

STARTUNED®

Information for the Independent Mercedes-Benz Service Professional

March 2005 U.S. \$6.00 € 12.50

Navigating
STAR TekInfo.com

Catalytic Converters

Volume 5 Number 1



Mercedes-Benz

TO OUR READERS:

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

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With the click of a mouse, you can see all the same information M-B's authorized dealers can see



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It's been exactly 30 years since this almost magical component hit the streets, so it's definitely time for a review of diagnosis and replacement options. After all, there's more than one way to skin a cat



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31 GENUINE MERCEDES-BENZ PARTS... NEARBY

Wherever you are in the United States, there's a nearby source of genuine factory parts for your customers' Mercedes-Benz vehicles.

Visit us at our new website
www.MBWholesaleParts.com to view this
issue and all past issues of *StarTuned*, along with a wealth
of information on Genuine Mercedes-Benz Parts.



Mercedes-Benz



Can you purchase a partnership like you can a part?



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



Mercedes-Benz

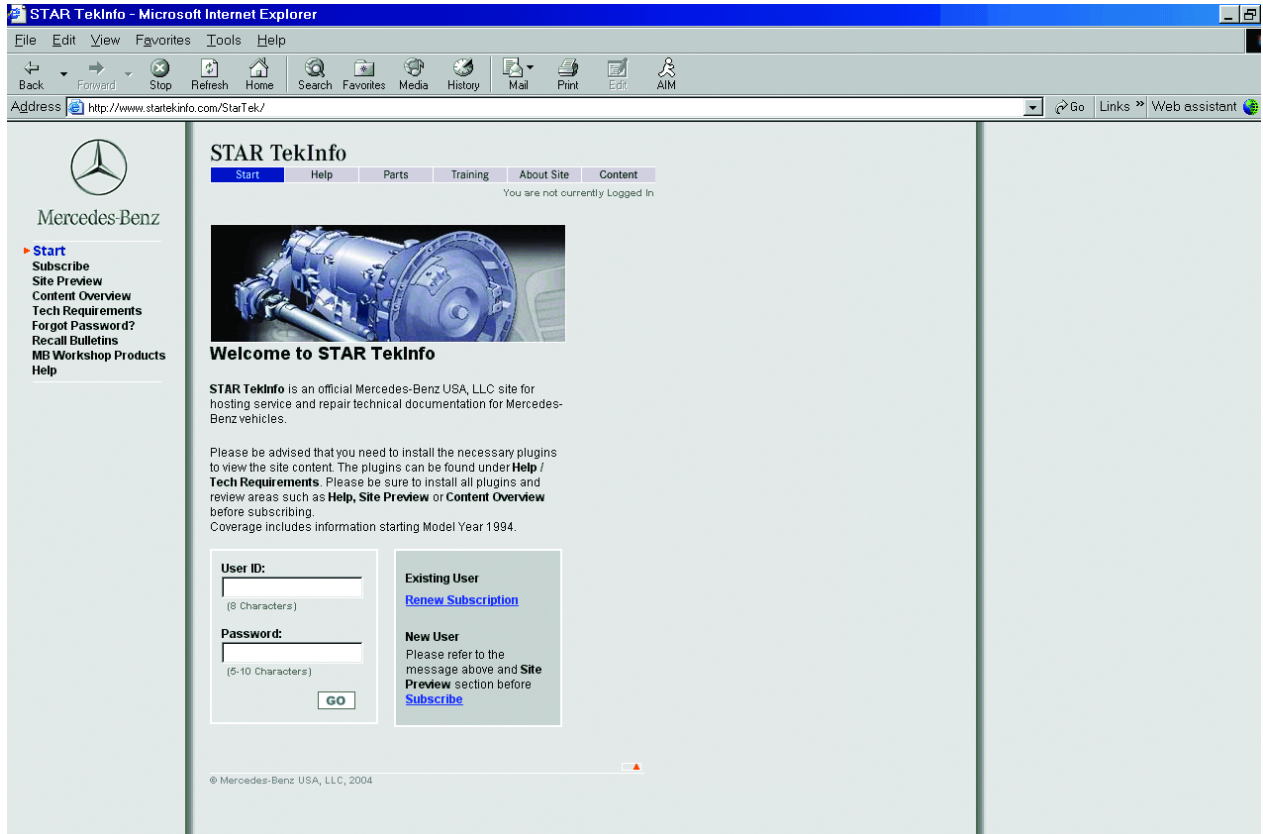
NAVIGATING MERCEDES-BENZ'S STARTekInfo.com



If you receive... permanently on even though the lights are swit... Manual" or the trunk illumination is in... Lights P... operative. Typically, there... substituted. The...



With the click of a mouse, you can see all the same information M-B's authorized dealers can see



The starting page of STAR TekInfo. Even without a subscription, a number of sections of the site are available at no charge, including Recall Bulletins and the MB Workshop Products catalog.

Mercedes-Benz believes (and rightly so) that every Mercedes-Benz driver is a customer, regardless of who repairs his or her car. Keeping customers happy with their cars, and with the M-B marque, is the important point.

The purpose of this article is to introduce you to the range of information available on the STAR TekInfo web site from Mercedes-Benz USA. We'll do that by taking a brief tour of every corner and alleyway of the site. Of course, in order for you to access this information, you must pay a subscription fee, but you need to consider the potential value of this information against the costs involved. No matter how small your shop may be, you'll find that the savings on repair time alone will more than pay for the subscription. You should also note that this is the exact same site that all dealers use – what they see is what you see.

Free Info

The first stop is the main page, located on the web at <http://www.startekinfo.com>. Even without logging in, there is some useful information available, such as full-text copies of all Recall Campaigns since 1990, catalogs of M-B Special Tools and approved Service Equipment, guides to M-B Models and Service Groups, instructions for ordering printed service literature, and the all-important Tech Requirements page so you can ensure your computer equipment is up to the task.

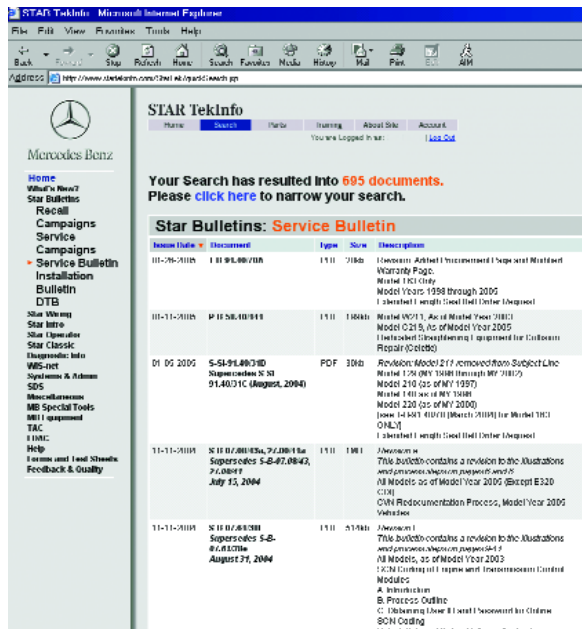
There is also free access to the Mercedes-Benz USA Wholesale Parts site, which provides specific part numbers and application information for the fastest-moving and most commonly used service parts for just about every model since the 1980s. There's a link to the Dealer

Locator as well, your source for genuine Mercedes-Benz Parts, and the online home of Star Tuned magazine – the most important feature, in our completely unbiased opinion . . .

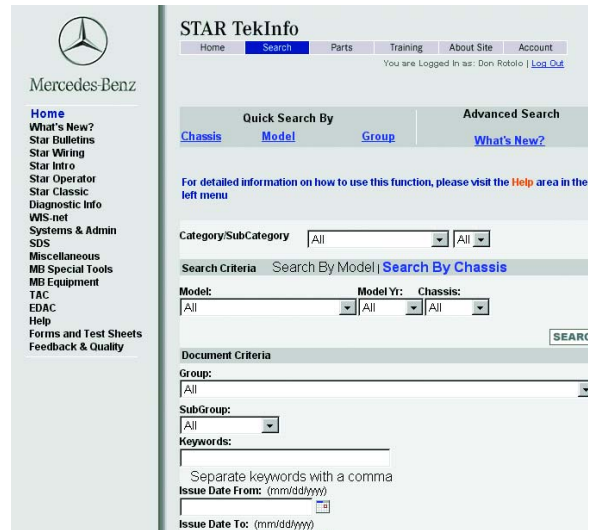
Got power?

Before you subscribe, make sure you have a computer that's powerful enough for the task. The minimum requirements aren't all that daunting today: a Pentium II processor of 450 MHz, 128 MB RAM, 30 MB of available hard drive space, Windows 98SE or above, a 4 MB Video card and at least a 56 kb Internet connection. But this really is the minimum. Any less and you can expect many things to not work at all. A broadband connection cable or DSL – is strongly recommended.

While the site will function with these minimum specifications, don't expect great performance. Just like a big 126 powered by a lawnmower engine, it'll move, but not like it should. If you're buying new equipment, more is always better, but think in the over 2.5 GHz



STAR TekInfo contains an on-line listing of every service bulletin published since the mid-1990s, fully indexed and searchable. Clicking on the document title opens a PDF file of the document, allowing easy viewing and printing.



The advanced search page allows you to look for service bulletins using many different search terms, making it easy for you to zero in on the one you need.

Pentium, 512 MB RAM, Windows XP range. As you've noticed if you've followed the ads in your local paper, computers with these capabilities are available for well under \$600. Not a lot to pay for an essential tool with so much potential R.O.I.

Note that while some of the functionality might work with a Macintosh or Linux computer, much of it will not. Stick to Windows, the newer the version, the better.

