FOREWORD

This manual describes the requirements for obtaining a North Carolina Commercial Driver License (CDL) with Passenger and School Bus endorsements, in addition to a School Bus Driver Certificate. The information contained in this manual provides information to assist you in passing the required knowledge and skills test.

According to Federal Regulations the definition of a school bus is a commercial motor vehicle used to transport pre-primary, primary, or secondary school students from home to school, from school to home, or to and from school sponsored events. Everyone who operates a school bus under this definition must have the proper class CDL with a P and S endorsement. This does not include common carriers.

The definition of a school bus by North Carolina law is more specific. According to North Carolina a school bus is a vehicle whose primary purpose is to transport school students over an established route to and from school for the regularly scheduled school day, that is equipped with alternately flashing red lights on the front and rear and a mechanical stop signal, and that bears the words School Bus on the front and rear in letters at least 8 inches in height. The term includes a public, private, or parachial vehicle that meets this description. North Carolina law requires everyone who operates a school bus by this definition to meet specific requirements, and be trained, tested, and certified by a Driver Education Specialist with the Division of Motor Vehicles.

SCHOOL BUS

- Enroll in a 3-day School Bus Driver Training Class.
- Pass all required knowledge tests with 80% or better.
- Schedule behind-the-wheel training with a DES.
- Pass skills test.
- Present paperwork issued to you by the DES to a NCDMV Driver License Examiner for issuance of a CDL-B with P and S endorsements.
- After obtaining your CDL, present it to the proper school official who will issue your NC School Bus Driver Pocket Card which is evidence of the issuance of a NC School Bus Driver Certificate.

ACTIVITY BUS

- Obtain from a DES a School Bus Driver Handbook to study.
- Schedule an appointment with a DES to take the appropriate knowledge tests.
- Pass each test with 80% or better.
- Schedule an appointment to take the skills tests.
- Pass each skills test.
- After passing all required tests, the DES shall issue you the proper paperwork to take to any NC Driver License Office for issuance of your CDL-B with P and S endorsements.

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Chapter One: Driver Requirements

Physical Requirements

Every school bus driver should be physically and mentally competent to operate a school bus with ease. To do this, you must be in good physical condition. A driver who is fatigued or has an illness which requires medication should not drive the bus. A substitute driver should be assigned by the principal.

Safe operation requires every school bus driver to be in good physical condition.

By North Carolina law, every school bus driver must have a valid health certificate. The N.C. Department of Transportation (NCDOT), Division of Motor Vehicles (DMV), and the N.C. Department of Human Resources have adopted joint regulations concerning physical requirements for school bus drivers based on the federal requirements of the Federal Motor Carrier Safety Administration.

If questions arise about a school bus driver s physical condition, the DMV may require the driver, before or after school bus certification, to submit a completed medical report provided by the DMV Driver License Section.

Vision

- **Visual Acuity**: at least 20/40 for each eye and both eyes together, with or without corrective lenses.
- **Field of Vision**: at least 140 degrees.
- **Depth Perception**: demonstrated ability to distinguish the relative distance of objects from the bus.
- **Color Vision**: demonstrated ability to distinguish colors that pertain to driving and traffic control.

Hearing

To operate a school bus, you must have good hearing to distinguish the warning sounds made by vehicle horns, screeching tires, emergency sirens, railroad crossing signals and train whistles. The ability to hear a forced whispered voice at five feet is considered adequate. If you use a hearing aid, you should always bring along a spare battery.

Reaction Time

Your reaction time is the time you need to recognize a driving hazard, remove your foot from the accelerator and engage the brake pedal. Most drivers require a reaction time of about ¾ second. The instructor will judge your reaction time during behind-the-wheel training.

Legal Requirements

To meet legal requirements to drive a school bus, you must:

1. Pass the written examinations administered at the conclusion of school bus driver training by the DMV School Bus & Traffic Safety Section;
2. Have a good driving record, including but not limited to:
   - Not more than one conviction for a moving violation within the past 12 months and not more than three such convictions within the past five years. ***Note: For certification purposes a Prayer for Judgement Continued (PJC) is considered a conviction;***
   - No conviction of Driving While Impaired (DWI) within the past five years and not more than one DWI conviction ever;
   - No instances of driver license suspension or revocation for moving violations within the past five years;
   - For recent state residents (of five years or less), a copy of your driving record from your former state of residence showing an acceptable driving history. ***Note: Obtaining the driving record is the responsibility of the applicant***; and
   - No convictions deemed disqualifying by federal commercial driver license (CDL) requirements;
3. Satisfactorily complete behind-the-wheel training, including the three skills tests, in school buses, under the instruction of the Driver Education Specialist with DMV. If a prospective school bus driver exhibits evidence of improper or unsafe driving practices, procedures, or attitude, the Driver Education Specialist shall have the authority to deny a school bus certificate;
4. **Be at least 18 years of age** with at least six months driving experience as a licensed operator of a motor vehicle;
5. Have a school bus driver certificate and a valid CDL;
6. Have approval from the principal, transportation director, superintendent, and local board of education.

The Commercial Driver s License Tests and Other Safety Rules

The Commercial Vehicle Safety Act of 1986 requires all states to meet minimum standard requirements for licensing commercial drivers and requires each commercial driver to hold a commercial driver license (CDL). You must have a CDL to operate any of the following commercial motor vehicles (CMVs):

- A single vehicle with a gross vehicle weight rating (GVWR) of more than 26,000 lbs;
- A trailer with GVWR of more than 10,000 lbs. if gross combination weight rating is more than 26,000 lbs.;
- Any vehicle designed to transport more than 15 people (including the driver); and/or
- Any vehicle that hauls hazardous materials which requires placards, regardless of weight.

To obtain a CDL, you must successfully complete the appropriate knowledge and skills tests. This handbook can help you to pass these tests.

CDL Tests

You must complete one or more tests, depending on the driver license classification and endorsement(s) for which you are applying. The CDL tests include:

- **General Knowledge Test**: Required for all applicants;
- **School Bus Test:** Required for all school bus driver applicants;
- **Passenger Transport Test**: Required only for bus driver applicants;
- **Air Brakes Test**: Required for all drivers who will operate or expect to operate a vehicle with air brakes.

After you have passed the required knowledge tests, you must successfully complete the **CDL skills tests**. The skills tests must be performed in the type of vehicle for which you wish to be licensed. Bus driver applicants perform the skills tests using a bus. There are three types of CDL skills tests: the **Pre-Trip Inspection Test**, **Basic Control Skills Test**, and **Road Test**.

Pre-Trip Inspection Test: Checks your ability to know when the school bus is safe to drive. For this test you will be asked to perform a pre-trip inspection of the bus. Using a scoring form, the instructor will mark each item that you correctly identify and/or explain for inspection.

Basic Control Skills Test: Evaluates your performance of four basic driving skills by your ability to safely control the school bus. For this test you must perform various basic driving exercises, such as turning the bus or moving it forward and backward, within an area marked by lines, traffic cones or similar traffic control devices. The instructor will explain how you must perform each exercise, and you will be scored on how well you stay within the traffic boundaries and by the number of "pull-ups" you make.

Road Test: Evaluates your ability to drive the school bus safely in a variety of on-the-road situations. You must perform the test on a route specified by the instructor. The route may include navigating left and right turns, intersections, railway crossings, curves and elevation grades, while driving on rural roads, urban/suburban multi-lane streets and expressways. Along the route the instructor will score your ability to perform specific tasks such as turning and signalling, merging into traffic, changing lanes and controlling speed.

Obtaining Your CDL

After you have passed the required knowledge and skills tests, your instructor will issue a school bus driver certificate and pocket card certifying your credentials for the school district where you will drive. The certificate and pocket card must be signed by your school district transportation director. Your instructor will also complete the necessary paperwork for DMV to issue a CDL with a P and S endorsements.

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Procedures to obtain a CDL Class B with a P and S endorsement, and a school bus certificate

1. Complete three days of bus class.
2. Pass four written tests.
3. Complete roadwork training.
4. Complete 3 practical tests.

CDL Safety Regulations

There are other ***Commercial Motor Vehicle Safety Act*** regulations pertaining to school bus drivers and CDLs:

- Whenever you obtain your CDL, you must surrender any and all driver licenses you hold. Commercial drivers are restricted to one driver license (**a single CDL**). As a commercial driver, if you have more than one driver license you are in violation of federal law and could be fined.
- A nationwide information network allows each state to share data about commercial drivers. The computerized system allows immediate access to driving records and collision reports and helps to ensure that each commercial driver holds only one driver license.

◆ **It is illegal to operate a commercial vehicle while under the influence of an impairing substance. This is known as the zero tolerance law.** Driving While Impaired (DWI) is a criminal offense punishable by a loss of driving privileges for one year following the first convicted violation and lifetime driver license revocation upon the second conviction. (For anyone transporting a hazardous material, the first DWI offense is punishable by a loss of driving privileges for three years.) If any commercial driver s BAC is less than 0.04 percent but there is a detectable trace of alcohol on his breath, the driver will be placed out of service for 24 hours.

You must notify your employer within 30 days of a conviction for any traffic violation.

◆ **Anyone who holds a CDL automatically agrees to chemical analysis by the implied consent of driving a commercial motor vehicle.** Any commercial driver who intentionally refuses chemical analysis will lose driving privileges immediately for a minimum period of 30 days.

◆ You must report all convicted moving traffic violations to your employer and the state issuing your CDL within 30 calendar days. You must report all convictions of violations received while driving commercial vehicles and private vehicles (such as a private car). This rule applies only to violations directly relative to driving and does not pertain to citations such as parking infractions. You must immediately notify your employer when your driver license is suspended, revoked, cancelled, or if you otherwise become disqualified to drive.

◆ When applying for a commercial driving job, you must provide the prospective employer with a history of all driving jobs you have held during the past 10 years.

◆ If you hold more than one driver license or if your CDL is suspended or revoked, your employer must never knowingly permit you to drive a commercial motor vehicle. The employer found violating this law could be fined.

TEST YOUR KNOWLEDGE

1. What are some of the physical requirements for a school bus driver?

2. What are the legal requirements for driving a school bus?

3. What kind of driver license do you need to operate a school bus?

Multiple Choice Questions

1. Which of the following would disqualify a person from driving a school bus?
   a) DWI within last 5 years;
   b) Under the age of 18;
   c) Two PJCs in the previous 12 months;
   d) all of the above.

2. The purpose of the Commercial Driver License is to:
   a) require all drivers to meet minimum standards for Driver Licensing;
   b) provide more revenue for the Federal Government;
   c) to keep drivers from having more than one license;
   d) both a & c.

3. Possession of a valid school bus certificate:
   a) is a basic legal requirement to drive a school bus in North Carolina;
   b) is required in addition to a CDL;
   c) is evidence that a driver has demonstrated safe driving attitudes, procedures, and skills;
   d) all of the above.

Chapter Two: The School Bus Driver

You, the driver, are the most important person in school bus transportation. The safety of your passengers is in your hands, and your dedication and commitment are essential to safe school transportation. As a model for your passengers and a representative of the school district, your conduct and appearance should contribute to safety, respect and pleasant relations with your passengers, their parents and other motorists.

To be a safe school bus driver, you must always stay mentally alert, keep focused on your driving and be prepared for every possible emergency. Never allow hazardous weather conditions, road conditions, or the actions of pedestrians and other drivers to cause a collision. Always be alert to recognize a potential hazard far enough in advance to apply the necessary preventive action such as yielding right of way to prevent a collision.

Always drive defensively and be careful not to commit driving errors. Make allowances for the lack of skill, knowledge or proper attitude by other drivers. As a defensive driver, always exercise **self-control, alertness, foresight, skill and good judgement** when you operate the bus. A positive attitude while driving is the best guarantee of the safest possible trip.

The school bus driver s greatest responsibility is to transport students to and from school safely and on schedule. Unless directed by the school principal or superintendent, never use or allow the use of a school bus for any purpose other than transporting the assigned passengers to and from school for a regularly organized school day.

You, the driver,
are the most important person
in school bus transportation.
The safety of your passengers
is in your hands.

The following regulations might require some extra effort, but they will help to create a safe and pleasant trip. When transporting passengers:

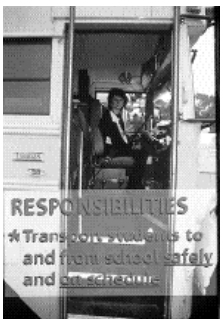
- Load and unload only at regularly designated stops, except by permission of the school principal.
- Allow only the assigned passengers to ride the bus unless the school principal grants special permission.
- Never stop along the bus route at stores or service stations unless the location is a regularly designated stop.
- After unloading the last passenger in the afternoon, drive the bus directly to its regular parking place. Stopping on the way home for personal reasons is not allowed.
- Do not allow anything to distract you from driving. Smoking, eating, drinking and portable stereos must not be permitted on the bus.
- The only physical contact the driver should have with students should be administering first aid and/or evacuating the bus.
- The driver should not use cellular telephones or two-way radios while operating the bus.

Operating on Schedule

Schools operate on a regular schedule, and prompt arrival at school shows dependability and builds good will between the bus driver, students, parents and the school principal. The key to operating a school bus on schedule is for the driver to begin the route at the same time each morning, drive at a safe speed and encourage passengers to be prompt. These rules can help you to maintain a good operating schedule:

- During the first few days of driving on a new bus route, you should note the amount of time you need to complete the route so that after a few days you can post a schedule showing the estimated arrival time at each passenger stop.
- You should arrive at school at the same time each morning, as directed by the school principal.
- Unusual weather and road conditions might require extra travel time. Advise passengers of possible schedule changes that result from inclement conditions.
- If you are late, never try to make up lost time by driving faster than a safe speed.
- Encourage passengers to be prompt. When you maintain a good schedule, you build a good relationship between yourself, passengers, parents and the school.

Maintaining Good Discipline



The school bus driver is responsible for students on the bus just as the teacher is responsible for students in the classroom. If you explain the rules of riding the bus at the beginning of the school year, you will gain the cooperation and respect of your passengers. If they understand that you are fair and will enforce rules with their safety in mind, they will be more likely to follow the rules and accept your authority. Recognize each child s individuality. You cannot maintain discipline and respect if you are too harsh or too lenient. Drivers who handle discipline problems fairly and according to the rules earn the respect of their passengers.

Standing Passengers

Normally no passenger should be standing on a moving school bus. However, sometimes there may be more passengers than seats on the bus, especially during the first few days of a new school year. This problem should be reported to the school principal and corrected. If passengers must stand, they must stay behind the back of the driver s seat.

Requesting a Substitute Driver

If, for any reason, a regular bus driver is unable or unfit to drive, a substitute should be available. **Regular bus drivers do not have the authority to appoint a substitute.** If you feel that you cannot or should not drive, you must contact the school principal to explain your condition. If the principal considers your request valid, he will appoint a substitute driver.

Reporting Mechanical Bus Defects

Report all needed repairs as soon as possible. Most schools have a daily sign-in sheet where you can note a needed repair with the least chance of it being overlooked. Continue to report the defect until it is repaired.

Cleaning the Bus

The driver is responsible for keeping the school bus clean on a daily basis. **A clean bus helps to promote a positive image of the school and the driver.**

Recordkeeping

Certain daily and monthly records and reports must be kept by the driver and submitted to the principal. The principal will advise the driver on methods of keeping and submitting records and reports.

TEST YOUR KNOWLEDGE

1. What are the five characteristics a defensive driver must exercise?

2. How might a school bus driver maintain good discipline?

3. Why is it important for the school bus driver to be a good example?

Multiple Choice Questions

1. The driver s most important responsibility is to :
   a) transport students to school safely;
   b) set up passenger stops;
   c) transport students on schedule;
   d) both a & c.

2. The person who has the authority to assign a substitute bus driver is the:
   a) parent;
   b) Driver Education Specialist;
   c) Principal (or other designated person);
   d) driver.

3. Who has the responsibility of cleaning the bus on a daily basis?
   a) mechanic;
   b) driver;
   c) custodian;
   d) students.

CHAPTER THREE: ADMINISTRATION OF PUPIL TRANSPORTATION

The Principal (or other designated person)

The school bus driver should consider his school principal as his friend, adviser and immediate superior. The principal should be informed of any local day-to-day problems that arise. In many larger schools, the day-to-day responsibilities of the principal are delegated to an assistant principal. In some counties, they are delegated to a transportation area coordinator or other supervisor.

Responsibilities and Duties of the Principal

As the principal is responsible for his school, he is also responsible for his bus drivers. The authority of the principal should not be questioned.

The principal has five major responsibilities:

1. Assigning drivers to buses;
2. Establishing bus routes, stops, and turn around points;
3. Assigning passengers to buses;
4. Ensuring that buses are in safe operating condition;
5. Appointing monitors as needed.

The principal has authority to discharge a school bus driver:

1. For lack of interest in safe transportation;
2. For infractions of bus driver regulations;
3. For disorderly conduct;
4. On recommendation of the transportation director;
5. When required for the best interest of the school.

Discipline of Passengers

As a disciplinary measure, the school principal may suspend a pupil from riding a school bus for any reason, including but not limited to the following:

1. Delaying the bus schedule;
2. Fighting, smoking, using profanity or refusing to obey instructions of school authorities or a bus driver while riding on a school bus;
3. Tampering with the bus;
4. Refusing to meet the bus at designated stops;
5. Unauthorized leaving of the bus when enroute;
6. Playing, throwing trash, paper, or other objects, or otherwise distracting the driver s attention while the bus is in operation; and/or
7. Failing to observe established safety rules and regulations.

Routing School Buses

Establishing the routes over which school buses operate is primarily the responsibility of the school principal. The bus driver must adhere to the established route and refrain from taking the bus off the regular route without the permission of the principal. The removal of a bus from its designated route by the driver without the permission of the principal or transportation director may result in serious consequences, including the removal of the driver and possible legal action in a civil suit in case of a collision.

The Passengers

Certain rules are designed for the discipline and safety of the occupants of a school bus. The driver should see that each student knows these rules and that they are followed, calling upon the aid and authority of the principal whenever necessary. The driver should, of course, set a good example at all times.

In meeting the bus, the passengers should:

1. Be on time;
2. Stand on the side of the highway and in no way interfere with traffic;
3. Wait to cross the road until the bus has arrived and stopped with the stop-sign out and the door of the bus open; and
4. Wait their turn while getting on the bus.

On the bus, passengers must observe regular classroom conduct (except for ordinary conversation) and any other rules established by the school system. The following rules also should be observed:

1.Take assigned seats; never stand if a seat is available;
2. Do not talk to or otherwise disturb the driver;
3. Do not extend hands or arms out of the window;
4. Remain seated while the bus is moving;
5. Keep the bus clean and sanitary;
6. Refrain from the use of tobacco and profane or indecent language;
7. Never damage or deface the bus; and
8. Do not bring dangerous or prohibited items on the bus, such as guns, knives, gasoline, car batteries, animals, drink bottles, and projects too large to be held on the lap.

Note: Activity bus passengers may bring along baggage if it is safely secured, and if the driver and passengers are protected from shifting and falling packages and are able to move freely and easily through the bus. Each passenger must have normal access to all exits.

