Colorado School Bus Driver Trainer Manual

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COLORADO DEPARTMENT *of* EDUCATION

Colorado School Bus Driver Trainer's Manual

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UNIT ONE - INTRODUCTION

1.1 PURPOSE OF THIS MANUAL

The purpose of the Colorado School Bus Driver Trainer's Manual is to reduce the potential for school bus crashes and injury or death to school children while being transported to and from school or on school-sponsored trips. This manual provides information necessary for training school bus drivers. It includes all of the basic information to develop a training program to fit the needs of your districts student transportation requirements.

1.2 IMPORTANCE OF THIS MANUAL

This manual is designed to improve school bus driver competency in Colorado. Competent school bus drivers are needed to provide safe and efficient transportation for student riders. The vital link to safety, proper attitude, knowledge, and skill must be developed through interest in safe driving. This is accomplished by improving the driver's ability to cope with the constantly changing driving environment through intensive pre-service training as well as continuing in-service training and activities. Safe transportation of students to and from school and school related activities is an integral part of a sound educational program.

1.3 IMPORTANCE OF THE DRIVER

The successful bus driver observes all traffic signs, rules, and regulations. The public expects top driving performance from members of the school bus driving force. The motoring public may relate improper driver actions to the total school program.

Five keys to being a successful school bus driver are:

Competence

Positive attitude

Communication

Cooperation

Safety awareness

A professional driver is generally predictable in his/her behavior. The effective bus driver will be consistent in the management of student behavior. Students respect and obey a person they can count on to act in a controlled manner at all times. Students relate to someone who is friendly, yet firm, and respectful. Inconsistency and lack of discipline may lead students to become disruptive. The successful driver understands and complies with all laws, CDE Rules For The Operation of School Transportation Vehicles – 301-26, and Colorado traffic laws.

Any organization whose members work as a team with mutual friendliness, interest, and respect will create an image that will be respected by the public.

UNIT TWO – LEGISLATIVE GUIDELINES

2.1 COLORADO DEPARTMENT OF EDUCATION RULES

1 CCR 301-25, Colorado Minimum Standards Governing School Transportation Vehicles

2251-R-1.00 Statement of Basis and Purpose
The statutory authority for the Amendments to the Colorado Minimum Standards Governing School Transportation Vehicles (hereinafter "these rules"), adopted by the State Board of Education on May 10, 2007, is found in sections 22-51-108 and 42-4-1903 (1) (2) (3), C.R.S.

The purpose of these amendments is to upgrade the rules for Colorado minimum standards governing school transportation vehicles. The amendments will improve the safety of the students riding the school bus and the mechanical efficiency of the school bus. They are designed to meet or exceed changing needs of operation, the national recommended minimum standards, new federal safety and emission standards and utilize state-of-the-art industry advances.

1 CCR 301-26. Rules for the Operation of School Transportation Vehicles

4204-R-200.00 Statement of Basis and Purpose

200.01 Colorado law provides for the State Board of Education to adopt and enforce regulations governing the safe operation of school buses used for the transportation of students pursuant to 42-4-1904 and 22-51-108, C.R.S.

200.02 The purpose of these amendments is to reflect recommendations from the National School Transportation Specifications and Procedures, Colorado State Patrol's Motor Carrier Safety Regulations, and other input from the School Transportation Unit and school districts/service provider transportation professionals.

200.03 Pursuant to 22-32-113, C.R.S., the board of education of a school district is authorized but is not required to furnish student transportation home to school, school to school, school to home, and on school sponsored activities. Public school districts may be subject to federal and state

requirements relating to transportation for eligible students with disabilities and students meeting the definition of homeless.

200.04 These rules shall become effective July 1, 2009, for all student transportation.

1 CCR 301-29, Rules for the Annual Inspection and Preventative Maintenance of School Transportation Vehicles

2251-R-l.00 Statement of Basis and Purpose

The statutory authority for these rules and regulations adopted by the State Board of Education is found in 22-2-107(l)(c), 22-51-108, and 42-4-1904, C.R.S.

The purpose of this rule is to establish annual inspection and preventative maintenance criteria to insure that Colorado school transportation vehicles are regularly maintained and inspected in the interest of the safety of the students transported in these vehicles.
1.01 Effective date: These rules shall become effective June 1, 2010.

These rules are issued under the authority of 42-4-1904(1) C.R.S.

2.2 FEDERAL STANDARDS

The National Highway Traffic Safety Administration (NHTSA) has minimum design and construction standards for many aspects of all vehicles, especially school buses, called Federal Motor Vehicle Safety Standards (FMVSS). Starting July 1, 1977, these standards were expanded to encompass the concept of compartmentalization. Distance between seats is now less, seat backs are higher, and the metal framework is covered with foam padding. Also, the roof, sides, and floor are heavily reinforced to stay intact. In an accident, the student(s) would remain in their seating compartment. The padded seat back in front of them provides a large area to spread the energy of their body, thus increasing the safety factor in the passenger compartment.

2.3 LOCAL POLICIES

The Local Board of Education may adopt and enforce policies consistent with existing statutes, state rules and regulations governing school transportation.

2.4 HOURS OF SERVICE

301-26, 4204-R-229.00 Hours of Service for School Transportation Vehicle Operators

229.01 The school transportation vehicle operator, including small vehicle operators, shall not drive nor shall the school district/service provider permit or require an operator to drive:

229.01 (a) In excess of 10 hours or after being on-duty 14 hours until completing 10 hours off duty. This would include on-duty time for all employers. Ten hours off duty may be consecutive or accumulated in two or more periods of off duty time with one period having a minimum of 6 consecutive hours off duty.

229.01 (b) After being on-duty for more than 70 hours in any seven consecutive days.

229.02 A school district/service provider may comply with part 395 of the Federal Motor Carrier Safety Regulations (FMCSR) in place of this section.

229.03 Definitions:

229.03 (a) Adverse driving conditions - In case of emergency, an operator may complete the trip without being in violation if such trip reasonably could have been completed absent the emergency.

229.03 (b) Day - Means any 24-consecutive hour period beginning at the time designated by the school district/service provider.

229.03 (c) On-duty time - Includes all time worked for any and all employers, including all driving and non-driving duties.

229.03 (d) Off-duty time - School transportation vehicle operators may consider waiting time at special events, meal stops, or activity trips as off-duty if the following criteria is met: (compensated waiting time does not necessitate on-duty time)

(1) The operator shall be relieved of all duty and responsibility for the care and custody of the vehicle, its accessories, and students, and

(2) The operator shall be at liberty to pursue activities of his/her choice including leaving the premises on which the bus is located.

229.04 All school transportation vehicle operators shall document that they are in compliance with this section, hours of service.

229.04 (a) An operator's daily log, or equivalent, shall be completed for the trip in the operator's own handwriting, when the trip requires a scheduled or unscheduled overnight stay away from the work reporting location.

229.05 The school transportation vehicle operator shall not transport students, nor shall the school district/service provider require the operator to transport students, while the operator's ability or alertness is so impaired, through fatigue, illness or any other cause, as to make it unsafe for the operator to transport students.

2.5 DRUG AND ALCOHOL

2.5.a Drug and alcohol testing requirements

When a person has a CDL or works in a safety-sensitive position, that person is subject to DOT drug & alcohol testing. FMCSR (Federal Motor Carrier Safety Regulations) 49 CFR, Part 382. The tasks actually performed qualify a person as a safety-sensitive employee, not the job title. All employees who will be subject to testing under DOT drug & alcohol testing will be provided training when they are hired. The training must be documented as part of pre-service training and maintained in the driver qualification file.

2.5.b What conduct is prohibited

An individual must not do any of the following when reporting for duty in a safety sensitive position.

- While assigned, the individual must not use or possess any illegal drug
- The driver must not possess alcohol
- The driver must not report for duty, nor remain on duty if:
  - Under the influence or impaired by alcohol
  - Have a blood alcohol concentration above .02
  - Have used illegal drugs
- Must not use alcohol within four hours of reporting for duty

2.5.c What does DOT test for

- **DRUGS**
  - Marijuana metabolites/THC
  - Cocaine metabolites
  - Amphetamines (including methamphetamine)
  - Opiates (including codeine, heroin, morphine)
  - Phencyclidine (PCP)
  - Heroin (6MAM)
  - Ecstacy (MDMA)
- **ALCOHOL**

2.5.d Types of testing

The following are circumstances which a person is subject to testing for drugs and/or alcohol.

- Pre-employment
- Reasonable Suspicion/Cause
- Random
- Post-accident
- Return-to-duty
- Follow-up

2.5.e Pre-employment (Sec. 382.301)

When hired, a new driver is required to submit to a drug test. Employers may, but are not required to, conduct alcohol testing. A new hire may not perform safety-sensitive duties until the employer has received a negative result from the testing.

2.5.f Reasonable Suspicion (Sec. 382.307)

An employee is required to submit to any test (whether drug, alcohol, or both) that a supervisor requests based on reasonable suspicion. The reasonable suspicion testing is based on one or more supervisors who believe or suspect that an employee is under the influence of drugs or alcohol. A supervisor cannot require testing based on a hunch or guess. The suspicion must be based on observations concerning appearance, behavior, speech, and body odor which can be associated with drug or alcohol use.

A supervisor must have received the two required 60- minute sessions of training in order to send an individual for testing. (Sec 382.603) A supervisor must document the employee's conduct and sign the statement within 24 hours of the observed behavior or before the results of the test are released.

Testing for alcohol should be accomplished within two hours following the observation. If it cannot be accomplished within two hours, a written statement must be prepared and maintained stating the

reasons the test was not completed in a timely manner. If the test is not completed within eight hours, all attempts to complete the testing shall cease. If there is reasonable suspicion, but no test has been given, the employee shall not perform safety-sensitive duties for 24 hours.

2.5.g Random (Sec. 382.305)

Employees in safety sensitive duties are subject to unannounced random drug & alcohol testing. Alcohol testing is administered just prior to, during, or just after performing safety-sensitive functions. Selection for random testing must use a truly random selection process that is something more than drawing a name out of a hat. The selection shall be made by a scientifically valid method, such as a random number table or a computer-based random number generator. When selected for a random test, the employee must proceed immediately to the testing site.

2.5.h Post-accident (Sec. 382.303)

Post-accident testing is required when any of the following events occur.

- The accident involved a fatality
- The driver receives a citation or moving violation arising from an accident that involved:
  - Injury requiring medical treatment away from the scene or
  - One or more vehicles incur disabling damage and must be towed from the scene

"Disabling damage" is damage that prevents a motor vehicle from leaving the scene of the accident in its usual manner. This includes motor vehicles that could be driven but would be damaged further if driven. It does not include:

- Damage that can be remedied temporarily at the scene of the accident without special tools
- Tire disablement without other damage, even if no spare tire is available.
- Headlight or taillight damage
- Damage to turn signals, horn, or windshield wipers that makes them inoperative

2.5.i Return to Duty and Follow-up

These tests are given after an employee has had a positive test for either drugs or alcohol. Normally, district policy does not allow retention of an employee after a positive test. Drug testing under these two categories requires them to be conducted under direct supervision.

2.5.j Self-Reporting

Employers are required to advise employees of resources available for appropriate treatment for alcohol and drug use. The employer does not have to pay for the treatment. Self-reporting when notified to report for drug testing does not release the employee from the responsibility to show up for testing.

2.5.k Substance Abuse Professional (SAP)

SAPs play a vital role in the drug and alcohol testing program. If an individual tests positive, the employer must refer the individual to a SAP. The SAP will recommend appropriate education, treatment, and follow-up. This does not mean that an employer must retain an employee who has tested positive. Follow your district policy.

2.6 ALCOHOL

Alcohol is prohibited under the following conditions

- While performing a safety-sensitive function
- For four hours before performing a safety-sensitive function
- Reporting for duty or remaining on duty with an alcohol concentration of 0.02 or greater
- Use during eight hours following an accident, or until he/she undergoes a post-accident test
- Refusal to take a required test

  An employee with an alcohol concentration greater than 0.02 but less than 0.04 shall not be permitted to perform safety-sensitive functions for 24 hours. The district may have stricter rules; however, they must be independent of FMCSR.

  The effects of a hangover can adversely affect an individual's ability to drive.

2.7 DRUGS

Prescription and over the counter drugs (OTC), that affect your job performance are prohibited.

2.7.a Legal drugs that affect your job performance:

- **Alcohol -** The most abused drug! It depresses the central nervous system. Effects: Impairs judgment, gives a false sense of confidence, reduces vision, hearing is less acute, concentration is difficult, speech and balance are affected, and reactions are slowed.

- **Amphetamines -** Used primarily as a central nervous system stimulant. Example: Dexatrim (weight control). Effects: Changes in perception, over extension of the body's capabilities.

- **Antihistamines -** Found in allergy and cold medicines. Examples: Triaminic DH expectorant, Nyquil. Effects: Drowsiness, dizziness, slowed reflexes, impaired mental and physical abilities.

- **Barbiturates -** Acts on the nervous system. Example: Sleeping pills. Effects: Slowed reflexes.

- **Hallucinogens -** Drugs that produce hallucinations. Examples: Peyote and sometimes ethyl alcohol. Effects: Gives false perceptions, the mind wanders, an individual may be distraught.

- **Hypertension drugs -** Used to control blood pressure. Effects: May cause emotional instability at times.

- **Inhalants -** Produces a quick "high." Examples: Solvents (glue), aerosol sprays (Binaca), anesthetics (ether). Effects: Dulls judgment, slows reflexes, reduces vision, hinders muscle control, distorts perceptions, and may cause sudden unconsciousness.

- ***Narcotics -*** *Depress the central nervous system, relieving pain and inducing sleep. Examples: Codeine, Morphine. Effects: Drowsiness, slowed reflexes, impaired judgment.*

- **Tranquilizers -** Anti-anxiety for relaxation. Examples: Valium, Librium. Effects: Drowsiness, slowed reflexes, impaired judgment.

- **Prescription drugs or over the counter medications –** The driver should ask their doctor or pharmacist what side effects a drug may have. There are certain drugs that cannot be taken while performing safety sensitive employment.

Any illegal drug or drugs that have not been prescribed by a licensed doctor are prohibited.

2.8 MEDICAL MARIJUANA

Medical use of marijuana is not protected by the federal Americans with Disabilities Act, because the federal government does not recognize medical marijuana. All school bus drivers with a CDL are subject to drug testing under

federal law. A medical marijuana card holder who gets pulled over for suspicious driving will be ticketed with a DUI for being under the influence of marijuana. If a card holder shows up for work and appears to show signs of impairment, the employer has every right to have the employee tested for reasonable suspicion. If the employee tests positive, the driver is subject to the consequences of the district's workplace drug policy. If a card holder is selected for a random drug test and tests positive for THC, the card holder is subject to the district's policy concerning a positive drug test.

Marijuana, students, and school buses do not mix!

TIPS:

- Failure to submit to testing is considered a refusal to test.
- When your doctor is prescribing medication, let him/her know that you are a CDL driver and ask about any effects on ability to function properly.
- Notify your transportation supervisor when taking any prescription medication.
- When taking a drug test, neither you nor the tester should let the specimen out of your sight until it has been poured into two separate bottles and properly sealed.
- THC can be detected in your system for at least 30 days.

For additional guidance concerning the drug and alcohol testing program, contact your drug testing agency or refer to FMCSR 49 CFR 382.

UNIT THREE - DRIVER AND VEHICLE READINESS

3.1 PERSONAL PRE-TRIP

The personal pre-trip is just as important as the vehicle pre-trip.

Factors that influence a driver's well-being are physical, emotional, and mental attitude. Stress in any of these areas can affect driving performance. Under physical, emotional, or mental stress a driver may have trouble concentrating and may experience slowed reaction time.

3.1.a Being Well rested

Fatigue is one of the major contributing factors to accidents. A well rested driver is more alert to emergency situations and is less likely to misjudge speed and distance. A driver who gets an adequate amount of rest is less likely to overreact to stress created by traffic and passengers.

Drivers must know and be in compliance with the hours of service rules and not exceed them. Refer to 1 CCR 301-26, 4204-R-229.00 Hours of Service for school transportation vehicle operators in Unit Two.

3.1.b Physical health

Both illness and the medicine to combat it can interfere with concentration, coordination, and decision-making abilities. Medications such as cold treatments may cause more problems with driving ability than the illness itself. Behind the wheel of a school bus is no place to combat the flu.

3.1.c Proper dress

Clothing contributes both to safety and the school bus driver's professional image. Loose clothing, drawstrings, unsecured long hair, and jewelry may be caught in equipment. Shoes with smooth soles or spiked heels may cause ankle injuries or slipping and falling on uneven or slick surfaces. Clothing and footwear must be appropriate for road and weather conditions. Footwear should be firm and stable, with no open toes or heels, and should fit securely to the foot. Remember, as a professional driver, clothing that is provocative, advertises drugs, tobacco, alcohol, or sex should not be worn. Individual districts/service providers should establish a proper dress code.

Drivers who present a professional image gain respect from their passengers.

3.1.d Drugs and/or alcohol

The use of any drugs or alcohol prior to or while driving is prohibited. (See Unit Two for specific information)

3.1.e Confidence

Confidence is also a factor. Over confident drivers may take unnecessary chances. Under confident drivers may not make critical driving decisions in a timely manner.

3.1.f Emotional and personal problems

Driving is no place to rehearse arguments or re-live family fights. When such strong emotional events dominate a drivers thoughts, safe driving observations or the ability to make sound decisions is affected.

3.1.g Mental health

Generally speaking, the problems that fall into this category do not come on suddenly and, while treatable, this usually requires time. Mental health is closely related to emotional upsets and/or to physical problems. Being depressed over a long period of time, with or without apparent reason, may be related to physical factors or brain chemical imbalances that characterize a mental condition.

Drivers experiencing on-going mental or emotional problems may need help from a professional. Seeking out available resources is the first step.

3.1.h Self-esteem

These factors generally cannot be changed in a short period of time, but they do affect driving. Studies show that drivers who lack self-esteem have more accidents.

In conclusion, know when you, the professional driver, are “fit and ready” to drive the school vehicle. Know and acknowledge when you need help in becoming “fit and ready” to safely transport students. Safely transporting students is our business.

3.2 PRE-TRIP – THE VEHICLE

3.2.a OPERATIONAL RULES – PRE-TRIP INSPECTION

1 CCR 301-26, 4204-R-214.00 – Pre-trip Vehicle Inspection

Each school transportation vehicle shall have a daily pre-trip inspection performed and documented by the school transportation vehicle operator, or a district/service provider authorized transportation employee, prior to the vehicle being placed in service. The pre-trip inspection requirements shall include as a minimum: lights (inside and outside), mirrors, emergency equipment, emergency door(s), wheels, tires, wipers, horn, exhaust system, student seating secured and in safe condition, and all CDL brake system checks (both air and hydraulic systems):

- Hydraulic - pump and hold check
- Air compressor check
- Governed cutout
- 1-minute check
- Low air buzzer/light
- Park brake valve
- Park brake and service brake on both air and hydraulic systems

Additional inspection items may be determined by the district/service provider.

Pre-trip inspections contribute to safety and will add miles of trouble-free operation to the life of the school bus. These pre-trip inspections should consistently be routine and thorough.

Regardless of the engineering skill or workmanship incorporated in a school transportation vehicle, it cannot continue to deliver maximum safety, economy, and dependability unless it is properly maintained.

REMINDER *- Defects cannot be repaired if they are not documented. Electronic documentation is acceptable.*

3.2.b CHECKS AND TESTS

The following is an example of checks and tests to determine if your vehicle is safe and in good working order. Inspection will vary according to the type of vehicle being inspected and according to individual district procedure. The pre-trip inspection must be documented on a district form (according to your district procedure). Documentation shall include date, vehicle ID, items inspected, defects reported, and signature of person performing inspection. Additional documentation is required to include the action taken to correct defects.

3.2.b (i) VEHICLE APPROACH

- Check for signs of fluid leakage underneath, objects hanging, or vehicle leaning. A flashlight is needed when it is dark.

3.2.b (ii) ENGINE COMPARTMENT

- **Oil Level** - Within the safe operating range on dipstick.
- **Transmission Fluid Level** - Within the safe operating range on dipstick.
- **Coolant Level** - Within the safe operating range in sight glass or translucent tank.
- **Power Steering Fluid** - Within the safe operating level on dipstick or reservoir. Note if pump is belt or gear driven.

- **Windshield Washer Fluid Level** - Sufficient fluid for use during entire trip.
- **Water Pump** - Check if secure and not leaking. (Belt or gear driven)
- **Alternator** - Secure, no frayed wires or loose connections. (Belt driven)
- **Air compressor** (if equipped with air brakes) - Secure, no missing or broken bolts. May be belt driven or direct drive.
- **Master Cylinder** (if equipped with hydraulic brakes) - No leaks, fluid in safe operating range.
- **Hoses** - No cracks, cuts, holes, leaks, loose connections, rubbing or excessive wear.
- **Engine Belts** - No more than 1/2 to 3/4 inch play, no fraying, visible cuts, cracks, or excessive wear. Identify each belt individually and know which component the belt operates. Newer buses will have only one belt.
- **Wiring** - Check that it is secured, not frayed, and has no visible signs of rubbing. Wiring should not be broken or exposed.
- **Other items** may include: turbo, frame, exhaust, etc.

3.2.b (iii) INSIDE THE VEHICLE

- **Passenger Entry** - Door opens and closes correctly, steps are secure and free of tripping hazards, treads are not loose or excessively worn, handrail is secure, and there is nothing in the passenger entry that has the potential of catching clothing, backpacks, etc. as passengers are entering or exiting.
- **Driver's Seat** - Seat belt is adjusted, functioning properly and properly secured. Seat secure and adjusted for the driver to reach pedals properly.
- **Clutch/Gearshift** - Before you start the engine, depress the clutch and select neutral. In vehicles with automatic transmissions, select park (if available) or neutral.
- **Starter Interlock System Warning Device** - Device will sound if emergency exit(s) are locked, and vehicle should not start.
- **Low Air Pressure Warning Device** - Warning device may sound when engine is first started and when air pressure is at or below 60 psi.
- **Gauges** - Oil pressure, water temperature, ammeter/voltmeter, fuel, and air pressure gauges (if air-brake equipped)

- oOil Pressure Gauge - Should be within predetermined range established for the bus. Note: If the bus is equipped with a warning light in addition to the gauge, it may light up as the bus is started, but should go off immediately after the engine starts. If the light remains on or the gauge does not build to proper pressure, shut down the engine and report the problem immediately to fleet maintenance.
- oTemperature Gauge - Indicates temperature of coolant in engine. “Cold” is the proper reading when the engine is first started. The gauge should move slowly to mid-dial as the engine warms up. If the gauge reads “hot” or the temperature warning light comes on, shut off the engine and report the problem immediately to fleet maintenance.
- oAmmeter Gauge - Indicates electrical charge from the alternator to the electrical system. If discharging, stop engine and report the problem to fleet maintenance.
- oVoltmeter Gauge - Indicates condition of the battery.
- oGauge - Should be operable and indicating a safe margin of fuel for the trip.
- oAir Pressure Gauge - See below.

Brake Checks: (Do not drive the vehicle if the vehicle fails any part of the brake checks.)

- **Park Brake Check** – Hydraulic or air brakes.
  - Start engine. (For air brake equipped vehicles, build air pressure to governed cut-out.)
- **Brake Checks:**
  - **Parking brake check –** With parking brake set and the bus in a forward gear, accelerate to 1,000 rpm. If the vehicle moves, report it immediately to fleet maintenance for adjustment before putting the vehicle in service.
  - **Service Brake Check -** Hydraulic or air brakes. Release park brake. Gently pull forward a few feet and apply the service brake. The vehicle should stop with no pulling to the right or left.
  - **Air Brake Check – 1-2-3-4 Test** - This test procedure is designed to ensure that the safety devices of the air brake system operate correctly as air pressure drops from normal to low air supply. (There may be some variance in ignition key position in order to get gauge readings.)

- **Compressor -** Build air pressure 85 to 100 psi in 45 seconds at a maximum of 1000 rpm's. Continue building pressure to governed cut-out. Should read 120-125 psi. Chock wheels if necessary.
- **Air Pressure Gauge** - Shut off engine, disengage parking brake, fully apply service brake and hold for one minute, checking air pressure gauge. After the initial application drop, air pressure should not drop more than three pounds in one minute.
- **Warning Devices** - Turn key to on position. "Fan off" air pressure by applying and releasing service brake. Low air warning devices (buzzer, light) must activate by the time the air pressure reaches 60 psi.
- **Parking Brake Valve** - Continue to "fan off" air pressure. Parking brake valve should close (pop out) between 10 and 40 psi, depending on vehicle. Start engine and restore air pressure to 100-120 psi.

- **Hydraulic Brake Check** – Engine running, pump brake pedal three times, and hold fully depressed for five seconds. The brake pedal should not move.
  - For vehicles equipped with hydraulic assist, with the key off, depress the brake pedal and listen for the sound of the reserve electric motor.
- **Steering Play** - Should be no more than two inches of free-play in a 20-inch wheel when moving steering wheel left and right. The engine should be running on vehicles equipped with power steering. Use one finger in order to get a better feel of the resistance points.
- **Mirrors and Windshield** - Mirrors should be clean, properly adjusted, not cracked or loose and with no obstructions. Windshield should be clean, not cracked, pitted, or shattered and have no obstructions.
- **Wipers/Washer Fluid** - Operate wipers on high and low using washer fluid. Wiper arms/blades should be secure, working properly, not cracked, damaged, or worn.
- **Dash Indicator Lamps** – Should work when corresponding directional signals, emergency 4-way flashers, 8-way warning system, and when high and low beam headlights are turned on.
- **Horn(s**) - Air horn and/or electric horn working properly.
- **Heaters and Defrosters** - Heaters and defrosters should be working on all speeds. Check all panel switches.

- **Safety Emergency Equipment** - Electrical fuses, if so equipped, or circuit breakers, three red reflective triangles, body fluid cleanup kit, one 24-unit first aid kit, and fire extinguisher properly charged and rated (ABC) with pin secured with plastic tie.

***Reminder**: Shake fire extinguisher on a regular (at least once per month) basis*.

- **Seating** - No broken or loose seat frames, unsecured cushions, damaged foam or padding. The flip seat next to a side emergency door must fully retract by itself.
- **Emergency Exits** - Emergency windows, roof hatches and service/emergency doors are labeled "Emergency Exit" in two inch letters, and must open and close easily from inside. Warning devices on emergency exit doors and windows must operate properly.

3.2.b (iv) OUTSIDE THE VEHICLE

- **Stairwell Light and Exterior Passenger Entry Light** – Check that light(s) are working and lens are not broken.
- **Mirrors** – Ensure mirrors are securely attached, and properly adjusted, clean, with nothing obstructing the view.
- **Fuel Door** - Door latches properly.
- **Fuel Tank** - Securely attached with no leaks, fuel cap present.
- **Reflective Tape** - Reflective tape on the exterior of the vehicle should be intact.
- **Exterior Lights** - Check that all lights are clean and not cracked or broken and there is no moisture, soot, or dirt inside of lens. Ensure light is coming out of the entire lens area, not just a small portion. Check that all outside lights are illuminated and functioning properly. This would include: front and rear 8-way warning light system (both amber and red lights), low and high beam headlights, taillights, brake lights, left and right turn signals, 4-way hazard flashers (front and rear), and reverse lights. Stop arm must extend completely, with lights flashing alternately. Lenses should not be damaged, and there should be no broken or frayed wires. Reflective red coloring should not be excessively faded.
- **Clearance Lights** - (Red for rear, amber for side and front) All outside clearance lights should be clean and clearly illuminated. Check that none are broken or missing.

- **Reflectors** - Check that reflectors are clean, not missing or broken, are the proper colors (red for back and yellow for front and sides), and reflect or illuminate properly**.**
- **Emergency Exits** - Check lettering ("Emergency Exit" in two inch lettering), and operation of emergency doors and windows. Doors and windows must have an audible alarm. Emergency exit doors must open and close easily from outside.
- **Battery Box** - Battery is secure, no corrosion, door and battery tray securely latch.

STEERING

- **Steering Box -** Securely mounted, no leaks, missing nuts, bolts or cotter keys.
- **Steering Linkage** – Steering components – Steering column, boot, steering box, pitman arm, drag link, radius arm, and tie rod. No loose or missing nuts, bolts, or cotter keys. No excessive wear, cracks, or broken parts.

FRONT SUSPENSION

- **Springs** - No cracked, shifted, broken or missing leaf springs. No broken, distorted or loose coil springs or shackles. Clamps are present and secure.
- **Spring Mount** - No cracked or broken spring hangers. No missing or damaged bushings; no broken, loose or missing axle mounting parts.
- **Shock Absorber** - Securely mounted and no leaks.

FRONT WHEELS

- **Rims** - No welded, damaged, or bent rims or rust.
- **Hub Grease/Oil Seal** - No leaks, no loose or missing nuts. Adequate oil level in sight glass, if equipped.
- **Tires**
  - **Tread Depth** - Tread depth minimum 4/32 inch. Recaps not allowed.
  - **Tire Condition** - No cuts or damage to sidewalls, tread, valve caps and stems, and tread evenly worn. ABC's of sidewall inspection - abrasions, bulges or cuts.
  - **Tire Inflation** - Check for proper inflation using a tire gauge or a device such as a mallet to strike the tires. A tire gauge is more accurate.

- **Lug Nuts** - All present and tight, bolt-holes not cracked or distorted, and no rust behind lug nut, which indicates looseness.

***FRONT* BRAKES**

- **Slack Adjustor** (air brakes) - Inspect according to district procedures. No broken, loose, or missing parts. Angle between push rod and adjustor arm should be a little approximately 90° when brakes are released, and not less than 90° when brakes are applied. When pulled by hand, brake rod should not move more than approximately one inch.
- **Brake Chamber** (air brakes) - Securely mounted, not cracked, dented, or showing signs of leaking.
- **Brake Hoses** (air or hydraulic brakes) - Couplings secure, no excessive wear, holes, fraying, cracks, or signs/sound of leaks.
- **Drums** - Most brake drums (and shoes) are protected by a rock guard and cannot be checked during the pre-trip. Ask your school bus technician for proper pre-trip procedures if there are no rock guards. If drums are visible they should be checked for cracks or other damage. There should not be any grease or oil leaking onto or from the drum area. Check for any missing bolts.

REAR WHEELS

- **Rims** - No welded, damaged, or bent rims or rust.
- **Hub Grease/Oil Seal** - No leaks and no loose or missing nuts. There is no sight glass on rear hubs.
- **Tires:**
  - **Tread Depth** - Tread depth minimum 2/32 inch.
  - **Tire Condition** - No cuts or damage to sidewalls, tread, valve caps and stems, and tread evenly worn. ABC's of sidewall inspection - abrasions, bulges or cuts.
  - **Tire Inflation** - Check for proper inflation using a tire gauge or a device such as a mallet to strike the tires. A tire gauge is more accurate.
- **Lug Nuts** - All present and tight, bolt-holes not cracked or distorted and no rust present, which indicates a loose lug nut.
- **Dual Wheels** - No obstructions between dual wheels. Most school buses are equipped with Budd wheels and no spacers. If equipped with spacers, wheels should be evenly separated, spacers centered, tires not touching each other.

REAR SUSPENSION

- **Springs** - No cracked, shifted, broken or missing leaves. No broken, distorted or loose coil springs or shackles. Clamps are present and secure.
- **Spring Mounts** (shackles) - No cracked or broken spring hangers, no missing or damaged bushings, no broken, loose, or missing axle mounting parts.
- **Shock Absorbers** - Securely mounted and no leaks.
- **Torque Arm** - Torque arm is mounted securely, no loose or missing parts, and not damaged.
- **Air Ride** - Properly inflated, no loose or missing parts, and not damaged. Vehicle sits level.

REAR *BRAKES*

- **Slack Adjustor** (air brakes) - Inspect according to district procedures. No broken, loose, or missing parts. Angle between push rod and adjustor arm should be approximately 90° when brakes are released, and not less than 90° when brakes are applied. When pulled by hand, brake rod should not move more than approximately one inch.
- **Brake Chamber** (air brakes) - Securely mounted, not cracked, dented, or showing signs of leaking.
- **Brake Hoses** (air or hydraulic brakes) - Couplings secure, no excessive wear, holes, fraying, cracks, or signs/sound of leaks.
- **Drums** - Most rear brake drums (and shoes) are protected by a rock guard and cannot be checked during the pre-trip. Ask your school bus technician for proper pre-trip procedures if there are no rock guards. If drums are visible, they should be checked for cracks or other damage. There should not be any grease or oil leaking onto or from the drum area. Check for any missing bolts.

3.2.b (v) UNDER VEHICLE

- **Drive Shaft** - Not bent or cracked. Coupling joints secure and free of foreign objects, hangers secure and in place.
- **Exhaust System** - Securely mounted, no cracks, holes, or severe dents. Carbon soot indicates a possible leak. No excessive noise with engine running.
- **Frame** - No cracks, broken manufacturers' welds, or holes in floor. No loose, cracked, bent, missing, or broken cross members.

3.2.b (vi) OPTIONAL EQUIPMENT

Inspect all equipment such as dropdown chains, retarders, wheelchair lifts or ramps, wheelchair and passenger securement and other special

needs equipment for missing parts, damage, and proper working condition.

3.2.b (vii) MIRROR ADJUSTMENTS

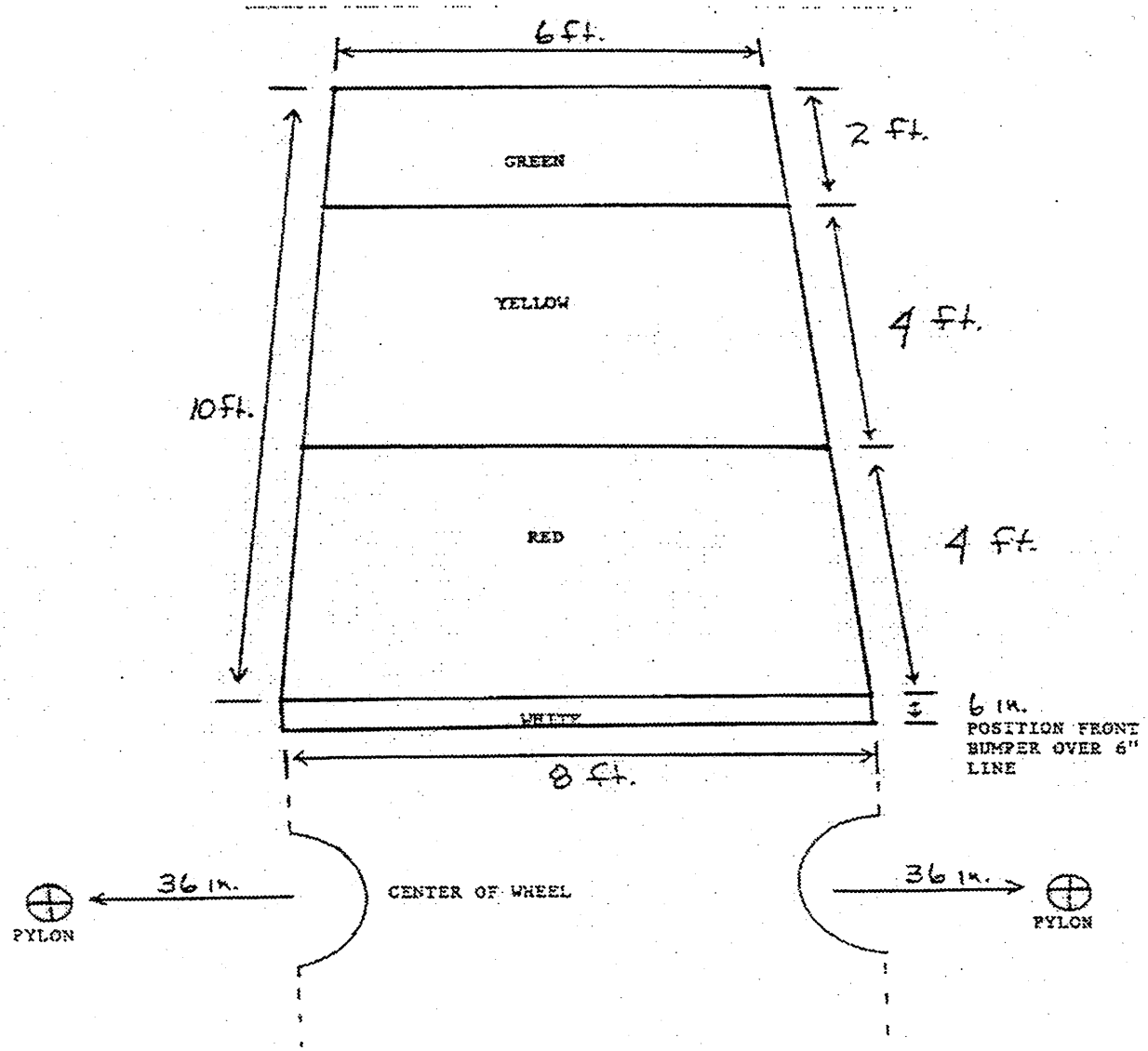
Before departing for a bus route or trip, make sure the mirrors are adjusted properly. The following grids can be painted or marked on the ground in the parking lot to allow each driver to check mirror adjustments before departure. The driver should adjust the seat so they may see properly in the mirrors, sitting straight and back in the seat, with feet flat on the floor.

