

STARTUNED®

Information for the Independent Mercedes-Benz Service Professional

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Volume 15 | Number 4



ECO START

ABC

FUEL CELL ELECTRICS

UNIBODY



Mercedes-Benz



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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.

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www.MBWholesaleParts.com to view this issue and 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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Mercedes-Benz

Mercedes-Benz Unibody Repair

Unibody repair requires thorough discovery of the extent of damage, identification of the materials that damaged components are made of, understanding of the importance that material construction has on the choice of repair procedures, and use of the appropriate tools and equipment. Read on for examples of how Mercedes-Benz repair information helps bring factory precision to the real world environment of a collision repair facility.



Unibody automobile construction is designed to manage collision energy to minimize the impact on passengers. Mercedes-Benz unibody design combines advanced high-strength steels and other materials to reinforce the safety of the central body of the vehicle, plus front and rear crush zones that are engineered to collapse in a specific way that diverts collision energy away from the passenger compartment.

This is wonderful for occupant safety, but very challenging for you as a collision repair technician. When cars were mostly mild steel, the same straightening and welding techniques worked on a wide variety of components and vehicles.

A HUGE VARIETY OF DECISIONS

Advanced high-strength steels, light and strong aluminum alloys, magnesium, plastic and composites, carbon fiber and other exotic materials are challenging us to learn new repair methods and make different decisions about what can or cannot be repaired. There are application-specific components and procedures in almost every area of collision repair.

Today, some advanced high-strength steels (AHSS) are weakened by levels of heat that were fine for mild steel. Others are work-hardened beyond desirable limits simply by pulling. Minor dents in aluminum alloys can be straightened, but pulling major damage will likely result in fracturing the more brittle material, perhaps invisibly.

Structural components may contain internal reinforcements made of advanced materials that cannot be straightened, even though the outer component could. Some joints that were welded when factory-new must be adhesive bonded and riveted to minimize heat damage in a post-collision repair.

New laser welding techniques create weld bonds that go to the exact required depth in a multi-layer joint that may contain different types of metal, or different thicknesses. The precision required to weld without damaging the layers of thin, ultralight steel in a joint cannot be duplicated outside of the computerized, robotic environment of the OEM factory.

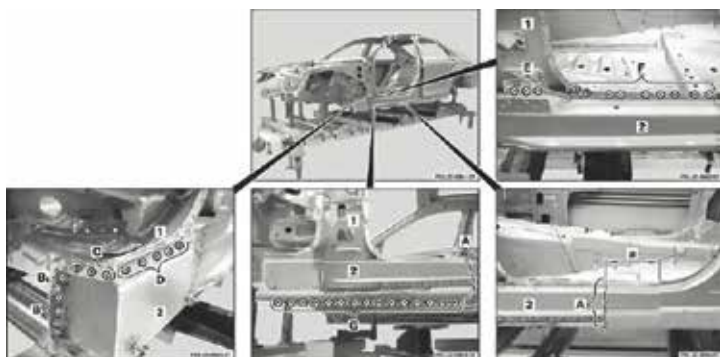
Joints that combine AHSS with aluminum, magnesium, or new composite materials require different welding or bonding methods to avoid heat damage, protect against corrosion, and maintain long-term durability. Different adhesives require specific pretreatment of the surfaces to be joined. Different materials call for special rivets that are matched to the strength requirements of the joint.

As collision repair technicians, you are faced with a huge variety of decisions for even the most routine post-accident restoration situation. Straighten or replace, section or complete component replacement, MIG weld, braze, or adhesive bond and rivet, what type of rivet? The decisions you have to make are many.

DESTRUCTIVE TESTING

Your best ally is information from the carmaker. Mercedes-Benz has long been a leader in the development of occupant safety and, more recently, accident avoidance technologies for its new vehicles. Because its customers love and keep their Mercedes-Benz vehicles in service far longer than the industry average, the company has also invested a lot in crash-testing and studying how to repair or rebuild the vehicle after it has been in a collision.

Using the findings from extensive and ongoing destructive testing, an army of Mercedes-Benz engineers, metallurgists, and technicians have developed repair-or-replace guidelines for structural and other vehicle components. They publish procedures that tell you whether to cut out just the immediate damage, cut at a factory seam, or replace an entire assembly. They recommend materials, tools, and equipment for working on Mercedes-Benz vehicles.



The Mercedes-Benz instructions for removing the A-pillar with side longitudinal member (rocker panel) on an S 500 4MATIC show in great detail the variety of repair methods used in one procedure. For example, cut out spot welds in areas B and B1 on outer longitudinal member (2) using a ball cutter, but in area C, use a Vario Drill spot weld removing tool, and in areas D, E, F and G use an 8x44 mm diameter BTR Usibor milling cutter.

You can access this information via the Mercedes-Benz Workshop Information System (WIS) online database, available at StarTekInfo.com. Alternatively, your aftermarket repair information provider may partner with Mercedes-Benz to make that information available.

REPLACE AT FACTORY SEAM, OR SECTIONING?

In sectioning, you create a cut line at a location where there was no factory seam. In part replacement, you are replacing part or all of a given component, but cutting and joining only at the factory seams. Go to WIS to see whether the component you will be working on is recommended for sectioning or for partial or complete replacement at factory seams.

For example, Mercedes-Benz allows sectioning when removing the B-pillar without the side longitudinal member, on the E 350 4MATIC. The step-by-step instructions say that the cut-points “can be determined according to the degree of damage.”

Even when sectioning is allowed, it is often within a narrow area. The tolerance, or amount of area within which you have freedom to locate your cut can differ on one side of the repair versus the other, and from top to bottom. This is just one example of the importance of researching the Mercedes-Benz procedures and planning your repair in advance of your first cut.

Do not transfer the upper separating point on the B-pillar. The upper separating point is matched to the replacement part. Repositioning the upper separating point will damage the reinforcement for the adjustable seat belt mounting and reduce the durability of the B-pillar.

BRACKETING IMPACT DAMAGE

Impact damage travels through the unibody down load paths intentionally designed by Mercedes-Benz to divert collision energy away from passengers. These load paths differ not just from those of other vehicle makes, but due to the specific size, weight, and body materials used in a given model, are also engineered differently for many vehicle models within the Mercedes-Benz family.

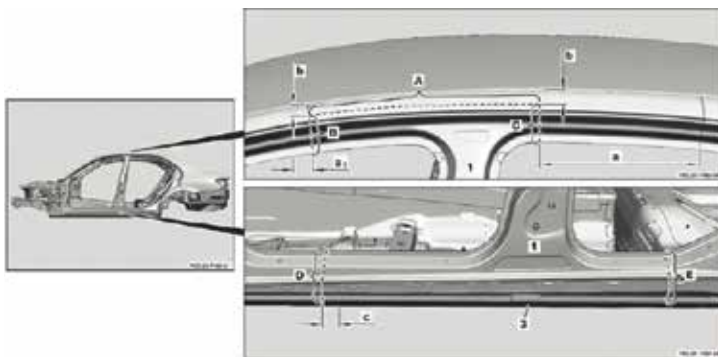
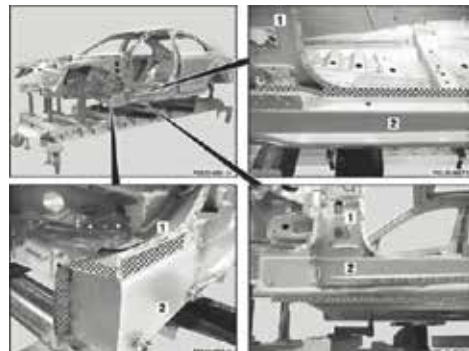
Finding and correcting all current structural damage, which is mandatory in order to restore the vehicle to a crash-worthy state in case of a future collision, requires that you know the position of reference points at all four corners and in other key locations throughout the vehicle.

A Mercedes-Benz dedicated fixture bench works with straightening brackets that attach to the bench and point to where these fixed mounting (reference) points would be on a factory-new vehicle. A

collision-damaged vehicle is then mounted on the bench at points not affected by the accident. Wherever reference points on the vehicle do not match the bench bracket locations, components can be replaced or straightened to the proper placement of the body. New body parts can be located over the straightening bracket for welding in the precise, factory-engineered position. A Mercedes-Benz dedicated fixture bench eliminates concerns about measurement errors.

Lookup the Standard Service Equipment Program (SSEP) catalog on StarTekInfo.com, or contact your equipment provider for more information about the new, Extended

The cross-hatched areas (2) on the outer longitudinal member of an S 500 4MATIC must be loosened using a hot air gun prior to removal. Excess heat, or more destructive extraction methods would damage the adhesive bonding of underlying sheet metal in the rocker panel.