After you subscribe and log in, a huge amount of information becomes available. Note that the web sites for repair information and for the full Electronic Parts Catalog (see sidebar) require separate subscriptions. We'll continue our tour now, with detailed looks at each type of information.

New news & a goldmine

In "What's New," you can see what new information has been posted on the site in the last day, week, or month. Dealership technicians find this especially helpful, since they're working almost exclusively on the newest vehicles, but even the classic specialist will find nice tidbits now and again. It's good practice to check this page often.

STAR TekInfo - Microsoft Internet Explorer

Address: http://www.statekinfo.com/StarTek/dtbSearch.jsp

STAR TekInfo

Home Search Parts Training About Site Account

You are Logged In as: | [Log Out](#)

Your Search has resulted into 1234 documents.
Please [click here](#) to narrow your search. [Print List](#)

Star Bulletins: DTB

Issue Date	Document	Type	Size	Description	Related TAC Cases
02-09-2005	DTB - P-B-91.60/85	PDF	127kb	Model 211.026/065/070/076/082/083/265/262/283 Model Year 2005 Seat Belt Reminder Telltale Light Illuminated and Chime Sounding When Passenger's Seat Not Occupied	Related TAC Cases
02-07-2005	DTB - T-B-80.57/32	PDF	114kb	Model 163.154/157/172/174/175 Model Year 2000 to 2005 Engine Will Not Start and Fault Message "Start Error" Appears in Instrument Cluster	Related TAC Cases
02-04-2005	DTB - P-B-83.30/74a	PDF	138kb	Model 203.040/061/064/065/076/081/084/261/264/281/284/740/747/764 Model 209.365/375/376/465/475/476 Model 211.026/065/070/76/082/083/265/282/283 Air Conditioning Musty/Moldy Odor Complaints	Related TAC Cases
02-02-2005	DTB - P-B-82.85/434	PDF	125kb	Model 215.374/375/376/379, Model Year 2004 and Later Model 220.170/171/75/176/183/184, Model Year 2004 and Later Model 230.474/475/479, Model Year 2005 and Later COMAND Head Unit Hangs at the Star Symbol When Booting Up	Related TAC Cases
02-02-2005	DTB - P-B-82.85/433	PDF	125kb	Model 215.374/375/376/379, Model Year 2004 and Later Model 220.170/171/75/176/183/184, Model Year 2004 and Later Model 230.474/475/479, Model Year 2005 and Later SD Flash Telematics CD Stuck In COMAND Head Unit When Performing a Software Update	Related TAC Cases
02-02-2005	DTB - P-B-27.35/52	PDF	120kb	Model 171.456 Model 171.454/473, Model Year 2006 Model 209.375/475 Model 209.356/456, Model Year 2006 Model 211.070 Model 211.056/087/256/287, Model Year 2006 Model 215.375 Model 219.375 Model 220.170/175 Model 230.475 No Transfer of Power from Automatic Transmission 7.22.9	Related TAC Cases
01-31-2005	DTB - P-B-68.60/37b	PDF	222kb	Model 215.373/374/375/376/378/379, as of Model Year 2003 Model 220.170/173/174/175/176/178/183/184, as of Model Year 2003 Model 230.474/475/476/479 Sun	Related TAC Cases

In addition to Service Bulletins and Recall and Service Campaigns, the Star Bulletins area contains Dealer Technical Bulletins, which are issued nearly every day to provide the latest up-to-date troubleshooting and repair information.

In "Star Bulletins," we have a veritable gold mine of information. Nearly every service bulletin, recall and service campaign, and installation instruction issued since the mid 1990s (and some important ones from even earlier) are here. To help locate the one you need, there is an extensive search feature, allowing searches by Service Group, Chassis/Model, Model Year, Keyword, Date, and more. This area is arguably the second most valuable section on the site, just behind WISnet. More on that in a moment.

The next section, Star Wiring, contains online versions of the wiring diagrams for all cars introduced since model year 1990. That means the 129 SL and 140 S-Class and later models are covered here, but not the 126 or 201, since they were introduced before 1990. Of course, these are also fully searchable. The diagrams for the popular 124 E-Class are available as Adobe PDF files.

Mercedes-Benz star bulletin

DTB

Date: January 31, 2005
Order No.: P-B-09.20/20
Supersedes:
Group: 09

SUBJECT: Model 171.456, Vehicle Production 09/04 and 10/04 Only
Fuel Consumption

If you receive customer reports in the above model vehicles of slightly higher than normal fuel consumption and tumble flap related codes (0521, 0522, 0524) stored (no MIL) in the engine control unit, the position sensors (Hall sensors) of the tumble flaps in the intake manifold may be malfunctioning. To resolve, replace the intake manifold.

Qty.	Part Name	Part Number
1	Intake manifold	A272 140 20 01 **

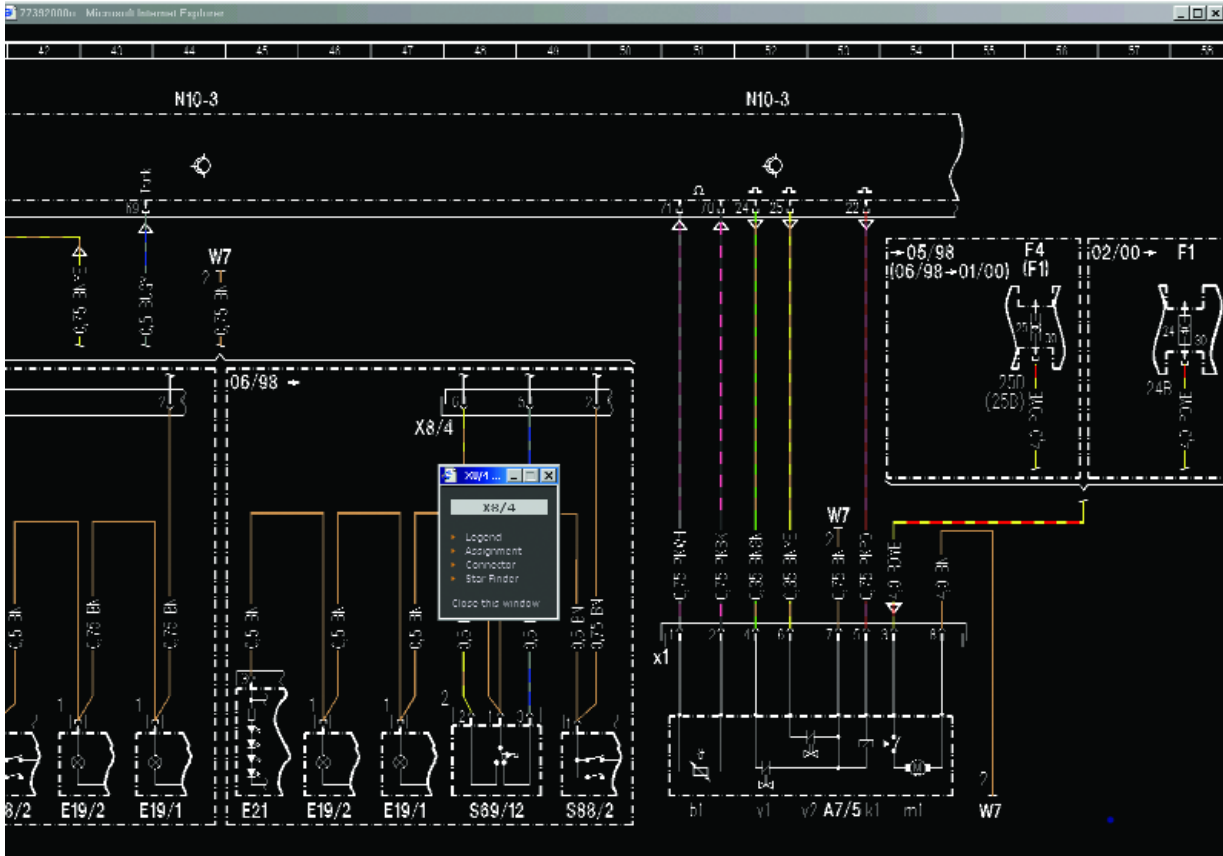
****Parts are in a critical supply situation and will be limited, please see the PAC weekly status report on parts availability status and delivery expectations. This report is located on the PAC website.**

Note: The following allowable labor operations should be used when submitting a warranty claim for this repair.

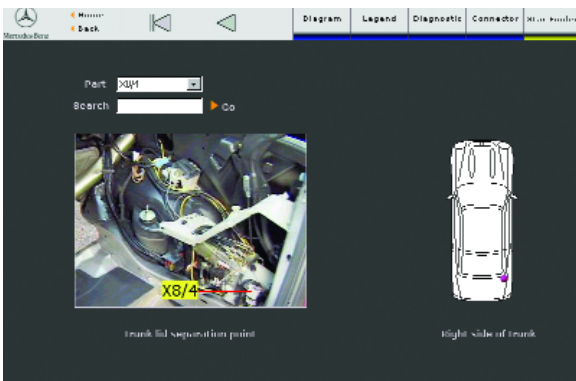
In Case of Warranty
Operation: Short test, perform (54-101)
Resonance intake pipe, replace (14-1965)

Damage Code	Operation Number	Time (hrs.)	Model Indicator (s)
09318 07	54 1011	0.3 hrs.	00
	14 1965	2.1 hrs.	X1

An example of a Dealer Technical Bulletin retrieved from the Star Bulletins area of STAR TekInfo.



The Wiring Diagrams on STAR TekInfo are in the Web ETM application. Shown in full, accurate colors, they can be zoomed and moved, and most components have a submenu (here, X8/4), which contains links to more detailed information about the component. Diagrams are easily scaled and printed



After clicking on the Star Finder link in Web ETM, a photograph of the component is displayed that shows its location in the vehicle. Virtually every electrical component is listed for all models since the W210 E-Class.