MIRROR GRID FOR PROPER MIRROR ADJUSTMENT (Pre-FMVSS 111)

Front Mirrors - View front bumper and full painted area.

Side Mirrors - View wheel and pylon.

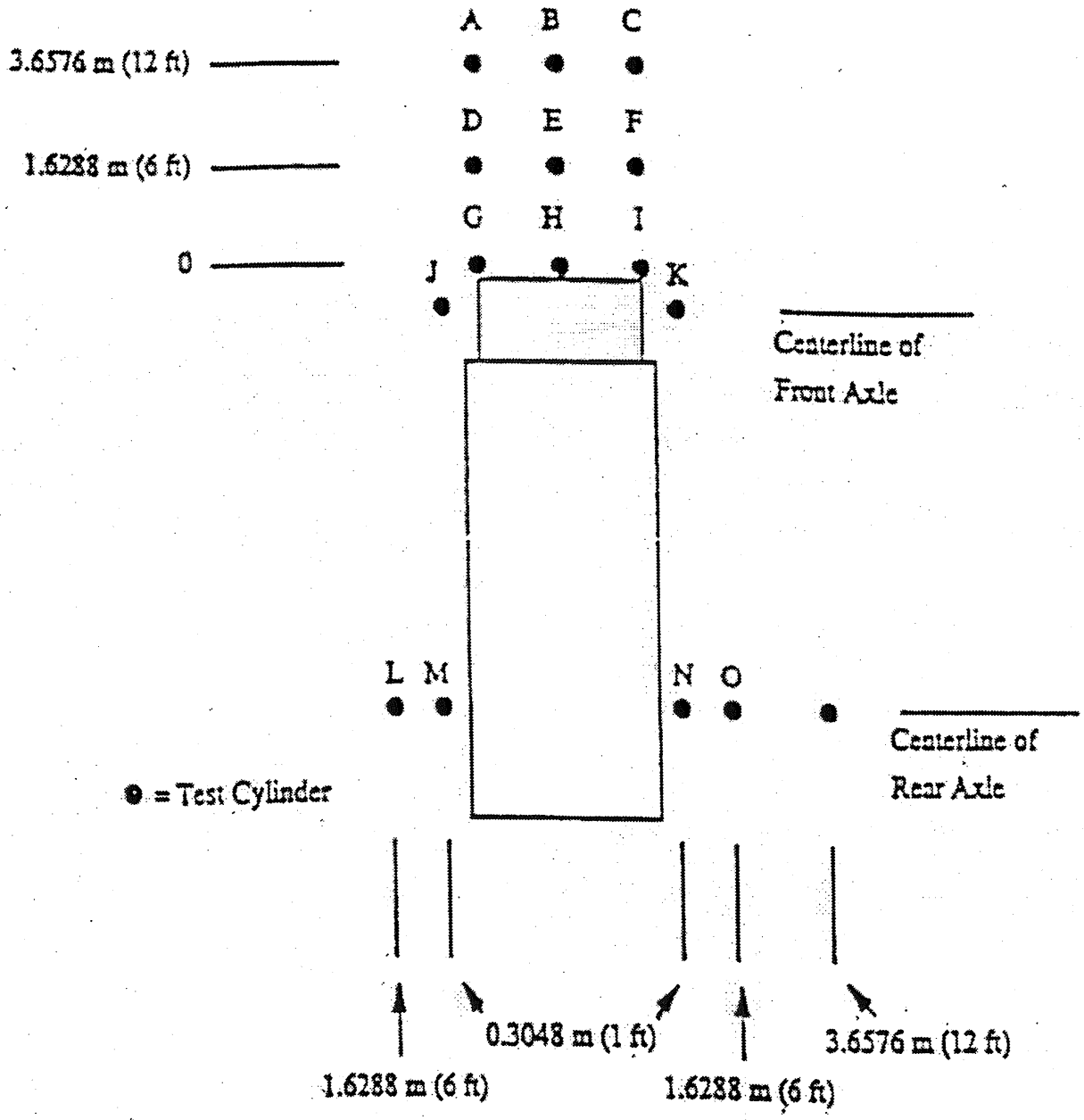
Assists driver when judging distance in front of vehicle.



It is recommended that these older style mirrors be upgraded to the new style mirrors meeting FMVSS 111. Because this is considered a safety upgrade, the cost is partly reimbursable on the CDE 40.

FMVSS III, Convex Cross-View Mirrors on School Buses

Effective December 2, 1993.



If there is not sufficient room to paint the grid, try using different colored Frisbees laid out at the distances shown in the diagram.

3.3 POST-TRIP INSPECTION

A post-trip inspection can detect problems that have occurred while on the route. Following is an example of a post-trip inspection. Individual districts may establish their own procedure. As with the pre-trip, the post-trip must be documented.

3.3.a BUS EXTERIOR

Perform a walk around inspection looking for burned out bulbs, air leaks in tires or bus damage so immediate repairs may be made before the vehicle is needed again. This will prevent the vehicle from being taken out of service for small, easily repaired items.

3.3.b ENGINE SHUTDOWN

- Check all lights.
- Shut down all electrical equipment.
- Perform brake checks according to district procedures.
- Ensure the vehicle is fueled.

3.3.c BUS INTERIOR

- Clean/sweep bus.
- Close windows.
- Check for sleeping students or items left on bus. Refer to 1 CCR 301-26, 4204-R-224.07.
- Look for damage to the vehicle.

3.3.d DOCUMENTATION

- Record mileage, if required.
- Report vehicle defects.

3.3.e PREVENTATIVE VEHICLE MAINTENANCE

Preventative maintenance is the regularly scheduled care of a vehicle that will aid in the dependability and maximum life of the various components. It is a carefully organized system of inspections made at regular mileage or time intervals, combined with immediate attention to all reported defects. These inspections are made up of a series of well-balanced checking procedures, combined with the process of cleaning, tightening, lubricating, and adjusting components and systems. It is the best known, simplest, and most economical means of protecting the original investment in the school bus fleet.

The driver has a responsibility in preventative maintenance. The driver is on the road with the school transportation vehicle for a number of hours each day and is in a position to observe its performance under all conditions. Learn to recognize defects and immediately report the symptoms to the vehicle maintenance department. Do not attempt to diagnose the problem. Report

anything unusual that you hear, feel, see, or smell. Remember, defects cannot be repaired if they are not reported. All defects shall be documented. (1 CCR 301-26, 4204-R-215.00)

Use all your senses to detect problems with the vehicle.

Reminder**: **Knowingly driving a school transportation vehicle with a known serious defect will or can endanger the students and is illegal.

3.3.e (i) Listen for Trouble:

- Sharp knock when picking up speed
- Light knock when engine is running at idle speed
- Dull, regular knock
- Clicking or tapping noises
- Continuous or intermittent squeal or squeak
- Loud exhaust noise
- Engine backfiring, missing, popping, spitting, or overheating
- Steaming or hissing sounds

3.3.e (ii) Feel for Trouble:

- Excessive vibration
- Low speed or high speed shimmy
- Hard steering or steering wander

3.3.e (iii) Look for Trouble:

- Sudden change in engine temperature
- Sudden drop in oil pressure
- Low oil pressure
- No oil pressure
- Excessive oil consumption
- Smoke coming from under the dash or hood
- Scuffed tires or uneven wear
- Irregular air pressure

3.3.e (iv) Smell Trouble:

- Fuel
- Burning wire insulation, rubber, oil, or rags
- Exhaust fumes
- Anti-freeze
- Hot brakes

Reminder: If you don't report and document a problem, it can't be fixed.

Regardless of the engineering skill or workmanship incorporated in a school transportation vehicle, it cannot continue to deliver maximum safety, economy, and dependability unless it is properly maintained. The repair of school transportation vehicles should be left to a skilled service technician. Thorough, daily pre-trips, and early documentation of defects will prolong the life of the transportation vehicle.

3.4 CORRECTIVE VEHICLE MAINTENANCE

This program provides for the immediate repair of broken or worn parts that make driving the vehicle unsafe or illegal. Your help is vital and will be expected in reporting defects of the vehicle. If written reports are made, repairs will be made as soon as possible. If the report is not made, the service technician may not be aware of the problem until it is too late.

4204-R-215.00 Repairs and Maintenance

215.01 – The district/service provider shall have a system to document defects reported and necessary repairs completed.

215.02 - All repairs and regular maintenance shall be documented utilizing a district/service provider designed system within a separate file for each vehicle.

3.5 SERVICING OF VEHICLES

Be sure each driver is aware of their responsibility with respect to the following items:

- Fueling
- Adding fluids:
    - Oil, coolant, windshield washer fluid, hydraulic brake fluid, or brake alcohol
    - Power steering fluid and transmission fluid
- Washing vehicles/interior cleanliness
- Mirrors, windshield, driver's window, passenger entrance glass, and rear windows are cleaned on a daily basis
- All lenses, reflectors and reflective tape are free of dirt
- Issuing of safety equipment as needed

UNIT FOUR – SKILLS TRAINING

Basic skills training will provide the new trainee with some of the basic skills required to control the vehicle and know where it is in relationship to objects outside the vehicle. These skills will help the driver understand the use of the mirrors and reference points, and provide the driver with a better understanding of how the vehicle responds to driver input. The skills developed through these maneuvers will help each driver with the basic control skills that are required in everyday driving.

All of the skills must be performed with the crossover mirrors covered. While performing each of the skills, drivers are allowed to get out one time to look at vehicle position. The training should be provided without the trainee knowing this will be an option of testing. However, drivers should always be trained to get out of the bus and look prior to any backing. This also applies if there is any question concerning objects around the bus.

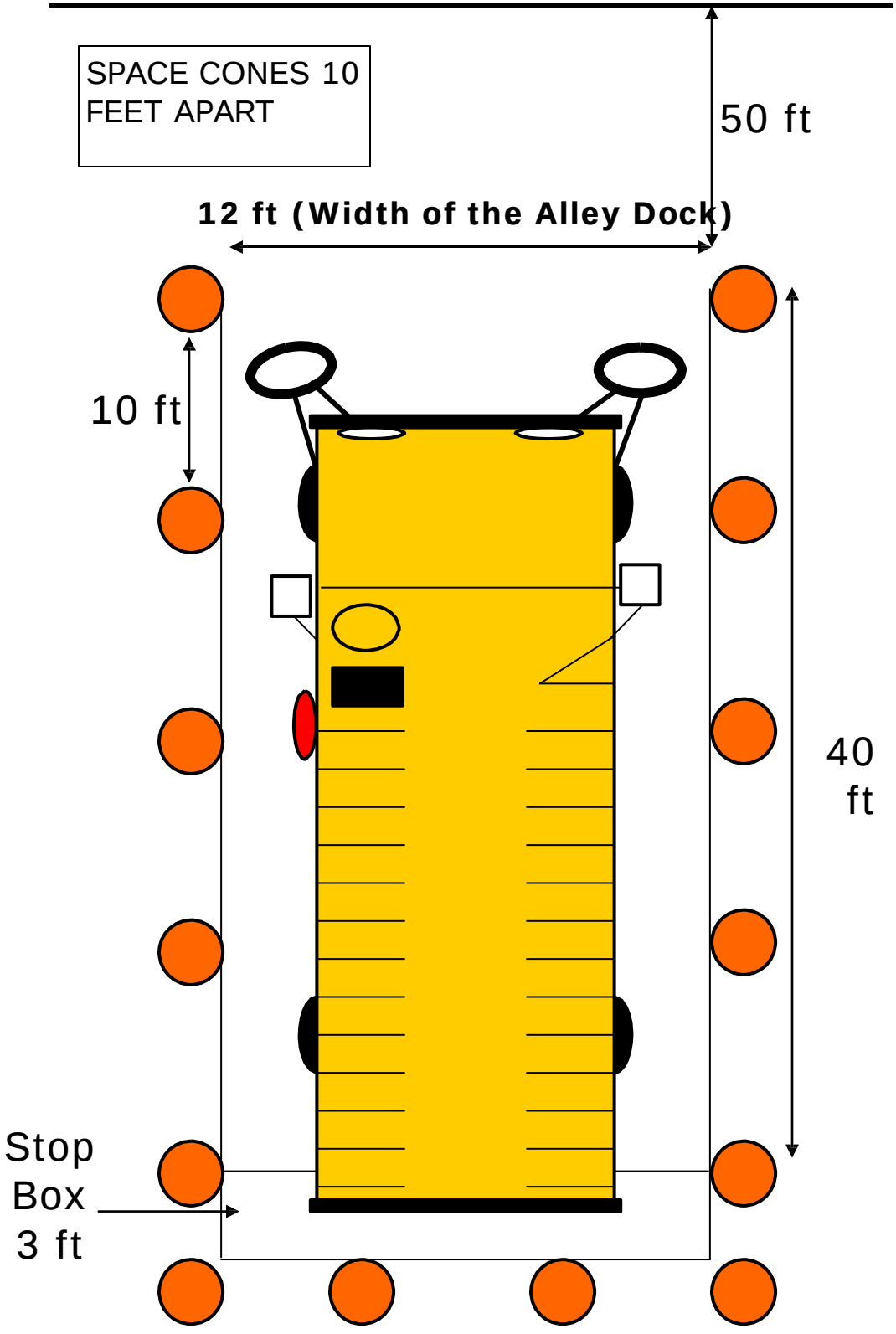
While performing the skills testing for the CDL, there are a couple of things the driver should know. The object of the skills test is not to score any points. In this case, zeros are good.

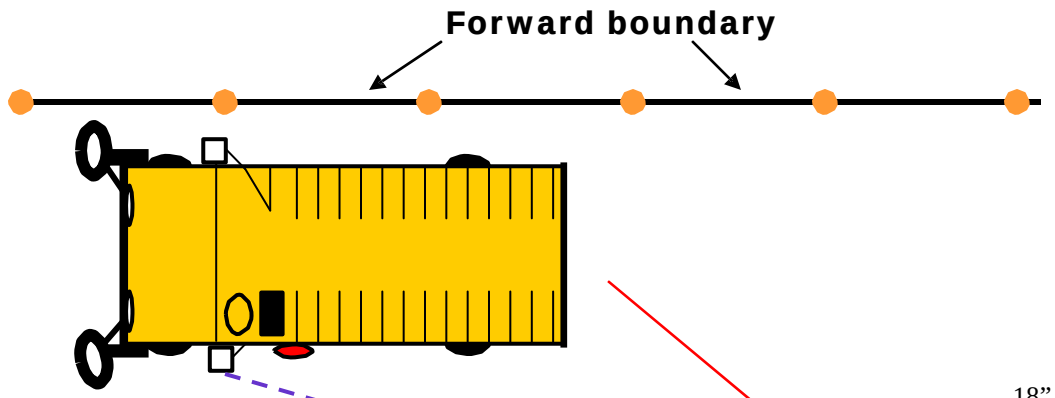
- If the driver stops and changes direction (pull-up), the tester will add a point.
- Any portion of the vehicle (mirrors included) that encroaches over a boundary line is scored as two points. It is better to do a pull-up rather than go over a boundary line.
- The entire vehicle must be inside the box, and the entire bumper must be inside the bumper box on some skills in order to get zero points.
- Following are some basic bus maneuvering moves.
    - Alley Dock
    - Backwards Serpentine
    - Forward Stop – Straight Line Back
    - Forwards Serpentine
    - Offset Back – Left/Right
    - Parallel Park – Conventional
    - Parallel Park – Sight Side

Alley Dock

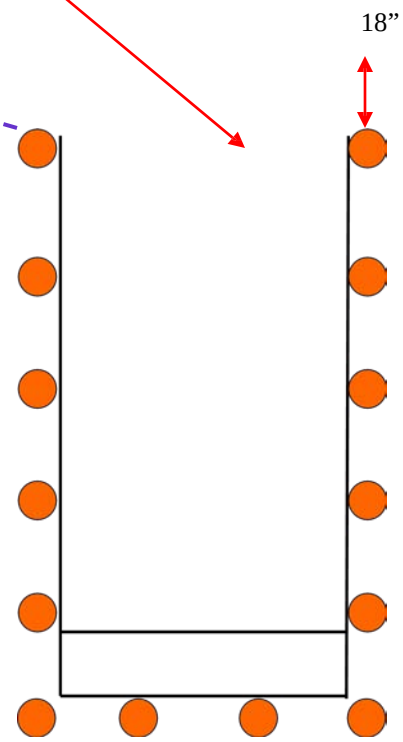
Exercise Boundary

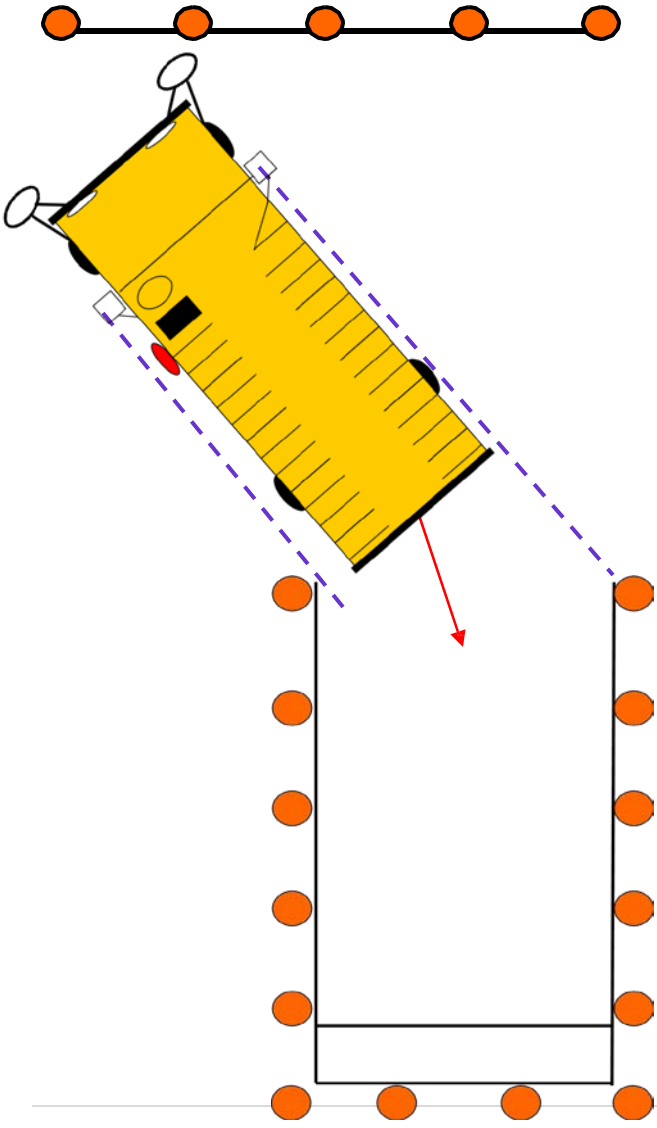
(* This represents a street curb—50 feet from first cone)





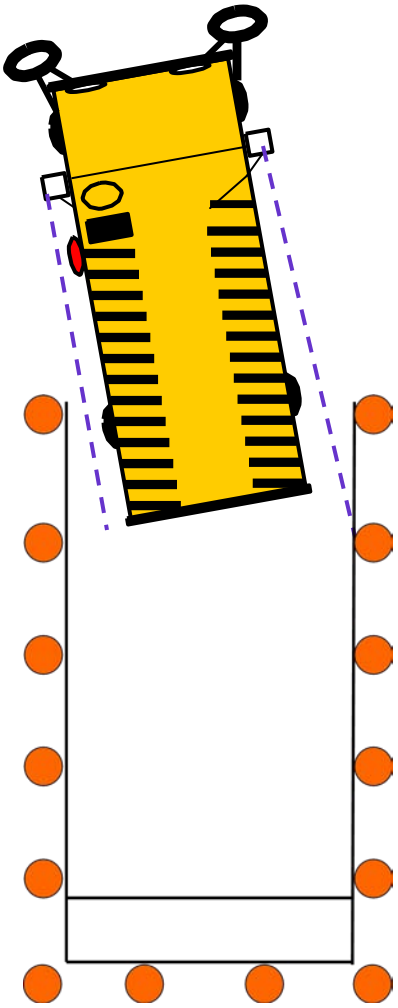
Position the bus so you are parallel to the entrance off set 18”. Drive past the alley dock and toward forward boundary. Stop parallel to boundary line no closer than 2 feet.

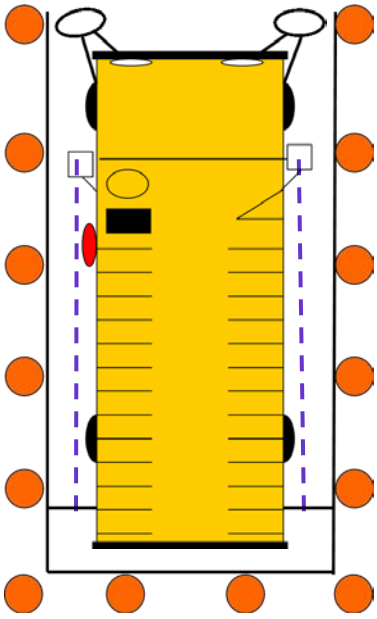




Begin backing. Turn the steering wheel hard left until all of the cones are seen in the right mirror.

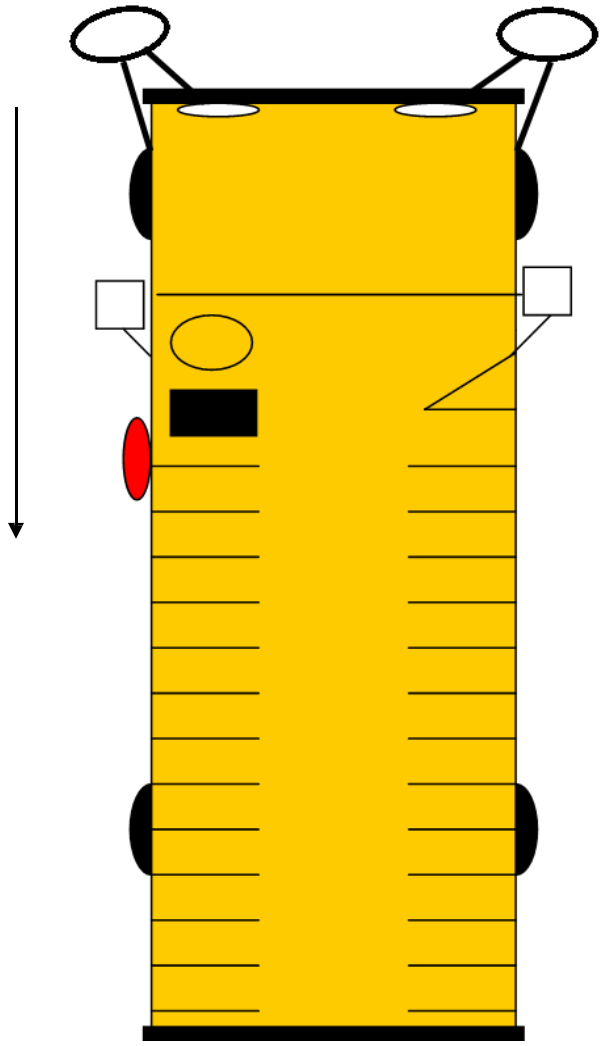
Straighten your wheels and back up. Turn slightly left or right as needed to position the bus between the cones.



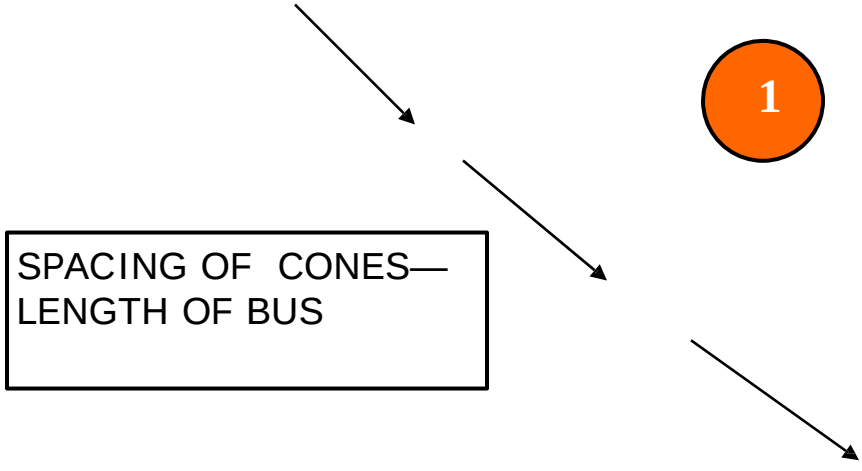


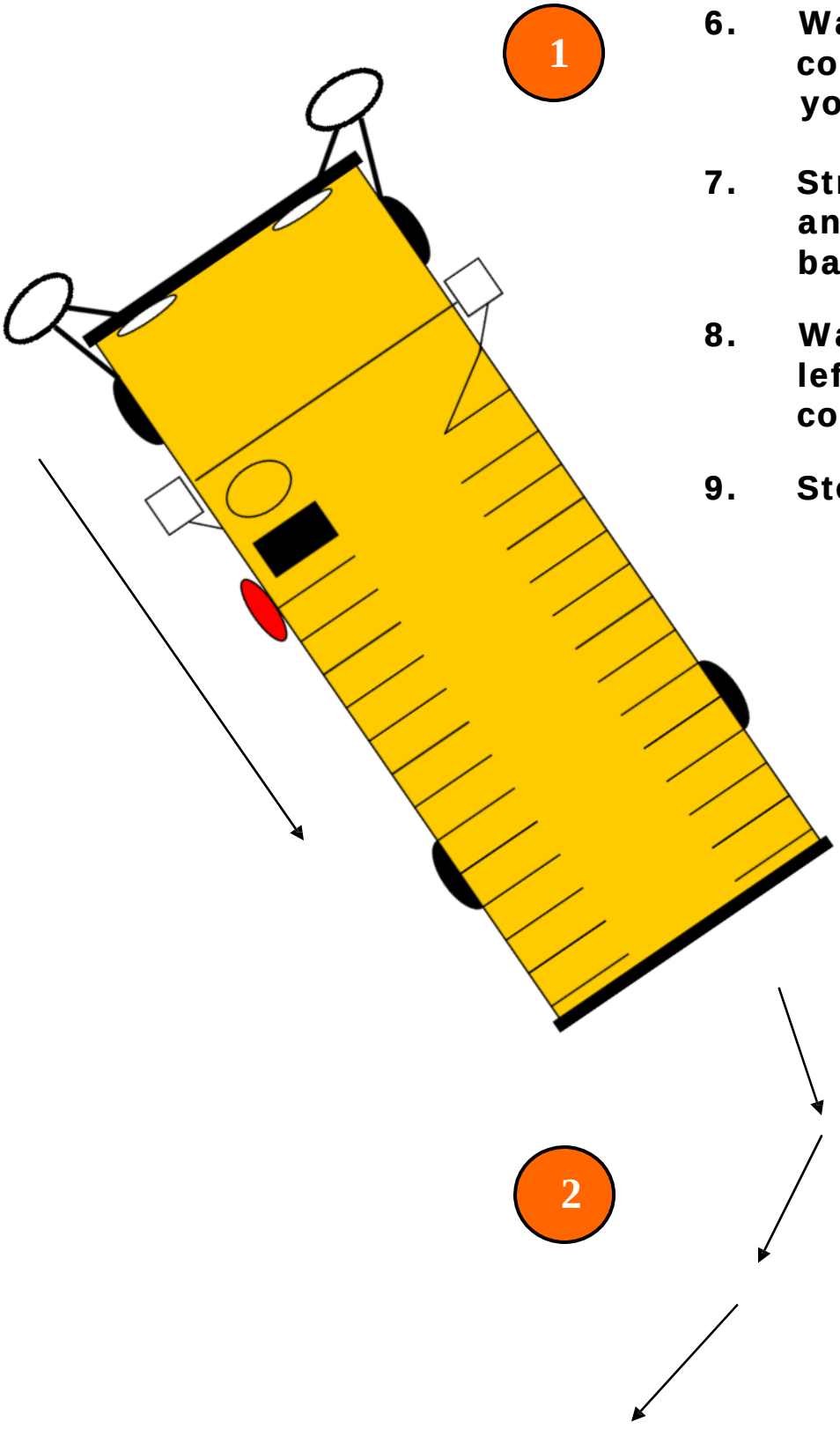
Back up until the bumper is positioned in the rear box by using your refer- ence point. When finished set the park brake and sound the horn.

BACKWARDS SERPENTINE



1. **Begin exercise with the vehicle beyond the first cone.**
2. **Back until the right rear dual is even with cone 1.**
3. **Stop vehicle.**
4. **Turn the steering wheel as far to the right as possible.**
5. **Begin backing, watching for right rear dual to pass**



