Continue

How to test speedometer sensor

The Motorsport Images Collections captures events from 1895 to today’s most recent coverage.Discover The CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors’ Picks.Browse Editors' FavoritesExperience AI-Powered CreativityThe Motorsport Images Collections captures events from 1895 to today’s most recent coverage.Discover The CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors’ Picks.Browse Editors' FavoritesExperience AI-Powered CreativityThe Motorsport Images Collections captures events from 1895 to today’s most recent coverage.Discover The CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors’ Picks.Browse Editors' FavoritesExperience AI-Powered Creativity How to Change Speedometer Calibration A vehicle’s speedometer is in charge of giving an accurate estimation of the speed it is driving. When buying a car from a dealer, the speedometer is adjusted or calibrated to the vehicle’s stock parts. If the owner decides to change the stock parts, such as the vehicle’s tires, it can throw off the calibration of the speedometer, giving the driver the wrong reading for the vehicle’s speed. Switching to larger tires causes the speedometer to give off a slower speed reading than the vehicle’s actual speed. Similarly, switching to smaller tires causes the speedometer to give a faster reading for the vehicle’s speed. After the tires are changed, the speedometer needs to be recalibrated. Here are a few simple steps on how to change speedometer calibration for a mechanical or electrical speedometer. If you have a mechanical speedometer, you would start by opening the vehicle’s hood and locating the transmission. Next, unscrew the speedometer cable and unscrew the bolt holding the gear housing cover. After removing the plate, you will see two gears. Count the number of teeth the gears have and remember it for later. Next, get the diameter of the tire and divide 20,168 by the tire’s diameter. This is the tire’s revolutions per mile. Multiply this by the number of teeth your gears have and multiply again by the vehicle’s axle ratio (which can be found in the vehicles supporting documents). Purchase the necessary driven gear for your vehicle. Remove the old driven gear by pulling it out of its clips and clip in the new driven gear. Secure the gear housing cover and the speedometer cable back. If you have an electric speedometer, you would start by determining the distance of the test drive you would need to recalibrate your speedometer, which can be found in the vehicles supporting documents. Press and hold the calibration button located on the speedometer, start the vehicle, and then release the button. Press that button again and then take the test drive. Once you have driven the distance needed, press the button once more and the speedometer will calibrate itself to accommodate the new tire size.Now that you know how to change speedometer calibration, you can get those new tires you have been eyeing. Need help with speedometer calibration? View our services here. Share — copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution — You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. To ensure our content is always up-to-date with current information, best practices, and professional advice, articles are routinely reviewed by industry experts with years of hands-on experience. Reviewed by on Feb 27, 2021 When you are troubleshooting your vehicle speed sensor, there are several things that you need to look at. This could end up affecting your transmission, speedometer, ABS, power steering, and cruise control. A vehicle speed sensor works a lot like a wheel speed sensor.As soon as you start to notice any problems with the aforementioned areas of your vehicle, it would help if you started troubleshooting immediately to fix the problem before it gets worse. Allowing it to go undiagnosed and unfixed will end up costing you a lot more in the long run. Testing the speed sensor is simple enough and can be done without a professional or any expensive equipment.If you are dealing with a variable reluctance type sensor, then there will be a permanent magnet that is wire wrapped. It has a magnetic field that partly collapses, thanks to a toothed ring. When your magnetic field collapses, there will be a voltage induced into the wire wrapped around said magnet.You can test this with an ohmmeter. If there is an infinite reading, then this is a sign that there is no electricity going through. If using an analog ohmmeter will show this by staying on the same side as when no probes are touching. If you use a digital ohmmeter, then there will be no value shown.Test Bad SensorThere are two tests that you can do that will help identify a bad sensor. Use an OHM meter to test the integrity of the