

Tips & Technology

For Bosch business partners

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Special Topic



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Winter Checkup

The cold months of the year in particular subject every component in a car to a severe test – from the battery and to the rubber seals for the doors and windows. The winter checkup should be performed at a qualified service center, since only a qualified workshop has the latest diagnostic equipment for testing the functionality of a variety of components and their ability to withstand winter.

The checklist for the winter checkup

The following items should be part of the winter checkup performed at the qualified service center:

- Amount of anti-freeze in the coolant
- Non-freezing windshield washer fluid/windshield wipers
- Wiper blades
- Battery
- Engine oil level
- Brake fluid check
- Lighting system
- Tire condition and tread depth
- Function test of heating/air-conditioning system; also parking heater/auxiliary heater if installed
- Unusual sounds when starting the engine

Radiator protection

The breakdown statistics of automobile clubs in Europe show it: time and again, problems with the cooling system are the direct or indirect cause of breakdowns. After all, just like regular oil changes, regularly checking the radiator coolant is enormously important to prevent the vehicle from breaking down when driving. The additives contained in the coolant and which are responsible for protecting the cooling system lose their effectiveness with time. Furthermore, in winter there is even the risk of freezing. For this reason, the coolant should be changed regularly in order to prevent damage such as defective water pumps, corroded radiators, clogged lines or problems with the engine electronics.

Protecting the windshield washer system/wiper blades

Wiper blades with small cracks create streaks on the windshield; it is thus better to change them. In addition, a non-freezing windshield washer fluid should be used to prevent ice buildup in the nozzles and freezing of water on the windshield. Besides, such fluid is better at removing dirt from the windshield.

Tips for your customers:

The motorist should regularly clean the windshield and wiper blades. This will prevent streaking. The windshield should also be cleaned from the inside, since this reduces fogging in addition to providing better visibility.

Battery

Defective or discharged batteries are one of the most common causes of breakdowns in winter. Accordingly, the voltage, charge level and starting capacity should be checked by a qualified service center. The battery should be replaced every 5 years at the latest.

Tips for your customers:

For emergency situations, jumper cables should be carried in the vehicle. Anyone can provide starting assistance, but some precautionary measures must be observed to prevent a short-circuit:

- Both batteries must have the same voltage.
- The car bodies must not be in contact with one another.
- The jumper cables must be attached as follows:
 1. Red clamp (A) to the positive terminal of the empty battery.
 2. Red clamp (B) to the positive terminal of the full battery.
 3. Black clamp (A) to the negative terminal of the full battery.
 4. Connect the black clamp (B) to the engine or chassis ground – not to the negative terminal of the discharged battery, since explosive gases could be ignited by a spark.
 5. Start the engine.
 6. Remove the clamps in reverse order.

Engine oil

In regions subject to severe cold, a lower viscosity winter oil can prevent the engine from starting to "stutter".

Brake fluid

Brake fluid has hygroscopic characteristics, i.e. it absorbs water molecules over the course of use. As a result, the boiling point drops continuously. When heat is then generated in the brake fluid while driving, the water vapor is compressed first, the braking action is decreased and brake pedal travel increases continually. This overheating occurs above all when driving to the mountains for a winter vacation.

Lighting system

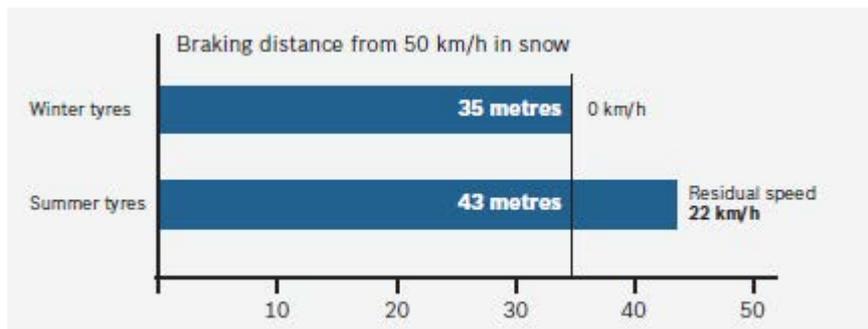
A check of the lighting system includes checking the parking lights, low-beam and high-beam headlights, brake lights and taillights, as well as the fog light at the rear. While the motorist can check whether the lights function, proper adjustment of the headlights must be checked by a qualified service center.