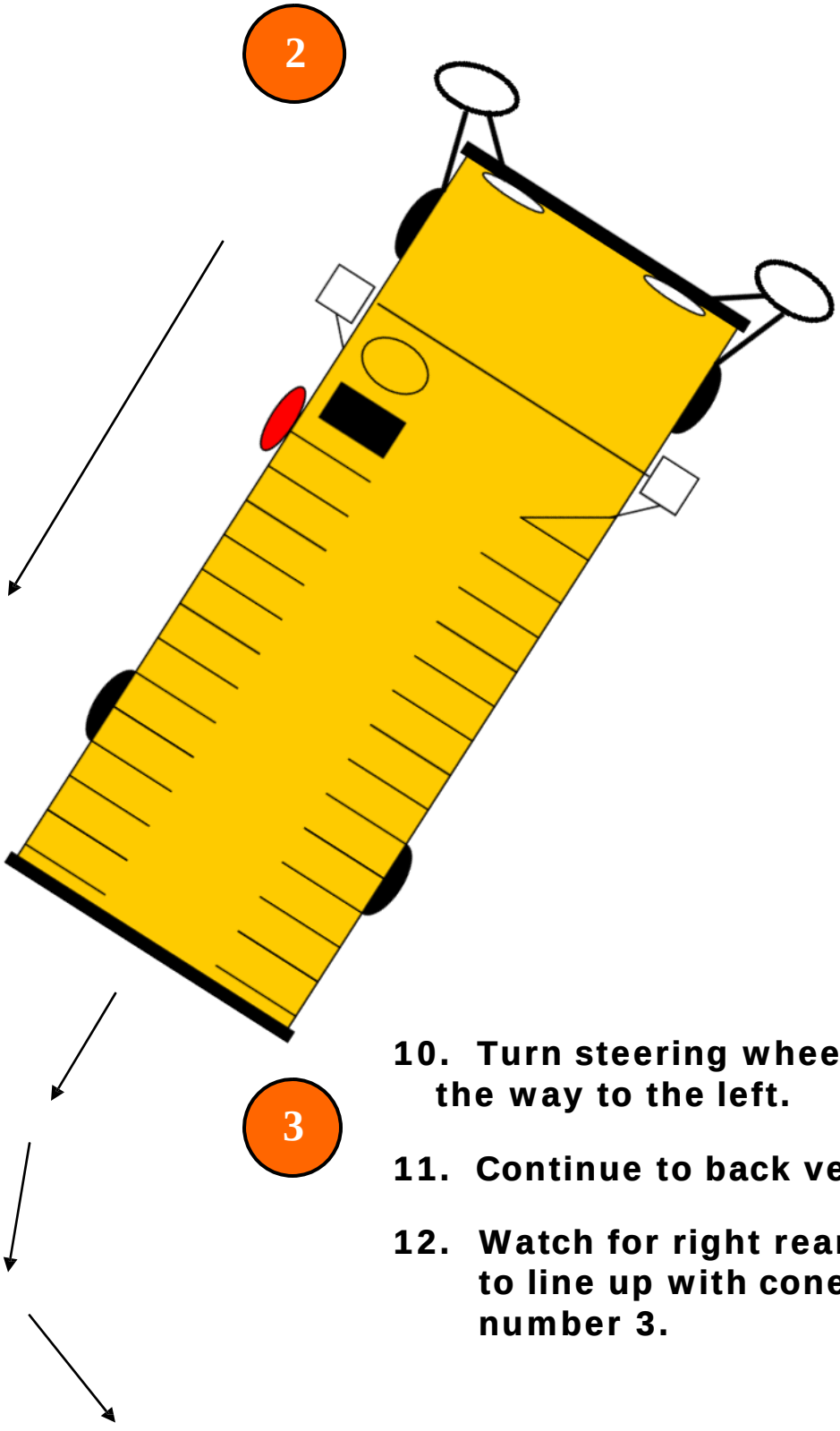


6. **Watch for 2nd cone to appear in your left mirror.**

7. **Straighten vehicle and continue to back.**

8. **Watch for your left rear dual and cone 2 to align.**

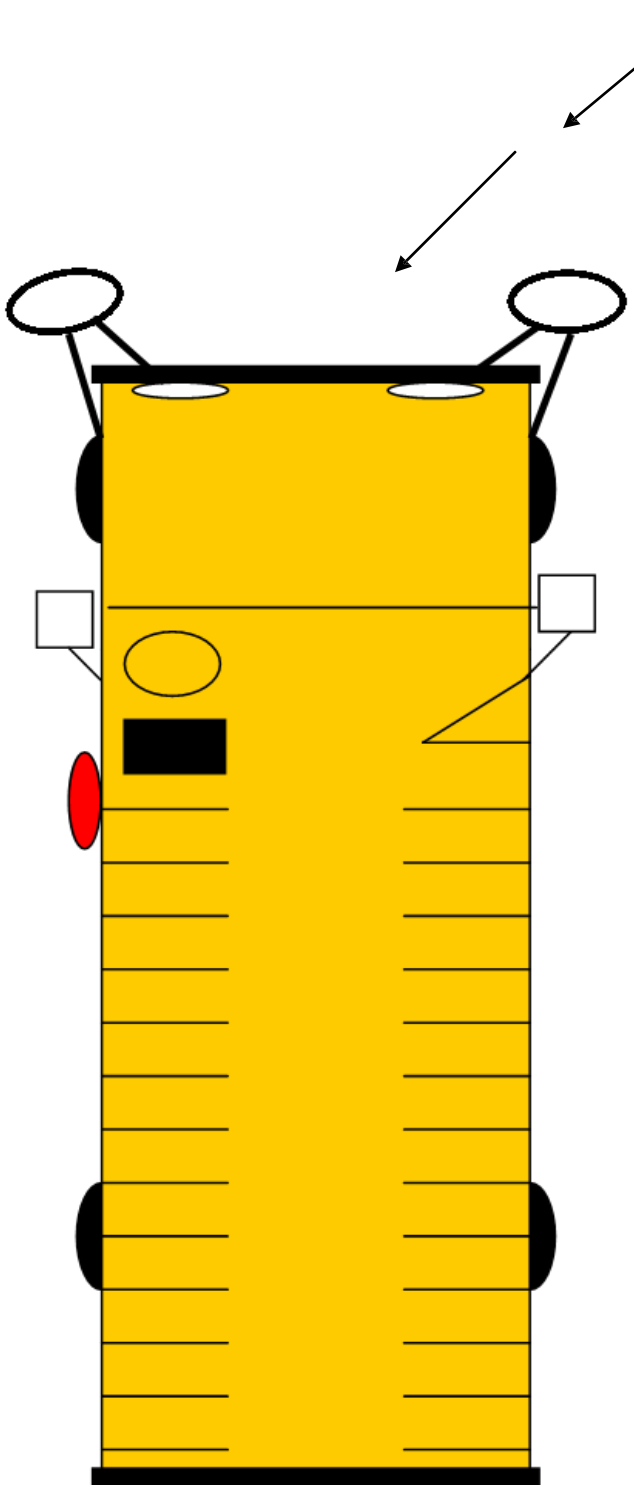
9. **Stop vehicle.**



10. **Turn steering wheel all the way to the left.**

11. **Continue to back vehicle.**

12. **Watch for right rear dual to line up with cone number 3.**



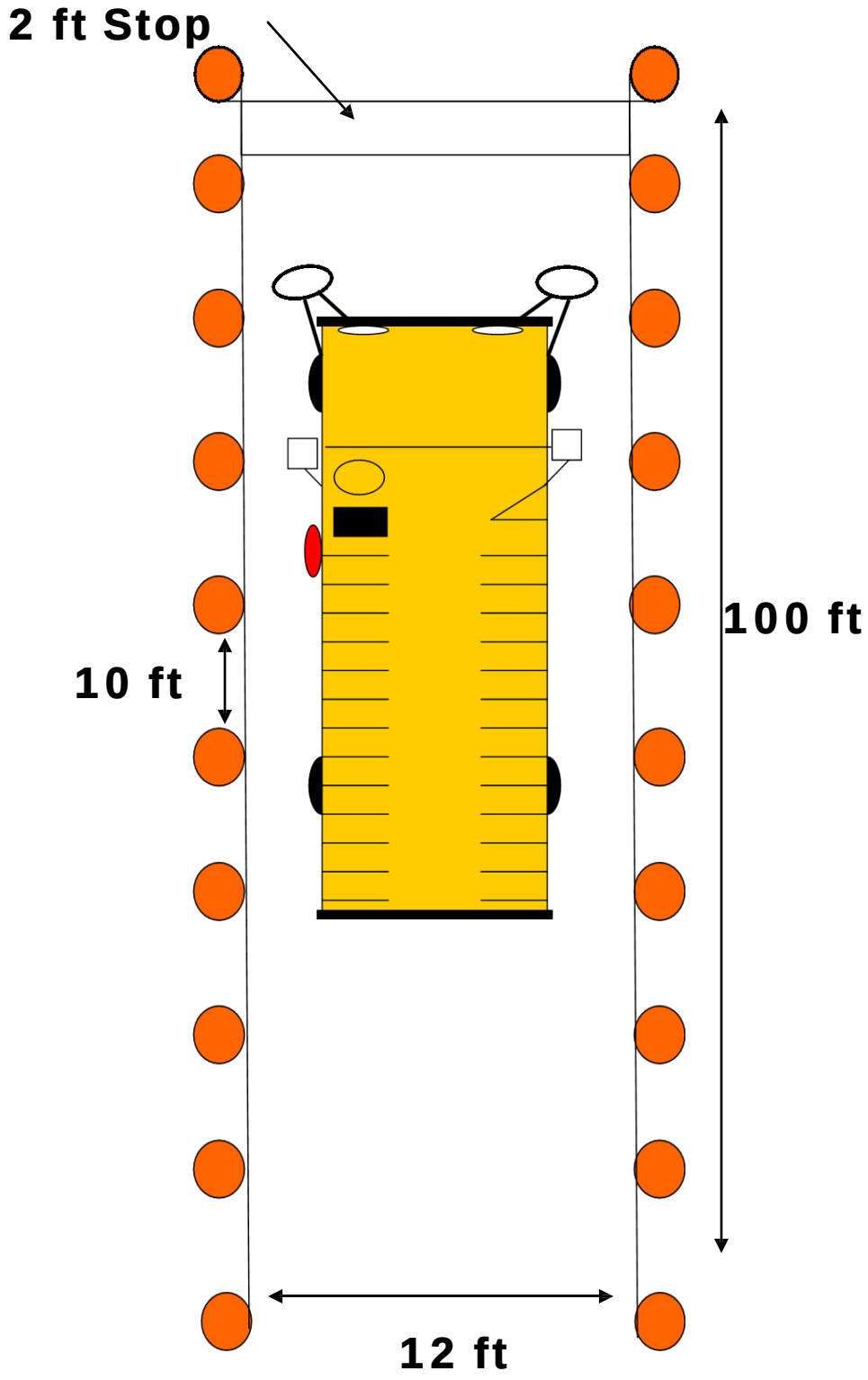
13. **Straighten your wheels once your front wheels pass cone 3.**

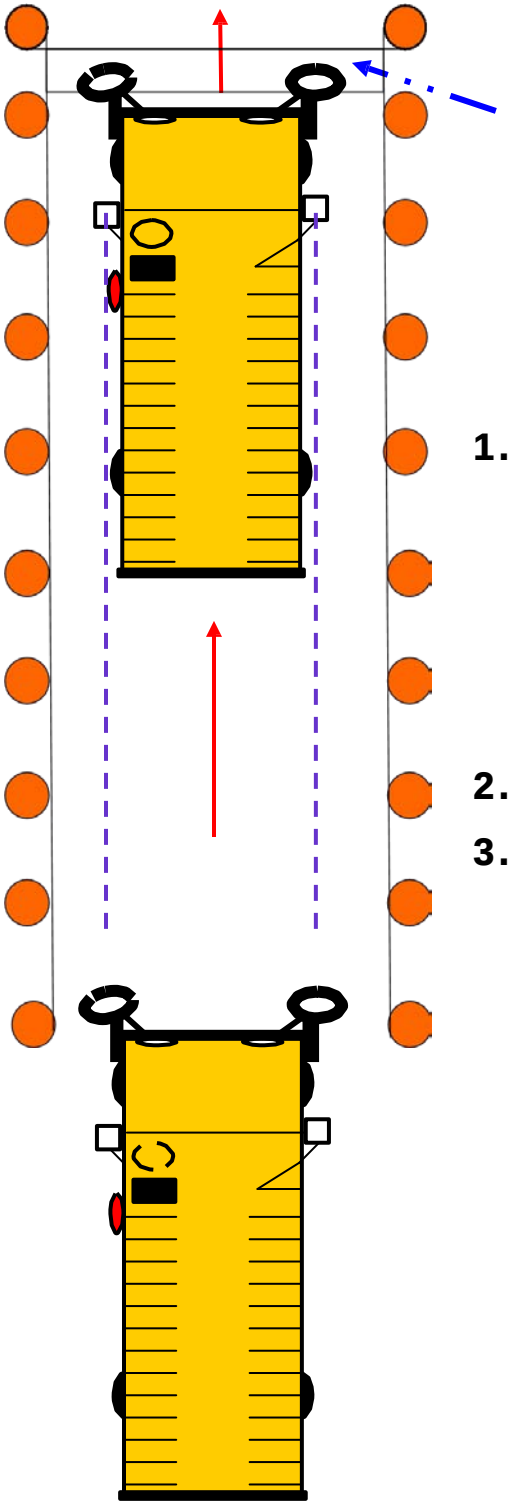
14. **The skill is com- plete once you have completely cleared cone 3.**

15. **When finished set the park brake and sound the horn.**

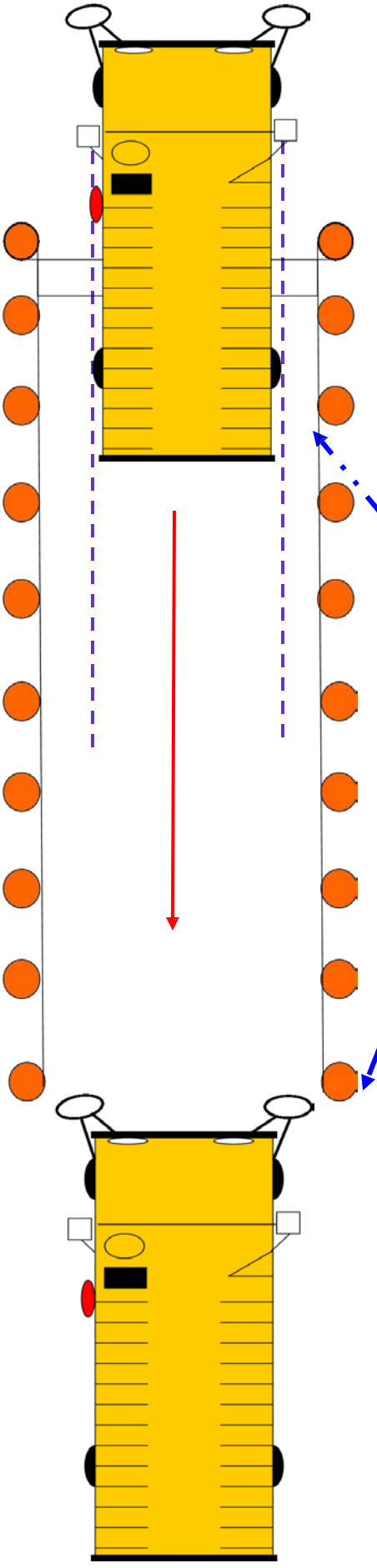
Forward Stop

Straight Line Back



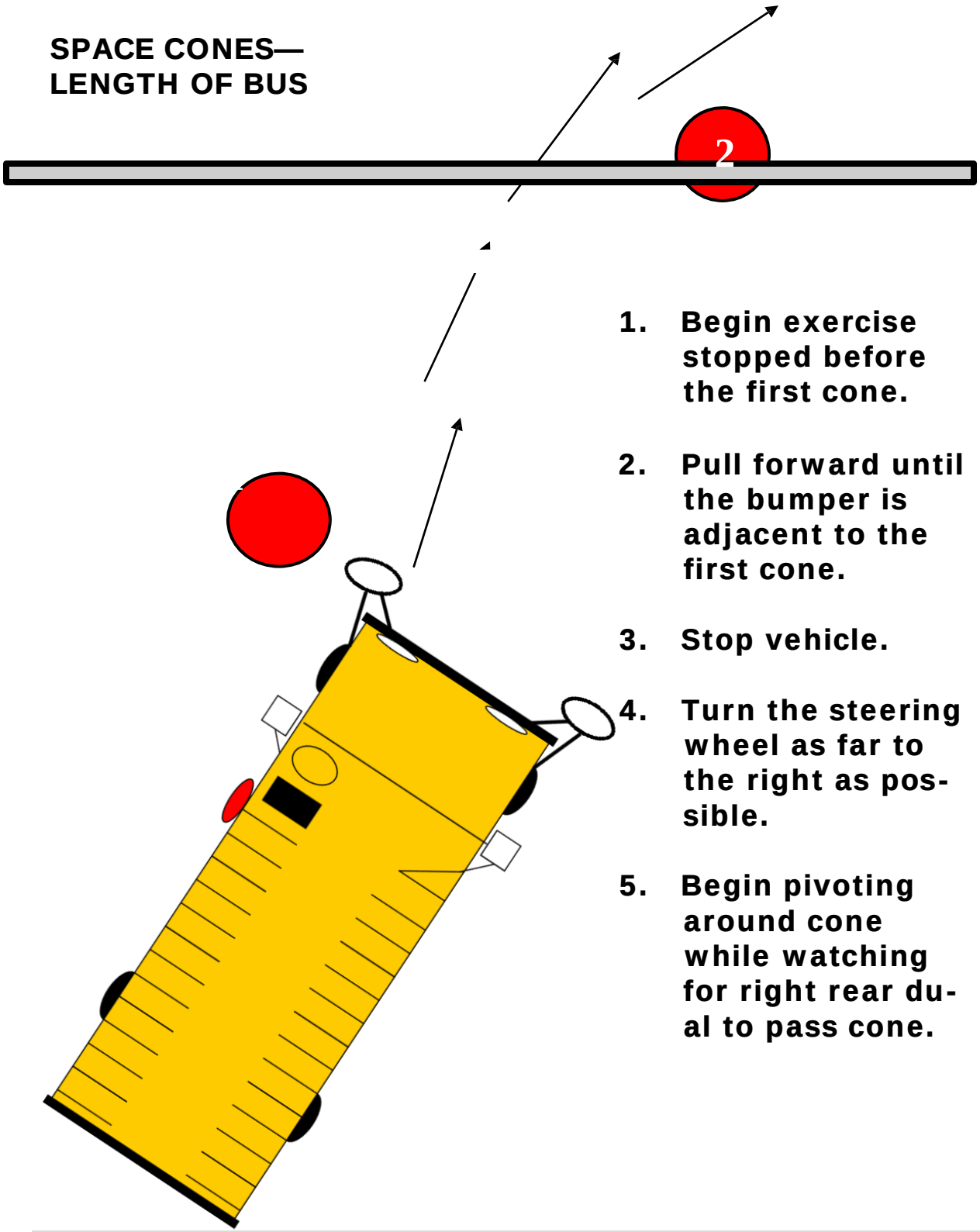


1. **First drive forward and stop as close to the end of the alley without going past it. The cross over mirrors should be in the box.**
2. **STOP ONLY ONCE.**
3. **When finished, set the park brake and sound your horn.**

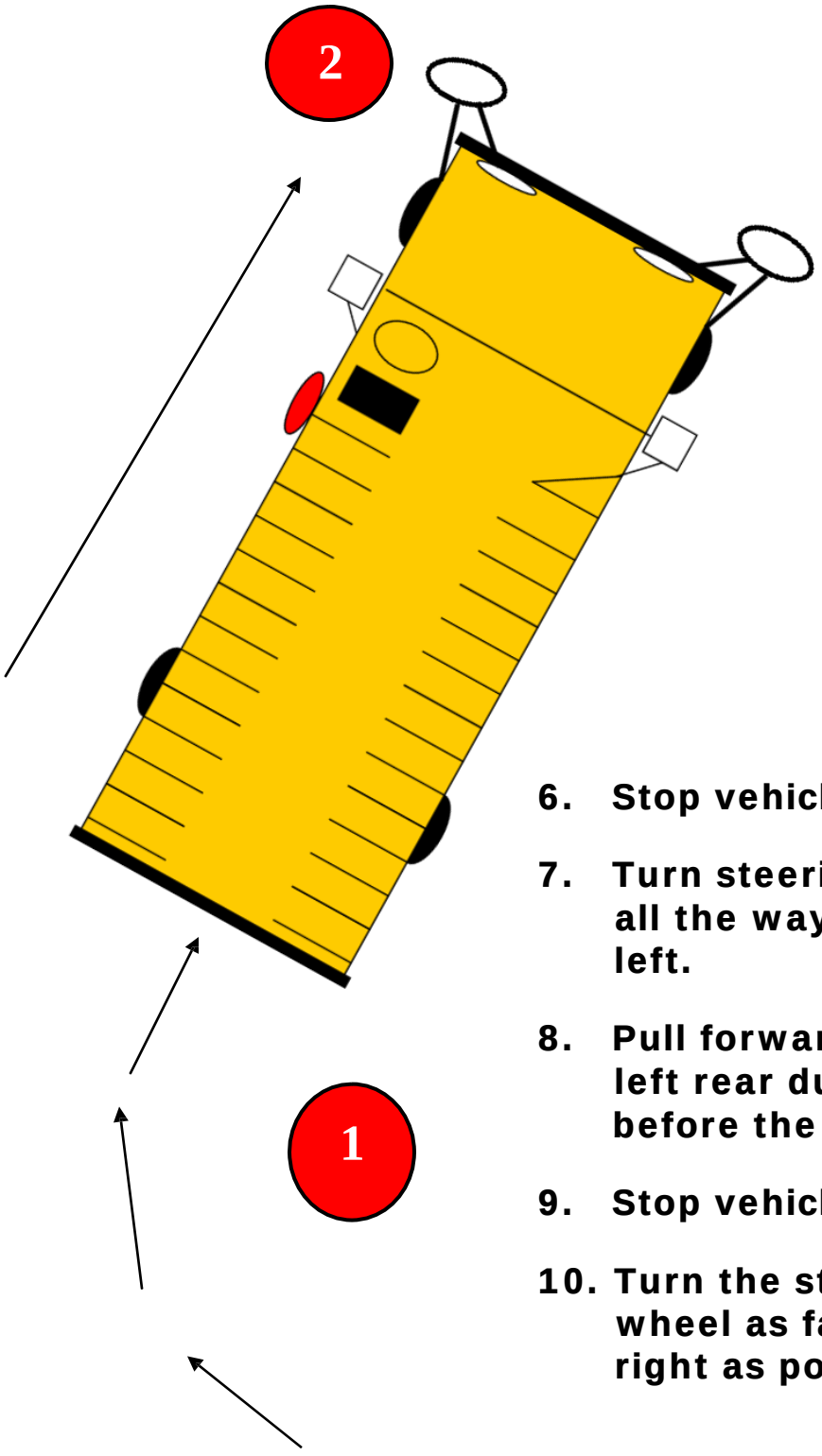


1. **Finally, back through the alley, without touching or crossing the boundaries of the alley.**
2. **When front bump- er is clear of the last cone, set the park brake and sound the horn.**

FORWARD SERPENTINE



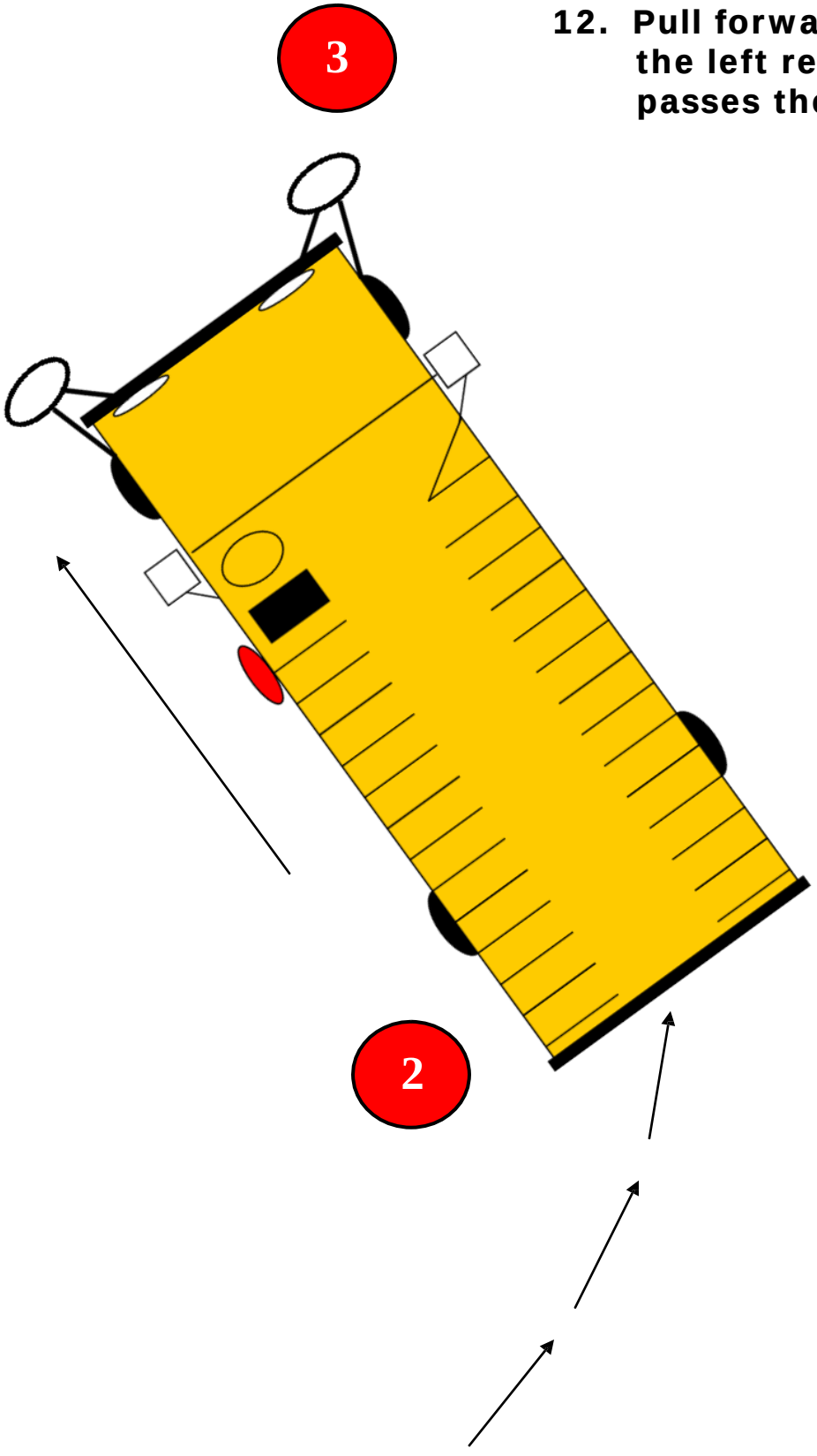
1. Begin exercise stopped before the first cone.
2. Pull forward until the bumper is adjacent to the first cone.
3. Stop vehicle.
4. Turn the steering wheel as far to the right as possible.
5. Begin pivoting around cone while watching for right rear dual to pass cone.

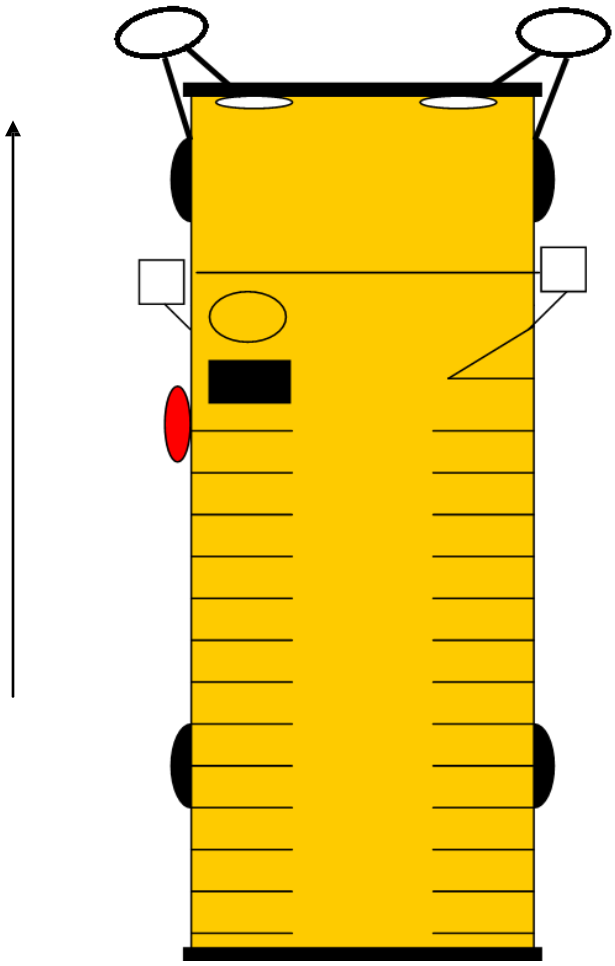


6. **Stop vehicle.**
7. **Turn steering wheel all the way to the left.**
8. **Pull forward until the left rear dual is just before the cone.**
9. **Stop vehicle.**
10. **Turn the steering wheel as far to the right as possible.**

11. **Move slowly while watching for the right cone to appear in your right mirror.**

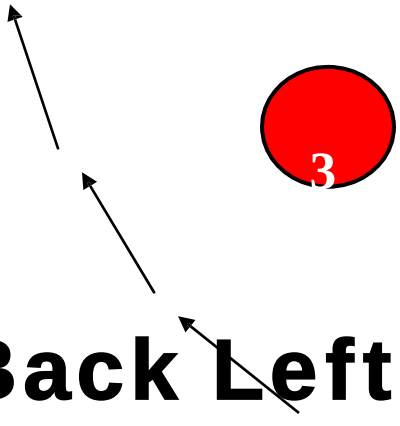
12. **Pull forward until the left rear dual passes the cone.**





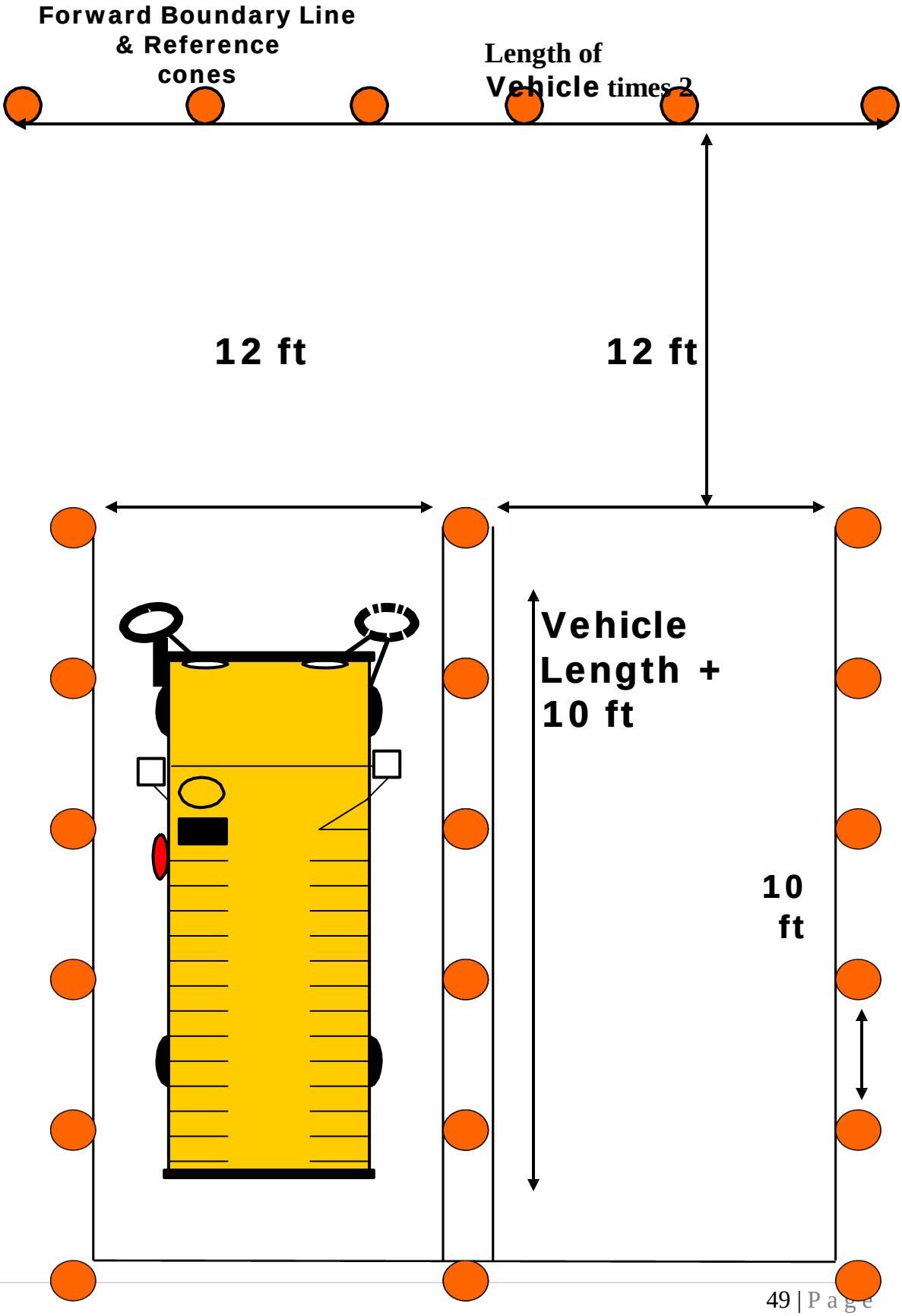
13. **Straighten the wheels once you have passed the last cone.**

14. **The exercise is completed once your vehicle has completely cleared the last cone.**

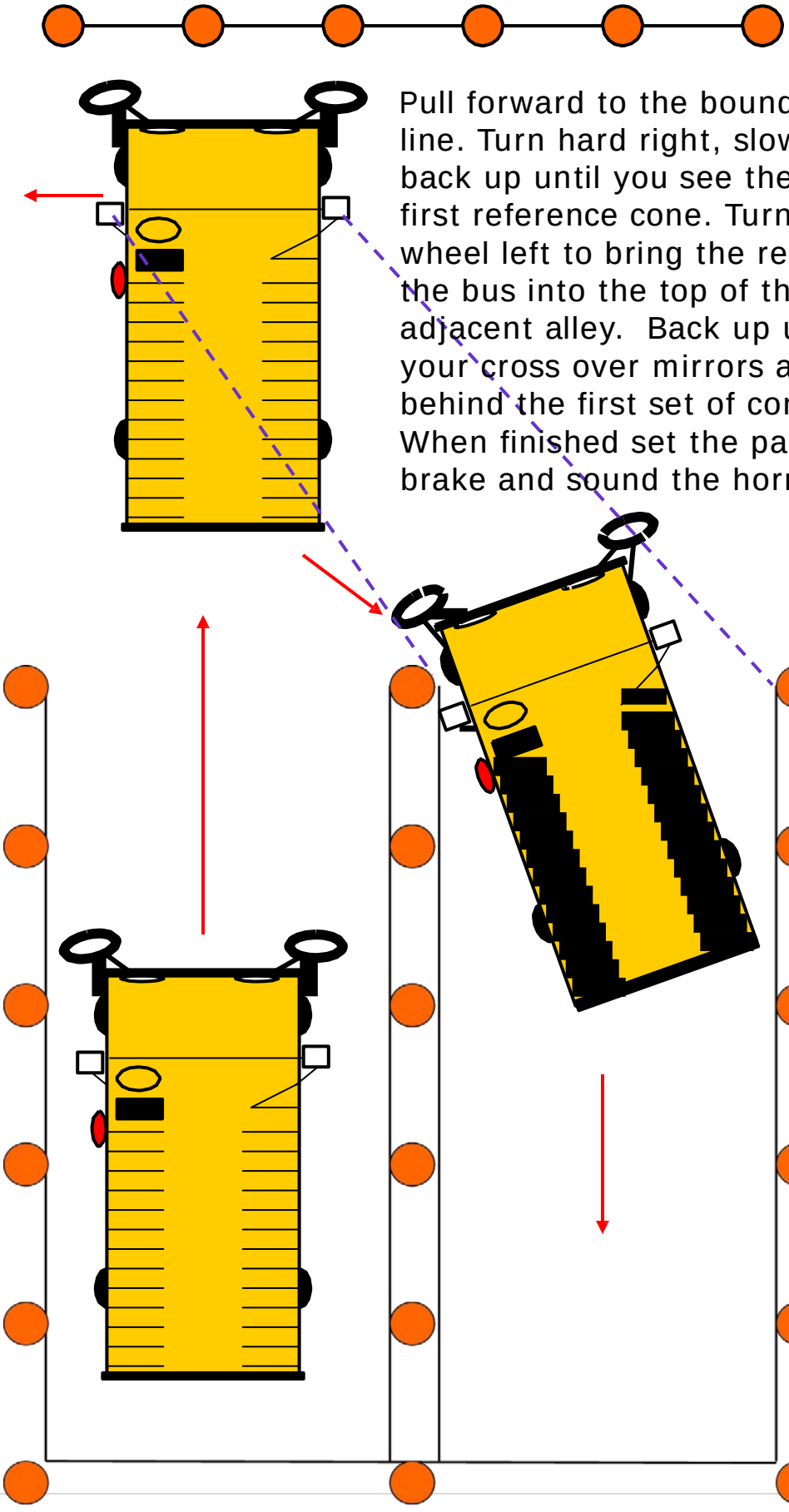


Offset Back Left / Right

Objective: Drive forward and stop before the forward boundary reference cones, then back into the lane on the opposite side of the lane you just exited. When you are finished set the brake and sound the horn.



