enhances the images on the screen.

The instrument cluster interacts in new ways with the iDrive control display and the available Head-up Display. According to selected function, users can call up phone numbers or radio stations via the steering-wheel controls. The cluster display also augments iDrive's optional Navigation display with road-realistic directional instructions, helping the driver with to change lanes or turn at a complicated intersection. If the optional Head-up Display is activated, the relevant directions appear there.

Materials and colors: enhancing the elegance.

The choices of colors and materials further enhance the impression of personal luxury and the interior's interplay of lines and surfaces. For the dash's finely grained upper section, there are two colors depending upon the chosen interior color. Dakota leather is standard, and available in six color schemes of which three are new; BMW's luxurious Nappa leather is optional, and available in three color schemes.

Dark Burl Ash wood trim interior trim is standard, appearing in sweeping expanses on the dash, doors and front center console; Ash Anthracite (gray tone) and another distinctive wood called Fineline Matte are optional. As a special visual and tactile treat, ceramic trim is optional for the shift knob, iDrive controller surround, and audio and climate controls.

5. Powertrain.

The essence of EfficientDynamics.

- Twin turbo V-8 engine delivers 400 hp and 5.4 second 0-60-mph time, plus silken refinement and impressive fuel efficiency considering the performance.
- New 8-speed automatic transmission contributes to performance and fuel efficiency.

With the 5 Series Gran Turismo, BMW lays the cornerstone for a new type of automobile – while also demonstrating BMW's traditional mastery of an all-important aspect of automotive performance: the powertrain.

The Gran Turismo debut model is the 550i, powered by BMW's stunning 4.4-liter, 400-hp twin turbocharged V-8 engine. Compared to BMW's normally aspirated V-8, displacement is reduced from 4.8 to 4.4 liters, and incorporates twin turbochargers and High Precision direct injection. In quantitative terms, the new engine delivers 400 hp and does so over a range from 5500 to 6400 rpm. Maximum torque is 450 lb-ft., and available over the extremely broad range of 1800 to 4500 rpm. The result is greater power and torque delivered over a wide range of operating conditions with greater fuel efficiency. Aside from the dramatic thrust that drivers will notice subjectively, the objective data are dramatic too: 0-60 mph in just 5.4 seconds and a top speed when equipped with the Sport Package of 150 mph. For models equipped with all-season tires the maximum speed is limited to 130 mph.

Through its unique reverse-flow layout, the 550i's V-8 engine is able to achieve even higher performance without correspondingly higher fuel consumption. In technical terms, the approach involves some very new design details. For the first time, twin turbochargers and the exhaust-cleansing catalytic converters are

placed between the V-8's two cylinder banks. In turn, this required the exhaust camshafts and valves to be inboard so that the path from cylinders to turbochargers (which are driven by exhaust gas) would be efficiently short. A key benefit of this layout is a more compact engine package. This is the reverse of a traditional V-8 layout, and opens a new era of V-8 engine development potential.

A key feature of the engine is BMW's High Precision direct injection. Positioned centrally in the combustion chambers for optimum combustion, the injectors deliver fuel at very high pressures. To meet BMW's ambitious performance/efficiency/emissions goals with the necessary long-term durability, a "stack" of piezo crystals reacts lightning-fast to impulses from the Digital Motor Electronics, governing the injector needle's opening stroke and duration for ultra-precise control. This contributes 2-3% fuel savings and reduces emissions by 20%. The engine (also as featured in the new 7 Series and BMW X6) meets U.S. ULEV II (Ultra Low Emissions Vehicle) limits. And High Precision direct injection contributes to the acoustic presence of the engine.

Playing a supporting role: innovative new 8-speed automatic transmission.

