

CHAPTER 11
CRITICAL SITUATIONS

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LESSON TOPIC:

CRITICAL SITUATIONS

OBJECTIVES:

The driver will be able to:

- ❖ explain how he/she can improve his/her ability to correctly respond to critical situations;
- ❖ identify and list a set of principles for preventing and correcting any kind of traction loss;
- ❖ explain the correct response for dealing with loss of brakes, steering failure, tire blow-out, headlight failure, “stuck” accelerator and overheated engine;
- ❖ identify the three classifications of fires and name the number and type of fire extinguisher(s) to be carried on the bus;
- ❖ explain and demonstrate the correct procedure for operating a fire extinguisher;
- ❖ state the procedure for placing warning devices around the bus; and
- ❖ explain, in depth, the seven emergency evacuation procedures and briefly explain the eighth.

INTRODUCTION

Even the most competent bus driver is confronted by critical situations created by various causes; such as hazardous roadway conditions, mechanical malfunction, unpredictable outside forces or obstacles and driving failures. The professional bus driver is prepared to meet these situations. Listed below are some of the most common critical situations you might experience which we will discuss in this chapter:

1. Responses to critical situations.
2. Traction loss.
3. Vehicle malfunction and failure.

One of the goals of this unit is helping you properly respond to critical situations. To help you in this regard, we will:

1. define critical situations;
2. identify critical situations;
3. predict how drivers respond;
4. explain why they respond a certain way; and
5. explain how you can improve your responses.

SHOW TRANSPARENCIES**CAUSES**

A critical situation is any situation which may result in a collision. Critical situations may be caused by:

1. driver action;
2. roadway situation; and/or
3. vehicle malfunction.

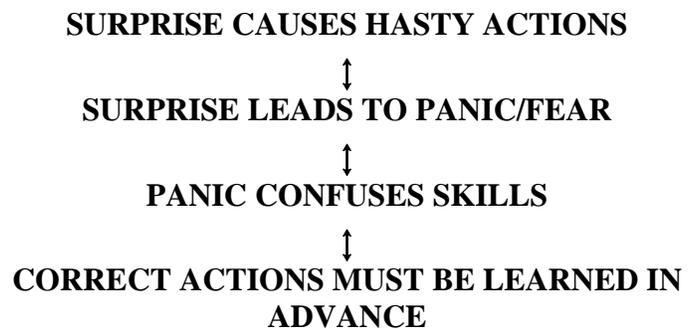
Critical situations allow little or no time for decision making and frequently produce an incorrect response.

A driver will make close to **twenty (20) major decisions every mile**. A major decision is classified as one that could be life threatening.

The element of surprise influences a driver's actions. Lack of knowledge and skill, and lack of practice of that knowledge and skill can also influence whether a driver is surprised.

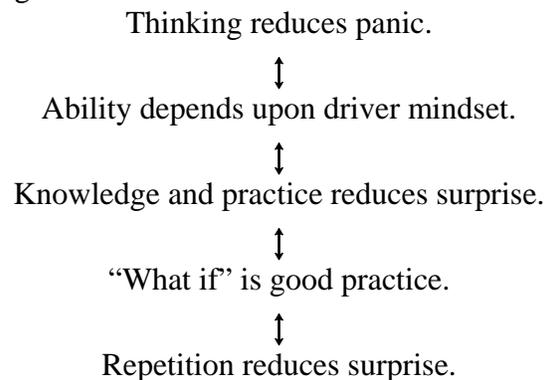
RESPONSE

Why drivers respond as they do:



Experience in dealing with a critical situation reduces the emotional impact on drivers and increases the chance of making the correct response.

Drivers can improve their responses by learning the following:



INSTRUCTOR GUIDELINES/NOTES	CONTENT
	<p style="text-align: center;">DRIVER SAFETY FORMULA</p> <p style="text-align: center;">SKILL + KNOWLEDGE +CONDITIONING +<u>CONCENTRATION</u></p> <p style="text-align: center;">= REDUCTION IN CRITICAL SITUATIONS</p> <p>The main point of this formula is a combination of several components that leads to a reduction in critical driving situations. These components will be covered in this unit.</p> <p>A conditioning process and constant concentration will help you prevent critical situations from going beyond the point of no escape.</p> <p>It is felt that if a driver makes a concerted effort to stay away from other vehicles, obstacles, and pedestrians, he/she will lessen the decisions that he/she will be required to make. Thus, the fewer the decisions, the fewer the opportunities for mistakes.</p> <p><u>TRACTION LOSS</u></p> <p>Traction is important for starting, stopping and turning any vehicle. Therefore, when traction is reduced or lost completely, you are confronted with a critical situation.</p> <p>Traction is the friction between the tires and the road surface that prevents the wheels from slipping or skidding.</p> <p>Traction loss occurs when tires lose their rolling grip on the road surface, resulting in partial or total loss of vehicle control.</p>

