

STARTUNED®

Information for the Independent Mercedes-Benz Service Professional

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IN THIS ISSUE:

2 **FRAMED FOR SUCCESS**

Repair of integrated safety systems

8 **A VARIATION ON A THEME**

Dynamic valve timing

12 **HOW MAY I ASSYST?**

Here is how Mercedes-Benz helps

14 **THE NET**

Tech info for you



Mercedes-Benz



Framed for Success

Repair of integrated safety systems requires more than proper frame alignment

TO OUR READERS:

Welcome to StarTuned, the magazine for independent service technicians working on Mercedes-Benz vehicles. Your Mercedes-Benz dealer sponsors StarTuned and provides the information coming your way in each issue.

Mercedes-Benz wants to present the information you need to know to diagnose and repair Mercedes-Benz vehicles accurately, quickly and the first time; text, graphics, 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.

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.

Send your suggestions, questions or comments to us at: StarTuned

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www.MBWholesaleParts.com to view this issue and all past issues of StarTuned, along with a wealth of information on Genuine Mercedes-Benz Parts.

To locate a Mercedes-Benz dealer near you, go to **www.mbusa.com**.

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Safety is a dynamic evolutionary process

—The best accident is one that doesn't happen at all. Yet the reality is that accidents occur. In a perfect world, collision repair would be easy. But the pace of increasing vehicle complexity continues to ramp up, which creates both collision repair challenges and opportunities.

—Much of this emergent advanced technology and innovation shows up first in Mercedes-Benz vehicles, which offers a competitive edge to the automaker's certified collision centers. But to transform that opportunity into profitability, a facility and its staff must commit to four tenets:

- ⊗ Be constantly aware of inbound change.
- ⊗ Source accurate repair information.
- ⊗ Follow proper repair procedures.
- ⊗ Use approved tools and equipment.

—Take vehicle safety systems, for example. Just as the introduction of advanced high-strength steels and alloys required collision professionals to change, new safety systems require a corresponding shift in knowledge, repair methods, tooling and competencies.

—Proper frame straightening is essential for these safety systems to operate as intended post-repair. In addition, components must be properly diagnosed and repositioned during repair. Technicians must also be able to analyze safety systems to discern if reprogramming or replacement and re-initialization is needed. Clearly, your job is becoming more complicated, but that's why customers come to you, instead of to a less well-prepared facility.

—As automakers and regulators move toward a shared vision of zero traffic fatalities, innovation in vehicle safety systems has evolved. Initially "passive" safety systems (e.g. airbags, seatbelts, strong body structures) helped to reduce the effects of an accident without any interaction with the driver. Over time, "active" safety systems (e.g. brake assist, electronic stability control) emerged, which by factoring in the current state of the vehicle in milliseconds, helped to avoid or minimize the effects of an accident.

—In just the past few years, "integrated" safety systems have begun to show up on many Mercedes-Benz vehicles that do just that. These emergent safety systems often employ camera-, radar- or laser-based sensors that interpret signals and leverage in-vehicle communication across many interconnected systems to help the driver to control the vehicle via audio, visual, or tactile prompting, or, if necessary, intervene directly to control the vehicle should a driver not react to a dangerous threat in time.

—"Our aim is to reduce the number of serious accidents even further, and on a broad basis," says Ulrich Mellinghoff, director of safety at Mercedes-Benz. "Following detailed analyses of accident data, we estimate that radar-based technology will be able to prevent around 20 percent of collisions, and mitigate the other effects of accidents in a further 25 percent of cases."

Integrated safety systems are on the rise.





Repair from an informed perspective.