The 5 Series Gran Turismo's innovative character is further supported by its all-new 8-speed automatic transmission, which brings smooth shifting, sportiness and efficiency to a new level of perfection. Compared to the exemplary 6-speed automatic offered in most current BMW models, the 8-speed's "taller" cruising gears make a significant contribution to reduced fuel consumption and carbon-dioxide emissions as well as quietness. And its wider spread of ratios from lowest to highest gear enhances acceleration and response across the range of driving speeds.

Technically speaking, this new automatic's attributes have been achieved via an innovative concept that provides the two additional ratios (7 and 8) with no increase in bulk or weight. In an arrangement not heretofore employed in an 8-speed automatic, four planetary gearsets and five clutch packs are controlled in a way that no more than two of the five clutch packs are freewheeling at any given time. The modest increase in the number of mechanical elements allows the new transmission to achieve unusually high efficiency: the so-called "gearing efficiency" is higher than 98% in all eight gears. In 6th gear, it's highest of all because that is direct drive, with no gearing at all. Combine this with reduced friction and the ability to keep the torque converter "locked up" more of the total driving time, and you have a transmission that is very much a part of the 5 Series Gran Turismo's overall efficiency concept.

Two additional gears mean threefold progress: quicker shifts, greater smoothness, enhanced efficiency.

The wider spread of ratios allows the engine to run at lower speeds, mainly in the "tallest" gear, 8th. Yet even with this wider spread, the steps between adjacent gears are reduced; in turn this means a stronger, smoother flow of power during acceleration.

And for the same reason, faster shifts are a further benefit because only one clutch pack is disengaged to shift up or down by one or two gears. On the other hand, downshifting more than two gears is accomplished as a direct shift. For example, a downshift from 8th to 2nd gear is made with only one clutch pack disengagement, and thus occurs without stepping down through the intermediate gears. Thus at one instant the driver can be enjoying the quiet, fuel-efficient low rpm of 8th gear, and in the next instant getting maximum acceleration.

Brake Energy Regeneration: an energy-saving innovation.

For the first time in a U.S. BMW model, the new 5 Series Gran Turismo is equipped with BMW's Brake Energy Regeneration system.

To save energy and reduce the vehicle's fuel consumption, this system controls the times at which the alternator charges the battery. Conventionally, a car's alternator runs continuously and thus charging is always available to the battery; in the Gran Turismo, it charges only when the vehicle is decelerating or braking; otherwise, it freewheels, drawing virtually no power from the engine. An electronically controlled clutch, somewhat similar to that used with the air-conditioning compressor, is added to engage and disengage the alternator.

Accommodating the less frequent charging is a special, more powerful battery that can satisfy a contemporary vehicle's high electrical demands without access to continuous charging. The battery uses a technology called "glass mat," in which its internal plates are separated with saturated absorbent glass-boron silicate rather than the usual liquid electrolyte. This construction sharply reduces the battery's conversion of charging energy to heat, and can provide the necessary electrical power for longer periods between charges.

6. Chassis engineering.
State-of-the-art BMW capabilities, adjustable to suit personal tastes.

- Comfort, dynamics and precision – all promoted by the new combination of multi-link front and rear suspension systems.
- Driving Dynamics Control and self-leveling rear air suspension – standard.
- Adaptive Drive: optional Active Roll Stabilization and Dynamic Damping Control further refine the Gran Turismo's amazing blend of handling dynamics and riding comfort.

True to BMW tradition, the new Gran Turismo exploits the creation of a new vehicle generation to advance the art of chassis technology and engineering. Improving both driving dynamics and riding comfort are always the core goals of the transition to a new BMW generation, and in these regards the Gran Turismo upholds the tradition brilliantly.

Just as the new engine combines sporting performance with luxurious refinement, all-around new suspension technology endows the Gran Turismo with uniquely agile handling for a luxury automobile, yet also an exceptional level of riding comfort. Beyond these "basics," this new vehicle allows the driver to decide at any time what priority to assign to either of these attributes via Driving Dynamics Control.

Front suspension: a new multi-link system.