At the base of the B-pillar on an E 350 4MATIC, Mercedes-Benz allows cutting (at “D”) within only an approximately 20 mm window from a notch (at “c”) on the left side of the repair. The notch likely indicates a factory seam or the end of an internal reinforcement that, for safety in a possible future collision, should not be cut. The cut on the right side is determined by the length of the new part on that side, or by where the damage ends. At the top of the pillar, a cutting window is indicated on each side. The dimensions (approximately 265 mm at a, and 33 mm at a1), indicate areas within which you may cut without harming nearby internal reinforcements.

Range Mercedes-Benz-approved dedicated fixture bench for working on commercial and long-wheelbase vehicles.

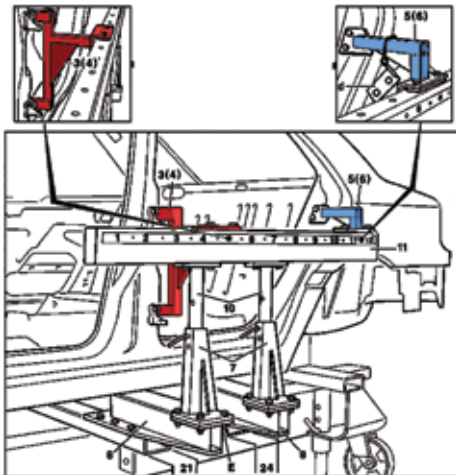
APPLICATION-SPECIFIC RIVETS

Adhesive bonding and riveting are recommended for joining advanced high-strength steels and aluminum panels. Mercedes-Benz has flow form rivets that compress and create a lip on both sides of the joined panels, for a stronger, more durable joint. The rivet head features the outline of the Mercedes-Benz star logo. When properly installed, the Mercedes-Benz logo remains visible on the rivet after the repair is complete.

SEALING OUT MOISTURE

Sealing all bare metal with primer helps prevent corrosion, including the galvanic reaction that occurs when dissimilar metals such as steel and aluminum are joined together on an automobile. Mercedes-Benz recommends applying zinc dust paint as a weld-through primer to all bare metal, including the edges of pre-drilled rivet openings. Documentation in WIS will tell you that zinc dust paint can handle the lower heat of resistance spot welded joints, but is not for use when MIG welding, or on magnesium components.

Mercedes-Benz has developed rigorous standards for every aspect of the collision restoration process. Identifying and measuring damage, and determining what types of materials each damaged component is made of and if or how it can best be repaired, what replacement parts and procedures are approved by Mercedes-Benz, and what tools and equipment to use will make you more efficient and protect you from liability in a future mishap. All of this is made possible by having the correct information. |



A dedicated Mercedes-Benz fixture bench provides for correct placement of the vehicle body. The above image shows modular brackets attached to the bench and to key locating points on the B and C-pillars.

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Mercedes-Benz Mobil 1

Product Name	Part Number	Quantity	Product Description	Recommended Consumer Applications
Mercedes-Benz SPEC.				
Mobil 1 Formula M 5W-40	BQ 1 09 0144	Bulk - No Equipment	Fully synthetic formulas designed specifically for gasoline passenger cars	Low SPAsh. Available at most MB dealers
	BQ 1 09 0162	6/1 Quart Cases		
	BQ 1 09 0151	55 Gallon Drum		
Genuine Mercedes-Benz Oil MB 229.5 Specification SAE 5W-40	A0009898301USB6	12x1 Quart Cases	Fully Synthetic formula specifically designed for Mercedes-Benz engines that require the 229.5 Specification	Mercedes-Benz Engines that require 229.5 Specification Oil
	A0009898301USB8	55 Gallon Drum		
	A0009898301USB9	Bulk - No Equipment		
Mobil 1 0W-40	BQ 1 09 0010	Bulk -No Equipment	Fully synthetic formulation designed to meet the requirements of many European vehicles	Porsche A40. Many European vehicles. HT/TS applications.
	BQ 1 09 0015	6/1 Quart Cases		
	BQ 1 09 0016	55 Gallon Drum		
Mobil 1 ESP X1 0W-30	BQ1090184	Bulk -No Equipment	Advanced full synthetic formulas designed specifically for diesel passenger cars that have particulate filters	Low SPAsh. Available at most MB dealers
	BQ1090182	6/1 Quart Cases		
	BQ1090183	55 Gallon Drum		
Genuine Mercedes-Benz Oil MB 229.52Specification SAE 5W-30	A0019893701USA9	Bulk - No Equipment	Fully Synthetic formula specifically designed for Mercedes-Benz engines that require the 229.51 Specification	Mercedes-Benz Engines that require 229.51 Specification Oil
	A0019893701USA6	6x1 Quart Cases		
	A0019893701USA8	55 Gallon Drum		
Mobil 1 5W-50	BQ 1 09 0133	16 Gallon Keg	Higher viscosity, advanced full synthetic formula designed for performance vehicles	Porsche A40. HT/HS applications.
	BQ 1 09 0134	6/1 Quart Cases		
Mobil ATF 134	BQ 1 09 0166	55 Gallon Drum	Extra high performance automatic transmission fluid formulated with selected HVI base oils	Recommended for use in Mercedes-Benz automatic gearboxes
Mobil 1 ESP Formula MB 5W-30	BQ 1 09 0165	12x1 Liter Cases	Advanced full synthetic formulas designed specifically for passenger car diesels that have particulate filters	Low SPAsh. Available at most MB dealers.
AdBlue® 1/2 Gal.	A 000 583 0107	1/2 Gallon Bottle	Non-toxic solution that transforms harmful Nitrogen Oxide (NOx) emissions from diesel-powered vehicles into harmless water vapor and nitrogen	Recommended for use in Mercedes-Benz, Volkswagen + BMW AdBlue® (DEF) applications
Diesel Exhaust Fluid 55 Gal	BQ 1 47 0002	55 Gallon Drum		
Mobil 1 5W-30	BQ 1 09 0017	6/1 Quart Cases	Advanced full synthetic formulation designed to meet the requirements of many domestic, including GM, and imported vehicles	Vehicles that require 5W-30. Corvette approved.
	BQ 1 09 0018	55 Gallon Drum		
Mobil 1 10W-30	BQ 1 09 0019	6/1 Quart Cases	Advanced full synthetic formula designed for domestics and imports	Vehicles that require 5W-30 or 10W-30
	BQ 1 09 0020	16 Gallon Keg		
	BQ 1 09 0021	55 Gallon Drum		
Mobil 1 5W-20	BQ 1 09 0083	6/1 Quart Cases	Advanced full synthetic formulation designed to meet the requirements of many newer vehicles including Hondas, Fords, Chryslers, and newer Toyotas	Vehicles that require 5W-20
	BQ 1 09 0084	55 Gallon Drum		
Mobil 1 0W-20 AFE	BQ 1 09 0169	6/1 Quart Cases	Advanced full synthetic formulation designed for enhanced fuel economy and cold weather performance	Most vehicles that specify 0W-20 (newer Toyotas and Hondas), 5W-20 and certain hybrids
	BQ 1 09 0168	55 Gallon Drum		
Mobil 1 0W-30 AFE	BQ 1 09 0174	6/1 Quart Cases	Advanced full synthetic formulation designed for enhanced fuel economy and cold weather performance	Most vehicles that specify 5W-30 or 10W-30
Mobil 1 Synthetic ATF	BQ 1 09 0164	6/1 Quart Cases	Multi-vehicle, fully synthetic fluid designed to meet the demanding requirements of modern passenger vehicles	Vehicles that require Dexron III, Ford Mercon and Mercon V performance levels
	BQ 1 09 0163	55 Gallon Drum		
Mobil 1 15W-50	BQ 1 09 0023	55 Gallon Drum	Boosted, higher viscosity, advanced full synthetic formula designed for performance vehicles	HT/HS applications. Racing and Flat tappet applications
Mobil 1 Gear Oil (Mobil 1 Gear Lube 75W-90)	BQ 1 09 0085	12/1 Quart Cases	Exceeds the most severe service requirements in both conventional and limited slip applications	SUITABLE for use in modern high performance automobiles like SUV's, Vans and Light duty trucks requiring API GL-5 level performance

Mercedes-Benz automobiles are designed to perform on the most challenging roads and conditions. Shouldn't the oil used in Mercedes-Benz engines do the same? We think so.