Give it to me straight

- Collision technicians must know and understand, before beginning a repair, what safety systems a vehicle has, where they're located, the correct OEM procedures for repair or replacement, what approved tools and equipment are needed, and how to test and verify that these systems are positioned and operating as designed once repairs are completed. Anything less is an erosion of the quality of the repair that risks one's business and professional reputation, let alone customer safety.
- All Mercedes-Benz certified collision repair facilities are required to use current service information, Mercedes-Benz-approved dedicated straightening equipment and associated fixtures, and to follow Mercedes-Benz work procedures using approved materials. Failure to do so may result in the decertification of the repair facility. In the event that jobs are performed as sublet repairs by other collision facilities, the dealer is responsible for providing proper service information, equipment, tools, materials, and procedures to those performing the repairs. This information is all available at www.startekinfo.com, MBUSA's website.
- Mercedes-Benz collision repair procedures are very specific concerning the type of equipment used and reconditioning of bodies following an accident. In the United States, the only companies marketing straightening equipment that is approved by Mercedes-Benz USA LLC (MBUSA) are Celette

Inc. and Car Bench North America. Both work closely with MBUSA parent Daimler AG in designing and building dedicated fixture sets specifically for Mercedes-Benz and Maybach vehicles that not only allow for accurate component location, but also provide a safe, proper anchoring of the vehicle during pulling operations.

For example, Celette Inc. offers a full spectrum of equipment for frame alignment. Its lineup (with the current pricing) includes the:

- NAJA Computerized Measuring System — There is no point in having an accurate measuring system if the underlying data is not accurate. NAJA is extremely accurate because it is based on actual Mercedes-Benz model blueprints.
- Sevenne Bench and Pulling Unit for frame straightening. Used in conjunction with the NAJA, technicians align frames accurately and more quickly.
- And assorted accessories that include an MZ Tower Set, Cross Member Set, and more.

Safety walks a fine line

- Just like milliseconds can make the difference in mitigating or avoiding a crash, millimeters can make a difference in frame straightening. When a vehicle is in an accident that requires straightening, MBUSA's tolerances may specify a small margin equivalent to approximately 1 millimeter, requiring precise accuracy. If the actual frame correction exceeds this margin, the frame can cause instability and lessen automotive control, a future driving hazard. Improper correction can also lead to excessive wear and tear on the vehicle's tires and

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lower performance of electronic and mechanical parts, possible even resulting in some failure.

—Vehicle frame integrity requires computerized measuring systems, which often use laser technology. Because these measuring systems are very accurate and enable the complete measurement of the vehicle during the repair process, technicians can make frame repairs with the certainty that repairs to one section of the vehicle don't negatively affect other areas of the vehicle. In addition, the website provides wiring diagrams, images, location and positioning data, diagnostic reprogramming instructions and more.

—Because people's lives depend on it, the repair of a damaged vehicle requires certainty that the frame is structurally sound and properly aligned. The frame affects the accuracy and functionality of many safety systems and how a vehicle will react in a subsequent collision. Technicians must accurately measure and return the frame to pre-collision condition before attempting to rebuild the vehicle on top of it. Complete, safe collision repairs must be performed using the most current service information and correct materials, tools and procedures available. Anything short of that is irresponsible and unprofessional.

Safety system damage may not be apparent at first glance

—Getting the frame measured and aligned is just the beginning of the repair process. Collision technicians must also verify the structural integrity of the upper body and passenger safety cage and ensure that all measurements are within specification because deviations may impair the performance and activation of vehicle safety systems during a subsequent collision. Here, laser measuring saves technician time.

—If repairs are required for any upper body components above the frame, website service information will advise whether to pull, section, or replace certain steels. It will also denote safety system wiring schematics, the location and layout of electronic sensors and modules, and identify critical

components that might be hidden from sight, but possibly be damaged indirectly during a collision.

—Vehicle electronic and safety systems need to be tested after a collision to ensure they are operating as designed. Technicians who use the Mercedes-Benz factory scan tool have the most complete diagnostic and reprogramming functionality available, which is essential for new and emerging safety systems. To test safety system components after a collision, locate and disassemble them from the other damaged parts so that repair procedures to the latter do not affect safety components. If the units are still operational, they may need to be reprogrammed to return to pre-crash capability. If the safety components have to be replaced, ensure that the new parts are tested and reinitialized if necessary.

