

# STARTUNED®

Information for the Independent Mercedes-Benz Service Professional

June 2006 U.S. \$6.00 € 12.50



Liquid Diet

Whoa, Mercedes!

M-B Diagnostic Options

Volume 6 Number 2

## TO OUR READERS:

- Welcome to *StarTuned*, the magazine for independent service technicians working on Mercedes-Benz vehicles. Mercedes-Benz sponsors *StarTuned* and provides the information coming your way in each issue.
- Mercedes-Benz wants to present what you need to know to diagnose and repair Mercedes-Benz cars accurately, quickly and the first time. Text, graphic, on-line and other technical sources combine to make this possible.
- Feature articles, derived from approved company sources, focus on being useful and interesting. Our digest of technical information can help you solve unanticipated problems quickly and expertly. Our list of Mercedes-Benz dealers can help you find original, Genuine Mercedes-Benz Parts.
- We want *StarTuned* to be both helpful and informative, so please let us know just what kinds of features and other diagnostic services you'd like to see in it. We'll continue to bring you selected service bulletins from Mercedes-Benz and articles covering the different systems on these vehicles.
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### GENUINE MERCEDES-BENZ PARTS... NEARBY

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of information on Genuine Mercedes-Benz Parts.



Mercedes-Benz



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At Mercedes-Benz, we believe in being faithful. Faithful to getting you the parts you want, with all the support you need. And faithful to a partnership that strives to support your business in more and better ways than anyone else. So you, in turn, can be faithful to all those who rely on you. Contact your dealer. **Unlike any other.**



Mercedes-Benz

# LIQUID DIET



# Mercedes-Benz has picked the right fluid

It's no surprise that Mercedes-Benz owners are very particular about their vehicles. They come to your shop because they trust that the quality of your work will meet their demanding standards. They know their cars or SUVs will be fixed right and properly maintained while they're in your care.

You can ensure that you continue to earn your customers' trust by using only the maintenance fluids recommended by Mercedes-Benz. From engine oil to differential lube to chassis grease, and everything in between, Mercedes-Benz has a recommended fluid.

Using anything but the recommended fluids could interfere with performance and vehicle reliability. A cheaper brand might put a few more dollars on your bottom line for the short term, but it is customer satisfaction that pays off the most in the long term. And customer satisfaction is best achieved by using the recommended fluids whenever you do any maintenance or repair work on a Mercedes-Benz.

The fluid recommendations are based on extensive testing by Mercedes-Benz. Often, this testing is done in cooperation with various fluid manufacturers and refiners. In others, they are Mercedes-Benz brand products that are only available through your authorized dealer.

## Gasoline

With today's soaring gasoline prices, if your customers complain about poor performance and poor mileage in 1986 or newer models, ask them if they have switched to a lower octane gasoline or ethanol to save money. If they have, tell them to go back to premium unleaded, even if it's the most expensive fuel available.

Mercedes-Benz is very clear that only premium unleaded is to be used for all gasoline engines since MY 1986, except for MY 1986 190E models with the 2.3L engine. "Gasohol", which is usually a blend of 90% gasoline and 10% ethanol, may be used. Ethanol concentrations greater than 10% are not permitted except for specially designated "Flexible Fuel Vehicles" that can burn blends up to 85% ethanol/15% gasoline.



*When you run an engine as sophisticated as the direct injection V6 in the CLS 350, you'd better burn only premium gasoline.*

Owners of MY 1975-85 Mercedes-Benz vehicles and MY 1986 190E with the 2.3L engine can use unleaded regular gasoline. For MY 1972-74, unleaded gasoline with at least an 87 octane rating should be used.

Before MY 1972, Mercedes-Benz vehicles, like most cars, were designed to use leaded gasoline, which, of course, hasn't been available for many years. These cars, like the younger MY 1986 and new models, need unleaded premium, with an octane rating of at least 91.

Using anything other than premium unleaded in any gasoline engine since MY 1986 is not only discouraged, Mercedes-Benz has a list of recommendations if a driver is forced to use anything else, including:

- Only partially fill the tank with any other gasoline. Drive only until premium unleaded is available. Top off the tank with premium unleaded as soon as possible.
- Do not drive at full throttle and avoid hard acceleration when using anything but unleaded premium.
- If the vehicle is lightly loaded, such as no more than two occupants with no luggage, engine speed should be kept below 2,000 rpm. If the vehicle is fully loaded or operating in a mountainous area, do not exceed 2/3 throttle position.
- The only fuel additives recommended are detergents and other additives blended with the gasoline during the refining process by the petroleum company. According to Mercedes-Benz, “DO NOT blend other fuel additives with the fuel. These additional additives only result in unnecessary cost and may be harmful to engine operation.”

The only exception to the “no additives” rule is Mercedes-Benz’s own additive, (Part Number A 000 989 25 45 10). Follow the specific directions when using this to remove internal carbon build up on valves because a high quality gasoline with detergent additives was not regularly used in the car.

## Engine Oil

Synthetic engine oil was covered in detail in the last issue of Star Tuned, so we will only touch on it briefly in this article. For vehicles with the Flexible Service System (FSS), only synthetic oil should be used in all V-6, V-8 and V-12 gasoline engines. Conventional mineral-based oils do not meet the performance requirements for an FSS engine's extended drain intervals.

Any of the synthetic oils listed below can be used in a MY 1998 or newer Mercedes-Benz vehicle with a gasoline engine:

- 76 Pure Synthetic Motor Oil 5W-40
- Agip Eurosport 5W-40
- Agip Synthetic PC 5W-40
- Castrol Syntec 5W-40
- Kendall GT-1 Full Synthetic Oil 5W-40
- Mobil 1 Tri-Synthetic Formula 0W-40
- Pennzoil Synthetic European Formula 5W-40
- Quaker State Full Synthetic European Formula 5W-40
- Shell Helix Ultra 5W-30
- Shell Helix Ultra 5W-40
- Valvoline SynPower MXL 0W-30



*Only the supercharger on the C230 Sport Coupe and Sport Sedan use a Mercedes-Benz lubricant, Part Number A 000 989 62 01.*

For Mercedes-Benz vehicles prior to MY 1998, petroleum-based oils may be used. Synthetics can also be used in the older vehicles if the engine is mechanically sound and there are no oil leaks. Any leak must be fixed before changing from petroleum-based oil to a synthetic because the more “slippery” synthetic will make the leak much worse.



Mercedes-Benz does not approve the use of any aftermarket engine oil additives. According to the company, these additives do not provide any benefit and may cause harm. The use of additives may cause oil sludging (thickening) and may damage the catalytic converter.

### Supercharger Oil

For lubricating the supercharger on the C230 Sport Coupe and Sport Sedan, use Mercedes-Benz Part Number A 000 989 62 01. For all other supercharger applications, including the E55 AMG, SL55 AMG, CL55 AMG, S55 AMG, G55 AMG, and CLS55 AMG, use Mobil Jet Oil II.

### Antifreeze

Mercedes-Benz recommends using only its own proprietary antifreeze, available as Part Number BQ 1 03 0002, which meets the M-B 325.0 specification. According to Mercedes-Benz:

“The use of aluminum components in Mercedes-Benz engines requires that anticorrosion/antifreeze specifically formulated to protect aluminum parts be used. Failure to use Mercedes-Benz 325.0 anticorrosion/antifreeze may result in significantly shortened service life. While there may be a number of products available which will provide the required protection, not all such products have been tested for Mercedes-Benz vehicles.”

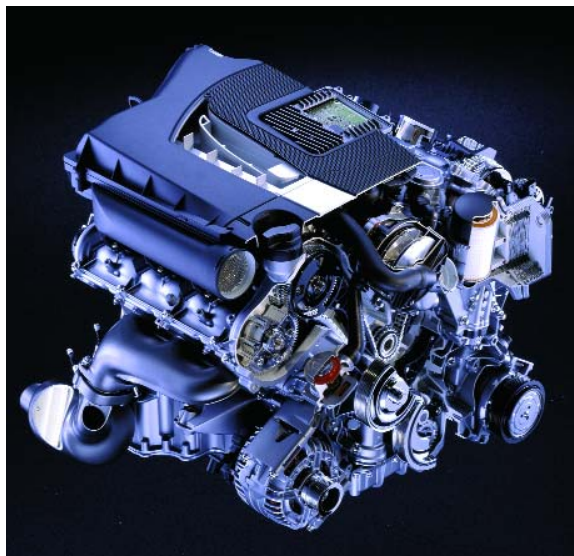
The replacement antifreeze can be mixed with the original coolant installed at the factory.

### ATF

For late model vehicles with the 7-speed transmission, use only Mercedes-Benz Part Number A 001 989 45 03 10 automatic transmission fluid. This fluid can also be used for vehicles with the 5-speed automatic transmission.

As an option, the 5-speed transmissions can also use Part Number A 001 989 21 03 10 automatic transmission fluid. However, this fluid cannot be used in the 7-speed automatics.