Until recently, all BMW front suspension systems since 1965 [2] had been of the strut type, in which a long, essentially vertical strut carries the shock absorber and participates in the suspension geometry – that is, along with the lower arms it helps determine the angles wheels take as they move up and down. With the double-pivot lower arms of most current BMW Series, the strut concept has been taken to a high level of sophistication in handling, straight-ahead stability and riding comfort. However, time and progress never stop; BMW conceptualists and engineers continually seek even better solutions. So it was that when the 2nd-generation X5 made its debut in '07, BMW introduced a type of front suspension that achieves even better results, particularly in a large, relatively heavy and very powerful vehicle.

[2] – Except the M1, an exotic mid-engine sports car never officially offered in the U.S.

Now this system has made its debut in the automobile side of BMW's vehicle line, first in the new 7 Series for '09 and now in the 5 Series Gran Turismo for 2010. In place of the strut, this new system has an upper lateral A-arm. The double-pivot lower arms are retained, so that on each side there are three links or arms. While the two lower arms preserve the double-pivot strut system's advantages, the new upper arm facilitates the system's handling and riding comfort by relieving the strut of its geometric duties.

Among the strengths of the double-pivot system are:

- **Small positive steering offset**, for best steering feel and control under all road conditions. Though the two lower arms don't actually intersect, if you visually extend their axes to a point where they would 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**, allowed by the arrangement of the two lower arms.

The 5 Series Gran Turismo's multi-link configuration adds further virtues:

- **Reduced friction** because the shock absorber (which remains essentially concentric with the spring, as it was with the strut system) no longer helps locate the wheel, and is thus no longer subject to lateral forces. This allows the shock absorbers to damp the wheels' up-and-down motions in a more efficient, targeted way, enhancing both ride and handling (particularly on uneven road surfaces).
- **Anti-roll (stabilizer) bar attached to wheel carrier.** This arrangement, which differs from many competitors' attachment to a suspension link, applies the wheel's entire vertical movement (up or down) to the anti-roll bar, thus

allowing thinner bars to be used. Effective control of body roll (lean) and weight savings are thus achieved.

- **Greater freedom to optimize** both suspension geometry and shock-absorber action.

In keeping with another BMW tradition – aluminum suspension components to reduce unsprung weight and thus improve road adhesion and riding comfort – most major elements of the new front suspension are aluminum:

- Upper and lower lateral links (1 upper, 2 lower per side)
- Steering knuckle/vertical link (1 per side).

Further reducing unsprung weight are the front brake calipers, which are of composite aluminum/cast-iron construction. The suspension subframe, which is sprung weight but important in terms of front/rear weight distribution and total vehicle weight, is also of aluminum. Yet more advantages are found in certain details:

- The trailing (forward) lower arm has a rubber/hydraulic cushion, which provides the most effective “compliance” for reducing road shock.
- The transverse (rearward) lower arm is cushioned by a finely tuned rubber element that fosters direct and precise response to the steering wheel in curves and corners.

Rear suspension.

The rear suspension, too, is a significant evolution for BMW. Like the front suspension, it is a multi-link system; BMW calls it the Integral system for its small, essentially vertical Integral Link connecting the upper and lower lateral control planes.

The Integral suspension concept has been in use for some years in BMW automobiles, appearing currently in the 5 and 6 Series in 4-link form. With one

additional link per side, the Integral V (5-link) system moves one step closer to perfection in its combination of handling response, road adhesion and riding comfort. Here too, most major elements are aluminum, and the rear suspension subframe is also of aluminum.

This complex multi-link system controls rear-wheel geometry very precisely, minimizing unwanted effects under load changes (such as lifting off the accelerator while cornering, or hard acceleration and braking) and achieving a comfortable, supple ride. In the new 5 Series Gran Turismo, it adds yet another capability via optional Integral Active Steering as introduced on the 2009 BMW 7 Series.