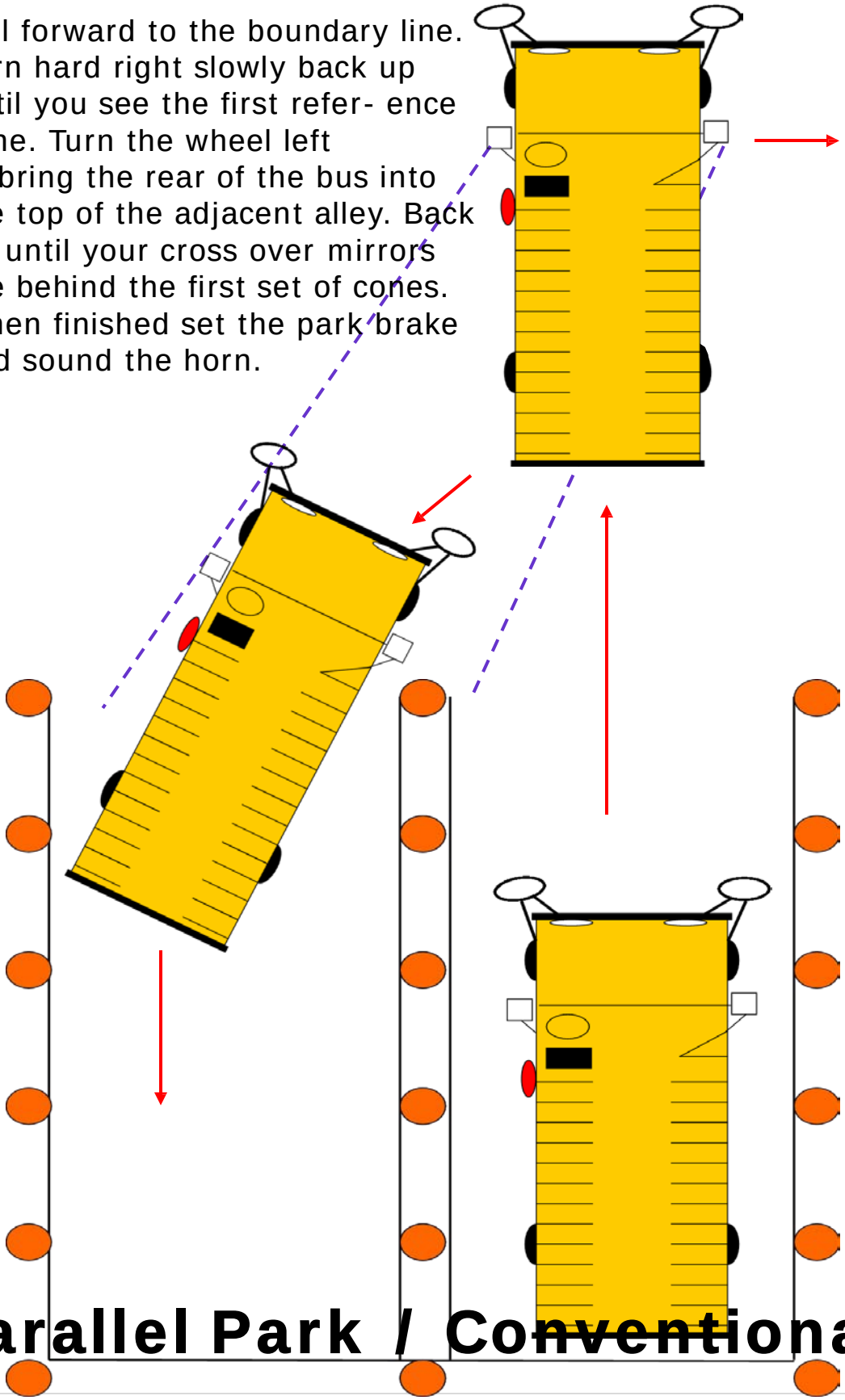
OFFSET - RIGHT



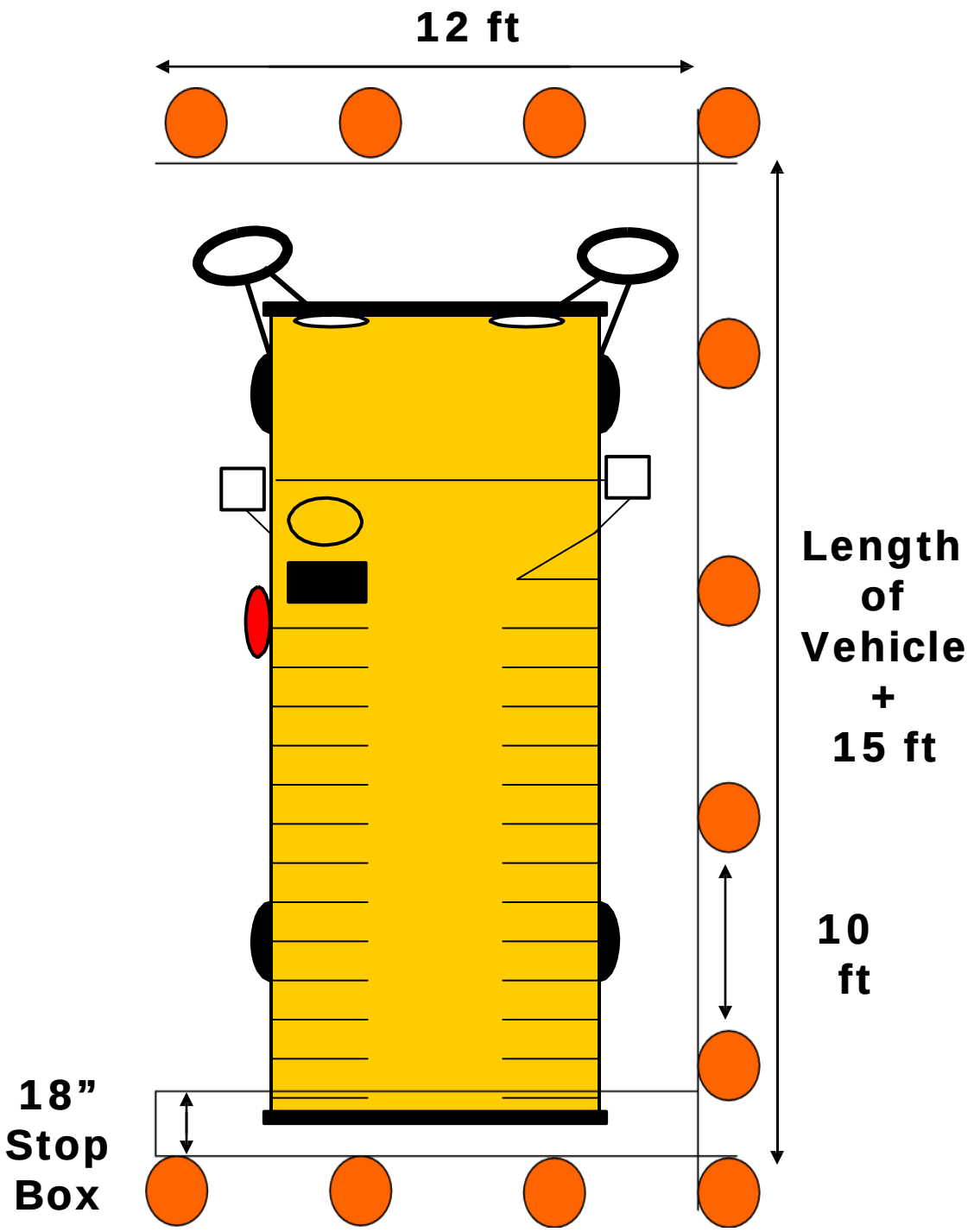
Pull forward to the boundary line. Turn hard right, slowly back up until you see the first reference cone. Turn the wheel left to bring the rear of the bus into the top of the adjacent alley. Back up until your cross over mirrors are behind the first set of cones. When finished set the park brake and sound the horn.

OFFSET - LEFT

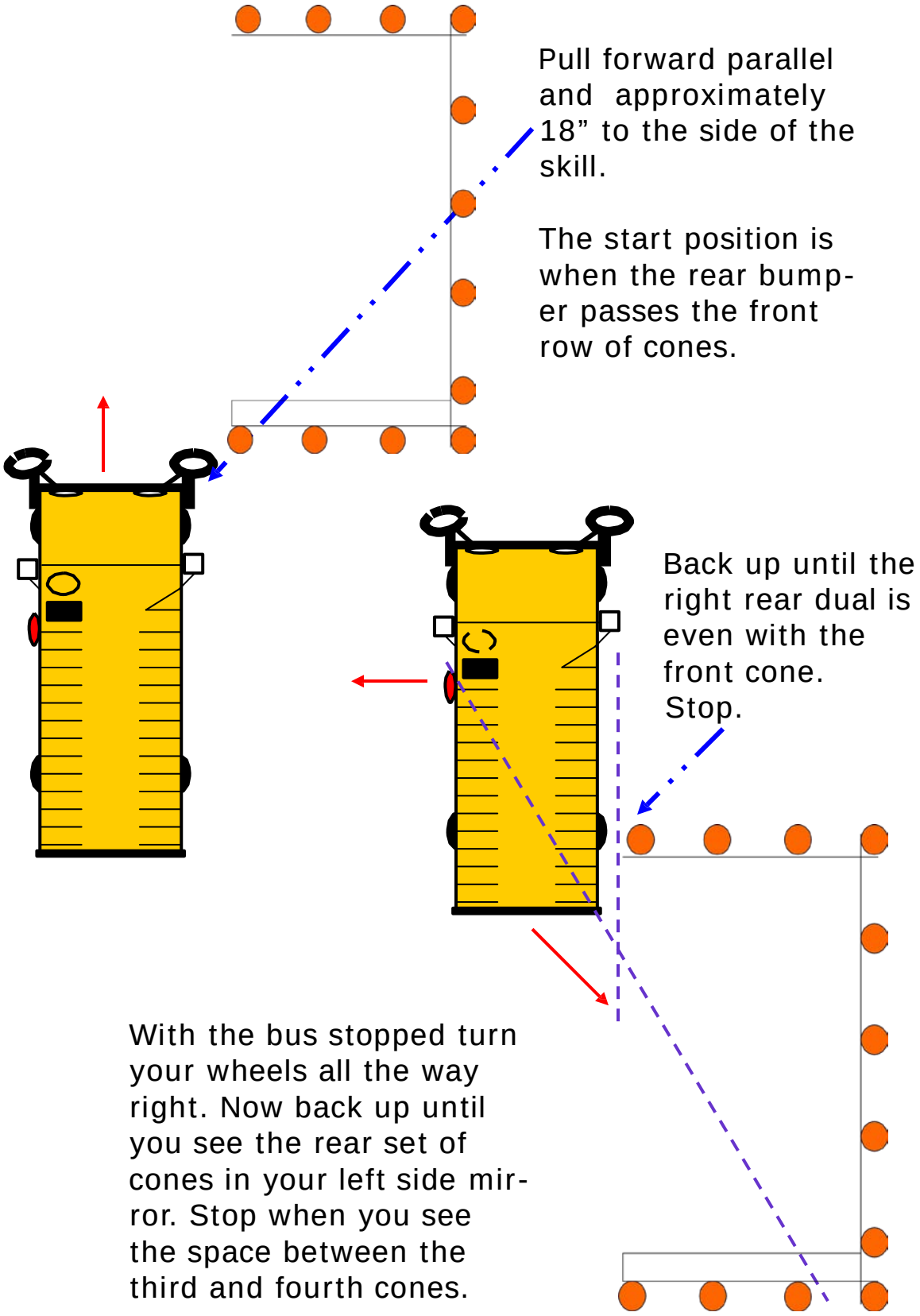
Pull forward to the boundary line. Turn hard right slowly back up until you see the first refer- ence cone. Turn the wheel left to bring the rear of the bus into the top of the adjacent alley. Back up until your cross over mirrors are behind the first set of cones. When finished set the park brake and sound the horn.

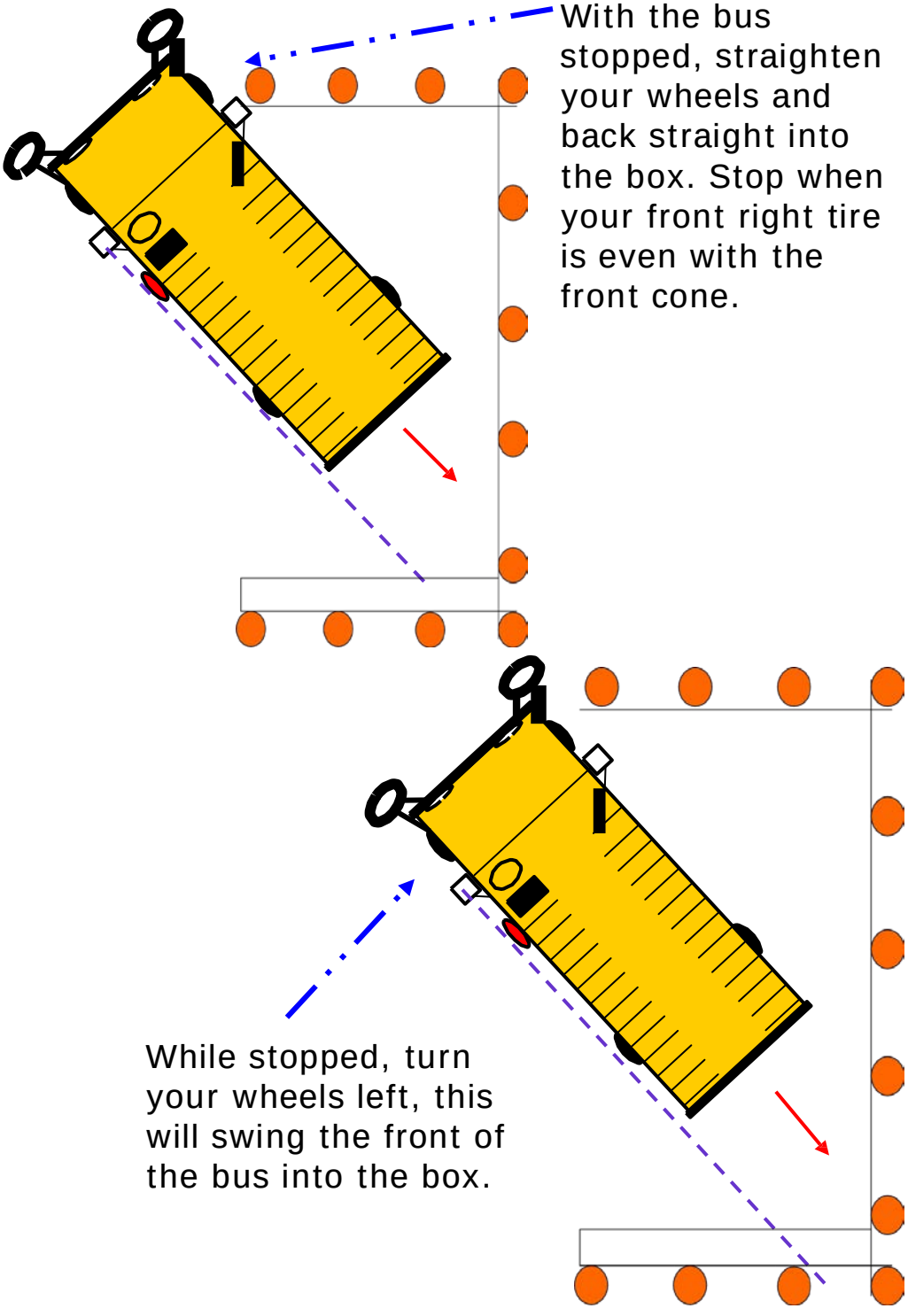


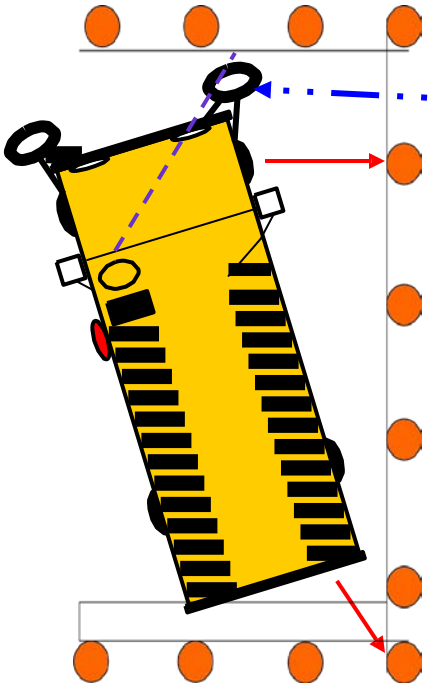
Parallel Park / Conventional



Drive by the parallel parking space, stop, and then back the entire vehicle into the space. Park as close to the curb and rear as possible.

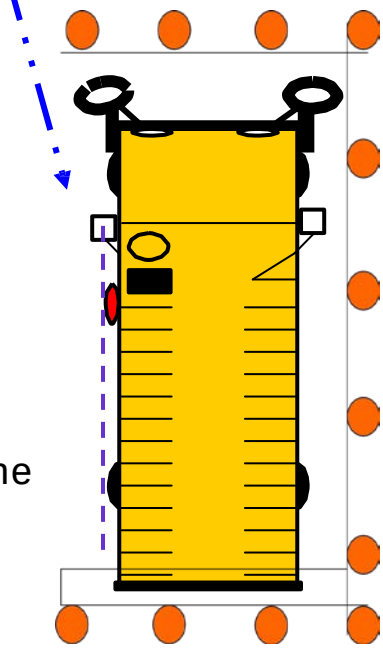

Pull forward parallel and approximately 18” to the side of the skill.
The start position is when the rear bumper passes the front row of cones.
Back up until the right rear dual is even with the front cone. Stop.
With the bus stopped turn your wheels all the way right. Now back up until you see the rear set of cones in your left side mirror. Stop when you see the space between the third and fourth cones.


With the bus stopped, straighten your wheels and back straight into the box. Stop when your front right tire is even with the front cone.
While stopped, turn your wheels left, this will swing the front of the bus into the box.



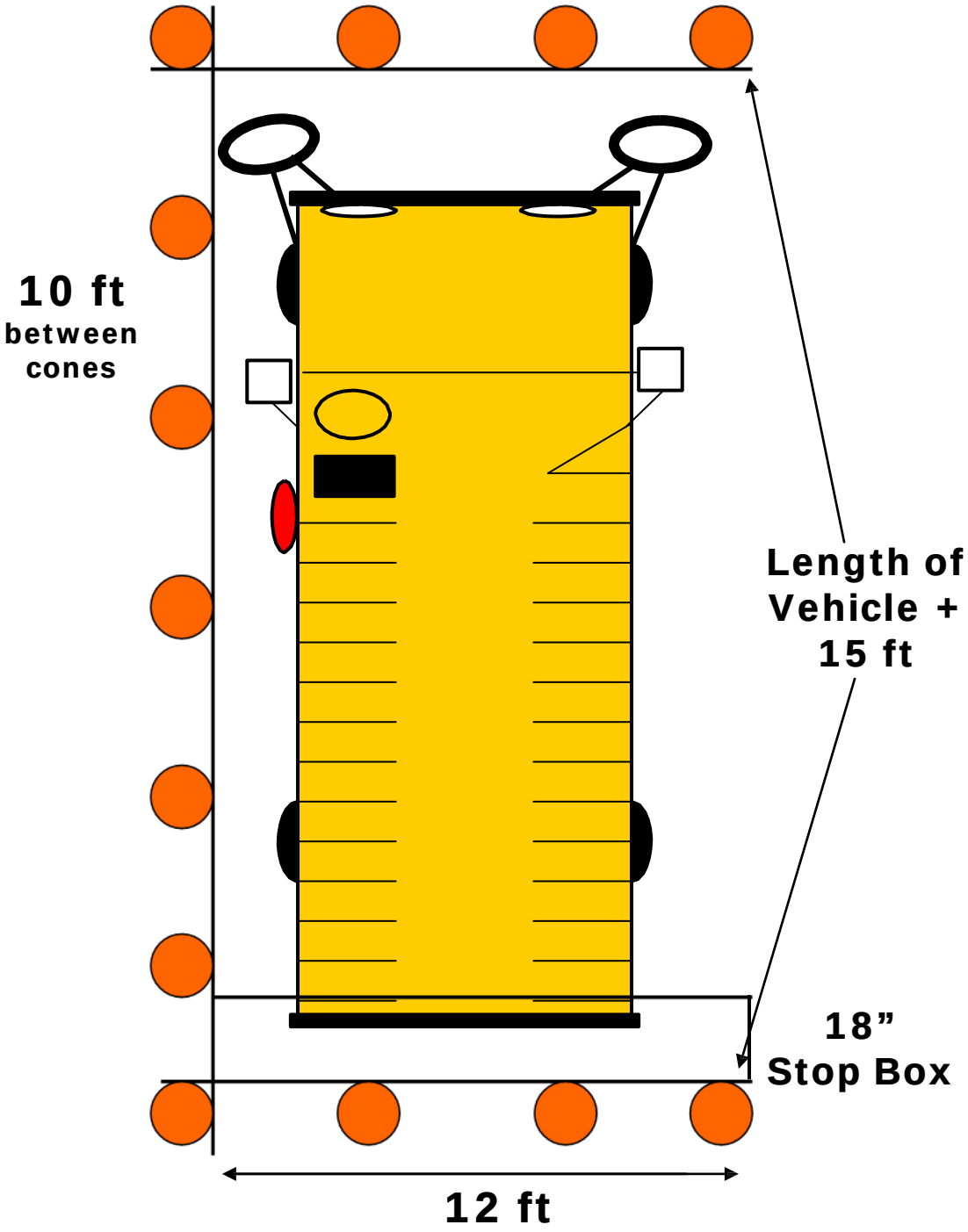
Watch the right cross over mirror as you back up in order not to encroach on the front row of cones. Continue backing up with the steering wheel turned left until the bus is parallel with the box line and stop.

Straighten the steering wheel and back up straight until your reference point is in your left side mirror and even with the rear set of cones.

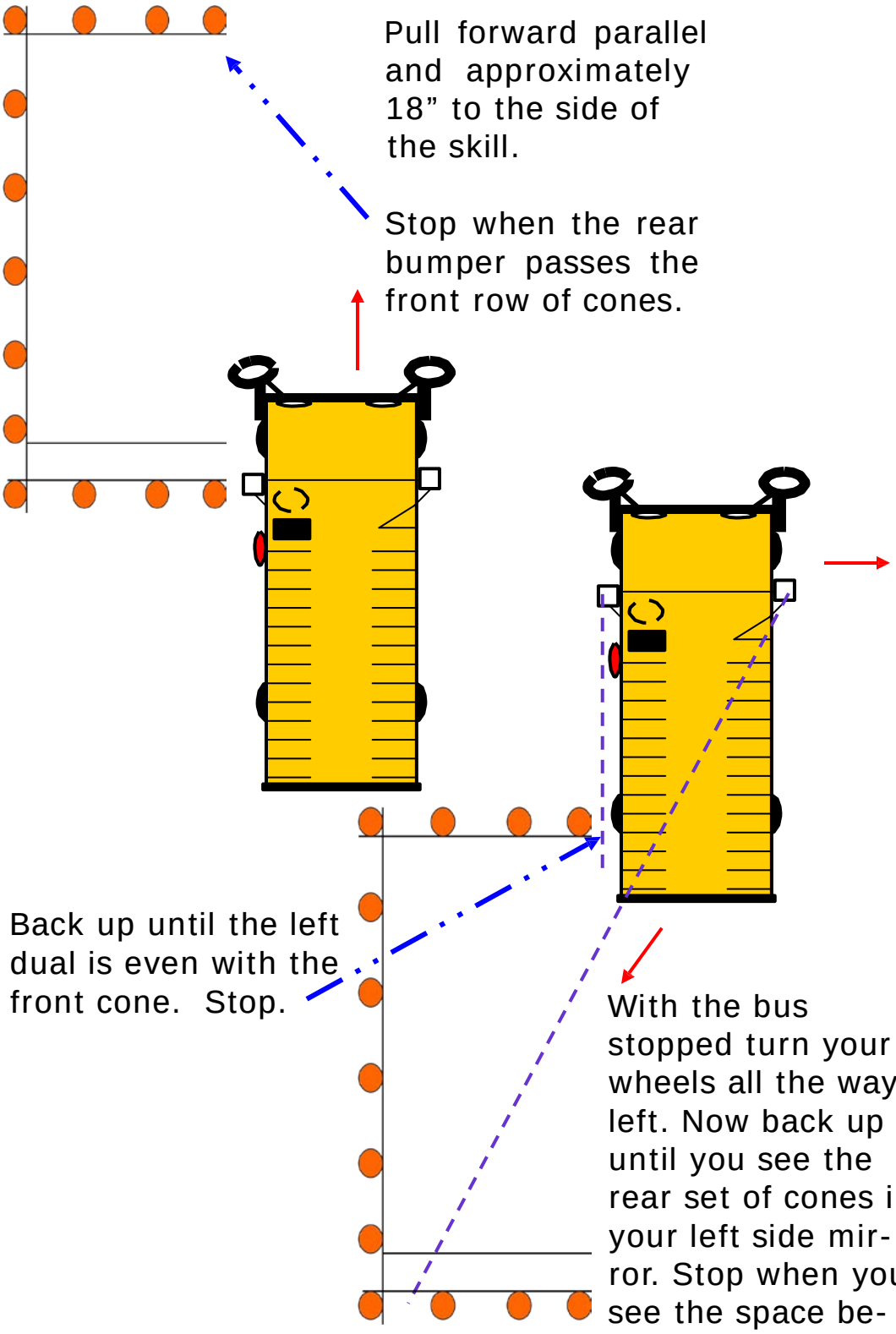


The vehicle must be in the box. When satisfied with the position of the bus set the park brake and honk the horn once.

Parallel Park / Sight Side

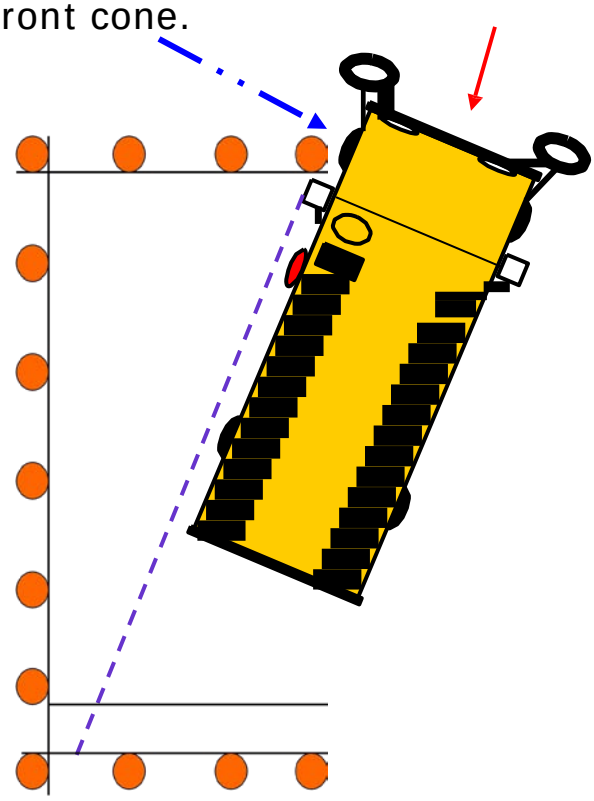


Drive by the parallel parking space, stop, and then back the entire vehicle into the space. Park as close to the curb and rear as possible.

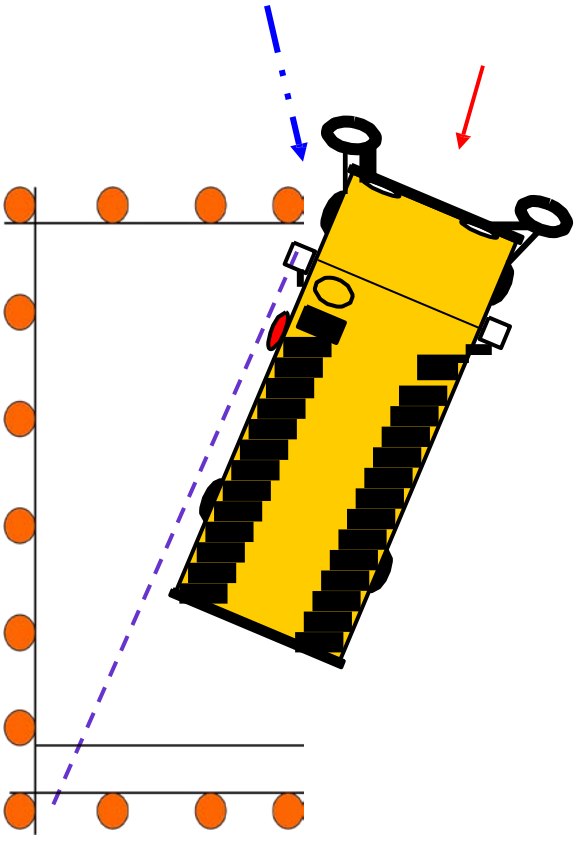

Pull forward parallel and approximately 18” to the side of the skill.
Stop when the rear bumper passes the front row of cones.
Back up until the left dual is even with the front cone. Stop.
With the bus stopped turn your wheels all the way left. Now back up until you see the rear set of cones in your left side mirror. Stop when you see the space between the third and fourth cones.

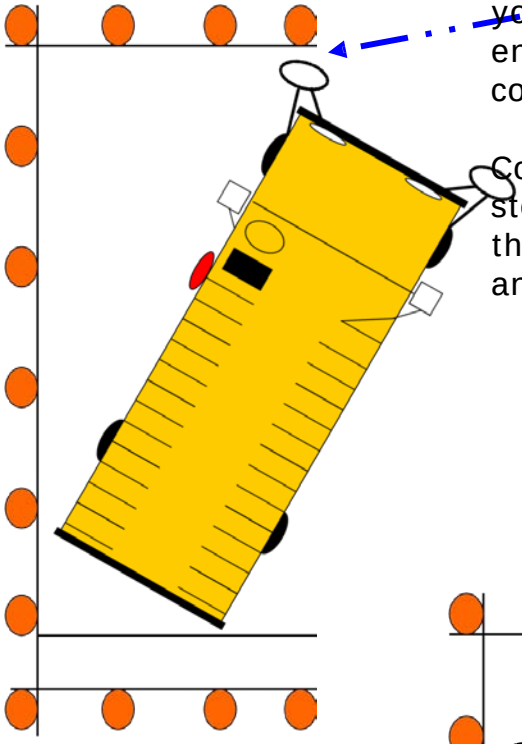
With the bus stopped, straighten your wheels and back straight into the box.

Stop when your front left tire is even with the front cone.



While stopped turn your wheels right. This will swing the front of the bus into the box.

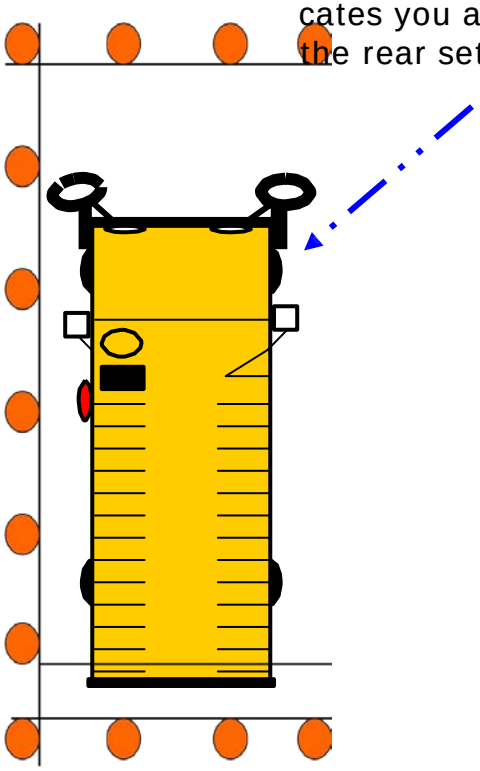




Watch the left crossover mirror as you back up in order not to encroach on the front row of cones.

Continue backing up with the steering wheel turned right until the bus is parallel with the box line and stop.

Straighten the steering wheel and back up straight until your reference point indicates you are even with the rear set of cones.



The vehicle must be in the large box and the rear bumper in the small box.

When satisfied with the position of the bus, set the park brake and honk the horn once.

UNIT FIVE - DRIVING FUNDAMENTALS

Perhaps in no other phase of educational operations do school administrators, transportation staff, and drivers accept more responsibility for student life and welfare than during the mass movement of children in school transportation vehicles on the public highways, streets, and roads of Colorado.

Therefore, it is essential not only to provide adequate equipment, but also to strive continually to improve operational safety and efficiency.

It is recommended by CDE that CDL trainees driving with a temporary instruction permit (TIP) should not transport students until they are fully licensed with an "S" Endorsement.

Prior to transporting students with a trainee driving the transportation vehicle, verify with the district risk management and insurance carrier for guidance.

5.1 ON THE ROAD

Training the new driver on the road or sharpening the skills of the veteran driver can be both very rewarding and challenging. A positive and friendly attitude, as well as a quiet and calm demeanor, is a must. One of the greatest challenges can be to make the driver feel comfortable by relieving some of the anxiety the driver may be experiencing. Light conversation, such as encouraging them to talk about themselves, can create this atmosphere.

Taking frequent breaks and learning to recognize when the driver is stressed can help the trainee achieve success. When you sense the driver is tired or stressed about performing a certain skill or series of skills, lighten the conversation, find a place to stop, get out, and stretch. If you feel the driver is resentful or negative to what is being asked, encourage the trainee to express their opinion. Be ready to give a positive reason for the request.

Give positive reinforcement for good driving skills. For instance, "That was a great right turn." If the trainee is having difficulty with a certain maneuver or skill, be encouraging and positive in how you describe the problem. For example, "I noticed you have some difficulty with…." State the problem, followed by a positive suggestion on how to improve their skill.

Language can be very important when giving directions to the driver (For example, "Turn right here," **WRONG!** Clearer directions would be, "At the next intersection, I would like you to turn right"). An important phrase to use when asking the driver to perform a driving maneuver is: "When you think it is safe to do so, please…" Try to give directions as

far in advance as necessary without confusing them. Speak in a calm voice. Startling the driver may cause the trainee to do something unsafe.

Some drivers get almost too comfortable with the vehicle or become complacent. A driver may turn corners a little too fast, not slow down for bumps in the road, or brake too hard. A good technique is to take the wheel and have them sit in the back of the bus while you mirror their driving habits. The new driver will soon recognize how the students feel. Passenger comfort may greatly increase rapport between the driver and students. This technique works for all new trainees as well as the veteran driver who have become too comfortable with the bus.

5.2 STANDARD OPERATING PROCEDURES

Please follow your district vehicle operating procedures.

5.2.a Getting Ready to Drive

After completing the pre-trip inspection (see Unit Two), it's time to position yourself for driving.

- Become familiar with all controls and lights on the vehicle.
- Adjust the seat to enable you to reach and operate the panel and floor controls easily and comfortably.
- Check all mirrors for optimum rear vision of traffic behind the vehicle, for proper vision to both sides and across the front of the vehicle. (See Unit Two, Pre-Trip Inspection.)
- Properly fasten and adjust seat belt. (1 CCR 301-26, 4204-R-227.01)
- If vehicle is equipped with a manual transmission, review shift pattern.

5.2.b Starting the Engine

The procedure used in starting a vehicle engine must become a routine matter. It must incorporate principles of safety and be performed in conjunction with good engine preventative maintenance practices.

- Ensure parking brake is set to keep the vehicle from moving.
- Depress clutch pedal (standard transmission).
- Shift gear lever into neutral position (standard/automatic).
- Turn on ignition key to complete electric circuits.
- In vehicles with a diesel engine and glow plugs or air inlet heater, wait until the indicator light has shut off before engaging the

starter. These components must warm up to the proper temperature before the engine will start.

- Allow vehicle to cycle through computer set-up, or “Wait to Start” (if equipped).
- \Turn the key farther to engage starter.
- Use accelerator sparingly.
- Warm up engine without racing the engine. Check with the service technician for proper rpm during warm-up time as authorized by your district.
- Check instrument gauges ensuring they are registering properly. (See Unit Two, Pre-Trip Inspection, for specific gauges.)

5.2.c Shifting an Automatic Transmission

Most school buses are equipped with an automatic transmission.

- Depress foot brake before releasing the park brake.
- Move selector lever or push button selector to the drive position.
  - The drive position will be sufficient on level terrain and without a load.
  - With a load and/or uneven terrain, a position of lower range will be necessary.
- Release parking brake.
- Release foot brake and depress accelerator (prevent rolling).
- Manual shifting up or down the gear range, or staying in a particular gear may be necessary depending upon load and/or terrain. When going down a hill, shift into a gear or next lowest gear that would be used going up the hill. Shift one gear at a time without lugging the engine.

Refer to Unit Seven, Mountain Driving, for more information.

Read the manufacturer’s manual or ask the service technician for recommended gear selection. Always emphasize proper gear usage and encourage the driver to practice using the gears.

Transmission shifting procedures should follow district, fleet, and owner manual procedures.

In the lower ranges (1, 2, and 3), the transmission will not shift up above the highest gear selected unless the recommended engine governed speed for that gear is exceeded. Do not exceed governed engine speed.

5.2.d Shifting a Standard Transmission

- Shifting gears is a phase of vehicle driving that requires skill and practice. You must learn the correct range of speed (or tachometer range) in changing gears upward or downward. You must shift the gears without losing your view of the road. Many school buses have synchromesh standard transmissions. Generally, vehicles are equipped with either four (4) or five (5) speed standard transmissions.

- Learn the gear positions and shift pattern.
    - Check chart on shift lever or on the dash.
- Depress clutch pedal.
- Shift gear lever into starting position.
    - With average terrain and load, this should be first or second gear. Check district procedure.
    - Never start out in a gear higher than second, as this places undue load and wear on the engine and clutch.
    - Drivers must always be aware of the gear they are in.
- Depress foot brake.
- Release parking brake.
- Release clutch gradually to friction point and hold. You will at this point, have the clutch just at the point of friction and the foot brake ready to release. Friction point is when clutch starts to engage and vehicle begins to move.
- Release the foot brake.
- Hold friction point and slightly depress accelerator increasing the power to prevent stalling.
- Release the clutch.
    - Slowly and gradually release the clutch to the remainder of the pedal travel while slowly increasing acceleration.
    - Remove foot from clutch pedal completely.
    - Increase to proper rpm before shifting to next higher gear.
- Shift to next higher gear.
    - Depress clutch pedal and release accelerator.
    - Shift to next higher gear.
    - Release clutch smoothly and more quickly than in starting gear. Depress accelerator smoothly and quickly.