For automatics using Dexron III, there are a number of aftermarket brands that can be used:



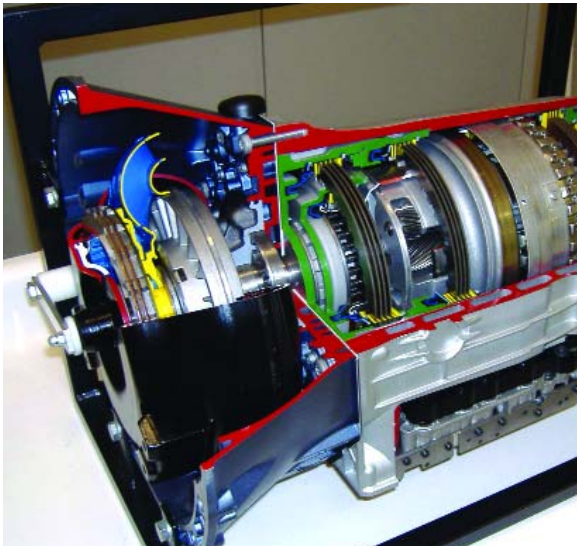
*Mercedes-Benz recommends using only its branded antifreeze because of the extensive use of aluminum components in its engines and extended drain intervals. Other brands have not been approved for use.*

- Castrol Dexron-III/Mercon ATF F-30341
- Castrol Transmax Mercedes-22257/22096
- Chevron ATF Dexron III F-30310/30159
- Citgo Multi-Purpose ATF D-21571
- Exxon Superflo ATF Dexron III F-30111
- Texaco ATF Mercon/Dexron-III F-30321
- Pennzoil ATF D-22412/F-30110
- Quaker State Dexron III/Mercon F30161
- Sunoco ATF Dexron-III/Mercon F-30176
- Unocal Multi-Purpose ATF D-22413/22431
- Valvoline ATF Type D
- For manual transmissions, use Mercedes-Benz fluid Part Number A 001 989 26 03 10.

### Transfer Case

The 4Matic Transfer Case on the C-Class, E-Class, and S-Class takes Mercedes-Benz Part Number A 001 989 23 03 11 fluid.

The transfer case on the G-Class uses Mercedes-Benz Part Number A 001 989 28 03 10 fluid, while the transfer case on the M-Class takes Part Number A 001 989 45 03 10 fluid.



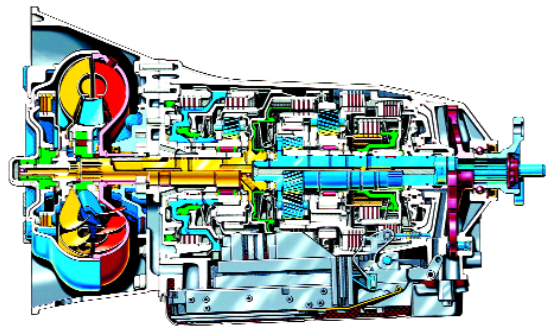
*The sophisticated 7-speed automatic transmission requires a special fluid, Part Number A 001 989 45 03 10.*

## Differentials

The general differential oil is Mercedes-Benz Hypoid Gear Oil, Part Number A 011 989 17 03 10. The exceptions to using the general differential oil are:



*Use Part Number A 001 989 23 03 11 for the transfer case fluid in the 4-Matic system.*



*The 5-speed automatic can use either the same fluid as the 7-speed or Part Number A 001 989 21 03 10. Don't use Part Number A 001 989 21 03 10 in the 7-speed!*

- G-Class front and rear differentials use Mercedes-Benz Part Number A 001 989 28 03 10.
- The front and rear axle differential on the G55 AMG and for the rear differential on the SL65 AMG use Castrol SAF-XJ (75W-140).

## Chassis Lubes

Shell Retinax C is the recommended chassis grease for all lube points except the front wheel hubs. For a multi-purpose grease, you can choose from several aftermarket brands:

- 3752 Almgard Vari-Purpose Lubricant
- Castrol LM Grease
- Exxon Multi-Purpose Grease
- Renolit MP
- Unocal MP Automotive Grease

The recommended "Long Term" grease for release bearings and release arm splines is Mercedes-Benz Part Number A 000 989 63 51 11. This grease should also be used to lube the propeller shaft universal joint on the G-Class model.

"High Temperature Antifriction Grease," Mercedes-Benz Part Number A 001 989 23 51 10 should be used for lubricating front wheel bearings. This grease is also used to lube the joint housing on the G-Class.



*All Mercedes-Benz brake systems use DOT 4 fluid sold in one- and five-liter containers.*

## Brake Fluid

Mercedes-Benz DOT 4 brake fluid is available in one liter (Part Number A 000 989 08 07 01) and five liter (Part Number A 000 989 08 07 11) containers. This is the only brake fluid recommended by Mercedes-Benz for all applications. This fluid is also used in the differential lock mechanisms of the G-Class model.

And to keep things quiet, use Mercedes-Benz Part Number A 001 989 94 51 Brake Pad Paste.

## P/S

Mercedes-Benz recommends using its branded power steering fluid, Part Number BQ 1320001 for all but the M-Class and G-Class models. The M-Class and G-Class power steering units use either Mercedes-Benz Part Number BQ 1460001 fluid, or any of the approved Dexron III transmissions fluids.

## Air Conditioning

Use Mercedes-Benz Part Number BQ 1 13 0001 Compressor Oil on all R-134a A/C systems.

## Body Lubricants

Several different lubricants are recommended for specialized applications on the vehicle body. "Lubrication Paste," Part Number A 001 989 46 51 should be used on the sliding blocks of tilt/sliding roofs and for cleaning and lubricating the panorama roof on the C-Class and E-Class models. The outer guide rail of the panorama roof should be lubed with Mercedes-Benz Special Lubricant, Part Number A 001 989 50 51.

Keep the convertible tops moving smoothly with Mercedes-Benz Part Number A 000 989 91 03 10 hydraulic oil.

Most door locks and striker eyes should be lubricated with Castrol CLS Grease. The only exception is the G-Class door locks. These can be lubed with:

- Exxon-Mobile Chassis Grease LBZ or TCL 435
- Mercedes-Benz Liquid Grease Part Number A 001 989 08 51 10

On the S-Class, SL-Class, and CL-Class, use Mercedes-Benz Part Number BQ 1320001 for the Active Body Control Fluid.



# WHOA, MERCEDES!

# Practical stopping requires a friction recipe that's just right

If you ignore those pesky things like controlling emissions, good fuel economy, and long-term durability, it is easy to select the right engine for a vehicle. If the goal is maximum speed, choose an engine that just keeps cranking out more and more horsepower as the revs continue to climb. On the other hand, an SUV that hauls a full load while towing a trailer needs an engine with lots of torque in the lower RPM range. Because most vehicles operate between the extremes of maximum speed and maximum torque, most engines offer a good balance of low-end torque with an acceptable level of horsepower.



*AMG, the official “tuner” for Mercedes-Benz, upgrades the brakes to match its power enhancements. A more aggressive pad is used with the modified brake system.*

Things are not as simple when you take your foot off the gas and depress the brake pedal. Brakes slow and stop a vehicle by converting the kinetic energy of motion to heat by creating friction. In scientific terms, friction is the resistance to motion, typically caused by the roughness or texture between two surfaces. The rougher the surface, the greater the friction, the

smoother the surface, the less friction. On a disc brake system, the pad is the rough surface that presses against the relatively smooth face of the rotor.

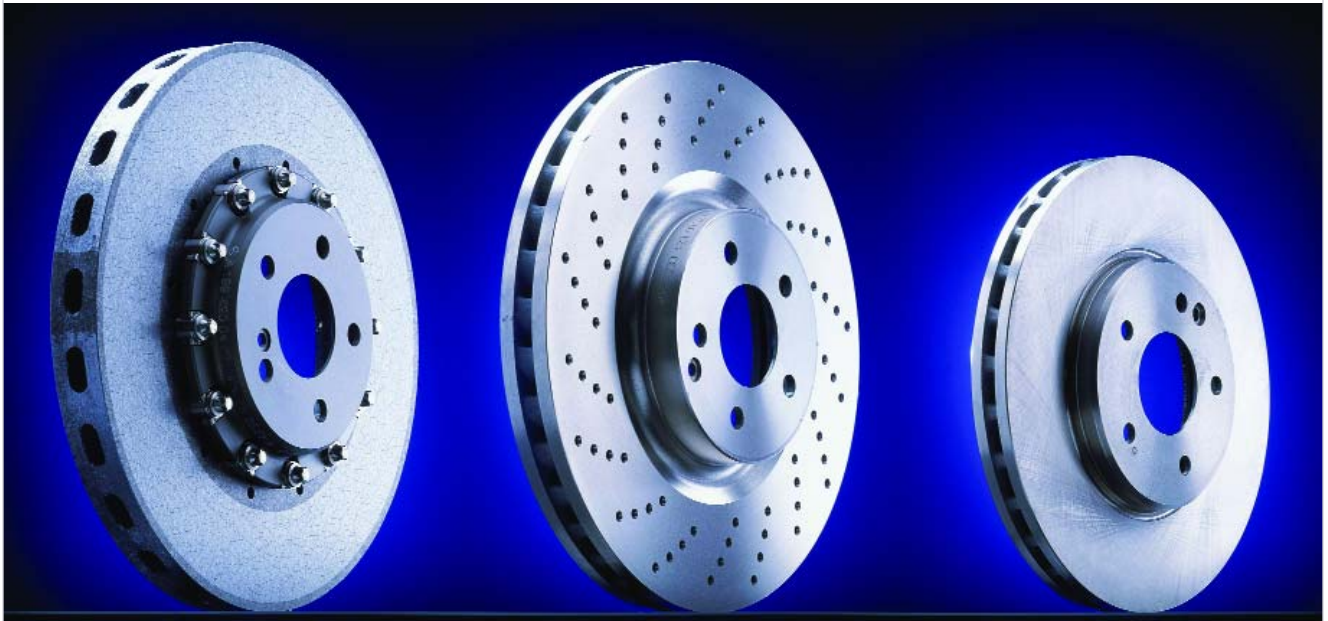
Friction increases as the brake pedal is pressed harder. And as friction increases, more heat is created. This heat must be removed or it can cause the rotor and other parts of the brake system to distort.