It is the driver s responsibility to transport his passengers safely. **No passenger who misbehaves should ever be put off and made to walk.** Instead, cases of misconduct should be reported to the principal. If the nature of the misconduct is so severe as to make continuing the route unsafe, the principal should be summoned to the bus to handle it.

Transportation Director

The transportation director has charge of the operations of the school bus garage and responsibility for seeing that each school bus is safe and in sound mechanical condition. The director is dedicated to the job, just as you should be to yours. If the director finds that a certain driver is hard on the equipment, which is usually an indication that the driver is careless and unconcerned about the safety of his passengers, the director may recommend suspension of the driver s certificate.

The transportation director also assists the principal in routing and general administration of school transportation.

Others Involved in Pupil Transportation

The State Board of Education

The State Board of Education exercises general supervision over school transportation in North Carolina. It delegates this responsibility for supervision and management to the Office of the State Controller and to the Division of Transportation, which is a part of that office.

The education board, controller, and the Division of Transportation allocate to the respective school units the state-appropriated funds due them. These funds cover the basic costs of wages for school bus drivers and the operation of the school bus garages. Local boards may supplement these expenditures as they may wish.

Local Board of Education

The local board of education may choose to operate a transportation system and is responsible for the original purchase of buses. Local rules and regulations may be adopted above and beyond the minimum set by the state.

Superintendent of Schools

The local superintendent of schools has as a part of his duties the general responsibility for the smooth functioning of the transportation system.

Commissioner of Motor Vehicles

The commissioner appoints representatives to train and certify school bus drivers.

Driver Education Specialist (DMV)

The driver education specialist, a representative of the Division of Motor Vehicles, trains and certifies school bus drivers. All aspects of driver certification are governed by the Rules Governing Issuance and Cancellation of School Bus Driver Certificates. Upon

successful completion of the prescribed classroom work and road training, the driver candidate who demonstrates his ability to drive a school bus by passing all tests is given a pocket card. This pocket card is evidence that an official certificate, valid for a set period of time, is on file in the driver s home county, usually in the county garage.

A PJC
(Prayer For Judgement Continued)
is considered to be
the same as a conviction.

While local school units select, hire, assign and dismiss school bus drivers, the Division of Motor Vehicles, through its driver education specialist, shall cancel the school bus driver certificate of any driver on the basis of his driving record or a disqualifying medical problem. **A cancellation based on driving record would be for one or more convictions of moving violations or for driver license revocation, including Failure to Appear in court or Failure to Pay.**

For the purposes of certification of drivers, a PJC, Prayer for Judgement Continued, is considered by the Division of Motor Vehicles to be the same as a conviction.

Drive safely, your passengers are counting on you!

TEST YOUR KNOWLEDGE

1. What are the principal s responsibilities in school bus transportation?

2. What are the duties of the transportation director?

3. Will a PJC count as a conviction for a school bus driver?

4. What are the responsibilities of passengers?

Multiple Choice Questions

1. Which of the following items are prohibited on a school bus?
   a) guns;
   b) gasoline;
   c) large class projects;
   d) all of the above.

2. Who has the responsibility of setting up passenger stops?
   a) the driver;
   b) the parents;
   c) the Driver Education Specialist;
   d) the principal (or designated person).

3. The DMV can cancel a School Bus Certificate for which of the following :
   a) bad driving record;
   b) medical reasons;
   c) loss of driver license for any reason;
   d) all of the above.

Chapter Four: Safe Driving Procedures

A school bus is much longer, wider and heavier than a car. Driving the bus requires more preparation, thought and care. The procedures described in this chapter are intended to promote the safety and comfort of school bus passengers and to ensure that they arrive at school each day ready to learn.

> Riding in the bus with you are several dozen children whose lives are in your hands and who depend on your good judgement.

Care and Maintenance of the School Bus

The life and reliability of a school bus depend on how well the driver treats the bus. Daily inspections and expert handling can prolong the life of the bus and increase its service quality. Never attempt to make repairs to the school bus, but always be alert to the bus mechanical condition and report all problems to the school principal.

The school district transportation director is ultimately responsible for maintaining the school bus in a safe operating condition. However, each bus driver is responsible for never driving a school bus that has a known mechanical defect. Always respect the judgment and suggestions of mechanics about school bus equipment maintenance and care.

School Bus Inspections: Why Inspect?

Safety

The most important and obvious reason to inspect a school bus is to ensure safety. Inspecting the bus helps the driver to know that it is safe to drive.

Legal Requirements

Federal and state laws and school district regulations require school bus inspections. School buses are subject to inspection at any time by state and local agencies.

Types of Inspections

Pre-Trip Inspection

Perform a pre-trip inspection before each trip to find problems that could cause a crash or breakdown.

For safety during the trip you should:

1. Watch gauges for signs of trouble.
2. Use your senses to check for potential problems (look, listen, smell, and touch).
3. Check critical items between trips, such as:
   - Brakes (the most important item to check);
   - Lights; and
   - Cargo security (for activity buses).

Post-Trip Inspection

Perform a post-trip inspection at the end of each trip. The inspection might require submitting a vehicle condition report noting any problems you have found. The vehicle condition report helps to alert the school principal and mechanics to problems which need repair.

Inspection Procedure

✓Inspection Method

You should carry out the pre-trip inspection in the same manner every time so you will learn each step and be less likely to forget something. A memory aid can be used when you take your CDL test. When you take your test you must explain to the examiner what parts of the vehicle you are inspecting. Describe the possible defects you are looking for. It will help you pass the test if you practice this with a friend beforehand. You will be marked down for important items on the bus that you failed to inspect. The following inspection procedure can be a useful guide

(Before proceeding with the inspection, make sure the parking brake is set and/or that the wheels are chocked.)

✓Overview

Notice the general condition. Note any damage or if the bus is leaning to one side. Look underneath for fresh puddles of oil, coolant, grease, or leaking fuel. Observe the surrounding area for hazards to moving the bus (people, other vehicles, objects, low hanging wires and limbs, etc).

✓Front of Vehicle

The **wording** should be clean and at least 8 inches in height.

The **windshield** should be clean and unbroken.

All **lights** should be clean, unbroken, and of the proper color.

The **walking control arm** should be clean, unbroken, and secure.

All **mirrors** should be clean, unbroken and secure.

✓Engine Compartment

The **oil level** should be above the "add" mark.

The **coolant** should be at the proper level in the sight glass or in the radiator itself. **Never remove a radiator cap when the engine is hot.** Check the condition of the hoses to see that they are secure, not damaged, or leaking.

The **water pump** should not be leaking. Belts should not be cracked, frayed, or have more than 1/2 inch to 3/4 inch looseness.

The **alternator** should be securely mounted, its wires should not be loose or cracked, and its belts should not be cracked, frayed, or have more than 1/2 inch to 3/4 inch looseness.

The **power steering fluid** should be at the proper level or above the add mark. There should not be any leaks in the reservoir or hoses.

The **steering box** should be mounted securely and not leaking.

The **steering linkage** should not be worn or damaged. There should be no loose or missing nuts, bolts, or cotter keys.

The **air compressor** should be mounted securely, not leaking, and the air compressor belt, if belt driven, should not be cracked, frayed, or have more than 1/2 inch to 3/4 inch looseness.

✓Right Front Suspension, Brakes, and Wheel

■ Right Front Suspension

The **springs** should not be loose, broken, displaced, or missing.

The **spring mounts** should be secure with no cracks and should not have any missing or loose bolts.

The **shock absorber** should be secure, not broken, and should not have any leaks.

■ Right Front Brakes

The **air hose** should be securely mounted, not damaged, and not leaking.

The **air chamber** should be securely mounted, not damaged, and not leaking.

The **slack adjuster** angle between the push rod and adjuster arm should be a little over 90 degrees when the brakes are released, and not less than 90 degrees when the brakes are applied. There should not be any broken, loose or missing parts.

The **brake drum** should not have any cracks, dents, or holes and should not have any missing or loose bolts.

■ Right Front Wheel

The **tire** should have at least 4/32 inch tread depth and should not be a recapped or regrooved tire. The tire should be worn evenly without any cuts or damage to the tread or walls. The air pressure should be proper and the valve cap and stem should not be damaged or missing.

The **rim** should not be bent, damaged, or have any welding repairs.

No **lug nuts** should be missing or loose. There should not be any rust spots that indicate a loose rim.

The **hub oil seal** should not be loose, damaged, or leaking.

✓Right Side of Bus

The **wording and lettering** should be clean.

The **passenger door** should be clean and unbroken.

The **windows** should be clean and unbroken.

The **lights and reflectors** should be clean, unbroken, and of the proper color.

✓Under the Bus

The **fuel tank** should be secure with no leaks. The fuel cap should be secure. The cage surrounding the tank should not be damaged.

The **frame** should have no cracks or damage in either the long or cross members. All nuts and bolts attached to the frame should be secure.

The **exhaust** system muffler and all pipes should be securely mounted, with no holes or severe dents. The tail pipe should extend completely out the back of the bus. No parts should be touching wires, fuel hoses or air hoses.

The **drive shaft** should not be bent or damaged. The universal joints should not be loose and the safety hangers should be in place.

✓Right Rear Suspension, Brakes, and Wheel

■ Right Rear Suspension

The **springs** should not be loose, broken, displaced, or missing.

The **spring mounts** should be secure with no cracks, and should not have any missing or loose bolts.

The **shock absorber** should be secure, not broken, and should not have any leaks.

■ Right Rear Brakes

The **air hose** should be securely mounted, not damaged, and not leaking.

The **air chamber** should be securely mounted, not damaged, and not leaking.

The **slack adjuster** angle between the push rod and adjuster arm should be a little over 90 degrees when the brakes are released and not less than 90 degrees when the brakes are applied. There should not be any broken, loose or missing parts.

The **brake drum** should not have any cracks, dents, or holes and should not have any missing or loose bolts.

■ Right Rear Wheel

The **tires** should have at least 2/32 inch tread depth. Rear tires may be a recapped or regrooved tire, but a retread must not be separating from the tire. The tires should be worn evenly without any cuts or damage to the tread or walls. The air pressure should be proper and the valve caps and stems should not be damaged or missing. The tires should be the same type (radial or bias-ply).

The **rim** should not be bent, damaged, or have any welding repairs.

No **lug nuts** should be missing or loose. There should not be any rust spots that indicate a loose rim.

The **axle seal** should not be loose, damaged, or leaking.

The **spacer** should not be damaged and should be installed properly so that the tires do not touch each other.

✓Rear of Bus

The **wording** should be clean and at least 8 inches in height.

The **windows** should be clean and unbroken.

The **lights** should be clean, unbroken, and of the proper color.

The **door** should open freely from the outside.

The **license plate** should be clean and secure.

✓Left Rear Suspension, Brakes, and Wheel

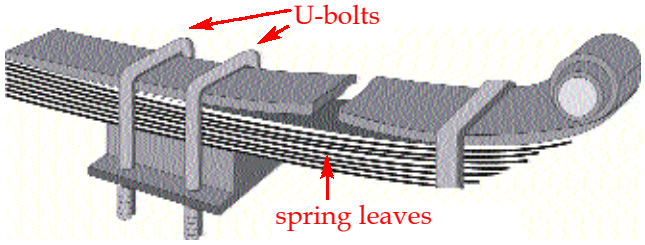
The **left rear Suspension (springs, spring mounts, shock absorber), Brakes (hose, chamber, slack adjuster, drum), and Wheel (tires, rim, lugs, axle seal, spacer)** should meet the same requirements as the right side.

✓Left Side of Bus

The **left side of the bus (wording, windows, lights and reflectors)** should meet the same requirements as the right side. Check that the battery box door is latched and secured. Check that the stop sign is clean and secure.

✓Left Front Suspension, Brakes, and Wheel

The **left front Suspension (springs, spring mounts, shock absorber), Brakes (hose, chamber, slack adjuster, drum), and Wheel (tire, rim, lugs, hub oil seal)** should meet the same requirements as the right side.



Safety defect: broken leaf in leaf spring

✓Passenger Entry

The **steps** should not be damaged and have good tread which is secure.

The **handrail(s)** should be present, secure, and undamaged.

The **door** should be clean, unbroken, and secure.

✓Emergency Equipment

The **first-aid kit** must be present **(required for a school bus)**, secure, and contain the required items.

The **fire extinguisher** must be present **(required for a school bus)**, charged, and the proper type (for electrical and liquid-fuel fires).

✓Passenger Seating, Emergency Exits, and Windows

Check the **seats** for damage. The seat bottoms should be securely fastened to the frames, and the frames should be securely fastened to the floor.

Check that all **emergency exits** open and close properly and that their warning buzzers operate when they are opened. While driving exits should be closed but not locked or blocked.

The **windows, windshield, and all other glass** should be clean and free of any illegal stickers or anything that blocks the driver s view.

✓Pre-Driving Adjustments and Starting Engine

School buses have many makes and models of engines. You must learn the specific procedure for starting a particular school bus during the behind-the-wheel training. However, for most school buses, the following procedure should be used for **pre-driving adjustments and starting the engine:**

Adjust the seat, adjust all mirrors, and fasten the seat belt;
Check the parking brake, depress the brake pedal;
Shift to neutral;
Start engine.

All warning buzzers and lights should be off before starting a trip.

✓Check Gauges

Listen for any unusual engine noises. Check the **oil pressure gauge** to see that it builds normally and that no warning lights remain on. The gauge must come up to the first mark within a few seconds.

The **temperature gauge** should not register "hot". No warning light should be on.

The **fuel gauge** should show that there is enough fuel to complete the trip.

The **battery gauge (ammeter or voltmeter)** should show that the battery is being charged.

✓Check Inside Controls

The **horn** should be audible for at least 200 feet.

The **steering wheel** should have less than two inches of play on a power steering bus.

Interior lights should work.

Heaters and defroster fans should work on both high and low settings.

The **wipers** should work on both low and high settings. The blades should not be damaged and the arms should hold the wipers against the windshield with the proper tension.

✓Check Outside Controls

Check for proper functioning of all outside controls:

Headlights (high and low beam), **high beam indicator, clearance lights, tail lights, brake lights, reverse lights, right and left signals, right and left signal indicator lights, hazard lights, hazard light indicators, warning lights, warning lights indicator, stop lights, stop lights indicator, stop sign** (should come out properly), **stop sign lights, walking control arm** (should come out when the stop sign comes out), **door latch and switch** (should turn the stop lights off and latch properly when the door is shut).

✓Hydraulic Brake Checks

Pump the brake pedal three times. Press the brake pedal firmly and hold for five seconds. The brake pedal should not move. If it moves, there might be a leaking brake line or other problem, and you must have the brakes repaired before driving the bus.

Many brake systems have an electric brake booster in case of loss of brakes caused by engine failure. Check to see that the brake booster light and/or buzzer work properly.

✓Air Brake Checks

Check for **leaks, air warning, and button pop-out: the LAB test. (Failure to do the LAB test during the vehicle inspection will constitute a failure of the vehicle inspection test.)** Let air pressure build to the governed cut-out pressure- 120 pounds per square inch(psi).

Turn off the engine

Leaks - Check that the air pressure is **120 psi**. Press the brake pedal hard and hold for one minute. Listen for leaks and check that the air pressure does not drop more than three psi.

Air warning - Turn ignition key to "on". Reduce the air pressure to **60 psi**. The warning light and buzzer should come on before the air pressure drops below 60 psi. Turn ignition key "off".

Button pop-out - With your foot on the foot brake, release the parking brake button. Reduce air to **30 psi**. The parking brake button should pop out before the air pressure drops below 30 psi.

Start engine and let the air pressure build to normal operating range **(90-120 psi)**.

✓Parking Brake and Service Brake Checks

Parking brake - Check that the air pressure is in the range of **90-120 psi**. Set the parking brake, shift the transmission to drive, and then release the brake pedal. The vehicle should not move (with the engine at a fast idle).

Service brake - Check that the air pressure is in the range of **90 - 120 psi**. Move the bus forward about five miles per hour. Press the brake pedal firmly. **Note any problems with the brakes such as unusual noise, unusual feel, pulling to one side, or delayed stopping.**

The pre-trip inspection will be taught in the behind-the-wheel phase of your training.

No additional seats may be added to the bus.

If you find anything unsafe during the pre-trip inspection, get it fixed! Federal and state laws, as well as school bus rules, forbid operating an unsafe vehicle.

TEST YOUR KNOWLEDGE

1. List five things you should check inside the bus during a pre-trip inspection.

2. Name some potential suspension system defects.

3. Name two pieces of emergency equipment required to be aboard the school bus.

4. What is the minimum tread depth for rear tires?

5. Name some components you should check at the front of the bus during the pre trip, walk around inspection.

6. Why should hub oil seals be checked?

7. How do you test air brakes for leaks?

Multiple Choice Questions

1. What is the minimum tread depth for front tires?
a) 3/42 of an inch;
b) 3/20 of an inch;
c) 4/32 of an inch;
d) 4/30 of an inch.

2. What is the most important reason for doing a vehicle inspection?
a) to give the mechanic something to do;
b) to assist the principal with his report;
c) to increase monthly pay checks;
d) for safety/ required by Federal and state laws.

3. L-A-B is used to describe:
a) the stop light system;
b) accident prevention formula;
c) adverse weather conditions;
d) Air Brake Test.

Starting the Engine

School buses have many different makes and models of engines. You must learn the specific procedure for starting a particular school bus during behind-the-wheel training. However to start most school buses, follow this general procedure:

1. Check that the parking brake is set and fasten the driver s seat belt.

2. Start the engine, in neutral.

3. Allow the engine to warm up for a sufficient amount of time so that it will operate smoothly. Never race the engine during the warm-up period; racing the engine will cause severe damage.

Inspection Outline

1. Overview: damage, possible problems, leaks under engine.

2. Front: wording, windshield, headlights, clearance lights, stop lights, warning lights, signals, walking control arm, stop sign, mirrors.

3. Under Hood: oil, coolant, water pump, hoses, alternator, power steering fluid, steering box, steering linkage, air compressor (master cylinder on hydraulic systems).

13. Left Front Suspension: springs, spring mounts, shock absorber (same as right side).

Left Front Brakes: hose, chamber, slack adjuster, drum (same as right side).

Left Front Wheel: tire, rim lugs, hub oil seal (same as right side).

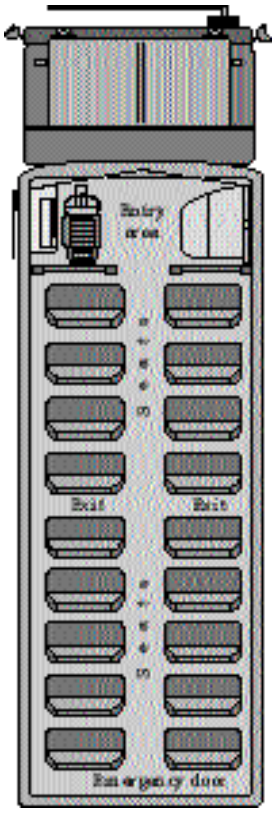
12. Left Side of Bus: wording, windows, lights, reflectors (same as right side).

11. Battery box.

10. Left Rear Suspension: springs, spring mounts, shock absorber (same as right side).

Left Rear Brakes: hose, chamber, slack adjuster, drum (same as right side).

Left Rear Wheel: tire, rim, lugs, axle grease seal, spacer (same as right side).



