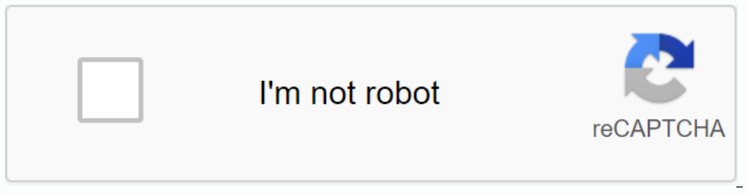

Continue

The cruise control diet

The brain of a cruise control system is a small computer that is normally found under the hood or behind the dashboard. It connects to the throttle control seen in the previous section, as well as several sensors. The diagram below shows the inputs and outputs of a typical cruise control system. A good cruise control system accelerates aggressively to the desired speed without overshooting, and then maintains that speed with little deviation no matter how much weight is in the car, or how steeply the hill drives you up. Controlling the speed of a car is a classic application of the theory of the control system. The cruise control system controls the speed of the car by adjusting the throttle position, so it needs sensors to tell it the speed and throttle position. It should also check the controls so that it can tell what the desired speed is and when to loosen. Ad The main input is the speed signal; The cruise control system does a lot with this signal. Let's start with one of the most basic control systems you could have - a proportional check. In a proportional control system, the cruise control adjusts the throttle that is proportional to the fault, the difference between the desired speed and the actual speed. So, if the cruise control is set at 60 mph and the car is going 50 mph, the throttle position will open quite far. When the car goes 55 mph, the throttle position opening will be only half of what it was before. The result is that the closer the car gets to the desired speed, the slower it accelerates. Also, if you were on

a steep enough hill, the car wouldn't accelerate. Most cruise control systems use a control system called proportional-integral-derived control (a.k.a. PID control). Don't worry, you don't need to know a calculus to make this statement -- remember that: The integral integral of speed is distance. The derivative of speed is acceleration. A PID operating system uses these three factors - proportional, integral and distracted, each calculate and add separately to get the throttle position. We have already discussed the proportional factor. The integral factor is based on the time integral of the speed of the vehicle error. Translation: the difference between the distance your car actually traveled and the distance it would have travelled if it were at the desired speed, calculated over a certain period of time. This factor helps the car handle hills, and also helps it settle in the right speed and stay there. Let's say your car goes up a hill and slows down. The proportional control increases the accelerator pedal a bit, but you can still slow down. for a while, the integral control will begin to increase the throttle, opening it more and more, because the longer the car retains a speed slower than the desired speed, the greater the distance Get. Now let's add in the last factor, the derivative. Remember that the derivative of speed is acceleration. This factor helps cruise control react quickly to changes such as hills. If the car starts to slow down, the cruise control can see this acceleration (slow down and accelerate both gears) before the speed can actually change a lot, and react by increasing the throttle position. The most common problem with cruise control systems is not engaging and not maintaining a set speed. Depending on the year and model of the vehicle, special tools such as a voltmeter and vacuum tester may be needed to diagnose the problem. Check your service guide before the start of this procedure for something special about the maintenance of your vehicle. Diagnose the problem if the cruise control is not activated. Check the cruise control fuse. This step is often overlooked and the diagnosis focuses on what appears to be more likely problems. Find the fuse box under the driver's console. It has a plastic lid that can be removed. Check the inside chart to determine which fuse to check. Probe both sides of the fuse. If one or neither ill illuminates the test light, the fuse is overrun and replaced. Check the cruise control operation after changing the fuse. If it works, no further repairs are required. If not, continue with these procedures. Do a visual check of all wiring related to the cruise control system. Use your inspection mirror to see places you wouldn't otherwise see. Look for melted insulation, broken wires, burnt wires and twisted wires without a wire connector. Repair any wire damage with the splicing and wire connection tool and the correct gauge wire connector for the wire you are repairing. Use a wiring diagram and a voltmeter to locate wires that go to the controller and servo terminals. Your service guide tells you what the voltage should be and whether the servo and controller are working at the right voltage. Wiring and wire connectors can be purchased from your local parts store or dealer. Visually inspecting the brake (and clutch if so equipped). If this is out of adjustment, the voltage cannot stream to the components down with sufficient power to control the cruise. These can be customized to the correct setting using your service manual for the correct position. For vacuum-operated systems, you must perform