The kinetic energy propelling 3,000 to 5,000 lbs., or more, of vehicle at highway speeds, or faster, must quickly be converted to heat by the friction between the brake pads and rotor. If the only thing that brakes had to do was stop the vehicle as quickly as possible, designing a brake system would be as easy as selecting an engine based on horsepower and torque. You simply formulate the hardest, most abrasive pads possible and have them bite into the toughest rotors you can make.

Of course, with those extremely aggressive pads and a tough rotor, every time the driver touched the brakes, he or she would have to put up with a screeching noise that makes fingernails on a chalkboard sound like a baby’s lullaby, clouds of dust clinging to the wheels, a pedal that requires abnormal leg strength to depress, and the expense of replacing pads and rotors every few weeks after they have mutually sacrificed each other to stop the vehicle. But drivers don’t ignore things such as noise, dust, pedal feel, and maintenance expense. As a result, a well-designed brake system must juggle many factors to reach an optimal balance of sometime conflicting requirements.

## Conflicting Demands

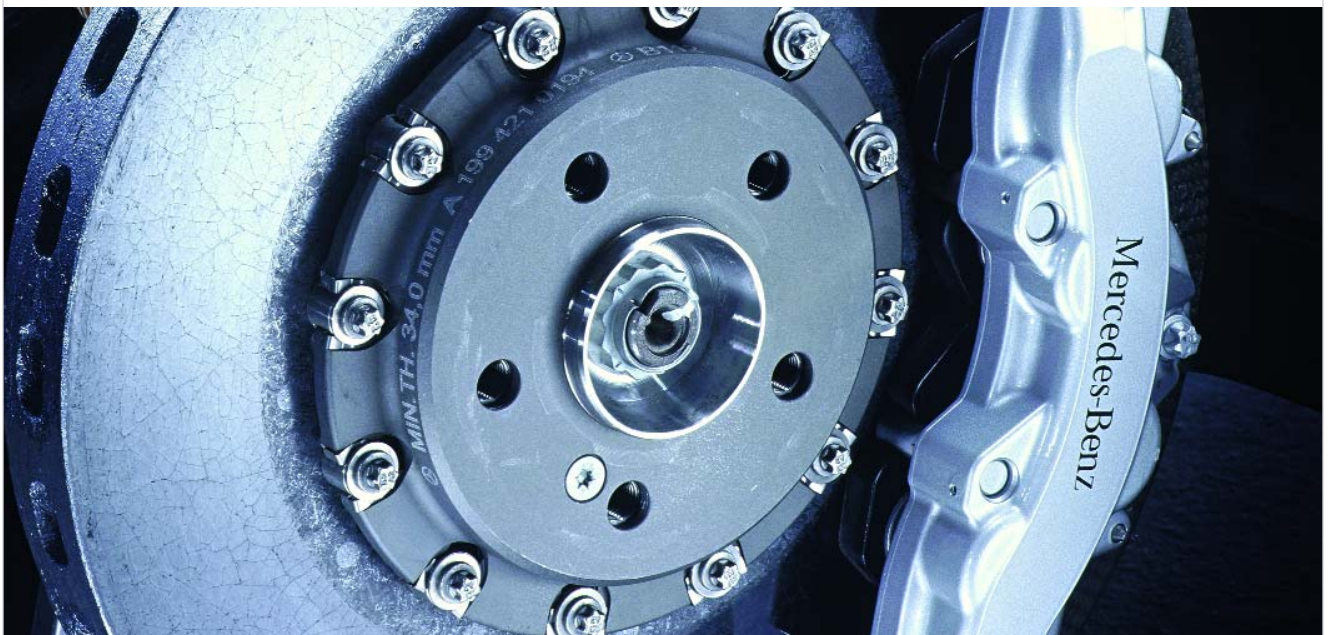
Although brakes are truly a system where everything must work together to perform properly, the composition of the pads gives engineers the greatest flexibility in terms of adjusting performance factors. Changing pad size and composition is much easier and less expensive than making similar changes to either the rotors or the calipers.



*Different rotors are used for different applications. In terms of maximum stopping power, the most aggressive rotor is on the left, from the SLR McLaren, next is a SL 55 AMG rotor, and finally a rotor from an SLK 320.*

For optimal performance, pads are specifically designed for each type of vehicle. For example, the composition of the pads Mercedes-Benz developed for its small and lightweight C230

Sports Sedan is very different from that for the much larger and heavier GL450 SUV. And the pads for the C230 and GL450, in terms of design and composition, are distant cousins to

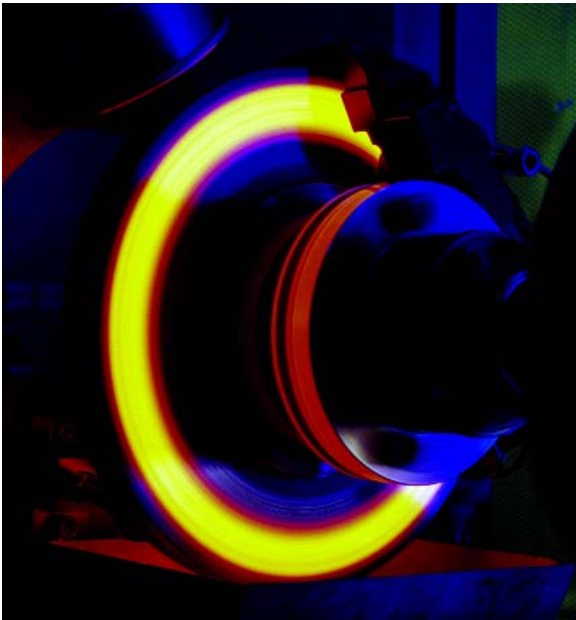


*The pads and rotors in the SLR McLaren are the most aggressive brake setup Mercedes-Benz offers for street use.*

the pads in the brake system of the ultra-high-performance SLR McLaren.

For quick stopping in a performance vehicle, or to stop a heavy SUV, the friction material in a brake pad must generate a large amount of friction. High friction means high heat, so the material must be able to either absorb a lot of heat energy or dissipate it quickly so the pad doesn't distort.

Mercedes-Benz, like other carmakers, carefully guards its brake pad formulations as proprietary information, so we can only talk about pad formulations in general terms. The reason for keeping pad formulations confidential is simple. Mercedes-Benz has too much time, labor, and money invested in determining optimal pad composition for each of its vehicles to give away the information.



*Under hard braking, the composite rotors in a SLR McLaren rotors glow. The pads must be specially formulated to deal with the high temperatures.*

The main reason why you should always replace worn pads with genuine Mercedes-Benz parts is that the Mercedes replacements are the only pads that you know will have the exact formulation as the OE pads. Not even the premium brand aftermarket pads can claim to be "as good as" the OE formulation and the discount brands certainly are no match for Mercedes-Benz quality.

One of Mercedes-Benz's leading brake engineers has several other reasons to always use Mercedes-Benz replacement pads:

- Genuine Mercedes-Benz pads not only match OE pads in performances and durability, the pad are "optimally configured" for the electronic control systems such as ABS, ASR, and ESP used by Mercedes.
- Mercedes-Benz replacement disc brake pads are fully compatible with all Mercedes-Benz vehicles.
- Because the replacement pads are made from the same top-quality material as the OE pads, the replacements have the same high level of mechanical strength, high thermal conductivity, and effective heat diffusion to minimize distortion and wear. In addition, the pads minimize noise and pedal pulsations.

Given the quality of Mercedes-Benz replacement pads, why risk the uncertainty of aftermarket brakes? For every vehicle, the Mercedes-Benz pads must satisfy requirements for performance, driver acceptance, and longevity. These factors are not equal and the importance assigned to each will vary by vehicle. The specific composition for a given pad will represent the best trade-off among performance, acceptance, and longevity for the application. For example, the demands on the C230's brakes for performance are not as high as those for the SLR McLaren. The driver of a SLR McLaren will tolerate a lower level of longevity than the C230 owner in return for superior performance in terms of consistent stopping under repeated hard braking conditions.

Performance standards are determined by the pad's ability to:

- Maintain a consistent friction coefficient throughout the range of vehicle operating conditions.
- Resist compression under high pressure.
- Maintain dimensional stability.
- Avoid corrosion.
- Transfer heat energy to resist thermal distortion and changes in shear resistance.



*The color variations across the front of this Mercedes-Benz brake pad are caused by the different materials blended together to create the pad.*



*The three-point star logo and the part number on the metal backing plate show this is an authentic Mercedes-Benz replacement brake pad.*

Driver acceptance is based on noise, dust, and harshness. Sound or noise is the result of pulsations or rapid changes in air pressure striking the ear. Whenever anything that is surrounded by air vibrates, it has the potential to cause a sound that the human ear can hear.

Preventing brake noise is complicated by the fact that other factors besides system design contribute to noise. Brakes that are quiet under certain conditions may be very noisy at other times because brake vibration is influenced by:

- Changes in brake fluid pressure on the brakes as pedal pressure varies.
- Temperature of the pads and disc.
- Vehicle/wheel speed.
- Atmospheric conditions.

Although it is virtually impossible to completely eliminate vibration in a brake system, as long as the vibration is low frequency, it is not objectionable. Based on various tests, if brake system vibration is less than 500 Hz, drivers and passengers simply cannot hear it. At 500 to 1500 Hz, occupants will hear a noise, but probably won't recognize it as coming from the brakes. It is only when vibration exceeds 1500 Hz that it generally becomes loud enough and shrill enough to be objectionable. A properly formulated pad will do its share to reduce brake system noise by resisting vibration under the widest possible range of conditions.