—Finally, when reassembling, reference wiring diagrams to ensure that the safety system components, in particular sensors, are positioned properly. Technicians should also check other procedures. For example, when performing filling and painting work on bumpers, MBUSA procedures stipulate that where short-range radar sensors are located, the maximum paint coat thickness "... should not exceed two coats of paint (primer, color and clear)." Should the paint application be thicker, the radar sensors will detect the excessive paint coat thickness as an obstacle and react as designed, but send a false signal. If the short-range radar does not function correctly after overpainting, then the paint must be removed or the bumper must be replaced, neither of which is covered by warranty.

—As Mercedes-Benz continues to hone safety, comfort and driving pleasure through a whole series of innovations, these integrated systems are being incorporated into a wider range of vehicles, including compacts and, especially overseas, sub-compacts. In other words, less-expensive models now offer a number of the safety systems that have been for the most part standard on more luxurious Mercedes-Benz vehicles. These include Intelligent Lighting System (ILS), Blind Spot Assist, Lane Keeping Assist, Attention Assist, Active Parking Assist, Linguatronic, Distronic Plus, and Pre-Safe. |

The radar-based Collision Prevention Assist (CPA) safety system, shown bottom right, combines Distronic Plus, Adaptive Brake Assist, Pre-Safe, other active and passive safety systems, and the communications among their sensors and control modules to enable the driver and, if necessary, the vehicle to react sooner than the driver acting alone could.

Here's a short brief about what these and other individual Mercedes-Benz safety systems do:

Attention Assist gives an early warning of driver fatigue.

Distronic Plus provides more responsive proximity control at speeds between zero and 124mph by automatically adjusting the distance to the vehicles in front.

Brake Assist Plus recognizes an impending collision using radar sensors, then calculates and provides the necessary degree of braking assistance when the brake pedal is depressed.

Blind Spot Assist warns the driver when vehicles are detected in the area of poor visibility and, with Active Blind Spot Assist, counteracts a possible collision by applying the brakes if necessary.

Pre-Safe combines active and passive safety synergies to reduce the loads exerted by up to 40 percent on the vehicle occupants from before an accident, at the moment of impact, through the crash and in the moments after the event.

Active Lane Keeping Assist warns the driver as soon as it detects that the driver has unintentionally left a recognized marked lane; if necessary, the system can react with a lane-correcting brake application.

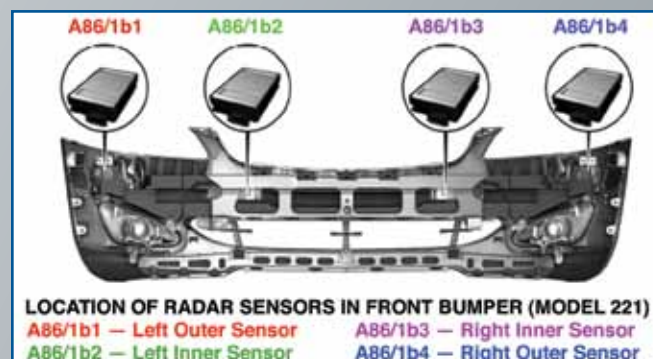
Park Assist carries out the steering maneuvers required for the parking process, leaving the driver to operate the brake and accelerator.

Accessing and using the most current and accurate service information is essential to complete, safe repair of a vehicle that has

crashed. Collision facilities and technicians can find critical Mercedes-Benz information pertaining to safety systems, frame alignment and more at www.startekinfo.com.

Repairers need to be aware that safety system sensors, modules, and other components are often located in "crush zones" and hidden from view. For example, the S-Class front bumper has four radar sensors located inside the front bumper, as shown above. In addition, Distronic Plus proximity sensors are typically fitted to a plate in front of the radiator grill. In addition, the control modules for these sensors can be situated in other crush zones, such as in rear quarter panel structures of many models. Repair, replacement and painting service information, procedures, and other Mercedes-Benz requirements are available at www.startekinfo.com.

Sensors for radar- and camera-based safety systems are typically located in the front and rear bumpers. Control modules, however, are usually positioned on the inside edge of left and right rear quarter panels, areas that are also vulnerable in a collision. |



There are electronic crush zones, too.



Safety is more than skin deep.

A Variation on a Theme

It's simple: Retarding the valve timing allows an engine to make more power at low rpm, while advancing it gives more power at high rpm. How can we get the best of both worlds?



—Think of an engine as an air pump. The more air it can move at a given rpm, the more power it will produce, and this is determined by the position and lift of its camshaft lobes. The trouble is, camshaft timing and lift that's ideal for optimum horsepower output at high rpm makes for a rough idle, excessive emissions, and poor low-end torque. So, how do you engineer for high-performance throughout the range of operation, the best of both worlds?

—Mercedes-Benz Variable Valve Timing has been with us for almost 20 years. It has evolved through a few stages, but has remained basically the same on the 1XX series engines. On these engines, only intake valve timing advanced for increased top-end power. With the 2XX series engines, both intake and exhaust valve timing are varied for increase performance. In both cases, Mercedes-Benz has engineered a system that uses switched oil pressure to move the camshaft actuator toward the advanced position. Timing chain direction and/or spring tension within the actuator returns it to the retarded position when oil pressure drops, depending on

(Above) The first step is to look at the procedure for timing chain R & R in WIS with your paid subscription to Startekinfo. Set up the crankshaft where they have you set up valve timing. This way if the chain falls off you can always retime the engine.

the application. This means when dealing with any variable valve timing issue oil level, pressure, and quality all need to be checked before any other tests are performed.

First Things First

—The systems works by energizing an electromagnetic coil mounted in the camshaft timing case cover. The PCM grounds the coil that already has ignition-on power. With the coil energized a cup bolted to the end of the camshaft is pulled forward. This causes the oil flow to stop and pressure to build up, which in turn causes the actuator to rotate the cam sprocket relative to the camshaft, thus advancing the timing. Since the oil trapped in the actuator isn't circulating, conventional oil can overheat, form sludge, and

reduce lubrication. This can cause an actuator to stick and/or fail. Synthetic oils have a higher burn point so they can withstand these higher temperatures. Mercedes-Benz recommends that you use synthetic oil even on older models that may not have used it originally.

Testing, Testing And More Testing

—You can use your SDS (available for purchase from Mercedes-Benz) to actuate and test the variable valve timing system. There is a test under “Actuations” with steps to follow. Essentially, you will be asked to accelerate the engine and start the test. The PCM will activate the variable valve timing solenoid and watch the cam position sensor signal change relative to the crankshaft position sensor. You can use an oscilloscope to watch these waveform patterns while the test is being performed. Typically, Mercedes-Benz uses an AC pulse generator for its crankshaft position sensor. It is a three-wire sensor with an AC signal, signal return, and a shielded ground. What are you looking for?

—Put your scope on the signal line and you will see an AC “Sine” wave as the slotted ring gear of the flywheel passes by the sensor. There is a missing tooth in the slotted gear to indicate TDC to the PCM. The camshaft position sensor is usually the Hall-effect type. This is also a three-wire sensor, but it has a five-volt reference, signal voltage, and ground. A square wave is generated on the signal line of the sensor as the shutter wheel of the camshaft passes by. Just as the PCM monitors the signals of the cam sensor and the crank sensor, you can do the same while activating the solenoid yourself, or using the SDS to do it.

Now We Have To Work

—If you have diagnosed a sticking actuator, it is going to have to be replaced. If it were to fail and physically come apart, it would lead to severe engine damage. You can replace the actuator without removing the entire front timing cover. It is recommended that you look at the timing chain, sprockets, guides and tensioner to see if they need



After relocating the alternator and removing the tensioner, you can remove the exhaust sprocket and unbolt the adjuster unit from the intake cam. Be careful to support the chain so it does not fall into the engine and disengage the crankshaft sprocket.

to be replaced as well. Then it is worthwhile to remove the timing cover and related components. If you are only replacing an actuator, you must be careful not to allow a shaft to spin with the chain off. This would alter the valve timing and cause the engine to run rough or allow the valves to contact the pistons.

—The first step is to rotate the crankshaft to TDC. This will allow you to retune the engine if something moves or comes off during the service. Then, pull off the valve covers. You may want to provide your own paint marks and/or install the same guide pins used to secure the cam sprockets while doing a timing belt job. This will help when you reinstall everything and keep the timing the same. You may

have to remove the alternator (or at least take off the top mounting bolt and tilt it back), and remove the tensioner from the side of the timing cover. With slack on the chain you can now rotate the passenger side exhaust cam sprocket until either of the intake cam sprockets can be unbolted and removed from the camshafts.

— You will need to use a wrench to keep the camshaft from rotating while taking off the cam sprocket. When installing the new sprocket, you will have to collapse the actuator if it has a return spring before bolting it. Once the actuator is installed and properly torqued, you can check to see if the valve timing is correct by rotating the engine by hand two crankshaft revolutions. With the engine reassembled, you can use the SDS to recheck the variable valve timing system and verify your repair. Also verify that the correct oil viscosity and type is being used. This will help prevent future problems and provide your customers with the reliability they expect from their Mercedes-Benz vehicles, and that will keep them coming back to you for service work. |



First, you attach the cam adjuster inner plate to the mount with new bolts. Then, install the spring. You could use the old nut to temporarily hold the assembly together while you add the outer cam sprocket.



When changing the camshaft adjuster unit, you should also replace the return spring. You will also need to get new mounting hardware and properly torque it down so there will be no issues in the future. Since you had to remove the tensioner, you should include a new gasket.



Hold the assembly together and remove the camshaft adjuster mounting nut. Then, install the new nut with the large washer that holds the assembly together. This nut must have the proper torque applied to it, which you can get from WIS in Startekinfo.

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Rebuilt Process (Typical Aftermarket)

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



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How May I ASSYST?

With any tangible investment, good maintainance will yield a good return. The same can be said of a Mercedes-Benz vehicle. With proper and timely maintenance you can help retain the value. Here is how Mercedes-Benz helps you achieve that goal.



A Mercedes-Benz vehicle is a sound investment in reliability, performance, safety, and status. But in order to preserve this value the factory-recommended maintenance procedures at specific mileage intervals must be followed. All drivers are not the same, however. Some are Sunday drivers out for a ride on a sunny day, while others commute day in and day out in congested traffic, and each type of use requires its own level of maintenance. Mercedes-Benz understands that individual drivers have different needs as far as upkeep is concerned, So, should have their own maintenance schedules appropriate to how they drive. ASSYST (Active Service System, a.k.a. FSS) offers just that. The system monitors time, length of use, and how the vehicle is driven to determine how often it needs

to come in for service. It receives this information from the powertrain CAN network. A vehicle that is not driven frequently and has an easy life will not require service as often as one that commutes everyday and is driven hard, or sits in traffic for hours at a time. The ASSYST system has evolved throughout the years since it was introduced. Starting with early 140 chassis vehicles, a wrench symbol would show up in the odometer display. Now, more elaborate systems indicate multiple services and when each one should be performed.

ASSYSTing Your Customers

In the beginning, only the need for oil changes was monitored. During the late '90s a more sophisticated system indicated whether an "A" service or "B" service was necessary. This Flexible Service System (FSS) split this up. A single wrench symbol in the odometer screen indicates that an



On early systems up to the ML pictured here, after performing the oil change reset procedure you will see the mileage reset to 10,000 miles. You can change the mileage intervals, but you will need your SDS to do it.



The reset button is usually found in the instrument panel bezel either on the left or the right. The "R" button is not always identified. Sometimes it can be below an up- and down-arrow button, or sometimes by itself.

“A” service is needed. Two wrenches indicates that the “B” service is due. A “+” symbol after the letter warns that the brakes should be checked as well. The “A” and “B” services are to be performed alternately every 14,000 miles or so, depending on how the vehicle has been driven. The A service is a full safety check including charging system, brakes and an oil change. Also check all the fluid levels while under the hood and replace the cabin air filter (there are two types: a conventional dust/particle filter, and with the enhanced HVAC systems, a charcoal-activated filter). A list of the specific checks for the “A” and “B” service schedules can be found in WIS, which you can access with a paid subscription to www.startekinfo.com.

The Two (or more) Steps

—Once you perform the necessary services you will need to reset ASSYST (FSS) to prepare the vehicle to remind the driver when the next service is due. These procedures are all done manually through the instrument cluster, although the exact steps vary according to the year and model. We will review a few of the reset procedures on various models starting with the ML-Class, 163 chassis. All of these steps need to be performed within a specific timeframe, so read the procedure through first then attempt it in the vehicle. The first step is to turn



In this menu, if you select “Items” you will be given a list of numbers that correspond to the services that need to be performed. Use www.startekinfo.com or your information system to look up what these services are.

the ignition switch to the Number 2 position. The warning lights in the dash will come on. Within the first four seconds, then push the trip meter reset button twice within one second. You should see the maintenance display wrench symbol come up in the odometer screen. Within 10 seconds, shut off the key. Press and hold down the odometer reset button and turn the key back on. Continue to hold down the reset button for about 10 seconds until the instrument cluster chimes, then release the button. The new mileage of 10,000 miles should be displayed in the odometer screen. This is the only reset you have to perform on this vehicle.

FSS Evolves

—On early 2000 models, you may see one or two wrenches displayed in the odometer/driver information display. You will also see the request for either an “A” or “B” service. On these models start by turning the ignition switch to the first accessory position. You will need the total mileage displayed in the screen. If not, tap the folder buttons on the steering wheel until the mileage comes up. Then push the up- and down-arrow keys on the steering wheel until the maintenance mileage is displayed. Hold down the “R” button on either side of the instrument panel bezel for about five seconds. In the display, you will be asked the question “DO YOU WANT TO RESET THE SERVICE INTERVAL?” Release the “R” button and press it again to confirm that you want to reset it within 10 seconds. Once again, 10,000 miles should end up in the display screen. Use the same procedure whether it is an “A” or “B” service being performed. If you need to cancel the reset you just performed for whatever reason, you must use the SDS (available for purchase from Mercedes-Benz).

ASSYST Gets More Involved

—By mid-2000, the process had evolved. The ASSYST system now breaks down the maintenance procedures into services “A” through “H.” These letter designations indicate approximately how many hours it is going to take to perform the service. For example, the “A” service will take one



You need to select the “+” or “-” button on the steering wheel to scroll through the menus. Look in the odometer screen and you will see a symbol of the button you have the choice of selecting. Here, the lower folder button is used for selecting “Confirmation”.

hour, the “B” service will take two hours, and so on. The letter designations only indicate the time involved for the service. When you enter the reset procedure in the instrument cluster, you will see a listing of numbers that represent the services you need to perform. Write these down and compare them to the services chart. After finishing the work, you can reset the system. Turn the key to position Number 1 (accessory). If you need to, select the folder button until the mileage, temperature, or vehicle speed is displayed. Press the “R” button three times once per second. You should get an audible tone from the cluster and the battery voltage should be displayed. In the Service Menu display use the “+” and “-” buttons to scroll up and down through the menu. If you select “Positions” you will be given the list of service numbers to perform. If you scroll to “Confirmation,” you can reset the service interval. Select what you want by hitting the lower folder button. When the phrase “Complete Service” is highlighted under the “Confirmation” heading, select the lower folder button to complete the reset, and the phrase “Service Confirmed” will be displayed.

Where We Are Today

—The latest ASSYST system takes oil service to the next level. Mercedes-Benz engines offer power, tractability, and fuel efficiency. In order to maintain



On later-model systems, you will be asked to select what oil quality specification you have put in the crankcase. Talk to your bulk synthetic oil supplier to see if what he’s selling you meets Mercedes-Benz requirements. Spec 229.5 is the current one you want to use. Or, contact your Mercedes-Benz dealer to order the correct oil.

