

Driving the School Bus in Inclement Weather: **Snow and Ice**

Reference Guide and Test

INTRODUCTION

I Driving a school bus in snowy and icy conditions presents many challenges for school bus drivers. Driving in adverse weather conditions require drivers to acquire additional skills. These skills differ widely from the skills that are used to drive a bus in dry conditions. Driving in inclement weather requires preparation, knowledge and learning how to take additional precautions.

II The video covers what will be needed in preparation to drive in winter conditions and stress the importance of applying caution while doing so. We offer timely tips and suggestions that will make your bus a safe one for the precious cargo being transported. Our goal is not to intimidate you when preparing to drive in such conditions, but for you to have the confidence and know-how when faced with driving in snow and ice. The video is divided into these sections.

Preparation and Adverse Weather Conditions

Putting Chains on the School Bus

Driving Skills for Snowy and Icy Conditions

Additional Safety Issues

Preparation and Adverse Weather Conditions

1) School bus drivers must operate the bus in many types of weather conditions. Driving a bus during snowstorms or on icy roadways presents many challenges. Things can get dicey enough driving any vehicle in such conditions, but when you drive a school bus that is up to 45 feet long and weighs over 10,000 pounds, safe driving takes on a whole new meaning.

2) **It is critical to go over the importance of understanding the weather you will be driving in** as well as the importance of being prepared to do so. The accumulation of snow and ice on roadways is a major hazard to be aware of when operating the school bus. Wet roads during rain storms are bad enough, however when the temperature drops to freezing that is when extra precautions must be used.

3) Snow and ice on roadways can cause vehicles to slip and slide. Falling snow can limit visibility and extreme caution should always be exercised when faced with driving in these dangerous conditions.

4) **One of the most dangerous types of road conditions that school bus drivers will encounter is driving on black ice.** Black ice is a thin coating of glazed ice that is often hard to detect. The ice itself is not black, but visually transparent. Drivers must be able to recognize this condition.

5) Because of its transparency, black ice is very difficult to recognize. Black ice poses the risk of vehicles skidding and unexpected loss of traction. As mentioned, it is highly transparent and difficult to see as compared to snow or slush.

6) Contrary to popular belief, it is important to understand that black ice is formed on relatively dry roads. Bridges and overpasses can be especially dangerous. **Black ice forms first on bridges and overpasses** because air can circulate both above and below the surface of the elevated roadway when the ambient temperature drops, causing the bridge pavement temperature to fall more rapidly. On the other hand, surrounding roadways don't form black ice as quickly, because the ground around it insulates it from the roadway.

7) In addition to understanding weather conditions, it is important to know the type of weather you will be driving in. A good starting point is to **check the weather forecast before you head out.** These days you can get local weather forecasts with a simple press of a button. This will give you a good idea of how to dress and prepare when inclement weather is forecast.

8) When preparing to drive in snowy, icy and cold conditions, you will need to dress appropriately. You should have a warm water proof jacket to keep yourself dry and insulated. You should have a pair of waterproof gloves, because if you have to put on chains, your hands will be protected. Gloves will also protect you if you have to take care of mechanical issues. Your shoes should be heavy duty and either be water proof or can have water proofing sprays applied to them.

9) In addition to self preparation, the bus needs to be prepared too. This means doing your usual pre trip inspection by doing a proper brake check. You should check all:

- a) lights, gauges and switches.
- b) Thoroughly inspect the tires.
- c) Check windshield wipers and fluids.

10) It is also very important to make sure the heater and defroster are in proper working condition. And make sure you adhere to the pre trip policies that your school district mandates.

11) When preparing to drive in snow, it is important that you carry a few extra items on the bus. This should include, but is not limited to:

- a) Snow chains
- b) flashlight
- c) shovel
- d) plastic garbage bag or something else plastic to lay on if necessary.
- e) cell phone in case the 2 way radio is not working.

12) Knowing the weather conditions you will be driving in and preparing yourself to operate the bus in such conditions is very important and must not be overlooked.

Putting Chains on the School Bus

13) School bus drivers must operate the bus in a variety of weather conditions. **When the road conditions become too extreme, chaining the tires of the bus will become a necessity.** Snow chains are devices fitted to the tires to provide maximum traction when driving through snow and ice. Their size is specific to the tire being fitted.

14) Before attempting to chain the bus in cold, wet and snowy conditions, it is recommended that you practice chaining the bus on a dry surface. This way you

will be able to chain the bus more efficiently when you are faced with having to do so. Matthew Parrot, a seasoned school bus driver demonstrates how to put the chains on.

15) When preparing to chain the bus, the first step is to lay out the chains to make sure the links are not twisted and that the chains are in good shape. You should check the chains for any twists in the links.