Mercedes-Benz pads use a number of features to help reduce pad vibration, including:

- Special backing plates that resist corrosion and extend pad life.
- Chamfered, not squared, edges. The chamfer allows the pad to smoothly contact the rotor which reduces vibration between the pad and rotor.
- Vibration absorption material incorporated into the pad formulation.

All pads create dust. For most applications, engineers want a pad that generates as little dust as possible.

The third factor for good driver acceptance is "pedal feel." An aggressive pad typically causes a stiff pedal and the driver may also complain of harshness. For all but performance applications, the Mercedes-Benz pads are designed to have a comfortable pedal feel with as little harshness as possible. A stiffer pedal is found, and is more acceptable, in pads intended for performance or competition driving.

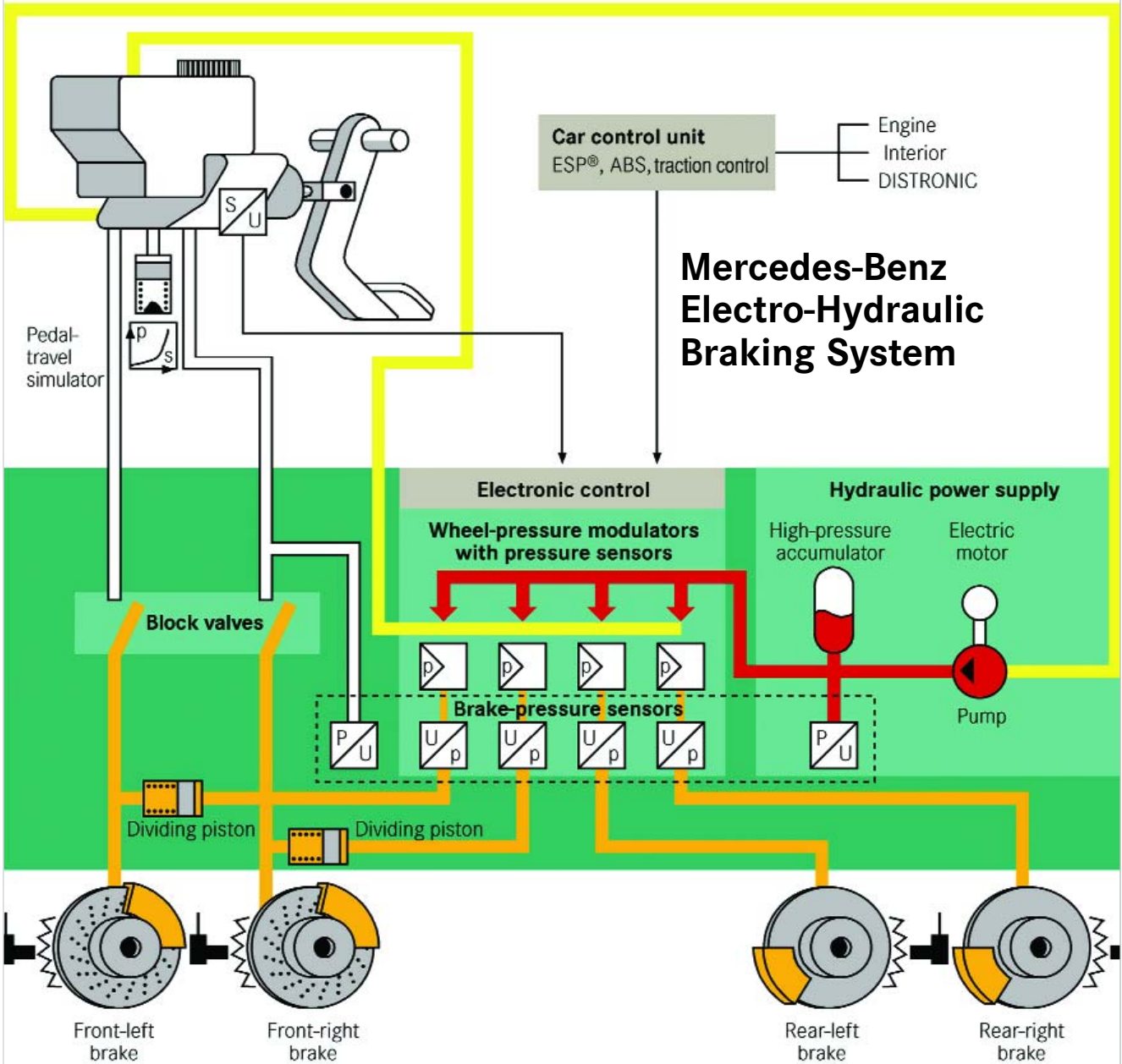
Of course pedal feel refers to the hydraulic powered brake system that has been used by the



automotive industry since the 1920s. The Mercedes-Benz “electro-hydraulic” brakes or Sensotronic brake system, introduced in 2003 on the SL roadsters and E-Class vehicles, changes the concept of “brake feel” at least as far as pressing the pedal is concerned. Depressing the pedal on this brake system activates an electronic signal and computer that regulates braking pressure. The system responds to not only how hard, but also how fast, a driver presses the

pedal. Tied in with the antilock brake system (ABS), the computer regulates brake pressure at each wheel individually for maximum stopping power. A backup hydraulic master cylinder activates the brakes with considerably more leg force and pedal travel if the computer system malfunctions. With this system, the driver doesn’t “feel” the brakes as he or she would with a conventional hydraulic system.

The composition of the pad is a major factor



## Mercedes-Benz Electro-Hydraulic Braking System

The “electro-hydraulic” brake uses sensors and a computer to regulate hydraulic brake pressure. The hydraulic system is a backup if the computer system malfunctions.

# GENUINE MERCEDES-BENZ REMA

## WHY BUY GENUINE?

**R**EPLACE — We replace more parts than aftermarket brands.

**E**NGINEERED — Designed to meet original OEM drawings.

**M**ANUFACTURED — Made with same OE components as factory parts.

**A**SSEMBLED — Completely assembled from components and not just repaired.

**N**EW — Tested to new unit standards.

### QUALITY, RELIABILITY AND VALUE

The quality, reliability and value of the Genuine Mercedes-Benz Remanufactured A/C Compressor wasn't meant to be taken lightly. It is not only an exact replacement for the original unit, it's also remanufactured and tested to meet the same strict specifications as the original, so it performs just as well. And like all remanufactured parts, it's covered by the Mercedes-Benz limited parts warranty.\* In fact, the only detectable difference you'll find between a Genuine Mercedes-Benz Remanufactured A/C Compressor and a new one is the price. Which we're sure you'll find quite refreshing.

### IT'S ALL IN THE PROCESS

#### Remanufacturing Process (Genuine Mercedes-Benz)

1. Dismantle core and clean all components.
2. Replace key components 100% with new OE part.
3. Test all other critical components.
4. Replace components that do not meet specs.
5. Assemble, test and box.

#### Rebuilt Process (Typical Aftermarket)

1. Identify damaged part or parts.
2. Replace damaged part with non-OE part and clean.
3. Re-assemble, test and box.

\*See your Mercedes-Benz dealer for details and a copy of the Mercedes-Benz Spare Parts Limited Warranty.



# MANUFACTURED A/C COMPRESSORS



Remanufactured for Mercedes-Benz by  
**DENSO**  
Available only through your local Mercedes-Benz Dealer



Mercedes-Benz

*(Continued from page 17)*

for brake system longevity. A very aggressive pad will stop the vehicle quickly, but often at the expense of a short service life for both the pad and rotor. Relatively short pad and rotor life can be acceptable to a driver who demands maximum brake performance. It is not acceptable to a driver whose driving requirements are “typical.”

## Friction Formulas

Brake pads are typically multi-layer. The friction material on the face contacts the rotor. Behind the friction material is a filler or intermediate layer. The final layer is the metal backing plate that is pushed on by the caliper piston. The contact between the friction layer and rotor creates the friction that converts the energy of the vehicle’s motion to heat, which must then be dissipated to the atmosphere.

For decades, Mercedes-Benz, like all carmakers, relied on asbestos as the primary friction material. Asbestos is an excellent friction material, except for two problems:

- Under repeated hard braking, asbestos will not dissipate heat quickly. The heat build-up in the pad causes distortion and “brake fade.”
- Health concerns. Exposure to asbestos fibers has been linked to a fatal cancer, mesothelioma. Although there is still controversy regarding the risk of exposure to asbestos fibers from brake material, the automotive industry stopped using asbestos for a long time. Although asbestos is again permitted in automotive brake applications, its use is being discontinued, not by government edict, but because other materials are proving to be more effective.

Instead of asbestos, Mercedes-Benz pads are blended from several friction products, including:

- Non-asbestos organic (NAO) material that has outstanding performance in terms of reducing/eliminating noise, vibration, and dust.
- Semi-metallic components that offer

excellent braking performance and fade resistance, but can be noisy. Semi-metallic pads have excellent brake life in high temperature applications.

- Ceramics are growing in use because they tend to be less abrasive, which extends pad and rotor life. The potential of ceramics has made them the fastest growing friction material in the automotive industry. Ceramics have excellent brake life in low or average temperature applications, which is why ceramics are popular for “average” driving applications. Ceramics are not recommended for vehicles that are used for towing.