At the front wheels, Integral Active Steering electronically varies the steering ratio (the number of degrees the steering wheel must be turned to achieve a 1° steering angle at the front wheels) on the basis of vehicle speed and other driving conditions. This reduces the steering-wheel movements required for parking maneuvers, U-turns and sharp corners.

Also with Integral Active Steering, the rear wheels are steered up to a maximum of 3˚ via a servo motor acting on track rods. At low speeds, they are steered oppositely to the front wheels, reducing the turning circle by more than 2 feet. At higher speeds, the rear wheels steer in the same direction as the fronts, enhancing stability. Additionally, the rear-seat passenger comfort is improved thanks to reduced lateral forces in highway lane-change conditions.

Appropriately for a vehicle designed to carry the cargo of active lifestyles, the 5 Series Gran Turismo comes standard with self-leveling rear suspension. Self-leveling is achieved by an electrically powered air compressor and ride-height sensors that recognize changes in vehicle loading. Whenever the sensors detect a

longer-term change in ride height at the rear (as when a full passenger load is aboard or heavy loads are carried in the trunk), the air pressure is increased to bring the vehicle back to its normal attitude. Additionally, when one of the rear tires suffers pressure loss, the air springs act to equalize the ride height on the two sides.

Newly evolved, new name: Dynamic Damping Control.

For the first time in a U.S. 5 Series model, electronically controlled shock absorbers are available on the 5 Series Gran Turismo. Dynamic Damping Control, first introduced on the 2009 BMW 7 Series, is an evolution of the Electronic Damping Control (EDC) that has been available on several BMW models. On the 5 Series Gran Turismo, Dynamic Damping Control (DDC) is combined with Active Roll Stabilization (ARS) into an option called Adaptive Drive.

Dynamic Damping Control adjusts the shock absorbers to any level of firmness between their softest and firmest settings, quickly adapting to road conditions and the driver's demands at any given moment. Suspension control is always at the optimum level for current road conditions, vehicle speed and the load the vehicle is carrying (again, passengers and luggage). The shocks default to the softest appropriate setting for the vehicle's speed, and when the vehicle encounters an irregular road surface, they adjust instantaneously to the optimum firmness level to control ride motions, preserve riding comfort and maintain adhesion to the road. At highway speeds, the system can encounter a pothole at a front wheel and adjust the rear-wheel damping before it reaches the same pothole.

Dynamic Damping Control is the first BMW system to vary the shock absorbers' jounce and rebound strokes (wheel moving upward and downward) both steplessly and independently; this capability results in a unique combination of desirable firmness (for handling) and excellent comfort on uneven road surfaces.

The other element of Adaptive Drive: Active Roll Stabilization (ARS).

This high-tech system reduces body roll, popularly known as "lean," in cornering. It improves handling by virtue of better suspension geometry (wheel angles

relative to vertical), but there is a psychological component as well: Drivers and passengers alike marvel at the “flat cornering” that results from ARS.

Whenever the vehicle enters a corner or curve, or begins an avoidance maneuver, “lateral acceleration” is generated. This is read by a sensor, which transmits a signal to the ECU. The ECU processes this signal and transmits it to the valve/sensor block. In turn, the valve/sensor block determines the hydraulic pressure applied to the active anti-roll bars to control body roll.

The key word here is “active.” Active Roll Stabilization –

1. Generates resistance to body roll by twisting the front and rear anti-roll bars.
2. Does so in a stronger and more “tailored” way than can conventional anti-roll bars.
3. Does not offer resistance to bumps in straight-ahead driving, as do conventional anti-roll bars.
4. Increases the vehicle’s maximum cornering capability.
5. Improves steering response, particularly in the range of cornering where body roll is most tightly controlled.

Driving Dynamics Control: the driver chooses vehicle dynamics.

Adjacent to the E-shift lever is the Driving Dynamics Control selector (logically, on the driver’s side). Driving Dynamics Control provides three standard settings that tailor vehicle behavior to different moods. The settings are Normal, Sport and Sport+; vehicle parameters affected include:

- Engine throttle response
- Transmission shift characteristics
- Power-steering assist level
- Dynamic Traction Control mode (Sport+).