9. Rear of Bus: wording, windows, clearance lights, stop lights, warning lights, brake lights, signals, reverse lights, door, license plate.

4. Right Front Suspension: springs, spring mounts, shock absorber.

Right Front Brakes: hose, chamber, slack adjuster, drum.

Right Front Wheel: tire, rim, lugs, hub oil seal.

5. Right Side of Bus: door, wording, windows, lights, reflectors.

6. Fuel Area: fuel cap, fuel tank, leaks.

7. Under Bus: frame, exhaust, drive shaft.

8. Right Rear Suspension: springs, spring mounts, shock absorber.

Right Rear Brakes: hose, chamber, slack adjuster, drum.

Right Rear Wheel: tires, rim, lugs, axle grease seal, spacer.

Interior of Bus

1. Passenger Entry: steps, handrail(s), door.

2. Emergency Equipment: fire extinguisher, first aid kit.

3. Passenger Seating, Emergency Exits and Windows.

4. Pre-Driving Adjustments: seat, mirrors, seat belt.

5. Start Engine.

6. Check Gauges: oil, temperature, fuel, battery, air.

7. Check Inside Controls: horn, play in wheel, interior lights, heaters and defrosters, wipers.

8. Check Outside Controls: headlights, clearance lights, tail lights, brake lights, reverse lights, right signals, left signals, hazard lights, warning lights, stop lights, stop sign, walking control arm, door switch, all indicator lights.

9. Brake Checks: leaks, air warning, button pop-out, parking brake, service brake

(On hydraulic systems, check for hydraulic pressure problems and check booster motor, if applicable.)

Moving the Bus

Before moving the bus, you should first turn on any necessary electrical switches such as headlights, defrosters, turn signals, etc. Then to move the bus, follow this procedure:

Depress the brake pedal firmly;
Release the parking brake;
Select the proper gear;
Check traffic;
Re-check traffic as the vehicle begins to move.

Steering and Stopping the Bus

If you are an accomplished, smooth bus driver you will be safe and will have the respect of your passengers.

Steer smoothly, turning the wheel with a "hand over hand" motion. Always keep both hands on the steering wheel at the "ten o clock" and "two o'clock" positions. Driving with both hands on the steering wheel is much safer than driving with only one hand. If you are forced to steer quickly or with a jerking motion, you are traveling too fast for the maneuver.

Always use your right foot for normal braking. A school bus is much heavier than other smaller vehicles, and it requires the driver to begin braking earlier in order to stop smoothly. For a smooth stop, "feather" the brake by

slightly reducing pressure on the brake pedal at the instant just before the bus stops rolling. The "feathering" action will release a small amount of brake pressure just before the stop is completed, making a smoother stop. Except in an emergency or to prevent a collision, you should never stop suddenly.

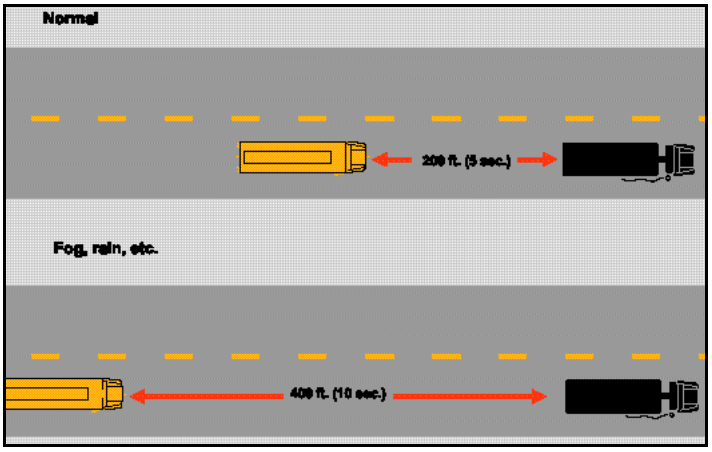
To keep from rolling backward on an uphill grade , it is permissible to use your left foot to press the brake while you begin to accelerate with your right foot. As the bus starts to move forward, gradually release the brake with your left foot until the bus no longer roll backwards and continue to move ahead.

Safe Following Distance for the School Bus

You must always maintain a safe following distance between the school bus and a vehicle traveling ahead. This following distance should be long enough for you to be able to safely and smoothly stop the bus under any conditions. Constant practice to accurately estimate following distance can keep you prepared for most circumstances. The most important rule of maintaining a safe following distance is to keep at least **five seconds** behind the vehicle in front of you when weather and road conditions are normal and at least **10 seconds** behind the vehicle ahead when conditions are hazardous. For city driving, following distances must sometimes be changed to fit smoothly with the flow of traffic.

Motor Vehicle law provides that the driver of a motor vehicle shall not follow another vehicle more closely than is reasonable and prudent, with regard for the safety of others.

Never follow more than one school bus moving through a city block at the same time. When following two school buses, maintain at least one city block s distance between your bus and the pair ahead. In the afternoon, proper bus dispatching from the school should eliminate most instances of school buses following each other too closely. According to DMV records, unsafe following distances contribute to a large percentage of school bus driver violations.



Following distance may vary according to conditions.

Stopping Distance

There are four components of total stopping distance:

Perception distance
Reaction distance
Brake lag distance (for vehicles with air brakes)
\+ Effective braking distance

= Total stopping distance

✓Perception Distance

This is the distance your vehicle travels between the moment when your eyes physically see a driving hazard and the instant when your brain recognizes the hazard (perception time). The average perception time for an alert driver is about 3/4 second. Perception distance varies directly with the vehicle s speed of travel. A vehicle moving at 55 miles per hour travels 60 feet in 3/4 second. Therefore the average perception distance for an alert driver moving at 55 miles per hour is 60 feet.

✓Reaction Distance

This is the distance your vehicle travels during the period of time when your brain recognizes the driving hazard and the moment when you press the brake pedal. The average, alert driver has a reaction time of 3/4 second, accounting for an additional 60 feet of travel for the vehicle moving at 55 miles per hour.

✓Brake Lag Distance

For vehicles with air brakes, there is approximately a 1/2 second delay in brake response time from the moment when you press the brake pedal to the point when the brakes engage. This delay is caused by the amount of time required for the air to flow through the brake lines. During the average 1/2 second brake lag delay, the vehicle moving at 55 miles per hour will travel an additional 32 feet.

✓Effective Braking Distance

This is the distance it takes to stop your vehicle after you have pressed the brake pedal and engaged the brakes. With good brakes and in normal driving conditions (dry pavement, level roadway, etc.), a heavy vehicle moving at 55 miles per hour, such as a school activity bus, usually will require at least 170 feet of braking distance and a period of 4 1/2 seconds to stop.

✓Total Stopping Distance

The total stopping distance for a vehicle is the sum of the perception, reaction, brake lag* and braking distances. A heavy vehicle moving at 55 miles per hour will need at least six seconds to stop and a minimum total stopping distance of 322 feet, about the length of a football field.

60 ft. perception distance
60 ft. reaction distance
32 ft. brake lag distance*
170 ft. effective braking distance
322 ft. total stopping distance

**Included if vehicle has air brakes*

✓The Effect of Speed on Stopping Distance

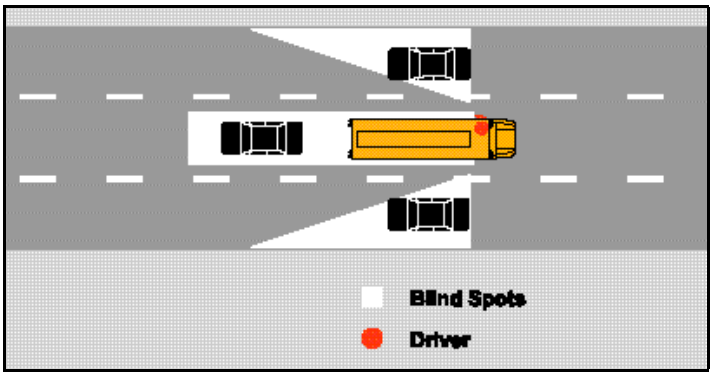
Moving at a higher speed greatly increases a vehicle s required stopping distance. When the speed of travel is doubled, the corresponding braking distance increases by four times. This formula also applies to the destructive power of speed during a collision. When a vehicle travels twice as fast, it increases its destructive power in a crash by four times. By slowing down, you can stop a vehicle more quickly and reduce the risk of a collision.

✓The Effect of Vehicle Weight on Stopping Distance

A heavy vehicle requires more braking power to stop than a lighter one because the heavier vehicle creates more friction and heat for the brakes to absorb. The brakes, tires, springs and shock absorbers for heavy vehicles are designed to work best when the vehicle is fully loaded. For example, an empty truck can require a greater stopping distance because it weighs less than a fully loaded truck and consequently has less traction with the road. It can brake poorly by bouncing on the road and locking its wheels. School buses, however, do not normally have this problem.

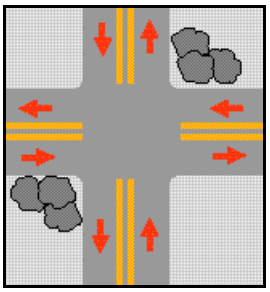
Changing Lanes

When you drive a school bus in an urban/suburban area you must frequently change lanes. Changing lanes with a school bus requires greater concentration and more careful use of mirrors than changing lanes with a car. To change lanes with a school bus, you should signal early, thoroughly check mirrors and blind spots and gradually move into the new lane. When you have positioned the bus in the new lane, remember to disengage the turning signal.



The three cars in this illustration cannot be seen by the bus driver.

Approaching an Intersection



Intersections occur at points where roads and streets join, meet or cross. They can be different sizes and shapes depending on the angle(s) by which the roadways meet. Intersections are the most dangerous places on a roadway; more collisions occur at intersections than at any other place. Be prepared to stop each time you approach an intersection.

✓Right of Way

There are two types of intersections, regulated and unregulated. Regulated intersections have traffic control devices, such as a signal or sign. Unregulated intersections have no traffic signals or signs. When approaching an unregulated intersection, you are bound by law to reduce speed, check traffic to see that you can proceed and continue to move only when others have yielded right of way to you. If another vehicle is already in or very near the intersection, you must yield right of way to that vehicle. When two vehicles arrive at an unregulated intersection at the same time, the vehicle on the left always yields right of way to the vehicle on the right. Note that the law only names the vehicle that must yield right of way; it never states that any vehicle expressly has the right to proceed. Right of way laws are designed to prevent collisions by prescribing which vehicle must move last.

✓Yield Signs- Regulated Intersection

Because of the restricted visibility, slow acceleration and length of a school bus, you must use extreme caution as you approach a yield sign. Approach the intersection where you must yield at a speed that is reasonable for the existing conditions but slow enough to allow you to stop the bus and yield right of way to another vehicle in the intersection or to avoid a hazard.

✓Stop Signs- Regulated Intersection

You must completely stop at every intersection where there is a stop sign for your lane of traffic. Resume travel only when you can move the bus without interfering with the movement of another vehicle. Before proceeding you should look in all directions at least twice to check for approaching traffic. If the intersection is clear, proceed to move ahead or turn with caution.

✓Traffic Signals- Regulated Intersection

Approach each traffic signal (traffic light) expecting that it could change color at any moment. Always obey the color of the traffic signal:

- **Red light:** Stop completely and wait for the green light before proceeding. School buses must not turn "right on red".
- **Yellow light:** Prepare to stop for the red light that will follow.
- **Green light:** Check to be sure that approaching traffic is stopped and proceed with caution.
- **Flashing yellow light:** Slowly proceed with caution.
- **Flashing red light:** Stop completely, check for approaching traffic and proceed with caution when it s safe to move (same as stop sign).

✓Traffic Officer- Regulated Intersection

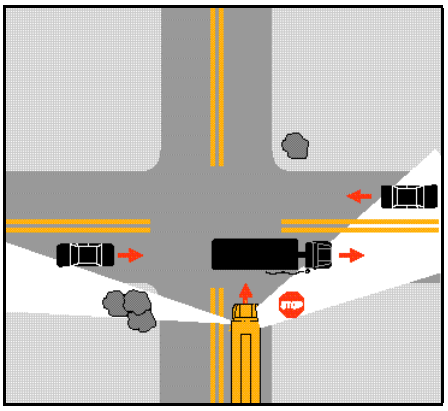
A uniformed traffic officer always has authority above regular traffic signs and signals. You must follow the officer s instructions regardless of the regular traffic devices. When an officer is directing traffic, there is usually a specific problem or hazard. There could be a collision ahead, malfunctioning traffic signal or missing sign. Always obey the officer's instructions, even if the regular traffic devices appear to be functioning properly.

✓Private Drive

When leaving a driveway, you must always yield right of way to the approaching vehicles on the roadway where you are entering. Check for approaching traffic and proceed with caution when it s safe to move (same as stop sign).

✓Crossing Main Highways

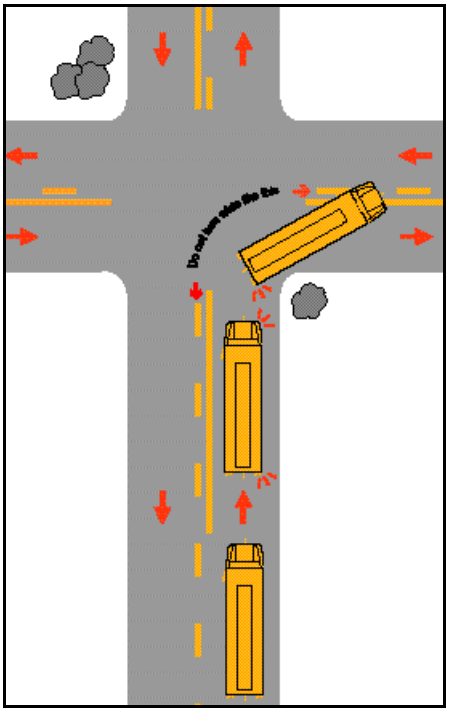
Use extreme caution while crossing or entering a major highway. When moving from a complete stop, a school bus normally requires at least six seconds to cross and clear an average two-lane highway. Multi lane highways, especially divided highways, require even more time. An automobile traveling at 55 miles per hour can move 485 feet in six seconds. Before you move the bus onto a highway be certain that you have enough time to safely clear the intersection. Always **check and recheck for approaching traffic** before entering or crossing any road. Look first to the left, where the hazard of approaching traffic is closer. **The slogan for the school bus driver must be:** ***"The school bus driver never has right of way."***



Bushes, signs and other vehicles can block a driver s view

While driving the bus you must never take a risk. You should be a courteous driver and remember that the law requires you and all drivers to yield right of way to pedestrians and vehicles on narrow bridges, on the roadway, at intersections, and in any hazardous situation.

Turning the Bus

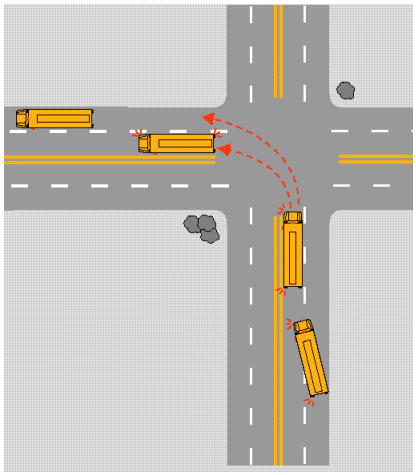


A safe and proper right turn.

Many collisions result from improper and unsafe turns. Errors such as moving to fast; turning too soon; striking an object on the right or left; turning from the wrong lane and failing to yield right of way are common contributors to collisions. Many of these mistakes can be prevented by following safe driving habits such as knowing in advance where you are going and getting into the proper lane well in advance of the turn, turning carefully and deliberately using hand-over-hand steering, and always being prepared to stop or yield the right of way. Be sure to turn into a lane that is both lawfully available and the one that will benefit you the most down the road. In addition to these preventive measures, the following standard procedure should be used in making a safe turn:

Get in the proper lane well in advance of the turn!

1. Check traffic (to the front, rear, and sides).
2. Engage the turn signal 300 feet in advance.
3. Slow gradually to 10 mph or less at least 50 feet before the turn.
4. Check traffic (to the front, rear, and sides).
5. Check clearance while turning.
6. Straighten the bus and check traffic (to the front, rear, and sides).
7. Check that signal cancelled.



A safe and proper left turn.

TEST YOUR KNOWLEDGE

1. When does the bus driver have the right of way?

2. True or false: If you swing the bus far to the left before turning right, another driver may try to pass you on the right.

3. What is brake lag?

4. True or false: Doubling your speed also doubles your vehicle s required stopping distance.

5. What are the procedures for making a turn and changing lanes?

Multiple Choice Questions

1. What items make up total stopping distance?
a) good brakes;
b) strong foot, good tires;
c) perception, reaction, brake lag, and braking distance;
d) perception, brake lag, and following.

2. When making a turn, how far in advance should you engage your turn signal?
a) 500 feet;
b) 200 feet;
c) 300 feet;
d) 400 feet.

3. What is the definition for reaction distance?
a) the distance a driver travels before he realizes there is a discipline problem;
b) the distance he travels after applying the brakes;
c) the distance traveled while moving his foot from accelerator to brake pedal;
d) braking distance minus perception distance.

Backing

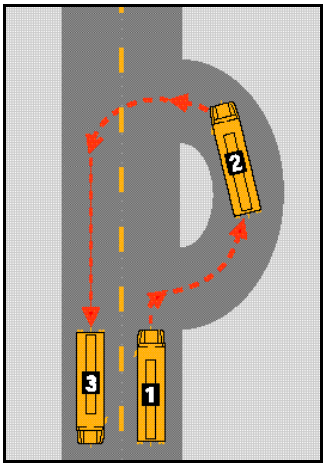
Never back the school bus unless it is absolutely necessary. But if you must, remember that there are several things you can do to insure safety. Approaching traffic may not know that you are backing, so using the hazard lights (four-way flashers) and blowing the horn will help alert them to your maneuver. Since there are blind spots that your mirrors cannot show you, appoint a responsible person to be a monitor at the inside rear of the bus to help you see what is behind the bus. Verbally communicate with the monitor before you begin and while backing. Check traffic to the front, rear, and sides both before and throughout the maneuver, using mirrors as needed. Many collisions happen because a driver is backing too fast. Therefore, always back at a slow, idle speed without using the accelerator and be prepared to stop for problems or improper position. Repositioning the bus may sometimes be necessary. Using these safe driving practices, the following procedures will help insure safety while backing:

1. Check traffic (front, rear, and sides).
2. Engage hazard lights (four-way flashers).
3. Communicate with monitor.
4. Blow horn.
5. Back slowly, with no acceleration.
6. Continue to check traffic and with monitor.

Never back the bus to pick up passengers!