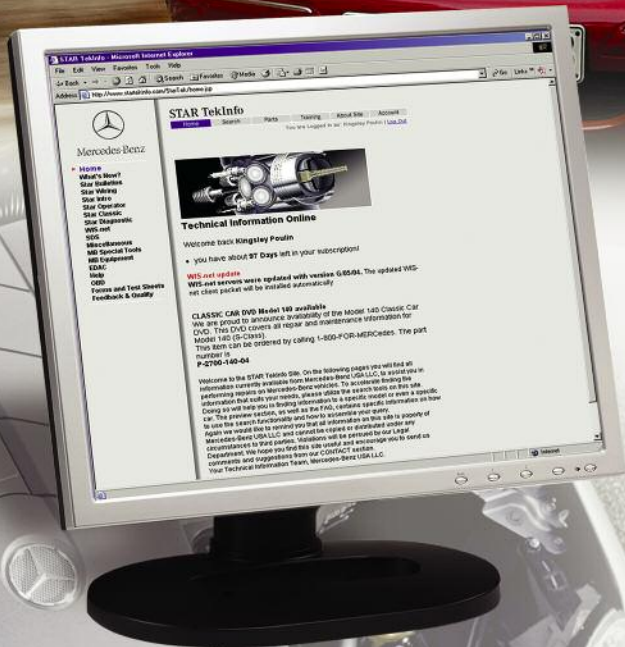
In addition to the actual friction material, Mercedes-Benz pads are also formulated with fillers, friction adjustors, and other materials. The ratio of these different products varies by application.

## More Than Just Pads

Because this article has focused on brake pads does not imply that just “hanging pads” is an acceptable practice for any brake service, especially for a Mercedes-Benz. As your customer’s trusted Mercedes-Benz technician, your brake jobs should always include:

- A complete inspection of the brake system.
- Measuring the rotors for runout and thickness. Rotors that fail to meet specifications have to be machined or replaced.
- Replacing rotors with any crack or other physical defect.
- Annual purging and replacement of the brake fluid.
- A road test after you finish the job.

# www.startekinfo.com



*0-60 in a few seconds...*  
...Mercedes-Benz Technical Information  
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**W**here:  
[www.startekinfo.com](http://www.startekinfo.com)

**W**hat:  
Customer & Service Information including:  
Bulletins, Manuals, Repair Instructions,  
Approved Workshop Equipment Information,  
Special Tool Information, Wiring Diagrams,  
Diagnostic Information ...

**W**hy:  
A single source for Mercedes-Benz  
vehicle technical information

## STAR TekInfo

is the official Mercedes-Benz USA, LLC  
Customer & Service Information Website  
[www.mbusa.com](http://www.mbusa.com)



Mercedes-Benz



## M-B Diagnostic Options

The Compact<sup>3</sup> is the ultimate diagnostic system for difficult troubleshooting situations on Mercedes-Benz vehicles. Here, it's connected to the Internet and in its DAS mode.

# Choosing the best for your shop

The overwhelming majority of Mercedes-Benz vehicles are maintained and repaired at independent shops like yours, not at dealerships. But not all independent shops are the same in terms of the work they do. At one extreme are shops that service a wide range of cars, including the occasional Mercedes-Benz. At the other extreme are the shops that work exclusively on Mercedes-Benz vehicles. Most shops are somewhere between the extremes.

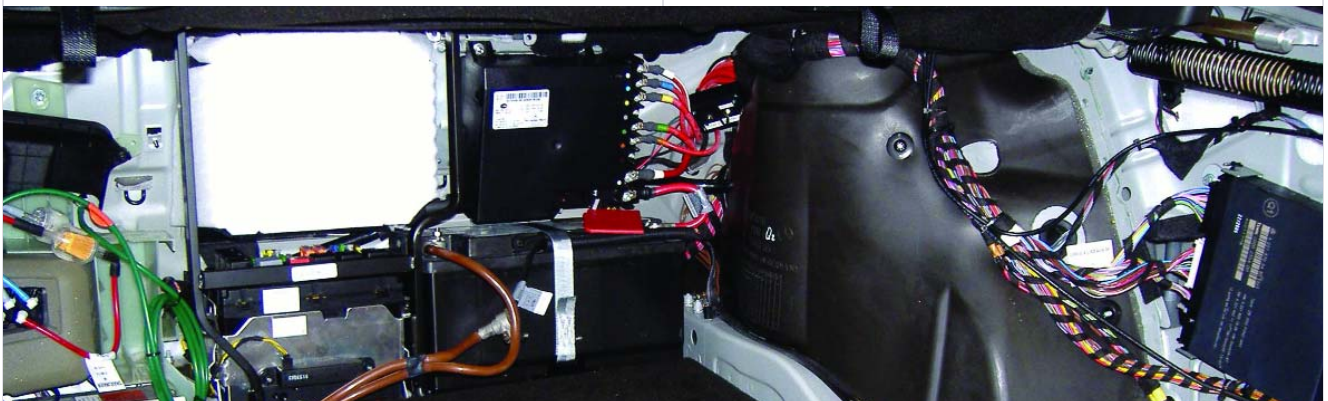
As a leader in automotive technology, Mercedes-Benz vehicles are equipped with some of the industry's most advanced operation and control systems. Engine management, drivetrain operation, suspension, steering, brakes, and passenger comfort features are programmed to give optimal performance under all driving conditions. Each of these systems has its own dedicated set of onboard diagnostic software and related service technology.

The variation in service volume among independent repair shops and the sophistication built into every Mercedes-Benz presents an interesting challenge in terms of diagnostic equipment. To do more than routine fluid and filter change maintenance on a Mercedes-Benz, each shop needs a diagnostic tool for troubleshooting and repair. However, a basic diagnostic unit adequate for a shop with an occasional Mercedes-Benz customer probably won't be powerful enough to handle the workload in

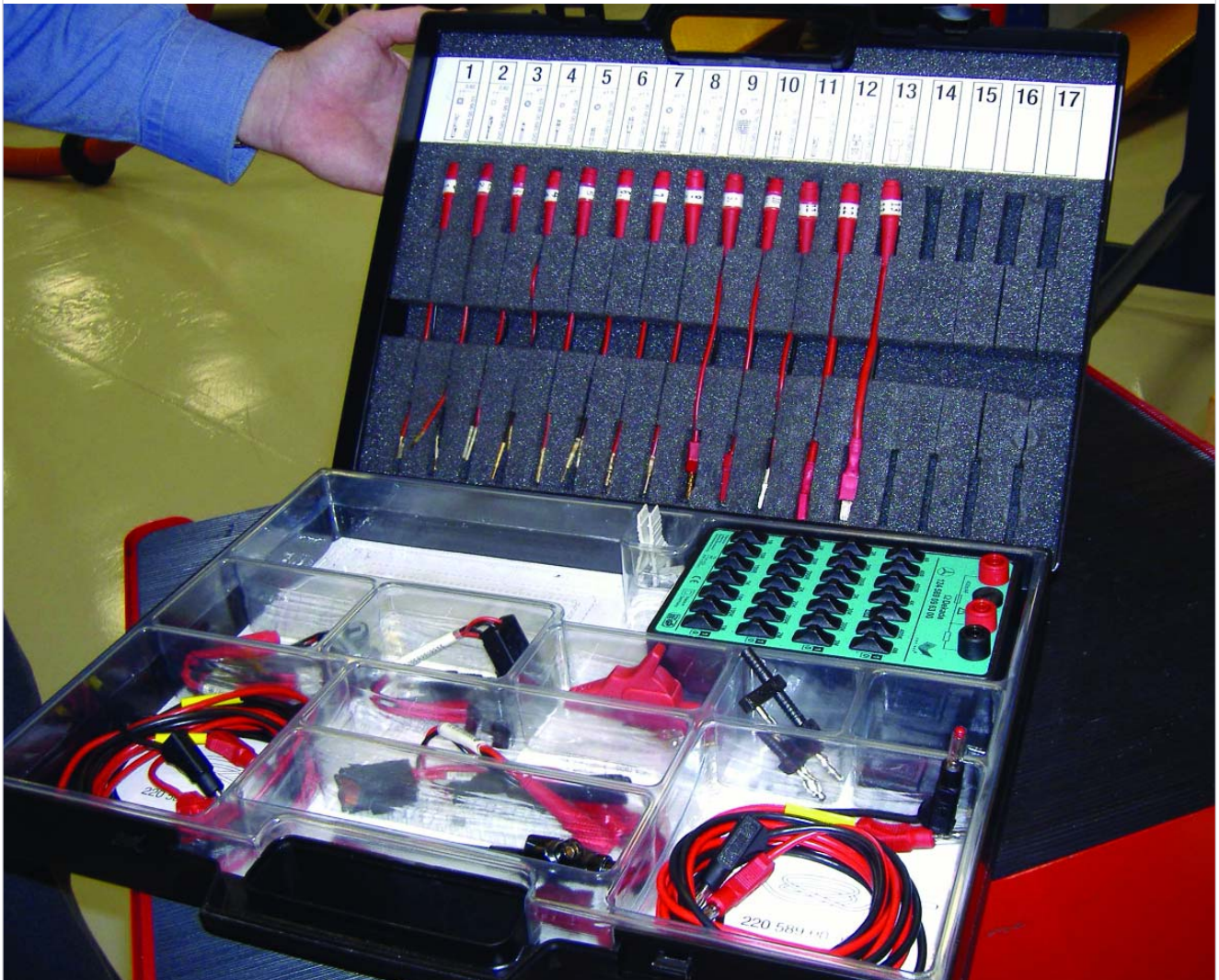
a dedicated Mercedes-Benz shop. A full-function tool that the dedicated shops require will likely have a price tag that is beyond the investment a low-volume shop would consider making. Trying to develop a "just right" tool that splits the difference between the extremes would result in a unit that would probably meet the needs of the large group in the middle, but would still be too expensive for a small shop and probably not powerful enough for a large-volume shop.

Mercedes-Benz has resolved this challenge with the same thoughtfulness and attention to detail that characterizes the design and engineering of its cars. The company offers independent shops three different diagnostic tools—a scanner with a specific Mercedes-Benz program card, the Basic Star Diagnosis unit, and the Compact<sup>3</sup> with the optional "Measurement Technology." One of the three is right for your shop, based on the volume of Mercedes-Benz work you do and how deeply into diagnostics and service you want to go.