The wiring diagrams are so much more than just scanned-in versions of the paper versions. Using a special (but free) plug-in for your browser, you can not only zoom, pan and scale the drawings, but nearly every component has additional information behind it, such as a photo of its location in the vehicle (known as "Star Finder," it even includes those elusive solder splices), and, for larger components, a description of what kind of signals you can expect on each pin of each connector, which will greatly help you with diagnosis, as well as diagrams showing which pin is which. The wires on the diagram are shown in their actual color, as well – a blue/red wire is shown with a blue/red line, for example. There is also an excellent printing feature, allowing wiring diagrams to be printed quickly and accurately.

Intro Manuals

Star Intro contains the annual Introduction Manuals issued since model year 2001. These books provide all the essential information on new features, systems and procedures and are issued just before the model year is launched. This is always a valuable reference for learning what's new in a particular model.

Star Operator has copies of the Owners Manuals and supplemental literature for vehicles since model year 1994. These are especially helpful in explaining how a particular vehicle feature is supposed to work from the driver's point of view. This is nice to have as a customer-relations tool when there's no manual in the car.

Star Classic explains how to order the Classic CD Libraries. These are CD-ROM versions of all of the available service literature for particular models from the late 1950s onward. Not all models have a Classic CD available. Models 107, 114, 115, 116, 123, 124, 126 and many others are available, as well as many older chassis. These CDs generally contain the body and chassis, engine, and climate-control manual, wiring diagrams, and other applicable information. Very



Diagnostic Info

Home How To Use

Mercedes-Benz

Home

OBD / DTC
Diagnostic Manual

Diagnostic Info

The Diagnostic Info application combines contents of Diagnostic Manuals up to approx. MY 2000 and SDS as of approx. MY 2001

OBD provides general and MB specific emission related information.

Diagnostic Trouble Code (DTC) covers all codes as of MY 1994 to present.


Diagnostic Manual is a Web conversion of the paper version used before introduction of the SDS system.

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The Diagnostics area of STAR TekInfo contains extensive troubleshooting information. Previously published on paper, it has been replaced by the Workshop Information System (WIS).

nice to have, and priced much lower than the equivalent paper versions, many of which are no longer available at any price.

Diagnostic Info contains the Diagnostic Manual information for vehicles as of Model 124 up to model year 2000, as well as a listing of Diagnostic Trouble Codes (DTCs) as of model year 1994. The Diagnostic Manual generally contains detailed troubleshooting procedures for most vehicle systems, leading to a focused diagnosis and faster repair.



The Workshop Information System, WISnet, contains almost every piece of service information in existence for most models since the mid 1980s. The crown jewel of STAR TekInfo, this version of WISnet is exactly the same as the one used by dealership technicians for key data and information every day

The crown jewel of the web site is WISnet. This is a web-enabled version of the Workshop Information System, or WIS. WISnet (like WIS) contains comprehensive maintenance, service and repair information for all Mercedes-Benz vehicles as of model year 1996, with some coverage to earlier models back to the early 1980s. WIS documents include troubleshooting and repair instructions, system and function descriptions, general data, technical data, safety or retrofitting information along with torque specifications, service materials (such as lubricants, sealants, etc.), special tools, and equipment needed for specific jobs. In most cases, WISnet is the only place this information is published.

WIS net

File Options Help

Infobox 1 Literature ABRA

Infobox 2 Documents Search mode ABBYET

Document title	Gr.	IT	Status	Document number
Programmed repair Oil in transmission emulsified (mixed with water) Automatic tran	27.10	fs		ra2703722pr36x
Programmed repair Slow oil loss (with no detectable external leak) Automatic transr	27.10	fs		ra2703722pr35x
Programmed repair Transmission locks when reversing Automatic transmission 722.3	27.10	fs		ra2703722pr02x
Programmed repair Transmission slips during 2-3 shift, or slips initially and then en	27.10	fs		ra2703722pr05x
Programmed repair 1st and reverse gear too noisy Automatic transmission 722.3	27.00	fs		ra2703722pr39x
Programmed repair 3rd gear too noisy Automatic transmission 722.3 as of 09/88	27.00	fs		ra2703722pr40x
Programmed repair After installation, transmission does not transmit power or fa	27.00	fs		ra2703722pr08x
Programmed repair Engine cannot be started in selector lever positions "P" and "	27.00	fs		ra2703722pr52x

Doc. no. ra2703722pr05x Title Programmed repair Transmission slips during 2-3 shift, or slips initially and then engages harshly - Automatic transmission 722.3 as of 09/88

Modifications Validity

Doc. no. ra2703722pr05x Page 1 of 1

Search mode Standard search

Programmed repair - Automatic transmission 722.3 II as of 09/88

Transmission slips during 2-3 shift, or slips initially and then engages harshly. All

Cause/remedy:

- Vehicles with 8- and 12-cylinder engines (with B-switch on selector lever gate)**
 When engine is running, there should only be voltage at kickdown solenoid valve, in selector lever position "B" and/or with kickdown operated.
- All vehicles with gasoline engines**
 Check vacuum line from intake pipe of engine to vacuum unit on transmission for free passage.
- Vehicles with diesel engines**
 Check vacuum control (value measured at vacuum unit, approx. 0.4 bar at closed throttle position, 0 bar at wide open throttle).

The Workshop Information System, or WIS, contains a wide variety of documents on virtually every subject. This is the one and only system in which Mercedes-Benz publishes all service documents except service bulletins.

Document Picture Operation steps Basic data Tightening torques

AR91 60-P-0811T Replace WSS sensor 13.10.04

MODEL 211.0 /2 as of 19.2.04 with CODE (494) Front passenger seat, USA version

1 Edge connector
2 Screw
3 Latching hook
4 Wiring harness
5 Nut
6 Pin
7 Bolts
8 Bracket

10 Circlip
B48/11 Left front WSS (Weight Sensing System) sensor
B49/12 Right front WSS (Weight Sensing System) sensor
B48/13 Left rear WSS (Weight Sensing System) sensor
B48/14 Right rear WSS (Weight Sensing System) sensor

B49/14 Right rear WSS (Weight Sensing System) sensor
N32/2 Front passenger front seat adjustment control unit with memory (with code (242) Electrically adjustable front passenger seat with memory)

PS1 60-2023-00

WIS contains not only diagnosis and testing information, but detailed work procedures as well, often with step-by-step instructions, clear photographs or drawings, and hot links to other relevant documents. Pages can be printed for easy reference.



The SDS section deals exclusively with the Star Diagnosis System. SDS is the primary diagnostic and vehicle system configuration tool used by Mercedes-Benz dealers worldwide. This is where you'll find the documents explaining

how you can get your own SDS system, along with some instructions on how to use it.

In the Miscellaneous section, you'll find all the documents that don't neatly fit into any of the other sections. The Model/Baumuster and Group guides are here, as well as the odd Service Information on, for example, spark plugs.

MB Special Tools and MB Equipment contain the on-line detailed catalogs for special tools (tools sold by Mercedes-Benz for specific repairs) and equipment (M-B-approved service equipment such as tire balancers, battery testers, and the like). Included are instructions for ordering equipment and a list of the tools dealers are supposed to have in their shops.

TAC stands for Technical Assistance Center.

Mercedes-Benz USA Technical Training
Technical Training Print Files

Mercedes-Benz USA
TECHNICAL TRAINING

This page will provide access to PDF print files and multimedia training materials used for Technical Training at Mercedes-Benz USA.

[Link to our ONLINE STORE!](#)

[Access our TRAINING PRINT FILES!](#)

"The information contained here is issued by Mercedes-Benz USA, LLC, for use in conjunction with other service literature, special tools and equipment and parts specified by Mercedes-Benz for use in diagnosis and repair of Mercedes-Benz vehicles, and is not intended to represent all available information pertaining to models referenced herein. Although this information can be useful for Mercedes-Benz owners and independent repair facilities, it is intended solely for use by service personnel properly trained and qualified to perform work on Mercedes-Benz vehicles and who have access to, and experience in, using the necessary tools, equipment and literature, required to perform service and repair work accurately and safely.

Warning: Failure to use proper parts, tools and equipment, and take all necessary and prudent precautions, that would be taken by a trained, certified, automobile technician, and failure to follow all safety guidelines in these and other service publications, may result in property damage, personal injury or death. This publication is not intended for instruction in repairing or servicing of Mercedes-Benz vehicles by persons without appropriate professional training and experience in repairing and servicing of Mercedes-Benz vehicles. Mercedes-Benz USA, LLC assumes no liability for injury, damage or loss due to the use or misuse of this information and reserves the right to revise this information at any time without notice.

The MBUSA Technical Training site is accessible from STAR TekInfo. Not only are complete training courses available for purchase, there is also an extensive library of printable pages for self-study.

Dealership personnel have the ability to call the TAC for assistance with diagnosis. Unfortunately, this service is not available outside the dealer network. However, each call is recorded in a database, and this database of problems and possible solutions is available to everyone, and it's searchable, too! Use a bit of caution here, though, since the suggested solution has not necessarily been confirmed as actually repairing the issue. The disclaimer covers this clearly.

EDAC stands for Enhanced Diagnostic Assistance Center. The EDAC, also only available to dealership personnel, is a call center that focuses intensively on a few selected systems. Here you'll find detailed and comprehensive diagnosis trees to assist in identifying problems in particularly complex systems, such as COMAND, the V-12 engine and Sensotronic Braking. Most of the information relates to newer vehicles, and is directed towards dealers, but is still useful if one of these vehicles ends up in your shop.

The Help area is, well, helpful. It explains the details of searching, what there is on the entire STAR TekInfo site, and how to use it. Mercedes-Benz recognized that non-dealer technicians, and even regular customers, might subscribe to STAR TekInfo, so created information to help newcomers and experienced technicians alike in getting the most out of their subscriptions.