Turning the Bus Around

Consult with the school principal to select the safest place to turn the school bus around. A safe place for turning around should have at least 500 feet of unobstructed visibility in both directions and plenty of clearance for all sides of the bus. Using an unsafe place for turning around could eventually lead to a collision. Report any unsafe conditions at a turn-around point to the school principal. **There are three methods of turning the bus around: the forward turn around, right side road turn around and left side road turn around.**

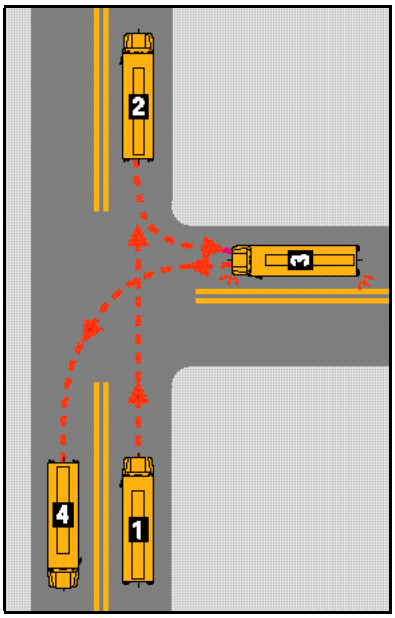


Forward turn (no backing).

Each maneuver is described, listed in preferential order for safety:

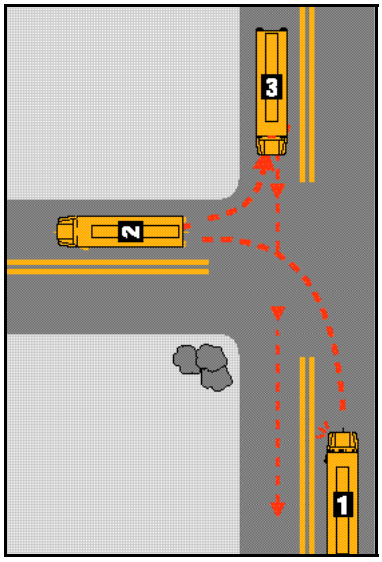
1. **Forward turn around:** Because backing the bus is an extremely dangerous procedure, the safest way to turn around is to avoid backing and use a forward turn-around instead. To perform the forward turn around, you select an adequately sized, safe area away from the road, such as a parking lot, where you can slowly move the bus forward in a wide circle to turn around.

2. **Right side road turn around:** The second safest method for turning the bus around is to use a side road on the driver s right side. To perform the right side road turn around, select a safe, intersecting side road on the right. Drive far enough past the side road to clearly see it behind and to the right of the bus. Activate your hazard lights, sound your horn, and use a monitor. To turn around, cautiously back the bus onto the side road and then turn left into the correct lane of travel.



Side road (right).

3. **Left side road turn around:** Sometimes you might have no choice for turning the bus around except to use a side road on the left. To perform the left side road turn around, you should make a standard left turn onto a safe, intersecting side road. Activate your hazard lights, sound your horn, and use a monitor. Then cautiously back right onto the main road to turn the bus around. **If you must perform this maneuver, move cautiously: Backing onto a main road is very dangerous.**



Side road (left).

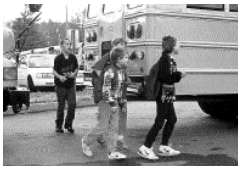
For safety, remember these important rules for turning the school bus around:

- Turn around only at places designated by the principal.
- Always keep the bus in the proper lane of travel.
- Observe all the precautions for backing.
- **If you must turn the bus around by backing at a passenger stop, make sure all the passengers are on the bus while you are backing. If you are <u>loading passengers</u> at the turn around point, <u>load them onto the bus before you back</u>. If you are <u>unloading passengers</u> at the turn around point, <u>back the bus before they are unloaded</u>.**

◆ On a divided highway, the bus may not be able to make a U-turn from one inside lane to the opposite inside lane. Because divided highways are often heavily traveled, a U-turn at a median crossover point is extremely hazardous.

◆ Inform the school principal and transportation director of any turnaround problems you might notice on your route.

Speed Limits for School Buses



By North Carolina Law:

◆ Basic speed regulations (N.C. General Statute 20-141) require every driver to maintain a speed that is "reasonable and prudent" under the existing conditions. When weather, road or vehicle conditions are hazardous, reduce speed.

◆ Except when the posted speed limit is lower, the maximum speed limit for a school bus is 45 miles per hour.

◆ Drive the bus with the flow of traffic, but never move at an illegal or unsafe speed.

◆ On school grounds, the maximum speed limit for the school bus is 10 miles per hour.

◆ The maximum speed limit for a school activity bus is 55 miles per hour.

Governor

The speed control governor is installed for the safety of everyone who rides the bus. Never tamper with the speed governor. If it is not working properly, immediately report the malfunction to the school principal.

Tachograph

A tachograph or some other electronic device sometimes is installed on a school bus to survey and report driving routines. These devices can record the time of day for each bus stop and start, the duration of each stop, the amount of driving time between stops and the speed of travel.

Passenger Stops

DMV collision reports show that some of the most serious school bus collisions occur while passengers are loading and unloading. Always use great care any time passengers are outside the bus. After unloading passengers, check to be sure they have moved a safe distance from the bus before you proceed ahead. For passengers who must cross to the opposite side of the roadway from the bus stop, check to be sure they have safely cleared the road before you move the bus.

When children who are six years old or younger must cross the road in front of the bus after unloading, there is a great potential for a fatality. Even with the passenger mirrors, small children can be difficult for the driver to see over the hood as they cross in front of the bus. **The walking control arm is designed to force passengers to cross in front of the bus at a distance from the hood where they will be easier for the driver to see. However, always check to make sure no one is in front of the bus by counting the passengers as they unload and counting them again when they are safely off the roadway on each side.** Children living on the left side of the road should be away from the bus and off the roadway on the left. **If both counted totals are not the same, you must locate each missing child before moving the bus.** Be especially sure to check the passenger mirrors closely. **Frequent use of the passenger mirrors at each passenger stop cannot be overemphasized.**

School Bus Stop Law

The ***N.C. School Bus Stop Law (N.C. General Statute 20-217)*** exists to protect children at school bus passenger stops and to enhance traffic safety. Each procedure detailed by the law is designed to minimize the dangers of loading and unloading the school bus. The school bus stop law names specific instances when an approaching motor vehicle is required to stop for a properly marked, designated school bus:

a. The driver of any vehicle upon approaching from any direction on the same street, highway, or public vehicular area, any school bus (including privately owned buses transporting children and school buses transporting senior citizens under G. S. 115C-243), **while the bus is displaying its mechanical stop signal or flashing red stop lights, and is stopped for the purpose of receiving or discharging passengers,** shall bring his vehicle to a full stop before passing or attempting to pass the bus, and shall remain stopped until the mechanical stop signal has been withdrawn, the flashing red stop lights have been turned off and the bus has moved on.

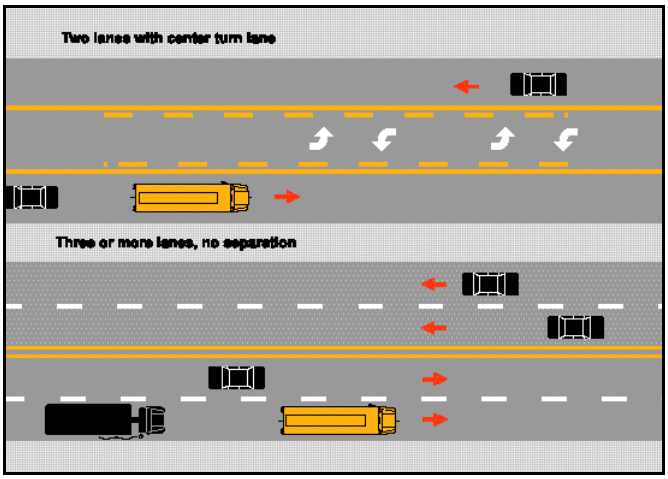
b. The provisions of this section are applicable only in the event the school bus bears upon the front and rear a plainly visible sign containing the words "school bus" in letters not less than eight inches in height.

c. Notwithstanding the provisions of subsection (a), the driver of a vehicle traveling in the opposite direction from the school bus, upon any road, highway or city street which has been divided into two roadways, so constructed as to separate vehicular traffic between the two roadways by an intervening space (including a center lane for left turns if the roadway consists of at least four more lanes) or by a physical barrier, need not stop upon meeting and passing any school bus which has stopped in the roadway across such dividing space or physical barrier.

d. It shall be unlawful for any school bus driver to stop and receive or discharge passengers or for any principal or superintendent of any school, routing a school bus, to authorize the driver of any school bus to stop and receive or discharge passengers upon any roadway described by sub-

section (c) of this section where passengers would be required to cross the roadway to reach their destination or to board the bus; provided, that passengers may be discharged or received at points where pedestrians and vehicular traffic are controlled by adequate stop-and-go traffic signals.

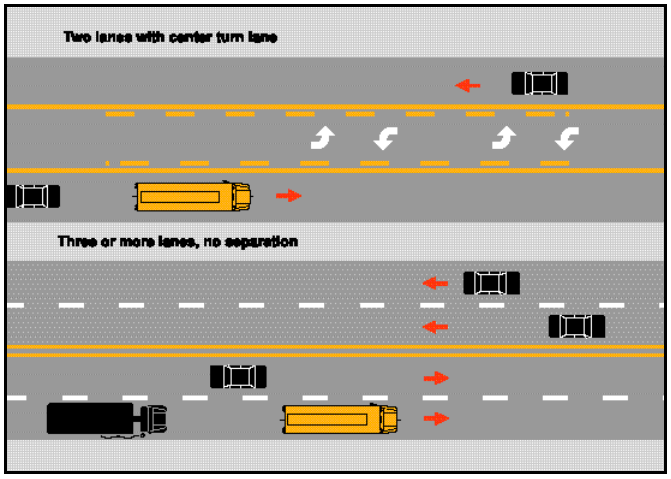
e. Any person violating the provisions of this section shall be guilty of Class II misdemeanor.



All traffic in both directions must stop.

To legally oblige approaching traffic to stop, a school bus must be stopped, displaying an activated stop sign and be in the process of loading or unloading passengers. If the stop sign, amber warning lights, or red stop lights on the school bus are malfunctioning, do not make passenger stops; have them repaired before continuing. You must activate the stop sign, amber warning lights, or red stop lights only at passenger stops for loading and unloading passengers from the bus you are driving. Improper use of the stop system could cause collisions, injuries and even fatalities.

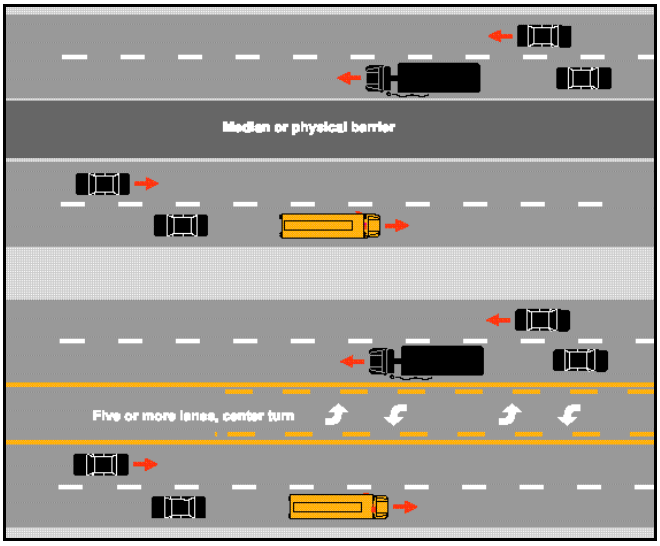
If someone passes the school bus while you are loading or unloading passengers, gather as much information about the driver as you can, the ability to confidently identify the driver visually is always best. Try to estimate and note the driver s age, gender and skin tone as well as the license plate number of the vehicle. It is crucial also to note the date, time of day and location of the incident. Additional information such as the color and make of the vehicle also can be helpful.



All traffic in both directions must stop.

Violation of the school bus stop law carries the penalty of more driver license points than any other driving violation in North Carolina. Five points are assessed if the violation occurred in a classified vehicle, eight in a CMV. Drivers who violate this law greatly endanger the lives of school bus passengers. Do your part to have these dangerous drivers convicted. Report their actions to your principal, who will assist you in making a report to the proper law enforcement agency.

On highways with a median, barrier or fifth lane in the center used for left turns, traffic going in the opposite direction from that of the bus need not stop. **The principal should not set up a passenger stop that requires crossing such a road to or from the left.**



Traffic moving in the opposite direction need not stop.

✓Passenger Stops General Observations

1. **Passenger stops should be made in safe places only.** Motorists approaching from both directions should have a clear view of the bus for a distance of at least 500 feet, if possible. Stops should not be made just below the crest of a hill, on a blind curve or on a steep grade. Stops should be spaced at least two-tenths of a mile apart. Although the principal is charged with setting routes and stops, the driver should report any problem at a stop to the principal.
2. Stop the bus on the main portion of the road in the extreme right-hand lane 15 feet short of the passengers. Never pull to the shoulder of the road to make a passenger stop.
3. Have passengers wait until the stop-sign is out and the door is open before crossing the road.
4. Never argue with a parent at a passenger stop; ask the parent to contact the principal.

5. Never let a discipline problem on the bus or any other distraction interfere with checking your passenger mirrors just before leaving a passenger stop.

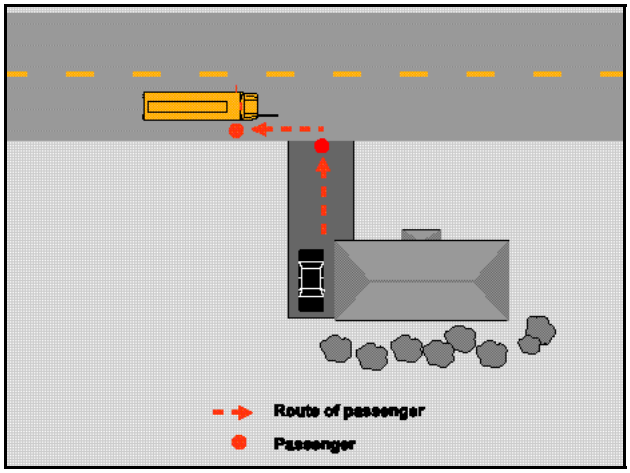
✓Never Back at a Passenger Stop

If a driver passes by a student at a passenger stop, he should not back up to pick up the student. Let the student come to the bus. If the route calls for the driver to turn around at a passenger stop, the students who get on or off at that stop should be on the bus while it is backing.

Passenger Stop Procedure

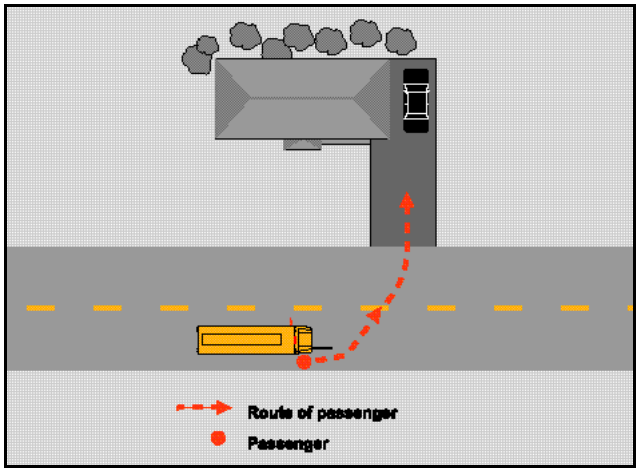
✓Eight-Light System - Automatic Transmission

1. Check traffic.
2. Activate amber warning lights 300 feet in advance of passenger stop.
3. Make a smooth stop 15 feet short of passengers.
4. Keep firm pressure on foot brake.
5. Check traffic.
6. Open door (when safe).
7. Count, watch and recount students (loading and unloading).
8. Close door (when safe).
9. Check mirrors from left to right for students and traffic.
10. **Proceed slowly while checking for students.**



Morning and afternoon stops for students living on the right.

Do not release the stop sign until all students are either on the bus or well off the road on their side of the street or highway. **Always check the passenger mirrors just before leaving a passenger stop. If the driver cannot account for each passenger at a stop, he should not move the bus until he gets out and checks around and under the bus.** Students should remain seated until the bus has come to a complete stop and only then move forward to leave the bus. After passengers have boarded the bus, the driver should not move the bus until students are seated.



Morning and afternoon stops for students living on the left.

Loading the School Bus

The seemingly simple operation of loading and seating passengers at stops is not as simple as some may believe. The driver and principal should work together in assigning seats to students for several reasons:

1. Speeds up loading and unloading along the bus route.
2. Lessens confusion and delay over what seat to take.
3. Allows equal weight distribution on each side of bus.
4. Helps the driver maintain better discipline and pupil relations.
5. Aids the driver in determining who may have damaged or defaced seats, windows, etc. The driver is required to walk to the rear of the bus after each trip and check for any damage done by the passengers. When damage has been done, it should be reported to the principal as soon as possible.

In the afternoon, the bus driver should be at the bus to assist in proper loading and to see that pupils take their assigned seats. Loading the bus at school in the afternoon should be supervised by school authorities so that the loading operation is carried out safely and with as little confusion as possible.

Public Relations

The school bus driver accepts certain responsibilities to the community he serves in addition to his responsibility to the students who ride his bus. He should recognize that there is a very definite value in knowing the parents of the pupils who ride his bus. Parents are interested in their children and appreciate knowing the driver who is transporting them. Any interest displayed by the driver will cultivate respect for him on the part of the parents and will make the job of driving the school bus more enjoyable and successful.

The school bus driver accepts certain responsibilities to the community he serves, in addition to his responsibility to the students who ride his bus.

Refer parents to the principal for any request of change of stop, route or schedule, or discipline problems. Inform them of any developments affecting the operation of the school bus, such as change of schedule and days when the bus may be late. An understanding between the parents and the driver will develop close harmony and make it possible for the driver to perform his duties more efficiently and safely.

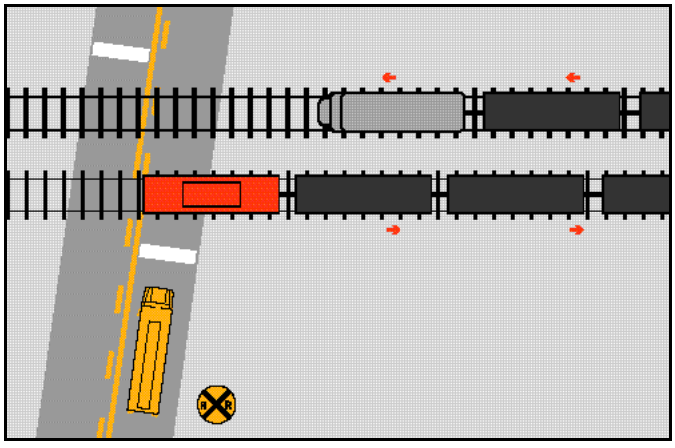
The driver s conduct, personal appearance and the appearance of the bus he drives leave an impression on parents, other motorists and the general public. That impression should always be a good one.

Railroad Crossing

School buses and school activity buses must stop at all railroad crossings.

Some tragic collisions involving school buses have occurred at railroad grade crossings. Bus drivers and passengers should follow proper procedures at all times when crossing tracks. The school bus driver should:

1. Check traffic and turn on hazard lights.
2. Stop at least 15 feet, but not more than 50 feet from the track.

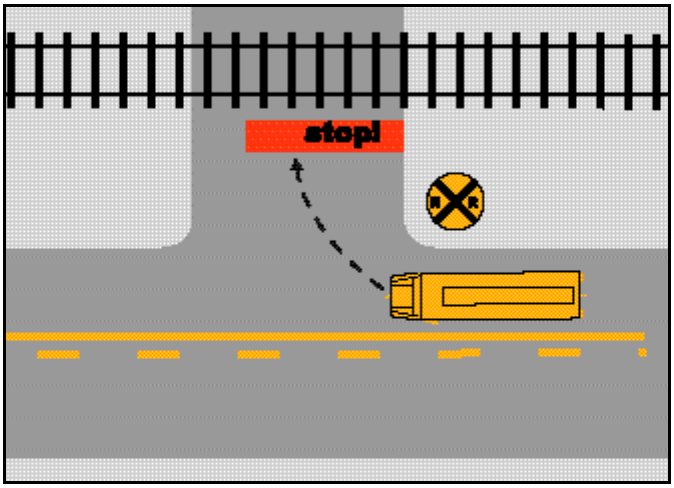


Federal law requires that school buses, and activity buses must stop at all railroad crossings within 50 feet of the nearest rail but no closer than 15 feet.

3. Turn off any accessories that prevent good hearing, open window and door, look and listen.
4. Close door, recheck track(s), proceed if safe.
5. After crossing tracks, turn off hazard lights, close window.

Additional Safe Driving Tips at Railroad Crossings are as follows:

- If you see or hear a train approaching, or the lights are flashing and/or the crossing gates are down, do not cross the tracks; shift to neutral, set the parking brake, and keep firm pressure on the foot brake.
- Be sure to look carefully in both directions. Look carefully at double tracks. One train might hide another.
- Never drive onto a track until you can drive all the way across.
- Accelerate enough so that the bus does not stall on the tracks.
- Never stop the bus on the track for any reason.
- When turning near a track, a turn signal should be used instead of the hazard lights.



Use extreme caution at all railroad crossings.

Every situation cannot be discussed in this handbook, but the driver should study the following examples and consider other situations that might arise. By considering problems and possible solutions before they actually occur, the driver is better prepared to take the correct action quickly.

Example: A school bus stalls on a railroad crossing; no train appears to be coming. The driver remains calm and tries to start the bus to drive it off the track. When two attempts to start the bus fail, he immediately has all the passengers evacuate the bus using the front door. (See the emergency evacuation procedures.) A responsible passenger leads the other passengers to a safe place away from the bus and takes charge of them there. The driver, taking every precaution, attempts again to move the bus off the tracks. By keeping a constant and careful watch for any approaching train, he can leave himself ample time to evacuate the bus before it is hit.

Example: If a train is approaching, do not delay. Instead, evacuate the bus immediately, using both front and rear exits.

The driver should report instances of this nature to the principal immediately. The bus should be checked thoroughly by the mechanic and the necessary repairs made, so that the bus will not stall again.

Parking the Bus

Care should be taken to park the bus in a safe designated area not open to vandalism. In parking the bus, the driver should:

- Use the designated area.
- Parking Procedures
  1. Shift to neutral.
  2. Set the parking brake.
  3. Turn off all equipment switches.
  4. Turn off ignition.
  5. Reduce air pressure until Button Pop-out.
- Close all windows, roof hatches and doors.
- Check interior for any damage, items left on the bus, and walk the aisle to check for passengers.
- Sweep the interior of the bus.
- Use chock blocks, if provided, to help ensure the bus will not roll off.
- Report equipment defects to the principal.
- Report to the principal any hazardous conditions observed along the bus route.

TEST YOUR KNOWLEDGE

1. What is the basic speed law?

2. What is the maximum speed limit for an activity bus?

3. Must school buses or school activity buses stop at every railway grade crossing?

4. What is the purpose of the passengers mirrors?

5. What is the proper procedure for stopping at a railroad grade crossing?

6. What is the school bus stop law?

7. What is the proper procedure for making passenger stops?

8. When does a bus driver load passengers at a turnaround point?

Multiple Choice Questions

1. What is the maximum speed limit for a regular school bus ?
   a) 25 mph;
   b) 35 mph;
   c) 45 mph;
   d) 55 mph.

2. How far from the nearest rail of a railway grade crossing must a driver stop the school bus ?
   a) 15 feet;
   b) 20 feet;
   c) 10 feet;
   d) 30 feet.

3. Which of the following conditions must exist for a motorist to be in violation of the school bus stop law?
   a) the bus is displaying its mechanical stop signal or flashing red stop lights;
   b) the bus is stopped;
   c) the bus is receiving or discharging students;
   d) all of the above.

Chapter Five: Defensive Driving

Six Adverse Driving Conditions Can Lead to Collisions

The Six Adverse Conditions are:
1. Light
2. Weather
3. Road
4. Traffic
5. Vehicle
6. Driver

Defensive driving is driving to prevent collisions in spite of the incorrect actions of others and adverse conditions.

1. Light Conditions

Light problems are the result of either too much or too little light. The bus driver must cut down on the amount of light where there is too much and add light where there is too little. Because it is difficult to see for any distance in either case, the driver should slow down so that he can stop within the area that he can see. When it s hard to see, at dawn or dusk or in rain or snow, you need to make it easier for the bus to be seen. If you are having trouble seeing other vehicles, other drivers will have trouble seeing you. Turn on your **low beam headlights**; high beams can bother people in the daytime as well as at night. **Do not drive with parking lights on.**

■ **Night Driving.** You are at greater risk when you drive at night. Drivers can t see hazards as quickly as in daylight, so they have less time to respond. Drivers caught by surprise are less able to avoid a crash. The problems of night driving involve several factors. Let s discuss some of these factors.

◆ **Vision.** People can t see as well at night or in dim light. Also, the eyes need time to adjust to dim light.

◆ **Glare.** Drivers can be blinded for a short time by bright light. It takes time to recover from this blindness. Most people have been temporarily blinded by camera flashes or by the high beams of an oncoming vehicle. It can take several seconds to recover from glare. Even two seconds of glare blindness can be dangerous. A vehicle going 55 mph will travel more than half the distance of a football field during that time. Don t look directly at bright lights when driving. Look at the right side of the road and reduce your speed.

When the sun is low on the horizon in the early morning or late afternoon, it can shine directly into the driver s eyes. Less light means you will not be able to see hazards as well as in daytime. Anything without lights is hard to see. Many collisions at night involve pedestrians, joggers, bicyclists and animals.

■ **Vehicle Factors**

✓ ***Headlights.*** At night your headlights will usually be the main source of light for you to see and for others to see you. You can't see nearly as much with your headlights as you can see in the daytime. With low beams you can see ahead about 250 feet and with high beams about 350-500 feet. **Adjust your speed to keep your stopping distance within your sight distance.** This means going slow enough to be able to stop within the range of your headlights. Otherwise, by the time you see a hazard, you will not have time to stop.

Night driving can be more dangerous if you have problems with your headlights. Dirty headlights may give only half the light they should. This cuts down your ability to see, and makes it harder for others to see you. Make sure your lights are clean and working. Headlights can be out of adjustment. If they don't point in the right direction, they don't give you a good view and they can blind other drivers. Have a school bus mechanic make sure they are adjusted properly.

✓ ***Use High Beams When You Can.*** Some drivers make the mistake of always using low beams. This seriously cuts down on their ability to see ahead. Use high beams when it is safe and legal to do so. Use them when you are not within 500 feet of an approaching vehicle. Also, don't let the inside of your bus get too bright. This makes it harder to see outside. Keep the interior light off and adjust your instrument lights as low as you can and still be able to read the gauges.

2. Weather Conditions

During the course of a school year, you will encounter bad weather conditions such as ice, snow, rain and fog. These conditions affect the bus driver s ability to see and be seen. They also make the road slippery, reducing the driver s ability to start, stop and turn. Poor driving conditions demand alertness and skillful driving. Basic rules to follow in difficult weather conditions are to reduce speed, increase following distance, and use windshield wipers, defrosters and low beam headlights.

■ **Slippery Surfaces.** It will take longer to stop and it will be harder to turn without skidding when the road is slippery. You must drive slower to be able to stop in the same distance as on a dry road. Wet roads can double stopping distance. Reduce speed by about one-third. On packed snow, reduce your speed to about one-half. On ice reduce your speed to a crawl and stop driving as soon as you can safely do so.

✓ ***Just After Rain Begins.*** Right after it starts to rain, the water mixes with oil left on the road by vehicles. This makes the road very slippery. If the rain continues, it will wash the oil away.

✓ ***Hydroplaning.*** In adverse weather, water or slush collects on the road. When this happens, your vehicle can hydroplane. It's like water skiing: the tires lose their contact with the road and have little or no traction. You may not be able to steer or brake. You can regain control by releasing the accelerator. This will slow your vehicle and let the wheels turn freely. If the vehicle is hydroplaning, do not use the brakes to slow down.

It does not take a lot of water to cause hydroplaning. Hydroplaning can occur at speeds as low as 30 mph if there is enough water. Hydroplaning is more likely if tire pressure is low or the tread is worn. (The grooves in a tire carry away the water; if they aren t deep they don t work well.) Be especially careful driving through puddles, the water is often deep enough to cause hydroplaning.

✓ ***Ice.***

◆ **Shaded Areas.** Shady parts of the road will remain icy and slippery long after open areas have melted.

◆ **Bridges and overpasses.** When the temperature drops, bridges will freeze before the road will. Be especially careful when the temperature is close to 32 F.

◆ **Melting Ice.** Slight melting will make ice wet. Wet ice is much more slippery than ice that is not wet.

◆ **Black Ice.** Black ice is a thin layer that is clear enough that you can see the road underneath it. It makes the road look wet. Anytime the temperature is below freezing and the road looks wet, watch out for black ice.

◆ **Vehicle Icing.** An easy way to check for ice is to open the window and feel the front of the mirror, mirror support, or antenna. If there's ice on these, the road surface is probably starting to ice up.

■ **Driving Defensively on Slippery Surfaces.**

✓ ***Start Gently and Slowly.*** When first starting, get the feel of the road. Don t hurry. If the drive wheels begin to spin, take your foot off the accelerator.

✓ ***Adjust Turning and Braking to Conditions.*** Make turns as gentle as possible. Don t brake any harder than necessary.

✓ ***Adjust Speed to Conditions.*** Don t pass slower vehicles unless necessary. Go slow and watch far enough ahead to keep a steady speed. Avoid having to slow down and speed up. Take curves at slower speeds and don't brake while in curves. Be aware that as the temperature rises to the point where ice begins to melt, the road becomes even more slippery. Slow down more.

✓ ***Adjust Space to Conditions.*** Don t drive alongside other vehicles. Keep a longer following distance. When you see a traffic jam ahead, slow down or stop to wait for it to clear. Try hard to anticipate stops early and slow down gradually.

✓ ***Wet Brakes.*** When driving in heavy rain or standing water, your brakes will get wet. Water in the brakes can cause the brakes to be weak, to apply unevenly, or to grab. This can cause lack of braking power, wheel lockups, pulling to one side or the other. Avoid driving through deep water and never drive through flowing water. If you must drive through water:

◆ **Slow down.** Place transmission in a low gear.

◆ **Gently put on the brakes.** This presses linings against brake drums or discs and keeps mud, silt, sand, and water from getting in.

◆ Increase engine RPM and cross the water while keeping light pressure on the brakes.

◆ When out of the water, maintain light pressure on the brakes for a short distance to heat them up and dry them out.

◆ **Make a test stop when safe to do so.** Check behind to make sure no one is following, then apply the brakes to be sure they work properly. If not, dry out further as described above. (Caution: do not apply too much brake pressure and accelerator at the same time or you can overheat brake drums and linings.)

Avoid driving through standing water and never drive through flowing water.

■ **Winter Driving Vehicle Checks.** Make sure your vehicle is ready before driving in winter weather. You should do a regular pre-trip inspection, paying extra attention to the following items:

◆ Defrosting and heating equipment
◆ Wipers and washers
◆ Tires
◆ Tire chains
◆ Lights and reflectors
◆ Hand holds, steps and foot holds
◆ Windows and mirrors
◆ Exhaust system

■ **Hot Weather Driving Vehicle Checks.** Do a normal pre-trip inspection, but pay special attention to the following items:

- Tires
- Engine oil
- Engine coolant

If coolant has to be added to the system, let a school bus mechanic do it.

3. Road Conditions

Some roads you will travel may be broad, modern, paved roads with wide bridges, while others may be narrow, winding, dirt roads, and some with one-lane bridges. You cannot drive the same way on both kinds of roads. Adjust your speed to fit the road; if in doubt, lower your speed.

■ **Running Off the Pavement.** If you run off the pavement onto the shoulder, do not try to turn back onto the pavement immediately. Release accelerator cautiously, reducing the speed of the bus gradually; check traffic in both directions; and drive back onto the roadway at a safe place.

During an extended rainy period, road shoulders become soft and may cause drivers to lose control and have a collision. The weight of the school bus will cause the wheels to sink into the shoulder, and once stuck, the bus becomes difficult or impossible to steer or control. Bus drivers should not attempt to continue because they can lose control completely and have a serious collision such as sliding into the ditch and tipping over.

■ **Skid Control and Recovery.** A skid happens whenever the tires lose their grip on the road. Grip is lost in one of four ways:

- ***Overbraking.*** Braking too hard and locking up the wheels.
- ***Oversteering.*** Turning the wheels more sharply than the vehicle can turn.
- ***Overacceleration.*** Supplying too much power to the drive wheels, making them spin.
- ***Driving Too Fast.*** Most serious skids result from driving too fast for road conditions. Drivers who adjust their driving to conditions don't overaccelerate and don't have to overbrake or oversteer from too much speed.

■ **Drive Wheel Skids.** By far the most common skid is one in which the rear wheels lose traction through excessive braking or acceleration. Skids caused by acceleration usually happen on ice or snow. They can be easily stopped by taking your foot off the accelerator. Rear wheel braking skids occur when the rear drive wheels lock. Because locked wheels have less traction than rolling wheels, the vehicle will slide sideways in a "spin out."

Do the following to correct a drive wheel braking skid:

- ***Stop Braking.*** This will let the rear wheels roll again and keep the rear wheels from sliding any farther.
- ***Turn Quickly.*** When a vehicle begins to slide sideways, quickly steer in the direction you want the vehicle to go "down the road." You must turn the wheel quickly.
- ***Countersteer.*** As a vehicle turns back on course, it has a tendency to keep right on turning. Unless you turn the steering wheel quickly the other way, you may find yourself skidding in the opposite direction.

■ **Front Wheel Skids.** Most front-wheel skids are caused by driving too fast for conditions. Other causes include lack of tread on the front tires. In a front wheel skid, the front end tends to go in a straight line regardless of how much you turn the steering wheel. You lose steering control when your front wheels are not rolling. On a very slippery surface, you may not be able to steer around a curve or turn.

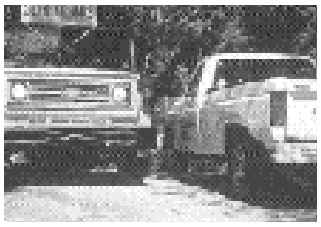
When a front-wheel skid occurs, the only way to stop the skid is to let the vehicle slow down. Stop turning and/or braking so hard. Slow down as quickly as possible without skidding.

■ **Speed and Curves.** Drivers must adjust their speed for curves in the road. If you take a curve too fast, two things can happen. The wheels can lose their traction and continue straight ahead, so you skid off the road. Or the wheels may keep their traction and the vehicle rolls over. A school bus is top-heavy and easier to turn over than a smaller, lower vehicle.

Slow to a safe speed before you enter a curve. Braking in a curve is dangerous because it is easier to lock the wheels and cause a skid. Slow down as needed. Don't ever exceed the posted speed limit for the curve. Accelerate slightly in the curve to help you keep control.

Dirt roads are more likely to cause a skid than paved roads. Slow down and stay to the right.

■ **Space to the Sides.** School buses are eight feet wide and have mirrors that stick out beyond that width. Buses take up an entire lane. Safe drivers will manage what little space they have. You can do this by keeping your bus centered in your lane and avoiding driving next to others.



■ **Traveling Next to Others.** There are two dangers in traveling next to other vehicles:

- Another driver may change lanes suddenly and turn into you.
- You may be trapped when you need to change lanes.

Find an open spot where you aren't near other traffic. When traffic is heavy, it may be hard to find an open spot.

If you must travel near other vehicles, try to keep as much space as possible between you and them. Also, drop back or pull forward so that you are sure the other driver can see you.

■ **Space Overhead.** Hitting overhead objects is a danger. Make sure you always have overhead clearance.

◆ Don t assume that the heights posted at bridges and over-passes are correct. Repaving or packed snow may have reduced the clearances since the heights were posted.

◆ If you doubt you have safe space to pass under an object, take another route. Warnings are often posted on low bridges or underpasses, but sometimes they are not.

◆ Some roads can cause a vehicle to tilt. These can be a problem clearing objects along the edge of the road, such as signs or trees. Where this is a problem, drive a little closer to the center of the road.

■ **Mountain Driving.** In mountain driving, the force of gravity plays a major role. If you have a heavy load, you will have to use lower gears and go slower to climb hills. In coming down steep hills, gravity will tend to speed you up. You must go slow enough that your brakes can hold you back without getting too hot. **If the brakes become too hot, they may start to "fade." This means that you have to apply them harder and harder to get the same stopping power.** If the brakes continue to be used hard, they can continue to fade until you can t slow down or stop at all. If your brakes begin to fade, stop as soon as you can to let them cool. These dangers can be avoided by going slow when going downhill.

■ **Use of Gears Going Downhill.** No matter what the size of your vehicle, going down long, steep grades can cause your brakes to fail if you go too fast. Using lower gears will stop you from going too fast. Lower gears allow engine compression and friction to help slow the vehicle. This is true whether you have an automatic transmission or a manual transmission.

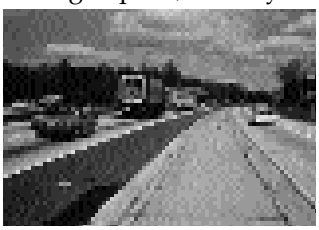
■ **Be in the right gear before starting down the hill.** With older vehicles, a rule for choosing gears was to use the same gear going down a hill that you would need to climb the hill. However, new vehicles have low friction parts and streamlined shapes for fuel economy. They may also have more powerful engines. This means they can go up hills in high gears and have less friction and air drag to hold them back going down hills. For that reason, drivers of modern vehicles may have to use lower gears going down a hill than would be required to go up the hill. Find out what is right for the vehicle you are driving.

■ **Proper Braking.** When going downhill, brakes heat up. Brake shoes or pads rub against the brake drum or disks to slow the vehicle, which creates heat. Brakes can take a lot of heat. However, brakes can fail from excessive heat if the driver slows down from too high a speed too many times or too quickly. Brakes will fade (have less stopping power) when they get very hot, and they can get to the point where they will no longer slow the vehicle.

The right way to use your brakes for long downhill grades is to go slow enough that a fairly sparing use of the brakes will keep your speed from increasing. If you go slow enough, the brakes will be able to get rid of the heat and they won't get too hot.

Forceful, intermittent braking (snubbing) is safer than light, continued braking. Letting up on the brakes from time to time will allow them to cool enough so they don't become overheated. Tests have proven this to be true. Light, continued pressure causes hot-spotting and in general makes the brakes run hotter, leading to increased probability of brake fade. Light, continued pressure also causes the brakes to wear faster, which is both a safety problem and a maintenance problem. Therefore, select the right gear, go slow enough, and use forceful, intermittent braking (snubbing).