- Prevent loss of vehicle speed.
- Do not race the engine and slip the clutch.
- Remove foot from clutch pedal completely.

- Proceed in this gear until proper vehicle speed is reached for shifting to next higher gear.
- Repeat step 11 of procedures until the vehicle is in cruising gear.
- Skipping a gear in shifting up or downshifting causes undue engine and clutch wear. **NEVER SKIP A GEAR**!
- Shift up or down as necessary to prevent engine lugging or excessive rpm.

If you are in doubt, and/or using your brakes too much, shift to the next lower gear.

- When going down a hill, shift into the gear that would be used going up the hill, or one gear lower. **(Refer to Unit Seven, Mountain Driving)** Ratios vary according to equipment. Check district procedures for proper shifting speeds and rpm.
- Approximate miles per hour (mph) before shifting up or downshifting (mph may vary slightly depending on make of engine, transmission, gear ratio, and terrain.)
- Never allow the vehicle to "coast" in neutral.

WARNING--Allowing your vehicle to coast in neutral is against state law (42-4-1009, C.R.S., Coasting prohibited). This practice can result in severe transmission damage. Use the proper shifting pattern and speeds for your standard transmission.

5.3 SPEED LIMIT WHEN NOT POSTED

42-4-1101(3) C.R.S. EXCEEDED SAFE SPEED FOR CONDITIONS "No driver of a vehicle shall fail to decrease the speed of such vehicle from an otherwise lawful speed to a reasonable and prudent speed when a special hazard exists with respect to pedestrians or other traffic or by reason of weather or highway conditions."

REDUCED SPEED ZONES: At various locations, such as school zones and construction zones, a reduced speed is required during certain hours or periods of the day when temporary hazards exist. Signs will indicate when the lower speed limit is in effect.

Unless otherwise posted, Colorado speed limits are as follows (42-4-1101 (1) C.R.S.):

20 M.P.H. - on narrow, winding mountain highways and blind curves.

25 M.P.H. - in any business district.

30 M.P.H. - in any residential district.

40 M.P.H. - on open mountain highways.

45 M.P.H. - for vehicles in the business of hauling trash.

55 M.P.H. - on urban interstates and highways.

65-75 M.P.H. - on designated rural interstates and highways.

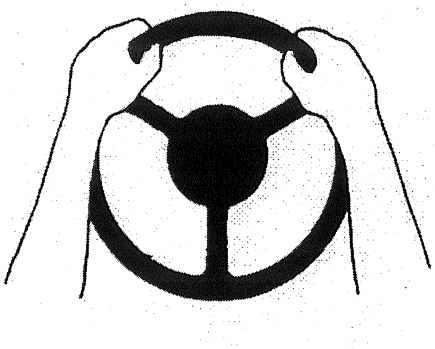
5.4 STEERING AND TURNING

You must be able to assume the proper steering position and make all turning maneuvers smoothly and correctly. Learn the correct procedures to prepare for the turn, make the turn, and re-enter the traffic pattern. When you are confronted with an unusual turn, turnaround or round-a-bout, use extreme caution. The interstate highway systems upon which you may travel may force you to use additional skills and judgment in making a turn properly and safely.

- Use one of the three steering positions following this procedure:
- Grip the steering wheel with both hands at all times.
- Hands on outside of steering wheel with thumbs facing upwards along the portion of steering wheel facing the driver.

NOTE: USING AN "UNDERNEATH GRAB" TECHNIQUE IS NOT PERMITTED.

The 10 and 2 position:



The 9 and 3 position:

Some driving experts feel the 9-3 hand position is the best overall.

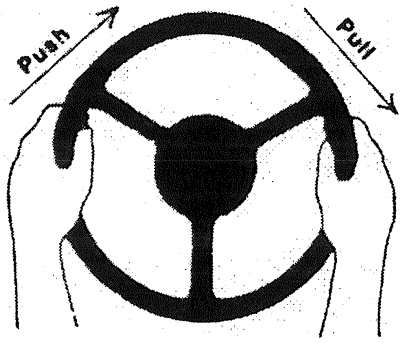
The 8 and 4 position:

(Recommended when air bags are installed in the steering wheel)

TURNING METHOD:

- The push-pull steering method is recommended while turning. One hand pulls, and the other hand pushes.
- By using the push-pull method, the driver will always have a good grip position on the steering wheel.

PUSH - PULL METHOD



PREPARING FOR TURNS

- Check traffic to the front and rear of vehicle.
- Check traffic to either side of vehicle.
- Give proper signal to move vehicle into correct lane.
- Completely enter the **proper** lane and cancel turn signal.
- Always use the outside lane for double/triple turns.

The 689 Rule: In a large vehicle, it takes 6 seconds to cross an intersection, 8 seconds to make a right turn and accelerate to 30 mph, and 9 seconds to make a left turn and accelerate to 30 mph.

5.4.a RIGHT TURN

MAKING A RIGHT TURN

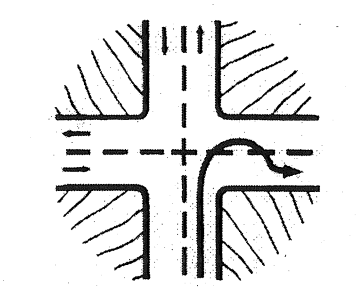
- Activate right turn signal at least 100 feet before desired turning point (200 feet when traveling over 40 mph).
- Reduce speed and downshift standard transmission to proper gear needed to execute the turn.
- Position vehicle in **proper** lane. Use outermost lane for double/triple turns.
- When required stop at point of entry into the intersection, at sign, signal, or crosswalk line (with wheels straight).
- Check for a clear right-of-way. Check traffic 3 times prior to executing your turn.
    - Traffic signals, signs, pedestrians, or vehicles.
    - Check right and left mirrors.
    - Yield right-of-way to vehicles already on the road.
    - Turning vehicles must yield right of way to pedestrians in a crosswalk.
    - Look for suitable gap in traffic, and when safe, accelerate smoothly into lane.
    - If stopping is necessary, keep front wheels straight and brake pedal depressed. This activates the stop-lights and prevents rolling. If struck from the rear, this will keep your vehicle from being pushed into the traffic lane. Do a traffic check using both outside mirrors before proceeding.

Check again for both bicyclists and pedestrians before completing the turn.

Execute the turn.

- Drive into the intersection and make the turn smoothly and without strain on the engine.
- Never shift gears during a turn. You should downshift prior to making the turn.
- Check left and right mirrors while executing the turn.
- Enter the **proper** lane and cancel turn signal if necessary.
- After completing a right turn upon a multiple lane highway, resume proper speed; check traffic in both outside mirrors.

- If you are driving a bus that cannot make a right turn without swinging into another lane, turn wide as you complete the turn, as shown in the diagram below. Look to right and left to determine whether there are vehicles in motion on the roadway to be entered.



5.4.b LEFT TURN

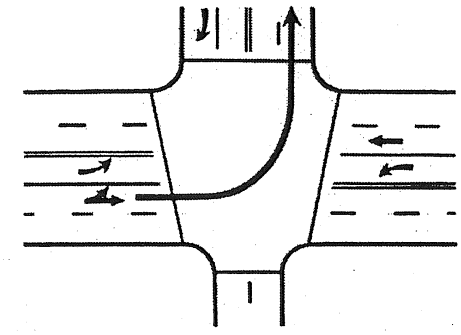
MAKING A LEFT TURN

- Activate left turn signal at least 100 feet before desired turning point (200 feet when traveling over 40 mph).
- Reduce speed and downshift standard transmission to proper gear needed to execute the turn.
- Position vehicle in the proper lane. Use outermost lane for double/triple turns.
- When required stop at point of entry into the intersection, at sign, signal, or crosswalk line (with wheels straight).
- Check for clear right-of-way. Check traffic 3 times prior to executing your turn.
  - Traffic signals, signs, pedestrians, or vehicles.
  - Check right and left mirrors.

- Yield right-of-way to vehicles already on the road.
- Turning vehicles must yield right of way to pedestrians in a crosswalk.
- Look for suitable gap in traffic and when safe, accelerate smoothly into lane.
- If stopping is necessary, keep front wheels straight and brake pedal depressed. This activates the stop lights and prevents rolling. If struck from the rear, this will keep your vehicle from being pushed into the oncoming traffic lane. Do a traffic check using both outside mirrors before proceeding.

Check again for both bicyclists and pedestrians before completing the turn.

- Execute the turn.
  - Drive straight approximately half-way into the intersection, make turn smoothly and without strain on the engine.
  - Never shift gears during a turn. You should downshift prior to making the turn.
  - Check left and right mirrors while executing turn.
  - Enter the **proper** lane and cancel turn signal if necessary.
  - After completing a left turn upon a multiple lane highway, resume proper speed, check traffic in both outside mirrors, activate right turn signal, and move into right lane as soon as it is safe to do so.



Important: If in doubt <u>ALWAYS</u> yield the right-of-way. Never take it!

5.5 CROSSING INTERSECTIONS

- Observe traffic ahead to the left and to the right, at least three times, when approaching an intersection.

- Cover brake pedal to be prepared to brake if needed.
- Watch for vehicles that are fast approaching the intersection.
- Watch for approaching vehicles that are signaling but may not be turning.
- When stopped and your vision is obscured by buildings, trees, parked vehicles, or blind spots created by parts of your vehicle, stop at the intersection and lean forward or back in your seat to eliminate the blind spots before proceeding.
- Always yield the right-of-way.

- Check traffic using all outside mirrors.

5.6 LANE USE AND POSITION ON THE ROADWAY

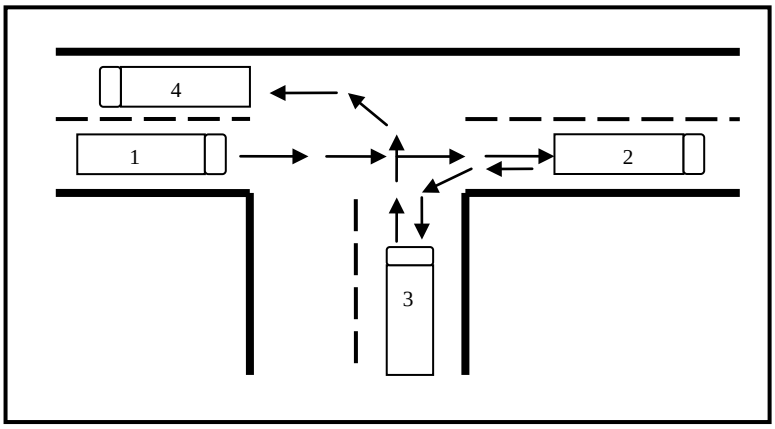
- Center vehicle in the proper lane. Do not encroach on other lanes.
- The shoulder or parking lane is only for stopping and parking.
- When there is more than one lane for traffic going the same direction, travel in the farthest right driving lane unless passing or turning to the left.
- When following other vehicles, drive at a safe distance behind. Use the 4-second rule as described in Unit Six, Managing Space.

5.7 CHANGING LANES

- Look for traffic behind and beside you before deciding to change lanes.
- Do not change lanes in or near an intersection.
- Move your head enough and lean forward or back in the seat to eliminate any blind spots.
- On a multi-lane road, look for vehicles about to enter the new lane from an adjacent lane.
- Do not change lanes in an intersection.
- Check all mirrors to observe any vehicles passing, closing fast from the rear, or vehicles about to enter the new lane. Use proper turn signal 100 feet (200 feet if going over 40 mph) before lane change (allow the signal to flash at least three times).
- Ensure the proper following distance from the vehicle in the lane you are changing into. Ensure at least one and one half bus lengths following distance for the vehicle that will be behind you. This will prevent throwing rocks that may have accumulated in between lanes into the windshield of the vehicle that will be behind you.

- When a vehicle is attempting to pass the bus, and an oncoming vehicle is too close for the passing vehicle to complete the pass, consider:
  - Slowing the bus to allow the passing vehicle to safely pass before oncoming vehicle reaches or
  - As a last resort, move the bus to the shoulder, parking lane. Leave the roadway only if doing so doesn't create a hazard for vehicle or passengers.

5.8 TURNING AROUND



5.8.a EXECUTING A BACK-UP TURNAROUND

- Tap brake to activate brake signal well in advance of turnaround.
- Use 4-way hazard lights and tap horn before backing.
- Stop bus in proper position on roadway.
  - One bus length beyond the road to be used. (Position 2)
  - There should be good visibility in either direction.
- Before backing, check traffic to the front and rear.
- If possible, have traffic pass the bus before backing.
- Back off of the main roadway into least traveled roadway or driveway. Use right and left mirrors. (Position 3)
- Pull forward to re-enter main roadway. (Position 4)
- Have students **on the vehicle** while making a back-up turnaround.

5.9 BACKING IN A STRAIGHT LINE

Careful planning can minimize the need for backing; however, there are situations that require backing maneuvers. A bus driver must be able to

back into a given space without allowing the bus to scrape or hit stationary objects. This maneuver must be made safely and without interfering with other traffic.

- Stop bus in correct position to begin backing maneuver.
- Direct a responsible person, if available, to stand outside, near rear of bus in plain view of the driver, to signal for safe backing.
- Check the mirrors to make certain the way is clear.
- Honk horn and activate 4-way hazard lamps or audible warning device, before backing.
- Using the mirrors, back slowly and smoothly in a straight line.
- Stop at desired point.
- Follow district procedures.

1 CCR 301-26, 4204-R-220.01. Rules for the Operation of School Transportation Vehicles

The school transportation vehicle operator shall use extreme caution when backing. Before backing on roadway or school grounds, the horn or audible warning device shall be sounded and hazard lamps actuated.

***Reminder**: If alone, get out of the vehicle and walk to the back to make sure it is safe before backing.*

42-4-1211 (1)(a)(b), (2). C.R.S. Limitations on backing

The driver of a vehicle whether on public property or private property which is used by the general public for parking purposes, shall not back the same unless such movement can be made with safety and without interfering with other traffic.

The driver of a vehicle shall not back the same upon any shoulder or roadway of any controlled-access highway.

Any person who violates any provision of this section commits a Class A traffic infraction.

5.10 STARTING AND STOPPING ON A HILL

5.10.a Standard Transmission

Stopping on a hill (upgrade)

- Check traffic in all directions using mirrors
- Use retarder if equipped, to slow the vehicle
- Apply the service brake lightly for a smooth stop and hold (See Unit 7, Maintaining Vehicle Control With the Retarder.)

- Allow extra distance between the bus and the vehicle ahead
- Depress clutch with left foot. Apply the parking brake before shifting into neutral

Starting on a hill (upgrade)

- Check traffic in all directions using ALL mirrors
- With park brake set and left foot on the clutch, place transmission in gear; let the clutch out slowly to the friction point
- Hold clutch at the friction point
- Release park brake with enough acceleration to hold the weight of the bus without drifting backward
- Release clutch until completely engaged to pull the bus smoothly up the hill
- Check traffic using all outside mirrors

Stopping on a hill (downgrade)

- Check traffic in all directions using mirrors
- Downshift and use the engine compression to reduce speed
- Use retarder if equipped to slow vehicle
- Apply steady pressure to service brake pedal as needed to bring the vehicle to a smooth stop (See Unit Six, Maintaining Vehicle Control with the Retarder.)

Reminder: When stopped, always give vehicle in front of you plenty of room. You should be able to see the rear wheels where they meet the pavement. This will give advanced warning when it begins to move. This applies whenever stopped in traffic. There should be a minimum of 15 feet of distance between the vehicles.

5.10.b Automatic Transmission

Stopping on a hill (upgrade)

- Check traffic in all directions using ALL outside mirrors
- Take foot off accelerator
- Use retarder, if equipped to slow vehicle (See Unit Seven, Maintaining Vehicle Control With the Retarder)
- Apply the service brake lightly for a smooth stop; hold
- Allow extra distance between the bus and the vehicle ahead
- Apply the park brake

Starting on a hill (upgrade)

- Check traffic in all directions. Make eye contact with other drivers and pedestrians. Use all outside mirror
- Place transmission in gear
- Accelerate slightly, release park brake, keeping vehicle from rolling back

Stopping on a hill (downgrade)

- Check traffic in all directions using outside mirrors
- Take foot off accelerator
- Downshift and use the engine compression to reduce speed
- Use retarder, if equipped to slow vehicle (See Unit Seven, Maintaining Vehicle Control with the Retarder)
- Brake smoothly and evenly
- Apply the park brake if needed

5.11 OVERTAKING AND PASSING

When overtaking or passing other vehicles, follow these steps:

- Check traffic signs and markings to determine if passing is allowed
- Check traffic using mirrors, making sure there is no oncoming traffic or traffic from behind preparing to pass
- Activate left turn signal at least 100 feet (200 feet if going over 40 mph) before executing passing maneuver (allow the signal to flash at least three times)
- When clear, pull smoothly into passing lane
- Cancel left turn signal
- Move smoothly past the vehicle at a safe speed within the speed limit
- Activate right turn signal
- Move back into right lane when at least one and one-half bus lengths ahead of the passed vehicle. After returning to the lane, perform another traffic check
- Cancel right turn signal
- Use extra caution when:

- The vehicle to be passed is towing a trailer, has an open trunk lid, ice or snow on the rear window, or objects appear in the rear window
- The leading vehicle is about to pull out and pass
- While being passed, the vehicle moves laterally toward the bus
- The driver of the leading vehicle appears inattentive
- There is reduced visibility due to weather condition
- Passing a truck. Remember, they have blind spots.
- When there is an intersection or a driveway
- Do not pass when the driver of the lead vehicle is:
    - Signaling or otherwise indicating a left or right turn, or changing lanes preparing to pass
    - *Decelerating suddenly*
    - *Passing pedestrians, cyclists, or animals*
    - *Being passed by another vehicle*
    - *Wait until the lead vehicle has been passed, your view of the road ahead is clear, and an acceptable gap is present*
    - Weaving or wandering

5.12 ROUNDABOUTS

- Yield to traffic in the roundabout
- Use signals to indicate your intention to other drivers
- Slow the vehicle, yielding to traffic already in the roundabout
- Maneuver the vehicle at the appropriate speed
- If the loop is too small for the vehicle to be able to stay in one lane, once the circle is clear, use the center of the two lanes combined
- If the loop is too small for the vehicle to go through, a different route must be found
- It is illegal for a vehicle to go through a roundabout in the wrong direction
- Check mirrors often
- Signal to exit

Slowing down allows motorists in adjoining lanes to clear the roundabout and make entry and exit maneuvers easier and safer.

5.13 STOPPING AND PARKING THE VEHICLE

Stopping a school bus smoothly and safely is one sign of a professional driver. A professional driver keeps the vehicle under control at all times. A professional driver knows that braking distances increase greatly as the speed and weight of the vehicle increases. By using correct stopping procedures, the maintenance costs on the braking system will be reduced.

Vehicle weight and road conditions affect stopping distances. A fully loaded bus may need eight times the stopping distance on snow or ice, as compared to an empty bus on a dry road. For more information on stopping see Unit Six, Controlling Speed.

- Stopping in low gear or at 10 mph and less.
  - Depress clutch pedal and release accelerator (standard transmission)
  - Apply service brake gradually by increasing pressure
  - Reduce brake pressure slightly, (not completely) just before coming to a stop to prevent jerking
  - Shift gear lever into neutral position, release clutch, and remove foot from clutch pedal (standard transmission)
- Stopping when in cruising gear
  - Release accelerator and depress service brake pedal
  - When proper rpm is obtained, downshift to next lower gear
  - This reduces heat buildup in the brake systems and extends the life of the brakes (standard transmission)
- Retarders.
  - Some vehicles have “retarders” that provide another way of slowing a vehicle.
  - They reduce brake usage and excessive wear on the brakes.
  - There are different types of retarders.
  - The retarder should be used to slow the bus.
  - Apply the service brake if greater slowing or stopping is needed.
- Parking the vehicle.

- Shift into low gear on level terrain or upgrade and reverse gear on downgrade (standard transmission)
- Use normal stopping/parking procedures for vehicles with an automatic transmission
- Turn wheels into curb
- If there is no curb, turn the wheels to the right

The direction you turn the wheels depends on whether you are facing uphill or downhill and if there is a curb.

- Set park brake
- Turn off ignition and remove ignition key
- Release clutch and take foot off service brake (standard transmission)

5.14 RAILROAD CROSSING PROCEDURES

1 CCR 301-26, 4204-R-209.02 - Buses are not required to stop at crossings which are controlled by an "exempt crossing" sign or at crossings controlled by a red, amber, green traffic control signal when it is in the green position, or when crossing is controlled by police officer, or human flag person.

Reminder: Scan whole area as you approach the crossing.

- The 4-way hazard lamps are activated not less than 200 feet from the railroad crossing to alert other motorists of the pending stop for the crossing.
- Use a prearranged signal to alert students of the need for quiet aboard the bus when approaching railroad tracks. Turn off all heaters, fans, and accessories.
- Stop the bus as far to the right of the roadway as possible without forming two lanes of traffic unless the highway is marked for four or more lanes of traffic.
- Stop the bus within 50 feet but not less than 15 feet from the nearest rail.
- When it is quiet aboard the stopped bus, open the service door and operator window, listen and look in both directions along the track(s) for any approaching train(s) and for signal indicating the approach of a train.
- When the tracks are clear, close the service door prior to placing the bus in motion. Proceed in a gear low enough to permit

crossing the tracks without having to manually shift gears. Cancel the hazard lamps after the bus has cleared the tracks.

- When two or more tracks are to be crossed, do not stop a second time unless the bus is completely clear of the first crossing with at least 15 feet clearance in front and at least 15 feet clearance to the rear, commonly referred to as 'storage area.'
- When an intersection is located beyond the tracks, before proceeding, verify that the storage area is sufficient in case you are required to stop at the intersection (entire length plus 15 feet).
- Do not pass or change lanes when crossing the tracks.

Be especially alert at multi-track crossings. Be aware that mechanical failure of traffic control devices can occur.

5.15 LIGHT RAIL TRACK CROSSING PROCEDURES

5.15.a General Information

The Regional Transportation District (RTD) light rails tracks, in and around the Denver Metro area, are points of extreme danger. School transportation vehicle operators must exercise the utmost care when approaching, traveling alongside, and crossing light rail tracks.

The RTD light rail tracks are not a distance away from the road like most railroad tracks. They are in most cases, a part of the same street motorists drive on. The light rail tracks run parallel to traffic, traveling in the same direction as traffic, or against the traffic flow. There are several locations where the RTD light rail tracks cross major streets.

Light rail vehicles (LRV) may approach from either direction. Pay attention to all sets of tracks. Even though a train may have left the crossing on one track, another train may be approaching on another track. They are very quiet and appear to be traveling slower than they actually are. Each car weighs 40 tons and is equipped with a bell, an emergency siren, and three bright lights that can be seen two to three blocks away. Two of the lights are in the "normal" headlight positions, and the third is in the middle, at the top of the LRV. LRV have turn signals to indicate which direction they are turning.

In most cases, there are no physical barriers such as curbs or medians separating the vehicle traffic from the LRV rails. The rails are set in concrete and are a lighter color than the asphalt on the

street. Certain weather and light conditions will reduce the visibility of this subtle difference.

In some areas the tracks are close to parking areas. Motorists can become confused as to where to park.

5.15.b Warning Signs

A yellow, diamond shaped warning sign with a black symbol of a streetcar indicates the location of the LRV tracks. At the intersections or by the tracks, these signs have a black bi-directional arrow below the streetcar symbol. Before intersections, these signs have the term “AHEAD” below the streetcar symbol.

The illuminated no left turn or no right turn signal flashes when a train is about to cross the intersection of a track that runs adjacent to the roadway.

5.15.c Procedures for Light Rail Crossings

Treat light rail crossings as a railroad crossing except for the use of the hazard lights. Use the hazard lights only when necessary, as they are not recommended or required. Most light rail intersections are controlled by a traffic light.

- Instruct passengers to be quiet when stopping at a LRV crossing. Turn down the radio.
- Stopping on the tracks is unsafe and against the law.
- Always observe the "Stop Here on Red" sign and the white safety strip (stop line) location.
- Traffic light controlled intersections govern both the motorist and the LRV. Treat these locations like any other traffic light controlled intersection. Look and listen in the appropriate directions for LRV, motorists, and pedestrians before crossing the tracks.
- At un-controlled intersections, a school bus operator, when stopped shall open the driver's side window and the service door. Look and listen in both directions for LRV, motorists, and pedestrians. Close the service door before proceeding across the tracks.
- Never cross the light rail tracks until the entire vehicle's length can safely clear the tracks.
- Never back across the light rail tracks.

CDE recommends that school transportation operators do not park their vehicles near a light rail track or crossing. When parking, always consider the safest loading/unloading location for school passengers.

UNIT SIX – DEFENSIVE DRIVING

6.1 INTRODUCTION

It only takes a split second of carelessness or one distracted moment, and a child can be killed or injured for life. Accidents can be prevented by driving defensively.

There are six major causes of car collisions and accidents:

- **Driver Incompetence** – A great number of drivers lack the proper training on road safety. Many of them even defy the traffic regulations such as tailgating, speeding, and many more road rules that tend to protect the motorist, including them, from harm.
- **DUI Driver or Intoxication** – Driving a car after drinking liquor excessively is very dangerous, for it impairs driving capabilities. It is illegal to operate a Commercial Motor Vehicle (CMV) if your blood alcohol concentration (BAC) is .04% or more.
- **Distractions** – Motorists are expected to exercise extreme concentration in driving. However, so many distractions tend to divert their attentions and make their driving too risky. Examples are active discussions with the passengers, improper use of cell phones, texting, loud car stereos, etc.
- **Adverse Weather** – Weather is a large factor in safe road travel. Studies show that many car accidents occur during bad weather conditions, making the road surfaces slippery and affecting clear visibility.
- **Poor Road Design** – The state has the obligation to make sure that our roadways are properly designed and safe for public use. The government sets up road safety signs and equipment. The temporary road safety signs take priority over the permanent signage. Failure to obey these may cause an incident or accident that risks the lives of workers, passengers, and drivers.
- **Vehicle Defects –** Motorists and car owners should inspect and service the vehicle prior to a trip. Taking these precautions lessens the chances of road catastrophes.

6.2 THE THREE A'S OF DEFENSIVE DRIVING

- Attitude
- Awareness
- Actions

6.2.a DEFENSIVE DRIVERS

- Stay positive
- Stay aware
- Expect the unexpected
- Stay in control
- Act, don't react

6.2.b ATTITUDE - YOUR FIRST DEFENSE

Most traffic accidents are caused when a driver performs poorly. In most cases poor driving performance is caused by a poor attitude. Keep a positive attitude.

Your attitude affects

- How an individual drives
- Reaction time
- How passengers behave
- Level of alertness
- In short, how a driver performs behind the wheel

Make your first defense a positive attitude

- Before you start your day, adjust your attitude
- Leave your personal baggage at home
- If you're running late, relax and get positive
- Know you're a good driver

Steer clear of road rage

What happens when driving down the road and some careless driver cuts you off, or tailgates, or drives erratically in your direction – even waves a fist or a gun? Road rage! What do you do?

- Steer clear of it
- You can't control another person's attitude, only your own
- Never take a driver's behavior personally
- Avoid eye contact
- Stay within the posted speed limit
- Keep at a safe distance from other vehicles
- Use your horn sparingly
- If you have to, count to ten

- Get your students to school or home safely
- If necessary, and safe, pull off (if the aggressive driver follows, do not stop)

6.2.c AWARENESS - EXPECT THE UNEXPECTED

Stay alert; be aware and prepared for anything. After you have been driving a route for a while, you get used to the road conditions and traffic flow. Never get too comfortable. Stay alert; expect the unexpected. Be ready for situations that may change without notice; there usually is not much time to think it out.

- Driving conditions can change
- Traffic patterns can change
- The route can change
- Student's behavior can be unpredictable
- The vehicle can have an unexpected problem
- The time it takes to get from Point A to point B can vary

Stay alert, be aware, and prepared for anything – even before pulling out of the lot.

- Find out about road conditions before departure
- Listen to morning and afternoon weather and traffic reports
- Talk to the supervisor and other drivers about road hazards
- If a substitute or new driver, ask about safety hazards before the first run
- If new to the area, study local maps
- Before the start of a route, do a proper pre-trip inspection of the vehicle.

Awareness reminds you that children are apt to do the craziest things at the worst possible times.

6.2.d ACTION - TAKE CONTROL OF SAFETY

Defensive drivers act; they don't react. Take actions to make sure you and your passengers stay safe. Keep in mind you are responsible for the most precious cargo there is.

- When you act, you are in control of what you do
- When you react, you respond impulsively to others' behavior
- When you think of action, think control
- That is the goal

6.2.e BASIC RULES OF DEFENSIVE DRIVING

- Always wear your seatbelt
- See it, predict it, act upon it
- Evaluate the “big picture” 15 seconds ahead
- Scan mirrors every 5-8 seconds
- Use the “4 second rule” when following other vehicles
- Know your peripheral vision = 180 degrees of visibility
- Goal is to see 360º - use mirrors to see what cannot be seen when turning your head
- Keep your eyes moving
- Always allow yourself an out
- Stay within the posted speed limits
- Signal all turns and lane changes
- Never tailgate
- Keep a safe distance between your vehicle and the vehicle in front of you
- Avoid other drivers’ blind spots – the rear and sides of a car and directly behind a truck
- Make sure other drivers see you
- Turn your head when making lanes changes to check blind spots
- When passing, signal lane changes
- Check both rear and oncoming traffic
- If you can see an oncoming vehicle, don not risk passing
- Be especially cautious when visibility is reduced
- On hills, dips, and curves, decrease your speed
- Stay to the right in case an approaching driver is in the center of the road
- Be aware of stale green lights

6.3 ON THE ROAD

6.3.a Lane Lines

Yellow and white broken and solid lines are to aid you in lane driving and passing. Following is a description of the differences in lines and their purposes.

- A broken yellow line marks the center of a two-way, two-lane road. Drive on your half of the road and pass with care.
- A broken white line separates traffic lanes on a one-way street or roadway of a divided highway. Observe lane-use rules and change lanes only when it is safe to do so.
- A solid yellow line on your side of the road or a double solid yellow line in the center of the road marks a no-passing zone. Do not pass when the solid yellow line is on your side.
- A double-solid yellow line may also mark the center of a two-way, two-lane or four-lane street. Do not drive to the left of this center line.
- Two separate sets of double-solid yellow lines represent a dividing strip on a very wide street or highway where there is not a physical separation of two-way traffic. Do not drive to the left of the solid yellow lines.
- A solid white line (fog line) marks the outside edges of far left and right traffic lanes.
- Crossing a painted center line or painted center island is allowed for a left turn into an alley, private road, or driveway when such movement can be made safely.

Refer to the current revision of the Colorado Drivers' Manual.

6.3.b Highway Signs

There are three sign classifications

- Warning - Diamond shape is used to warn of existing or possible hazards on roadway or adjacent areas.
- Regulatory - Vertical rectangles are generally used for regulatory signs, which tell you what you must do.

- Guide - Horizontal rectangles are generally used for guide signs, which show location, direction or other special information.

6.3.c Right-of-Way

At an uncontrolled intersection, the vehicle on the right has the right-of-way. Left-turn traffic must yield to all other traffic except when a left turn arrow is present.

According to 42-4-108, C.R.S., emergency vehicles may take the right-of-way.

42-4-108, C.R.S. Public officers to obey provisions

(2) The driver of an authorized emergency vehicle, when responding to an emergency call, or when in pursuit of an actual or suspected violator of the law, or when responding to but not upon returning from a fire alarm, may exercise the privileges set forth in this section, but subject to the conditions stated in this article. The driver of an authorized emergency vehicle may proceed past a red or stop signal or stop sign, but only after slowing down as may be necessary for safe operation.

(4) The provisions of this section shall not relieve the driver of an authorized emergency vehicle from the duty to drive with due regard for the safety of all persons, nor shall such provisions protect the driver from the consequences of such driver's reckless disregard for the safety of others.

If you are stopped at a student stop to unload, and an emergency vehicle is approaching:

- Keep the students on the bus if possible.
- If the students are still on the bus, cancel your 8-ways and activate your hazards.
- Leave the 8-ways on if the students have exited the bus.
- If students are already off the bus, signal them about the emergency vehicle and try to keep them clear.
- Let the operator of the emergency vehicle make the decision when it is safe for him to proceed.

Remember, keeping the students safe is your number one priority.

Pedestrians must obey the same traffic controls as vehicles, e.g. signal lights and stop signs. At uncontrolled pedestrian crossings, the pedestrian has the right-of-way.

6.3.d Headlights

A vehicle must have headlights with high and low beams. State statute requires that headlights must be on between the hours of

sunset and sunrise. Also, CDE rules specify: 1 CCR 301-26, 4204-R-234.01. Headlight Operation

The school transportation vehicle's headlights or daytime running headlights shall be activated while the vehicle is in motion.

6.4 SEEING

To be a safe driver, the driver must know what is taking place around the vehicle. In a large vehicle like a school bus, this is accomplished by proper mirror use. You should check the side mirrors, both left and right, regularly and often, approximately every 5 to 8 seconds. Inadequate surveillance is a major cause of accidents.

6.4.a Look Far Enough Ahead

- Scan far enough ahead to be able to react safely to situations
- Look ahead along your intended path of travel about 12 to 15 seconds
- At lower speeds, this is about one city block
- At highway speeds, this is about one quarter of a mile
- When following a large vehicle, allow additional space so you may have a greater range of sight

6.4.b Get the Big Picture

- Eyes should be constantly on the move to obtain the "big picture" by using all mirrors
- Look ahead; use left side, right side, and student management mirrors every 5-8 seconds to check traffic
- Shift your attention back and forth, near and far

6.4.c Traffic

- Look for vehicles coming onto the highway, into your lane, or turning
- Watch for brake lights from slowing vehicles
- See far enough ahead to enable you to adjust your speed or change lanes if necessary, to avoid a problem

It is important to know what is going on behind and to the sides of your vehicle. There are "blind spots" that your mirrors cannot show you. Doing mirror checks regularly and often, (approximately every 5 to 8 seconds) will let you know where other vehicles are around you, and when they move into your blind spots. Following these rules will eliminate surprises.

6.4.d Hills and Curves

- Look for hills, curves, or anything that may make slowing or changing lanes necessary
- When driving uphill in a school bus, watch for traffic in all directions, paying particular attention to the sides and rear of the vehicle
- Do mirror checks often and use 4-way hazard lights if traveling under 25 mph
- Activate your hazard lights if the speed of your vehicle impedes the normal flow of traffic
- When going around a curve, check your mirrors to be sure the rear of the vehicle is tracking correctly in your lane and not encroaching into the other lane

6.4.e Traffic Signals and Signs

- Pay attention to traffic signals and signs
- If a light has been green for a long time (stale green), it will probably change before you get there; start slowing down and be ready to stop
- Crosswalk signal with a flashing hand is an indication the light is about to change
- Traffic signs may alert you to road conditions indicating the need to change speed or lanes

6.4.f Lane Changes, Turns, Merging, and Tight Maneuvers

- Scan mirrors thoroughly before changing speed or direction
- A minimum of 6 mirror checks should be performed during lane changes, turns, merges and tight maneuvers
- Check both left and right outside mirrors prior to, during, and at the completion of the maneuver

6.4.g Types of Mirrors

Colorado Minimum Standards Governing School Transportation Vehicles - 1 CCR 301-25, 2251-R-68.02

- Exterior mirrors: Each school bus shall be equipped with a system of exterior mirrors including cross over mirrors in compliance with FMVSS111. This system of mirrors shall be rigidly braced so as to reduce vibration.
- School buses may be equipped with different types of cross over mirrors but both mirrors should be the same make and type. Everything appears smaller and farther away in convex type mirrors. It is important to make proper allowances when using this type of mirror. School bus mirrors must be adjusted properly

to ensure the driver has visibility in the critical areas surrounding the bus. See Unit Three for mirror adjustment grid.