CAUSES OF TRACTION LOSS

1. Tire conditions
2. Hydroplaning
3. Environmental conditions
4. Driving techniques (over-accelerating, over-braking, over-steering)
5. Speed

Skidding can be minimized by:

1. Keeping brakes and tires in good working order.
2. Increasing sight distance and reacting to hazards well in advance.
3. Matching speed to conditions.
4. Avoiding over-powering, over-braking and over-steering.
5. Periodically checking the “feel” of slippery surface.
6. Staying off the highway when conditions are hazardous.

POTENTIAL VEHICLE MALFUNCTIONS

Critical situations influencing the safety of the school bus and its passengers can develop from vehicle malfunctions as well as from traction loss. Listed below are the potential vehicle malfunctions we will discuss at this point:

1. Loss of brakes
2. Steering failure

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>WITH SOME POWER STEERING SYSTEMS, THE POWER STEERING WILL BE LOST – MAKING IT EXTREMELY DIFFICULT TO STEER THE BUS.</p>	<ol style="list-style-type: none"> 3. Tire blow-out 4. Headlight failure 5. Accelerator sticking 6. Engine over-heating 7. Stop Arm/Crossing Gate malfunction <p style="text-align: center;">LOSS OF BRAKES</p> <p style="text-align: center;">INDICATOR:</p> <p>Low air pressure buzzer, gauges.</p> <p style="text-align: center;">CORRECTION:</p> <ol style="list-style-type: none"> 1. Use the engine as a brake, downshift. 2. Use remaining air pressure to stop bus in a safe location. 3. Call for assistance. <p style="text-align: center;">STEERING FAILURE</p> <p style="text-align: center;">INDICATOR:</p> <p>Bus does not respond to steering or responds strangely.</p> <p style="text-align: center;">CORRECTION:</p> <ol style="list-style-type: none"> 1. Grip wheel firmly – decrease bus speed. 2. Stop bus quickly and safely – get off road if safe to do so. 3. Evacuate passengers, if needed. 4. Secure area. <p style="text-align: center;">TIRE BLOW-OUT</p> <p style="text-align: center;">INDICATOR:</p> <p>Front tire – bus will pull in direction of flat.</p> <p>Back tire – rear of bus will swerve or sway violently.</p>

CORRECTION:

1. Grip wheel firmly.
2. Release accelerator.
3. Brake gradually – do not lock wheels.
4. Move off roadway when safe to do so.
5. Secure vehicle.

HEADLIGHT FAILURE**INDICATOR:**

Roadway darkens.

CORRECTION:

1. Slow down.
2. Stay on path.
3. Look for escape.
4. Look for alternate lighting to assist you.
5. Turn on parking/auxiliary lights.
6. Turn on emergency flashers, brake lights and right/left turn signals.

ACCELERATOR STICKING**INDICATOR:**

The engine races.

CORRECTION:

1. Cut power to wheels by shifting to neutral.
2. Depress clutch if manual transmission.
3. Get off roadway.
4. Turn off ignition.

combat. It is important that you recognize the different types so you can select the appropriate fire extinguisher for the type of fire involved.

There are three major classifications of fires:

1. Type A – combustible materials
2. Type B – flammable liquids
3. Type C – electrical

A school bus must carry at least one fire extinguisher.

The fire extinguisher should be of a 2A-20-BC dry chemical type. If the school bus was manufactured after 1986, the fire extinguisher should be 3A-40-BC.

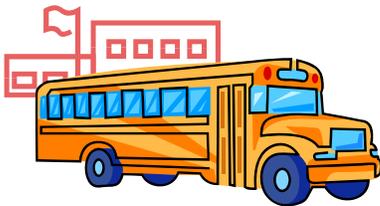
During any fire, time is of the essence. There is no time to be fumbling around trying to find the fire extinguisher or figuring out how to operate it. It is important that you know the location of the fire extinguisher, how it operates, and how to fight the fire.

This response must be almost automatic.

OPERATING A FIRE EXTINGUISHER

1. Pull pin – use twisting motion.
2. Hold in upright position.
3. Squeeze trigger lever.
4. Direct at base of fire.
5. Use side to side motion.
6. Leave yourself an exit.