■ **Interstate Driving and other Limited Access Highways.** A school bus with its slow top speed is a safety hazard on high-speed, heavily traveled interstates and other four lane highways where the speed limit is 55mph or faster. School buses should not be routed over such highways except in unusual circumstances and after much deliberation. If a route must include interstate driving, **use hazard lights for the entire distance and stay in the right lane.** ***Have the passengers occupy seats as near the front of the bus as possible, so that a collision from the rear would pose less direct hazard to the passengers.***



■ **Drawbridges**

Stop at drawbridges that do not have a signal light or traffic control attendant. Stop at least 50 feet before the draw before crossing.

You do not need to stop, but you must slow down to make sure it s safe, when:

◆ There is a traffic light showing green.

◆ The bridge has an attendant or traffic officer that controls traffic whenever the bridge opens.

TEST YOUR KNOWLEDGE

1. Why should you be in the right gear before starting down a hill?

2. Why do buses use a lower gear going down a hill than going up a hill?

3. True or false? The key to preventing brake fade is to go slow enough.

4. What effects can wet brakes have on your bus, and what can you do to avoid these problems?

5. What is hydroplaning?

6. What causes skids?

7. How should you use your brakes going downhill?

8. What should you do when approaching a drawbridge?

9. When should you use your low-beam headlights?

Multiple Choice Questions

1. Forceful intermittent braking is synonymous with:
a) snubbing;
b) feathering;
c) fanning;
d) stabbing.

2. What should you do when you run off the pavement?
a) accelerate;
b) return to the road immediately;
c) use stab braking;
d) none of the above.

4. Traffic Conditions

The school bus interferes with traffic because of its size, slow speed, and frequent stops in the roadway. Every care should be taken to route and dispatch buses so that as little disruption as possible is caused. The less traffic tied up behind the bus, the fewer drivers there will be to get irritated, careless, and dangerous to you and your passengers. Once again, reduce speed and increase following distance when in heavy traffic.

■ **Emergency Vehicles.** Police cars, ambulances and fire trucks are considered emergency vehicles when they sound a siren or display a flashing light. At the approach of an emergency vehicle from the front or rear, slow down, move to the right, and stop if necessary. Proceed only after the emergency vehicle has passed or until you are told to proceed by a police officer. If you are at a passenger stop when an emergency vehicle approaches, do not panic. If your passengers are still in the roadway or along the side, get them into the bus in the morning or well off the road in the afternoon before you pull in the stop sign. If you are approaching the passenger stop and can let the emergency vehicle pass without endangering the safety of your passengers, then let it pass.

■ **First on the Scene of an Collision Involving Other Vehicles.** If you are the first on the scene of an collision involving other vehicles, your first action should be to park the bus in a safe place, keep the students on the bus, and protect the scene. As soon as help arrives at the collision scene, continue your route.

■ **Seeing Ahead.**

◆ ***Importance of Looking Far Enough Ahead.*** Because stopping or changing lanes can take a lot of distance, knowing what the traffic is doing on all sides of you is very important. You need to look well ahead to make sure you have room to make these moves safely.

◆ ***How Far Ahead to Look.*** Most good drivers look 12 to 15 seconds ahead. That means looking ahead the distance you will travel in 12 to 15 seconds. At lower speeds, that's about one block. At highway speeds it's about a quarter of a mile. If you're not looking that far ahead, you may have to stop too quickly or make quick lane changes. Looking 12 to 15 seconds ahead doesn't mean not paying attention to things that are closer. Good drivers shift their attention back and forth, near and far.

◆ ***Traffic.*** Check the traffic mirrors approximately every five to eight seconds for vehicles on either side or in back of you. In an emergency, you may need to know whether you can make a quick lane change. Use your mirrors to spot advancing vehicles. There are "blind spots" that your mirrors cannot show you. Check your mirrors regularly to know where other vehicles are around you, and to see if they move into your blind spots. Avoid focusing on mirrors too long as this may cause you to miss important things happening ahead.

■ **Communicating Your Presence.** Other drivers can t know what you are going to do until you tell them. You can tell them with the horn, brake lights, turn signals, passenger stop lights, headlights and hazard lights.

◆ ***Slowing Down.*** Warn drivers behind you by slowing down gradually. A few light taps on the brake pedal to flash the brake lights should warn following drivers. Use the hazard lights when you are driving very slow or are stopped. Warn other drivers in any of the following situations:

◆ ***Trouble Ahead.*** The size of your vehicle may make it hard for drivers behind you to see hazards ahead. If you see a hazard that will require slowing down, warn the drivers behind by flashing your brake lights.

◆ ***Tight Turns.*** Most drivers don't know how slow you must go to make a tight turn in a large vehicle. Give drivers behind you warning by braking early and slowing gradually.

◆ ***Stopping on the Roadway.*** Give people a chance to see that you are stopping. Don't stop suddenly.

■ **Avoid Directing Traffic.** Some drivers try to help out others by signaling when it is safe to pass. You should not do this. You could cause an accident. You could be blamed and it could cost you many thousands of dollars.

■ **When Parked at the Side of the Road.** When you pull off the road and stop, such as with a breakdown, be sure to turn on the hazard lights. This is important at night. Don't trust the taillights to give warning. Drivers have crashed into the rear of a parked vehicle because they thought it was moving normally. **Never use the passenger stop light system for any reason other than passenger stops.**

■ **Use Your Horn When Needed.** Your horn can let others know you're there. It can help to avoid a crash. Use your horn when needed. However, it can startle others and could be dangerous when used unnecessarily. The horn must be audible for at least 200 feet.

TEST YOUR KNOWLEDGE

1.What should you do if an emergency vehicle with siren and lights activated approaches?

2. What is the best way to see to the sides and rear of your school bus?

3. What does communicating mean in safe driving?

4. What should you do if you are the first person to arrive at the scene of a collision?

Multiple Choice Questions

1. How far ahead should you look while driving?
a) 6 -8 seconds;
b) 12 -15 seconds;
c) 18 -20 seconds;
d) as far ahead as you can see.

2. How often should you check your mirrors?
a) before each trip;
b) every 5-8 seconds;
c) every 12-15 seconds;
d) both a & b.

■ **Importance of Seeing Hazards.**

◆ ***What Is a Hazard?*** A hazard is any road condition or driver, bicyclist or pedestrian that is a possible danger. For example, a car in front of you is headed towards the freeway exit, but his brake lights come on and he begins braking hard. This could mean that the driver is uncertain about taking the off-ramp. He might suddenly return to the highway. If the driver of the car cuts in front of you, it is no longer just a hazard; it is an emergency.

◆ ***Noticing Hazards Reduces Dangers.*** You will have more time to act if you see hazards before they become emergencies. In the example above, you might make a lane change or slow down to prevent a crash if the car suddenly cuts in front of you. Seeing this hazard gives you time to check your mirrors and signal a lane change. Being prepared reduces the danger. A driver who did not see the hazard until the slow car pulled back on the highway in front of him would have to do something very suddenly. Sudden braking or a quick lane change is much more likely to lead to a crash.

◆ ***Learning to Notice Hazards.*** Clues will help you see hazards. The more you drive, the better you can get at seeing hazards.

◆ ***Impaired Drivers.*** One major hazard is an impaired driver, one who is sleepy, has had too much to drink, is on drugs, or is ill. Some clues to these drivers are:

- Weaving across the road or drifting from one side to another.
- Leaving the road (dropping right wheels onto the shoulder, or bumping across a curb in a turn).
- Stopping at the wrong time (stopping at a green light, or waiting for too long at a stop).
- Driving with an open window in cold weather.
- Speeding up or slowing down suddenly, driving too fast or too slow.

■ **Steering To Avoid A Crash.** Stopping is not always the safest thing to do in an emergency. When you don't have enough room to stop, you may have to steer away from what s ahead. Remember, in many cases you can turn to miss an obstacle more quickly than you can stop. (However, top-heavy vehicles such as school buses may turn over.)

◆ ***Keep Both Hands on the Steering Wheel.*** To turn quickly you must have a firm grip on the steering wheel with both hands. The best way to have both hands on the wheel in the event of an emergency is to keep them there all the time.

◆ ***Where To Steer.*** If an oncoming driver has drifted into your lane, moving to your right is best. If that driver realizes what has happened, the natural response will be to return to his own lane. If something is blocking your path, the best direction to steer will depend on the situation.

- If you have been using your mirrors, you'll know which lane is available.
- If the shoulder is clear, going right may be best. No one is likely to be driving on the shoulder but someone may be passing you on the left. Checking mirrors is very important.
- If you are blocked on both sides, a move to the right may be best. At least you won't force anyone into an opposing traffic lane and a possible head-on collision.

◆ ***Leaving the Road.*** In some emergencies, you may have to drive off the road. It may be less risky than facing a collision with another vehicle. Most shoulders are strong enough to support the weight of a large vehicle and, therefore, offer an available escape route. Here are some guidelines to follow if you do leave the road:

If you have to steer to avoid a collision, don t brake.

1. Avoid Braking. If possible, avoid using the brakes until your speed has dropped to about 20 mph. Then brake very gently to avoid skidding on a loose surface.

2. Keep One Set of Wheels on Pavement if Possible. This helps to maintain control.

3. Stay on the Shoulder. If the shoulder is clear, stay on it until your vehicle has come to a stop. Signal and check your mirrors before pulling back onto the road.

4. Returning to the Road. If you are forced to return to the road before you can stop, use the following procedure:

- Hold the wheel tightly and reduce speed.
- Return to the road once you have control of the bus.
- When both front tires are on the paved surface, countersteer immediately. The two turns should be made as a single " steer-countersteer" move.

■ **Passing.** School buses are unusually slow; school bus drivers should avoid passing other vehicles as much as possible. If a driver must pass a vehicle, he should use extreme caution. A driver usually will gain very little or nothing at all by passing, because any vehicle moving more slowly than a school bus is not likely to go very far before turning off. The driver of a school bus should never pass another school bus unless it is parked. At a multi-lane highway intersection where traffic lanes are designated for left and/or right turns, a bus may pass another bus that is waiting to make such a turn. The school bus driver is much more likely to have trouble with other vehicles passing him. He should maintain a regular check of traffic and signal his intentions early.

TEST YOUR KNOWLEDGE

1. True or false? Stopping is not always the safest thing to do in an emergency.

2. What are some advantages of going right instead of left around an obstacle?

3. What are some hazards and why is it important to be aware of them?

4. Why make emergency plans when you see a hazard?

5. What actions indicate an impaired driver?

Multiple Choice Questions

1. Where is it illegal to pass?
a) hills
b) intersections
c) railroad crossings
d) all of the above

2. If you are meeting a vehicle near the center line, you should:
a) ride to the right;
b) reduce your speed;
c) ride off the road if necessary;
d) all of the above.

5. Vehicle Condition

The transportation director and mechanics of your county school bus garage are dedicated to keeping your bus in good running order so that it is safe to carry school children. They work year-round for our benefit. The bus driver must check his bus before each trip to make sure that it is safe to drive. If for any reason the driver feels that it is not safe to drive the bus, he should not drive it. Report the problem and have it repaired. Washing windshield, windows, headlights and reflectors is a safety precaution as well as a necessary practice in good care of equipment. Keeping the interior clean by sweeping, dusting and keeping the aisle free of obstructions promotes safe operation, good passenger discipline, and a better overall atmosphere. The windows of the bus should not be obstructed by decals or other objects.

■ **Tire Failure.** There are four important steps that drivers should take to handle a tire failure safely:
1. Recognize that a tire has failed.
2. Hold the steering wheel firmly.
3. Stay off the brake.
4. After stopping, check all the tires.

◆ ***Recognizing Tire Failure.*** Quickly knowing you have a tire failure gives you more time to react. Having just a few seconds to remember what it is you're supposed to do can help you. The major signs of tire failure are:

● *Sound.* The loud "bang" of a blowout is easily recognized. Because it can take a few seconds for the bus to show signs of tire failure, you might think it was some other vehicle. Any time you hear a tire blow, you may be safest to assume it was yours.

● *Vibration.* If the vehicle thumps or vibrates heavily, it may be a sign that one of the tires has gone flat. With a rear tire, that may be the only sign you get.

● *Feel.* If the steering feels heavy, it is probably a sign that one of the front tires has failed. Sometimes, failure of a rear tire will cause the vehicle to slide back and forth or fishtail. However, dual rear tires usually prevent this.

Any of these signs is a warning of possible tire failure. You should do the following things:

✓ **Hold the Steering Wheel Firmly.** If a front tire blows out, it can twist the steering wheel out of your hand. The only way to prevent this is to keep a firm grip on the steering wheel with both hands at all times.

✓ **Stay Off the Brake.** It s natural to want to brake in an emergency. However, braking when a tire has failed could cause loss of control. Unless you re about to run into something, stay off the brake until the bus has slowed down. Then brake very gently, pull off the road and stop.

✓ **Check the Tires.** After you ve come to a stop, get out and check all the tires. Do this even if the vehicle seems to be handling all right. If one of your dual tires fails, the only way you may know it is by getting out and looking at it.

■ **Brake Failure.** ***Brakes kept in good condition rarely fail. If there is any indication of brake failure, stop the bus as soon as you can safely do so.***

◆ *Air Brakes.* **Do not pump air brakes.** Pumping air brakes will cause air pressure loss and less braking power.

◆ *Hydraulic Brakes.* Most hydraulic brake failures occur due to loss of hydraulic pressure. When the system won t build up pressure, the brake pedal will feel spongy or go to the floor. Sometimes pumping the brake pedal will create enough hydraulic pressure to stop the vehicle.

If you have a brake failure, you can:

◆ ***Downshift.*** Putting the vehicle into a lower gear will help to slow the bus.

◆ ***Use the Parking Brake.*** On a hydraulic brake bus, the parking brake is separate from the hydraulic brake system. It can be used to slow the bus if the hydraulic system fails. However, be sure to press the release button or pull the release lever at the same time you use the parking brake so you can adjust the brake pressure and keep the wheels from locking up.

◆ ***Find An Escape Route.*** While slowing the vehicle, look for an escape route, an open field, side street or escape ramp. Turning uphill is a good way to slow and stop the vehicle. Make sure the bus does not start rolling backward after you stop. Put it in low gear, apply the parking brake, and if necessary roll back into some obstacle that will stop the vehicle.

Brake Failure on Downgrades. Going slow enough and braking properly will almost always prevent brake failure on long downgrades. However, once the brakes have failed, your best prospect is an escape ramp. If there is one, there will be signs telling you about it. Use it. Ramps are usually located a few miles from the top of the downgrade. Every year, hundreds of drivers avoid injury to themselves or damage to their vehicles by using escape ramps. Some escape ramps use soft gravel that resists the movement of the vehicle and brings it to a stop. Others turn uphill, using the hill to stop the vehicle and soft gravel to hold it in place.

A driver who loses brakes going downhill should use an escape ramp if it's available. If you don t use it, your chances of having a serious crash may be much worse.

If no escape ramp is available, take the least hazardous escape route you can, such as an open field, or a side road that flattens out or turns uphill. Make the move as soon as you know your brakes don't work. The longer you wait, the faster the vehicle will go and the harder it will be to stop.

■ **Vehicle Abuse.** Do not abuse your school bus. Vehicle abuse leads to breakdowns. Breakdowns are very rare when a driver operates his bus smoothly and carefully and reports problems when they are still minor. The school bus driver should not attempt to make any repairs to the school bus nor allow any other person to do so. Only personnel authorized by the school bus garage may work on the school bus. The driver should never use the bus to push or pull any vehicle. In the event the bus is stalled, stuck or in a ditch, the driver should not allow anyone to pull or push the bus without first obtaining permission from the transportation supervisor. Exception will be made for stalling on a railroad track.

Breakdown Procedure
- Stop the bus.
- Turn on hazard lights.
- Keep students in the bus.
- Remain with bus.
- Notify bus garage.

TEST YOUR KNOWLEDGE

1. What is an escape ramp?

2. If a tire blows out, you should put the brakes on hard to stop quickly. True or false?

3. How do you recognize tire failure?

Multiple Choice Questions

1. What should the driver do in the event of a breakdown?
a) driver should remain with the bus and activate hazard lights;
b) let children off the bus;
c) contact the school bus garage;
d) both a & c.

2. What information should the driver give to the school bus garage in the event of a breakdown?
a) driver s name and bus number;
b) location of the bus;
c) the nature of the problem;
d) all of the above.

6. Driver Condition

More than any other factor, the condition of the driver determines the safety of the passengers. One study showed that about 95 percent of all collisions are caused by driver error. Therefore, the driver must be mentally and physically prepared to drive every minute of every trip. The driver s general attitude toward his driving, whether he looks upon driving a school bus as a privilege and high responsibility or as a chore to be done in as little time and with as little effort as possible, will determine, more than anything else, his safety record. Some temporary conditions such as anger, worry or fear can take the driver s mind off the road. A tendency to daydream can be just as dangerous, because driving is a full-time job that requires concentration at all times.

Alcohol and drugs affect the driver and make him unfit to drive. But illness, exhaustion or weariness from hard work or lack of sleep also can rob a driver of the extra edge of alertness that is necessary for greatest safety in driving.

If a driver feels he is not able to operate the school bus safely, the principal (or designated person) should appoint a substitute driver.

Alcohol and drugs affect the driver and make him unfit to drive.

■ **Alcohol and Driving.** Driving under the influence of alcohol is a serious violation of state law. People who drive under the influence are involved in traffic collisions resulting in over 20,000 deaths every year. You should know:

- How alcohol works in the human body.
- How alcohol affects driving.
- Laws regarding drinking and driving.
- Legal, financial and safety risks of drinking and driving.

What is a Drink? It is the alcohol in drinks that affects human performance. It makes no difference whether alcohol comes from beer, wine or liquor.

How Alcohol Works. Alcohol goes directly from the stomach into the blood stream. A drinker can control the amount of alcohol that he drinks. However, the drinker cannot control how fast the body gets rid of alcohol. If you drink faster than the body can rid itself of alcohol, you will have more alcohol in your body and your driving will be affected. The amount of alcohol in your body is commonly measured by the Blood Alcohol Concentration (BAC). Only time will sober a driver. Coffee and cold showers will only make a wide-awake drunk.

What Determines Blood Alcohol Concentration? BAC is determined by the amount of alcohol you drink (more alcohol means higher BAC), how fast you drink (faster drinking means higher BAC), and your weight (a small person doesn't have to drink as much to reach the same BAC). Remember that a BAC of 0.04 or greater percent will cost you your CDL.

AS A SCHOOL BUS DRIVER, NO AMOUNT OF ALCOHOL IS TOLERATED.

Alcohol and the Brain. Alcohol affects the brain as BAC builds up. The first part of the brain affected controls judgment and self-control. Consequently, drinkers may be fooled about the serious effect alcohol is having on them. And of course, good judgment and self-control are absolutely necessary for safe driving.

As blood alcohol concentration continues to build up, muscle control, vision and coordination are affected. A person eventually will pass out.

