



CAR CARE TIPS FROM
**MR. BEST
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What's up with all these warning lights on my instrument panel?

Take a good look at a modern car's instrument panel and you may be stunned to see how many different lights, buttons, gauges and symbols you can find when you first turn the ignition key to the "run" position.

If you haven't taken the time to study your owner's manual carefully—or if your family owns two or three different makes of vehicles, each with its own set of gauges and lights—this can

be somewhat confusing.

Once upon a time, cars had only a handful of gauges on the dash to indicate vital information such as engine temperature, oil pressure and fuel reserves. Then around 30-40 years ago, manufacturers decided they needed a better way to warn the motorist when one of these gauges was about to indicate a potentially serious malfunction.

This led to the development of what have been playfully referred to as "idiot lights"—warning lights that would illuminate when the engine was starting to overheat, the brakes were in danger of failing or the oil pressure was becoming dangerously low.

When computer-controlled engines came along in the 1980's, the introduction of various electronic sensors meant that more data could be reported to the driver via such warning devices.

This has led to the point where some of today's newer cars can easily have a dozen or more different indicator

MONEY-SAVING TIPS



FOR CAREFREE DRIVING

lights on the instrument panel.

Some of these lights warn of potentially serious malfunctions requiring immediate action, while others may merely be reminders that a particular maintenance service interval has arrived, a door has not been properly latched, your oil level is low or your

(see Warning lights, page 2)

INSIDE:

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- New brakes squealing?
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WHAT SHOULD I TELL MY MECHANIC?



How much information should you provide to the technician who's about to diagnose a problem with your car? Some folks believe that the more you tell, the more the repair is likely to cost. (Not true.)

Others believe they should provide their own diagnosis to "help" the technician and thereby speed up the repair process. (Unfortunately, this can result in costly "wild goose chases" if the customer's evaluation is wrong.)

In fact, the basic rule of thumb is that the vehicle owner should provide as much detail as possible about the SYMPTOMS of the vehicle's problem but leave the actual DIAGNOSIS to the experts. Professional technicians use a step-by-step diagnostic process designed to isolate the actual cause, based on the symptoms you describe to them.



Your best bet is to keep a notepad in your glovebox and jot down any relevant details as you notice them. Here are some things your technician is likely to want to know about your vehicle's symptoms:

- 1) When does it occur?** Is this a brand new problem, or has it happened before? When did it first occur? Does it happen occasionally or all the time? How often? How recently?
- 2) Under what circumstances?** Does it happen when the engine is warm, hot or cold? In the city or on the highway? At what speeds? Does it occur when you are accelerating? Braking? Turning? Climbing hills? When the engine is idling? In what type of weather—rain, sunshine, humidity, hot or cold temperatures?
- 3) Sounds and smells?** Are there any unusual noises, rattles, strange smells, fluid leaks or other clues that occur when this symptom is noticed?
- 4) Warning lights or gauges?** When the symptom occurs, are the warning lights or gauges on the instrument panel indicating any abnormalities?
- 5) Related symptoms?** Is the vehicle exhibiting any other unusual symptoms that might be related in some way to this problem?
- 6) Vehicle history?** Has this symptom ever been worked on before on this vehicle? Are there any service records to indicate what had been done previously?
- 7) Special equipment?** Does your vehicle have any special equipment such as alarms, theft deterrent devices, locking wheel nuts or a deactivating sound system that the technician should be aware of before he begins working on the car?

Warning lights *(from p. 1)*

airbag system is (or is not) functioning properly.

Here's a sampling of the lights found on the instrument panel of one three-year-old SUV, in order of appearance from left to right:

- 1) Oil pressure warning light; 2) Coolant temperature warning light; 3) Check gauges light; 4) Liftgate ajar warning light; 5) Service engine soon warning light; 6) Service body systems warning light; 7) Antilock brake system warning light; 8) Security system warning light; 9) High beam reminder light; 10) Seatbelt reminder light; 11) Airbag warning light; 12) Brake system warning light; 13) Parking brake warning light; 14) Service 4WD reminder light; 15) Charging system warning light; 16) Low fuel warning light.

It's a good idea to get in the habit of checking all your dash lights every time you start the engine. Most are designed to light up for several seconds so you know they're working, then automatically go dark.

If a particular light doesn't illuminate at startup, this usually means it's not working properly and will not be able to perform its function of alerting you if a certain problem should arise.

If it comes on but doesn't go off when it's supposed to, or if it starts lighting up or blinking on and off while you're driving, it's telling you it has detected a problem in the circuit (or circuits) which it is monitoring.

So which ones do you really need to worry about when they light up? As a general rule, the RED warning lights alert you to potentially serious problems which require immediate attention. These include the brake warning light, oil pressure warning light, engine temperature warning light and charging system warning light.

If one of these should illuminate, stop the vehicle, consult your owner's manual and don't drive any further until the necessary corrective action has been taken. Failure to do so could result in damage to the engine, unsafe operation of the vehicle or an unexpected breakdown which might leave you stranded somewhere.

The YELLOW lights, on the other

TROUBLE shooter

hand, alert you to potential problems that will need attention but don't require you to immediately stop driving. These may include the airbag warning light, ABS warning light and tailgate warning light, among others.