Forms and Test Sheets is the holding area for the paperwork used for various repair and maintenance operations. This is where you'll find the maintenance sheets for vehicles from 1986 on (a checklist so you don't forget anything at the 90k service, for example), and checklists for the various automatic transmissions used over the years so you know where they're supposed to upshift at full throttle.

Last is the Feedback and Quality page, which is where you can provide MBUSA with feedback on their information and report any errors you might find. Each report is read and acted upon, with corrections made within a few days for MBUSA-issued documents, and in a month or two for Daimler-Chrysler AG documents. Although there is no requirement for reporting

errors, the problem you correct might save you the next time you need that information.

Links

While that concludes the tour of the main STAR TekInfo site, there are three other official MBUSA sites accessible from here: Parts and Wholesale (see the sidebar) and Training. The Training site contains links to the many multimedia training guides and new model information publications produced over the years. Complete ordering information for the model training guides, along with some samples, are here.

That's STAR TekInfo in a nutshell. There's no way a magazine article can adequately convey the breadth and depth of the information contained on this site, but just let it suffice to say that this is where dealers go when they need something. Gone are the microfiche, printed books (except for wiring diagrams) and other documents: It's all here, online, for you and everyone else who might need it.

Although you can subscribe for a whole year, which includes unlimited access to everything on the site, if you happen to come across a particularly difficult repair, you can also subscribe for as little as 24 hours at a very reasonable price, which should be plenty of time to get whatever's available and read it. The few dollars involved can easily be absorbed into the repair bill. Just remember that you really need a modern, capable computer, and, unless you have a lot of patience, a fast Internet connection.

The quantity and quality of the service information, bulletins, pictures, diagrams, etc. on www.startekinfo.com <http://www.STAR TekInfo.com> make it a valuable resource for independent repair shops. And, as far as R.O.I. (Return On Investment) is concerned, nothing we can think of beats it.

Visit us at our new website
www.MBWholesaleParts.com
 to view this article and all past issues of StarTuned,
 along with a wealth of information on
 Genuine Mercedes-Benz Parts.

WHOLESALE PARTS & EPC

The screenshot displays the EPCnet software interface. At the top, the title bar reads 'EPC net'. Below it, a menu bar includes 'File', 'Options', 'Navigate', 'Search', and 'Help'. The main window shows a search for 'Vehicle identification number' with 'WDB' selected and '2037471A284559' entered. The navigation pane on the left shows a tree structure: 'MD mode' > '1. Car' > '203747 C 230 KOMPRESSOR' > '203.747' > '54 ELECTRICAL EQUIPMENT AND INSTRUMENTS' > '030 BATTERY, STARTER/ALTERNATOR CABLE'. The main area is split into two panes. The left pane is a parts list table with columns: 'Item...', 'Part number', 'Designation/description', and 'Quantity'. The right pane shows a wiring diagram of the vehicle's electrical system, with various components labeled with part numbers (e.g., 100, 130, 140, 145, 150, 200, 230, 250, 255, 270) and connected to a battery and other electrical components.

Item...	Part number	Designation/description	Quantity
<input type="checkbox"/>	100	NEG. CABLE	001
<input type="checkbox"/>	130	CABLE HARNESS STARTING MOTOR	001
<input type="checkbox"/>	130	CABLE HARNESS STARTING MOTOR	001
<input type="checkbox"/>	140	A 000 548 04 72 NUT STARTING MOTOR TERMINAL 30 M8 [010] From Chassis: A 110956 Fro.	001
<input type="checkbox"/>	140	A 000 548 04 72 NUT GENERATOR CIRCUIT 30 M8 [010] From Chassis: A 110956 Fro.	001
<input type="checkbox"/>	145	A 001 548 81 95 BOOT NUT	002
<input type="checkbox"/>	150	N 910112 006003 NUT STARTING MOTOR TERMINAL 60 M8	001
<input type="checkbox"/>	200	A 203 540 01 31 NEG. CABLE ENGINE GROUND LINE 280 MM	001
<input type="checkbox"/>	200	A 220 540 01 31 NEG. CABLE ENGINE GROUND LINE L 180 MM CODE 423	001
<input type="checkbox"/>	230	N 910143 006012 SCREW STARTER WIRING HARNESS FASTENING M6X10	001
<input type="checkbox"/>	250	A 203 540 04 32 EL. CABLE ALTERNATOR	001
<input type="checkbox"/>	255	A 203 545 03 01 FUSE BOX JUMP-START PLUG SOCKET	001
<input type="checkbox"/>	-----	A 203 545 08 03 .COVER	001
<input type="checkbox"/>	270	N 000000 000412 .LOCK MBN 10109-B 60 A	NB
<input type="checkbox"/>	270	N 000000 000416 .LOCK 125 A	NB

The Electronic Parts Catalog, accessed via the EPCnet Online site with a separate subscription, contains the same parts catalogs that dealers use. Covering virtually all USA models since the mid-60s, the EPC has many features to help you select the correct part for almost any M-B car.

Aside from the STAR TekInfo site for service information, Mercedes-Benz USA also offers two levels of Spare Parts information via the Web. The Official Genuine Mercedes-Benz Parts Website <http://www.mbwholesaleparts.com> asks, "Can you purchase a partnership like you purchase a part?" Your Mercedes-Benz dealer is your best partner for Genuine Mercedes-Benz Parts, backed by the Genuine Mercedes-Benz Parts Warranty. To make it easier to order what you need, MBUSA offers complimentary access to the Mercedes-Benz Fast-Moving Parts catalog. Here you'll find many of the most important parts, organized by specific models, along with the information you need to pick the correct part number.

For those who want access to the complete Electronic Parts Catalog (EPC), which contains virtually every spare part for every M-B model

since the mid-1960s, MBUSA offers a separate subscription to EPCnet, <http://www.STAR TekInfo.com/epc>. This is the same information used by your local dealer every day to specify spare parts in a convenient and user-friendly online format. Tech requirements and installation are similar to those of STAR TekInfo, and there are some basic tutorials that are valuable reading for those unfamiliar with the EPC.

One especially valuable feature of the site is access to Vehicle Parts Data Cards starting with the mid-1980s. These cards contain information on all of the special and optional equipment that the car was built with, making it easier to identify the correct parts for the car. The illustrations alone are worth the price, often showing how an assembly goes back together, and are also valuable when talking with your dealer about a hard-to-identify part you might need.

REVISITING THE CATALYTIC CONVERTER



It's been exactly 30 years since this almost magical component hit the streets, so it's definitely time for a review of diagnosis and replacement options. After all, there's more than one way to skin a cat

Catalytic converters have been in almost universal use since 1975, so you may think of the topic as old hat. But the advent of sophisticated second generation on-board diagnostics systems (OBD II) coupled with state-mandated emissions testing has led to increasing focus on converter efficiency. That means troubleshooting has risen to a new level of complication.

For reasons perhaps better left unexamined, the old saw has it that there is more than one way to skin a cat. This article offers a few modern ways to test a cat.

Converter Basics

We'd better begin with converter terminology. All modern cats are monolithic, which means they have a microscopically thin coating of catalytic elements on a ceramic honeycomb called a substrate. Early cats were of the oxidation type. Since all they did was promote the burning of HC and CO, they're often called two way converters.



No matter how sophisticated the design of a combustion chamber, such as that of this three-valve, two-plug Mercedes-Benz V6, and of the engine management system involved, downstream cleaning is still required.

A variation on this theme is the "light-off" or "pre-cat," a small oxidation unit installed within six inches of the exhaust manifold so that it gets hot enough to start working quickly, which helps the car meet emissions standards during the difficult warm-up period.

With the introduction of closed loop electronic engine management systems, which first appeared in the late '70s, we got the reduction or three way catalyst (TWC), so named because it not only handles HC and CO, but also reduces NOx compounds to harmless nitrogen and carbon dioxide. A three way unit has the reduction section upstream of the oxidation section.

Even the most efficient engines cannot achieve perfectly clean combustion. Partly, this is the result of the nature of commercial gasoline, which is a soup made of the many compounds within crude oil with boiling points ranging from about 50° to 200° C (120-400° F). These are primarily hydrocarbons, but may also include a smattering of contaminants, including sulfur compounds. Refiners mix in a variety of detergents, surfactants, and other additives, too.

Engine operating parameters also vary widely through a broad range of temperature and load conditions, necessitating corresponding deviations from stoichiometry, the "ideal" 14.7 to one air/fuel ratio (by weight, of course), which is represented by the Greek letter lambda in engineering jargon.

Thus, the net products of the internal combustion engine may include significant concentrations of unburned hydrocarbons (HC), partially burned hydrocarbons in the form of carbon monoxide (CO), and various oxides of nitrogen (NOx), all in addition to the main exhaust components of nitrogen (N₂), water (H₂O), and carbon dioxide (CO₂).

By just being present during the reduction and oxidation reactions that occur inside the converter, the thin layer of "noble metals" on the ceramic substrate vastly reduce the amount of NOx, HC and CO a car spews into our precious atmosphere without being changed one whit in the process. That is, if everything upstream is working properly, which we'll explain later.

To accomplish this important task, the catalytic converter relies on a series of three basic chemical reactions.

(Continued on page 20)

The Genuine Mercedes-Benz will blow

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

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- Meets original specifications
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Remanufactured to Genuine New Specifications

Cylinder Block & Front/Rear Housing

Cleaned, inspected, gauged, and honed to OEM specifications or replaced with new components as needed.

Discharge Reed Valve

Cleaned, polished, and inspected.
Replaced with new components as needed.

Steel Gasket

Replaced 100% with new components.