16) Once the chains have been inspected, you would then need to drape the chains over the tire with the cams on the outside of the tire. Draping the chains over the tires is a tedious process, so make sure it's done properly. Don't rush, take your time.

17) Once the chains have been draped over the tire, the bus will need to be slowly backed up so that the remainder of the chains wrap around the rest of the tire. Most of the time you will probably be chaining the bus yourself. However, if you have a another driver or an aid with you during the chaining process, they can assist in backing the bus up.

18) Next, Matthew explains that he chains the inside of the tire first. This makes it easier to chain the outside of the tire. When chaining the inside of the tire, you should use the link that will fit the tightest. The extra link or links should be contained to avoid slamming against the wheel well or other areas around the tire.

19) Once the chains have been draped and the links have been connected to the hooks, you can tighten the cam locks to secure the chains to the tire. Matthew also explains that he has an order in which he tightens the cam locks, starting with the one closest to the ground. The reason for this is that the chain gets tighter around the tire with each cam being locked.

20) Once the bottom cam has been locked, Matthew continues his way up and around the tire, tightening each cam lock by using the t-bar and turning it in a clockwise direction. At the finality, Matthew demonstrated tugs on the chains to ensure that they have a tight fit.

21) Removing the chains is a much easier process than attaching them. **To take the chains off, unlock each of the cams by turning them counter clockwise.**

22) Next, unhook the chains. Then you will need to slightly move the bus forward. This will allow the tire to roll off the chains.

23) Make sure to safely store the chains inside the bus. When putting chains away, make sure to keep them from getting twisted and wound up. By doing so it will make your job easier when you find yourself having to chain the bus in snowy, wet and icy conditions.

24) Whenever you are putting on chains in snowy and icy conditions, you must be mindful of passing motorists. As mentioned, snow and ice can make vehicles slip and slide all over the roadway. This puts bus drivers in a scary situation - particularly when chaining up the drivers side. **HAVE AN ESCAPE PLAN! Be aware of your surroundings and be ready to react.**

Automatic Snow Chains

25) Automatic snow chains are short lengths of chains attached to a drive-wheel. They contact the inside tire of the rear duals when they are activated. Automatic chains are a convenient and efficient way to use chains with just a flip of a switch. However, they still have their limitations. For instance, standard tire chains offer better performance in deep snow, heavily rutted snow and on ice.

26) Automatic chains work well when maintaining slow, but steady speeds such as in shallow snow or intermittently covered roadways. **For best operation, automatic chains should be engaged while moving.**

27) **Limitations will vary when using automatic chains.** When applying automatic chains the driver should consider:

- a) the depth of the snow
- b) the speed of the bus

28) Make sure to follow your district policies and regulations when using automatic chains on the bus. Also, make sure that you understand when to engage automatic chains and when not to.

Driving Skills for Snowy and Icy Conditions

29) Driving a school bus in snowy and icy conditions is an important skill for drivers to acquire. As previously mentioned, school buses are long, wide and extremely heavy. This makes braking and steering more difficult than when driving on a dry roadway. There are several driving techniques that can be implemented while operating the bus in such conditions.

30) One of the most important factors to consider is the speed of the bus. Speed plays an important role when driving over snow and ice....driving too fast will increase the chance of going into a slide. Driving too slow may cause the bus to lose its traction and may result in the bus coming to a complete stop.

31) **It is critical that you adjust your speed to the conditions of the road.** You should slow down when driving on wet roads, snow covered roads, or icy roads. Operating a bus at slower speeds will give you the opportunity to stop in time if that becomes necessary.

32) **When driving on compacted snow, you should reduce your speed by 1/3rd.** This means that if the roadway has a designated speed limit of 45 MPH, you should drop your speed to 30 MPH. **When roadways are extremely icy, don't hesitate to reduce your speed by 1/2 or more.** Slower speeds is the most important thing to remember when driving in adverse weather conditions.

33) **Following distances should be at a safe distance.** By doing so, you not only give yourself time to react if the bus starts to slide, but also, this allows you to have more reaction time if vehicles you are following start to slide as well. **Following distances should be at least double the distance that is allowed on dry roads.**

34) When approaching a downhill grade, make sure that you slow down as you approach it. **When descending downhill on snow or ice, make sure to drop your transmission into a lower gear. You should gear down before you start down the grade.** You can also use the bus's retarder as a way to compress the engine and maintain safe speeds. This will allow you to drive the bus while minimizing the use of brakes.

35) **Braking is extremely dangerous on snowy and icy roadways.** ANYTIME you need to apply the brakes, you should do so gently. Slamming on the brakes can lock the wheels and could throw the bus into a dangerous skid. Make sure that you are scanning the roadway ahead of you to brake early if it becomes necessary to do so.

36) **It is important to understand what types of brakes are on your bus.** ABS brakes will increase your stopping distance on icy road conditions. NON ABS brakes tend to lock up more and will require more stopping distances. It is important that you get the feel for the types of brakes that are on your bus before driving in adverse weather conditions.

37) It is also important to understand the different types of snow that bus drivers are required to drive in. There is dry powdery snow as well as wet, slushy snow. Knowledge of the different types of snow that you are driving in, will help you navigate through these types of conditions.

38) **It is recommended that you get a 'feel for the road'.** This is an important consideration when braking is required. Try the brakes occasionally while driving slowly. This will give you an idea of how slippery the road is and will allow you to adjust your speed accordingly. **REMEMBER, you should not make sudden moves like slamming on the brakes OR accelerating too quickly.** Those types of actions could result in loss of control of the bus.

39) The same theme should be applied when steering the bus. You should not make sudden moves. Everything should be gradual when operating the bus. However keep in mind that there are exceptions to this rule. An example would be

when it's absolutely necessary to make sudden movements to navigate out of a skid or avoid hitting other objects - the driver must adjust to the situation and react accordingly.

40) Everything that has to deal with driving a school bus safely is magnified when operating in snowy and icy conditions. Even when making basic turns, you have to think ahead about how to approach the turn. This includes:

- a) maintaining the necessary speeds based on the road conditions
- b) knowing how to apply the brakes safely to avoid skidding and losing control of the bus.

41) As you can see, there are a lot of factors to be considered when applying driving skills and techniques while driving in snow. The bottom line is to get a feel for your bus, the brakes on the bus and the road conditions you will be driving on. Steering, braking and acceleration movements should be gradual and slow. Slow speeds are important for maintaining safety while operating the bus in such conditions.

Additional Safety Issues

42) When snow is falling heavily, it can weigh down tree limbs, power lines and other potential obstructions on, or around the roadway. So not only do you have to be mindful of the conditions of the road, but also have to be mindful of hazards that may be present from snow storm damage.

43) Because of severe weather conditions on roadway surfaces, **bus stop locations may need to be adjusted when dealing with inclement weather.** If a bus stop is in a location where passenger cars may have difficulty seeing the flashing red stop lights of the bus, this has the potential to cause an accident. And, if we factor in poor weather conditions - this type of situation becomes even more dangerous. One possible solution: **Talk with your supervisor about this condition and see if adjustments should be made to the bus stop location.**

44) It is also important to realize that snow may accumulate on the steps which can cause a student to slip. **Remind students to use the handrail when loading the bus and take the time to teach students about additional safety precautions in snowy and icy conditions.**

45) **When driving in blizzard like conditions and visibility becomes extremely low, do not hesitate to pull over and wait for a break.** The safety of the children you transport is your first and foremost priority. Don't jeopardize their safety to make the schedule. Pull over and call dispatch.

CLOSING

Throughout the video, we covered several issues pertaining to safely driving the school bus in snowy conditions and over icy roadways. The video went over the importance of being prepared for driving the bus in inclement weather, as well as the importance of preparing the bus itself. In addition, we have covered many driving techniques that can be implemented to operate the bus in the safest possible manner.

REMEMBER, slower speeds and safe following distances are the most important things to apply when driving in bad weather and severe road conditions. Remember to make gradual movements with the brakes and accelerator. Remember to stay focused and train your students avoid potential hazards when loading or unloading the bus. Remember to always scan the roadways and be prepared for anything. And of course, remember to stay safe.

TEST QUESTIONS

1) Understanding the type of weather you will be operating the bus in is unimportant.

TRUE or FALSE

2) One of the most dangerous types of road conditions that school bus drivers will encounter is driving on black ice.

TRUE or FALSE

3) Black ice forms first on:

a) Grassy areas

b) Sidewalks

c) Bridges and Overpasses

d) None of the above

4) There is no need to make additional preparations when about to drive in snow and ice because you should already be acclimated to the weather.

TRUE or FALSE

5) When driving on compacted snow you should reduce your speed by 1/3rd.

TRUE or FALSE

6) Following distances should be the same distance as driving on dry roads.

TRUE or FALSE

7) You should gear down before you start down the grade.

TRUE or FALSE

8) It is important to understand what types of brakes are on your bus.

TRUE or FALSE

9) The weather accepts no excuses. This means that students should be on time no matter what kind of weather conditions are present.

TRUE or FALSE

10) Slow speeds and safe following distances are the most important things to consider when driving in bad weather and severe road conditions.

TRUE or FALSE

ANSWER KEY

- 1) **FALSE**
- 2) **TRUE**
- 3) **c**
- 4) **FALSE**
- 5) **TRUE**
- 6) **FALSE**
- 7) **TRUE**
- 8) **TRUE**
- 9) **FALSE**
- 10) **TRUE**