How Alcohol Affects Driving. All drivers are affected by drinking alcohol. Alcohol affects judgment, vision, coordination and reaction time. It causes serious driving errors, such as:

Increased reaction time to hazards.
Driving too fast or too slow.
Driving in the wrong lane.
Running over the curb.
Weaving.
Straddling lanes.
Quick, jerky starts.
Not signaling, failure to use lights.
Running stop signs and red lights.
Improper passing.

These effects mean increased chances of a crash and chances of losing your driver s license. Collision statistics show that the chance of a crash is much greater for drivers who have been drinking than for drivers who have not.

■ **Other Drugs.** Besides alcohol, other legal and illegal drugs are being used more often. Laws prohibit possession or use of many drugs while on duty. They prohibit any "controlled substance," amphetamines such as "pep pills" and "bennies," narcotics, or any other substance that can make the driver unsafe. Drugs could include a variety of prescription and over-the-counter drugs (cold medicines) that may make the driver drowsy or otherwise affect safe driving ability. However, possession and use of a drug given to a driver by a doctor is permitted if the doctor informs the driver that it will not affect safe driving ability.

Pay attention to warning labels of legitimate drugs and medicines and to doctor s orders regarding possible effects. Stay away from illegal drugs. Don t use any drug that hides fatigue, the only cure for fatigue is rest. Alcohol can worsen the effects of other drugs. The safest rule is not to mix drugs with driving at all.

Use of drugs can lead to traffic collisions resulting in death, injury and property damage. Drug abuse can lead to arrest, fines and jail sentences. Drug use also can mean the end of a person s driving privileges.

■ **Illness.** Once in a while, you may become so ill that you cannot operate a motor vehicle safely. If this happens to you, you must not drive. However, in case of an emergency you may drive to the nearest place where you can safely stop.

7. Condition Combinations

The six conditions (light, weather, road, traffic, vehicle, and driver) are not usually all adverse at the same time; they come at the driver in groups. Weather conditions affect the amount of light available and the condition of the road. Light, especially too much light, can irritate a driver; traffic conditions can do the same. Weather can affect traffic, slowing it down and making it more congested. Weather can affect vehicles as well, with the possibility of overheating in summer heat or having brittle metal break in the cold of winter; and if it snows and the school bus has no chains, then the vehicle is certainly not adequate for many roads.

The school bus driver who adjusts his speed to adverse conditions, inspects the bus, keeps his bus in top mechanical condition, and remains alert and ready, will rarely have even a close call.

TEST YOUR KNOWLEDGE

1. How does alcohol affect driving?

2. List some drugs that are dangerous in driving.

CHAPTER SIX: SCHOOL BUS COLLISIONS

Many traffic safety experts do not like to use the word "accident" and prefer to use the word "collision." They argue that very few crashes occur by chance or accident. Most drivers use the word "accident" to mean a crash: an unfortunate event resulting from unavoidable causes or a driver's carelessness, lack of awareness or inattention.

A collision in a school bus is more serious generally than one involving cars alone. The weight of the bus is greater, and the number of people involved is greater.

North Carolina school bus drivers have an outstanding safety record, but each year far too many collisions occur that could and should have been avoided by alert and safe driving practices. In most motor vehicle collisions, an error on the part of one or more of the drivers involved caused the collision. They were not accidental but were caused by driver error. Collision records show that many school bus collisions are caused by bus driver error or failure to follow safety regulations.

All collisions involving a school bus must be reported regardless of the extent of damage.

Most Frequent Convictions in School Bus Collisions

1. Unsafe movement
2. Exceeding a safe speed
3. Improper backing
4. Failure to yield right of way
5. Driving on the wrong side of the road
6. Following too closely.

Common Causes of Collisions

◆ **Objects in the Roadway**

Many collisions occur when drivers attempt to dodge small animals or other objects on the highway. Such abrupt changes of direction may result in the driver losing control of the vehicle or colliding head-on with an oncoming car. When approaching something on the road, the driver should exercise extreme caution. In some cases it may be better to hit the object when it does not involve another person than to swerve to avoid it.

The driver should report all incidents of this nature to the principal. If an animal is struck, the driver should notify the principal.

◆ **Misbehavior**

Misbehavior of students while the bus is in operation may result in the driver taking his attention off the road. A driver may be tempted to use the inside rearview mirror to try to correct a problem taking his eyes off the road even though he is still moving. Such a distraction greatly increases the chances of a collision.

Check to see what discipline policy is used in your local school system. If possible, the driver should handle his own problems as they occur on the bus, going to the principal only when the problem continues or is severe enough to warrant stiffer measures.

Tampering with the emergency door while the bus is in motion is a form of behavior problem. If the buzzer should sound, stop smoothly, take care of the behavior problem, and shut the door. Report the incident to the principal.

In general, in cases of misbehavior, the driver should:
1. **Select a safe place to pull off the roadway.**
2. Restore order.
3. Report misbehavior to principal if necessary.

Physical force and putting students off the bus to walk cannot be allowed as methods of discipline. Video cameras can be installed to check on passenger behavior.

Collision Procedure

The driver must know and take steps to avoid further confusion, injury and property damage in the event of a collision:

1. **Stop. Vehicles should not be moved except by permission of the investigating officer.**
2. Check each passenger and render first aid as necessary.
3. Evacuate the bus only if necessary.
4. Notify proper authorities.
5. Remain with the bus to gather necessary information for the collision report, such as names and license numbers.
6. Report all collisions regardless of injury, death, or property damage, in accordance with local policy.
7. Remember, any statement you make about the collision can be used in court. Do not discuss causes of the crash with others involved. Do not admit guilt; let the case be handled by proper authorities.

The Tort Claims Act and Collisions

Under the Tort Claims Act, the N.C. Attorney General s Office handles claims for injury or damage arising from the

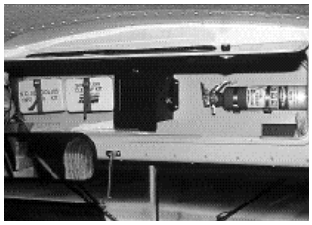
operation of school buses. As long as **the school bus driver is certified to drive, is authorized by the principal to drive, is on the assigned route for that trip,** and is driving according to the rules and regulations set forth by the state and the local school system, he is unlikely even to have an collision, much less to be called to court as a defendant.

School bus drivers are covered by worker's compensation (G.S. 115C-337) for injuries suffered by them in the course of their work as drivers. Check with your local administrative unit.

Drivers are responsible for any traffic violations they may commit, while driving either their assigned bus or their personal car. If a driver is convicted of a traffic violation, he pays all fines and costs.

Emergency Equipment

An adequate first-aid kit and fire extinguisher must be well kept and in the proper place. The next trip may bring a collision and injuries. The bus driver should have a basic knowledge of first-aid, as set forth in the First-Aid video (School Bus Driver Training Course). It is recommended that the driver take a course in first aid and keep a good manual on first aid with him on the bus at all times. Knowing what not to do can be as important as knowing what to do in case of any collisions.



Fires

Bus fires can cause damage and injury. Learn the causes of fires and how to prevent them. Know what to do to extinguish fires.

The following are some causes of vehicle fires:

- **Collisions** - spilled fuel
- **Tires -** under-inflated tires and duals that touch
- **Electrical System** - short circuits due to damaged insulation, loose connections
- **Fuel** - driver smoking, improper fueling loose fuel connections
- **Vandalism** - Someone may set a bus on fire.

◆ **Fire Prevention.** Pay attention to the following:

- ***Pre-Trip Inspection*** Make a complete inspection of the electrical, fuel, and exhaust systems, and all tires.
- ***Follow Safe Procedures*** Follow correct safety procedures for fueling the vehicle, using brakes, and other activities that can cause a fire. Never fuel a bus in an enclosed area or with passengers on the bus.
- ***Monitoring*** Check the instruments and gauges often for signs of overheating.

◆ **Fire Fighting** Knowing how to fight fires is important. Fires have been made worse by drivers who didn't know what to do. Here are some procedures to follow in case of fire:

- ***Pull off the road.*** The first step is to get the vehicle off the road. In doing so:
  - Park in an open area, away from buildings, trees, brush and other vehicles or objects that might catch fire.
  - Evacuate the bus.

    Notify the police of your problem and your location.

- ***Keep the Fire from Spreading.*** Before trying to put out the fire, make sure that it doesn t spread any farther.
  - With an engine fire, turn off the engine as soon as you can.
  - Do not open the hood.
  - Spray the extinguisher through the grill, radiator or from the underside of the vehicle.

- ***Use the Right Fire Extinguisher.*** The B:C type fire extinguisher is designed to work on electrical fires and burning liquids. The fire extinguisher on you school bus should be capable of extinguishing electrical fires and burning liquids.

- ***Extinguish the Fire.*** Here are some rules to follow in putting out a fire:
  - Know how the fire extinguisher works. Study the instructions printed on the extinguisher before you need it.
  - When using the extinguisher, stay as far away from the fire as possible.
  - Aim at the source or base of the fire, not up in the flames.
  - Position yourself upwind. Let the wind carry the extinguisher to the fire rather than carrying the flames to you.
  - Continue until whatever was burning has been cooled. Absence of smoke or flame does not mean the fire is completely out or cannot restart.
  - Only try to extinguish a fire if you know what you are doing and it is safe to do so.

TEST YOUR KNOWLEDGE

1. Name two causes of tire fires.

2. What school bus collisions must be reported?

3. What are some rules for fire fighting?

4. How should a driver deal with misbehavior problems?

5. What is the Tort Claims Act?

Multiple Choice Questions

1. In cases of misbehavior, the driver should:
a) put the student off the bus;
b) correct the problem while driving;
c) stop the bus in a safe place and restore order;
d) ignore the misbehavior.

2. The following are some causes of vehicle fires:
a) Collisions. Spilled fuel.
b) Tires. Under inflated tires and duals that touch.
c) Fuel. Driver smoking.
d) all of the above.

Emergency Unloading

The driver must quickly evaluate any emergency situation and determine the immediate steps to be taken. In some instances, it may be best to keep passengers on the bus. Fire, a traffic collision, or another serious incident may require that all persons riding on a school bus leave the bus as soon as possible. To prevent injury or lessen the chance of further injuries, every rider of a school bus must be trained in emergency evacuation procedures. **The emergency door should be used only in an emergency.**

The school bus driver must unhesitatingly be obeyed in carrying out drills or a real evacuation. It is not feasible to conduct drills for an overturned bus, but knowledge of what is to be done and practice in fire drills should aid in building confidence in the driver and the passengers to do the correct thing should the need arise. Evacuation drills should be conducted at least twice each school year under the direction of school personnel.

The bus is secondary to the safety of the passengers. No attempt to save property will be made until all of the children are removed from the bus.

Suggested Evacuation Procedure

1. Park the bus as close to the shoulder of the road as possible and
   a. Turn hazard lights on;
   b. Set the parking brake;
   c. Turn engine off.

2. Stand facing the rear of the bus.

3. Give the command: "Remain seated; prepare to evacuate."

4. Turn toward the front of the bus.

5. Move backwards to the first occupied seats.

6. Starting with either the left or the right seat,
   a. Touch the shoulder of the person nearest to the aisle to indicate that the passengers in that seat are to move off;
   b. Keep the passengers in the opposite seat seated by holding your hand, palm out in a restraining gesture, until aisle is clear;
   c. Move out the passengers in the opposite seat, using the same signal.

7. Move backwards up the aisle, repeating this procedure at each seat until the bus is empty.

8. Check the bus from the very back seat to the front, making sure it is empty.

9. Have evacuating students move to a safe distance and keep them there as a group, away from any dangerous area.

10. Continue to check for students while removing the fire extinguisher and first-aid kit, if needed.

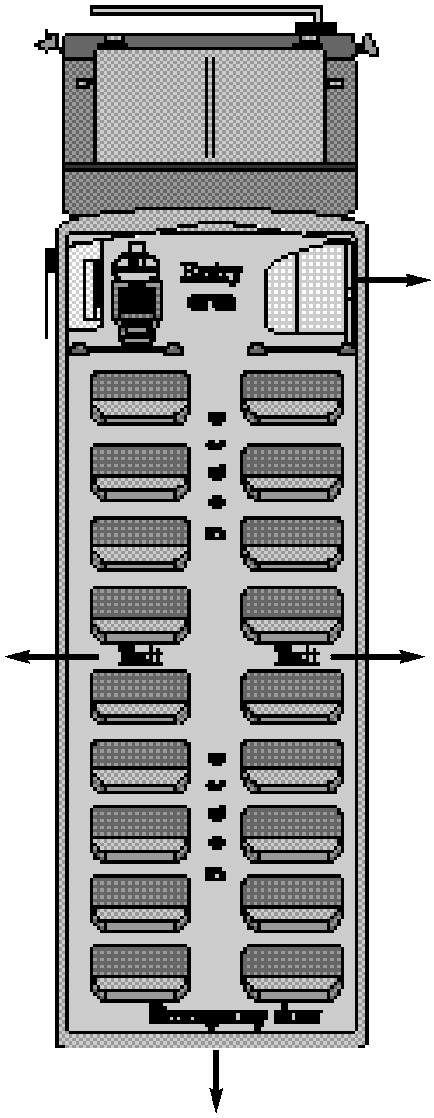
11. Call or have someone call the fire department, the garage, and the school, as necessary.

A fire at the front of the bus may make the regular entrance unusable and an alternate route of evacuation necessary. Normally the front entrance will be available, but the emergency door can be used as the primary exit. Evacuation through both doors is fastest, with the rear monitor working forward seat by seat and the driver working backward seat by seat. Newer buses also have emergency window exits in the middle of each side and an emergency door exit on the left side. The windshield and rear windows can also be pushed out to facilitate evacuation. If the bus is on its side, roof hatches can be used. Always evacuate the bus if fuel must be added enroute. Check on local policies on special education buses.

General Safety Rules

1. No given procedure can cover every type of emergency that may arise. However, the procedures given here should be followed as closely as possible.
2. Get students completely out of danger before attempting any other action.
3. Do not endanger yourself fighting a fire; follow your training to the fullest.
4. Do not allow students to re-enter the bus until the fire department has checked the bus and assured you that the fire, minor or not, has been extinguished.
5. If mechanical damage is suspected, do not reload the bus until the county garage mechanic has checked it and certified that it is safe to use.
6. If told to do so by firemen, policemen, or the mechanic, move the bus, empty of passengers, to clear traffic lanes.

Remember: A bus can be replaced; a student cannot.



Evacuation Routes

CHAPTER SEVEN: AIR BRAKES

This section tells you about air brakes. You need this information for safe operation of air brakes used on trucks and buses.

Air brakes use compressed air to operate. You can apply all the braking force you need to each of the wheels of a heavy vehicle. Air brakes are a safe way of stopping large vehicles if the brakes are well maintained and used correctly. However, you must know more about air brakes than you need to know with the simpler brake systems used on light vehicles. It is important for you to study this section.

Air brake systems consist of three braking systems combined: the **service brake system**, the **parking brake system** and the **emergency brake system**.

- The **service brake system** applies and releases the brakes when you use the brake pedal during normal driving.
- The **parking brake system** applies and releases the parking brakes when you use the parking brake control.
- The **emergency brake system** uses parts of the service and parking brake systems to stop the vehicle in the event of a brake system failure.

The Parts of an Air Brake System

There are many parts of the air brake system. You should know about the parts discussed below.

Air Compressor

The air compressor pumps air into the air storage tanks (reservoirs). The air compressor is connected to the engine through gears or a V-belt. The compressor may be air cooled or may be cooled by the engine cooling system. Nothing should be in the air brake system but air. There should be no oil or water in the air brake system.

Air Compressor Governor

The governor controls when the air compressor will pump air into the air storage tanks. When air tank pressure rises to the "cut-out" level (120 pounds per square inch, or "psi"), the governor stops the compressor from pumping air. When the tank pressure falls to the "cut-in" pressure (90 psi), the governor allows the compressor to start pumping again. ***Remember 90 120 psi.***

Air Pressure Gauge (Supply Pressure Gauge)

The air pressure gauge on your bus gives a reading in pounds per square inch. All air-braked vehicles must have a pressure gauge connected to the air tank. If the vehicle has a dual air brake system, there will be a gauge for each system. (Or a single gauge with two needles.) Dual systems will be discussed later. These gauges tell you how much pressure is in the air tanks.

Air Storage Tanks

Air storage tanks are used to hold compressed air. The number and size of air tanks varies among vehicles. The tanks will hold enough air to allow the brakes to be used several times even if the compressor stops working.

The rear air storage tank is normally right behind the differential housing. The front air storage tank will be forward near the transmission housing. Remember that the number, size, location, and appearance of air storage tanks will vary from bus to bus.

Safety Valve

The first tank receiving compressed air is equipped with a safety relief valve. The safety valve protects the tank and the rest of the system from too much pressure. The valve is usually set to open at 150 psi. If the safety valve releases air, something is wrong. Report this to the bus garage. ***Remember 150 psi.***

The Drier

Moisture can build up in the storage tanks and brake lines. The purpose of the drier is to take as much of this moisture out of the system as possible. Its drying capacity is 30 quarts per month, which should take care of any need.

Air Chambers

Air chambers are located at each of the four wheel positions of the bus. Air from the storage tanks enters these chambers when you press the brake pedal. A special mechanism in the rear chambers causes the brakes to lock up when there is an insufficient amount of air pressure.

Slack Adjusters

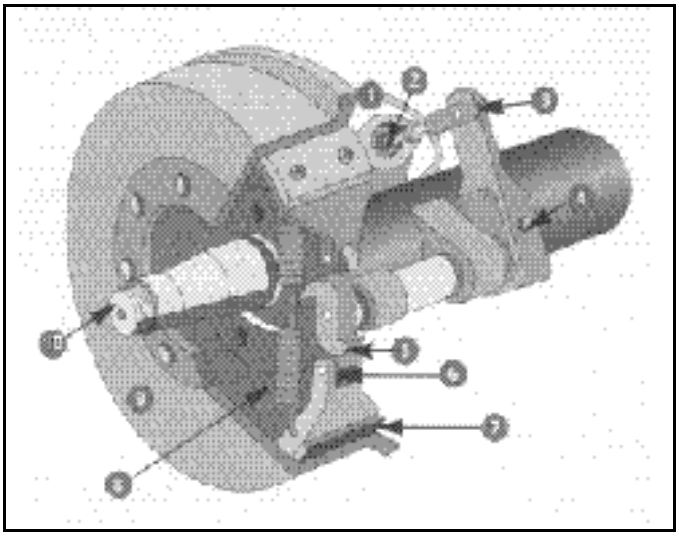
Over time a certain amount of wear will occur in any brake system. The slack adjusters at each wheel are designed to balance this wear. A mechanic should make any needed adjustments.

The Brake Pedal

You apply the brakes by pushing down the brake pedal. (It is also called the foot valve, treadle valve, or service brake.) Pushing the pedal down harder applies more air pressure. Letting up on the brake pedal reduces the air pressure and releases the brakes. Releasing the brakes lets some compressed air go out of the system, so the air pressure in the tanks is reduced. It must be made up by the air compressor. Pressing and releasing the pedal unnecessarily can let air out faster than the compressor can replace it. If the pressure gets too low the brakes won't operate properly.

When you push the brake pedal down, two forces push back against your foot. One force comes from a spring. The second force comes from the air pressure going to the brakes. This lets you feel how much air pressure is being applied to the brakes.