Oil

Replaced 100% with R134a-compatible oil.

O-Rings & Seals

Replaced 100% with O-Rings compatible with both R12 & R134a refrigerant.

Pistons

Cleaned and inspected. Replaced with new, if the treated surface is scratched.

Shaft & Swash Plate

Cleaned, polished, and inspected.
Replaced with new components as needed.

Shaft Keys

Replaced 100% with new components.

Shoes

Sized, cleaned, polished, & inspected.
Replaced with new components as needed.

Snap Rings

Replaced 100% with new components.

Suction Reed Valve

Cleaned, polished, and inspected.
Replaced with new components as needed.

Thrust Bearing

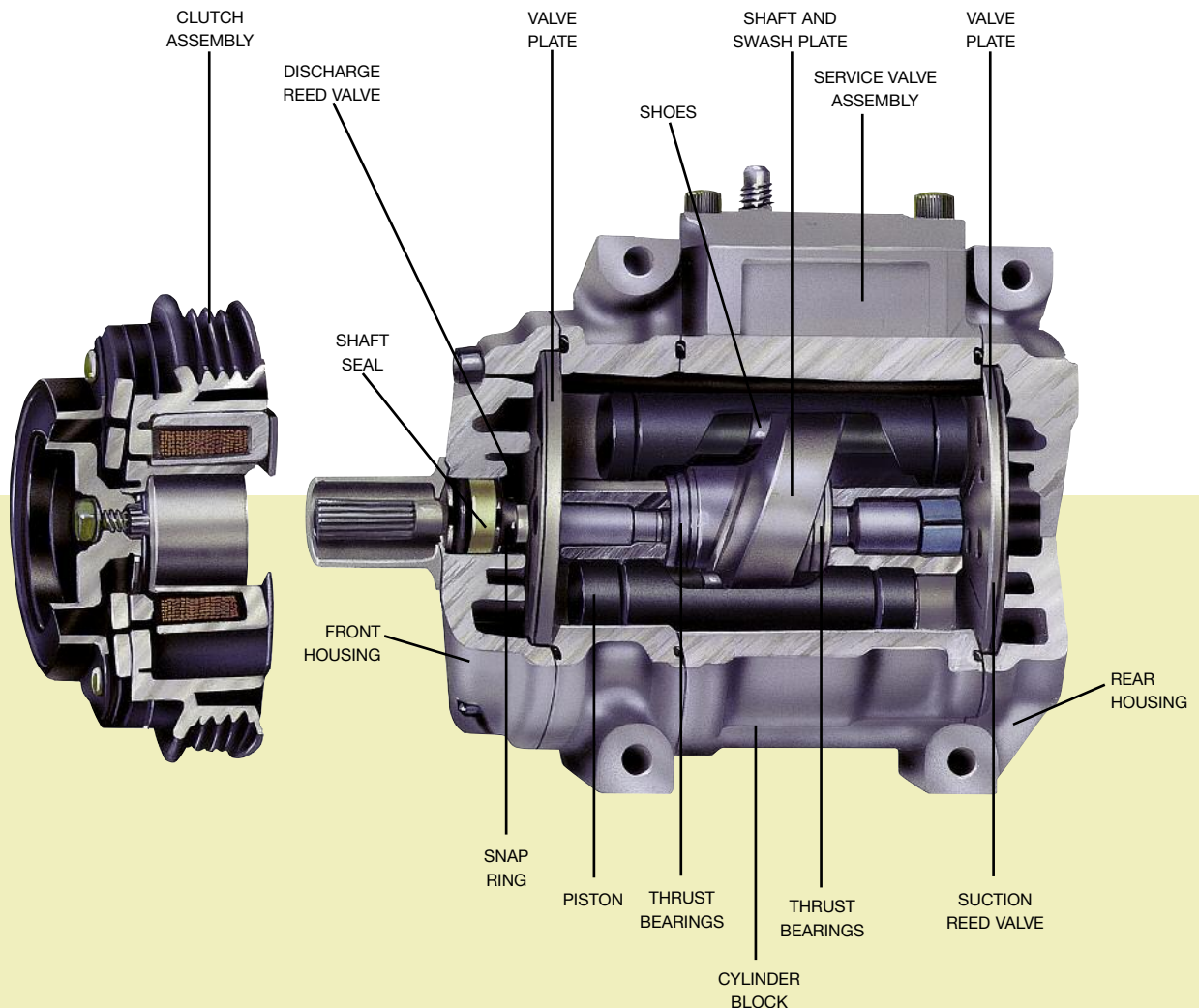
Cleaned, polished, and inspected.
Replaced with new components as needed.

Valve Plates

Cleaned, polished, and inspected.
Replaced with new components as needed.

Remanufactured A/C Compressor you away.

Genuine Mercedes-Benz Remanufactured A/C Compressor



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DENSO

(Continued from page 17)

The first, performed in the reduction bed, strips excess oxygen atoms away from NO_x compounds, returning the nitrogen to its natural state. The simplified equation for this process is



This reaction relies on the presence of a small amount of CO in the exhaust stream to accept the oxygen atoms removed from the NO_x. Oxides of nitrogen first arise when combustion chamber temperatures exceed the ignition point of nitrogen, which is about 1,370° C (2,500° F.). These extreme temperatures occur mostly under high-load conditions and are greatly exacerbated by lean air/fuel ratios. However, the CO needed to complete the reduction reaction is indicative of a rich air/fuel ratio. The need for a recurring regular supply of CO to reduce NO_x levels is a key reason for the normal oscillation between rich and lean mixtures associated with a properly-operating feedback/closed-loop engine management system.

The second and third chemical reactions take place in the oxidation bed of the converter. There, the HC and CO in the exhaust are burned (combined with oxygen) as indicated in the following chemical reactions:



Obviously, both of these reactions require the presence of substantial quantities of oxygen (O₂). So, where does this oxygen come from, and how is it made available.

You'll recall that O₂ is a reliable indicator of a lean condition, while CO marks its opposite. This, then, is another reason for the mixture oscillation mentioned previously. The oxygen used in the converter's second bed passes through the engine during periods of lean operation and is sequestered within the ceramic substrate to be used when needed to clean up the byproducts of rich running. This is sometimes supplemented by a secondary air injection

system, which used to be called a "smog pump," and has the same effect as a blacksmith's bellows

Catalytic converters work when the basic mixture is close to stoichiometry, and efficiency is best when lambda falls in a range of 0.97 to 1.03, which represents an air/fuel ratio of 14.26:1 to 15.14:1. The catalyst does a much poorer job of cleaning the exhaust when lambda falls outside that range, indicating a mixture that is too rich or too lean.

Now that we know what the converter does, and why it requires a mixture that swings between rich and lean to operate properly, we'll look at some converter tests that can help us differentiate between good and bad cats.

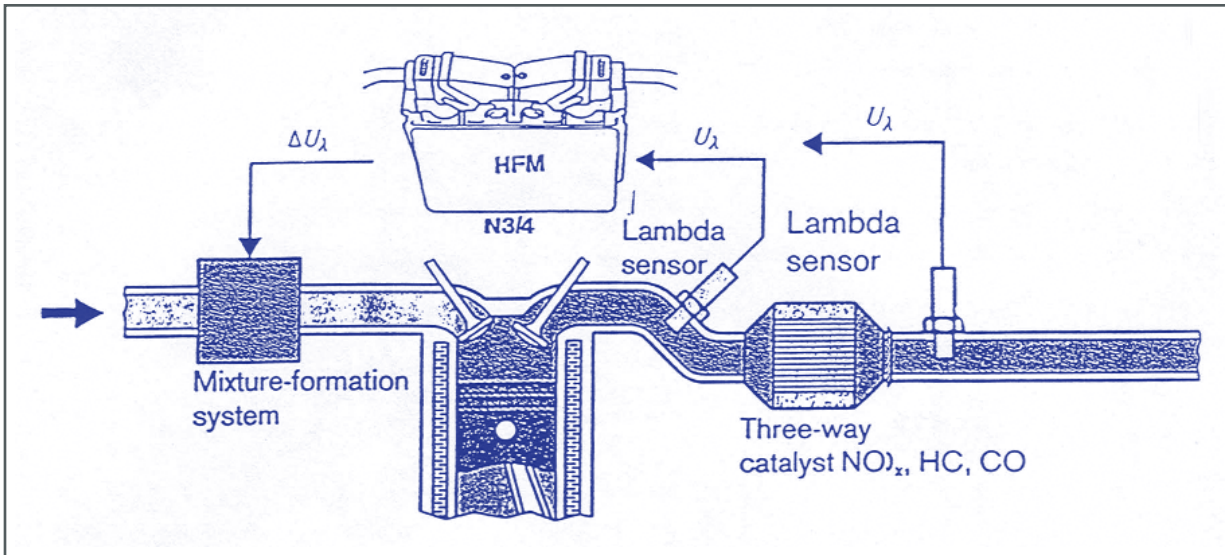
Testing Oxygen Storage

As we've seen, one of the converter's most important jobs is oxygen storage, so it makes sense to test that if we can. The oxygen storage test is relatively simple and can be done with a four-gas analyzer and minimal additional equipment.

Start by warming the engine to normal operating temperature. You want the catalytic converter to reach its operating temperature threshold as well, so you may have to drive the vehicle or operate it above idle for a few minutes (catalytic converters require a minimum internal temperature of around 230° C, or 450° F., before they "light off").

Next, insert the analyzer probe into the tailpipe and hold the engine speed constant at about 1,500-2,000 rpm. Watch the analyzer's O₂ reading. When it drops to zero, briefly snap the throttle open and monitor the O₂ reading just as CO first begins to rise. If the O₂ exceeds 1.2% at this time, the converter fails this test.