The yellow light that's asked about most frequently is the one commonly known as the "Check Engine" light, the



"Service Engine Soon" light or the "MIL" (which stands for Malfunction Indicator Lamp.)

On older cars, this light signifies that your car's onboard computer has detected a faulty signal from one of the electronic sensors (such as the oxygen sensor or coolant temperature sensor.) On newer cars, the MIL light signifies that a faulty signal has been detected somewhere in the vehicle's emission control system.

The faulty signal has tripped the warning light and also stored a trouble code (or "fault code") in the computer's memory. Your technician will need to scan the memory to read the stored code(s) and then follow a precise set of diagnostic steps and tests to determine the exact cause of the malfunction. Only then can he determine if the problem is a major or minor one.

To help you recognize what each instrument panel light is for, many are labeled with graphic symbols established by the International Standards Organization (ISO.) These include simple illustrations depicting an airbag, a seatbelt, a battery, etc.

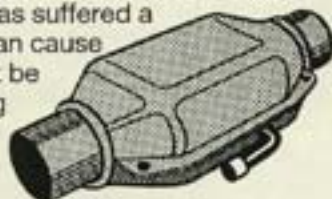
In theory, people around the globe are supposed to be able to recognize these symbols and understand their meaning. Your owner's manual should provide explanations of the symbols used in your vehicle, as well as an outline of the procedures to follow whenever a warning light starts glowing on your instrument panel.



"What would a master mechanic do now?"

Engine runs fine on level ground but loses power going uphill

This can be caused by a dirty air filter, a clogged fuel filter, low fuel pressure or a partially plugged exhaust system. A muffler that's clogged with carbon—or a catalytic converter that has suffered a partial "meltdown" from running too hot—can cause a restriction in the exhaust flow that may not be noticeable on flat ground. However, climbing hills produces a greater volume of exhaust gas that must be pumped through the system. If there's a restriction somewhere, the exhaust gases cannot escape fast enough, resulting in a loss of power.



Oil dipstick smells like turpentine

You may have unburned fuel leaking into your motor oil. This is a potential safety hazard and could also damage certain engine parts. Causes might include a leaking fuel pump, a leaking fuel injector or a charcoal (evaporative) canister venting system that's not functioning properly.

Car won't start after spray cleaning the engine

Today's cars have many electronic components, sensors and computer controls which could be damaged or disabled if the proper precautions are not taken beforehand. If you're lucky, the engine will start and run normally once everything has dried out. If not, you may need to have a technician test the various circuits to find the source of the malfunction.

Brakes squeal after installation of new pads

Your technician may need to adjust the brake hardware, resurface the rotors or apply an anti-noise compound to quiet your brakes, or the noise might dissipate after a break-in period. In some cases you may even need to switch to a different type of brake pad. As a general rule, softer pads are quieter, but they will wear out faster and produce more brake dust. Pads made of harder compounds will last longer and produce less dust—but they're more prone to squeaks or squeals.



Vehicle "skates" on wet pavement at highway speeds

This phenomenon, known as hydroplaning, occurs when the standing water ahead of your vehicle builds up faster than it can be displaced through the grooves in your tire treads. When this happens, the tires can actually lose contact with the pavement. The result is a loss of "road feel" and a temporary loss of steering control. The cures include: 1) slowing down until you can once again feel the road surface beneath you; 2) making sure your tires are properly inflated and have plenty of tread depth left on them so the excess water has somewhere to go; or 3) buying tires designed specifically for superior wet-weather traction.

ASK THE



Dear Answer Guy:

When my neighbor's car won't start on the first try, he turns the key on and off about 3-4 times before cranking the starter. Why does this seem to work? ANSWER GUY: A fuel injected engine requires a certain amount of fuel pressure before it will start. If it's not able to maintain sufficient pressure from the previous time the engine was running, turning the key to "on" for a few seconds activates the fuel pump so it can start to build up pressure. This process may need to be repeated several times. *On some newer cars, however, the powertrain control module (PCM) may not permit the engine to start at all under such conditions.*

Dear Answer Guy:

What is meant by the reserve capacity of a car battery? ANSWER GUY: The reserve capacity rating is a measure of battery performance which can be useful when comparing one battery to another. It's derived by calculating the amount of time it will take for the battery to discharge completely if the charging system suddenly fails and the vehicle continues to be driven.

Dear Answer Guy:

Why and how would someone get their car's computer re-programmed? ANSWER GUY: The software that runs your car's onboard computer can sometimes become obsolete or corrupted, just like the software on your home PC. Also, it

may need to be updated to correct a glitch that was found some time after the vehicle was manufactured. This reprogramming is often referred to as flashing the PROM (Programmable Read-Only Memory.) On newer cars with erasable PROMs, this can often be accomplished by a trained technician using special equipment to clear the memory and load the new software. On older cars, the PROM chips usually have to be replaced because they are not erasable.

Dear Answer Guy:

My wife's car has two tires with no speed rating on them. What does this mean? ANSWER GUY: Every tire has an alphanumeric code on the sidewall that reads something like: "P205/65R16 88T." In this example, the last three characters indicate the maximum load index (88 = 1,235 lbs. per tire) and the maximum speed rating (T = 118 mph) at which that load can safely be carried. A tire with no speed rating designation would generally have a very low maximum safe speed of around 80-85 mph.

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