circuit of the sensor. This is to check for an open winding. Your sensor should be able to read some resistance. The other test is with a scan tool. Install the scan tool, and set it for a data stream.The vehicle will need to be driven as you monitor the signal of the sensor. Take note of the code that shows up on the scan tool and look up what this code means.Test MAG ResistiveIf you happen to have a later model vehicle, your car will probably use the controller area network protocol. This particular sensor gives you a digital signal on the actual on-board computer in your vehicle. Test this with the help of a resistive magneto sensor.With this sensor, an electromagnetic field is powered by the computer. The built-in resistive bridge circuit processes the signal given to it in the form of a digital square wave. The digital signal is then sent to your computer. This is how the speed is calculated. Your scan tool will be the easiest way to test this.If you want to test it manually, you need to unplug the sensor. Leave the key turned on, with the engine still off—test for any power, as well as a ground from the computer. Plugin the sensor and start your vehicle. Test your signal return wire for a lab scope signal. Make sure that the drive wheels are suspended at the same time the transmission is put into gear.Vehicle speed sensor accuracy is vital. These troubleshooting tips will help you regain that accuracy.If you decide the element is truly busted, you'll probably want to replace it. Download Article Download Article A vehicle speed sensor, or VSS, is a sensor that is used to determine how fast your vehicle is traveling. If your vehicle’s speedometer stops working or isn’t telling you the correct speed that you’re traveling, you likely have a faulty VSS. You can test your VSS to make sure it’s functioning properly by using a device called a multimeter. Start by disconnecting and removing the VSS from your engine so you can test it. You can then connect it to a multimeter and set the multimeter to the AC setting. Connect the VSS to a power drill so you can simulate the rotation of the vehicle’s transmission and read the multimeter to see if the voltage increases as the speed increases to check if the sensor is working properly. Turn off your vehicle and find the sensor near the transmission. Unplug the wiring harness connector and press the pull tab (or button). Unscrew the hold-down bolt and bracket to remove the sensor. Plug in colored cables into your multimeter and switch to the AC setting. Plug a ground wire and signal output into the sensor to connect your multimeter. Connect the black and red lead wires to the exposed ends of the ground and signal wires. Put a drill bit into the gear slot, attach it to a power drill, and pull the trigger to test the sensor. If the voltage on your multimeter doesn't increase with speed, the sensor is damaged. 1 Make sure the vehicle is turned off to avoid being shocked. Put the vehicle in park on level ground and turn off any lights or accessories that may draw power from the battery. Remove the key from the engine to make sure it’s completely turned off.[1] Parking on level ground makes it easier for you to access the VSS. 2 Open the hood of the vehicle so you can access the engine. Locate and pull the release hatch near the driver’s side door to open the hood. Engage the interior release hatch on the front of your hood and raise the hood up. If your hood uses a rod to hold it open, move the rod to its slot.[2] Make sure the hood is held securely in place before you lean into it to test the VSS. Advertisement 3 Locate the VSS sensor near the transmission of your vehicle. Find the transmission dipstick and follow it to locate your transmission. The VSS will be a small sensor attached to your transmission by 2 wires and held in place by a bracket. It will also have a sliding pull tab on it. Look for a small, metal sensor surrounded by a metal bracket with a white and black wire connected to it.[3] Vehicle speed sensors can be installed in different locations depending on what make and model of vehicle you have, but they measure the rotation of the transmission, so they’ll generally be located on or next to the transmission. Consult your owner’s manual to find the location of your VSS. Tip: If you don’t have your owner’s manual, or you’re unable to find your vehicle’s VSS, search the make and model of your vehicle online to locate the VSS. 4 Disengage the wiring harness connector from the VSS. There are 2 wires connected to the VSS, a black one and a white one. Both wires connect the VSS to your vehicle to ground the sensor and transmit information about you’re vehicle’s speed. Unplug the harness so you can take out the sensor.