In 5 Series Gran Turismo models equipped with optional Adaptive Drive, a fourth mode, called Comfort, is added. This puts the Dynamic Damping Control into its most comfort-oriented mode. Clearly the vehicle's driving dynamics can be widely adjusted by these different calibrations of so many elements.

Another control in this area affects Dynamic Stability Control alone. A brief push on the DSC button switches the system to Dynamic Traction Control, in which DSC's intervention threshold is raised. A long push on the same button de-activates DSC altogether, though two of its functions (antilock braking and electronic limited-slip) are always active.

Electronic limited-slip differential

When DSC is fully de-activated, an electronic limited-slip differential comes into play in vigorous driving. By judicious application of the individual rear-wheel brakes, DSC simulates a traditional mechanical limited-slip differential. This has the effect of better apportioning power between the two rear wheels and thus improving traction in this driving situation.

Intelligent driving dynamics: Integrated Chassis Management and FlexRay

All such driving-dynamics functions are coordinated and overseen by BMW's Integrated Chassis Management. Via sensing and analysis of a multitude of inputs, this powerful electronic control scheme applies and governs the interaction of these functions to ensure maximum stability. Under rapidly changing conditions, such as changing road surface, spontaneous steering input, abrupt acceleration or sudden braking, ICM reacts with ultra-quick and ultra-precise interventions via the DSC actuators plus – where present – Dynamic Damping Control, Active Roll Stabilization and Integral Active Steering.

For this extremely sensitive and powerful networking of functions, the 5 Series Gran Turismo employs FlexRay data-transmission technology. Developed by a consortium of which BMW is a leading member, FlexRay achieves heretofore unheard-of communication speed, some 20 times that previously possible. In the 5 Series Gran Turismo, up to 16 electronic control units can be networked; in no other competitive automobile can longitudinal, lateral and vertical vehicle motions be so precisely monitored and influenced. BMW was the first motor-vehicle manufacturer to offer FlexRay technology in production vehicles; it made its debut in the current X5, is also employed in the X6 and now comes to BMW automobiles in the new 7 Series and 5 Series Gran Turismo.

Generously dimensioned disc brakes with composite front rotors.
In this patented construction, each front brake rotor (disc) consists of two pieces: the high-carbon cast-iron outer portion, which functions conventionally as the surface onto which the brake pads grip to slow or stop the vehicle; and an aluminum “hat” in the center, which mounts the rotor to the vehicle. The concept’s advantages include reduced unsprung weight, complementing the aluminum suspension in benefiting ride comfort and road adhesion.

Reduced rotor deformation under hard braking is the other benefit. This means less tendency of the brakes to vibrate when hot, and reduced likelihood of rotors cracking under extreme heat conditions.

The Gran Turismo’s brake system is supported by the comprehensive functions of Dynamic Stability Control (DSC). These include antilock braking (ABS), Automatic Stability Control (ASC), Cornering Brake Control and Dynamic Brake Control; each of these functions contributes to vehicle stability and some of them do so specifically during braking. Other braking enhancements via DSC include Brake Fade Compensation, which compensates for loss of braking power (fading) under hard or repeated brake use; Brake Standby, which snugs the brake pads up to the rotors upon sharp deceleration to reduce inherent lag time in brake application; and Brake Drying, which brings the pads to the rotors periodically during wet-weather driving to keep the brakes ready. Automatic Hold, a function included in the Gran Turismo, 7 Series, X5 and X6 models, holds the brakes for an indefinite time when the vehicle is stopped anywhere, preventing rollback or creep; it can be activated or de-activated by the driver with a console button.

Wheels and tires: 18-in. standard, 19- or 20-in. optional, run-flat across the board.