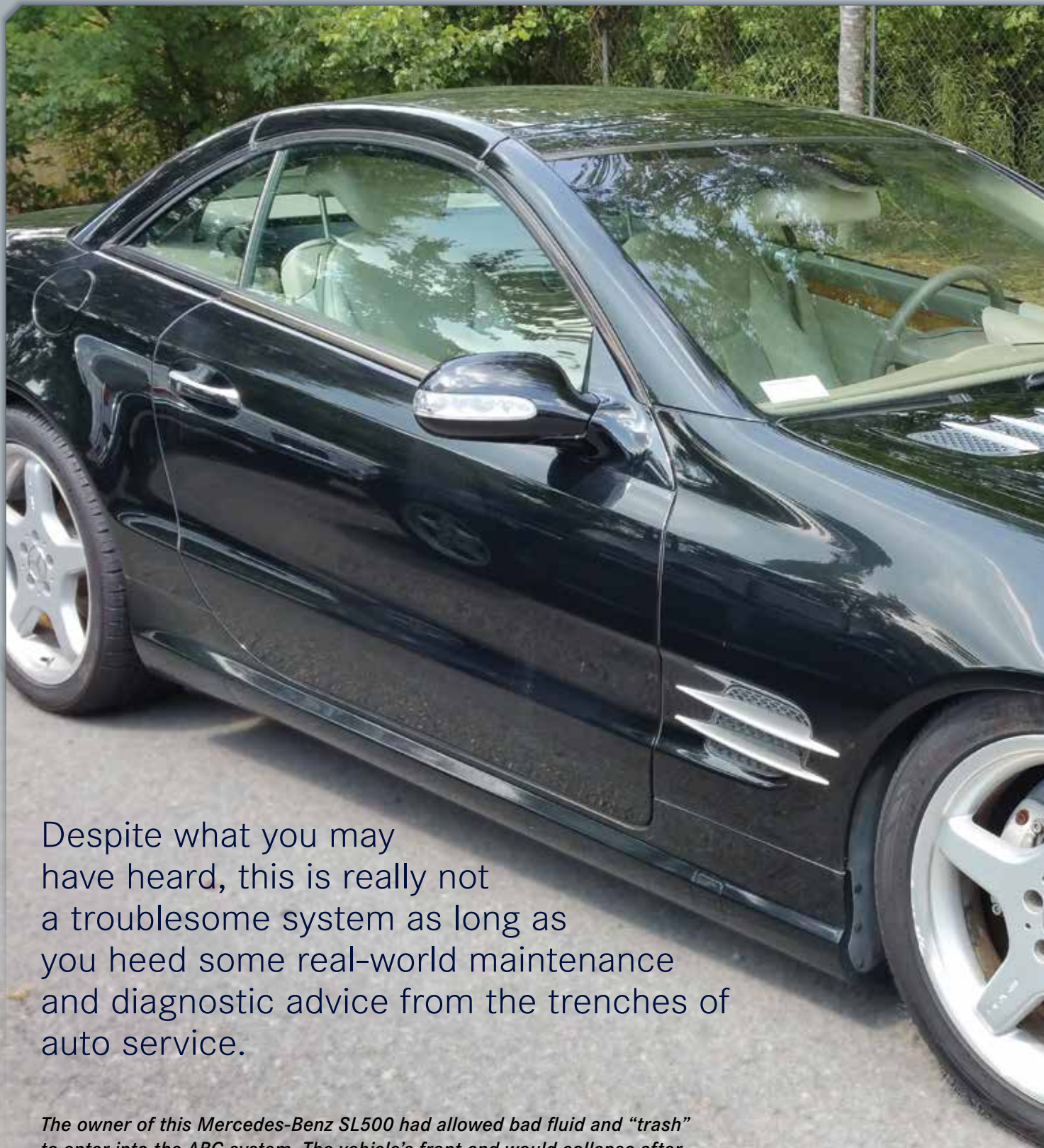
That's why Mercedes-Benz and Mobil 1 have partnered to offer an unbeatable combination of total engine performance and driving luxury.

Please have a look at our oil portfolio which is available through your local Mercedes-Benz dealer. Our dealers are able to offer you a wide variety of oil grades at competitive prices.



Product Name	Part Number	Quantity	Product Description	Recommended Consumer Applications
Mercedes-Benz SPEC.				
Mobil 1 Gear Oil (Mobil 1 Gear Lube 75W-90)	BQ 1 09 0085	12/1 Quart Cases	Exceeds the most severe service requirements in both conventional and limited slip applications	SUITABLE for use in modern high performance automobiles like SUV's, Vans and Light duty trucks requiring API GL-5 level performance
Mobil Special 5W-30	BQ 1 09 002464	Bulk - No Equipment	Formulated from quality base stocks combined with modern performance additives to give the engine the expected protection and performance under a wide variety of operating conditions	Recommended for gasoline fueled automobiles and light duty trucks requiring an API SN/SM/SL/SJ
	BQ 1 09 0171	12/1 Quart Cases		
	BQ 1 09 003064	55 Gallon Drum		
Mobil Special 10W-30	BQ 1 09 003164	Bulk - No Equipment	Formulated from quality base stocks combined with modern performance additives to give the engine the expected protection and performance under a wide variety of operating conditions	Recommended for gasoline fueled automobiles and light duty trucks requiring an API SN/SM/SL/SJ
	BQ 1 09 0172	12/1 Quart Cases		
	BQ 1 09 003764	55 Gallon Drum		
Mobil Special 10W-40	BQ 1 09 003864	Bulk - No Equipment	Formulated from quality base stocks combined with modern performance additives to give the engine the expected protection and performance under a wide variety of operating conditions	Recommended for gasoline fueled automobiles and light duty trucks where a higher viscosity API SN/SMSL/SJ oil is preferred or recommended
	BQ 1 09 0173	12/1 Quart Cases		
	BQ 1 09 004464	55 Gallon Drum		
Mobil Special 5W-20	BQ 1 09 012464	Bulk - No Equipment	Formulated from quality base stocks combined with modern performance additives to give the engine the expected protection and performance under a wide variety of operating conditions	Recommended for gasoline fueled automobiles and light duty trucks requiring an API SN/SM/SL/SJ
	BQ 1 09 0170	12/1 Quart Cases		
	BQ 1 09 013264	55 Gallon Drum		
Mobil Special 20W-50	BQ 1 09 004664	55 Gallon Drum	Formulated from quality base stocks combined with modern performance additives to give the engine the expected protection and performance under a wide variety of operating conditions	Recommended for gasoline fueled automobiles and light duty trucks where a higher viscosity API SN/SMSL/SJ oil is preferred or recommended
Mobil Delvac 1300 Super 15W40	BQ 1 09 0053	Bulk - No Equipment	Extra high performance diesel engine oils that help extend engine life in the most severe on and off-highway applications while delivering outstanding performance in modern, high-output, low-emission engines including those with Exhaust Gas Recirculation (EGR) and Aftertreatment Systems with Diesel Particulate Filters (DPFs) and Diesel Oxidation Catalysts (DOCs)	Specifically recommended for the latest low-emissions, high performance diesel applications equipped with aftertreatment systems using Diesel Particulate Filter (DPF) and Diesel Oxidation Catalyst (DOC) technologies
	BQ 1 09 0058	12/1 Quart Cases		
	BQ 1 09 0059	4/1 Gallon Cases		
	BQ 1 09 0060	55 Gallon Drum		
Mobil Delvac 1300 Super 10W30	BQ 1 09 0086	Bulk - No Equipment		
Mobil Delvac 1 5W40	BQ 1 09 0051	4/1 Gallon Cases	Fully synthetic supreme performance heavy duty diesel engine oil that helps extend engine life while providing long drain capability and fuel economy for modern diesel engines operating in severe applications	Recommended for use in all super high performance diesel applications, including modern low emission engine designs with Exhaust Gas Recirculation (EGR)
	BQ 1 09 0052	55 Gallon Drum		
Mobil Grease XHP 222	BQ 1 09 0078	60/14 oz Cartridge	Formulated to provide excellent high temperature performance with superb adhesion, structural stability and resistance to water contamination	Recommended for industrial and marine applications, chassis components and farm equipment
	BQ 1 09 0079	120 lb Keg		
	BQ 1 09 0080	400 lb Drum		
	BQ 1 09 0098	40/14 oz Cartridge		
Mobil Lube HD Plus 80W90	BQ 1 09 0096	120 lb Keg	Extra high performance, automotive lubricant formulated from select base oils and an advanced additive system specifically for limited-slip differentials	Recommended for use in limited-slip differentials, axles, and final drives requiring API GL-5 level performance
	BQ 1 09 0097	400 lb Drum		

Renowned For the Wrong Reasons: Active Body Control



Despite what you may have heard, this is really not a troublesome system as long as you heed some real-world maintenance and diagnostic advice from the trenches of auto service.

The owner of this Mercedes-Benz SL500 had allowed bad fluid and “trash” to enter into the ABC system. The vehicle’s front end would collapse after a few hours of sitting because debris was holding the valve block open.



Since its introduction in Germany in 1999, and in the USA in 2000 220 and 215 models, Active Body Control (ABC) has logged enough successful years and miles to be worthy of the spotlight. But some may say that ABC is renowned for the wrong reasons. Instead of being showcased for being the sophisticated, high-performance system it is, ABC tends to only get attention when a problem should arise. It's our hope that by taking a closer look at this industry-changing technology, we can restore ABC to the prominence it deserves.