All of the aforementioned information is secondary to getting the passengers off the bus – **the safety of the students should always come first**. A school bus can be



replaced – passengers cannot.

NOTE: FOR ADDITIONAL INFORMATION ON FIRE EXTINGUISHERS, SEE CHAPTER 10.

WARNING DEVICES

The Kentucky School Bus Minimum Specifications requires that three (3) bi-directional emergency reflective triangles be carried in all school buses and used for warning devices.

If the situation dictates using reflective triangles, you should do so within ten (10) minutes after stopping. Place the triangles in the following locations:

1. on the traffic side of the vehicle, within ten feet (10') of the rear bumper;
2. about one hundred feet (100') behind and ahead of the vehicle, on the shoulder or in the lane in which you are stopped; and
3. back beyond any hill, curve or other obstruction that prevents other drivers from seeing the bus within 500 feet (500').

If you must stop on or by a one-way or divided highway, place warning devices ten feet (10'), one-hundred feet (100') and two-hundred feet (200') behind the bus, toward the approaching traffic.

When placing your triangles, hold them between yourself and the oncoming traffic.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
<p>DEMONSTRATE THE SEVEN EMERGENCY EVACUATION PROCEDURES.</p>	<p><u>EMERGENCY EVACUATION PROCEDURES</u></p> <p>There are times when a critical situation occurs of such severity, or poses such a threat to the passengers, that the best thing to do is evacuate the school bus.</p> <p>A bus should always be evacuated when:</p> <ol style="list-style-type: none"> 1. there is a fire; 2. there is the potential for a fire to occur; or 3. the vehicle is in a dangerous position. <p>TYPES OF EVACUATION PROCEDURES</p> <ol style="list-style-type: none"> 1. Front door evacuation 2. Rear door evacuation 3. Side door evacuation 4. Front and rear door evacuation 5. Front and side door evacuation 6. Rear and side door evacuation 7. Front, rear and side door evacuation 8. Emergency windows, hatches and windshield evacuation <p>FRONT DOOR EVACUATION</p> <ol style="list-style-type: none"> 1. The driver should give the command “emergency bus evacuation, remain seated, front-door.” 2. The driver should open the front door and then stand between the first occupied seats, facing the front.

3. A helper(s)_should be appointed to take position outside the front door to assist those leaving the bus.
4. A leader should be appointed to lead the children in a safe direction (to be determined by the driver) at least one hundred feet (100') away from the bus.
5. Starting with the right seat, begin evacuating by backing toward the rear of the bus while releasing the pupils one (1) seat at a time alternating from right to left until all students are evacuated.
6. Walk to the front of the bus, checking each seat to be sure it is empty.
7. Leave the bus and have the helper(s) go with you to join the other students.

REAR DOOR EVACUATION

1. The driver should give the command “emergency bus evacuation, remain seated, rear-door.”
2. After the driver announces a rear door evacuation the driver should proceed to the rear emergency door and open the rear door.
3. Have the helper(s) open the door and take position outside the rear door.

4. A leader should be appointed to lead the children in a safe direction (to be determined by the driver) at least one hundred feet (100') away from the bus.
5. The driver should then start evacuating the passengers one (1) seat at a time beginning with the left rear seat first and alternating left and right seats until the driver, who is backing towards the front of the bus, reaches the front of the bus and all students have been evacuated.
6. The driver then should walk to the rear of the bus to ensure that all students have exited the bus.
7. The driver should then exit the bus and join the students at the designated assembly location.

SIDE DOOR EVACUATION

Front Collision

1. The driver should give the command "emergency bus evacuation, remain seated, side door."
2. When evacuating from the left side, the first thing a driver must determine is if there is traffic approaching the bus from the road and if there is room to evacuate without jumping into traffic.
3. The driver should go to the left side emergency door and open it.

INSTRUCTOR GUIDELINES/NOTES

CONTENT

4. He/she should swing out the door and look in both directions for other vehicles approaching the bus and ensure that no child is evacuated into the path of a moving vehicle.
5. Two (2) helpers should be placed on the ground at the side door to assist those leaving the bus.
6. A leader should be appointed to lead the children around the bus, toward the rear, facing traffic to a designated location (to be determined by the driver) at least one hundred feet (100') away from the bus.
7. In the event of a **front collision**, the driver should then begin the evacuation by backing toward the front of the bus while releasing the pupils one (1) seat at a time until all those students riding in the front portion of the bus are evacuated.
8. After the front portion of the bus is clear, the driver should then proceed to the area of the side door and back toward the rear of the bus and release the pupils one (1) seat at a time until the remainder of the students are evacuated.
9. The driver should then check the bus to determine that everyone has evacuated and exited through the left side door.