Tips for your customers:

The motorist should regularly clean the headlights, since after driving for only half an hour on a dirty road more than 60% of the headlight is covered in dirt which decreases light output.

Tires

At temperatures below 7°C, summer tires no longer provide the necessary adhesion to the road. Winter tires increase safety, since they are made from special cold-tolerant material and have an especially deep tread. While a passenger car with summer tires comes to a stop only after 43 meters from a speed of 50 km/h, a passenger car with winter tire stops after 35 meters!



With reduced tread profile and increasing age, the performance of winter tires decreases, so that they should be replaced when the remaining tread depth is 4 mm or after 10 years at the latest.

Heating/air-conditioning system

Heating the windshield quickly is not only pleasant for the vehicle occupants, but also improves visibility. For this reason, optimal operation of the heating and air-conditioning system should be checked by the qualified service center.

Tips for your customers:

Allowing the engine to warm up by idling is prohibited under §30 of the StVO (German highway regulations) and subject to a fine. Moreover, a test conducted by the ADAC showed that the vehicle does not really become warm. After the engine has been running four minutes at an outside temperature of -10°C, the engine oil has reached a temperature of only -7°C, and the air discharged from the air vents has a temperature of about 13°C. Based on the test, however, 0.15 liters of gasoline have already been consumed. The inside of a vehicle becomes warm faster when the motorist starts driving immediately after starting the engine – but not at top speed. (dapd)

Furthermore, the air-conditioning system should be switched on, since it dries the humid air inside the vehicle.

What you can give your customers to take with them while driving

What is the proper way to drive in the winter?

Driving an automobile in the winter is very demanding in many situations and the way a motorist drives should be adapted to the weather conditions:

Changing road conditions are frequently the reason for accidents, since the pavement ahead cannot be seen (wet surface, leaves, frost, remaining snow, ...). To prevent accidents, you should keep this in mind and adjust how you drive accordingly.

When starting on a snow-covered surface, you will seldom have problems with good winter tires on flat terrain. On slopes, it is especially important to start carefully to avoid spinning the wheels. If you nevertheless experience problems, try the following:

- Start driving in second gear and allow the clutch to slip somewhat
- Increase the load on the wheels so that the tires grip better. Front-wheel-drive vehicles: Climb an incline in reverse gear. Rear-wheel drive vehicles: Add ballast.

When starting on ice and on compacted snow, friction is reduced and the braking distance increased significantly. For this reason, you must adjust your speed and maintain an especially large distance for safety. Avoid abrupt acceleration/braking as well as excessive steering motions.

What should I be aware of when driving with snow chains?

When even the best winter tires are unsatisfactory under extreme snow conditions, driving farther is possible only with snow chains exactly. When using snow chains, pay attention to the following items:

- The chain size must match the tires.
- Store the chains in a readily accessible area of the vehicle.
- Always mount the chains on the drive wheels.
- Never drive faster than 50 km/h after mounting snow chains!

What belongs in the luggage compartment?

Winter has finally arrived when the windows are iced over in the morning and the door locks are frozen tight. The following items should then already be in the car:

- Ice scraper, hand brush, folding shovel – to free the vehicle from snow and ice.
- Rubber mats – serve as dirt collectors and may provide additional traction in an emergency.
- Woolen blanket – for long traffic jams or to kneel on when mounting the snow chains.
- Snow chains – provide further assistance to drive in difficult snow conditions.
- Jumper cables – an indispensable aid in an emergency.

Athletic sports in the winter?

When you treat the rubber seals on the doors and luggage compartment lid of your car with a special rubber care stick, they cannot freeze or be damaged. The most suitable substances are deer tallow, talcum powder, glycerin, Vaseline or silicone. If one of the vehicle doors should nevertheless still freeze shut, it must not be forced open. This could tear apart the rubber seal, which would then have to be replaced.