BEEN THERE, DONE THAT

Hydraulically-assisted suspension is by no means a new idea. In fact, the technology in one form or another has been in use since the mid 1950s and was adopted by Mercedes-Benz for use on various models starting in the 1970s. The topic of ABC has been covered a multitude of times with its basic principles of operation and benefits widely publicized. For this reason, we won't be rehashing the inner workings again for this article. If you are among those new to the field, have never had the time to check it out, or who have shop personnel that are unfamiliar with the basic principles of hydraulic operation and how these systems work, now's the time to learn.

These types of systems are likely to evolve and expand their presence in the automotive world. A quick check of the web or Mercedes-Benz service literature that can be subscribed to through the Startekinfo website will provide a wealth of knowledge. A solid understanding will give you, the Independent Service Provider (ISP), help in the diagnosis and repair of these systems, but also has other benefits. These same basic hydraulic principles are used in numerous other systems, such as braking and steering, just to name a couple. A firm grasp of the principles will make it easier to quickly diagnose problems across systems past, present, and future.

OVERLOOKED

As much as customers would love a vehicle that requires no maintenance and has parts that never wear out or break down, for now and for the foreseeable future, that's just not a plausible vision. This means that there will be a continued need for technicians and ISP service centers, and we will keep doing what is honest and right by trying to give customers an automobile closest to the perfect quality they deserve.

Over time, we have seen various troubles with ABC. When not operating properly, vehicles with this system show up in the service lane, perhaps coming in on the tow truck with the suspension allowing the chassis to sink to the ground, or pumping out large amounts of fluid from various locations. The repairs required can be costly, so the system sometimes gets a bad reputation with customers who forget the driving enjoyment and safety benefits it's given them over the years.

Generally, we see the same types of failures, sometimes at less than 100,000 miles, and we'll look at a few later. Before we do, however, what can we do to stave off some of these problems? The answer is maintenance! We believe a lot of expensive repairs could be avoided by simply following a prudent care regimen even though Mercedes-Benz, usually the car manufacturer with the most conservative maintenance advice, doesn't give fluid/filter-change intervals for ABC. In fact, the company says that it is a maintenance-free system (on the other hand, the procedure is outlined in WIS).

Our function at *StarTuned*, however, is to give our esteemed readers the benefit of our real-world experience, and maybe some new ideas for profitable services. We believe it stands to reason that since ABC contains hygroscopic fluid, has a changeable filter, and works hard under high pressure, it is a candidate for preventative maintenance. That work



Only genuine Mercedes-Benz replacement parts are acceptable for ABC repair.

will also make a nice addition to your shop's menu of services. Commonly overlooked by technicians, ABC (like most items that are on the service check list in the owner's manual) tends to display telltale signs that a problem is developing and should be corrected before a messy leak develops, or the vehicle becomes undrivable.

CLEANLINESS IS NEXT TO... WELL, YOU KNOW

Hydraulic fluid is the lifeblood of ABC. Most failures can be traced back to it, whether it's an improper fill level or contamination of the fluid. Fluid is simple to check and can tell a lot about the health of ABC. Experience has allowed most seasoned technicians to quickly identify dirty, burnt, or contaminated vehicle fluids, so there is no reason that ABC fluid shouldn't be given equal scrutiny during routine maintenance.

When it comes to the ABC system as a whole, fluid cleanliness is most important. Even though Mercedes-Benz specifies the highest-quality synthetic hydraulic fluid available (Pentosin), as with any other hard-working fluid it can deteriorate. Like brake fluid, the ABC liquid medium is hygroscopic -- given the opportunity, it will absorb moisture -- and like engine oil, it is subject to thermal breakdown.

Operating at 200 Bar (2,900 psi), the ABC system has to be able to withstand immense forces. Fluid

deterioration, heat, humidity, and driving conditions are all factors in system wellbeing. Worn-out fluid decreases lubrication and accelerates wear, which affects all components. For example, a neglected system will have micro-fine metal and rubber combined with corrosive moisture flowing through it. Even though there is a superb-quality Mercedes-Benz 3-micron filter in the fluid return line in the reservoir tank, like all filters there is a limit to how long it will continue to function.

The ideal situation would be vastly-increased system longevity through preventative maintenance. We've seen ABC remain trouble-free for 300,000 miles when this is done. Realistically given our decades of experience in auto service, we know it's a tough sell to vehicle owners to spend money when there's no complaint. The fact is that when this complex system does have a failure, it usually results in the need for significant repairs costing in the thousands. This is reason enough to at least give customers the option of a fluid and filter change -- in terms of your reputation, it's always best to help your clientele avoid big, unexpected bills.

It's important to remember that once a part has failed due to fluid breakdown or contamination, the rest of the system has experienced the same conditions and similar failures should be expected. No amount of the flushing that is performed after a repair



The ABC fluid reservoir must be pre-pressurized to prime a new pump before startup. Failure to do so will dramatically shorten the new part's life.

is completed can erase damage in other components. Another noteworthy thing: If there have been multiple failures of the same part, a laboratory fluid analysis would be a logical diagnostic step. The in-depth report may reveal an overlooked fault. This leads us back to why system cleanliness is so important. In fact, we even take the time to carefully clean the top of the reservoir before removing the cap.

DOWN TIME

So, it's not working. What can you do? Fortunately, over the years we have developed great expertise in trouble-shooting issues, which shortens diagnostic time. We'll take a brief look at some of these to help you get the customer on the road again:

- One or more struts collapses after sitting a short time. This is often incorrectly diagnosed as a bad strut because the technician believes basic ABC operation is the same as that of an Airmatic system. The only thing that both systems really have in common is that they were designed by Mercedes-Benz. ABC struts have no internal holding or locking valve. All strut movement is directed from either the front or rear valve assemblies.

These are remotely-located, typically near the left-side wheel wells. Since the struts have no valves, if one or more struts have collapsed there can only be two logical reasons. The first is that there is a fluid leak in the line between the shut off valve, and/or the strut itself is leaking. This should be verified with a complete visual inspection. The second (and most common cause of collapsed struts) is an internal problem with the valve assembly. Debris between valves and seats, or internal seal wear are both causes of leak-down. Some technicians have had success flushing the system to clear a blocked valve, but a seal problem requires a new part as no rebuild kit is available. It's important to know that ABC valve blocks were never manufactured to be a perfect seal. A vehicle that has been sitting for long periods of time may sink down, which is a normal characteristic of this system and does not necessitate a repair.

- Low engine speed noises from ABC are typically under 2,000 rpm. There are several service bulletins about this problem. The most common cause for this is bad pulsation dampeners. These are small globes very similar to an accumulator containing a nitrogen-filled bladder that absorbs vibration and smoothes sudden fluid starts and stops. Depending on the system, the noise can originate from two different locations. On

the first version of ABC from 2003 to 2006, dampener noise will come from just behind the left front wheel where the dampener is located. ABC Plus-equipped vehicles from 2007 on can be a little more difficult to diagnose. The ABC Plus system relocated the pulsation dampener to the pump itself. This makes differentiating a dampener noise from pump noise more difficult. A tip on pinning down the problem is that a bad pump when checked with a stethoscope will typically have the noise only in the pump itself. A bad dampener will not only have noise at the dampener, but also produce the same noise along the high-pressure line coming from the pump.

- Cluster warnings and codes for low pressure are caused by an ABC pump that's producing little or no pressure. These codes can have a number of different causes and need to be vetted thoroughly for accurate diagnosis. Live data and system actuation coupled with Mercedes-Benz SDS or an equivalent diagnostic tool should be used to test for a weak pump. Running dynamic testing (or "rodeo," as it is also known) is the best way to test pump health. Running the engine at 3,000 rpm, the suspension pump should be regulated at very near 200 Bar. A reading over that would suggest a pump regulation valve problem. Once the test is active and the vehicle is in motion, a 50 Bar pressure drop would be in the normal range for a healthy pump. Anything below 150 Bar for a significant time would indicate a weak pump, and at anything below



On the left is a ruptured accumulator. Compared to the good one on the right, you can see the difference in straw lengths



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100 Bar SDS will stop the test to prevent further pump/system damage.

A cautionary tip for those that would run dynamic tests because it looks “cool,” or are showing off to friends, remember that this test stresses every part of the system, so if there are marginal parts running a rodeo may expose the weakness and unintentionally cause an undue headache for you and your business.

Once it's been determined that the suspension pump has failed, some important steps need to be taken to insure the best possible repair. First off, evacuate as much of the old fluid possible. After replacement, the pump **MUST BE PRIMED** before start up. Running a pump dry will definitely destroy it in seconds. The full fluid reservoir must be pressurized with a stable tool 5 to 8 psi to ensure the pump does not have a dry start. Once the system is running again, the system should be flushed following the procedure outlined in Mercedes-Benz service literature.

ACCUMULATORS FOR INSTANT RESPONSE

Lastly, we will take a look at some issues that can be caused by accumulators. The design of ABC accumulators is basically the same as found on early active dampening (ADS)-equipped Mercedes-Benz vehicles. It is used to store hydraulic fluid under pressure for immediate use by ABC when strut fill action is commanded.

There are usually two common faults that occur when an accumulator is no longer functioning properly: The first is a sign that the pressure vessel has started to leak its internal nitrogen charge. The scenario is a brief ABC warning light on the instrument cluster, usually after hitting a bump in the road. Not being able to move fluid into the strut causes the system pressure to drop momentarily. This will usually set a low pressure code because the accumulator can no longer react fast enough. Assuming the pump is



On the rear ABC shock unit, a small leak such as this caught in time can greatly reduce the repair bill.

healthy and passes dynamic testing, the task of determining which accumulator (front or rear) is at fault can be difficult. Unlike earlier ADS-equipped models, physically bouncing the vehicle when stationary is not a valid test on a modern ABC system. This is because the valve block is closed when inactive accumulators are isolated from the struts.

The second issue we see is the mysterious ABC reservoir tank overflow after sitting. This one can be spotted before it begins during routine service with a simple fluid level check. If fluid is found to be low and no external leaks are found, where did the fluid go? You guessed it: into the accumulator. An internal rupture of one or both accumulators, now void of nitrogen, will allow fluid to fill the now-empty space. The slow overflow happens when, for whatever reason, someone tops up the low reservoir with fluid without investigating why it was low in the first place. Even though the accumulator is ruptured, it still contains a spring and diaphragm which was compressed by system pressure and the missing fluid. After the vehicle has been parked, system pressure subsides and spring pressure in the accumulator slowly pushes fluid back into the tank and causes the spill.

In either case, the best practice is to replace both accumulators as a set along with a fluid and filter change. |



Remember, if fluid can get out, dirt can get in. This heavy leak had been neglected and led to pump replacement along with the shock repair, an expensive proposition.

Who's Your *Partner* in Success?

Mercedes-Benz's



You've chosen your career as an ISP (Independent Service Provider) because you enjoy maintaining, diagnosing, and repairing motor vehicles. One of the most challenging pieces of your business is parts procurement.

Finding the right parts at the right price and being certain they will arrive when promised can be a challenge.

Wouldn't it be nice if there were a way to get the parts you need without the hassle and uncertainty, so you can get back to the important business of actually fixing cars and taking care of your customers?

With the Mercedes-Benz PartsPro wholesale certification program, now there is!

PartsPro is a rigorous program intended to train Mercedes-Benz dealership parts department personnel on how to better take care of you and ultimately your customers. PartsPro certified dealers have elevated their commitment to supporting the independent repair channel, and will provide you with the highest level of customer service. They focus on the things that matter most to you!

CONVENIENCE...ACCURACY... PROFITABILITY...DELIVERY

A PartsPro dealer has the tools in place to better meet the needs of their esteemed wholesale customers.

For a dealership to achieve PartsPro Certification, parts department personnel must first undergo intensive "customer-centric" training which teaches personnel how to better help YOU.

There's far more to PartsPro than just customer-service training. The dealership must make specific commitments to provide "Best in Class" service in areas such as logistics, which includes ISP-focused parts availability, regular delivery service, outside sales people to provide you personalized service, as well as a dedicated phone line and "will call" pick up area.

THEN THERE'S TECHNICAL HELP

On occasion we all need a helping hand. Your PartsPro dealer is there to assist. Whether it means providing diagnostic assistance, information on supplies or special tools, or anything else you may need, your PartsPro dealer is there to assist you in repairing your customers' Mercedes-Benz vehicles and getting them back on the road as fast as possible.

Only those dealerships that meet the stringent certification requirements earn the right to display the "PartsPro" logo. Additionally, they receive ongoing consultation and training to ensure that they are consistently providing the very best support to you, the ISP customer.

We hope you are already receiving industry leading service from your Mercedes-Benz dealer; however, once your dealer is PartsPro Certified, we believe you'll be thrilled with the new "Best in Class" parts-procurement experience!

Of course, you'll continue to have the peace of mind that installing only Genuine Mercedes-Benz parts can provide. |




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With our competitively priced Genuine Remanufactured Parts, you no longer have to settle for anything less than Mercedes-Benz quality. But that's just part of the story. You see, our AIRMATIC® struts, catalytic converters, AC compressors and steering racks all carry a 12-month, no mileage restriction warranty. So our parts are not only a great deal. They're a great value. And since they're genuine Mercedes-Benz, you can have confidence they'll last, and so will your relationship with your customers.

Contact an authorized Mercedes-Benz dealer or learn more at www.mbwholesaleparts.com.



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*MSRP excludes state and local taxes and freight if applicable. Price excludes core deposit. Price valid as of September 2015. Prices may vary by dealer. See your authorized Mercedes-Benz dealer for additional details or a copy of the Mercedes-Benz parts limited warranty.



Mercedes-Benz

Mercedes-Benz F-Cells: Field-Proven Fuel Cell Electric



Fuel cell electric vehicle (FCEV) technology is a green alternative to hybrid and battery electric vehicles (BEV). Like a BEV, a fuel cell vehicle has no on-board hydrocarbon combustion and no harmful greenhouse gas emissions. A Mercedes-Benz fuel cell vehicle uses hydrogen – a renewable resource – and can refuel in only slightly more time than it takes to fill a tank with gasoline, whereas even the fastest-charging electric vehicle will take at least an hour. Also, an FCEV can travel twice as far on a single tankful of hydrogen as a pure electric can on its batteries. Mercedes-Benz has field-proven fuel cell vehicles today, and engineers promise to push fuel cell technology over the next decade to deliver more benefits in models that are affordable and offer Mercedes-Benz quality, power, and comfort.

You should be learning how to diagnose and repair hybrid and/or pure electric vehicles. The knowledge will give you a leg up, as fuel cell and battery electric vehicle designs will likely be combined to increase the power and range of each technology.

In 1994, Mercedes-Benz introduced the world's first fuel cell vehicle, built on the Mercedes-Benz 100 van chassis. The vehicle needed almost the entire van interior to house the fuel cell equipment and operating system. Twenty years and almost three million real-world miles driven later, the technology has evolved tremendously. It is field-proven and has magically been shrunk to fit under the hood (and floor) of a regular-size Mercedes-Benz B-class F-CELL crossover.


FIELD-PROVEN

Mercedes-Benz has driven innovation in the development of a consumer-friendly vehicle based on renewable, zero-emission hydrogen fuel cell technology. Over the last two decades, the technology has increased in performance while the components became progressively smaller. In 2011, the company proved the practicality and robustness of its offering by driving the B-class F-CELL around the world in 125 days.

A fleet of 70 B-class F-CELL models in California has completed the automotive world's equivalent of beta testing, and performed so well that after the test most became available to the public for lease as reliable previously-owned vehicles.

The Mercedes-Benz B-class F-CELL combines zero-emission hydrogen fuel cell technology with a high-torque electric motor. The electric motor offers an instant-on torque of 290 Newton meters and develops a peak output of 100 kilowatts, giving it power equal to that of a two-liter gasoline engine. A 700-bar (10,000 psi) hydrogen tank sandwiched into the floor gives the car an operating range of approximately 250 miles.

The B-class F-CELL delivers its quick-response power and hill-climbing torque with quiet confidence. Even at maximum power, the sound of the electric motor is barely audible.



Left: The Mercedes-Benz F 125! Research Vehicle incorporates fuel cell electric vehicle and a cornucopia of additional cutting-edge technologies to make a zero-emission, renewable fuel vehicle with the safety and comfort of a full-size sedan, yet the fuel economy of a much more lightly-constructed model. High-strength materials along with crash-responsive protective systems in the gull-wing doors allow for the elimination of B-pillars. It also allows widening of the doors for full access to all four seats.

GENERATING POWER ON THE FLY

Fuel cell electric vehicles operate much like a battery electric vehicle, except that instead of a battery supplying electrical power to the motor, hydrogen does the job. Unlike a battery which must be charged from the electrical grid before it can be used, a fuel cell uses an electrochemical process to generate power on the fly.

The fuel cell consists of a negatively charged anode, a positively charged cathode, a catalyst and a selective membrane. Hydrogen is forced in at the anode, and oxygen is added on the cathode side. The catalyst on the anode side separates the hydrogen electrons (negative ions) from its protons (positive ions). The polymer electrolyte membrane allows the protons to pass through to the anode.

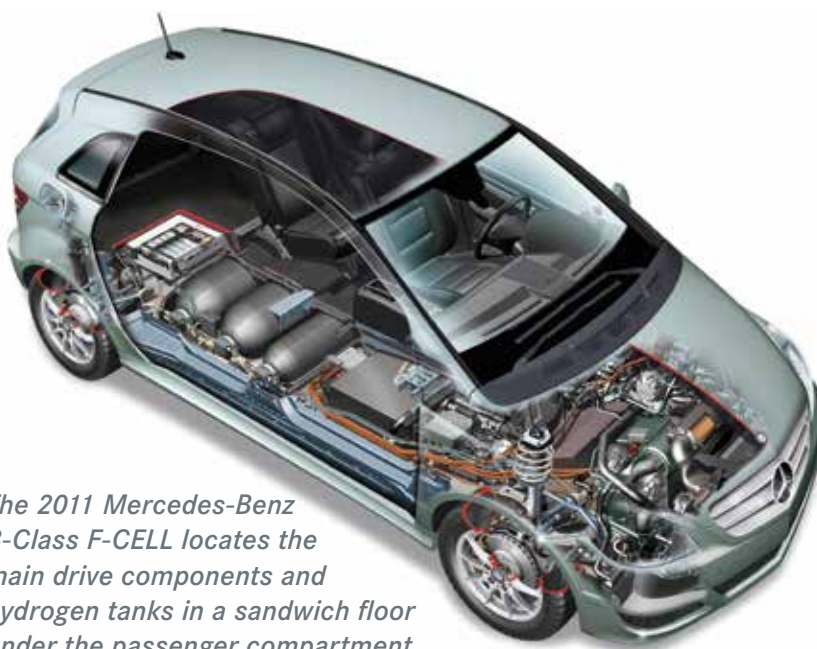
The electrons cannot pass through the membrane, and must take another route to the cathode. The electrical current created as the electrons travel their 'bypass' route to the cathode drives the electric motors, which are the load on the circuit.

An individual fuel cell is only about two millimeters thick, and generates no more than 1 volt of power. Several hundred cells must be combined in series – called a 'stack' – to generate up to 200 volts, enough to power a vehicle.

No hydrocarbon combustion occurs, so there are no harmful emissions created or released to the atmosphere. The only by-products beyond electrical energy are heat and water. When the protons and electrons reunite at the cathode, two atoms of hydrogen combine with one of oxygen and form H₂O, which, due to the heat, is released from the exhaust primarily as pure water vapor.

The Mercedes-Benz fuel cell electric vehicle (FCEV), like battery electric vehicles (BEV), replaces the conventional internal combustion engine with electric motors.

When the driver accelerates, a compressor increases the air supply, and system valves respond by regulating the flow of hydrogen



The 2011 Mercedes-Benz B-Class F-CELL locates the main drive components and hydrogen tanks in a sandwich floor under the passenger compartment.



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appropriately. As the amount of electrical current increases it supplies more power to the electric motors, increasing vehicle speed and performance. Instead of a transmission, four electric motors transfer their driving power directly to the wheels through fixed ratio gears.

Electric drive motors operate at far lower average temperature and pressures, and have fewer moving parts, than an internal combustion engine. That leads to less mileage-related wear and tear and lower maintenance and repair expense than that of conventional vehicles, at least for drivetrain components.

An on-board high-voltage battery system handles power demand at initial motor start and at starts after a traffic stop. Once above a set power demand threshold, the fuel cell system cuts in, seamlessly, and the battery switches from supplying drive power to recharge or storage mode. An electronic control module receives driver demand and other sensor inputs and determines the best mix of fuel cell and battery power to match the load. If needed for acceleration or for maximum load conditions, the battery kicks in and supplements the fuel cell system.

NO PLUG

Instead of needing to be plugged into a source of electricity, a fuel cell needs to have hydrogen added to an on-board storage tank. The fuel cell assembly generates DC voltage that can either be converted to AC to directly power the electric motors on demand, or be sent to the on-board battery for charging and storage. The battery system also

recharges itself using kinetic energy recovered from regenerative braking.

The process of filling a fuel cell vehicle's tank with hydrogen is strikingly similar to gassing up an internal combustion engine vehicle. The hydrogen 'filling station' features a pump that looks a lot like a gasoline pump, except the hose has a nozzle that locks into the vehicle intake tube before any hydrogen can flow. The high pressure -- up to 10,000 psi -- that keeps hydrogen in a liquid state requires a closed system at all times.

The original B-class F-CELL fuel tank was designed to hold enough compressed hydrogen to enable the vehicle to travel approximately 250 miles. The aluminum tank was lined with carbon fiber to help withstand the high pressure.

NEAR-FUTURE TECHNOLOGIES

An experimental "F 125!" research vehicle combines state-of-the-art and anticipated near-future technologies to create a prototype zero-emission fuel cell plug-in hybrid with an extended range of over 600 miles in the footprint and luxury accoutrements of a full-size Mercedes-Benz sedan.

A major technological advance enabling the creation of the F 125! is a revolutionary hydrogen tank that is an integral part of the vehicle substructure. The tank design that is robust enough to withstand the 10,000 psi of current hydrogen storage systems is typically a cylinder. The cylinder unfortunately creates cavities between tanks installed next to or above each other.



The F-CELL places the high-voltage battery in the trunk floor. The Mercedes-Benz fuel cell system features modular assembly that allows installation in various vehicle configurations.

Mercedes-Benz engineers have designed a system that stores hydrogen at a pressure of 435 psi or less. The lower pressure allows the design of hydrogen storage tanks that are contoured to fit into the vehicle body shell with less space wasted to cavities between the tank exterior and the vehicle structure. In some areas, the tanks can be designed to fit and function as structural components, eliminating

wasted space, reducing weight, and reinforcing body shell strength.

Mercedes-Benz has fitted a highly advanced, powerful lithium-sulphur battery into the F 125!, which, combined with more efficient fuel cell and hybrid electric control technology, larger hydrogen storage systems, and regenerative braking technologies, enable over 600 miles of travel on a single tankful of hydrogen.



The 2011 Mercedes-Benz B-Class F-CELL packs a power control unit and a fuel cell cooling system underhood where the gasoline engine would be on a traditional ICE (Internal Combustion Engine) powered vehicle.

SHARED BASIC DEVELOPMENT

Mercedes-Benz has also recently partnered with Renault-Nissan and Ford Motor Company to jointly develop new fuel cell stack and control technologies. By sharing research resources and intellectual capital, the partnership should reduce development cost and time-to-market for significant innovations in fuel cell technology.

An additional benefit may be that the shared basic fuel cell design and control technologies will reduce the number of different systems that technicians will have to learn in order to diagnose and repair these vehicles. |



A small fleet of 2011 Mercedes-Benz B-Class F-CELLs traveled around-the-world in 2011 as a proof-of-performance road trip. Five of them covered 30,000 kilometers (18,621 miles) through 14 countries in 125 days.

Every Little Bit Helps:

Mercedes-Benz ECO Start

Why waste fuel and produce emissions while idling at a traffic light?



You're running on fumes and there's not a gas station anywhere in sight. In a desperate attempt to save every drop of fuel you can, you shut the engine off at every traffic light. If you've spent enough time behind the wheel, chances are you've tried this emergency conservation effort to avoid being left stranded. Whether you realized it or not, this is actually an effective fuel-saving strategy.

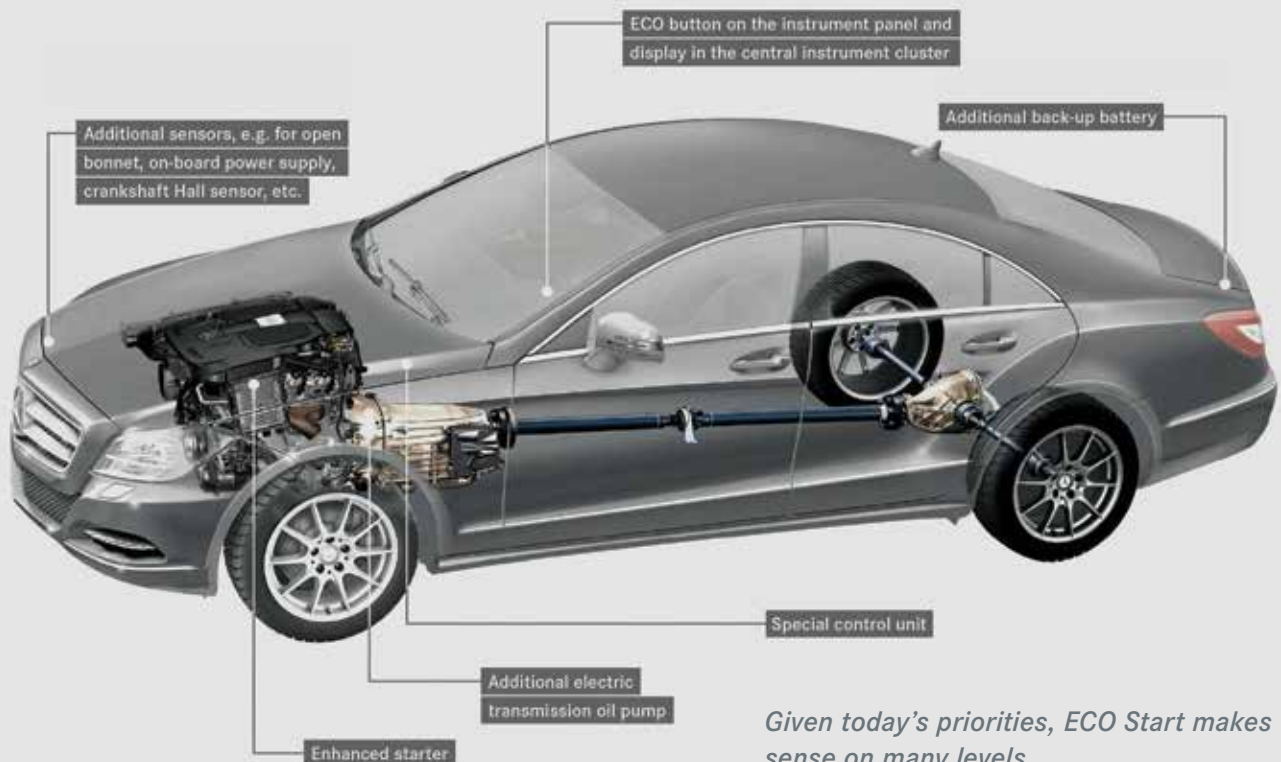
Well, time and technology have finally caught up with that old idea and put a new spin on it. Instead of using manual stop/start to nurse a vehicle into the nearest filling station, engineers have now devised a way to make stop/start actuation a practical, reliable, automatic, economically- and environmentally-friendly strategy. Shutting down an idling engine at prolonged stops produces benefits on several fronts:

- Fuel economy -- It's simple: an engine that's not running isn't burning any fuel. This can equate to from 15% to 30% in fuel costs depending on the driving environment. Using less fuel reduces time and money spent at the pump.
- Tailpipe emissions reduction -- Another simple example is that an engine not running is not producing any environmentally-harmful internal combustion byproduct gases.
- Compounding Effect -- As older cars are phased out and newer stop/start-equipped vehicles are introduced, the benefits mentioned above become available for everyone.

For us here in the United States, stop/start seems like a new idea. In Europe and Japan,

▲ ECO start/stop function

When the car stops, the engine stops



Given today's priorities, ECO Start makes sense on many levels.

however, this concept has been attempted by several manufactures for decades. Having a dense population with choking emissions has been the driving force behind the push for stop/start in those areas. Here in the States, the need or will to reduce fuel consumption and emissions has been slower in coming. Now, with the Environmental Protection Agency (EPA) demanding stricter standards for lowering emissions and mandating higher fuel mileage, new avenues must be explored. Over the next ten years, the average fuel mileage for passenger vehicles will rise to 50+ mpg. This poses a challenge to all vehicle manufacturers. Engineers are already pushing the efficiency limits of internal combustion engines, yet the public and the government are demanding other ways to save.

CONDITIONS RIGHT?

Mercedes-Benz has introduced its version of stop/start on a limited number of Blue Efficiency vehicles. Known as ECO Start, this technology is expected to migrate to all model lines in the coming years. But why wait until now to implement this technique? The answer is safety and reliability. With the technology of yesterday it just wasn't safe and practical to shut down the engine at stop lights. That was because of long crank times and human inattention, but with today's advanced technology those problems have been solved.

The beauty of Mercedes-Benz ECO Start is that when it's switched on, the system is completely automated. This allows the car to be driven normally with no special human action or influence

Here, the instrument cluster ECO icon shows yellow, meaning system is on but not ready for actuation.



needed. The system will not engage until a large number of predetermined parameters have been met. A complete list will depend on the vehicle type and options. Below are the basic criteria for ECO Start to be enabled:

- Hood and doors shut
- Driver's seat belt buckled
- Engine and transmission at operating temperature
- Vehicle speed has exceeded nine mph at least once since put in gear
- Automatic transmission in Drive, or manual transmission in neutral
- Sufficient brake booster vacuum (on applicable models)
- All on-board diagnosis up to date
- Vehicle electrical demand not excessive, and at least 65% of reserve battery capacity present.



The electric transmission fluid pump maintains positive pressure to keep the transmission ready for rapid resumption of travel.

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- Cabin temperature request from climate control has been met

Once all of the prerequisite conditions have been met, ECO Start activates and only requires two additional inputs for the engine to automatically shut off:

1. The vehicle has stopped and become stationary.
2. Brakes are applied by the driver's foot pedal or by engaging the brake hold feature.

After ECO Start has turned off the engine, there are several factors that will trigger an automatic restart:

- If any one of the pre-conditions falls outside its parameters. In this scenario, the most likely cause for restart is that the passenger cabin temperature has gone beyond the set value.
- Brakes are released or the accelerator has been pressed
- The vehicle is in motion even if the brake pedal is depressed (i.e. light pressure and the vehicle is creeping forward)
- The engine has been off for three minutes
- The transmission is engaged in park or reverse.

From the driver's perspective, there is little difference between an ECO equipped and a non-ECO-equipped vehicle. Only a dash on/off switch and instrument cluster icon has been added. The

instrument cluster icon is the only visual display that gives any indication of ECO operation and displays three different states:

1. No Icon – System is switched off
2. Yellow Icon – System is on, but parameters for operation have not been met
3. Green Icon- All criteria have been met and the system is operational

GETTING TO THE HEART OF ECO

For owners to accept ECO start, the stop/start function needs to be as seamless as possible. Mercedes-Benz has accomplished this using existing equipment and sensors with minimal addition of new parts. Most of the changes that have occurred are



The ECO Start dash button is the only real input the driver can have -- you can turn the system off.



This Mercedes-Benz AGM (Absorbed Glass Mat) battery is an example of the technology that makes ECO Start possible. AGMs can recover from repeated cycling many times more than conventional wet cell batteries can.

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- Wiring Diagrams
- Technical Bulletins
- Mercedes-Benz Special Tools
- Maintenance Sheets
- Star Diagnosis System (SDS)
- Mercedes-Benz Workshop Equipment



Mercedes-Benz

software based, but technicians need to be aware of the new hardware:

At the heart of the ECO system is a heavy-duty starter redesigned with enhanced bearings and gear. These are capable of handling the increased demand placed on the starter and limit flex-plate wear from repeated engagement. In an urban area, the starter could see eight times more use over its lifecycle. Because of this, if a vehicle comes in for repair and the starter needs to be replaced, only a new genuine Mercedes-Benz part is acceptable.

ECO Start adds an additional battery to the vehicle to handle electrical functions so that full main battery power can be solely devoted to restarting. This dual battery setup is very similar to that of Mercedes-Benz vehicles of the past, using the same decoupling relay for seamless operation.

Mercedes-Benz has also added an electric auxillary pump to the automatic transmission. This pump is active when ECO Start has initiated an engine stop. Supplying the transmission clutches with fluid pressure while the engine is off ensures that on restart there will be no delay in travel resumption.

ECO Start utilizes the precision of Mercedes-Benz Direct Fuel Injection to deliver impressive restart times. Using saved data from the crankshaft angle sensor, the engine computer is able to determine the most favorable cylinder for first combustion. During restart, that cylinder is fired to speed up starting and lighten the load placed on the starter. This combination produces a restart time of 20 milliseconds or less giving the consumer an almost seamless experience.