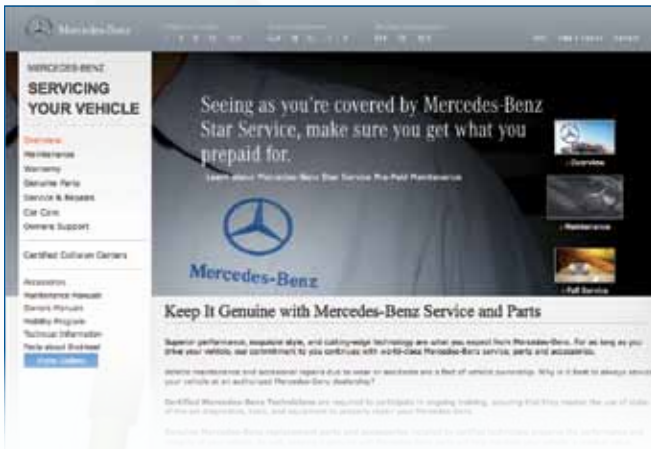
engine performance, Mercedes-Benz requires the use of full synthetic oils. Even among synthetics, the specifications have to match the requirements. The oil change reset procedure has you chose the oil’s specifications so it can adjust the time interval accordingly. Start by turning the ignition key to the Number 1, accessory position. Then, on the right of the steering wheel hold down the “Accept/Terminate” phone call button and press the “OK” button for over three seconds. Scroll down to to select “ASSYST Plus Workshop” then scroll down to “Services Due.” After selecting, you will be asked if the oil quality meets Mercedes-Benz 229.5. You should look at the back label of the oil container to see if this specification is listed. The safest bet is to purchase your oil supply for these late model vehicles from your Mercedes-Benz parts supplier. If the oil is up to specification, you can select “Yes” and your reset is now complete.

—Some general rules to remember: You should have all doors, hood, and trunk closed. This will keep any warning messages off in the instrument cluster. Be prepared to press buttons as soon as you turn the key on. Remember, within a few seconds you will have to make your next selection, so be prepared. When all the maintenance procedures have been performed and ASSYST reset, your customers will have the knowledge they need to maintain their investment in their vehicle. |

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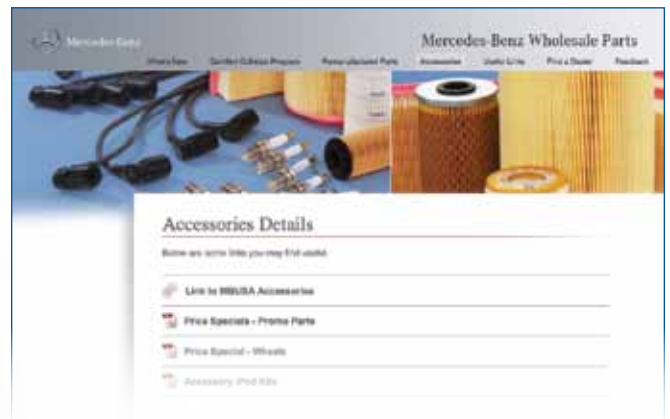
is up and running complete with the following enhancements:

- ***What's New*** : Accessories tab added for direct access to the items that enhance your Mercedes-Benz vehicle.
- Page with helpful ***parts*** information.
- ***Links*** to other informative sites like the ***Classic Center*** and ***Collision Program***.



- ***Direct link*** to the Electronic Parts Catalog (EPC) to look up parts.
- ***Downloadable*** Remanufactured Parts Catalog and Reman Parts policies.
- User friendly links to tools such as ***STAR Tekinfo*** and ***WIS***.
- ***WebParts online ordering*** information and how-to video tutorial.
- ***Search*** feature to find archived StarTuned Magazine articles & information.

Please visit us at www.mbwholesaleparts.com





Don't take a chance with other parts. Keep it Genuine.

Your Mercedes-Benz customers expect the best without excuses or compromise. When a customer trusts you enough to give you their Mercedes-Benz to work on, there's one way to make sure it's still all Mercedes-Benz when you give it back: Use Genuine Mercedes-Benz Parts. For more information, contact your local Mercedes-Benz Wholesale Parts Dealer or visit us at www.mbwholesaleparts.com.

UNSURPASSED QUALITY | FACTORY BUILT & TESTED | COMPETITIVE PRICE | PROVEN RELIABILITY | PRECISION FIT | LIMITED WARRANTY



Mercedes-Benz