steps other than those used for electronic setup. Start the engine. Using your vacuum meter, check for vacuum at the vacuum line to the servo. Vacuum reading 10 centimeters of mercury at idle speed. If you don't find these parts, use your service manual to locate them. Visually inspection for vacuum leaks in the looses and valve. Replace the hose if you leak. Use the digital volt ohm meter to check the resistance of the servo solenoid windings. Check your service guide for correct measurements. Check for a vacuum leak at the servo. If the results of these checks are satisfactory, the controller is usually faulty. Buy a new part from your local parts store or dealer. If the cruise control system does not maintain the set speed, check the adjustment of the clutch of the accelerator pedal. Use your service guide for the correct process to customize the link. If the clutch is properly adjusted, check for vacuum leaks at the servo. Turn on the engine if switched on, and use jumper wires to energize the servo solenoid valves. Apply vacuum using the hand-held vacuum pump. If the servo does not hold vacuum, replace it with a new part. This part can be purchased from your local part store or dealer. If both tests are good, it means that the cruise controller is out of action and needs to be replaced. This part can also be found at your local parts store or dealer. Do not energize the servo solenoid valves with jumper wires while the engine is running. The engine over-speed condition that will cause serious damage to the engine. Wear goggles. Wear rubber soles shoes to avoid building up static electricity that can damage circuits. Just use your test light to check the fuse. Other wires and circuits have low amp and voltage tolerances and may be damaged. As with any repair with electricity, take precautions to avoid being electrocuted. If you see someone being electrocuted, don't touch them. Disconnect the battery and seek medical attention immediately. Open end box end wrenchFender coverSafety glassesTest lightDigital volt ohm meterJumper wire and clipsHand held vacuum pumpVa measuring meterNeedle nose pliers and wire connecting toolWire Connectors as neededThey a bottom sizes (to keep the customer's car clean) Inspection mirrorNew fuse (if necessary)Control module replacement (if necessary)Throttle clutch (if necessary)Scan tool (if necessary)Logic probe (optional) Cruise control, also known as speed control, or car-cruise , is a popular feature in most modern cars. The system manages the speed of the car, in the same way as a driver would, by controlling the accelerator or throttle position. While the driver has to manually bring the car to the desired speed, cruise control is the perfect mechanism for long road trips on the highway and allows drivers to adhere to speed limits, safely change their position, avoid fatigue and even do their bit to reduce carbon emissions. If you have a long trip planned and know you will be riding on the open road for hours, then cruise control might be perfect feature for you! It is especially desirable if there is no one to share the driving tax and will allow you to focus on pressing road trip shops, such as enjoying the perfect playlist and spotting cafes along the way that serve delicious coffee along the way. Nevertheless, while prom-worthy tunes and delicious treats are From an epic road trip, safety remains number one! Cruise control technology in its earliest form was invented in 1788 by Scottish inventor James Watt to maintain the speed of steam engines. However, cruise control as we know it today was created in 1948 and was created by mechanical engineer Ralph Teetor. Rumor has it that it was his frustration at driving his lawyer that ignited this invention. His lawyer, in telling a good story, would constantly slow down his vehicle and then accelerate once the story was over. His failure to maintain a consistent driving speed infuriated Teetor. Cruise control, he suspected, would allow his lawyer to talk the conversation all the time while driving. Thus, cruise control was carried out (albeit out of irritation!) Cruise control is a convenient feature that can reduce your fuel consumption, control your speed and allow the driver to move more freely. However, like all things car related, it is important to navigate the system safely. Here are some things you should always keep in mind. Know the basic features Before you are on public roads or interstate and decide to try out your cruise control feature, it is imperative that you know how the system works. Read the manual, test the features in a quiet and spacious location, and make sure you have confidence in how the system works in your vehicle. It's important to learn how to activate the feature quickly, but also how to stop it if you suddenly have to slow down or stop your car. Your responsiveness to invisible obstacles and situations are essential to driving safely, and so understanding your cruise control settings should become second nature to you. Activate this feature only if you feel confident about your skills and at ease with the different elements of the system. One of the most important things to remember is always to keep your foot close to the brake pedal. With