ROUTINE DIAGNOSTICS

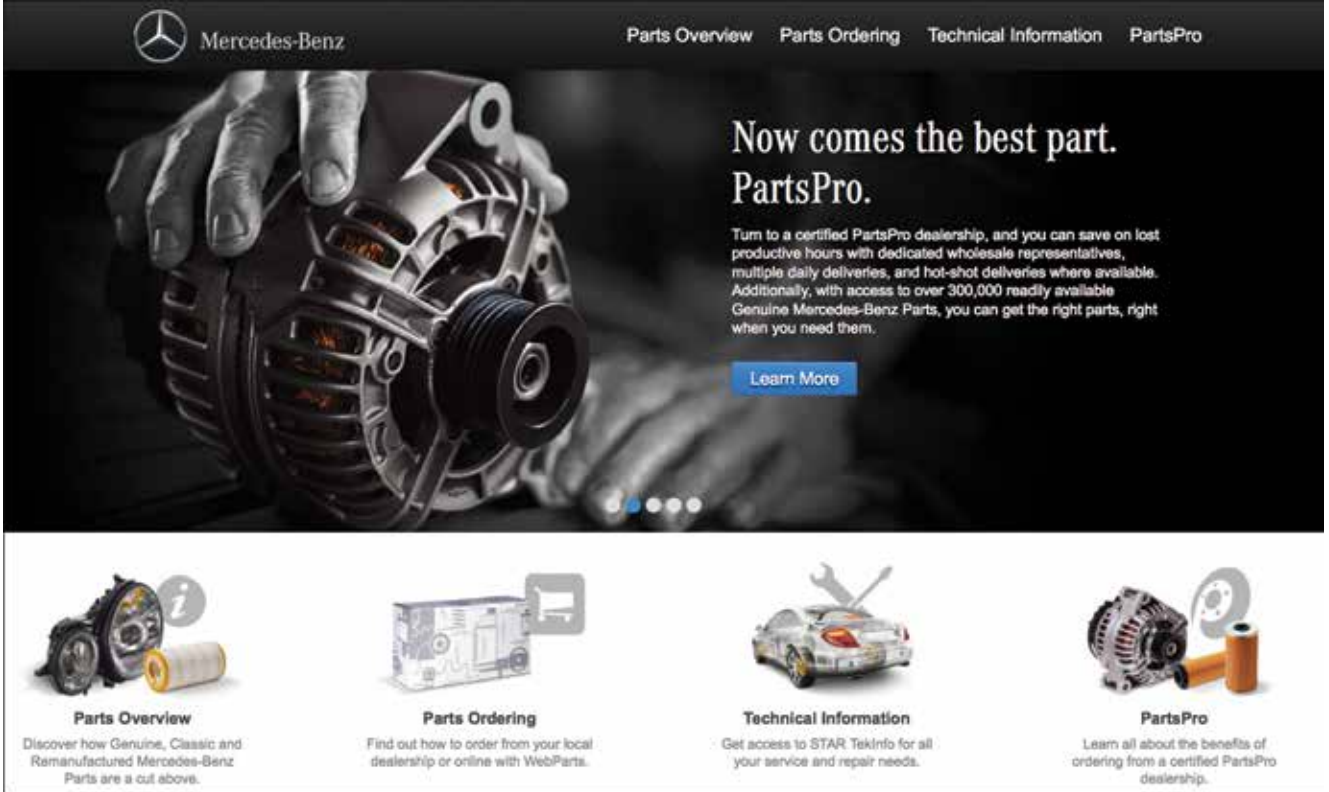
Dealing with ECO Start from a diagnostic standpoint should be a fairly routine exercise. At this point in ECO Start's young life there are no known problems to speak of. If faced with a start/stop problem, the same procedures apply as with any other on-board system. Since the bulk of ECO Start uses existing modules and sensors, chances are that one or more of the prerequisite conditions for operation is not being met. Using fault codes and live data from SDS or an equivalent scan tool will pinpoint a problem. Once a problem or potential problem has been identified, follow guided tests for the given part found in Mercedes-Benz service literature. |



When the ECO Start icon is green, the system is fully functional.



From the outside, an enhanced ECO Start starter looks the same as a normal starter. This makes it imperative that a replacement unit be looked up in EPC and ordered from your local Mercedes-Benz dealer's parts department by VIN.



Mercedes-Benz

Parts Overview Parts Ordering Technical Information PartsPro

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Parts Overview
Discover how Genuine, Classic and Remanufactured Mercedes-Benz Parts are a cut above.

Parts Ordering
Find out how to order from your local dealership or online with WebParts.

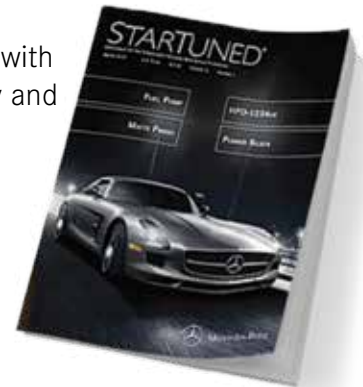
Technical Information
Get access to STAR TekInfo for all your service and repair needs.

PartsPro
Learn all about the benefits of ordering from a certified PartsPro dealership.



Model Indicator Index provides the ability to find chassis, model year and engine detail from the VIN which assures proper catalog identification of the vehicle when using the EPC.

STARTUNED magazine section with archive search functionality and downloadable articles



Enjoy easy access to technical information and resources.

At STAR TekInfo you'll find all the technical documentation you need on servicing and repairing Mercedes-Benz vehicles.

Illustrious History

On the 130th anniversary of Gottlieb Daimler of Bad Cannstatt, Germany, being granted a patent on his motorized bicycle -- the

world's first successful vehicle powered by an internal combustion engine! -- we thought you'd enjoy seeing some historical photos of the

people and the breakthrough cars that led to the fabulous Mercedes-Benz vehicles we have today. We at *StarTuned* hope you enjoy them.



Gottlieb Daimler's shop as it appeared in 1885.



Herr Daimler in his 1886 motor carriage with his son Adolf at the wheel.



Our editor's daughter atop a running 1886 Benz Patent Motorwagen replica.



The oldest surviving Mercedes, bought by millionaire William K. Vanderbilt in 1902.



Karl Benz, 1844-1929.



Bertha Benz, Karl's wife and business partner, 1849-1944.

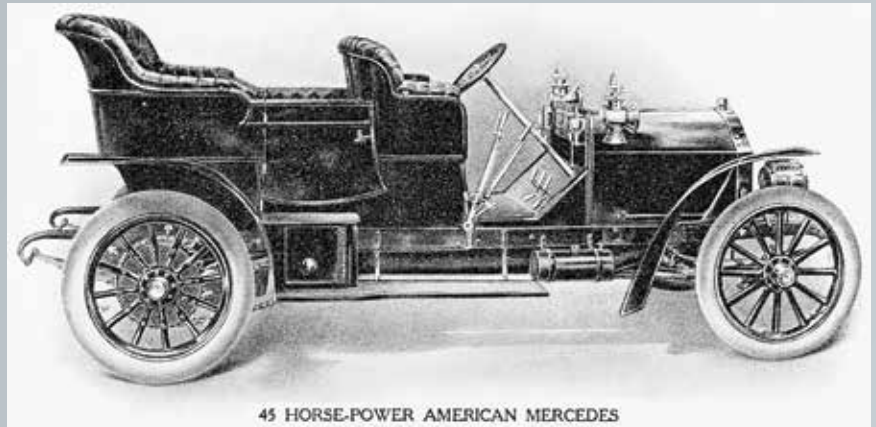


When Daimler-Benz distributor Emil Jellinek ordered 36 cars, he asked that they start naming them for his daughter...



...Mercedes!

Below: In 1905, Steinway & Sons, the New York piano maker, started producing American Mercedes cars in a Long Island City factory.



45 HORSE-POWER AMERICAN MERCEDES



The engine and flywheel of the '86 Benz.



The Simplex had a 5.3L four-cylinder, and could hit 47 mph.



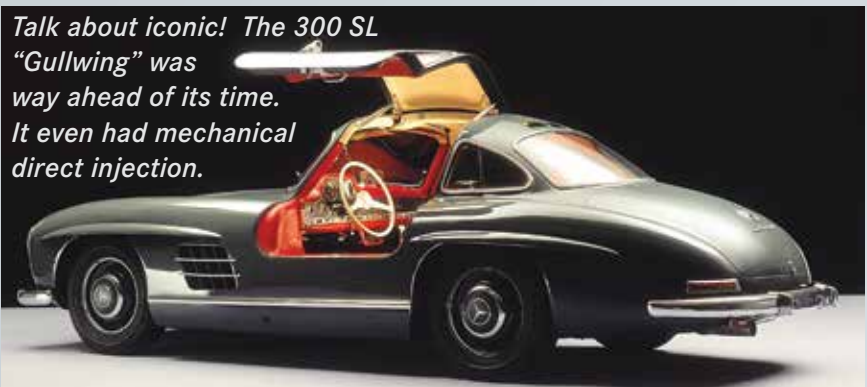
The Blitzen Benz went 142 mph in 1909 -- 21.5 Liters and 200 hp.



In 1936, Mercedes-Benz introduced the 260D, the world's first diesel-powered passenger car.



The iconic SSK was produced from 1928 to 1932.



Talk about iconic! The 300 SL "Gullwing" was way ahead of its time. It even had mechanical direct injection.



This big, comfortable 1985 SD 300 marked the 100th anniversary of Benz's Motorwagen.



Performance. Reliability. Success.

With our competitively priced replacement parts, you no longer have to settle for anything less than Mercedes-Benz quality. But that's just part of the story. You see, our starters and alternators all carry a 12-month, no mileage-restriction warranty. So our parts are not only a great deal. They're a great value. Since they're genuine Mercedes-Benz, you can have confidence they'll last, and so will your relationship with your customers.

Contact an authorized Mercedes-Benz dealer or learn more at www.mbwholesaleparts.com.

MSRP excludes state and local taxes and freight if applicable. Prices may vary by dealer. See your authorized Mercedes-Benz dealer for additional details or a copy of the Mercedes-Benz parts limited warranty.
*Excludes CORE deposit.



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