This commitment to support the varying needs of independents should not be a surprise. Mercedes-Benz recognizes that most owners rely on shops like yours for service work. Offering three different diagnostic units with various capabilities and price tags helps you do a better job for your customers, which, in turn, enables Mercedes-Benz to:



*With the trunk panels removed, you can get an idea of just some of the complex electronics on board a late-model Mercedes-Benz. Sooner or later, you'll have to diagnose these high-tech systems.*



*Sure, there are other great Mercedes-Benz troubleshooting aids, such as this convenient connector kit, but you're still going to need one of the diagnostic tools reviewed here.*

- Increase brand loyalty. A successful service experience whenever and wherever an owner has his or her vehicle repaired builds brand loyalty. And brand loyalty is the reason current Mercedes-Benz owners become future owners when they purchase their next vehicle.
  - Improving brand equity. As a Mercedes spokesman put it, "We know our cars will last a long time when properly cared for. When people see a large number of our cars on the road, especially older vehicles, they realize that buying a Mercedes-Benz is an investment in a quality automobile." Strong brand equity is an important reason many first-time buyers choose Mercedes-Benz.
- Review the features of these three diagnostic units to see which one is the best fit for your shop. As you make your comparison, don't think "price;" instead think in terms of "investment." You want the unit that gives you the best payback on your investment, the unit that will return the most based on the amount of Mercedes-Benz work you do now and in the future if you want that volume to grow.
  - Whatever unit you select, you can maximize your investment with a subscription to Star TekInfo. This website ([www.startekinfo.com](http://www.startekinfo.com)) is "information central" for Mercedes-Benz technical data, service bulletins, parts information, etc. As an independent that works on Mercedes-Benz vehicles, you would handicap



yourself without the “click of a mouse” information available through Star Tek Info.

## Scanner

The Mercedes-Benz Deluxe Scanner (Part No. A 107-MT2501MB) is a Snap-on unit with a customized data cartridge programmed exclusively for Mercedes-Benz vehicles. This is primarily an OBD-II scanner for diagnosing engine management (both gas and diesel) and electronic-controlled shifting problems.

The scanner sells for \$2,166 and includes:

- The scanner, with the dedicated Mercedes-Benz program cartridge.
- All required power and data connection cables.
- MB1, MB2A, and DL-16 adapters.
- S-17, S-20, and S-21 OBD-II personality keys.
- Carrying case.
- User's manual.

The scanner:

- Gives you primary engine coverage for EZ, DM, DM2, LH, HFM, ME1.0, ME2.0, and ME2.1 systems from 1992-01.
- Has a diagnostic code memory.
- Displays live data.
- Features a movie capture and review function.
- Allows you to customize data lists.
- Has bi-directional actuator tests on: LH, HFM, ME1.0, ME2.0, and ME2.1 systems including: air pump, VTS, A/C Clutch, air flap switch, IM switch cover, TV, fuel pump, injectors, exhaust flap, purge system, canister cutoff, fan control and supercharger clutch.
- Can output readings to a printer.

## Basic<sup>2</sup>

It's called “basic,” but the power of the Star Diagnosis basic<sup>2</sup> is impressive. This unit, which is brand new this summer from Mercedes-Benz, supercedes the previous Star Diagnosis basic. With the basic<sup>2</sup>, you can access any electronically controlled system on a Mercedes-Benz.

The basic<sup>2</sup> comes loaded with the full Mercedes-Benz Diagnosis Assistance System (DAS) software. DAS displays a complete set of diagnostic trees for servicing Mercedes-Benz vehicles. The diagnostic multiplexer permits complete data communication between the built-in DAS and all vehicle control modules. With the basic<sup>2</sup>, you can replace or program modules.

In addition to DAS, basic<sup>2</sup> comes with the Star Utilities package, which is a maintenance program used for self-diagnosis of various components and for word processing. The unit also comes bundled with the INFO system, which is packed with user information and tips on using STAR Diagnosis.

One year of service updates, sent monthly on a DVD, keeps your basic<sup>2</sup> current. You can purchase a subscription for future updates after the first year.

Much more than just a scanner, the basic<sup>2</sup> is

### basic<sup>2</sup> Features

- 10.4 "TFT"-XGA monitor
- Glass touch screen
- DVD-ROM drive
- Chipcard reader
- Expandable via PCMCIA slots
- Network-capable Software
- HHT-Win
- DAS

### Connections

- Diagnostic multiplexer interface
- Printer port
- PCMCIA slot
- External keyboard connection
- 2 Ethernet connections
- Serial communication interface

a laptop computer size (13.5" x 12.8" x 4.2") diagnostic tool for any shop that is serious about serving Mercedes-Benz vehicles. The basic<sup>2</sup> is powered by a 600 MHz Intel Mobile Celeron M processor and comes with 512 MB RAM (Random Access Memory) and a large, 60 gigabyte hard drive. There is a built in DVD "read only" drive that is used to input new programming and system updates.

You have two options for inputting data and commands to the basic<sup>2</sup>. The unit's 10-inch monitor normally operates as a touch screen. You just touch or press your selection using the basic<sup>2</sup> stylus. You can also "key stroke" your inputs using the "virtual keyboard." Press a button on the basic<sup>2</sup> and a keyboard appears on the screen. You then input data or commands by touching the letters and numbers with the stylus. The basic<sup>2</sup> can also be connected to an external keyboard.

Want a printout of any screen or reading? Then hook the basic<sup>2</sup> to just about any Windows compatible printer and hit the print button.

The basic<sup>2</sup> can be used in the shop or on the road. The unit weighs only about eight pounds and is housed in an impact-resistant case. The basic<sup>2</sup> is powered by a feed from the vehicle's diagnostic connector so the unit can be used virtually anywhere at any-time, making it an excellent tool for road-side service.

The basic<sup>2</sup> doesn't have to operate solo. It comes with built-in connections allowing you to link the unit to your shop's network.

Unlike the Deluxe Scanner, basic<sup>2</sup> is designed, built, and supported by DaimlerChrysler, the parent of Mercedes-Benz. The basic<sup>2</sup> comes with a 3-year warranty. The Mercedes-Benz Star Diagnosis Support Center is available 24 hours a day, Monday through Saturday, to respond any problems or questions about the basic<sup>2</sup>.

The basic<sup>2</sup> costs \$9,270.00 (plus tax) and normal delivery is 30 to 60 days.

## Compact<sup>3</sup>

The Mercedes-Benz Compact<sup>3</sup> is the fastest, most powerful diagnostic and service tool you

### Compact<sup>3</sup> Features

- 15" TIF XGA monitor
- Glass touch screen
- DVD-ROM drive
- Chipcard reader

### Connections

- Diagnostic multiplexer interface
- Printer port
- Dual PCMCIA slot
- External mouse
- External keyboard
- Ethernet connection
- 3 USB slots
- Audio in/out

can carry under your arm. It is the ultimate service tool for any independent shop doing a large volume of Mercedes-Benz business. The Compact<sup>3</sup> weighs about the same as the basic<sup>2</sup>, but it is physically larger. Its overall size is about 14.3" x 13.5" x 3" and it features a 15" monitor. The unit operates on the Windows XT platform with an Intel 'Banias' 1.4 Ghz processor, 512 megabytes of RAM, and a 60 gigabyte hard drive.

Like basic<sup>2</sup>, Compact<sup>3</sup> comes with DAS and the Star Utilities software. In addition, the Compact<sup>3</sup> comes with the powerful Workshop Information System (WIS) software from Mercedes-Benz. WIS provides detailed wiring diagrams, installation instructions, and technical details on repair procedures.

If the built-in software and chip readiness aren't enough to meet your needs, the Compact<sup>3</sup> comes ready to link to a local area network (LAN) for access to Star TekInfo, provided you have a subscription.

The Compact<sup>3</sup> can be matched up with the HMS 990 USB Measurement Technology unit for even greater diagnostic and analysis power.

You select/switch among the installed programs with the touch of one button. Because the Compact<sup>3</sup> is a Windows-based system, you

can have multiple screens available at the same time. You can switch between screens/programs, with the touch of a button.

To boost productivity, the unit is designed for maximum technician convenience. The screen can be tilted to 5, 30, 45, or 70 degrees to select the best viewing position. In addition, the screen is easily readable even when viewed at a wide angle to the screen.

Inputs to the Compact<sup>3</sup> can be made using the touch screen or the virtual keyboard. An external keyboard and mouse can also be connected to the unit. Virtually any Windows-compatible printer can be hooked up to the Compact<sup>3</sup> to print out any screen. Printers can also be connected via LAN or Wireless LAN.

A removable, rechargeable battery powers the Compact<sup>3</sup>. The built-in Power Management function regulates the voltage supply and power consumption. For heavy use, purchase a second battery so you always have a charged battery ready to go.

The Compact<sup>3</sup> is designed, built, and supported by Mercedes-Benz. It comes with a 3-year warranty and the same service support as the basic<sup>2</sup>.