All Gran Turismo wheel/tire equipment is decidedly sporty. The 550i Gran Turismo comes standard with 18 x 8.0 alloy wheels, fitted with 245/50R-18 run-flat all-season tires. With the Sport Package, there are two choices of special wheel/tire equipment, each with performance-type tires (also run-flats) and distinctive wheel designs: 19 x 8.5 front/19 x 9.5 rear, with 245/45R-19 front / 275/40R-19 rear; or 20 x 8.5 front/20 x 10.0 rear, with 245/40R-20 front / 275/35R-20 rear.

7. Body and safety.
Variable passenger and cargo space, comprehensive safety features.

- A first: aluminum doors with frameless windows.
- Immensely strong body structure, extensive measures to protect pedestrians.
- Bi-modal trunk with unique design and functional features.

The 5 Series Gran Turismo's innovative and multifaceted character springs from many factors, but most of all from the unique attributes of its body. Here, conceptual ideas have been translated into the actual vehicle design and engineering with BMW's typical function-oriented approach and premium quality. New, technologically advanced solutions ensure that BMW's goals of sporty elegance, personal luxury and contemporary versatility are achieved in convincing ways; in turn these are the foundation of a new kind of BMW experience.

Beyond these more subjective attributes, the Gran Turismo embodies in its intelligently conceived body structure a meticulously coordinated system of optimized passive safety and occupant protection. For example, the use of high-strength steels as well as a large proportion of aluminum helped BMW realize

great structural strength with relatively moderate weight. In particular, the important relation of torsional rigidity relative to vehicle footprint and weight has been brought to a new high.

Innovative in design and construction: the aluminum doors.

In addition to the Gran Turismo body's hood and front spring towers, its four doors are of aluminum, saving a significant 61.7 lb. compared to steel. Also, this is BMW's first 4-door with frameless windows, which contribute greatly to the interior's bright, airy ambiance. (Optionally, power-operated sunshades are available for the rear door windows.) Producing the sharp contour lines which are a part of today's BMW look in aluminum required intensive engineering effort.

Unique: 2-piece bi-modal trunk with full, independent functionality.

To achieve maximum convenience and versatility of loading various cargo items, BMW developed a remarkable system, consisting of a smaller, trunklid-like opening under the rear window and a large liftgate similar to that of BMW's X models. The "trunklid" can be opened separately; when the liftgate is opened it includes the lower lid. (As part of the optional Premium Package, liftgate operation is powered.)

The overall frame for this assembly is of aluminum, of great strength and unprecedented precision of manufacture and fit. Both sections are on tubular hinges; the liftgate comes standard with Soft Close, requiring only to be set down and then being drawn tight automatically. Opening of either section may be accomplished via buttons on the remote or inside the cabin. Each section has one of BMW's convenient grip cutouts to facilitate pulling it down for closing.

Panoramic moonroof: more light, strength and head room.

The U.S. model of the 550i Gran Turismo comes standard with a new version of BMW's dual-panel Panoramic moonroof. Encompassing about 55% of the roof's surface area, the entire assembly is 45.7 in. long and 37.1 in. wide; its forward glass panel slides open 17.3 in. or tilts upward. The rear glass panel is fixed, bound to the roof so as to serve as a highly rigid part of the overall body structure.

The moonroof's forward wind deflector rises to different heights on the basis of vehicle speed, more effectively taming potential low-speed air drumming or high-speed wind road; its interior sunshade is also powered. A further refinement is the moonroof's harmonious integration into the roof contours: its front edge is curved parallel to the roof's front edge for an unusual and subtle design touch.

Exemplary occupant protection.

Robust structural members, generously dimensioned and precisely defined deformation zones, and sophisticated electronically controlled restraint systems constitute the 5 Series Gran Turismo's state-of-the-art concept of occupant protection. In a frontal crash, impact forces are channeled over multiple paths into the floor structure, side members, front bulkhead and roof; absorbed in deformation zones; and just generally kept away from the passenger compartment. For the force paths, multi-phase and heat-treated steels are employed extensively.