[4] The wiring harness may be located on the underside of the VSS. If you can’t grip the harness with your fingers, use a pair of needle-nose pliers to disengage it. 5 Press the pull tab or button on the VSS to separate it. On the top or side of your VSS will be a sliding tab or a button. Engage the tab or button and gently pull on the sensor to release it from its housing.[5] You may need to wiggle or slide the VSS out of its base. Don’t force or yank the VSS or you could damage it. Make sure you’ve engaged the sliding tab or the button that releases it. Some sensors may require you to remove 2 small screws to slide it out of place. 6 Unscrew the hold-down bolt and bracket to remove the VSS. Use a screwdriver to remove the bracket around the VSS. Then, use a socket wrench with a piece that fits over the bolt to twist the bolt and loosen it so you can pull out the sensor.[6] Make sure you don’t lose the screws or bolts so you can replace the sensor. Advertisement 1 Plug the colored lead cables into their slots on the multimeter. Your multimeter will have a red and a black lead cable. Plug the black lead into the black colored terminal that’s labeled “COM” which stands for common. Then, insert the red lead into the red colored terminal labeled “V” for voltage, which is what you’re testing.[7] Push the leads into their slots completely. They may “click” into place when they’re fully connected. 2 Set the multimeter to AC to test your VSS. Look for a dial on your multimeter that has numbers and letters on it. The AC, or alternating current, setting may be labeled as AC, V with a squiggly line, or ACV. Turn the dial until the arrow or indicating line is pointing to the AC setting.[8] Electrical devices, such as your VSS, use an AC current for power. 3 Plug a signal output and ground wire into the sensor. On the VSS is a slot where the sensor plugs into the vehicle. You can find a plug that fits into your VSS and contains a white signal output wire and black ground wire from auto supply stores. Make sure the plug fits your VSS securely.[9] The plug uses a white signal output wire and a black ground wire to transmit signals from the device to your vehicle. You can also find plugs that contain the signal wire and ground online. 4 Connect the black lead and the red lead to wires on the plug. Take your black lead wire and clip it to the exposed wire at the end of the black ground wire plugged into the VSS. Then, take your red lead wire and connect it to the exposed end of the white signal wire plugged into the sensor.[10] Make sure the red and black leads are securely connected. Tip: If the signal wire and ground wire are completely covered in sheathing, use a knife to strip about 1⁄4 inch (0.64 cm) of the wire sheathing to expose the wire beneath so you can clip your leads to it. Advertisement 1 Find a drill bit that fits securely into the VSS. In order to simulate the movement of your vehicle to properly test the sensor, you need to rotate the gear inside of the VSS. Insert drill bits into the gear slot on the VSS until you find one that fits securely into it.[11] Different sensors have differently sized slots, so try out a few bits until you find one that fits your VSS. 2 Connect the bit to your power drill. Loosen the chuck, or the piece on the end of the drill, by rotating it so the jaws open up. Slide the smooth end of the bit into the jaws and then slowly rotate the drill to tighten the jaws around the bit so it’s held securely. Give the bit a gentle tug to make sure it won’t fall out. 3 Spin the gears of the VSS by pulling the trigger on the drill. Hold the VSS in place with your hand and bring the drill up to speed slowly to rotate the gears in the slot the drill bit is inserted into. Allow the VSS to rotate at full speed so you can get an accurate reading.[12] Start slowly and continue to increase the speed of the drill at a consistent pace so you don’t strip or damage the VSS. 4 Read the voltage on the multimeter to see if it increases with speed. While the VSS rotates, the multimeter will display a voltage reading. If the VSS is functioning correctly, the voltage on the multimeter will increase as the speed of the VSS rotation increases.[13] If the voltage doesn’t increase or doesn’t display at all, then the VSS is damaged or faulty. Tip: Rotate the VSS at varying speeds to make sure the multimeter is accurately detecting speed changes. 5 Disconnect the plug and drill, and reinstall the VSS into your vehicle. Remove the drill bit from the VSS and take out the plug containing the white signal output and black ground wires. If the VSS is functioning properly, slide it back into its housing, reconnect the wiring harness, and replace the bracket and bolts.