If the oxygen readings never reached zero, you may have to repeat the procedure, this time adding propane through the air filter until you deplete all the oxygen stored in the converter. In essence, what you are doing in this test is using up all the stored oxygen, then, with the large gulp of air from the throttle snap, refilling the converter.



With OBD II, the signals from the upstream and downstream oxygen sensors are compared to determine whether or not the cat has sufficient oxygen storage capability.

Obviously, oxygen storage is only one aspect of converter function, although it is considered important enough to be the basis of OBD II self-testing.

Burning HC?

A related test measures the converter's ability to actually oxidize hydrocarbons efficiently, and is called, logically enough, the oxidation efficiency test. You should carefully review the procedure and locate all necessary connectors and tools before you begin, so please read through the entire sequence before starting. This test must be performed in a short period of time to be accurate, so you need to understand all the steps before you start.

- Run the engine and your gas analyzer until both reach normal operating temperature.
- Hold the engine at about 2,000 rpm for at least two minutes to warm the catalytic converter to its operating temperature.
- Turn the engine OFF.

Note: You must complete the test within five minutes after turning off the engine or the catalyst will cool too much to work.

- Disable the fuel and ignition systems.
- Attach a battery charger and crank the engine at wide-open throttle for at least 10 seconds to clear all the fuel from the intake and exhaust.
- Attach a propane source to a large, centrally-located vacuum line (PCV or brake booster).
- Insert the analyzer's exhaust gas probe at least 12 inches into the tailpipe.
- Open the propane source valve and crank the engine for 15 seconds with the throttle closed.
- Read and Record peak HC and CO₂.

The test standards are as follows:

If HC is: ppm then CO₂ should be greater than: %

550 ppm	1.7%
750 ppm	2.5%
1,000 ppm	2.9%
1,250 ppm	3.8%
1,500 ppm	4.8%
1,750 ppm	5.4%
2,000 ppm	6.2%
2,250 ppm	7.0%

Remember, these are the minimum CO₂ figures – the more the merrier! If your HC readings fell outside of the minimum and maximum figures in the left column, you'll have to perform the test again, starting from the top and adding more or less propane as required. A little experience will help you adapt the test to your equipment.

What can we learn from this test? It tells us how much of a given amount of fuel can be oxidized by the hot catalyst.

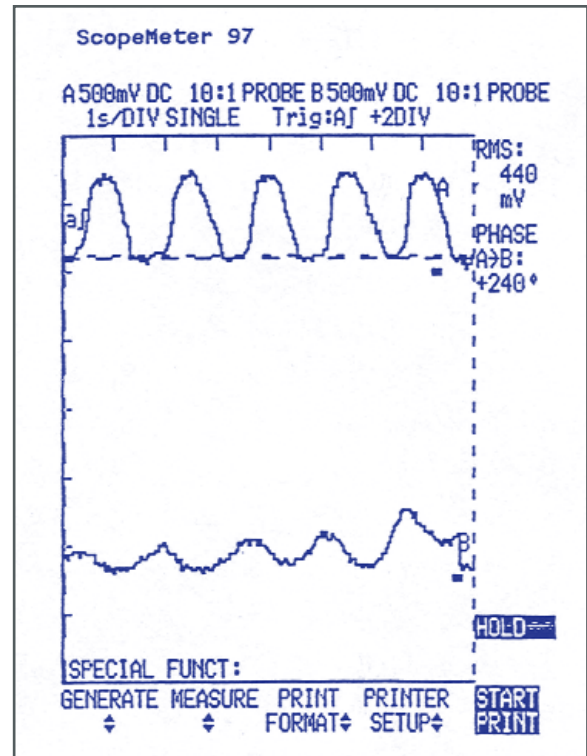
OBD II Considerations



Here, you can see the positions of the upstream and downstream oxygen sensors required by OBD II. This is from a late-model Mercedes-Benz V12.

Of course, vehicles equipped with OBD II systems (mandated for all '96 and up models) perform an ongoing self-test of catalyst efficiency by monitoring the voltage of the downstream oxygen sensor(s). Since O₂S voltage varies inversely with exhaust oxygen content, the PCM essentially performs a catalyst oxygen storage test similar to the one described above. Mercedes-Benz uses a complex algorithm comparing the upstream and downstream oxygen sensor signals to determine if it should set a code.

The most common codes for a failed converter are P0422 and P0432, signaling converter efficiency below the specified threshold for banks one and two, respectively, on a V6, V8, or V12.



OBD II decides whether or not a cat is capable of storing enough oxygen to do its job by comparing the signal from the upstream oxygen sensor to that of the downstream sensor. This lab scope screen shows the upstream O₂ sensor signal (top) and that of the downstream sensor simultaneously. There's too much activity in the downstream unit, indicating that the catalyst isn't operating at optimum efficiency.

So, should you trust that each instance of an OBD II converter fault code in fact indicates that the converter has failed? Tempting though it might seem to jump to such a conclusion, further testing is usually indicated. Here's why: A number of related faults can cause the PCM to conclude that the converter is faulty, when, in fact, the problem lies elsewhere.

The most common cause of a "false" converter DTC is a slight misfire, just below the misfire monitor's reporting threshold. Since a misfire results in additional oxygen being pumped into the exhaust stream, the converter's oxygen storage capacity may soon be exceeded. The resulting drop in downstream O₂S voltage may be misinterpreted as a converter fault, so the PCM sets a code.



Problems in the secondary air injection system can set codes that may make you believe the catalyst itself is bad when it's really working fine. Always make sure of where the problem lies before replacing expensive components, such as an O.E. cat.



Just the simple, logical maintenance step of replacing spark plugs at reasonable intervals can prevent misfires that may cause cat problems.

Another potential cause of a false DTC is a slight leak in the SAS (Secondary Air Injection System). If the PCM detects such a leak, it will normally set a pending code, subject to confirmation, and will suspend monitoring of the catalyst efficiency to avoid setting a false converter DTC. Occasionally, however, an as-yet undetected intermittent fault in the SAS may result in a false condemnation of the converter's efficiency. Any exhaust leak downstream of the front O2S can, in fact, cause a false converter efficiency DTC.

For these reasons, it's a good idea to perform at least one of the tests outlined above to verify any converter DTC before replacement.

Cat Killers

Ideally, catalytic converters should last as long as the vehicle on which they were originally installed. If you're forced to change one, ask yourself what went wrong with the original before you bolt on a new unit. Catalysts that die young do so from contamination and damage caused by overheating. Common sources of contamination include engine oil, antifreeze, and silicone sealers that are not rated catalyst safe. Contaminants coat the catalyst's reactive material, reducing chemical action and catalyst efficiency.

As already mentioned, a catalyst is a compound that hastens or facilitates a chemical reaction, but is not consumed in the process. The catalytic materials in a standard converter include rhodium, platinum, and palladium. Unfortunately, these expensive materials all degrade in the presence of sulfur-bearing compounds. Thus, using high-sulfur fuels may, over time, damage the catalytic elements and reduce the converter's efficiency. Additionally,



For many years, it's been the opinion of diagnosticians that a dead or lazy oxygen sensor is a common destroyer of catalytic converters.

high-sulfur fuels can diminish oxygen sensor speed and accuracy. The resulting mixture inaccuracies may then tax an already degraded catalyst beyond its limits.

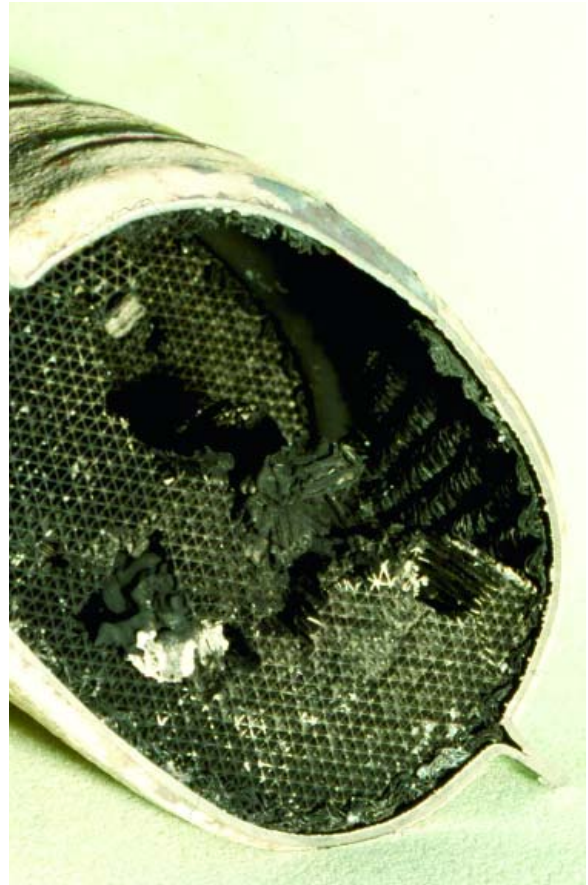
Overly rich conditions and engine misfires pump more CO and HC into the cat than it can handle. This increases chemical activity and heat to a point where the catalyst suffers a meltdown. Never replace a catalyst without locating and correcting the conditions that destroyed it in the first place. If you do find that the converter has fallen into sub-par performance, your next step should be to determine the exact cause of the failure.

Other Failure Modes

In addition to losing oxidation efficiency, catalytic converters can fail by losing reduction bed efficiency as well, or by becoming partially or wholly plugged. The loss of reduction bed capacity often results from melting caused by excessive temperatures due to misfire. It may also result from prolonged lean operation, most commonly associated with a faulty mass air flow sensor unit.

Plugging is usually associated with prolonged overheating. Catalytic converters will work as hard as they can. In fact, they'll work themselves to death if you let them. This condition is most easily detected during a routine manifold vacuum snap-throttle test, or by installing a

back-pressure gauge into the exhaust system, perhaps at the upstream O2 sensor port.