In the interior, 2-stage front airbags, seat-mounted side-impact airbags and curtain-type, front-to-rear head protection are all standard equipment, controlled according to crash type and severity for optimum effect. Airbags that are not needed for the impact at hand are not deployed, yet remain ready to deploy in case of a secondary impact. The power tilt/telescopic steering column includes a

robustly dimensioned deformation section, improving its ability to protect the driver from structural intrusion into the cabin.

All seating positions are equipped with 3-point safety belts; all have force limiters, the front ones also adding automatic tensioners plus pre-tensioning during emergency braking. For protection against head and neck injuries in a rear-end impact, the front seats include active head restraints, which deploy up to 2.36 in. forward and 1.57 in. upward as required – all between the time the rear impact begins and when the occupants' heads would be thrown rearward.

The rear outboard seating positions are equipped with LATCH (Lower Anchors and Tethers for Children) for securing a child restraint seat.

BMW Assist, Enhanced Roadside Assistance, Enhanced Automatic Collision Notification – all standard with the 5 Series Gran Turismo.

Every new 5 Series Gran Turismo comes standard with BMW Assist, a system of telematics and user services of sweeping scope. Among the services included in the BMW Assist Safety Plan – whose subscription is paid by BMW for the first 4 years after purchase of a new vehicle, – include emergency services, a wide range of roadside-assistance benefits, stolen-vehicle recovery, and Enhanced Automatic Collision Notification. In the event of a severe accident, the BMW Assist system automatically transmits the vehicle's location and crash information to a response specialist, who will speak to the vehicle occupants to determine if they are all right, while a second specialist requests dispatch of emergency services as needed.

Features that can help prevent accidents: also standard.

All BMW vehicles excel in features and attributes that make driving both safer and more pleasant. Here are some key points about the 5 Series Gran Turismo features that contribute to active safety:

Xenon Adaptive headlights with auto-leveling – by providing outstanding forward illumination, "steering" around curves and staying aimed correctly, these advanced headlights benefit the BMW driver and passengers as well as those in other vehicles.

Cornering lights – provide targeted illumination to the side for turning corners or sharp curves at relatively low speeds.

Automatic headlight control – turns on the headlights in conditions of marginal ambient light, when the driver might not yet think of doing so.

Halogen foglights set into the front end's lower air intake.

Rain-sensing windshield wipers – standard on all current BMW models.

Park Distance Control – reduces likelihood of fender-bending and bumper-scratching low-speed collisions. Standard front/rear on the 5 Series Gran Turismo.

Adaptive brakelights – indicate to following drivers when the BMW driver brakes hard, potentially lessening the probability of a rear-end collision.

Responsive, predictable handling made possible by advanced and sophisticated suspension design, generously dimensioned wheels and tires, accurate steering, and optional features like Adaptive Drive and Integral Active Steering.

Powerful 4-wheel ventilated disc brakes with antilock braking (ABS) – enhanced by the Dynamic Stability Control system's braking features.

Run-flat tires – eliminate necessity of potentially dangerous roadside tire changes.

Tire Pressure Monitor – via direct measurement of pressure at each tire, alerts driver to pressure loss.

Auto-dimming interior and exterior mirrors – by automatically reducing glare from headlights and foglights of vehicles behind, improve BMW driver's ability to see ahead and concentrate on driving.

Dynamic cruise control – can apply brakes lightly to help control downhill speed, and reduce speed in curves.

8. Features and options:

Abundant standard features, appealing options.

- 4th-generation iDrive system with direct-selection keys, Programmable Memory Keys and other new features standard.
- Extensive array of driver-assistance options available.
- An extensive selection of comfort, convenience, audio, technology and luxury features are also available to enhance the 5 Series Gran Turismo's unique character.