10. Walk to the rear of the bus, facing traffic and ensure there are no students alongside the bus and then join the students at the designated location.

SIDE DOOR EVACUATION

Rear Collision

1. The driver should give the command “emergency bus evacuation, remain seated, side door.”
2. When evacuating from the left side, the first thing a driver must determine is if there is traffic approaching the bus from the road and if there is room to evacuate without jumping into traffic.
3. The driver should go to the left side emergency door and open it.
4. He/she should swing out the door and look in both directions for other vehicles approaching the bus and ensure that no child is evacuated into the path of a moving vehicle.
5. Two (2) helpers should be placed on the ground at the side door to assist those leaving the bus.
6. A leader should be appointed to lead the children around the bus, toward the front, with traffic to a designated location (to be determined by the driver) at least one hundred feet (100’) away from the bus.

7. In the event of a **rear collision**, the rear of the bus should be evacuated first with the driver backing toward the rear from the left side door releasing the students one (1) seat at a time.
8. After the rear portion of the bus is clear, the driver should back towards the front of the bus from the left side door, releasing the students one (1) seat at a time.
9. The driver should then check the bus to determine that everyone has evacuated then exit through the left side door.
10. Walk to the front of the bus, with traffic to ensure that there are no students alongside the bus and then join the students at the designated location.

FRONT – SIDE DOOR EVACUATION

1. The driver should give the command “emergency bus evacuation, remain seated, front-side door.”
2. The driver should open the front door and then stand between the first occupied seats, facing the front.
3. Direct the helper(s) to take position outside the front door to assist those leaving the bus.

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

4. A leader should be appointed to lead the children in a safe direction (to be determined by the driver) at least one hundred feet (100') away from the bus.
5. Starting with the right seat, begin evacuating by backing toward the rear of the bus while releasing the pupils one (1) seat at a time alternating from right to left until all students riding in the front portion of the bus are evacuated.
6. At that point, the driver should open the left side emergency door and **check traffic** to determine there is no other moving traffic present which would create a danger to exiting passengers.
7. Two (2) helpers should be placed on the ground to assist passengers as they evacuate the bus.
8. Another leader is appointed to lead the passengers around the bus toward the rear, facing traffic to a designated location where they will join the passengers from the front of the bus.
9. The driver resumes the evacuation, backing towards the rear of the bus releasing the remaining passengers one (1) seat at a time by the right-left side method until all the passengers have evacuated the bus.

10. After the bus is empty, the driver will check to determine that everyone is off, the driver should then exit the front door.

11. The driver should walk around the bus to ensure that no one is standing alongside the left side of the bus and then join the students at the designated location.

REAR – SIDE DOOR EVACUATION

1. The driver should give the command “emergency bus evacuation, remain seated, side door.”

2. After the driver announces a rear-side door evacuation, the driver should proceed to the rear emergency door and open the rear door.

3. Two (2) helpers should be placed on the ground to assist passengers as they evacuate the bus.

4. A helper should be appointed to lead the children in a safe direction (to be determined by the driver) at least one hundred feet (100’) away from the bus.

5. The driver should then start evacuating the passengers one (1) seat at a time beginning with the left rear seat first and alternating left and right seats until the driver who is backing towards the front of the bus reaches the halfway point.

6. At that point, the driver should open the left side emergency door and **check traffic** to determine there is no other moving traffic present which would create a danger to exiting passengers.
7. Two (2) more helpers should be placed on the ground to assist passengers as they evacuate the bus.
8. Another leader is appointed to lead the passengers around the bus, toward the rear, facing traffic to the assembly point where the rear half of the passengers are located.
9. The driver resumes the evacuation, backing towards the front of the bus releasing the remaining passengers one (1) seat at a time using the left-right side method until all the passengers have evacuated the bus.
10. After the bus is empty, the driver will check to determine that everyone has been evacuated, the driver should then exit the left side door.
11. Walk to the rear of the bus, facing traffic to ensure that there are no students alongside the bus and join the students at the designated point.

FRONT – REAR DOOR EVACUATION

1. The driver should give the command “emergency bus evacuation, remain seated, front-rear door.”

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

2. The driver should then stand between the first occupied seats, facing the front.
3. A helper(s) should be appointed to take position outside the front door to assist those leaving the bus.
4. A leader should be appointed to lead the children in a safe direction (to be determined by the driver) at least one hundred feet (100') away from the bus.
5. Starting with the right seat, begin evacuating by backing toward the rear of the bus while releasing the pupils one (1) seat at a time alternating from right to left until all students riding in the front portion of the bus are evacuated.
6. The driver should then proceed to the rear emergency door and open it.
7. Two (2) helpers should be placed on the ground to assist passengers as they evacuate the bus.
8. A helper should be appointed to lead the children in a safe direction (to be determined by the driver) at least one hundred feet (100') away from the bus.