6.5 HAZARDS OF THE ROAD

A hazard is any road condition or road user (driver, bicyclist, pedestrian, animal) that may create a danger. Recognizing a hazard allows you time to be prepared and ready to react if an emergency develops.

Always Have a Plan - A professional driver is constantly looking for hazards. Many hazards turn into emergencies. Being watchful and prepared to act will give you time to plan a way out of an emergency. Always have and escape route.

Following are examples of hazards to be aware of

- **Animals** - Wild animals or domestic livestock may be on or next to the roadway and are very unpredictable. Swerving to avoid them can cause loss of control of your vehicle. Ninety percent of deer/vehicle collisions occur between dusk and dawn.
- **Bicycles** – Bicycles, especially when ridden by children can be unpredictable. Give them plenty of room when passing.
    - 42-4-1008.5, C.R.S. – Crowding or threatening bicyclist. The driver of a motor vehicle shall not, in a careless and imprudent manner, drive the vehicle unnecessarily close to, toward, or near a bicyclist.
    - Any person who violates subsection (1) of this section commits careless driving as described in 42-4-1402.
- **Children** - Children may not be looking for traffic and may create a hazard. They see traffic from a very different perspective. Always expect the unexpected.
- **Conflicts** - Conflicts are a hazardous condition. When a change in speed and/or direction to avoid hitting other vehicles occurs, a conflict with other vehicles may be created. Conflicts occur at intersections where vehicles meet, at merge areas (such as on and off ramps), and where there are forced lane changes (such as the end of a lane, forcing a move to another lane of traffic). Other situations include slow moving or stalled traffic in the roadway and crash scenes. Watch for drivers who are in conflict with others. Depending on the way they react to the situation, it may put them in conflict with you.
- **Confused drivers** - A slow, confused driver often changes direction suddenly or may stop without warning. Tourists may be unfamiliar with the area near freeways or major intersections. Hesitation, driving very slowly, frequent use of brakes, or stopping quickly may indicate the driver is looking for a street or house number.

- **Crash scenes** - People involved in a crash are distracted and may not be observant of oncoming traffic. Often at the scene of a crash, people run across the roadway without looking, while passing motorists tend to slow down or stop suddenly. You must also be alert for emergency vehicles and equipment arriving at the scene.
- **Disabled vehicle** - Be especially alert when approaching a disabled vehicle stopped along the roadway. Drivers changing a tire or checking the engine may not pay attention to roadway traffic.
- **Distracted people** - People who are distracted in some way present a hazard for drivers. Pedestrians and bicyclists may be distracted by wearing portable stereos with head sets, having their back to the traffic, looking elsewhere, or hurrying to get out of the inclement weather. Drivers or pedestrians talking on cell phones or texting may not be paying attention.
- **Drivers in a hurry** - Drivers in a hurry may feel your school bus is preventing them from getting to their destination on time. They may pass you without leaving a safe gap in the oncoming traffic, or they may cut too close in front of you, causing you to brake suddenly. Drivers of postal vehicles and local delivery vehicles are often in a hurry stepping out of their vehicle or re-entering the flow of traffic.
- **Drivers Under the Influence** - Motorists under the influence of drugs or alcohol are a hazard to themselves and to motorists. Be especially alert around closing times for sporting events or nightclubs. Watch for drivers who have trouble staying in their lane, do no maintain a constant speed, stop without reason, or show other signs of being under the influence of alcohol or drugs.
- **Drop -offs** - Uneven pavement and the shoulder of the road present a road hazard. If the tires of the vehicle drop off the edge of the pavement, it could cause the vehicle to tilt, hitting roadside objects. It may also be difficult to steer the vehicle back on to the roadway.
- **Fallen objects** - Avoid objects that have fallen onto the roadway. Hitting an object may cause damage to, or loss of control of, the vehicle.
- **Impaired drivers** - An impaired driver may be sleepy, ill, or under the influence of drugs, alcohol, or medications. Some of the signs to look for are weaving, erratic speed, and inappropriate stops.
- **Obstructed views** - Be alert for drivers of vehicles with the rear window blocked. Their view may be limited or obstructed.
- **On/off ramps** - Many freeway and turnpike on and off ramps have posted speed limit signs. These should be considered maximum speeds for large vehicles. Use special caution on downhill and curved parts of

the ramp. Entrance and exit ramps may be very short and can exit to the left instead of to the right.

- **Parked vehicles** - Parked vehicles can be a hazard. Watch brake lights, backup lights, exhaust fumes, front wheels turned to the traffic side of the road, and other clues that might indicate the driver is about to move the vehicle.
- **Pot Holes** – These can develop quickly, especially in the spring. Hitting potholes may cause loss of steering control and damage to the bus.
- **Shopping areas** - People in and around shopping areas are often not watching closely because they are looking for a certain store or looking into store windows. They may be carrying packages, talking to a companion, or supervising one or more children.
- **Trucks** – Be cautious when driving around large trucks, especially in hazardous road and weather conditions.
  - Avoid tailgating a truck. Trucks need twice as much stopping distance.
  - Never pull out in front of a truck or cut a truck off.
  - Do not drive in a truck's blind spot. Drive where you can be seen. Trucks have a deep blind spot directly in front of the cab, off to the right and left sides, and to the immediate back. These blind spots make up what is called the NO-ZONE.
  - Never drive in a truck's NO-ZONE.
  - Remember: If you cannot see the driver's face in the truck side-view mirrors or cannot see the whole cab in your rear-view mirror when you are in front of the truck, then you are in a truck's NO-ZONE and must adjust the vehicle position as soon as possible.
- **Work zones** - Work zones with construction vehicles and workers require caution and courtesy on the driver's part. Lanes may be narrow and uneven. Keep your eyes focused ahead and use your 4-way hazard lamps to warn drivers behind you of the need for caution.

6.6 COMMUNICATING

6.6.a Signaling

Other drivers do not know what you are going to do until you tell them. Therefore, signaling is important for safety. Situations that require signaling include turning, lane changing, slowing, stopping, passing, and parking.

6.6.b Directional Signals

Directional signals are used to communicate with surrounding traffic when you are going to perform a maneuver that requires a change in your path of travel. Three good rules for using turn signals are:

- **Signal early** - Signal well before the maneuver you are about to execute. It is the best way to keep others from trying to pass you.

  The signal should be activated:

  - at least 100 feet before the maneuver when the speed limit is 40 mph or less
  - at least 200 feet when the speed limit is over 40 mph

- **Signal continuously** - You need both hands on the wheel to complete the maneuver safely.
- **Cancel signal** - When you have finished the maneuver and established your desired path of travel, cancel the signal.

6.6.c Lane Changes

Activate the turn signal before changing lanes. Change lanes slowly and smoothly. Perform traffic checks prior to, during, and after executing lane changes. If changing several lanes, "take possession" of each lane prior to proceeding to the next lane.

6.6.d Passing

Whenever you are about to pass a vehicle, pedestrian, or bicyclist, assume they do not see or hear you. They could suddenly move in front of you. At night, flash your headlights from low to high beam and back. Drive carefully to avoid a crash.

6.6.e When It's Hard to See

At dawn or dusk, or in rain or snow, you need to make your vehicle more visible. If you are having trouble seeing other vehicles, other drivers may have trouble seeing you. Leave the headlights on low beam; high beams can bother people in the daytime as well as at night.

6.6.f Slowing Down

Warn drivers behind you when you need to slow down. A few light taps on the brake pedal to flash the brake lights will warn drivers behind you. Use the 4-way hazard lamps when you are driving less than 25 mph when in an area with a higher posted speed limit or are stopped. Warn other drivers in 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 car drivers do not know how slow you have to go to make a tight turn in a large vehicle. Give drivers behind you warning by braking early and slowing gradually.
- **Stopping on the road** - When stopping on the road for any reason other than student stops, warn drivers behind you by activating your brake lights, turn signals, or hazard lights. Do not stop suddenly.
- **When parked at the side of the road** - After pulling off the traveled portion of the road and stopping, activate the 4-way hazard lamps. This is very important at night. Do not trust the tail lights to give warning. Drivers have crashed into the rear of a parked vehicle because they thought it was moving normally. If you must stop on a road or the shoulder of a road, place the reflective triangles appropriately as soon as possible. See Unit Eleven, Emergencies.

6.6.g Driving Slowly

Drivers often do not realize how fast they are catching up to a slow moving vehicle until they are very close. In Colorado, if you are a traffic hazard; such as stopping at a railroad crossing, traveling under 25 mph on a highway or interstate, or parked, you must use the 4-way hazard lamps to alert other drivers. Do not use the hazard lamps otherwise. (Laws regarding the use of hazard lamps differ from one state to another. Check the laws of other states where you might drive.)

6.6.h Horn

Using the horn can let others know you're there and may help to avoid a crash. Use your horn when needed. However, it can startle others and could be dangerous when used unnecessarily.

6.6. i Eye Contact

By establishing eye contact, you have a better indication that the other driver or pedestrian sees you. Do not rely on eye contact alone.

6.6. j Do Not Direct Traffic

Some drivers try to help others by signaling when it is safe to pass or to pull out into the traffic lane. Do not do this. Directing traffic may cause an accident, and you could be held liable.

6.7 EMERGENCIES

6.7.a Emergencies

Traffic emergencies occur when a collision is imminent. Vehicle emergencies may occur when tires, brakes, or other critical parts fail. Following the safety practices in this manual can help prevent

emergencies. If an emergency develops, your chances of avoiding a crash depend upon taking appropriate action.

6.7.b Steering to Avoid a Crash

Stopping is not always the safest action to take in an emergency. When you do not have enough room to stop, you may have to steer to avoid a crash. You can almost always steer to miss an obstacle more quickly than you can stop. An evasive maneuver may be needed to avoid a collision. However, be aware of the consequences of swerving, one of which is rolling over. (See Unit Seven, Mountain Driving, for exceptions.) Doing frequent mirror checks will allow you to be aware of your options.

6.7.c Grip the Wheel Firmly with Both Hands

Do not apply the brake while you are turning. Locking your wheels while turning may cause the vehicle to skid out of control. Turn just enough to clear what is in your way. The sharper you turn, the greater the chance of a skid or rollover. Be prepared to "counter-steer" (i.e., to turn the wheel back in the opposite direction once you have cleared whatever was in your path.) Think of emergency steering and counter steering as a two-part action.

6.7.d Where to Steer

If an oncoming vehicle has drifted into your lane, it is safest to move to the right. The driver may realize what has happened and respond by returning to his/her own lane. Using mirrors allows you to know which lane is empty and can be safely used. Moving right onto the shoulder may be the only available escape route. Care should be taken to determine that the shoulder is strong enough to support the weight of a large vehicle. Try to avoid using the brakes until your speed has dropped to 20 mph; then brake gently. Always check traffic in the mirrors and signal what you intend to do. If possible, keep one set of wheels on the pavement, which helps maintain control.

6.7.e Leaving the Road

In some emergencies, you may have to drive off the road. This option could be less risky than facing a collision with a larger vehicle. However, a head-on collision with a small vehicle may be preferable to facing a drop-off next to the road.

6.7.f Returning to the Road

If you are forced to return to the road before you stop, use the following procedure. Hold the wheel firmly and turn sharply enough to get right back onto the road safely. Do not try to edge gradually back onto the road as the tires might grab unexpectedly, causing you to lose control. When both front tires are on the paved surface,

counter-steer. The two turns should be made as a single “steer-counter-steer” movement.

6.7.g Stopping Quickly and Safely

When someone suddenly pulls out in front of you, the natural response is to apply the brakes. This may work if there is enough distance to stop. The correct use of brakes is necessary. You should brake in such a way as to keep your vehicle in a straight line to allow you to turn if necessary. The best method for maximizing braking is “Threshold Braking” for stopping in the shortest distance. This is true whether the bus is equipped with anti-lock braking systems (ABS) or not.

When using the threshold braking method, apply the brakes up to the point of locking the wheels. Keep the steering wheel movements small. If you need additional steering, or if the wheels lock, back off the brakes lightly until the wheels begin rolling again. In vehicles with ABS, apply the brakes the same way. If the wheels do lock, the ABS system will release and reapply the brakes very quickly. Do not release pressure on the service brake. Releasing and reapplying (pumping) the brakes will cause the ABS system to fail. Never pump or “stab” the brakes.

6.7.h Hydraulic Pressure

When the system does not build up pressure, the brake pedal will feel spongy or go to the floor. If possible, downshift to the next lowest gear. Pumping the brakes may generate enough hydraulic pressure to stop the vehicle. If needed the park brake may be used.

6.7.i Loss of Air Pressure

If the low air pressure warning comes on, stop and safely park the vehicle as soon as possible. Enough air may be in the system to make a smooth stop. Controlled braking is possible only while air remains in the system. The spring brakes will activate when air pressure drops into the range of 45 to 10 psi. Depending on the roadway surface, large vehicles may skid even at speeds under 20 mph if spring brakes activate. It is safer to stop normally while there is enough air in the system to operate the service brake.

6.7.j Find an Escape Route

While slowing the bus, look for an escape route, such as an open field, side street, or escape ramp. Take care that the bus does not roll backward after stopping. Find an obstacle to stop the bus if possible.

6.7.k Brake Failure

Brake failure occurs if there is loss of pressure or over-heating. Brakes kept in good condition rarely fail.

6.7.l Brake Failure on a Downgrade

Escape ramps may be used, should it become necessary. Also, soft gravel resists the motion of the vehicle and turning uphill may stop the vehicle. See additional information in Unit Seven, Mountain Driving.

6.8 TIRE FAILURE

6.8.a Prevent Tire Blowout

- Prevent with a proper pre-trip inspection.
- Proper inflation of the tires is important because:
    - Low inflation or lack of tread increases the effect of hydroplaning, reduces cornering ability, and increases the chance of a blowout.
    - Stopping distance is increased from poor contact with road surface.
    - Over-inflation increases the chance of tread separation and tire failure.
- Avoid curbs.
- Report defects or damage.

6.8.b Recognize Tire Failure

Quickly knowing there is a tire failure allows more time to react. Having just a few seconds to remember what to do helps control the situation. Major signs of tire failure are:

- **Sound** - The loud "bang" of a blowout is easy to recognize. Because it can take a few seconds for your vehicle to react, you might think it was some other vehicle. Any time you hear a tire blow, 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.

6.8.c How to Handle a Tire Blowout

- Use proper hand placement.
- Hold the steering wheel firmly - If a front tire fails, it can twist the steering wheel out of your hand. The way to prevent this is to

keep a firm grip on the steering wheel with both hands at all times. Weight of the bus will shift.

- Do not apply the service brake.
- Stay off of the brake - It's natural to want to brake in an emergency. However, braking when a tire has failed could cause loss of control.
- Slowly accelerate the vehicle to even out.
- Accelerating slightly may help with control. Unless you're about to run into something, stay off the brake until the vehicle has slowed down. Then brake very gently, pull off the road and stop.
- Move your vehicle to a safe location.
- Pull the park brake to stop the bus.
- After coming to a stop, get out and check all the tires, even if the vehicle seems to be handling properly. If one of the dual tires goes out, the only way to know it is to get out and thump it.
- Look for signs of fire.

6.9 MANAGING SPACE

To drive safely, you need space all around your vehicle. When things go wrong, space gives you time to think and to take action.

Having space available when something goes wrong, requires managing space. While this is true for all drivers, it is very important for drivers of large vehicles. Large vehicles take up more space and require more space for stopping and turning.

6.9.a Space Ahead

Of all the space around your vehicle, it is the area ahead of the vehicle (the space you are driving into) that is most important. At least a 15-second lead time can help with planning for an upcoming problem. You need space ahead in case you must stop suddenly. According to accident reports, the vehicle that buses most often run into is the one in front of them. The most frequent cause for this type of crash is following too closely. Remember, if the vehicle ahead of you is smaller than yours, it can probably stop faster than you can.

When stopped at an intersection behind another vehicle, allow extra space between vehicles by waiting four seconds before you start out.

How much space should you keep in front? 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 bus, you should leave four seconds between you and the vehicle ahead (five seconds if traveling over 40 mph).

To know how much space you have, wait until the vehicle ahead passes a shadow on the road, a pavement marking, or some other clear landmark. Count off the seconds like this, “one thousand-and-one, one thousand-and-two” and so on, until your front bumper reaches the same spot. Compare your count with the rule of one second for every 10 feet of length. If you are driving a 40-foot bus and counted up to two seconds, you are following too close. Drop back a little and count again until you have four seconds of following distance (five seconds, if you’re traveling over 40 mph). After practicing, you will know how far back you should be. Remember, adverse road conditions increase stopping distance.

When stopped behind another vehicle at a traffic light or stop sign, remain far enough behind that vehicle to see where its tires meet the pavement.

6.9.b Space Behind

You can’t stop others from following too closely. In school buses, it is often hard to see a vehicle that is close behind you. You may be tailgated when you are traveling slowly. Drivers trapped behind slow vehicles often follow too closely. Look for shadows on the road or reflections to determine if someone is following closely behind you.

Many drivers in cars follow too closely during adverse weather. If you are being tailgated, here is how to reduce the chances of a crash:

- Avoid quick changes. If you have to slow down or turn, signal early and reduce speed very gradually.
- Increase your following distance. Opening up room in front of you will help you avoid having to make sudden speed or direction changes. It also makes it easier for the tailgater to get around you.
- Do not speed up. It is safer to be tailgated at a low speed than at a high speed.
- Avoid tricks. Do not flash your brake lights.
- If a heavy load is slowing you down, stay in the right lane if possible. Activate hazard lights if under 25 mph or become a hazard.
- When traveling uphill, do not pass another vehicle unless you can get around quickly and safely.

6.9 c Space to the Sides

School buses are wide and take up most of a lane. Safe drivers will manage what little space they have. You can do this by keeping the vehicle centered in the lane, and avoid driving alongside others.

Some dangers when traveling alongside other vehicles are drivers changing lanes suddenly and being trapped when you need to change lanes.

Find an open spot where you aren't near other traffic. When traffic is heavy, this may be difficult or even impossible. If you must travel near other vehicles, keep as much space as possible between you and them. Drop back or pull forward so you are sure the other driver can see you.

On multi-lane roadways, vehicles tend to travel in herds. Try to drop back or move ahead of the cluster so you do not become a part of someone else's mistake.

Strong winds make it difficult to stay in the lane. Lighter vehicles may have more difficulty than heavier ones. Strong winds can be especially bad coming out of tunnels or after crossing bridges. It is best to avoid driving alongside others whenever possible.

6.9.d Space Overhead

Hitting overhead objects is a danger. Always make sure to have overhead clearance. Do not assume that the heights posted at bridges and overpasses are correct. Repaving, ice, or packed snow may have reduced the clearances since the heights were posted.

Know the height of your bus. (This changes when vents and roof hatches are added and opened).

- If you are uncertain whether there is adequate space to pass under an object, take another route.
- Warnings are often posted on low bridges or underpasses, but not always.
- Some roads can cause a vehicle to tilt. If there is a problem clearing objects such as signs or trees along the edge of the road, drive a little closer to the center of the road.
- Before backing into an area, get out of the vehicle and check for overhanging objects, such as trees, branches or electric wires. You may not see them while you are backing. (Also check for other hazards at the same time.)

6.9.e Space Below

Many drivers forget about the clearance space under their vehicles. Under-storage compartments may lower the clearance of the vehicle. Drainage channels and other depressions across roads can cause the

long rear overhang of school buses to drag. Cross such depressions carefully.

6.10 CONTROLLING SPEED

Driving too fast to control the vehicle is a major cause of fatal crashes. You must adjust your speed to driving conditions. These include traction, curves, visibility, traffic, and hills.

6.10.a Stopping Distance

There are three things that add up to total stopping distance:

Perception Distance + Reaction Distance + Braking Distance = Total Stopping Distance

6.10.b Perception Distance

This is the distance your vehicle travels from the time your eyes see a hazard until your brain recognizes it. The perception time for an alert driver is about 3/4 second. At 55 mph, you travel 60 feet in 3/4 second.

6.10.c Reaction Distance

This is the distance traveled from the time your brain tells your foot to move from the accelerator until your foot is actually pushing the brake pedal. The average driver has a reaction time of 3/4 second. This accounts for an additional 60 feet traveled at 55 mph.

6.10.d Braking Distance

The distance it takes to stop once the brakes are applied. At 55 mph, on dry pavement with good brakes, it can take a heavy vehicle about 170 feet to stop, about 4 1/2 seconds. For vehicles equipped with air brakes, allow an additional half-second for the air to flow through the lines to the brakes**.** At 55 mph, this equals 32 feet. This is known as "**air brake lag distance."**

6.10.e Total Stopping Distance

At 55 mph it will take about five seconds to stop and your vehicle will travel about the distance of a football field.

Hydraulic Brakes - (PD + RD + BD) 60 + 60 + 170 = 290 feet.

Air Brakes - (PD + RD + BD +LD) 60 + 60 + 170 + 32 = 322 feet.

6.10.f Effect of Speed on Stopping Distance

Whenever you double speed, it takes about four times as much distance to stop, and the vehicle will have four times the destructive power if it crashes. High speeds increase stopping distances greatly.

By slowing down a little, it will greatly reduce your braking distance.

6.10.g 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 traction and continue straight ahead, causing the vehicle to skid off the road, or the wheels may keep their traction causing the vehicle to roll over. Tests have shown that vehicles with a high center of gravity can roll over at the posted speed limit for a curve.

- Slow to a safe speed before you enter a curve. Braking in a curve is dangerous.
- Slow down as needed. Don't ever exceed the posted speed limit for the curve. To help maintain control, be in a gear that will allow a slight acceleration through the curve.

Reminder – The posted advisory speed is normally set for cars, not buses.

6.10.h Speed and Distance Ahead

You should always be able to stop within the distance you can see ahead. Fog, rain, or other conditions may require a slower speed to enable you to stop within that distance. At night, you can't see as far ahead with low beams as you can with high beams. When using low beams; slow down.

Caution – Never outdrive the range of what your headlights illuminate.

6.10.i Speed and Traffic Flow

Drive at the speed of the traffic if possible, without traveling at an illegal or unsafe speed. Maintain a safe following distance.

A common reason drivers exceed the speed limit is to save time. Anyone trying to drive faster than the speed of traffic will not be able to save much time. The risks involved are not worth it. Going faster than the speed of other traffic results in:

- Frequently passing other vehicles, thus increasing the chance of a crash.
- Fatigue, which also increases the chance of a crash.

Recommendation - When driving on a highway with a posted speed limit of 75 mph, the bus should be 5 – 10 mph below speed limit.

6.10.j Speed on Downgrades

Traveling at an appropriate speed is the most important thing when descending long, steep hills safely. If you do not go slowly enough, overuse of the brakes can cause them to become so hot (brake fade) they will not slow the vehicle down. Shift the transmission to a lower gear and check the brakes before starting down the grade. Pay attention to warning signs for long downhill grades ahead. Descending steep hills safely is discussed more in Unit Seven, Mountain Driving.

6.11 PROPER BRAKING TECHNIQUES

Remember: The use of brakes/retarder on a long and/or steep downgrade is only a supplement to the braking effect of the engine. Once the vehicle is in the proper low gear, apply the retarder, if equipped. The following is the proper braking technique:

- Downshift the transmission prior to the crest of the hill.
- Be in the proper gear.
- Apply the brakes/retarder just hard enough to feel a definite slowdown.
- When speed has been reduced to approximately 5 mph below your "safe" speed, release the brakes. (This brake application should last for about 3-5 seconds).
- When your speed has increased to the "safe" speed, repeat steps 2 and 3. For example, if the "safe" speed is 40 mph, you would not apply the brakes until the speed reaches 40 mph. You now apply the brakes hard enough to gradually reduce the speed to 35 mph and then release the brakes. Repeat this as often as necessary until you have reached the end of the downgrade.
- If braking is occurring often, the bus is not in a low enough gear.

6.12 DRIVING AT NIGHT

Driving at night creates a greater risk for drivers. Hazards are not as visible as during daylight hours, so there is less time to respond. Drivers caught by surprise are less able to avoid a crash. Three factors that affect night driving are: the driver, the roadway, and the vehicle.

6.12.a Driver Conditions

People cannot see as sharply at night or in dim light. Also, the eyes need time to adjust to seeing in dim light. Most people have noticed this when walking into a dark movie theater. Drivers can be blinded for a short time by bright light. Some drivers are especially bothered by glare. People have been temporarily blinded 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. Avoid experiencing glare blindness by looking to the right side of the road when someone coming toward you has very bright lights.

Fatigue and lack of alertness may increase at night. The body's need for sleep is beyond a person's control. Most people are less alert at night, especially after midnight. This is particularly true if you have been driving for a long time. Drivers may not react as quickly to hazards, increasing the chance of a crash. When you are sleepy, the only safe cure is to get off the road and get some sleep. If you do not, you are risking your life and the lives of others.

6.12.b Roadway Conditions

In the daytime there is usually enough light to see well. This is not true at night. Some areas may have bright streetlights; others will have poor lighting. On most roads, you will probably have to depend entirely on your headlights.

Less light means you will not be able to see hazards as well. Road users who do not have lights are hard to see. There are many crashes at night involving pedestrians, joggers, bicyclists, and animals.

Even when there are lights, the road scene can be confusing. Traffic signals and hazards can be hard to see against a background of signs, shop windows, and other lights. Use a slower speed when lighting is poor or confusing so you are able to stop within the distance you can see ahead.

6.12.c Vehicle Conditions

At night, your headlights will usually be the main source of light enabling you to see and others to see you. Visibility is not nearly as good at night with your headlights as in the daylight. Low beams allow you visibility of about 250 feet while high beams allow about 350-500 feet. Adjust your speed to keep stopping distance within sight distance (The ability to stop within the range of your headlights.)

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 it makes it harder for others to see you. Make sure all lights are clean and working properly. Headlights can be out of adjustment. If they don't point in the right direction, they don't give you a good view and can blind other drivers. Have a qualified person make sure they are adjusted properly.

In order for you to be seen easily, the following must be clean and working properly:

- Reflectors
- Turn signals
- Clearance lights
- Reflective tape
- Taillights
- Headlights
- Brake lights

At night, your turn signals and brake lights are even more important for communicating to other drivers what you intend to do. Make sure they are clean and working properly.

It is essential at night to have a clean windshield and mirrors. Bright lights at night can cause dirt on the windshield or mirrors to create a glare of its own, blocking your view.

Most people have experienced driving toward the sun just as it has risen or is about to set and found that they can barely see through a windshield that appears alright in the middle of the day. Clean the windshield on the inside and outside for safe driving at night.

Deaths from vehicle collisions occur three times more often in the evening, so pay special attention while driving in the late afternoon, early evening, and early morning hours.

6.12.d Dangers

- Visibility may be reduced.
- Peripheral vision is not as sharp.
- Darkness impairs your ability to judge distances, movements and colors.
- More likely to become sleepy.
- Night blindness makes objects appear further away.
- Depth perception in mirrors is distorted.
- Slow down and drive with greater caution.

6.12.e Precautionary Measures

- Before starting to drive at night, give your eyes an extra five minutes to adjust to the dark.
- Properly pre-trip your vehicle and know the location of your switches.
- Never wear sunglasses when driving in low light conditions.

- Turn headlights on at twilight. CDE requires headlights to be on when the vehicle is in motion.
- Slow down and leave at least 300 feet between you and the vehicle ahead of you.
- Dim the lights before they cause glare for other drivers; within 500 feet of an oncoming vehicle and within 500 feet of a vehicle in front of you.
- 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.
- Do not look directly at the high beams of an approaching vehicle – look forward and slightly to the right.
- Flip your rearview mirror to the night position in order to reduce glare when driving a smaller vehicle.
- Light inside the vehicle makes it harder to see outside. Keep the interior light off and adjust the instrument lights as low as possible and still be able to read the gauges.
- Stop driving if you are sleepy. People often do not realize how close they are to falling asleep. You are in a very dangerous condition. The only safe cure is to sleep.

The defensive driving exercises can be found in the Unit Seventeen. The requirements to successfully complete the exercises are located in several units of this manual.

UNIT SEVEN - MOUNTAIN DRIVING

This section provides information on safe travel in the mountains. Mountain driving presents unique situations that require greater attention to the same driving skills and expertise expected of all school bus drivers. Steep grades, winding roads, blind curves, falling rocks, wildlife, sightseeing motorists, bicyclists and unpredictable weather can present additional risks and consequences. There is a reduced margin for error and minor mistakes can develop into major problems. Mountain driving requires a high level of concentration and a respect for the terrain. (See personal pre-trip – Unit 3)

42-4-1901 (1) (a), C.R.S. Except as provided in paragraph (a) of subsection (2) of this section, passengers of any school bus being used on mountainous terrain by any school district of the state shall not occupy the front row of seats and any seats located next to the emergency doors of such school bus during the period of such use.
42-4-1901 (2) (a) The provisions of paragraph (a) of subsection (1) of this section shall apply to:
42-4-1901 (2) (a) (I), C.R.S. Passengers of any school bus which is equipped with retarders of appropriate capacity for purposes of supplementing any service brake systems of such school bus; or
42-4-1901 (2) (a) (II), C.R.S. Any passenger who is adequately restrained in a fixed position pursuant to federal and state standards.

This unit focuses on maintaining control, transmission and retarder usage, braking, pitch and grade, chains, and other skills for safe school bus operation in the mountains. CDE recommends frequent skill refresher training for mountain drivers.

7.1 TARGET SPEED

Target speed is the speed a driver determines is safe for a driving condition. When the bus speed increases above the target speed, the driver slows to 5 mph below the target speed and allows the bus speed to increase naturally back to the target speed. Repeat this process as needed. If this process is happening often, the driver has not shifted down to a gear that will provide the engine compression to hold the vehicle at or below the target speed.

7.2 MAINTAINING CONTROL

To maintain control of a school bus on steep mountainous terrain, follow the steps below for safe control:

1) Engine Compression/Transmission
2) Retarder Use (if equipped)
3) Service Brake Use

A driver is in control when the school bus is kept at a safe road and engine speed. A safe school bus speed is either at or below the posted limit. The bus manufacturer determines safe engine speed (revolutions per minute/rpms).

7.3 ENGINE COMPRESSION/TRANSMISSION

Engine compression is the first source of braking power, even if the bus is equipped with a retarder. When coming down a long steep grade, descend in a gear that is low enough to climb that same grade. On steeper grades and/or with a loaded bus, use at least one gear lower. Be aware that if the engine reaches maximum rpms, automatic transmissions can up-shift, even when manually locked in gear.

Select the proper gear for the grade before starting to descend and keep the bus in that gear to the bottom of the grade. Avoid the possibility of not being able to shift into the next lower gear, if needed. This is especially important with a standard transmission. Maintain the manufacturer's recommended rpm range for the gear selected in order to avoid over-revving or lugging, which may damage the engine.

Discuss recommended rpm ranges for all types of buses in the fleet.

7.4 RETARDER

The retarder is designed to slow the bus to maintain a safe speed. The retarder will not completely stop the bus. Use the retarder for all slowing needs. Proper use of the retarder will improve safety and save money by avoiding wear on the bus's braking system.

Retarders control only the rear wheels. This gives the driver complete control of the steering system. Some retarders work in reverse as well as forward gears. This helps to prevent the service brake from overheating. The retarder can overheat when used for long periods. Cool the retarder by discontinuing use for 10 minutes at a minimum of

15 mph before stopping the bus. Use only the service brakes in this cool down period.
301-25, 2251-R-30.00 Retarder (optional)

30.01 Retarder manufacturers shall certify that their product system shall maintain the speed of the bus loaded to maximum GVW at 20 miles per hour on a 7 percent grade for 3.5 miles.

30.02 School buses equipped with electro-magnetic retarder(s) shall have increased electrical system capacity commensurate with the needs of the retarder system.

30.03 Pilot light(s) shall indicate when retarder is in operation.

7.5 TYPES OF RETARDERS

7.5.a Electromagnetic

The most common type of retarder is electromagnetic. Mounted on the driveshaft of the bus, this retarder slows the driveline to the rear tires using electromagnetic forces. These retarders have four positions of braking. Positions 1 and 2 are the most commonly used. Use positions 3 and 4 only for short amounts of time due to the drain it places on the battery system. When an emergency stop is required, activate the hand control from the "off" position to the fourth position in one single action. Activation of electromagnetic retarders can also occur with the engine off as long as there is a source of electrical power on older models.

NEVER DRIVE AGAINST A RETARDER!
It will overheat and can cause a fire.

7.5.b Stop and Go Traffic Use

Use positions 1 and 2 for normal slowing and 3 and 4 for firmer or emergency slowing. When it becomes necessary to slow down, release the accelerator and apply the retarder hand control to the desired position. To come to a complete stop, apply the service brake. Switch the retarder hand control to the "off" position when no longer needed.

7.5.c Downhill Descent Use

Use the retarder to reduce speed and allow engine compression to keep the bus at a safe speed. Listen to the engine and watch the gauges for speed to increase; apply the retarder until 5 mph below target speed. The bus is in too high of a gear if the need for fourth

position occurs. Slow the bus using the service brakes and shift the transmission to a lower gear.

7.5.d Slippery Road Conditions

Use the retarder cautiously in the first position in order to slow the bus on slippery roads. Before shifting into position one, make sure the engine rpm's are low to minimize the torque from suddenly going to the rear wheels. Over-retarding on slippery roads can break the traction of the rear wheels. If this happens, disengage the hand control. As soon as the bus regains traction, you can lightly accelerate to pull out of a skid. If use of the retarder is still needed, use cautiously. The operator has little control when the retarder system is electronically hooked into the service brake system. It is best to turn the retarder switch off when slippery conditions exist.

7.5.e Hydraulic

Hydraulic retarders are fluid braking systems, which decrease the speed of the bus by slowing the automatic transmission. Brake application or accelerator release activates this type of retarder. There is generally no other type of control. The hydraulic retarder does not have the four positions of braking, as the electromagnetic retarder does. These retarders have a variety of styles and positions. Please refer to your bus operation manual for detailed instructions. With all hydraulic retarders, avoid continuous use as the transmission can overheat. The transmission retarder will not function if the engine is off.

7.5.f Engine/Exhaust Brakes

These systems are an optional auxiliary braking system that assists but does not replace the service brake system. Both brakes perform in the same manner. The engine brake is inside the engine, and the exhaust brake is in the exhaust system. The engine or exhaust brake switch, located on the control panel (in combination with the accelerator or brake pedals), allows the driver maximum use of the engine or exhaust brake. The exhaust brake is a butterfly valve mounted in the exhaust manifold pipe. An air cylinder shuts the butterfly valve when there is a release of the accelerator and the brake switch is in the “on” position. This restricts the flow of the exhaust gases and retards the engine. This retarding action carries throughout the engine and drivetrain, slowing the bus and reducing the need for frequent service brake applications.

When using on a steep grade, make sure that the brake switch is in the “on” position. Once there is a release of the accelerator pedal, the retarder will come on. While going down the grade, use a gear low

enough to descend safely with minimum application of the service brakes. As a general guideline, use the same gear as you would to ascend that same hill. Do not allow the engine to exceed its governed speed or serious engine damage could result. Apply the service brakes to reduce the engine rpms. Shift into a lower gear to make a slower descent.