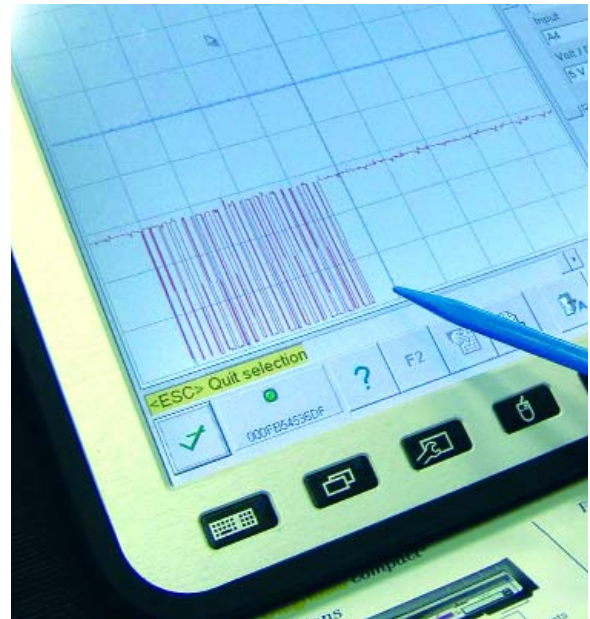
The unit price includes a year of software and specification updates, sent monthly on a CD. Additional updates can be purchased after the first year.

The Compact<sup>3</sup> is \$20,232. With the Measurement Technology unit, the price is \$26,316.

## Measurement Technology

The Measurement Technology unit is a secondary device that links directly to the Compact<sup>3</sup>. It can only be used with the Compact<sup>3</sup>, and does not link to the basic<sup>2</sup> or earlier versions of the Compact. The Compact<sup>3</sup> comes with the Measurement Technology already programmed in, so you just plug the units together.

With the Compact<sup>3</sup> and Measurement Technology teamed up, you have a powerful engine analyzer and oscilloscope in a package that can be conveniently placed on the fender or front seat.



*The digital oscilloscope display on the Compact3. This is the "known good" pattern, which you compare with the live pattern that would be displayed in the space above.*

Measurement Technology features a digital oscilloscope and digital readouts for volts, amps, resistance, frequency, temperature, and pressure. You can check and adjust ignition readiness to ensure smooth starting for your customers. The unit also monitors and allows you to adjust oxygen sensor (lambda) readings and exhaust gas readings.

The 12-channel oscilloscope shows ignition traces and compares crankshaft rotation and ignition duration by cylinder. Traces and readings can be stored in memory for comparison over time and changing conditions.

For more information on how you can purchase a Star Diagnosis System, please visit [www.startekinfo.com](http://www.startekinfo.com) and look under the M-B Workshop Resources tab.



# FACTORY SERVICE BULLETINS

*These suggestions and solutions for technical problems come from service bulletins and other technical information published by Mercedes-Benz, selected and rewritten for independent repair shops.*

## ESP Ground Connection

**Model**  
203.061/064/065/264

**Chassis Number**  
F 150265 F 191763

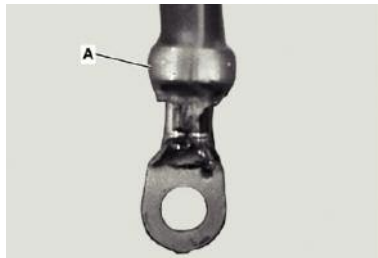
The ESP ground connection, located just ahead of the left shock tower, may not be properly installed. The ESP control module harness plug should also be checked for moisture intrusion.

1. Loosen ground nut at W16/3 (Figure 1) and remove ESP Control Module ground wire (thick wire), as well as all other wires.
2. Remove heat shrink from cable lug completely, being careful not to damage the wire insulation.
3. After the heat shrink is removed from the cable lug, remove the heat shrink from the ground wire itself.
4. Unplug the ESP harness plug from the ESP Control Module.
5. Carefully tap the unplugged harness plug against your hand to remove any moisture and blow out the ESP harness plug with dry compressed air while elevated

above the ground cable, for at least three minutes, at the ground pins to completely remove any moisture.

6. Blow out the multi-pin connector directly at the ESP Control Module, then carefully reconnect the ESP harness plug to the ESP Control Module connector.
7. Install new heat shrink tubing onto ESP Control Module ground wire (thick wire), ensure that the heat shrink tubing stops where removed (A in illustration) and does not cover crimped end.

### Connector:



8. Place the 6 x 1.2 mm washer onto the ground stud at W16/3. Install thin ground wires first, then reinstall the ESP ground wire (thick wire) and secure with the previously removed ground nut, tightening the nut to 10Nm.

## Minor Oil Sludging

Mercedes-Benz defines "minor oil sludging" as oil that has thickened, but still flows. "Severe" sludging is oil that cakes inside the engine. Signs

of sludging include:

- Excessive engine oil consumption
- White/blue engine smoke
- Has an effect on the oil level indicator
- Engine oil filter is clogged, engine oil has thickened to a jelly-like consistency
- Oil sludge is visible when removing oil filter, engine valve covers, oil filler cap, cam positioning sensor.

### Sludging can be caused by:

1. Crankcase ventilation system not functioning properly.
2. Engine oil drain passages closed or clogged.
3. Using the wrong engine oil.
4. Using aftermarket fuel or oil additives. Mercedes-Benz does not approve the use of any fuel or oil additives.
5. Recommended oil change intervals not being followed.
6. Using fuel with an octane index less than 91.
7. Coolant leaking into the crankcase.

Severe sludging requires disassembly and cleaning of the engine. Minor sludging can be treated by "Oil Purging."

1. Change engine oil and filter, using only approved engine oils.

2. Park the vehicle and run the engine at idle for 1 hour.
3. Change the oil and filter.
4. You can repeat the process up to three times in a single day.
5. 6,000 miles after the purging, check the engine and change the oil and filter.

### Replacement Door Stop Model 221.171, from VIN A009500 to A027500



If your customer complains that the front or rear door stop is loose because the plastic retainer at the rod end has broken, you can now just replace the retainer (P/N A221 727 12 14). You do not have to replace

### Storage of Vehicles Equipped with High-Performance Tires

#### All models

High-performance tires are typically made with a nylon overlay that enables them to achieve the designated speed rating and also enhances handling capabilities. However, nylon material has memory retention, and may develop flat spots when the vehicle is stored for long periods of time without movement.

With this in mind, Mercedes-Benz recommends that the following precautions should be taken to avoid flatspotting when vehicles equipped with high-performance tires are not

- driven for extended periods.
- All vehicles to be stored for periods longer than 30 days should be prepared by inflating the tires to 44 psi.
  - The car should be moved several feet at least once during each 30 day period so that a different portion of the tread contacts the ground.
  - Before the vehicle is driven, tire inflation should be reduced to the recommended operating pressure.

### Cannot Aim Headlights

#### Model 220 as of model year 2003

If the low beam or fog lights are always too high or too low, no matter how much you adjust them, the connection between the low beam and fog lights may be disconnected. To fix the problem:



1. Adjust fog lamp using vertical adjusting screw.



2. Unclip fog lamp vertical adjustment screw by pulling upwards.
3. Adjust low beam using vertical adjustment screw.
4. Push down on fog lamp vertical adjustment screw to clip back in place.

### Fuel Tank Noise

#### Model

203.052/054/056/087/092

Model 209.356/456

Tapping noise coming from the rear of the car, near the fuel tank, may be caused by noise in the purge line. The condition can be solved by installing a restrictor (P/N A203 476 03 32) and clamp (P/N A005 997 19 90).

1. Remove right rear wheel and its housing to reach the area of purge line.



2. Open purge line.



3. Insert restrictor in the purge



4. Reconnect purge line with a new clamp.
5. Reinstall purge line, rear wheel housing, and wheel.

# Finding a Classic is Rare. Finding Its Parts Shouldn't Be.



Relive the good ol' days. Mercedes-Benz makes it easier to find classic car parts. Call 1-866-MBCLASSIC, and Mercedes works to track down the genuine Mercedes-Benz classic part you need. So you can be sure of one thing: they really do still make 'em like they used to. Visit [MBUSA.com/classic](http://MBUSA.com/classic). **Genuine Mercedes-Benz Parts**



Mercedes-Benz



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954-462-4381

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239-433-8300

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Quality Imports  
850-863-2161

**Gainesville**  
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352-332-7571

**Jacksonville**  
Brumos Motor Cars  
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**Lakeland**  
Central Florida Eurocars  
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**Maitland**  
Mercedes-Benz of Orlando  
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**Melbourne**  
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**Pompano Beach**  
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Capital Eurocars  
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**Tampa**  
Mercedes-Benz of Tampa  
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**Albany**  
Albany Motorcars  
229-883-2040

**Athens**  
Mercedes-Benz of Athens  
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**Atlanta**  
Mercedes-Benz of South Atlanta  
770-964-1600

**Atlanta**  
RBM of Atlanta  
770-390-0700

**Atlanta**  
Mercedes-Benz of Buckhead  
404-846-3500

**Augusta**  
Mercedes-Benz of Augusta  
706-860-1111

**Columbus**  
Columbus Motor  
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478-477-4858

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**Arlington Heights**  
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847-259-4455

**Barrington**  
Motor Werks of Barrington  
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**Bourbonnais**  
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Mercedes-Benz of Hoffman Estates  
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**Marion**  
Foley-Sweitzer Motor Sales  
618-997-1313

**Naperville**  
Mercedes-Benz of Naperville  
630-305-4560

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Sud's Motor Car  
309-454-1101

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J.P. Chevrolet GEO Nissan  
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Gurley-Leep Motorwerks  
574-254-7130

**Schererville**  
Napleton's Auto Werks of Indiana, Inc  
219-865-3800

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Lujack's Northpark Auto Plaza  
563-388-8610

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Mercedes-Benz of Des Moines  
515-278-4808

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## Kansas

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Aristocrat Motors  
913-677-3300

**Wichita**  
Scholfield Auto Plaza  
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## Kentucky

**Ashland**  
Sim Fryson Motor  
606-329-2288

**Bowling Green**  
Buchanan Imports  
270-745-0001

**Lexington**  
James Motor  
859-268-1150

**Louisville**  
Tafel Motors  
502-896-4411

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**Alexandria**  
Walker Automotive  
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**Lafayette**  
Moss Motors  
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Mercedes-Benz of New Orleans  
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**Shreveport**  
Holmes European Motors  
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## Maine