9. The driver should then start evacuating the passengers one (1) seat at a time beginning with the left rear seat first and alternating left and right seats until the bus is empty.

10. The driver then should walk to the front of the bus, checking that the bus is empty and then leave through the front door and have the helper(s) go with you to join the other students.

FRONT-REAR-SIDE DOOR EVACUATION

In this type of evacuation, the passengers in the front eight (8) seats exit the front door. The passengers in the next six (6) seats or seven (7) seats (depending on the year of the bus; 1993 buses have a seat in front of the left side door) exit through the left side emergency door and the rear eight (8) seats exit through the rear emergency door.

1. The driver gives the command “emergency evacuation, remain seated, front, rear and side door”.
2. The driver should open the front door and then stand between the first occupied seats, facing the front.
3. A helper should be appointed to take position outside the front door to assist those leaving the bus.

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

4. A leader should be appointed to lead the children in a safe direction (to be determined by the driver) at least one hundred feet (100') away from the bus.
5. Starting with the right seat, begin evacuating by backing toward the rear of the bus while releasing the pupils one (1) seat at a time alternating from right to left until all students in the front eight (8) seats are evacuated.
6. At that point, the driver should open the left side emergency door and **check traffic** to determine there is no other moving traffic present which would create a danger to exiting passengers.
7. Two (2) helpers should be placed on the ground to assist passengers as they evacuate the bus.
8. Another leader is appointed to lead the passengers around the bus, toward the rear, if safe, facing traffic to the assembly point where the passengers from the front are located.
9. The driver resumes the evacuation, starting with the seat next to the left side door and the seat across from the side door. As the driver is backing towards the rear of the bus releasing the remaining passengers one (1) seat at a time by the left-right side method for five (5) more seats depending on bus size.

INSTRUCTOR GUIDELINES/NOTES**CONTENT**

10. The driver should then proceed to the rear emergency door and open it.
11. Two (2) helpers should be placed on the ground to assist passengers as they evacuate the bus.
12. A leader should be appointed to lead the children in a safe direction (to be determined by the driver) at least one hundred feet (100') away from the bus.
13. The driver should then start evacuating the passengers one (1) seat at a time beginning with the left rear seat first and alternating left and right seats until the driver who is backing towards the front of the bus until the rest of the bus is evacuated.
14. After the passengers are clear, the driver returns to the front of the bus ensuring all passengers are off and exits the front door.
15. The driver then walks off around to the left side of the bus, facing traffic, to ensure no one remains along side of the bus and then joins the passengers at the designated assembly location.

NAME: _____ DATE: _____

**CRITICAL SITUATIONS
TEST******PLEASE ANSWER TRUE OR FALSE****

1. _____ The driver can improve his/her ability to correctly respond to a critical situation.
2. _____ A critical situation is any situation which may result in a collision.
3. _____ Critical situations are caused by driver action, roadway situations and/or vehicle malfunctions only.
4. _____ Critical situations allow adequate time for decision making and usually produce hurried responses.
5. _____ A critical situation may occur when tires lose their grip on the road surface, resulting in partial or total loss of vehicle control.
6. _____ There are several ways to minimize skidding but the best way is by matching speed to road and vehicle conditions.
7. _____ When a critical situation is caused by loss of brakes, the best response is to put the transmission in neutral.
8. _____ A school bus must carry at least one (1) fire extinguisher.
9. _____ The fire extinguisher to be carried on a post 1986 Kentucky school bus is rated as a 3A-40-DC type.
10. _____ When using a fire extinguisher, it should be held in an upright position, directed at the base of the fire and rotated with a side to side motion.
11. _____ There are four (4) portable reflectors required on a Kentucky school bus.
12. _____ Each reflector should be placed fifty feet (50') apart when staking out a school bus.
13. _____ There are times when a critical situation occurs of such severity, or poses such a threat to the passengers, that the best thing to do is evacuate the school bus.
14. _____ When a school bus is in a dangerous position, it should be evacuated.

INSTRUCTOR'S SIGNATURE: _____

**CRITICAL SITUATIONS
TEST
PLEASE ANSWER TRUE OR FALSE**

KEY

The answer key is only released to KDE endorsed trainers.