7.5.g Engine or Exhaust Brake Operating Characteristics

Operators will experience the following when engine or exhaust brakes are in operation:

- Exhaust smoke will appear normal.
- Engine temperature will remain in the normal operating range.
- Road speed during descents will decrease.

Vehicle weight and grade of the decline will affect the amount of braking force required to slow the bus. If the bus is equipped with these types of brakes, the operator may not always be able to feel the retarding force; however, it is preventing the bus from gaining speed.

It is important to engage the different stages of the secondary braking system prior to the requirement or the need for additional braking in order to have the feel of the braking action.

7.6 SERVICE BRAKES

In mountain driving, the force of gravity plays a major role. Gravity will make the bus speed up when going down steep grades. The heavier the load, the faster the bus will gain speed. Go slowly enough to avoid the use the service brakes to maintain a safe speed. Prolonged use of the service brake causes brake “fade” (less stopping power). Brake fade occurs when heat build-up causes the brake lining to glaze or deteriorate at high temperatures. This decreases or eliminates the effectiveness of the brakes, and in extreme cases, can cause a fire. Never exceed a safe controlled speed. For long downhill grades, maintain safe speed by properly using engine compression and the retarder (if so equipped). This helps ensure minimal use of the service brakes. Use the service brakes intermittently, with enough time between applications to keep the linings, drums, and/or rotors cool.

7.7 PASS CHECKS

Pull over at a safe location prior to beginning a decent. As you enter the parking area, apply firm pressure on the brakes checking for proper stopping and that the bus does not pull. Do a walk around to ensure all

lights are working. Stop at each wheel and feel the hub for signs of heat. Look at the slack adjusters to ensure they are all indicating proper adjustment. Look at all tires for damage and proper inflation. Place the bus in the proper gear to descend the downgrade.

When approaching a downgrade where a full check of the vehicle is not possible, prior to reaching the apex of the hill, firmly apply the brakes to feel for proper brake response and no pulling in either direction. Shift down to the proper gear prior to the apex of the hill.

7.8 PULLOUTS

Use pullouts to allow traffic backed up behind the bus to pass safely. If a pull out is large enough, maneuver the front of the bus so that you can look over your shoulder for oncoming traffic before reentering the roadway. Do not rely solely on the mirror if the opportunity to square off and look exists.

7.9 PITCH AND GRADE

One of the hardest techniques to learn may be reading terrain. Maintain a safe scanning distance and scan the entire area for changes in grade, upcoming curves, wildlife, and traffic. When possible, look through the trees beyond the curve before entering.

Tips for Reading Terrain

- Whitewater – indicates a steep grade
- Objects that seem to change size rapidly – indicate a steep grade
- Canyon walls that appear to close in ahead of the bus – indicate a possible narrow road ahead
- Do not blindly follow the traffic ahead of you – other drivers may misinterpret terrain.

7.10 CURVES

7.10.a Pitch and Grade

Pitch and grade affect how mountain drivers maneuver through curves. Long, wide curves in the mountains may remain slippery for continuous periods, due to the pitch of the road or position of the sun. During a downhill curve, the bus may accelerate on its own. Do not brake in a turn, especially during adverse conditions. Apply the retarder or service brake (depending on conditions) well in advance of the curve and allow the speed of the bus to decrease gradually. Once the bus has reached the apex of the turn, gradually accelerate.

This helps the bus track correctly through the lane. Braking through a turn may cause the bus to skid and make control difficult.

When approaching curves, notice how the road pitches from side to side in relation to the curve and the grade. Often, the operator can drive at a higher speed if the curve maintains a pitch that follows the direction of the turn (on-camber) than if the curve is flat or off-camber. The amount of acceleration out of the curve will depend on the degree of pitch. A skid can occur by accelerating too early when negotiating curves with a relatively flat pitch.

7.10.b Speed

Slow to a safe speed before entering any curve. Braking in a curve is dangerous because it is easier to lock the wheels and cause a skid. Do not exceed the posted speed limit for the curve. Since the posted speed limit is for small vehicles, the bus speed should be 5-10 mph below the posted limit. To help maintain control, be in a gear that will allow slight acceleration through the curve. When entering a curve while going downhill, allow gravity to provide the slight acceleration.

7.10.c Lane Position

Watching the lane position will help avoid head-on collisions. On tight curves, especially switchbacks, watch the tail swing. Stay centered in the lane to keep a safe clearance on all sides of the bus. Hugging the outside of a curve increases the chance of dropping a tire off the paved portion of the road onto a soft shoulder. Hugging the inside of a curve places your mirrors into the space of other motorists. If possible, adjust the speed and space to avoid driving alongside another vehicle in a curve on a multilane highway. On a right hand curve, move as far to the outside of the lane as possible. It is essential to pay attention to where the right rear tires are in relation to the pavement. On-coming traffic tends to take their half out of the middle when negotiating a left hand curve.

7.10.d Overhead

Be aware of rocks that overhang the road. Off-tracking brings the center of the bus closer to the overhanging objects. When entering a tunnel, be aware of the curve of the edges and top. The vehicle height may fit through the middle, but not on the outer edges.

7.11 CHAINS

Chaining is crucial to mountain driving in adverse weather. The Department of Transportation requires the use of chains on commercial motor vehicles on many mountain passes. The two most common types of chains are automatic and conventional. There are several methods for installation. Below are some commonly used methods and tips for safely chaining a bus.

7.11.a Automatic Chains

These chains permanently fasten to the rear suspension of the bus. They activate from a dashboard switch that opens an electric over air solenoid mounted on the frame rail. Air pressure from the bus's on board air brake system or an auxiliary air source flows to two air cylinders that lower two chain wheels down until they contact the tire sidewall. The friction between the tire and the chain wheel causes the chain wheel to rotate. Each chain wheel has lengths of chain attached to it. The centrifugal force created causes the chains to flail out and pass between the tire and road surface to enhance traction in snow and ice. The additional traction also reduces stopping distance in these same slippery conditions. When in the "off" position, the solenoid exhausts the air in the cylinder, and the spring in the cylinder returns the chains to the retracted position.

Advantages:

- Increased safety as the bus is always equipped and has quick access on short notice. Typical engagement time is two seconds.
- Automatic chains dramatically reduce the time spent installing conventional chains, increasing productivity of the operator. More importantly, routes can remain on schedule.
- Automatic chains can eliminate body damage caused by broken conventional chains, which at times can be a mission disabling failure.
- Advantages in hauling force, acceleration and stopping distance are dramatic.

Disadvantages:

- The operator must realize that this system is not a "fix all" (avoid a false sense of security).
- Operator activation is required.

- The system, per design, is limited to ice and a maximum of up to four inches of snow. The operator may have to install conventional chains in deep snow conditions.

The operator may lower or raise automatic chains at any time during speeds less than 30 mph. To avoid damage, do not raise the chains if the bus is not in motion. If the chains are raised when not in motion, damage can occur to the chains, arm mechanism, and air system.

7.11.b Conventional Chains

The operator must install and remove conventional chains. Always plan ahead when chaining is a possibility. If there are is any doubt about traction, it is best to chain up to avoid safety issues.

When determining locations to install and remove conventional chains, always find a safe location that is out of the way of traffic. If passengers are on-board, they should remain inside of the bus. Make sure the engine is off and the brake is set so the bus will not move.

7.11.c Chaining Steps

- Operator Preparation - Stretch muscles before lifting chains.
- Lay chains out on the ground to confirm that the chains are lying correctly with each side parallel. If not, straighten them to assure that all reinforcement bars will face the road surface instead of gouging into tire.
- Choose the proper chaining method to use.
  - Drape over the tire (Recommended in most circumstances).
    - Hooks on inside, clasps on outside, cross-links be perpendicular to tire and all reinforcement bars on cross-links facing away from the tire.
    - Roll the bus over chains. Determine the optimal direction to roll (forward or backward) by assessing which direction has the most room. Avoid rolling over the hook and clasp end of the chain, if possible. If on a slope, always make sure the operator is on the upward side of the tire when fastening chains.
    - Place a mark at one side of the front passenger door and drive the bus with the front wheels straight until the opposite side of the entry door is lined up with the mark.
    - Fasten the chains. The inside hooks should be fastened first. Do not hook on the end link. The identical number of links on the inner hook and outside clasp is ideal to fasten the chains. Attach the stretchers/tighteners on the outside

of the tire. Drive forward 50-100 yards, remove the stretchers, tighten the chains and reattach the tighteners.

- In-place chaining (usually done if bus is unable to move).
  - Drape the chains over tire so that the cross-links at the bottom do not hinder the effort to fasten the inside hook to the chain link.
  - Use a chain tightener or coat hanger to guide the link between the dual tires to fasten the chain link with the inside hook.
  - Pull the chains as tight as possible. A good tip is to use your knee against the tire to spare using only your back. Fasten the chains with the outside clasp and attach the tighteners. When the bus is moving and out of danger, remove the tighteners, readjust the chains, fasten both the inside hook and outside clasp, and reattach the tighteners.

Remember that when the bus is empty, chain traction is limited. Never drive over 30 mph when chains are installed on the tires.

7.11.d Removal Steps:

Remove conventional chains only when the road surface provides safe traction without the use of chains.

- Find a safe area away from traffic and keep the students on the bus.
- Remove the tightener.
- Loosen the outer clasp.
- Unhook the inner hook first to prevent the chains from dropping between freezing wheels.
- Drive over the chains in a manner that prevents the tires from running over clasps or hooks.
- Stretch the chains out to check for broken or badly worn links.
- Bundle chains for storage.
- Place the tightener perpendicular to the cross-links and pull each individual link over the tightener while inspecting the condition of each link.
- Fasten the tightener at the ends and place in the desired storage area.

If there are any doubts about the condition of any part of the chains, take them to a mechanic or other repairperson for inspections and/or replacement.

7.11.e Additional Tips:

- Carry additional tighteners in case of breakage.
- Inspect and install all chains in the fall to ensure proper condition and fit. Every element of a chain is a moving part. Check for broken chain links and verify the hooks and clasps are in good operating condition.
- Label all chains with paint to confirm they are the proper ones for that particular bus and add this check to the daily pre-trip inspection.
- If installation of new tires occurs on the bus, always check the chains for proper size.

CDOT (Colorado Department of Transportation) has provided a fact sheet covering chaining. When is it required and how it effects student transportation when transporting in the mountains during the winter months. You will find this information at the end of this chapter.

CHAIN UP TIPS

Updated/Posted September 1, 2012

Guide to Colorado's chain law, which applies to all state, federal, and interstate highways in Colorado.

Definitions - Under the Colorado chain law, a commercial vehicle is defined as being used in commerce to transport passengers or property and fitting into one of the following categories:

- Has a gross combination weight rating of 26,001 or more lbs. inclusive of a towed unit which has a gross vehicle weight rating of more than 10,000 lbs.

or

- Has a gross vehicle weight rating of 26,001 or more lbs.

or

- Is designed to carry 16 or more passengers, including the driver.

Notification - When the chain law is in effect, drivers will be notified which vehicles must chain up and where by the following means: electronic message signs; 511 traveler information; www.cotrip.org; and media outlets.

Carrying Chains on I-70 (*effective March 1, 2009*) - Commercial vehicles operating on I-70 in either direction between mileposts 133 (Dotsero) and 259 (Morrison) from Sept. 1 to May 31 must carry sufficient chains at all times to be in compliance with the Colorado chain law.

Chaining Up - Metal chains must consist of two circular metal loops, one on each side of the tire, connected by not less than nine evenly-spaced chain loops across the tread. Commercial vehicles that have four or more drive wheels must chain four wheels. Dual tire chains are acceptable.

Alternate Traction Devices (ATDs) - Approved ATDs in Colorado are wheel sanders, which must carry enough sand to get the vehicle through the restricted area; pneumatically driven chains, which spin under the drive wheels automatically as traction is lost; and textile traction device (TTD), a fabric boot which encompasses the tire. Currently, the only TTD that has been approved for use on Colorado state highways is the *AutoSock.*™

Tire Cables - With only two exceptions, Colorado chain law rules do not permit tire cables as alternate traction devices. The exceptions are: 1) tire cables with high strength steel cross member rollers 0.415" or greater in diameter, which can be used on all commercial vehicles except single drive axle combinations; and 2) on a tandem power drive axle commercial vehicle, where any type of cable can be used only if there are chains on the two outside tires of one of the power drive axles and cables on two or more tires of the other power drive axle.

Chain Law Level 1 - All single drive axle combination commercial vehicles must chain all four drive wheels; cables are not permitted as ATDs. All other commercial vehicles must have snow tires or chains. Level 1 may be implemented any time there is snow covering any part of the traveled portion of pavement on an ascending grade.

Chain Law Level 2 - All commercial vehicles must chain up. Single drive axle and tandem drive axle combination commercial vehicles must chain four drive wheels. Autotransports must comply to the extent possible without causing damage to hydraulic lines. Buses must chain two drive wheels to comply. Level 2 may be implemented any time there is snow covering the entire traveled portion of pavement on an ascending grade, or when driving conditions dictate that this level is necessary to protect safety and to minimize road closures.

I-70 Chain Up Stations - EB mileposts: 178, 183, 184 (shoulder), 187 (shoulder), 195, 203 (scenic area), 205, 219, 228, 241, 251, 289, 343. WB mileposts: 358, 263, 260, 254 (Buffalo Overlook), 228, 223, 221, 219, 213, 197, 179.
I-25 Chain Up Stations - NB milepost 157. SB milepost 172.

Violations - The fine for not carrying chains on I-70 between mileposts 133 and 259 from Sept. 1 to May 31 is $50 plus a $17 surcharge. Statewide, the fine for not chaining up when the chain law is in effect is $500 plus a $79 surcharge. The fine for not chaining up and subsequently blocking the highway is $1,000 plus a $157 surcharge.

FAQs

Do trailers need to be chained up? No. Chains are not required on trailers.

Must hazardous material tankers and transporters comply with the chain law? Yes. Vehicles placarded for hazardous loads may pass the chain-up signs and install their chains where pavement is covered by snow or ice, at a safe location outside the traveled portion of the highway.

When can chains be removed? Call 511 for current chain law status. The chain law will cease where bare descending pavement is encountered, and when electronic signs no longer display 'chain law in effect.'

Colorado Road Conditions
511 Traveler Information Line
www.cotrip.org

DOT
DEPARTMENT OF TRANSPORTATION

Fact Sheet published by
CDOT Public Relations Office
(303) 757-9228
www.coloradodot.info

7.13 DELINEATORS

Delineator posts are carsonite posts with colored reflectors. They are in high risk and informational areas of roadways to convey a variety of messages to motorists. Below are some specifics on delineators.

Delineator—a retro-reflective device mounted above the roadway surface and along the side of the roadway in a series to indicate the alignment of the roadway, especially at night or in adverse weather.

Type III

1) Three Amber Front Reflectors - These are designed to warn the motorist of existing objects. These objects may not always be in the roadway, but are close enough to the edge of the road, to be a potential hazard. Typically, they are near underpass piers, bridge abutments, guardrails, and culvert heads. If a guardrail approach end is not flared, there will be a Type III delineator immediately in advance of the approach end.
2) Two White Front and One Red Back Reflector - These are designed to warn motorists of acceleration and deceleration lanes ahead. The red reflector is for warning motorists of the wrong way.
3) Two Amber Front and One Red Back Reflector – These are normally installed in medians for left-turn deceleration lanes.
4) One Blue and Two Yellow Front Reflectors - These are installed at crossover locations of divided highways.
5) Three Blue Front Reflectors - These are for Department of Transportation maintenance crew workers. These are installed at the bridge joints.

6) Three Green Front Reflectors – These are for Department of Transportation maintenance workers. These are installed in front of approaching guardrails with flare ends, not on bridges. They can be found in front of curb heads.

7) Red Reflectors – Runaway truck ramps are bordered on each side by red reflectors spaced not more than 50 feet apart.

Delineation Posts - The white and amber reflectors on the green posts along the roadway are called cat eyes. The color and number of cat eyes on a post indicate a particular hazard or condition at the edge of the roadway:

- Edge of the road
  single white
- Right side of roadway
  single white
- Left side of roadway
  single amber
- On and off ramps
  two white
- Minor problem area
  single amber
- Moderate to serious problem area two amber
- Life-threatening problems
  three amber

(Culverts, bridges, guardrails, heavy crossroad traffic)

Delineator panels are a striped marker consisting of a vertical rectangle with alternating black and retro-reflective yellow stripes sloping downward at an angle of 45 degrees toward the side of the obstruction on which traffic is to pass. These types of delineators can be seen on the end of guard rails, on bridges, etc.

7.14 EMERGENCY STOPS

The braking systems on the bus are mechanical systems and can fail. The following emergency stopping procedures are to be demonstrated and practiced during on-the-road (hands-on) training. These simulations will prepare the operator for cases in which any or all braking systems fail. Except where noted, use a road or highway with little or no traffic and with good visibility for the simulations.

7.14.a Every Which Way Simulation

This simulation is to practice when there is a need to stop the bus when the service brakes fail to operate. The operator will experience the use of all available means to stop a bus. Shift down to the first gear of the automatic transmission, set the retarder to the fourth position, and pull the park brake. As the bus slows, the transmission will automatically downshift. In a standard transmission, the operator will downshift through the sequence as the engine speed slows.

7.14.b Full Four Wheel Lock Simulation

This simulation is to practice when the service brakes are functioning and the engine is running. The operator will experience the forces involved in severe use of the brakes. The operator will get the feel of a bus skidding. At 25 mph, the driver will release their grip on the steering wheel and press hard on the brake pedal. Note any tendency of the bus to pull right or left. Make sure there is room on both sides of the lane for the bus to pull in either direction.

7.14.c Retarder Stop Simulation

This simulation is to practice when the engine stalls, the parking brake is broken, and there are hot fading brakes (engine failure in which the automatic transmission is inoperable). Use the electric retarder to slow the bus. Let up on accelerator and place the retarder in position four. When slowed to an idle, shift the transmission into neutral and use a soft shoulder to stop.

7.14.d Park Brake Simulation

This simulation is to practice when the service brakes and retarder are inoperable with the speed too fast for downshifting to slow the bus. Depending on the service brake defect, the park brake may be inoperable or already set due to a loss of air pressure. Select a flat, straight portion of the road with a full-width shoulder lane where the bus can pull completely out of the travel lane. At highway speed, turn on the hazard lamps, let up on the accelerator, pull the park brake, and carefully pull the bus into the shoulder lane as it slows to a stop.

7.14.e Ride-It-Out Simulation

This simulation is to practice when the retarder is inoperable or not present, the parking brake is broken and hot, the brakes are fading, and the engine is running. Simulate stopping a bus without the use of the brakes or retarder. Select a downgrade that will allow the bus transmission, when placed in the highest gear, to maintain the approximate posted speed limit. The downgrade should decrease for safe simulation of the procedure. At the top of the descent, let up on the accelerator, put the gear selector in first (if automatic), and ride out the descent. As the bus slows, the transmission will automatically downshift. In a standard transmission, the operator will downshift through the sequence as the engine and road speed slow. Turn on the hazard lamps at 25 mph and pull into the shoulder lane. At an idle in first gear, pull the right side wheels into the soft shoulder dirt, shift the transmission into neutral, and allow the bus to stop.

7.14.f Escape Ramps

To stop runaway vehicles safely without injuring operators or passengers, escape ramps are on many steep mountain grades. These ramps use a long bed of loose soft material (pea gravel) to slow a runaway vehicle, sometimes in combination with an upgrade. The operator should know all escape ramp locations on any assigned route. Signs show operators where ramps are located. Escape ramps save lives and equipment. Use them if the bus has lost all forms of braking.

7.15 DESTINATION PRE-TRIP

Conduct a modified post-trip once at the destination. This will help discover any mechanical defects before leaving. Some very important items to check when in the mountains are:

- Retarder Operation – Check this while driving. When in first position, check that brake lights activate. This will only occur when moving at 6 mph or higher in some newer models.
- Left and right turn signals.
- Headlights, brake lights, tail lights, and clearance lights are all operational.
- Emergency door buzzer.
- Tires, lug nuts, tire chains, and exhaust system.
- Leaks under the bus.
- Perform a standard brake test.

Your district may require other items. Follow district procedures for checking any additional items.

7.16 CRASHES

If faced with a head-on collision, take the head-on collision if the other vehicle is a car or small truck (rather than swerving violently). This is a better option because of the size and weight of the bus and the fact that the operator and passengers sit above the impact zone. Swerving may cause the bus to slide out of control and leave the roadway and/or cause the bus to rollover. However, if facing a head-on collision with a large truck, avoidance by steering out of the way into the oncoming lane may be the best option, even if you must take the right-of-way from a car.

Plan ahead as you drive. Look for spots to use as escape routes. Sideswiping hillsides, rocks, trees, or guardrails may be the best alternative to slow the bus in an emergency.

Deer, elk, or other wildlife may suddenly appear in the roadway. The operator's choices are to swerve or hit the animal. The safer choice is to hit the animal rather than swerving and possibly losing control of the bus. Swerving will place your passengers in greater danger. It is natural to react by swerving, but knowledge of the possible consequences should override that decision.

7.17 OTHER MOTORISTS/BICYCLES

Sightseeing motorists and/or tourists may drift to either side of the roadway. Many motorists are also uncomfortable driving on mountain roads. They may fear driving towards the outside of the lane and crowd the center of the road. Pay attention to other vehicles' tire to ground contact, which indicates their exact position in their lane. Be aware that motorists may park on mountain shoulders, around curves, and walk on the roadway.

More and more people are riding bicycles in the mountains. In most cases, they ride in the traffic lane. Bicycles, especially when ridden by children can be unpredictable. Give them plenty of room when passing.

- 42-4-1008.5, C.R.S. – Crowding or threatening bicyclist. The driver of a motor vehicle shall not, in a careless and imprudent manner, drive the vehicle unnecessarily close to, toward, or near a bicyclist.
- Any person who violates subsection (1) of this section commits careless driving as described in 42-4-1402, C.R.S.

Never outdrive your ability to stop in the distance you can see.

7.18 PASSENGER WELL-BEING

When planning a mountain trip and driving in the mountains, think about your passengers. When was the last break for them to stretch their legs? Take stretch breaks, as needed, in safe pullout areas.

Remember that many passengers suffer from motion or carsickness. Have these passengers sit up front with one or more windows open for fresh air. If known ahead of time, discuss other remedies with parents/guardians. Slowing down more in curves may help these individuals. The driver may feel comfortable with the speed on winding

roads; however, they should watch the passengers in the rear of the bus to determine if they are comfortable as well.

Anyone can suffer from altitude sickness. Make sure they drink fluids and remain quiet (sitting or laying down), and get them to a lower altitude as soon as possible.

7.19 DRIVER CARE

When driving long distances, note that operators may experience fatigue or minor aches and pains. Be sure before leaving to position the bus seat so the back is completely against the seat back with feet flat on the floor. Consider using a lumbar roll or rolled-up towel between the lower back and seat back. Adjust the seat up or down, so the hips are slightly higher than the knees. The back of the knees should not rest on the edge of the seat. Adjust the seat forward or back, so the knees are at a slight bend when fully pushing the pedals. Arms should comfortably reach the steering wheel and controls with minimal leaning or twisting.

Remember to adjust the mirrors to avoid twisting or placing the body in an uncomfortable or awkward position. To combat fatigue, perform stretches before and after driving.

UNIT EIGHT – ADVERSE WEATHER

In this unit, there is information on adverse weather conditions, driving techniques, and information pertinent to School Bus Driving in all weather conditions experienced in Colorado.

Becoming aware of the effects on the performance of the vehicle and the proper procedures to counter the effects of the conditions will provide the understanding required to respond correctly. Slow down, pull over, or make the decision to reschedule. Safety must be the driver's primary concern.

8.1 WIND

Strong winds affect the handling of a school bus. It may be harder to steer and stay within the lane of travel during high winds. Wind gusts can push on the side of the bus, causing it to thrust sideways. In extreme situations, roof hatches have popped open and ripped off. Extreme wind may also cause difficulty keeping the bus in the proper lane of traffic. Overcompensated steering can cause the bus to tip over or leave the lane of travel. Wind may blow around debris that can hit the bus causing damage or injuries.

Strong winds increase just prior to, and in the beginning of a change in weather. During thunderstorms, dust storms, and blizzards, visibility can be severely impaired. Operators should be cautious when crossing bridges and overpasses, driving between hills, exiting tunnels, on open straight-aways, and when passing high-profile vehicles.

Tips for driving in strong winds:

- **Grip -** Keep a strong grip on the steering wheel. Anticipate wind gusts.
- **Speed Reduction -** Reduce speed to lessen the effect of the wind, or pull off the road and wait.
- **Pull Over -** Pull onto a solid shoulder, side road, or parking lot.
- **Call -** Contact Dispatch to convey the situation and ask for instructions.
- **Observe Surroundings -** Watch for blowing debris, falling trees or power lines. Reduced visibility may occur from blowing dust, sand, or snow.
- **Prepare -** Always be prepared for the unexpected.

8.1.a TORNADOS

A tornado is a violently rotating column of air. In the northern hemisphere, tornados rotate counterclockwise. They develop in warm, moist air, in advance of an eastward moving cold front. Most tornados move southwest to northeast. The average forward speed of a tornado is 30 mph, but can be up to 70 mph. When the temperature is between 65 and 84 degrees and the dew point is above 50, the dangers of a tornado are at the highest. They often accompany severe thunderstorms. Tornados are common in eastern Colorado. Though they are rare, tornados are possible in the mountains, foothills, and western valleys.

8.1.a (i) Tornado Signs:

- Green-colored Sky
- Hail
- Wall Cloud
- Funnel Cloud

Many say a tornado sounds like a freight train approaching. If a tornado does not appear to be moving, it may be coming toward you. If you are in the bus and see a tornado, evacuate to a safe location, preferably a building. When in a building, go to an interior room or basement, away from windows, and have all passengers sit and cover their heads with their hands. When in the direct path of a sighted tornado and shelter in a building is not available and an evacuation is ordered, escort passengers to a nearby ditch, culvert, or depression. Direct all passengers to lie face down on the ground with their hands covering their head. They should be far enough away so the bus cannot topple on them. Avoid areas that are subject to flash floods. Never go under a bridge or overpass. This area can become the equivalent of a wind tunnel.

8.1.a (ii) Microburst's and Macroburst's

Microburst's and Macroburst's are intense, localized downdrafts of air that spread on the ground causing rapid changes in wind direction and speed. They are capable of producing winds of more than 100 mph that can cause significant damage. A macroburst can cause more damage to a widespread area than a microburst.

They are hard to detect, so be careful when thunderstorms and high winds are in the area. Keep a tight grip on the steering wheel and pay attention to weather watches and warnings.

8.2 LIGHTNING

Sudden storms can produce lightning. If a severe storm produces lightning, the safest place is in the bus. Avoid touching metal objects or pulling over in high-risk areas (canyons, near power lines, or tall trees).

8.3 WATER ON ROADWAYS

Water on brake drums will reduce braking efficiency. A light application of the brakes can prevent excessive water between the drum and brake pads. During excessively wet conditions or after passing through standing water, it may be necessary to apply the brakes slightly for a short distance to dry them out and restore normal braking.

Never attempt to drive in flowing water, as the depth and force of the current is unknown. Dangers may not be visible. There may be debris, downed power lines, or washed out portions of the road.

8.4 SLIPPERY SURFACES

Bus braking or steering cannot occur unless there is traction. Road conditions may reduce traction and require slower speeds. When slick road conditions exist, it will take longer to stop and be harder to steer the bus without skidding. Slippery surfaces can more than double stopping distances.

8.4.a Common Slippery Surfaces:

- **Shaded Areas** - Shady parts of the road may remain icy and slippery long after open areas have melted and dried.
- **Bridges** - When the temperature drops, bridges will freeze before roads. Be especially careful when the temperature is near freezing (32° F).
- **Snow** - There are different types of snow that provide different levels of traction. The most traction comes either from dry

granular or very cold snow. Packed snow may provide better traction than freshly fallen snow. As variations in temperature occur, at or near the freezing/melting point (32°F), vehicles will have the least amount of traction. This presents the most dangerous road conditions of ice on snow, or snow on ice.

Roads are most hazardous when snow or ice begins to melt. Take extra caution on packed snow or icy roads when the outside temperature is near the melting/freezing point (32° F).

8.4.b Black Ice

When the temperature is below freezing and the road appears wet, it could be black ice. This is a thin layer of transparent ice that can be present anywhere, especially in high-traffic intersections and windswept areas.

8.4.c Hail

While similar to ice, hail provides a unique set of hazardous circumstances. Hail on roadways can produce an extremely slippery and uneven road surface. Large hail can break the windshield and windows. Children should protect themselves from flying glass should a window break.

8.4.d Rain

When it starts to rain, the water mixes with oil and other road grime making the road very slippery. Standing water on the roadway may lead to additional challenges such as hydroplaning.

8.4.e Hydroplaning

Hydroplaning can occur on any wet road surface. The first 10 minutes of a light rain can be the most dangerous. When a tire encounters more water than it can scatter, water pressure in the front of the wheel pushes water under the tire, thus separating the tire from the road surface with a thin film of water. The result is loss of traction, steering, braking, and power control.

8.4.e (i) How to avoid hydroplaning:

- Slow down when roads are wet. The faster the speed, the harder it is for tires to scatter water properly.
- Stay away from puddles and standing water.
- Do not use cruise control, if equipped.
- Drive in a lower gear.
- Avoid hard braking.
- Try to avoid making sharp or quick turns.

8.4.f Mud/Mudslides

Wet, non-paved or paved roads where excessive mud is present can be slippery and may be virtually impassable.

8.4.g Heat

Excessive heat may cause the tar in the road pavement to rise to the surface. These areas can become soft or slippery.

8.4.h Other

Anti-icing and de-icing materials used on roadways (i.e. gravel, magnesium chloride, and salt) to improve traction. In some instances, these materials can decrease traction.

If the bus is equipped with a retarder, see Unit Seven for detail concerning retarder use on slippery surfaces.

8.5 SKIDS

A skid happens when a vehicle's tires lose traction on the road. Some common ways this can happen are:

- **Over-braking** - Either braking too hard and locking up the wheels or using the retarder when the road is slippery.
- **Over-steering** - When the operator turns the wheels sharper than the bus can turn at a given moment.
- **Over-acceleration** – When the drive wheels spin due to too much power sent from the operator.
- **Driving too fast** - Serious skids result from driving too fast for road conditions. Operators who adjust their driving to the conditions do not over-accelerate and do not have to over-brake or over-steer from gaining too much speed.

8.5.a Drive-Wheel Skids

The most common skid is one where the rear wheels lose traction through excessive braking or acceleration. Rear wheel braking skids occur when the rear drive wheels lock. This usually happens on slippery surfaces. Because locked wheels have less traction than rolling wheels, the rear wheels usually slide sideways in an

attempt to "catch up" with the front wheels. In a bus, the vehicle will slide sideways into a "spin out".

8.5.a (i) To correct a drive-wheel skid:

- Stop accelerating.
- Stop braking to allow the rear wheels to roll again.
- Turn into the direction of the skid by looking where you want the bus to go.
- Counter-steer after control of the bus resumes by turning the steering wheel in the direction desired.

8.5.b Front-Wheel Skids

Driving too fast and having inadequate tread depth on the front tires causes most front-wheel skids. In this type of skid, the front of the bus tends to go in a straight line regardless of how much the steering wheel is turned. This causes extreme difficulty (if not impossibility) when steering around a curve or turn.

To correct a front-wheel skid, release the accelerator and do not brake. This will allow the front wheels to turn again and regain traction.

Learning to stay off the brake and react quickly during a skid takes a lot of practice. The best place to practice this is on a large driving range or "skid pad".

8.6 WINTER DRIVING

Weather conditions can be unpredictable, placing extra demands on the bus and operator. Always be prepared for winter roads and adjust speed to the existing conditions. Three key elements to safe winter driving are to stay alert, slow down, and stay in control. Drive according to highway and weather conditions. Some bridges and overpasses in Colorado are heated or have de-icing sprayers. This creates an abrupt change in road conditions. Scan ahead and be aware of these locations.

In winter and especially during poor weather conditions, it takes longer to stop on a slippery road. It is important to leave plenty of space between the bus and the vehicle ahead to avoid sudden braking

situations. A guide to safe spacing in these conditions is to double the “four – five second rule”.

Using a lower gear than you normally would for the type of road helps the driver maintain control of the vehicle in winter driving conditions.

Be aware that snow on the road may be slippery, drifted, or hard-packed. It can also be smooth, soft, rutted, or slick-tracked. Slick track happens when traffic has packed the snow enough to cause icy conditions. Because the bus usually tracks wider than the preceding vehicles that formed the hard pack, ruts or slick tracks, maintaining control may be difficult. Rather than allowing the bus to sway back and forth between the two narrow tracks or ruts, adjust lane positioning to ride in the untracked snow within the lane. Riding outside of the tracks or ruts will help to maintain speed and steering control.

Wet snow can cause slushy roads. Heavy slush can build up in the wheel wells of the bus and can affect steering. Remember to look ahead to recognize hazards in plenty of time to respond.

8.6 REDUCED VISIBILITY

School Bus Operators can expect to experience any and all of the following driving hazards that may result in reduced visibility. The most important response is to slow down. Maintain a speed that allows safe continuation in these conditions:

Fog

Sun

Dust

Rain

Snow

Debris

Terrain

Smoke

Hail/Graupel

Darkness

Light variations

Vegetation

8.7 ADDITIONAL HINTS AND REMINDERS

- Check road conditions prior to departure.
- Speed should be conservative when conditions are less than perfect. Maintain a speed that allows you to stop quickly in the event of the unexpected.
- Know your limits and the bus's limits. Pull off to a safe location rather than continuing in adverse or unsafe conditions.
- Test traction and braking ability in a safe location free from traffic or other hazards.
- False shoulders exist in all seasons (i.e. snow, tall grasses and heavy rains). Be aware of your surroundings at all times.
- Increase following distance.

UNIT NINE - TRANSPORTING STUDENTS

Awareness reminds you that children are apt to do the craziest things at the worst possible times.

9.1 LOADING/UNLOADING PROCEDURES

One of the most important maneuvers drivers make is the loading and unloading of students. This is the point where students and drivers are exposed to many hazards. The driver must learn proper procedures for controlling traffic, crossing students, loading and unloading students, and proper seating of passengers. The following procedure will help prevent crashes or injury.

9.1.a When loading and unloading:

- Never take your eyes off what is happening outside the bus.
- Count children as they exit.
- Make sure they are a safe distance from the bus before pulling away.
- If you can't locate a child, check your mirrors.
- If you still can't find the child, secure the bus.
- Check around and under your vehicle.

1 CCR 301-26, 4204-R-224.04. Rules for the Operation of School Transportation Vehicles

> School bus alternately flashing warning signal lamps are placed on school buses for the purpose of warning traffic that the school bus is about to stop (amber lamps) or is stopped (red lamps) to load or unload students. The following procedure shall be observed when controlling traffic with a school bus during the process of loading or unloading students on any highway, road or street.

Statute regarding loading/unloading procedures for lift equipped buses**.**
42-4-1903, (2)(b)(II), C.R.S.

> A school bus shall be exempt from the provisions of subparagraph (I) of this paragraph (b) when stopped for the purpose of discharging or loading passengers who require the assistance of a lift device only when no passenger is required to cross the roadway. Such buses shall stop as far to the right off the roadway as possible to reduce obstruction to traffic
> (the bus would be completely out of the lane of traffic).

School buses create passing situations when loading or unloading. Be aware of motorists attempting to pass just because it is a school bus. Loading and unloading in hazardous conditions should be reported immediately.