this in mind, you will allow to disable the feature as emergency calls and will provide a faster response time to possible obstacles on the road. Get Your Car checked Regularly Just as engineers check the safety of aircraft before they embark on long journies, it is important to have your car checked regularly. These inspections are especially crucial if you are about to go on a long journey or are on your way to remote areas where roadside assistance is scarce. By maintaining your care regularly, technicians can check that your cruise control system is working efficiently and ensure that the other components related to this feature are in good condition. Like all mechanical devices, optimal operation depends on a number of functions that work together. If your brakes are faulty, the way you safely stop cruise control will be hindered. Similarly, if your tires are worn out and need changing this will affect your speed speed Capabilities. Making sure everything runs smoothly ensures more safety and peace of mind. It will also minimize mid-road-trip glitches and you will arrive safely and stress-free at your destination. Don't forget to concentrate! Auto-Pilot is Only for Pilots (which have co-pilots) Unfortunately cruise control does not equal autopilot. In reality, drivers need to be even more aware of the road when using this feature, as reaction times can sometimes be slower. Bernadette Moreau of the French Vinci Foundation for Responsible Driving noted that the less work the driver has to do, the less alert [they] will be behind the wheel. He continued to reveal that user savviness and awareness are essential to stay safe when using this feature. Motorists should also constantly watch the road so that they can respond to obstacles that may occur in their path. Studies have shown that those who drive for long stretches should take breaks from cruise control so they can regain their attention and attention. Since cruise control can slow down response times, it is also of the utmost importance that drivers keep an eye on the road and potentially dangerous situations. Know speed limits and road changes This may seem like a no-brainer, but it's important to plan your route properly and know if there are areas where speed limits can suddenly change or where sharp bends can occur. Getting a bunch of speeding fines on your vacation isn't a great way to get into that relaxed holiday mood. Speeding is also very dangerous for yourself, your passengers, and everyone on the road. It is also a good idea to study the terrain of your route. If you have set the cruise control to 120 km/h, your car will also take turns at this speed. In the worst case scenario, this can lead to drivers losing control of their vehicles. So, knowing speed limits and possible obstacles and road changes is essential if you want to nagivate the system safely. This knowledge will allow you to slow down at the right times and navigate the route safely. Don't use Cruise Control if you feel tired While cruise control is perfect for long rides and allows for a more comfortable trip for drivers, it's also important not to use the feature if you feel too tired or tired. If you feel exhausted, it is always better to stop for a while, get some rest, or ask someone else to drive. Contrary to what many people claim, cruise control is not a quick fix to help tired drivers, but rather a useful tool for those who want to maintain a speed. The function effective only if the driver is alert and wide awake. Keep your hands on the wheel This tip may sound like an obvious one, but when the music is blasting, the road is open, and your car is cruising at a brilliant speed (and (and no obstacles in sight), it might seem tempting to relax a little more than usual. Even if your path seems straight, the levels of the road can change constantly, and this can affect the direction of your vehicle. By keeping both hands firmly on the steering wheel, you keep your car on the right track, change lanes safely and make sure you're nowhere (or anyone else!) While your car may have a feature that allows you to stay in your lane, these features are just assistance tools and work best in conjunction with a cautious and diligent driver who has their eyes on the road, their hands on the wheel, and their foot close to the brake pedal. Avoid Cruise Control in dangerous conditions Although cruise control is a brilliant feature to use on open roads and in clear weather conditions, there are some dangerous conditions in which cruise control should be avoided. Never use the feature in the following situations or circumstances. Rain, snow or hail: These conditions make the road slippery and make it less easy to control your speed and brake accordingly. In heavy traffic: If you're in heavy traffic, you should be able to slow down and brake at a time notice. Turn off the function in these conditions and save it for the interstate. Cruise control is for cruising and should be optimized when you have plenty of space and a safe next distance. On narrow or winding roads: Since cruise control can hinder the ability to navigate bends and bends safely, it's better to avoid it in areas where there are countless twists and turns. Sources: Sources: