

Mercedes Benz Diesel (OM617A) Tachometer Diagnostic Tool *Installation Instructions and User Guide*

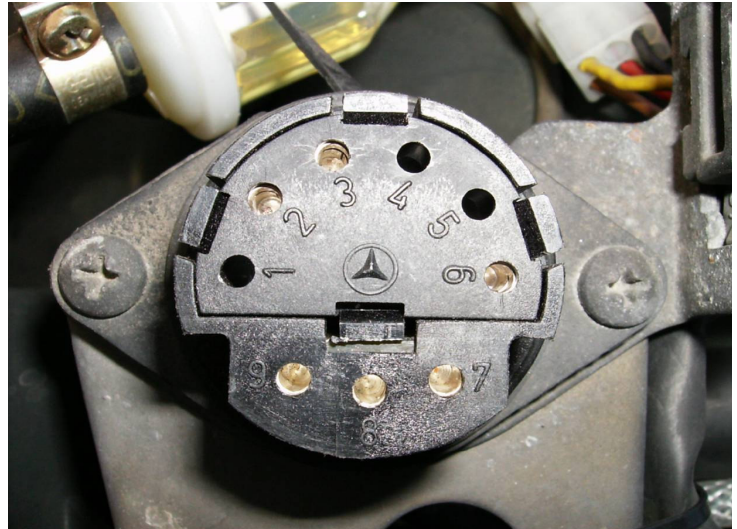
Doc. Rev. A2

This diagnostic tool is designed to troubleshoot vehicles equipped with a tachometer amplifier (TDC Sensor), Mercedes part number

001 549 59 32

It was used in the following North American Mercedes Benz models:

W116 300SD	all
W126 300SD	up to the end of model year 1983
W123 300D, 300CD	up to model year 1984 or 1985 depending on California/Federal emissions set up



This is the socket that accepts both the tachometer amplifier and the diagnostic tool. Note the metal contacts are present in positions 2, 3, 6, 7, 8, and 9. The “diagnostic connector” found in some of the 1984 and 1985 300D, 300CD, and 300SD models looks similar, but is missing the contact in position number 3.

Plugging the tool into the “diagnostic connector” will not damage the tool or the car, but the tool will not function correctly unless the wiring harness in the car is of the appropriate configuration.

Please verify that you have the proper socket set up in your car before proceeding!

Resistance and Voltage Measurements:

Before beginning the diagnostic testing, you can determine the “health” of some of the basic components of the tachometer system. The following resistance and voltage measurements are made using a digital or analog multimeter. Place the + lead (generally red) and the – or COM lead (generally black) on the indicated socket pins and set the meter to read the appropriate scale and units.

Socket Empty, key in “glow” position:

<u>+ lead</u>	<u>- lead</u>	<u>scale</u>	<u>measurement</u>	<u>comments</u>
pin 6	pin 2	DC Volts	+12V +/- 0.7V	pin 2 ground, pin 6 +12V
pin 9	pin 8	ohms	infinite (open)	pin 9 sensor +, pin 8 shield
pin 9	pin 7	ohms	80 +/- 20 ohms	pin 9 sensor +, pin 7 sensor –

Diagnostic tool installed in the socket, key in “glow” position:

<u>+ lead</u>	<u>- lead</u>	<u>scale</u>	<u>measurement</u>	<u>comments</u>
pin 6	pin 2	DC Volts	+12V +/- 0.7V	pin 2 ground, pin 6 +12V
pin 9	pin 7	DC Volts	+ 3.0V +/- 0.30V	pin 9 sensor +, pin 7 sensor –

Installation:

The diagnostic tool plugs into the connector on the inner left fender under the circular “trash can” cap.

- 1) Remove the “trash can” cap by gently unscrewing it. Verify that the cap is approximately 2 inches tall. Later model years do not use tachometer amplifiers, but have a “diagnostic plug” in place of the tach amp. The diagnostic plug has a similar circular cap, but is not as tall as the cap used with the tach amps.



- 2) Verify that there is an electronic module inside the “trash can” cap. You should see six metallic connector pins inside the cap. If the cap is empty, your car has a diagnostic plug and does not use a tach amp. See page 1 for more details.



- 3) ***This step is optional, and only recommended if you would like to drive with the diagnostic tool in place.***

Gently extract the electronics module from the cap. This is best done by grabbing the module with pliers and gently “walking” the module out of the cap by rocking the cap back and forth while pulling the module out. Set the module aside, but leave the cap connected to its tether.



Installation (continued):

- 4) Orient the diagnostic tool with the contacts found on the socket. There will be a group of three contacts across the bottom at the 5, 6 and 7 o'clock positions (corresponding to pins 7, 8, and 9), two contacts at 10 and 11 o'clock (corresponding to pins 2 and 3), and a single contact at the 3 o'clock position which corresponds to pin 6 on the socket.



- 5) Guide the connector pins into the socket contacts. Once the pins have been started into the socket, press the PC board gently but firmly into the socket by pressing around the entire circumference of the board. It will seat about 0.25 inches into the socket and then bottom out. Do not force it further into the socket after it bottoms. When properly inserted it will ride about 0.2 inches above the plane of the socket.



- 6) ***This step is optional and only recommended if you would like to drive with the tool in place. DO NOT perform this step unless you have also performed step 3) on the previous page.***

If you choose to perform this step, please do so only AFTER the diagnostic routine detailed on the next page is completed.

Once the PC board is seated in the socket, take the now empty cap and screw it back on to the socket housing. Installation is now complete.



Diagnostic Routine Operation:

Using the key, place the ignition switch in the "GLOW" position, just as you would normally do when starting the car. The red LED on the diagnostic tool will flash for 16 seconds. During this flashing period, the tachometer gauge should indicate a constant 900 +/- 100 RPM. This verifies the proper power and ground to the amp as well as proper functioning of the gauge.

After completion of the 16 second pre test, start the car normally. The red LED should now flash and the frequency of the flashing should rise and fall with engine RPM. The Tachometer gauge should also now indicate actual engine RPM, and the gauge needle should rise and fall with changing RPM.

The diagnostic tool is also a fully functional tach amp, and you can drive with it in place if you wish to verify proper function at high RPM.

Troubleshooting:

Symptom

Potential Cause

No initial LED flash at Glow

No power to Amp. Possible fuse issue, possible wire harness damage in power/ground leads to amp.

LED flash at Glow, but no needle movement

Possible power issue to cluster. Possible wire harness damage to power/ground leads to cluster. Possible wire harness damage to the tachometer pulse leads to the tachometer gauge. Possible bad tachometer gauge.

No LED flash with engine running

Possible bad sensor. Use DVM to check for open/short

LED stops flashing at high RPM

Possible sensor too far from balancer pin, causing high RPM signal degradation.