[14] If your VSS isn’t functioning properly, replace it with the same make and model so it fits into your vehicle. Have a mechanic inspect your vehicle if your VSS is functioning but your speedometer still isn’t working properly. Advertisement Add New Question Question Are there any other ways to test a speed sensor? Nick Psaros Automotive Expert Nick Psaros is an Automotive Expert working to encourage people to become car enthusiasts and share useful automotive content with people around the world. He has spent the past six years building an online following and community dedicated to automotive excellence. He has a follower base of over 10,000 YouTube subscribers and has garnered over 1 million views on his channel. When it comes to testing vehicle speed sensors or any sensors in general, a crucial tool is an OBD-II reader. It's essential to emphasize that not just any reader will suffice; you require a powerful one capable of delving deep into various Electronic Control Units (ECUs). This robust reader enables comprehensive testing of each specific sensor, providing the necessary insights into their functionality and performance. Moreover, some automotive stores offer the option to lend OBD-II scanners for a small fee, allowing you to perform the diagnostics yourself. Alternatively, they may provide the service of testing it for free in their shop, giving you access to professional expertise and equipment without a significant financial commitment. This can be a convenient and cost-effective solution for those looking to troubleshoot sensor issues without investing in an OBD-II reader outright. Ask a Question Advertisement Multimeter Screwdriver Socket wrench Signal output and ground wire plug Power drill Drill bit Thanks for reading our article! If you’d like to learn more about car maintenance and repair, check out our in-depth interview with Nick Psaros. This article was co-authored by Nick Psaros. Nick Psaros is an Automotive Expert working to encourage people to become car enthusiasts and share useful automotive content with people around the world. He has spent the past six years building an online following and community dedicated to automotive excellence. He has a follower base of over 10,000 YouTube subscribers and has garnered over 1 million views on his channel. This article has been viewed 182,874 times. Co-authors: 12 Updated: February 24, 2025 Views: 182,874 Categories: Cars & Other Vehicles Print Send fan mail to authors Thanks to all authors for creating a page that has been read 182,874 times. "I replaced my VSS but it still throws a code, so I needed to know how to test the VSS before I buy another/go to a mechanic to check the wire harness."..." more Share your story Download Article Download Article A vehicle speed sensor, or VSS, is a sensor that is used to determine how fast your vehicle is traveling. If your vehicle’s speedometer stops working or isn’t telling you the correct speed that you’re traveling, you likely have a faulty VSS. You can test your VSS to make sure it’s functioning properly by using a device called a multimeter. Start by disconnecting and removing the VSS from your engine so you can test it. You can then connect it to a multimeter and set the multimeter to the AC setting. Connect the VSS to a power drill so you can simulate the rotation of the vehicle’s transmission and read the multimeter to see if the voltage increases as the speed increases to check if the sensor is working properly. Turn off your vehicle and find the sensor near the transmission. Unplug the wiring harness connector and press the pull tab (or button). Unscrew the hold-down bolt and bracket to remove the sensor. Plug in colored cables into your multimeter and switch to the AC setting. Plug a ground wire and signal output into the sensor to connect your multimeter. Connect the black and red lead wires to the exposed ends of the ground and signal wires. Put a drill bit into the gear slot, attach it to a power drill, and pull the trigger to test the sensor. If the voltage on your multimeter doesn't increase with speed, the sensor is damaged. 1 Make sure the vehicle is turned off to avoid being shocked. Put the vehicle in park on level ground and turn off any lights or accessories that may draw power from the battery. Remove the key from the engine to make sure it’s completely turned off.[1] Parking on level ground makes it easier for you to access the VSS. 2 Open the hood of the vehicle so you can access the engine. Locate and pull the release hatch near the driver’s side door to open the hood. Engage the interior release hatch on the front of your hood and raise the hood up. If your hood uses a rod to hold it open, move the rod to its slot.