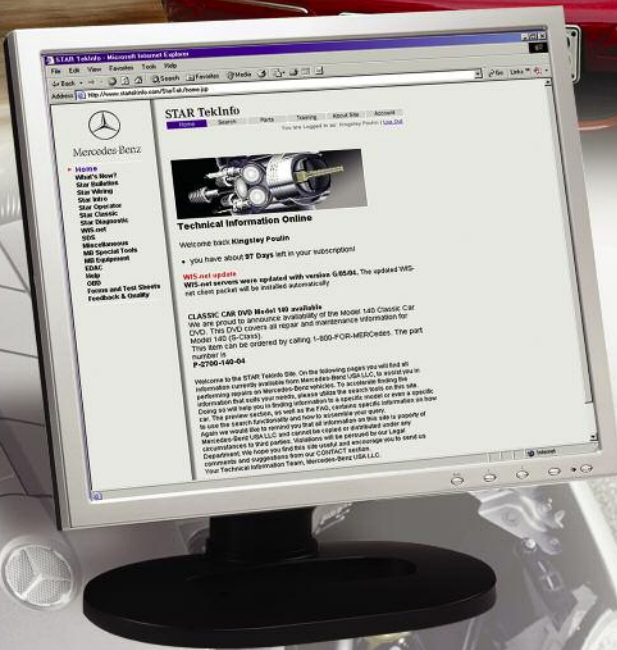


A chronic rich condition combined with sufficient oxygen can overheat a catalyst to the extent of a meltdown that results in flow restriction and a serious loss of power. This one is from the pre-O2-sensor K-Jetronic era, but it can still happen today.

Replacement Considerations

Remember that the original converter was designed and engineered to last for the lifetime of the car. The O.E. converter achieved a 70% to 97% efficiency in the reduction bed, and an even higher efficiency in the oxidation beds. On the other hand, aftermarket converters for Federal spec cars need only certify a minimum reduction bed efficiency of 30%, while even CARB-certified (California spec) replacements need only test at a minimum of 60% or 70% efficiency, depending on the application.

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It's not too likely that an aftermarket cat would either fulfill the job performance-wise, or be practical to install. So, if one of your customers has failed his or her emissions test because of poor catalytic converter performance, an O.E. replacement is probably the right answer, no matter how expensive.

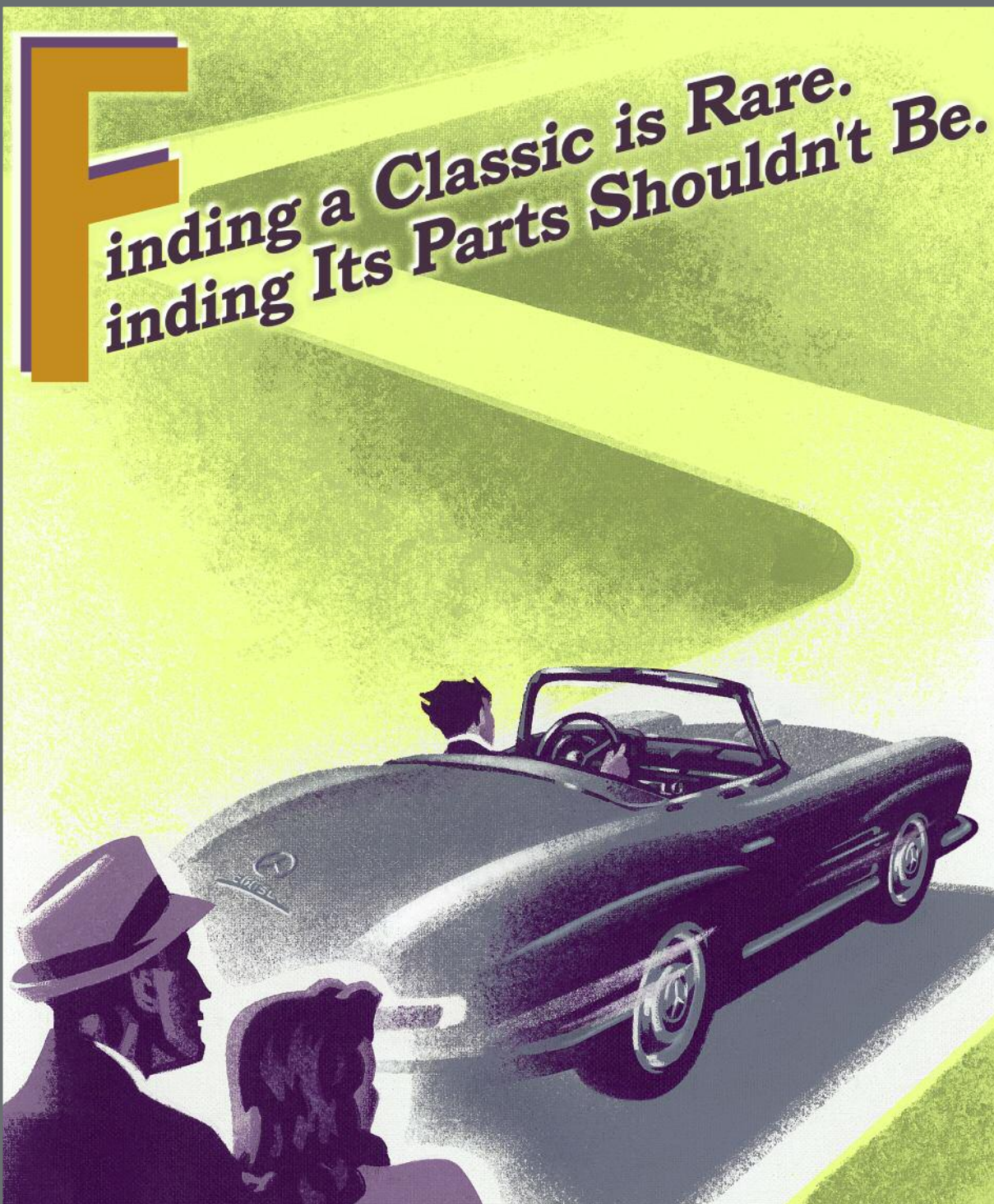
You've probably also seen aftermarket catalytic converters whose volume is only a fraction of the originals they are specified to replace. Experience has shown that while many of these undersized converters initially function superbly as oxidation catalysts, their small size results in a quick performance degradation and early failure. Additionally, reduction bed performance is usually extremely limited in efficiency and longevity.

Thus, opting for an aftermarket replacement may be a false economy because your customer will be seriously disappointed with you, especially if the car fails its next state emissions test. Where cost considerations preclude purchasing a new original equipment converter, a refurbished unit may be available.

Of course, all this is moot if the vehicle is still

under the federally-mandated emissions warranty. Naturally, a cat is considered a major emissions-control component, so is covered for eight years or 80,000 miles. That means if the car is a '98 or up and has less than 80K on the odometer, you should send your patron back to the car dealership. Providing the vehicle hasn't been abused and has been properly maintained, the automaker is responsible for all costs associated with catalytic converter replacement.

Visit us at our new website
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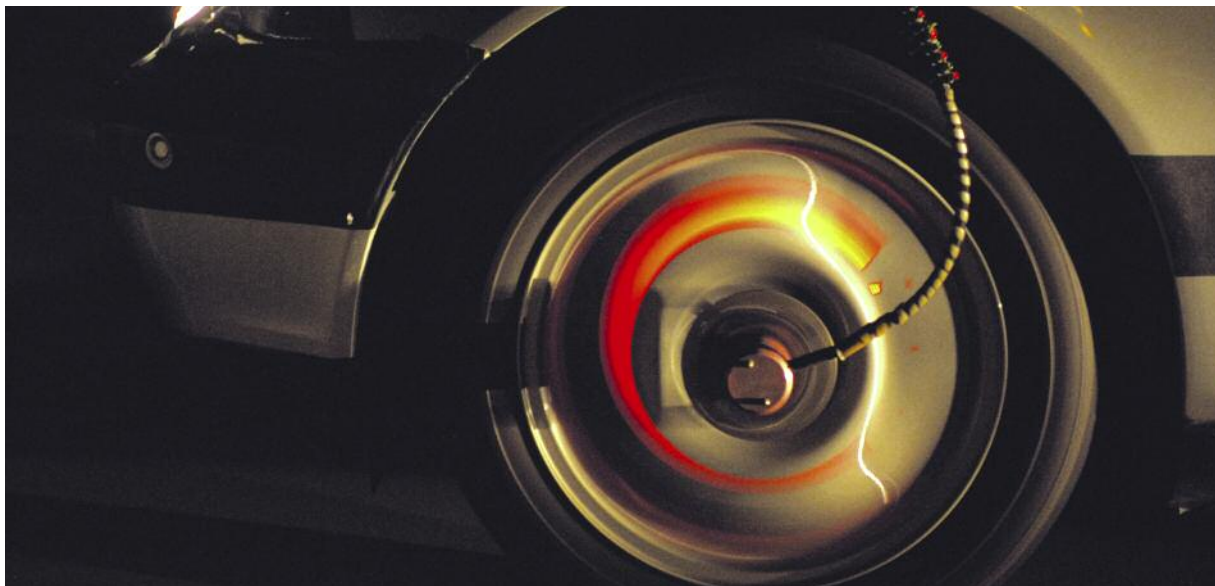


Mercedes-Benz



PARTS NEWS

'TIS DEFINITELY THE SEASON



Maybe there's little chance that your customers will ever abuse their brakes enough to get them up to cherry-red point, but that doesn't relieve you of the responsibility of making sure that their hydraulic systems stay uncontaminated with water, ash and grit. As you know, the only way to do that is to perform brake fluid flushes at least every two years.