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Quirk Auto Park of Bangor  
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**Bethesda**  
Euro Motorcars  
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**Cockeysville**  
Mercedes-Benz of Hunt Valley  
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**Germantown**  
Euro Motorcars Germantown, Inc.  
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**Owings Mills**  
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Smith Motor Sales of Haverhill  
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**Lynnfield**  
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Foreign Motors West  
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**Somerville**  
Chambers Motorcars of Boston  
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**West Springfield**  
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**Westwood**  
Mercedes-Benz of Westwood  
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### Michigan

**Acme**  
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**Ann Arbor**  
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**Bloomfield Hills**  
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314-301-1715

**Ellisville**  
Tri-Star Imports  
636-458-5222

**Joplin**  
Frank Fletcher Imports  
417-781-1177

**Kansas City**  
Jay Wolfe European Motors  
816-943-7000

**Springfield**  
Elite Automotive Group  
417-889-5750

**Montana**

**Missoula**  
DeMarois Olds-GMC  
406-721-4000

### Nebraska

**Lincoln**  
Husker Auto Group  
402-479-7600

**Omaha**  
Mercedes-Benz of Omaha  
402-384-9999

### Nevada

**Las Vegas**  
Fletcher Jones Imports  
702-364-2700 702-898-3776

**Reno**  
Mercedes-Benz of Reno  
775-326-4000

### New Hampshire

**Greenland**  
Dreher-Holloway  
603-431-8585

**Manchester**  
Holloway Motor Cars of Manchester  
603-669-6788

### New Jersey

**Bridgewater**  
Millennium Automotive Group  
908-685-0800

**Cherry Hill**  
Mercedes-Benz of Cherry Hill  
856-663-3200

**Edison**  
Ray Catena Motor Car  
732-549-6600

**Englewood**  
Benzel-Busch Motor Car  
201-567-1400

**Fairfield**  
Globe Motor Car  
973-227-3600

**Freehold**  
David Michael Motor Car of Freehold  
732-462-5300

**Lawrenceville**  
Mercedes-Benz of Princeton  
609-771-8040

**Little Silver**  
Contemporary Motor Cars  
732-842-5353

**Millville**  
Quality Lincoln Mercury Hyundai  
856-327-3000

**Morristown**  
Mercedes-Benz of Morristown  
973-267-9200

**Newton**  
Inter-car  
973-383-8300

**Paramus**  
Prestige Motors  
201-265-7800

**Union**  
Ray Catena of Union  
908-379-7200

**West Atlantic City**  
Precision Cars of Atlantic City  
609-645-9000

**New Mexico**

**Albuquerque**  
Premier Motorcars  
505-821-4000

### New York

**Amityville**  
Mercedes-Benz of Massapequa  
631-789-1600

**Bayside**  
Helms Brothers  
718-631-8181

**Binghamton**  
Empire Motor Car  
607-772-0700

**Brooklyn**  
Sovereign Motor Cars  
718-258-5100

**Fayetteville**  
Romano Motors  
315-637-4500

**Goldens Bridge**  
Estate Motors  
914-232-8122

**Huntington**  
Mercedes-Benz of Huntington  
631-549-2369

### New Jersey

**Larchmont**  
Mercedes-Benz of Larchmont  
914-275-4000

**Latham**  
Keeler Motor Car  
518-785-4197

**Long Island City**  
Silver Star Motors  
718-361-2332

**Nanuet**  
Mercedes-Benz of Nanuet  
845-624-1500

**New York**  
Mercedes-Benz Manhattan  
212-629-1600

**Rochester**  
Holtz House of Vehicles  
716-424-4740

**Rockville Centre**  
Lakeview Auto Sales and Service  
516-766-6900

**Roslyn**  
Rallye Motors  
516-625-1600

**Southampton**  
Mercedes-Benz of Southampton  
631-283-0888

**St. James**  
Mercedes-Benz of Smithtown  
631-265-2204

**Wappingers Falls**  
Friendly Motorcars  
845-298-0600

**White Plains**  
Mercedes-Benz of White Plains  
914-949-4000

**Williamsville**  
Mercedes-Benz of Buffalo  
716-633-0088

### North Carolina

**Asheville**  
Skyland Automotive  
828-667-5213

**Cary**  
Mercedes-Benz of Cary  
919-380-1800

**Charlotte**  
Beck Imports of the Carolinas  
704-535-6400

**Fayetteville**  
Valley Motors  
910-487-0000

**Greensboro**  
Mercedes-Benz of Greensboro  
336-856-1552

**Hickory**  
Hendrick Motors  
828-322-5640

**Raleigh**  
Leith  
919-876-5432

**Wilmington**  
Bob King Autohaus  
910-799-3520

**Winston-Salem**  
Mercedes-Benz of Winston-Salem  
336-760-4580

### North Dakota

**Fargo**  
Valley Imports  
701-277-1777

### Ohio

**Akron**  
Ganley Akron  
330-733-7511

**Bedford**  
Mercedes-Benz of Bedford  
440-439-0100

**Canton**  
Kempthorn Motors  
330-452-6511

**Centerville**  
Ross Motor Cars  
937-433-0990

**Cincinnati**  
Mercedes-Benz of Cincinnati  
513-984-9000

**Columbus**  
Mercedes-Benz of Columbus  
614-299-2144

**Dublin**  
Crown Eurocars  
614-799-4666

**Mansfield**  
Weidner Motors  
419-529-7800

**North Olmsted**  
Mercedes-Benz of North Olmsted  
440-716-2700

**Sylvania**  
Vin Devers  
419-885-5111

**Tiffin**  
Coppus Motors  
419-447-8131

**West Chester**  
Mercedes-Benz of West Chester  
513-870-1000

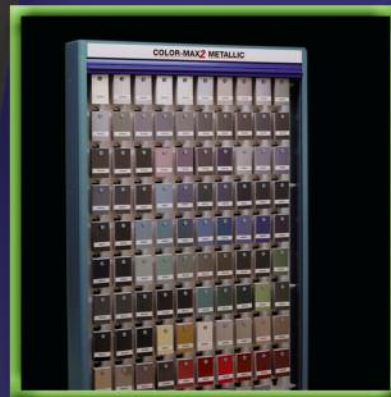
**Willoughby**  
Leikin Motor  
440-946-6900

**Youngstown**  
Fred Martin Ford  
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<b>Oklahoma City</b> Mercedes-Benz of Oklahoma City 405-236-1224	<b>Tiverton</b> Viti 401-624-6181	<b>Harlingen</b> Cardenas Autoplex 956-425-6000	<b>Midlothian</b> Mercedes-Benz of Richmond 804-545-9600
<b>Tulsa</b> Jackie Cooper Imports 918-249-9393	<b>Warwick</b> Inskip Autocenter 401-821-1510	<b>Houston</b> Mercedes-Benz of Houston Greenway 713-986-6400	<b>Richmond</b> David R. McGeorge 804-755-9300
<b>Oregon</b>	<b>South Carolina</b>	<b>Houston</b> Mercedes-Benz of Houston North 281-233-6000	<b>Roanoke</b> Hammersley of Roanoke 540-344-6284
<b>Bend</b> Mercedes-Benz of Bend 541-749-2500	<b>Charleston</b> Baker Motor of Charleston 843-852-4000	<b>Houston</b> Star Motor Cars 713-868-6800	<b>Vienna</b> Mercedes-Benz of Tysons Corner 703-442-8200
<b>Eugene</b> Mercedes-Benz of Eugene 541-687-8888	<b>Columbia</b> Dick Dyer and Associates 803-786-8888	<b>Laredo</b> Powell Watson Motors 956-722-5182	<b>Virginia Beach</b> Phillips Automotive 757-499-3771
<b>Medford</b> Mercedes-Benz of Medford 541-857-8072	<b>Conway</b> Fowler Motors 843-347-4271	<b>League City</b> Alex Rodriguez 281-554-9100	<b>Washington</b>
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<b>Doylestown</b> Keenan Motors 215-348-0800	<b>Franklin</b> Mercedes-Benz of Nashville 615-742-8000	<b>Waco</b> Allen Samuels Chevrolet-GEO 254-772-8850	<b>Yakima</b> Hahn Motor 509-453-9171
<b>Erie</b> Contemporary Motorcar 814-868-8622	<b>Kingsport</b> Rick Hill Imports 423-224-2260	<b>Wichita Falls</b> Patterson Auto Center 940-766-0293	<b>West Virginia</b>
<b>Ft. Washington</b> R&S Imports 215-646-7700	<b>Knoxville</b> Mercedes-Benz of Knoxville 865-777-2222	<b>Utah</b>	<b>Charleston</b> Smith Company Motor Cars 304-746-0600
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<b>Wilkes-Barre</b> Motorworld 570-829-3500	<b>Dallas</b> Park Place Motorcars 214-526-8701	<b>Charlottesville</b> Brown European Imports 434-817-3380	<b>Wausau</b> Rosemurgy International Auto Mall, Inc. 715-675-7775
<b>Puerto Rico</b>	<b>El Paso</b> Mercedes-Benz of El Paso 915-778-5341	<b>Fredericksburg</b> Noble Cars 540-373-5200	<b>West Allis</b> International Autos 414-543-3000
<b>Carolina</b> Garage Isla Verde 787-620-1313	<b>Fort Worth</b> Park Place Motorcars of Fort Worth 817-263-3600	<b>Hampton</b> Tysinger Motor 757-865-8000	

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