[2] Make sure the hood is held securely in place before you lean into it to test the VSS. Advertisement 3 Locate the VSS sensor near the transmission of your vehicle. Find the transmission dipstick and follow it to locate your transmission. The VSS will be a small sensor attached to your transmission by 2 wires and held in place by a bracket. It will also have a sliding pull tab on it. Look for a small, metal sensor surrounded by a metal bracket with a white and black wire connected to it.[3] Vehicle speed sensors can be installed in different locations depending on what make and model of vehicle you have, but they measure the rotation of the transmission, so they’ll generally be located on or next to the transmission. Consult your owner’s manual to find the location of your VSS. Tip: If you don’t have your owner’s manual, or you’re unable to find your vehicle’s VSS, search the make and model of your vehicle online to locate the VSS. 4 Disengage the wiring harness connector from the VSS. There are 2 wires connected to the VSS, a black one and a white one. Both wires connect the VSS to your vehicle to ground the sensor and transmit information about you’re vehicle’s speed. Unplug the harness so you can take out the sensor.[4] The wiring harness may be located on the underside of the VSS. If you can’t grip the harness with your fingers, use a pair of needle-nose pliers to disengage it. 5 Press the pull tab or button on the VSS to separate it. On the top or side of your VSS will be a sliding tab or a button. Engage the tab or button and gently pull on the sensor to release it from its housing.[5] You may need to wiggle or slide the VSS out of its base. Don’t force or yank the VSS or you could damage it. Make sure you’ve engaged the sliding tab or the button that releases it. Some sensors may require you to remove 2 small screws to slide it out of place. 6 Unscrew the hold-down bolt and bracket to remove the VSS. Use a screwdriver to remove the bracket around the VSS. Then, use a socket wrench with a piece that fits over the bolt to twist the bolt and loosen it so you can pull out the sensor.[6] Make sure you don’t lose the screws or bolts so you can replace the sensor. Advertisement 1 Plug the colored lead cables into their slots on the multimeter. Your multimeter will have a red and a black lead cable. Plug the black lead into the black colored terminal that’s labeled “COM” which stands for common. Then, insert the red lead into the red colored terminal labeled “V” for voltage, which is what you’re testing.[7] Push the leads into their slots completely. They may “click” into place when they’re fully connected. 2 Set the multimeter to AC to test your VSS. Look for a dial on your multimeter that has numbers and letters on it. The AC, or alternating current, setting may be labeled as AC, V with a squiggly line, or ACV. Turn the dial until the arrow or indicating line is pointing to the AC setting.[8] Electrical devices, such as your VSS, use an AC current for power. 3 Plug a signal output and ground wire into the sensor. On the VSS is a slot where the sensor plugs into the vehicle. You can find a plug that fits into your VSS and contains a white signal output wire and black ground wire from auto supply stores. Make sure the plug fits your VSS securely.[9] The plug uses a white signal output wire and a black ground wire to transmit signals from the device to your vehicle. You can also find plugs that contain the signal wire and ground online. 4 Connect the black lead and the red lead to wires on the plug. Take your black lead wire and clip it to the exposed wire at the end of the black ground wire plugged into the VSS. Then, take your red lead wire and connect it to the exposed end of the white signal wire plugged into the sensor.[10] Make sure the red and black leads are securely connected. Tip: If the signal wire and ground wire are completely covered in sheathing, use a knife to strip about 1⁄4 inch (0.64 cm) of the wire sheathing to expose the wire beneath so you can clip your leads to it. Advertisement 1 Find a drill bit that fits securely into the VSS. In order to simulate the movement of your vehicle to properly test the sensor, you need to rotate the gear inside of the VSS. Insert drill bits into the gear slot on the VSS until you find one that fits securely into it.[11] Different sensors have differently sized slots, so try out a few bits until you find one that fits your VSS. 2 Connect the bit to your power drill. Loosen the chuck, or the piece on the end of the drill, by rotating it so the jaws open up. Slide the smooth end of the bit into the jaws and then slowly rotate the drill to tighten the jaws around the bit so it’s held securely. Give the bit a gentle tug to make sure it won’t fall out. 3 Spin the gears of the VSS by pulling the trigger on the drill. Hold the VSS in place with your hand and bring the drill up to speed slowly to rotate the gears in the slot the drill bit is inserted into. Allow the VSS to rotate at full speed so you can get an accurate reading.[12] Start slowly and continue to increase the speed of the drill at a consistent pace so you don’t strip or damage the VSS. 4 Read the voltage on the multimeter to see if it increases with speed. While the VSS rotates, the multimeter will display a voltage reading. If the VSS is functioning correctly, the voltage on the multimeter will increase as the speed of the VSS rotation increases.[13] If the voltage doesn’t increase or doesn’t display at all, then the VSS is damaged or faulty. Tip: Rotate the VSS at varying speeds to make sure the multimeter is accurately detecting speed changes. 5 Disconnect the plug and drill, and reinstall the VSS into your vehicle. Remove the drill bit from the VSS and take out the plug containing the white signal output and black ground wires. If the VSS is functioning properly, slide it back into its housing, reconnect the wiring harness, and replace the bracket and bolts.[14] If your VSS isn’t functioning properly, replace it with the same make and model so it fits into your vehicle. Have a mechanic inspect your vehicle if your VSS is functioning but your speedometer still isn’t working properly. Advertisement Add New Question Question Are there any other ways to test a speed sensor? Nick Psaros Automotive Expert Nick Psaros is an Automotive Expert working to encourage people to become car enthusiasts and share useful automotive content with people around the world. He has spent the past six years building an online following and community dedicated to automotive excellence. He has a follower base of over 10,000 YouTube subscribers and has garnered over 1 million views on his channel. When it comes to testing vehicle speed sensors or any sensors in general, a crucial tool is an OBD-II reader. It's essential to emphasize that not just any reader will suffice; you require a powerful one capable of delving deep into various Electronic Control Units (ECUs). This robust reader enables comprehensive testing of each specific sensor, providing the necessary insights into their functionality and performance. Moreover, some automotive stores offer the option to lend OBD-II scanners for a small fee, allowing you to perform the diagnostics yourself. Alternatively, they may provide the service of testing it for free in their shop, giving you access to professional expertise and equipment without a significant financial commitment. This can be a convenient and cost-effective solution for those looking to troubleshoot sensor issues without investing in an OBD-II reader outright. Ask a Question Advertisement Multimeter Screwdriver Socket wrench Signal output and ground wire plug Power drill Drill bit Thanks for reading our article! If you’d like to learn more about car maintenance and repair, check out our in-depth interview with Nick Psaros. This article was co-authored by Nick Psaros. Nick Psaros is an Automotive Expert working to encourage people to become car enthusiasts and share useful automotive content with people around the world. He has spent the past six years building an online following and community dedicated to automotive excellence. He has a follower base of over 10,000 YouTube subscribers and has garnered over 1 million views on his channel. This article has been viewed 182,874 times. Co-authors: 12 Updated: February 24, 2025 Views: 182,874 Categories: Cars & Other Vehicles Print Send fan mail to authors Thanks to all authors for creating a page that has been read 182,874 times. "I replaced my VSS but it still throws a code, so I needed to know how to test the VSS before I buy another/go to a mechanic to check the wire harness."..." more Share your story Download Article Download Article A vehicle speed sensor, or VSS, is a sensor that is used to determine how fast your vehicle is traveling. If your vehicle’s speedometer stops working or isn’t telling you the correct speed that you’re traveling, you likely have a faulty VSS. You can test your VSS to make sure it’s functioning properly by using a device called a multimeter. Start by disconnecting and removing the VSS from your engine so you can test it. You can then connect it to a multimeter and set the multimeter to the AC setting. Connect the VSS to a power drill so you can simulate the rotation of the vehicle’s transmission and read the multimeter to see if the voltage increases as the speed increases to check if the sensor is working properly. Turn off your vehicle and find the sensor near the transmission. Unplug the wiring harness connector and press the pull tab (or button). Unscrew the hold-down bolt and bracket to remove the sensor. Plug in colored cables into your multimeter and switch to the AC setting. Plug a ground wire and signal output into the sensor to connect your multimeter. Connect the black and red lead wires to the exposed ends of the ground and signal wires. Put a drill bit into the gear slot, attach it to a power drill, and pull the trigger to test the sensor. If the voltage on your multimeter doesn't increase with speed, the sensor is damaged. 1 Make sure the vehicle is turned off to avoid being shocked. Put the vehicle in park on level ground and turn off any lights or accessories that may draw power from the battery. Remove the key from the engine to make sure it’s completely turned off.[1] Parking on level ground makes it easier for you to access the VSS. 2 Open the hood of the vehicle so you can access the engine. Locate and pull the release hatch near the driver’s side door to open the hood. Engage the interior release hatch on the front of your hood and raise the hood up. If your hood uses a rod to hold it open, move the rod to its slot.[2] Make sure the hood is held securely in place before you lean into it to test the VSS. Advertisement 3 Locate the VSS sensor near the transmission of your vehicle. Find the transmission dipstick and follow it to locate your transmission. The VSS will be a small sensor attached to your transmission by 2 wires and held in place by a bracket. It will also have a sliding pull tab on it. Look for a small, metal sensor surrounded by a metal bracket with a white and black wire connected to it.[3] Vehicle speed sensors can be installed in different locations depending on what make and model of vehicle you have, but they measure the rotation of the transmission, so they’ll generally be located on or next to the transmission. Consult your owner’s manual to find the location of your VSS. Tip: If you don’t have your owner’s manual, or you’re unable to find your vehicle’s VSS, search the make and model of your vehicle online to locate the VSS. 4 Disengage the wiring harness connector from the VSS. There are 2 wires connected to the VSS, a black one and a white one. Both wires connect the VSS to your vehicle to ground the sensor and transmit information about you’re vehicle’s speed. Unplug the harness so you can take out the sensor.[4] The wiring harness may be located on the underside of the VSS. If you can’t grip the harness with your fingers, use a pair of needle-nose pliers to disengage it. 5 Press the pull tab or button on the VSS to separate it. On the top or side of your VSS will be a sliding tab or a button. Engage the tab or button and gently pull on the sensor to release it from its housing.[5] You may need to wiggle or slide the VSS out of its base. Don’t force or yank the VSS or you could damage it. Make sure you’ve engaged the sliding tab or the button that releases it. Some sensors may require you to remove 2 small screws to slide it out of place. 6 Unscrew the hold-down bolt and bracket to remove the VSS. Use a screwdriver to remove the bracket around the VSS. Then, use a socket wrench with a piece that fits over the bolt to twist the bolt and loosen it so you can pull out the sensor.[6] Make sure you don’t lose the screws or bolts so you can replace the sensor. Advertisement 1 Plug the colored lead cables into their slots on the multimeter. Your multimeter will have a red and a black lead cable. Plug the black lead into the black colored terminal that’s labeled “COM” which stands for common. Then, insert the red lead into the red colored terminal labeled “V” for voltage, which is what you’re testing.[7] Push the leads into their slots completely. They may “click” into place when they’re fully connected. 2 Set the multimeter to AC to test your VSS. Look for a dial on your multimeter that has numbers and letters on it. The AC, or alternating current, setting may be labeled as AC, V with a squiggly line, or ACV. Turn the dial until the arrow or indicating line is pointing to the AC setting.[8] Electrical devices, such as your VSS, use an AC current for power. 3 Plug a signal output and ground wire into the sensor. On the VSS is a slot where the sensor plugs into the vehicle. You can find a plug that fits into your VSS and contains a white signal output wire and black ground wire from auto supply stores. Make sure the plug fits your VSS securely.[9] The plug uses a white signal output wire and a black ground wire to transmit signals from the device to your vehicle. You can also find plugs that contain the signal wire and ground online. 4 Connect the black lead and the red lead to wires on the plug. Take your black lead wire and clip it to the exposed wire at the end of the black ground wire plugged into the VSS. Then, take your red lead wire and connect it to the exposed end of the white signal wire plugged into the sensor.[10] Make sure the red and black leads are securely connected. Tip: If the signal wire and ground wire are completely covered in sheathing, use a knife to strip about 1⁄4 inch (0.64 cm) of the wire sheathing to expose the wire beneath so you can clip your leads to it. Advertisement 1 Find a drill bit that fits securely into the VSS. In order to simulate the movement of your vehicle to properly test the sensor, you need to rotate the gear inside of the VSS. Insert drill bits into the gear slot on the VSS until you find one that fits securely into it.[11] Different sensors have differently sized slots, so try out a few bits until you find one that fits your VSS. 2 Connect the bit to your power drill. Loosen the chuck, or the piece on the end of the drill, by rotating it so the jaws open up. Slide the smooth end of the bit into the jaws and then slowly rotate the drill to tighten the jaws around the bit so it’s held securely. Give the bit a gentle tug to make sure it won’t fall out. 3 Spin the gears of the VSS by pulling the trigger on the drill. Hold the VSS in place with your hand and bring the drill up to speed slowly to rotate the gears in the slot the drill bit is inserted into. Allow the VSS to rotate at full speed so you can get an accurate reading.[12] Start slowly and continue to increase the speed of the drill at a consistent pace so you don’t strip or damage the VSS. 4 Read the voltage on the multimeter to see if it increases with speed. While the VSS rotates, the multimeter will display a voltage reading. If the VSS is functioning correctly, the voltage on the multimeter will increase as the speed of the VSS rotation increases.[13] If the voltage doesn’t increase or doesn’t display at all, then the VSS is damaged or faulty. Tip: Rotate the VSS at varying speeds to make sure the multimeter is accurately detecting speed changes. 5 Disconnect the plug and drill, and reinstall the VSS into your vehicle. Remove the drill bit from the VSS and take out the plug containing the white signal output and black ground wires. If the VSS is functioning properly, slide it back into its housing, reconnect the wiring harness, and replace the bracket and bolts.[14] If your VSS isn’t functioning properly, replace it with the same make and model so it fits into your vehicle. Have a mechanic inspect your vehicle if your VSS is functioning but your speedometer still isn’t working properly. Advertisement Add New Question Question Are there any other ways to test a speed sensor? Nick Psaros Automotive Expert Nick Psaros is an Automotive Expert working to encourage people to become car enthusiasts and share useful automotive content with people around the world. He has spent the past six years building an online following and community dedicated to automotive excellence. He has a follower base of over 10,000 YouTube subscribers and has garnered over 1 million views on his channel. When it comes to testing vehicle speed sensors or any sensors in general, a crucial tool is an OBD-II reader. It's essential to emphasize that not just any reader will suffice; you require a powerful one capable of delving deep into various Electronic Control Units (ECUs). This robust reader enables comprehensive testing of each specific sensor, providing the necessary insights into their functionality and performance. Moreover, some automotive stores offer the option to lend OBD-II scanners for a small fee, allowing you to perform the diagnostics yourself. Alternatively, they may provide the service of testing it for free in their shop, giving you access to professional expertise and equipment without a significant financial commitment. This can be a convenient and cost-effective solution for those looking to troubleshoot sensor issues without investing in an OBD-II reader outright. Ask a Question Advertisement Multimeter Screwdriver Socket wrench Signal output and ground wire plug Power drill Drill bit Thanks for reading our article! If you’d like to learn more about car maintenance and repair, check out our in-depth interview with Nick Psaros. This article was co-authored by Nick Psaros. Nick Psaros is an Automotive Expert working to encourage people to become car enthusiasts and share useful automotive content with people around the world. He has spent the past six years building an online following and community dedicated to automotive excellence. He has a follower base of over 10,000 YouTube subscribers and has garnered over 1 million views on his channel. This article has been viewed 182,874 times. Co-authors: 12 Updated: February 24, 2025 Views: 182,874 Categories: Cars & Other Vehicles Print Send fan mail to authors Thanks to all authors for creating a page that has been read 182,874 times. "I replaced my VSS but it still throws a code, so I needed to know how to test the VSS before I buy another/go to a mechanic to check the wire harness."..." more Share your story