Several of the important options have been described or mentioned earlier, in connection with the product categories they affect: Integral Active Steering, Adaptive Drive, premium hi-fi system, Luxury Rear Seating Package. For completeness, here's a summary of the entire offering of 5 Series Gran Turismo options, both packages and stand-alone. It is a brilliant selection, enabling customers to expand and enhance the 5 Series Gran Turismo's unique combination of versatility, sportiness and luxury:

Packages.

Driver Assistance Package. Deploys three of BMW's newest systems to enhance active safety: High Beam Assistant, which automatically switches between high and low beams according to nighttime traffic conditions; Lane Departure Warning, which vibrates the steering wheel if the vehicle begins to

cross lane markings without the turn signals activated; and Active Blind Spot Detection, which vibrates the steering wheel and flashes a warning in the appropriate exterior mirror housing when other vehicles are in the Gran Turismo's rearward blind zones.

Camera Package. To many customers, a rearview camera is a familiar option; here usefully augment the standard Park Distance Control. A recent BMW innovation is the Sideview Camera, which enables the driver to see traffic from both directions before pulling out onto a busy street.

Active Ventilated Seats Package. This package includes a full measure of BMW seating comforts for the driver and front passenger: 20-way Comfort seats with Active Ventilation, Active Support (a fatigue-reducing, massage-like function) and multi-zone heating.

Convenience Package. Comfort Access, BMW's system of keyless access, locking and engine start/stop; Soft Close automatic doors, which let users gently pull doors to, then draws them in; and power liftgate operation.

Luxury Rear Seating Package. Takes luxury accommodations for rear passengers to the ultimate with multi-adjustable, ventilated and heated rear Comfort seats in a 4-seater interior configuration; power sunshades for the rear door windows; and a 4-zone climate-control system.

Cold Weather Package. Heated steering wheel, front seats and rear seats.

Premium Sound Package. 16-speaker hi-fi audio system with audiophile components and speakers, iPod/USB adapter.

Stand-alone options.

Integral Active Steering as described earlier.

Adaptive Drive (Dynamic Damping Control and Active Roll Stabilization), enhancing sporty handling and riding comfort with these two high-technology suspension systems.

Active Cruise Control with radar-based sensing to help the driver maintain safe and/or desired distance from traffic ahead.

Night Vision with Pedestrian Detection, another safety enhancement; employs infrared sensing to detect hazards, living or otherwise, that the unaided driver might not perceive.

Navigation System, adding Navigation, Real-Time Traffic Information, and other amenities to the standard 4th-generation iDrive display-and-controller system.

Head-up Display, elegantly and helpfully projecting important driving information – including Navigation guidance if the Navigation System is present – onto the windshield ahead of the driver. The display appears to the driver to be "out front" over the hood.

Rear Seat Entertainment with DVD player, controls and dual monitors for rear-seat passengers.

Satellite Radio – with a dazzling array of broadcasting choices; includes one-year subscription.

Smartphone Integration to bring the benefits of smartphones into the vehicle audio and phone systems.

Alternate interior trim – two choices of wood as alternatives to the standard Dark Burl Ash.

Ceramic controls for the shift knob, iDrive controller surround, and audio and climate controls.

Ski bag – can be stored under cargo floor when not in use.

Features of packages also offered as stand-alone options: Comfort front seats, heated front seats, 4-zone climate control, iPod/USB adapter, rear side-window sunshades.

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 brand of motor vehicles, including motorcycles, the MINI brand, and the Rolls-Royce brand of Motor Cars; BMW Group DesignworksUSA, a strategic design consultancy 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 X5 Sports Activity Vehicles and X6 Sports Activity Coupes. The BMW Group sales organization is represented in the U.S. through networks of 338 BMW passenger car centers, 335 BMW Sports Activity Vehicle centers, 142 BMW motorcycle retailers, 83 MINI passenger car dealers, and 30 Rolls-Royce Motor Car dealers. BMW (US) Holding Corp., the BMW Group's sales headquarters for North America, is located in Woodcliff Lake, New Jersey.