Foundation brakes are used at each wheel. The most common type in North Carolina is the drum brake, shown in the illustration.



Key parts S-Cam Air Brake

1. Air chamber
2. Push rod
3. Slack adjuster
4. Adjusting nut
5. Brake S-cam
6. Cam roller
7. Brake shoe
8. Return spring
9. Brake drum
10. Axle

Brake Drums, Shoes and Linings

Brake drums are located on each end of the vehicle's axles. The wheels are bolted to the drums. The braking mechanism is inside the drum. To stop, the brake shoes and linings are pushed against the inside of the drum. This causes friction that slows the vehicle (and creates heat). The heat a drum can take without damage depends on how hard and how long the brakes are used. Too much heat can make the brakes stop working. On school buses, the brake linings are not visible and the driver is not required to check them.

Low Air Pressure Warning

A low air pressure warning signal is required on vehicles with air brakes. A warning signal you can see must come on before the air pressure in the tanks falls below 60 psi. The warning is usually a red light. A buzzer may also sound. ***Remember 60 psi.***

Stop-Light Switch

Drivers behind you must be warned when you apply your brakes. The air brake system does this with an electric switch that works by air pressure. The switch turns on the brake lights when you apply the air brakes.

Spring Brakes (Emergency Brakes)

All air brake buses must be equipped with emergency brakes and parking brakes. They must be held on by mechanical force (because air pressure can eventually leak away). Spring brakes are usually used to meet these needs. When driving, powerful springs are held back by air pressure. If the air pressure is removed, the springs put on the brakes (rear wheels only). A parking brake control allows the driver to let the air out of the spring brakes. This lets the springs put the emergency brakes on. A leak in the air brake system that causes all the air to be lost also will activate the spring brakes.

Spring brakes will come fully on when air pressure drops to a range of 20 to 45 psi (typically 30 psi.). Do not wait for the brakes to come on automatically. When the low air pressure warning light and buzzer first sound, bring the vehicle to a safe stop right away, while you can still control the brakes. ***Remember 30 psi.***

The braking power of spring brakes depends on the brakes being in adjustment. If the brakes are not adjusted correctly, neither the service brakes nor the emergency brakes will work properly. Failure of the air brake system is most often caused by brakes that are out of adjustment.

Remember 30-60-90-120-150 psi.

Parking Brake Controls

In newer vehicles with air brakes, you put on the parking brake using a diamond shaped, yellow, push-pull control knob. You pull the knob out to put the parking brakes on, and push it in to release them. On older vehicles, the parking brakes may be controlled by a lever. Use the parking brakes whenever you park.

Whenever you suspect something is wrong with the braking system, it should be reported to the mechanic immediately.

TEST YOUR KNOWLEDGE

1. What is a supply pressure gauge used for?

2. True or false? All vehicles with air brakes must have a low air pressure warning signal.

3. What are spring brakes?

4. True or false? A safety relief valve is used to release air when something is wrong and the pressure in the air tank reaches 150 psi.

5. True or false? The air brake system is composed of two braking systems combined.

Multiple Choice Questions

1. The low air pressure warning light first activates when the pressure in the storage tanks drop to approximately:
a) 45 psi;
b) 30 psi;
c) 60 psi;
d) 50 psi.

2. The purpose of the air storage tanks is to :
a) provide flotation in case of high water;
b) hold compressed air;
c) provide a source of air to inflate slack tires;
d) none of the above.

Dual Air Brake Systems

Most newer heavy-duty vehicles use dual air brake systems for safety. A dual air brake system has two separate air brake systems that use a single set of brake controls. Each system has its own air tanks, hoses, lines, etc. One system typically operates the regular brakes on the rear axle. The other system operates the regular brakes on the front axle. The first system is called the "primary" system (rear brakes). The other is called the "secondary" system (front brakes).

Before driving a vehicle with a dual air system, allow time for the air compressor to build up a minimum of 100 psi pressure in both the primary and secondary systems. Watch the primary and secondary air pressure gauges (or needles, if the system has two needles in one gauge.) Pay attention to the low-air-pressure warning light and buzzer. The warning light and buzzer should shut off when air pressure in both systems rises to a value set by the manufacturer. This value must be greater than 60 psi.

The warning light and buzzer should come on before the air pressure drops below 60 psi in either system. If one air system is very low on pressure, either the front or the rear brakes will not be operating fully. This means it will take you longer to stop. Bring the vehicle to a safe stop and have the air brake system fixed.

You should use the following inspection procedure to inspect your vehicle. There are more items to inspect on a vehicle with air brakes than one without them.

✓Air Brake Checks

Check for **leaks, air warning, and button pop-out: the LAB test. (Failure to do the LAB test during the vehicle inspection will constitute a failure of the vehicle inspection test.)** Let air pressure build to the governed cut-out pressure- 120 pounds per square inch(psi).

Turn off the engine

Leaks - Check that the air pressure is **120 psi**. Press the brake pedal hard and hold for one minute. Listen for leak and check that the air pressure does not drop more than three psi.

Air warning - Turn ignition key to "on". Reduce the air pressure to **60 psi**. The warning light and buzzer should come on before the air pressure drops below 60 psi. Turn ignition key "off".

Button pop-out - With your foot on the foot brake, release the parking brake button. Reduce air to **30 psi**. The parking brake button should pop out before the air pressure drops below 30 psi.

Start engine and let the air pressure build to normal operating range **(90-120 psi)**.

✓Parking Brake and Service Brake Checks

Parking brake - Check that the air pressure is in the range of **90-120 psi**. Set the parking brake, shift the transmission to drive, and then release the brake pedal. The vehicle should not move (with the engine at a fast idle).

Service brake - Check that the air pressure is in the range of **90-120 psi**. Move the bus forward about five miles per hour. Press the brake pedal firmly. **Note any problems with the brakes such as unusual noise, unusual feel, pulling to one side, or delayed stopping.**

TEST YOUR KNOWLEDGE

1. What is a dual air brake system?

2. At what psi does the air compressor governor cut in and out?

3. How can you test the low pressure warning signal?

4. How can you check that the spring brakes come on automatically?

Using Air Brakes

Normal Stops

Push the brake pedal down. Control the pressure so the vehicle comes to a smooth, safe stop, gently letting up on the brake just before coming to a complete stop.

Emergency Stops

You should brake so you can stay in a straight line and can maintain steering control. Use one of the following two methods.

◆ **Controlled Braking.** This method is also called "squeeze" braking. Put on the brakes as hard as you can without locking the wheels. Do not turn the steering wheel while doing this. If you need to make large steering adjustments or if you feel the wheels sliding, release the brakes. Brake again as soon as the tires get traction.

Note: Brakes are most effective when wheels are rolling just before locking.

◆ **Stab Braking (Use only on dry surfaces.)**

a). Press on the brake pedal as hard as you can.

b). Release the brakes when the wheels lock up.

c). As soon as the wheels start rolling, put on the brakes fully again.

It can take up to one second for the wheels to start rolling after you release the brake pedal. Make sure you stay off the brakes long enough to get the wheels rolling again. Otherwise the vehicle may not stay in a straight line.

You lose steering control when your front tires are not rolling.

Stopping Distance

In reference to stopping distance, the heavier the vehicle or the faster it is moving, the more heat the brakes have to absorb to stop it. With air brakes there is an added delay, the time required for the brakes to work after the brake pedal is pushed. With hydraulic brakes (used on cars and light/medium trucks) the brakes work instantly. However, with air brakes, it takes a little time (one half second or more) for the air to flow through the lines to the brakes. This is known as brake lag. Effective braking distance is the distance the bus travels after the brakes have been applied. Thus, the total stopping distance for vehicles with air brake systems is made up of four different factors:

Perception Distance
Reaction Distance
Brake Lag Distance
\+ Effective Braking Distance

= Total Stopping Distance

The air brake lag distance at 55 mph on dry pavement adds about 32 feet. So at 55 mph for an average driver under good traction and brake conditions, the total stopping distance is over 300 feet. This is longer than a football field.

Braking on Downgrades

When you use the brakes, they build up heat. Excessive heat is caused by trying to slow down from too high a speed, over braking, or a combination of both. Brakes will fade when they get too hot (you will have to push harder on the pedal to get the same stopping power.) If the brakes continue to be used hard, they will fade so badly they will not slow you down. The right way to use your brakes for long downhill grades is to go slow enough that a fairly sparing use of the brakes will keep your speed from increasing. If you go slow enough, the brakes will be able to get rid of the heat and they won t get too hot. **Remember, the heavier the vehicle is the more heat the brakes have to absorb to stop the vehicle.**

Forceful, intermittent braking (snubbing) is safer than light, continued braking. Letting up on the brakes from time to time will allow them to cool enough so that they don t become overheated. Tests have proven this to be true. Light, continued pressure causes hot spotting and in general makes the brakes run hotter, leading to increased probability of brake fade. Light, continued pressure also causes the brakes to wear faster, which is both a safety problem and a maintenance problem. Therefore, select the right gear, go slow enough, and use forceful, intermittent braking (snubbing).

It is always important for the brakes to be adjusted properly. However, it is especially important when going down steep grades. In addition to proper slack adjustment, the air brake system should be balanced, to give about the same braking at each of the wheels. Otherwise, some brakes will do more work than others. They will heat up and lose some of their stopping power. Brake balance can be tested and fixed by school mechanics.

Low Air Pressure Warning

If the low air-Pressure warning comes on, stop and safely park your vehicle as soon as possible. There might be an air leak in the system. Controlled braking is possible only while enough air remains in the air tanks. The spring brakes will come on when the air pressure drops into the range typically 20 to 45 psi. A heavily loaded vehicle will take a long distance to stop, because the spring brakes do not work on all axles. Lightly loaded vehicles or vehicles on slippery roads may skid out of control when the spring brakes come on. It is much safer to stop while there is enough air in the tanks to use the foot brake.

Parking Brakes

Any time you park for a short period of time, use the parking brake. Pull the parking brake control knob out to apply the parking brakes, push it in to release them. The control will be a yellow, diamond-shaped knob labeled "parking brake" on newer vehicles.

When parking the bus for a long period of time, or when there is danger of someone getting on the bus who could accidentally release the brake, decrease the air pressure in the system to below 30 pounds. This will activate the emergency system and will prevent the bus from being moved unless the engine is started, and the pressure is built back up. To decrease the air pressure, the parking brake knob should be pushed half-way in to bleed the air down until the parking brake knob will no longer stay in.

Drive Safely -
Your Passengers are depending on you!

Always check your brakes before every trip. Never leave your vehicle unattended without applying the emergency brakes (reduce air pressure below 30 psi) and chocking the wheels, if chock blocks are provided. Your vehicle might roll away and cause injury and damage.

TEST YOUR KNOWLEDGE

1. Do air brakes work instantly, like hydraulic brakes?

2. Why is it important to go slow on downgrades?

3. True or false? Using the brakes hard going downhill is OK if you let up on the pedal frequently to cool the brakes.

4. True or false? When parking the bus overnight, you only need to secure it with the parking brakes.

Multiple Choice Questions

1. During normal driving, what kind of pressure keeps the emergency brake from applying?
a) hydraulic;
b) spring;
c) electrical;
d) air.

2. Controlled braking is:
a) "squeeze" braking;
b) applying brakes as hard as you can without locking the wheels;
c) braking to lock the wheels;
d) both a & b.

3. Stab braking is:
a) locking the brakes, then releasing them, and when the wheels start rolling, repeat the procedure until the bus has stopped;
b) the same as controlled braking;
c) fanning the brakes;
d) none of the above.

Chapter Eight: Passenger Endorsement

Pre-Trip Inspection

Before driving your bus, you must be sure it is safe. You must review the inspection report made by the previous driver. Only if defects reported earlier have been certified as repaired or not needed to be repaired, should you sign the previous driver's report. This is your certification that the defects reported earlier have been fixed.

Make sure these things are in good working order before driving:

- Parking brake
- Steering mechanism
- Lights and reflectors
- Tires (front wheels must not have recapped or regrooved tires)
- Horn
- Windshield wiper or wipers
- Rear-vision mirror or mirrors
- Wheels
- Emergency equipment.

As you check the outside of the bus, close any open emergency exits. Also close any open access panels (for baggage, restroom service, engine, etc.) before driving.

People sometimes damage unattended buses. Always check the interior of the bus before driving to ensure rider safety. Aisles and stairwells should always be clear. The following parts of your bus must be in safe working condition:

- Each handhold and railing
- Floor covering
- Signaling devices, including the restroom emergency buzzer, if the bus has a restroom
- Emergency exit handles.

The seats must be safe for riders. All seats must be securely fastened to the bus.

Never drive with an open emergency exit door or window. The "Emergency Exit" sign on an emergency door must be clearly visible. If there is a red emergency door light, it must work. Turn it on at night or any other time you use your outside lights.

You may lock some emergency roof hatches in a partly open position for fresh air. Do not leave them open as a regular practice. Keep in mind the bus's higher clearance while driving with them open.

Make sure your bus has the fire extinguisher and emergency reflectors required by law. The bus must also have spare electrical fuses, unless equipped with circuit breakers.

The driver's seat should have a seat belt. Always use it for safety.

Loading and Trip Start

Do not allow riders to leave carry-on baggage in a doorway or aisle. There should be nothing in the aisle that might trip other riders. Secure baggage and freight in ways that avoid damage and:

- Allow the driver to move freely and easily
- Allow riders to exit by any window or door in an emergency
- Protect riders from injury if carry-ons fall or shift.

Watch for cargo or baggage containing hazardous materials. Most hazardous materials cannot be carried on a bus, however some can.

The Federal Hazardous Materials Table shows which materials are hazardous. They pose a risk to health, safety, and property during transportation. The rules require shippers to mark containers of hazardous material with the material's name, identification number, and hazard label. There are nine different 4-inch, diamond-shaped hazard labels. Do not transport any hazardous material unless you are sure the rules allow it.

Buses may carry small-arms ammunition labeled ORM-D, emergency hospital supplies, and drugs. You can carry small amounts of some other hazardous materials if the shipper cannot send them any other way. Buses must never carry:

- Class 2 poison, liquid Class 6 poison, tear gas, irritating material
- More than 100 pounds of solid Class 6 poisons
- Explosives in the space occupied by people, except small arms ammunition
- Labeled radioactive materials in the space occupied by people
- More than 500 pounds total of allowed hazardous materials, and no more than 100 pounds of any one class.

Riders sometimes board a bus with an unlabeled hazardous material. They may not know it is unsafe. Do not allow riders to carry on common hazards such as car batteries or gasoline.

No rider may stand forward of the rear of the driver s seat. Buses designed to allow standing must have a 2-inch line on the floor or some other means of showing riders where they cannot stand. This is called the standee line. All standing riders must stay behind it.

When arriving at the destination or intermediate stops announce:

- The location
- Reason for stopping
- Next departure time
- Bus number.

Remind riders to take carry-ons with them if they get off the bus. If the aisle is on a lower level than the seats, remind riders of the step-down. It is best to tell them before coming to a complete stop.

Charter bus drivers should not allow riders on the bus until departure time. This will help prevent theft and vandalism of the bus.

On the Road

Many charter and intercity carriers have passenger comfort and safety rules. Mention rules about smoking, drinking, or use of radio and tape players at the start of the trip. Explaining the rules at the start will help to avoid trouble later on.

While driving, regularly check the road ahead and scan your mirrors to see to the sides, rear and interior of your bus, checking for traffic hazards and potential vehicle problems. A hazard is any road condition or other road user that is a possible danger.

Riders can stumble when getting on or off and when the bus starts or stops. Caution riders to watch their step when leaving the bus. Wait for them to sit down or brace themselves before starting. Starting and stopping should be as smooth as possible to avoid rider injury.

Occasionally, you may have a drunk or disruptive rider. You must ensure this rider's safety as well as that of others. Don't discharge such riders where it would be unsafe for them. It may be safer at the next scheduled stop or a well-lighted area where there are other people. Many carriers have guidelines for handling disruptive riders.

The Most Common Bus Crashes. Bus crashes often happen at intersections. Use caution, even if a signal or stop sign controls other traffic. Mass transit buses sometimes scrape off mirrors or hit passing vehicles when pulling out from a bus stop. Remember the clearance your bus needs, and watch for poles and tree limbs at stops. Know the size of the gap your bus needs to accelerate and merge with traffic. Wait for the gap to open before leaving the stop. Never assume other drivers will brake to give you room when you signal or start to pull out.

Crashes on curves that kill people and destroy buses result from excessive speed, often when rain or snow has made the road slippery. Every banked curve has a safe "design speed."

In good weather, posted speed is safe for cars but may be too high for many buses. With good traction, the bus may roll over; with poor traction it might slide off a curve. Slow to a safe speed before you enter a curve. Be in a gear that will let you accelerate slightly in the curve.

You should always be able to stop within the distance you can see ahead. Fog, rain or other conditions may require that you slow down to be able to stop in the distance you can see. At night you cannot see as far with low beams as you can with high beams. When you must use low beams, slow down.

How Much Space? How much space should you keep in front of you? One good rule says you need at least one second for each 10 feet of vehicle length at speeds below 40 mph. At greater speeds, you must add one second for safety. For example, if you are driving a 40-foot vehicle, you should leave four seconds between you and the vehicle ahead. In a 60-foot vehicle you will need six seconds. At 40 mph and greater, you would need five seconds for a 40-foot vehicle and seven seconds for a 60-foot vehicle. However, never should you have less than four seconds. In adverse conditions increase following distance.

Stop at RR Crossings. Stop your bus between 15 and 50 feet before railroad crossings. Listen and look in both directions for trains. You should open your forward door if it improves your ability to see or hear an approaching train. Before crossing after a train has passed, make sure there isn't another train coming in the other direction on other tracks. If your bus has a manual transmission, never change gears while crossing the tracks.

Stop at Drawbridges. Stop at drawbridges that do not have a signal light or traffic control attendant. Stop at least 50 feet before the draw of the bridge. Look to make sure the draw is completely closed before crossing. You do not need to stop, but must slow down and make sure it's safe when:

- there is a traffic light showing green or
- the bridge has an attendant or traffic officer who controls traffic whenever the bridge opens.

After-Trip Vehicle Inspection

Inspect your bus at the end of each shift. If you work for an interstate carrier, you must complete a written inspection report for each bus driven. The report must specify each bus and list any defect that would affect safety or result in a breakdown. If there are no defects, the report should say so.

Riders sometimes damage safety-related parts such as handholds, seats, emergency exits, and windows. If you report this damage at the end of a shift, mechanics can make repairs before the bus goes out again. Mass transit drivers should also make sure passenger signaling devices and brake-door interlocks work properly.

Prohibited Practices

Avoid fueling your bus with riders on board unless absolutely necessary. Never refuel in a closed building with riders on board.

Don't talk with riders, or engaged in any other distracting activity, while driving.

Do not tow or push a disabled bus with riders aboard the vehicle, unless getting off would be unsafe. Only tow or push the bus to the nearest safe spot to discharge passengers. Follow your employer's guidelines on towing or pushing disabled buses.

Use of Brake-door Interlocks

Urban mass transit coaches may have a brake and accelerator interlock system. The interlock applies the brakes and holds the throttle in idle position when the rear door is open. The interlock releases when you close the rear door. Do not use this safety feature in place of the parking brake.