We've gone on and on about this before (see the September, 2004 issue of STARTUNED, which you can find online through www.MBWholesaleParts.com – click the appropriate tab, then search the archives), and with good reason. It seems that this is the most neglected maintenance item there is. Many shop owners we talk to still don't offer brake fluid flushing even bundled with other brake work, such as a reline. To us, that's dereliction of duty, and a poor business attitude to boot.

Fresh fluid of the proper DOT rating is not only crucial for safety – moisture in the system can increase stopping distances and the result-

ant corrosion and deposits can interfere with the operation of ABS – but is also important from a financial point of view. Have you priced a replacement ABS unit lately?

Brake fluid flushing becomes especially important with summer coming. Think vacation trips at high speeds in hot weather, perhaps in mountainous terrain. Then there's the high humidity encountered at this time of the year in most of the country.

So, now's definitely the time to promote this worthwhile maintenance, which will benefit your customers, your reputation and your bottom line. Using Genuine Mercedes-Benz brake fluid, which is conveniently available at a very reasonable price from your local M-B dealer's wholesale parts department in one-liter and five liter steel containers (Part Numbers A000989080701, and A000989080711, respectively) will give you peace of mind because you'll know it's specified, tested and approved by Mercedes-Benz.



FACTORY SERVICE BULLETINS

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

Modification of Special Tool for Pulling Axle Halfshaft with Double-Row Tapered Roller Bearings on Models 124.090/092/193/290

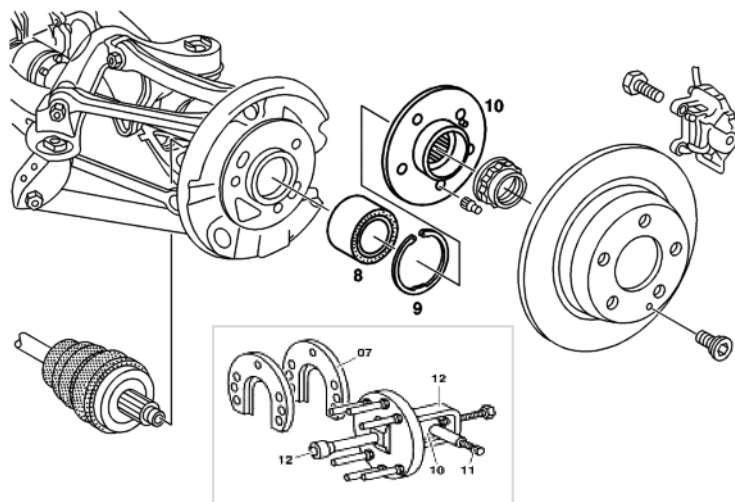
These models have a rear axle halfshaft with double-row tapered roller bearings. These bearings can only be pressed out of the rear halfshaft flange with the wheel carrier removed from the vehicle, then by the use of a stationary hydraulic press.

These bearings require an extraction force three times that required to pull the double row ball bearings used on

other models. The regular M-B puller (Special Tool number W202 589 04 43 00) is not designed to handle such forces. As a result, the removal of rear axle half shafts with the double-row tapered roller bearings is not possible.

The special tool puller must be modified with a shear pin, which is installed at the pressure screw of the hydraulic press. The shear pin will shear at a force of 40 Nm, thus preventing any further pressure build-up at the hydraulic press and making the operation (except on Model 124.090/092/193/290) safer (the pin will shear). The modified pressure screw is available with the shear pin as a spare part under Special Tool Part Number W202 589 04 43 11.

Note: Review the following document in WIS: AR35.20-P-0130B.



Implausible Oil Level Display on ML with M112 or I13 Engine

If the engine oil level is actually okay, but the instrument cluster is displaying Oil Level Below Min, Oil Level Above Max, or Engine Oil Level - Visit Workshop, perform the following steps:

1. Check if the engine has the appropriate oil dipstick. Correct oil dipstick if necessary.
2. Check if the oil level is correct using the proper oil dipstick. Correct oil level if necessary.
3. Check if correct oil data is stored in the instrument cluster as follows:
 - a. Hook up DAS
 - b. Select vehicle mode
 - c. Select instrument cluster. If the oil data is incorrect, change oil data in the instrument cluster by performing steps d. to g.
 - d. Select control unit settings
 - e. Select coding or variant coding
 - f. Select engine or engine variant

g. Save data

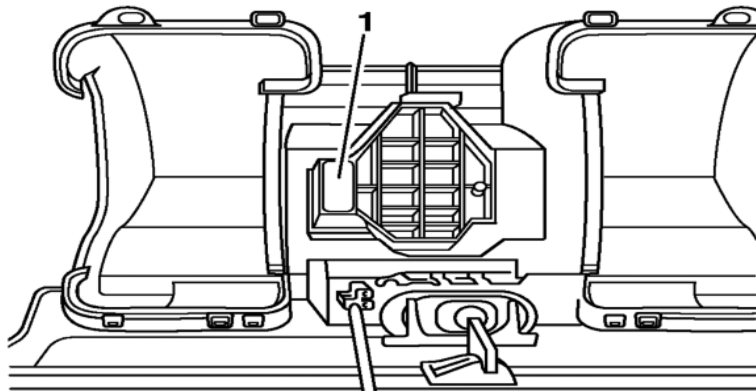
4. Check for DTCs. If an oil level sensor fault code has been stored, perform the following steps:

a. If three fault codes (P2039, P2040, P2041) are present, the oil level sensor connector is incorrectly plugged in, the wiring harness is damaged (short circuit), or the oil level sensor is defective.

b. If one or two of the above mentioned fault codes are stored, replace the oil level sensor.

**Brake or Tail Lamp Lights Permanently On, Trunk Illumination Inoperative
Models 203.040/061/064/
065/076/081/084/261/264/
281/284/740/747/764**

If you get a complaint in the above model vehicles that the brake or tail lamp lights are permanently on even though the lights are switched off and the light menu in the instrument cluster is set to "Manual," or the trunk illumination is inoperative, the output transistor in the rear SAM (N10/2) may be inoperative. Typically, there will be no DTCs, no message in the instrument cluster and no light will be substituted. The condition must be confirmed prior to repairing the vehicle. To resolve, replace the rear SAM, Part Number A203 545 32 01.



Failed State OBD Test, 1993 Through 1996 With LH-SFI or HFM-SFI

It has come to the attention of Mercedes-Benz USA that these Mercedes-Benz vehicles have inadvertently failed OBD Inspection/Maintenance tests in certain states conducting OBD checks. These failures are due to problems in state guidelines, which were established without the knowledge of how specific Mercedes-Benz systems operate.

Testing guidelines read as follows for states that test using the OBD system. Vehicles fail the entire OBD inspection if they fail either of the following criteria:

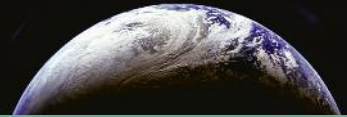
- Malfunction indicator lamp (MIL) is illuminated with the vehicle in the key-on/ engine-running condition.
- MIL is illuminated after the vehicle is started, even if no fault codes are present, which could indicate a serial data link failure.

Please be advised, that certain Mercedes-Benz vehicles will illuminate the MIL during

DTC read-out and while the tool is connected, regardless of whether or not any faults are present in the OBD system. This feature was designed into Mercedes-Benz vehicles equipped with LH-SFI and HFM-SFI control modules during the early phase of OBD so that the technician would know when a scan tool is properly communicating ("linked-up") with the control module. For this reason, these vehicles should not failed any state inspection. Furthermore, it is critical to note that this is only a "visual illumination." The MIL is not "commanded on" and bit Mode \$ 01, P1D \$ 01, Data A, bit 7 is not set or activated in the OBD software.

DTC B1000 in Electronic Ignition Switch on Model 203

Due to an error in the DTC software, it is possible that Code B1000 may be recorded in the Electronic Ignition Switch (EIS, N73). If this fault is present, but not current, the DTC may be ignored and the DTC memory erased. Do not replace the EIS for this condition.



GENUINE MERCEDES-BENZ PARTS... NEARBY

Alabama**Dothan**

Mike Schmitz Automotive
334-794-6716

Hoover

Crown Automobile
205-985-4200

Huntsville

Mercedes-Benz of Huntsville
256-837-5752

Mobile

McConnell Automotive
251-476-4141

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334-277-5700

Tuscaloosa

Leigh Automotive
205-556-1111

Alaska**Anchorage**

Mercedes-Benz of Anchorage
907-277-3383

Fairbanks

Cook's Import
907-459-7070

Arizona**Chandler**

Mercedes-Benz of Chandler
480-403-3444

Phoenix

Phoenix Motor
602-264-4791

Scottsdale

Schumacher European
480-991-1155

Tucson

Mercedes-Benz of Tucson
520-886-1311

Arkansas**Fayetteville**

Jones Motorcars
479-521-7281

Little Rock

Riverside Motors
501-666-9457

California**Anaheim**

Caliber Motors
714-777-1900

Arcadia

Rusnak/Arcadia
626-447-1117

Bakersfield

Mercedes-Benz of Bakersfield
661-836-3737

Belmont

Autobahn Motors
650-637-2333

Beverly Hills

Mercedes-Benz of Beverly Hills
310-659-2980

Buena Park

House of Imports
714-562-1100

Calabasas

Calabasas Motorcars
818-591-2377

Carlsbad

Hoehn Motors
760-438-4454

Chico

Courtesy Motors Auto Center
530-893-1300

Claremont

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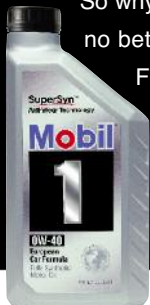
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