42-4-1903, (2) (b) (I) C.R.S. School buses – stops – signs - passing

The red visual signal lights shall be actuated by the driver of the school bus whenever the school bus is stopped for the purpose of receiving or discharging schoolchildren, is stopped because it is behind another school bus that is receiving or discharging passengers, or, except as provided in subsection (4) of this section, is stopped because it has met a school bus traveling in a different direction that is receiving or discharging passengers and at no other time; but such lights need not be actuated when a school bus is stopped at locations where the local traffic regulatory authority has by prior written designation declared such actuation unnecessary.

42-4-1903 (5) C.R.S. School buses – stops – signs - passing

Every school bus shall stop as far to the right of the roadway as possible before discharging or loading passengers; except that the school bus may block the lane of traffic when a passenger being received or discharged is required to cross the roadway. When possible, a school bus shall not stop where the visibility is obscured for a distance of two hundred feet either way from the bus. The driver of a school bus that has stopped shall allow time for any vehicles that have stopped behind the school bus to pass the school bus, if such passing is legally permissible where the school bus is stopped, after the visual signal lights, if any, are no longer being displayed or actuated and after all children who have embarked or disembarked from the bus are safe from traffic.

9.1.b Loading Procedures

1. Stopping and loading procedures:
   - When approaching the designated stop, begin slowing down in preparation for the stop.
   - Check traffic in all directions using right and left mirrors, to see that it is safe to pull to the right of the traveled portion of the roadway to stop. Do not leave the roadway. Activate amber warning lights 200 feet in the city and 500 feet in rural areas. Do not activate red flashers until stopped with park brake set.

- Apply brakes to activate brake lights so that motorists following will know you are about to stop. Use retarder (if equipped) to slow the bus.
- Approach students with extreme caution, giving due consideration to the surface on which you are stopping: dry, slippery, dips sharply to the right, rough ground, etc.
- Allow sufficient area to the right and front of the bus for the students to clear the bus safely while in sight of the operator.
- 1 CCR 301-26, 4204-R-224.04 (h) – Students shall be instructed to stand away from the curb or roadway so, when the bus stops to load, they are not next to the bus.
- If a backing turnaround is required on the route, load students onto the bus *before* backing into turnaround. Unload students *after* making the turnaround. When making a backing turnaround, students should remain seated at all times. Use extra caution.
- 1 CCR 301-26, 4204-R-224.04 (f) - When stopped, the parking/emergency brake (air or hydraulic brake system) shall be set prior to loading and unloading. Transmission shall be placed in neutral or in park, (if vehicle is so equipped).
- Opening the service door automatically deactivates the amber flashing lights and activates the red flashing warning lights and extends the stop arm.
- Open service door when you are ready to board students. They should be trained not to move toward the vehicle until the door opens or when directed by the driver with a predetermined signal.
- Instruct students to go directly to their seats as prescribed by district procedures.
- Deactivate red flashing warning lights and stop arm by closing door allowing stopped motorists to pass.
- Make sure students are all properly seated.
- Place the transmission in gear.
- Release park brake.
- Check traffic using right and left mirrors. Activate signal. When safe, pull gradually back into the lane of traffic. Check traffic again, deactivate signal, regain road speed, and proceed to next stop.
-

The order the brake is set, transmission is shifted, and door is opened must be followed in the order indicated prior to a student stop and before departing the student stop. "The brake is the first thing on and the last thing off."

2. Don't impede the regular flow of traffic. If a build-up occurs behind you, display professional courtesy.

- If possible, activate right turn signal, pull to side of road only if entire vehicle can get off the road and stop.
- Allow vehicles to pass.
- Check traffic using all outside mirrors.
- Activate left turn signal.
- Resume position on road.

3. Procedure for students:
   - Use handrails when boarding vehicle.
   - Students should go directly to their seats as prescribed by the district.
   - Remain seated when the bus is moving.

9.1.c Unloading Procedures

1. Unloading students poses additional problems. Follow loading procedures with these additions:
   - You are responsible for the safety of all students crossing the roadway regardless of grade level.
   - When stopped, not rolling, give the vehicles behind you a chance to react by activating the flashing red warning lights before you open the door all the way (if the bus is equipped with a manual door). Students should stay seated until the door opens fully. Do not allow students to get off the school bus until all traffic has stopped.
   - A backing turnaround must be completed before students are unloaded.
   - 1 CCR 301-26, 4204-R-224.04 (g) – Students shall be instructed to walk a distance of approximately ten (10) feet in front of the school bus and wait for operator's signal before crossing the roadway.
   - When it is safe to cross, establish eye contact with the student/s, and give the pre-arranged signal for crossing. The signal should be clear enough that motorists will not mistake it as a signal to proceed.

Suggestion: Point with the entire hand to the student, then point hand in direction of crossing. Use outside P.A. system, if available. Follow district procedures.

   - Instruct students to pause and look both ways before continuing beyond the bus.
   - Check traffic in both directions before allowing students to cross a roadway.

- While performing this operation, remember you are not a traffic officer and have no rights other than those of a regular motorist. Do not signal any motorist to do anything.
- When students have safely crossed the road, and/or cleared the unloading zone, count students, cancel the flashing red warning lights by closing the door.
- If a driver of a motor vehicle violates the stop arm law, follow district procedure for reporting.
- Use safe procedures to allow stopped traffic to move on.
- Place transmission in gear.
- Release park brake.
- If the students are crossing, the bus should be toward the center of the lane – no need for turn signal**. Do not allow enough room on the right for a motorist to squeeze between the bus and the curb or edge of the pavement.**
- Check traffic using all outside mirrors.
- When safe, gradually resume correct position on roadway and continue.

When unloading students on school grounds, stops should be planned so that students get off on the curbside, without having to cross in front of traffic. School bus loading zones should be located in a separate area from parent drop off areas when possible.

Ref 42-4-1904(1) C.R.S. ...Such regulations shall prohibit the driver of any school bus used for the transportation of schoolchildren from discharging any passenger from the school bus which will result in the passenger's immediately crossing a major thoroughfare, except for two-lane highways when such crossing can be done in a safe manner, as determined by the local school board in consultation with the local traffic regulatory authority, and shall prohibit the discharging or loading of passengers from the school bus onto the side of any major thoroughfare whenever access to the destination of the passenger is possible by the use of a road or street which is adjacent to the major thoroughfare. For the purposes of this section, a "major thoroughfare" means a freeway, any U.S. highway outside any incorporated limit, interstate highway, or highway with four or more lanes, or a highway or road with a median separating multiple lanes of traffic. Every person operating a school bus or responsible for or in control of the operation of school buses shall be subject to said regulations.

1 CCR 301-26, 4204-R-224.01 (b) – Prohibit the unloading from the school transportation vehicle of any students who must immediately cross a major thoroughfare, except for two-lane highways when such

crossing can be done in a safe manner, as determined by the local board of education in consultation with the local traffic regulatory authority.

1 CCR 301-26. 4204-R-224.01 (c) - Prohibit the loading/unloading of students from school transportation vehicles onto the side of any major thoroughfare when an adjacent road or street would provide access to the students' destination.

1 CCR 301-26, 4204-R-224.02 For the purpose of this section:

224.02 (a) Major thoroughfare - a freeway, U.S. highway outside any incorporated limit, interstate highway, highway with four or more lanes, or a highway or road with a median separating multiple lanes of traffic. 42-4-1904(1) C.R.S.

(1) Freeway - a controlled access highway.

(2) U.S. highway - a highway with a U.S. designation in front of the highway number (for example, U.S. 50) or posted with the U.S. highway sign.

(3) Highway with four or more lanes - a highway with two or more through lanes in the same direction. Turn, acceleration, and deceleration lanes are not considered through lanes.

(4) A highway or road with a median - a highway or road with a raised, lowered, or striped area between opposing lanes of traffic. A median using a striped area is normally two to four feet wide between the solid lines.

(5) Adjacent - a road or street running parallel to the major thoroughfare, e.g., a service or frontage road.

224.02 (b) The district shall obtain clarification from the local traffic regulatory authority when needed.

42-4-1903 – Requires drivers to report stop arm violators to the district. In addition, it addresses the specific requirements a driver must observe when approaching a school bus in the active process of loading/unloading students.

School bus drivers are professionals Drivers should never “trap” a motorist. If stopping at an intersection, allow traffic to clear the intersection prior to activating the stop arm and red lights. A school bus operator should always perform the requirements of the position in a professional manner.

9.2 REPORT ROUTE HAZARDS

1 CCR 301-26, 4204-R-224.03 **-** It shall be the responsibility of each school transportation vehicle operator to report any condition on a route which may be construed as a safety hazard.

These hazards and the corrective action may need to be listed on the route description for the substitute driver.

Review the district procedure on reporting route hazards and how to determine when a change is warranted. The driver shall never change a stop without following district procedures.

9.3 FIELD/ACTIVITY TRIPS

Making a trip into a congested city or area that a driver is unfamiliar with can be a frightening experience for the small city or rural school bus driver. It does not have to be. Rural districts can help their employees overcome this apprehension with three easy procedures.

1. The first helpful activity is to have a driver lesson plan in place that addresses the topic of a trip to an unfamiliar, busy city.
2. The second is to have resources available for the actual trip.
3. Have a process set up to gather feedback from drivers who make these trips, building resources and helpful hints for future reference.

9.4 NEW TRIP DRIVER TRAINING

1. Build a training session that compares the hazards in the local area to what a driver might expect in an urban area. Driving on a trip is different from driving a regular route. The hazards may be different, yet the driver's awareness, needs, and defensive driving techniques will be quite similar.
    - Establish a skills course of maneuvers the driver might encounter in the city. For example, parallel parking and tight right turns.
    - Implement basic map reading skills, stress relieving techniques, and a good mastery of emergency procedures.
    - Include information regarding procedures for on-ramps with traffic lights, multi-lane highway usage, Denver Light Rail, and turning on a red light after stopping.
    - Review the hours of service rules.
    - Have a good procedure in place to develop itineraries to be utilized by the department and the schools transportation serves.

- Develop a short pre-trip program, including minor maintenance, specialized training, and basic vehicle troubleshooting techniques to be used before leaving from the destination.
-

2. There are important differences to be aware of.
    - An unfamiliar route.
    - Trip sponsors and their responsibilities.
        - Sponsors are generally responsible for maintaining order on the bus and accounting for students. The driver will find students who are not familiar with ridership rules and there may be excited behavior due to the nature of the trip. Review district procedures regarding student management during special trips. A student roster is highly suggested. Sponsors should keep the bus clean.
        - When the destination has been reached, make certain all passengers know which school bus, and at what time they are to board for the return trip.
        - Check that no passenger(s) board the bus at any time unless authorized by you or by a sponsor. Only authorized passengers are allowed to ride the bus.

3. Storage of large and oversized equipment.
    - 1 CCR 301-26, 4204-R-223.01 - School transportation vehicles shall not transport any items, materials, or equipment which in any way would endanger the lives, health, or safety of the students and school transportation vehicle operator. In addition, any item or items, which could break or produce injury if tossed about inside of the school transportation vehicle shall be properly stored or secured to reduce the danger to a minimum. In addition, the school transportation vehicle operator shall make a reasonable and prudent determination that all carry on items are properly handled in order to minimize the danger to all others.
        - The equipment must be stored or secured to reduce the danger to a minimum, in case of an emergency stop or an accident. The driver must make a reasonable and prudent determination that all carry-on items are properly handled in order to minimize the danger to all others.
        - Store band instruments and other large items in the storage compartment under the bus, if so equipped.
    - 1 CCR 301-26, 4204-R-223.02 - All aisles and exits shall be clear of luggage and/or equipment when transporting students.
        - If there is no under storage area, make sure the items are stored and secured away from the front and rear doors, are not stacked above seat back height and are <u>out of the aisle.</u>

- Other options may include: equipment truck, cargo van, or a second bus as an equipment bus.

DO NOT EVER BLOCK THE EMERGENCY DOOR(S) OR WINDOWS.

- 1 CCR 301-26, 4204-R-216.02 - Students on activity trips shall receive emergency evacuation instruction prior to departure.
  - Emergency evacuation instruction shall be given prior to departure. Instruction should include use of roof hatches, emergency doors, and emergency windows.

4. The school district documentation should provide the following information:
   - Destination and date.
   - Nature and purpose of trip.
   - Departure and expected return times.
   - Number of passengers to be transported.
   - Equipment to be transported.
   - Rest stops and overnight arrangements (if applicable).
   - Authorized signature and school contact.

When the trip is completed, fill out a district activity/field trip report or the documentation required by district procedure. Items may include: mileage, student list, actual number of passengers, time departed/returned, and problems that were encountered, if any can be on the form.

- 1 CCR 301-26, 4204-R-216.03 - Records shall be maintained documenting that the required evacuation drills were conducted or evacuation instruction was given.
- 1 CCR 301-26, 4204-R-229.04 - All school transportation vehicle operators shall document that they are in compliance with this section, hours of service.

9.5 LEGAL REQUIREMENTS DURING FIELD/ACTIVITY TRIPS

All regulations governing the operation of school transportation vehicles (1 CCR 301-26) are applicable on trips. The driver must follow (this section may repeat prior information):

- Vehicle failure and accident procedures for activity/field trips as they apply to the local district.
- Convoy Distance, 1 CCR 301-26, 4204-R-212.01 - …shall not follow another convoy vehicle within 300 feet, when traveling outside the corporate limits of a town or city.
- Emergency Evacuation Drill, 1 CCR 301-26, 4204-R-216.02 - Passengers on activity or field trips shall receive emergency evacuation instruction prior to departure.

- 1 CCR 301-26, 4204-R-216.03 - Records shall be maintained showing that the required evacuation instruction was given.
- Tobacco Products, Controlled Substances, or Alcohol, 1 CCR 301-26, 4204-R-218.01 - Use of tobacco products, controlled substances, or alcohol aboard any school transportation vehicle shall be prohibited at all times.
- Food and Drink, 1 CCR 301-26, 4204-R-219.01 - The school transportation vehicle operator shall not consume food or drink unless the vehicle is stopped at a safe location with the park/emergency brake set.
- 1 CCR 301-26, 4204-R-232.01 – School districts/service providers shall have a procedure to govern the use of cell phones and two-way radios by school transportation vehicle operators. This procedure shall include limiting the use of these devices while the vehicle is in motion and restricting the use of personal cell phones.
- 1 CCR 301-26, 4204-R-233.01 – The school/multifunction bus shall not be placed in motion on roadways with the service door open.

9.6 RESOURCES FOR THE TRIP

- Call ahead to the destination. Prepare a small notebook with phone numbers and the name of the person to contact upon arrival. Don't stop with just one phone number. Obtain the department's dispatcher number, the mechanic's number, and the number of the school that will be your destination.
- Request area maps and a suggested route to the destination from the sponsoring district. Plan more than one route in case of unexpected detours. Most major urban districts have computerized scheduling systems in place which might help generate a detailed map of the destination area.
- Obtain information regarding road closures.
- Create an "Over-the-Road" packet. Include the Emergency Service List from CDE.
- During winter months, carry a bag of salt, sand, or kitty litter to help provide traction in an emergency situation.
- Per school district procedures, consider having extra tools, hoses, belts, bolts, flashlights, etc. which could be used in case of a minor breakdown.
- Review school district procedures regarding securing the school transportation vehicle when unattended.
- Use stress-relieving techniques and take unscheduled rest breaks if needed. For instance, stop and secure the bus, get out and walk around outside. The back is particularly vulnerable to injury when driving or working around school buses. A number of factors include sitting for long periods of time, vibration of the vehicle, having to lean over seats to put up windows, and lifting and pushing heavy objects such as wheelchairs. All of these contribute to the driver's susceptibility to back injuries. A little care can go a long way towards keeping drivers on the job and out of pain.

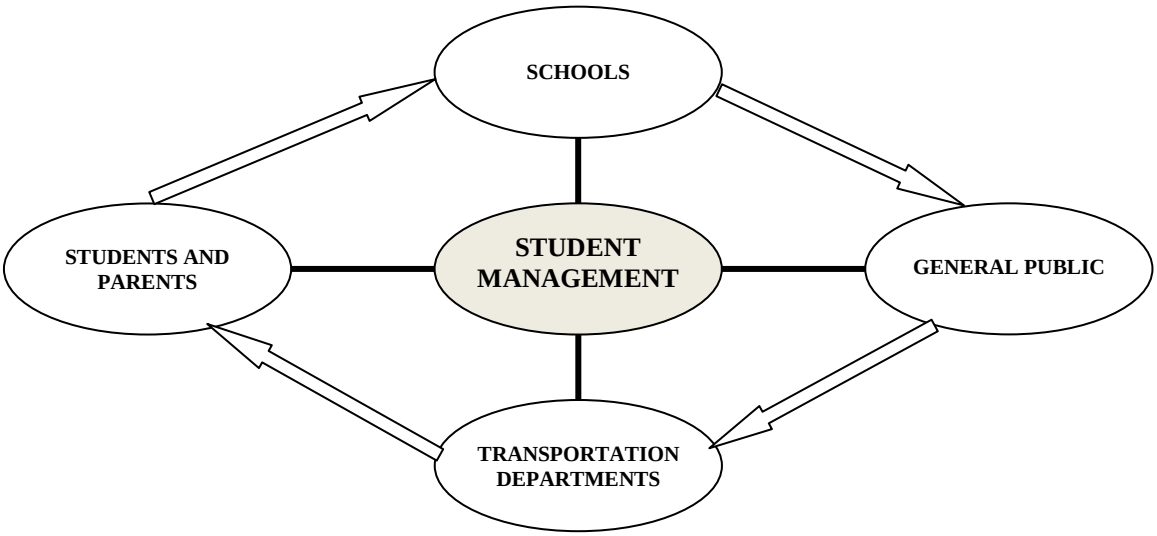
- While driving, sit up straight in the seat with back and legs making a 90 degree angle. There should be a slight gap between the top, front portion of the seat bottom and the back of the leg. Change position or shift weight every 15 to 20 minutes. Lean forward to operate the door mechanism.
- Practicing these posture habits will help keep the back healthy and happy.

Build a Library of Resources

- Document knowledge and experience gained from each trip.
- Assemble maps, resources and a list of contacts.
- Create a checklist of helpful techniques used and things that were overlooked that should be included on the next trip.
- Document feedback regarding the vehicle driven, itinerary used, and passengers serviced.

UNIT TEN – STUDENT MANAGEMENT

The objective of student management is to ensure a safe bus ride by allowing the driver's attention to be on operating the vehicle. In order for the school bus driver to safely operate the bus, it is essential that the student passengers behave in a controlled manner. The school bus must be looked upon as an extension of the classroom. Student management for the driver will encompass a wide variety of child psychology, adolescent behavior patterns and student management techniques. Unlike the teacher, whose classroom environment is more defined and with only one specific age group, the school bus driver will be in close contact with a variety of elementary, junior high and senior high age groups. Student management will encompass the following interdependent segments of the community.



Each of these segments should communicate both needs and problems in order to find solutions.

10.1 THE ROLE OF THE SCHOOLS

Schools should include programs of instruction to improve the student's safety at school bus stops and on the bus.

All school staff should be familiar with school district policies on student discipline, rules and regulations for student behavior, misconduct procedures, and special trip sponsor procedures.

1 CCR 301-26, 4204-R-208.00 – Medical and behavioral information shall be provided to transportation prior to the first day of service.

10.2 THE ROLE OF THE TRANSPORTATION DEPARTMENT PERSONNEL

10.2.a Supervisor of Transportation

The supervisor should provide avenues for cooperative problem solving which includes all levels of school district personnel, parents, and students. Rules for students and school bus drivers should be established and administered uniformly. An awareness of new techniques, equipment, child psychology, and behavioral patterns of children is important. A training program, including pre and in-service, should be developed, implemented, and constantly reviewed.

10.2.b School Bus Driver

The school day for the transported student begins and ends with the bus. The driver needs to exhibit self-control, professionalism, and have a plan to establish appropriate behavior. Consistency is absolutely necessary for success. The school bus driver is responsible for the health, safety, and welfare of all passengers. In supervising the students, inappropriate student conduct will require the combined efforts of the driver, the transportation department, and school administrators. Drivers should have the attitude that driving a safe bus is most important. A student should not prevent the operator from driving a safe bus. The other passengers must be assured of a safe and pleasant bus ride.

Discipline on school buses is probably the biggest problem confronting school bus drivers today. The attitude of the driver should be consistent using the following:

- **Firm** - Be prepared to follow through. Avoid giving a directive that you cannot enforce.
- **Fair** - Be consistent in disciplining students.
- **Friendly** - Be approachable to the students, while keeping in mind that you, the driver, are in charge.

Understanding the principles of child psychology will help avoid trouble before it begins. Overlooking the violations of conduct of one student will cause you to lose the respect of the other students.

Be careful to strike a happy medium by not being too lenient or too harsh. Both extremes are equally poor for the morale of the school bus riders. Loud talking on the bus is a problem that requires much patience, but absolute silence is not a healthy atmosphere. Issuing a directive does not complete the teaching process. A directive must be patiently and constantly repeated.

It seems the minority (undisciplined) riders set the pace for the majority.

Be aware of the fact that each driver is working for an educational system whose job is training the minds of students. Too frequently students are expected to be finished products with adult attitudes and this simply is not the case. Strive to build morale and cooperation with the students on the bus. In the course of time, the student morale will be a great help in controlling the worst offenders. When students discover that improper conduct is not acceptable, offenders will hesitate to do these things which cause them to lose prestige among their fellow students.

When speaking to an offender, speak in a friendly manner but with a firm voice. There should be no anger involved. Do not let personal problems reflect themselves in your mood or judgment while dealing with the students. If discipline is necessary, move the student to a seat near the front. **Never put a student off the bus to walk home.** Emphasize the disciplinary action that will be taken and that if it is not corrected to an acceptable level, the student may have his privilege of riding the bus taken away.

Think before you act

Tips on maintaining discipline:

1. Be friendly. Have a sense of humor.
2. Be sincere in your work.
3. Set firm, clear rules.
4. Never give a directive you do not intend to enforce.
5. Do not give a directive you cannot enforce.
6. Do not pick on every little thing. Commend good behavior.
7. Set a good example. Look for good qualities.
8. Be firm, fair, and friendly.
9. Be consistent.
10. Say “do this,” rather than “don’t do that.” Be positive.
11. Offer choices with the possible consequence.

12. Keep your “cool.”
13. Have a positive attitude.
14. Know district policies for reporting problems.
15. Be assertive: the driver is in charge.
16. Never strike or touch a student.

Don‘t become a constant mirror watcher. Safe driving requires your attention to be on the road.

10.3 THE ROLE OF STUDENTS AND PARENTS

Students of all age groups are obligated by the expressed privilege granted by the Board of Education to ride the public school bus, to obey, and conform to the safety and behavioral rules of the school district.

The parents of the students are obligated to instruct their children to cooperate with the school bus driver in accordance with the safety and behavioral rules of the school district.

Parents often do not accept the fact that their child has misbehaved at school or on the bus.

10.4 THE ROLE OF THE GENERAL PUBLIC

The public must obey the Colorado State Statutes. Also, they are to promote the safety of school-age children as pedestrians and transportion users of the roads of Colorado.

The schools and the transportation department should provide a program of public information. The objective of communicating to the parents and general public is to state district policies and procedures for safe student transportation.

10.5 STUDENT SAFETY AND BEHAVIOR RULES

The key to a safe, well-regulated bus is for the students to provide the school bus driver with an atmosphere that will allow the driver to direct special attention to safe driving. The school bus driver provides the students a standard of uniformity when applying the rules of the district. District rules may vary, but should be consistent with state regulations. The set of rules should be brief and limited to no more than 10 rules.

Students should follow directions the first time they are given. The rules should be posted in the front of the bus.

A copy of the rules could be sent to each student, parent/guardian with a form to be returned with both signatures indicating the rules were read and understood.

Sample Bus Rules:

1. Students are required to follow the bus driver's instructions.
2. Students should arrive at the bus stop 5 minutes prior to the scheduled stop time.
3. Before crossing, establish eye contact with the driver. When safe signal is given, it is safe to cross.
4. Cross 10 feet in front of the bus.
5. Stay seated, facing the front while the bus is moving.
6. Students shall not open or close windows without permission.
7. Heads, arms and objects must be kept inside the bus at all times.
8. Keep hands, feet and belongings to yourself.
9. Any behavior which jeopardizes the safety of the passengers or driver, is prohibited.
10. Use of drugs, alcohol, exiting rear door, inflicting bodily harm, vandalism, and littering are prohibited.
11. Use your quiet, classroom voice
12. Obscene or foul language or gestures will not be tolerated.
13. Students must be quiet at railroad crossings.
14. Respect others.

10.6 REPORTING UNACCEPTABLE BEHAVIOR

Each district should have a policy and procedure for reporting unacceptable behavior. Student behavior that is inconsistent with desired safe behavior is reported as either major or minor incidents. Student misconduct forms are filled out by the driver and returned to the transportation supervisor or designee for initial screening. The driver should report behavior only after attempting to solve the problem within his/her own capabilities. The transportation supervisor or designee determines the decision whether the reported misbehavior will be identified as minor or major.

Student due process:

- Have a set process or procedure.

- Make sure it is written.
- Make sure the driver, student riders, and parents are familiar with the policy.

10.7 BULLYING

Bullying is an act of repeated aggressive behavior in order to intentionally hurt another person; physically, or mentally. It comprises repeated acts over time that involves a real or perceived imbalance of power with the more powerful individual or group abusing those who are less powerful. The power imbalance may be social power and/or physical power. The victim of bullying is sometimes referred to as a target. Bullying is characterized by an individual behaving in a certain way to gain power over another person. Bullying may be emotional, physical, or verbal.

Refer to your district's Safe School Plan for information on bullying.

10.8 CONSEQUENCES

Any course of action, or consequences, in student management must be uniform but flexible enough to fit the conditions and circumstances of the violation and the individual(s) involved. Consequences may include, but are not limited to:

- Student warned by driver. (driver to student conference)
- Assigned seat.
- Parents notified. (per district policy)
- Assignment of student to "remedial tasks" at school, or on the bus. Follow district policy or procedure.
- Principal, parent, student, driver conference.
- Withdrawal of transportation services.

Good behavior should be rewarded. Do something the students like, and which is appropriate for the age level. Rewards may include, but are limited not to:

- Praise.
- Note to parents.
- First in line, first off the bus.
- Special seat. (window, next to a friend)
- Awards, e.g., smiley face stickers, etc.

Do not provide edible treats to students as a reward. There may be allergies the driver is not aware of. The parents may not approve of a certain type of treat

Always follow district procedures when disciplining or rewarding students.

10.9 HARASSMENT

Harassment Definition: A course of conduct directed at a specific person that causes substantial emotional distress in such a person and serves no legitimate purpose under the United States Code Title 18 Subsection 1514(c) 1.
The same procedures for dealing with any type of harassment apply as are described below for dealing with sexual harassment.

10.10 SEXUAL HARASSMENT

Adapted from "Steering Clear of Sexual Harassment, Peggy A. Burns, Esq." (Available from Education Compliance Group at 303-604-6141 or www.educationcompliancegroup.com).

The school bus is a unique environment in which verbal abuse and harassment can easily take place. A student being harassed has no place to escape the unwelcome behavior. It is important for the bus driver and paraprofessional to be aware of such behavior and take appropriate action. Any form of harassment described below is impermissible, and by law, the school district must take action to stop it.

No student should be subjected to behaviors that are intimidating, offensive, or threatening. Such behaviors may be identified as harassment based on:

- Gender
- Ethnic background
- Religion
- National origin
- Race
- Disability

10.10.a Sexual Harassment Definition

"Unwelcome sexual advances, requests for sexual favors, or other sex-based verbal or physical conduct where (1) submission to such conduct is explicitly or implicitly made a term or condition of the

individual's education; or (2) such conduct has the purpose or effect of unreasonably interfering with the individual's education by creating an intimidating, hostile or offensive environment." (Letter of finding by Dr. Battles, West Hartford Board of Education, June 8, 1993).

10.10.b Review District Policy Regarding Sexual Harassment

The school district has a responsibility to provide a safe environment for students, including the bus ride. Sexual harassment is a type of illegal discrimination and must be dealt with in such a way as to stop the behavior. Keep in mind that both boys and girls can be the victims of sexual harassment. When students are exposed to inappropriate sexual behavior, assume it is unwelcome, even if the student doesn't act like it is. Keep in mind also, that even if the student being harassed isn't affected or pretends not to be affected, other students on the bus may be suffering the effects of the inappropriate behavior. Students can become uncomfortable and actually dread getting on the bus.

Three steps the driver and paraprofessional should take:

1. **Identify Sexual Harassment**

   Some examples of verbal and physical sexual harassment are:

   - Conveying rumors or making suggestive comments about a student's sexual activity.
   - Calling students names of a sexual nature.
   - Obscene gestures, including male students grabbing their own genitals and/or rubbing themselves in a sexually suggestive manner.
   - Sexual molestation.
   - Use of sexually explicit language, like slang terms for parts of the anatomy.
   - "Mooing" a student with express intent to refer to bust size.
   - Creating graffiti that uses explicit sexual language to describe and degrade members of the opposite sex.
   - Unwelcome touching, pinching, or restraining of students by students of the opposite sex regardless of the ages of the students.
   - Exposing private parts.
   - Flipping up skirts or snapping bras.
   - Threatening unwanted sexual activity.
   - Students' subjecting other students to continual teasing or to lewd remarks about their anatomy.

- Offering a student money to perform sex acts, and other propositions of a sexual nature.
- Off-color jokes.
- Sexually harassing drawings and other "art" work.
- Simulating sex acts.

(Steering Clear of Sexual Harassment, Peggy Burns, pg. II 15, 16)

"Sexting" or taking and sending pictures of an indecent nature are also forms of sexual harassment and are punishable as child pornography. Sexting is the act of sending sexually explicit messages or photographs, primarily between mobile phones. The term was first popularized around 2005, and is a combination of the words sex and texting.

2. Take Action

When sexual harassment has been identified, it is necessary to accurately document what has happened and to immediately report the incident(s) to the appropriate district administrator. An investigation by the district administrator should follow a report of sexual harassment. Following is a list of what should be reported:

- Age of victim(s).
- Details of conduct they observed or were told.
- How long the conduct had been going on according to the information they have.
- How long a particular incident lasted.
- Whether the victim is subjected to the same activity repeatedly or if the offender varies his/her approach.
- Whether or not others joined in the harassing conduct.
- Whether conduct is directed at one student, or more than one
- Names, addresses, and phone numbers of everyone who has spoken with you about the conduct.
- Names of anyone whose names have come up in discussions about the conduct.
- Any information you have which will facilitate a thorough investigation and fair assessment of what happened, and any actions necessary to be undertaken.

(Steering Clear of Sexual Harassment, Peggy Burns, pp. 111-12-111-15)

3. **Follow Up**
    - Continue monitoring the situation. Report to the appropriate administrators if efforts to end the harassment are not working. Remember, the bottom line is, the harassment must be stopped.
    - Getting students to listen and obey the bus rules is not easy. What works for one school and age group may not work for another. They are all different. Your attitude will let the students know that you mean business and that you are in control. If you let them think they've got the best of you, you've lost control. When students can push your buttons, you have a major safety problem.

10.11 TAKE CONTROL OF PASSENGERS

Clearly convey the rules at the beginning of the year or the first opportunity. Let the students know what the expectations are for behavior on the bus. Always follow through with the consequences that have been presented. Always approach the students with the behavior that is expected. Do not approach with the behavior that is not wanted. Using a positive approach is far more successful than a negative approach.

- Smile.
- Gain their respect by staying positive.
- Tell them the rules and why they need to obey.
- When they obey, praise them.
- When they disobey, make sure you take appropriate action according to your district's policy.
- Never lose your cool.
- If they do not listen, stop the bus.
- Speak to the trouble makers alone.
- If they still do not listen, follow your school district policy.

UNIT ELEVEN - SAFETY EQUIPMENT/ EVACUATIONS

Every school bus driver, bus paraprofessional and student must acknowledge that some day a disaster might strike. Whether it is a motor vehicle crash, fire, or some other catastrophe, planning for an emergency and knowing what to do if and when it happens will prevent panic and confusion. This plan could help you save a life, or many lives someday.

11.1 ACCIDENTS

When you come upon an accident, use caution and continue moving. Staring too long at an accident can lead to another accident, and puts the drivers behind you at risk.

Precautionary Measures

- Remain alert and briefly size up the accident scene.
- Resist the urge to rubber neck.
- Begin braking early to warn other drivers to slow down, but do not stop completely.
-

Be prepared in case you are involved in an accident or are stopped by law enforcement. Always carry your Driver's License, DOT Medical Card, First Aid Card, and the Vehicle Insurance and Registration.

11.2 EMERGENCY VEHICLES

When an emergency vehicle is approaching you from behind or is approaching you from the opposing lane, get out of the way. Carefully move to the right side of the road and slow or stop your vehicle. Pull back into traffic only when it is safe to do so.

11.3 REQUIRED SAFETY EQUIPMENT (42-4-230, C.R.S.)

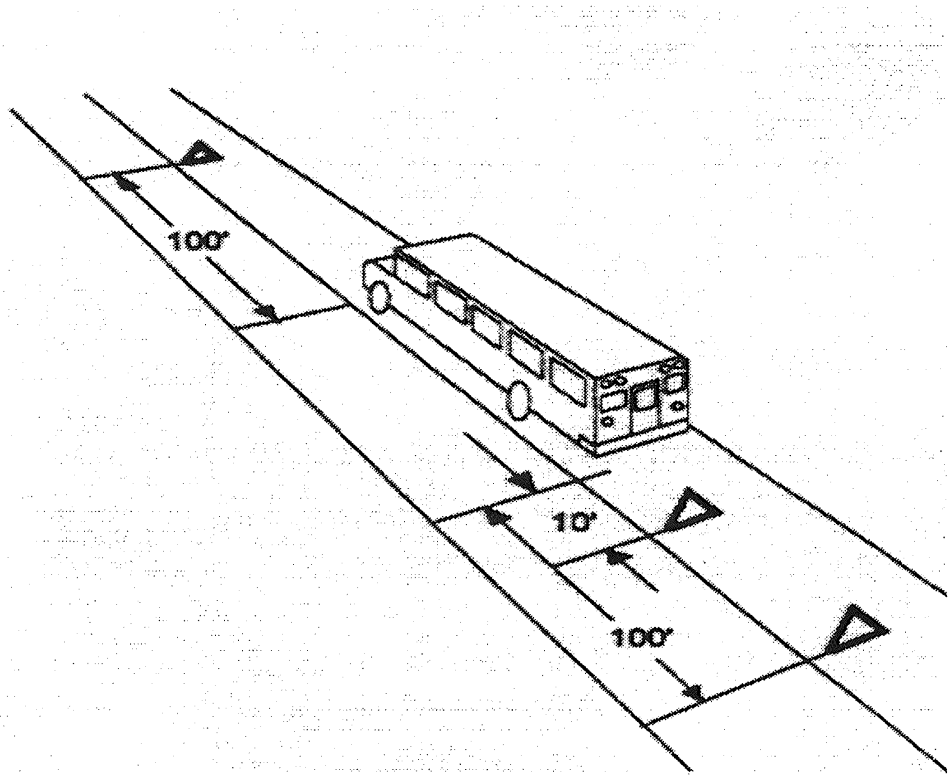
Emergency Triangles - Each school bus is equipped with three emergency reflective triangles. In case of a breakdown, accident or other emergency, the driver, paraprofessional, or qualified individual will place the triangles as the law requires. SEE FOLLOWING EXAMPLES.

When you pull off the road and stop, activate the 4-way hazard lamps. Taillights may not provide adequate warning to motorists. Drivers have

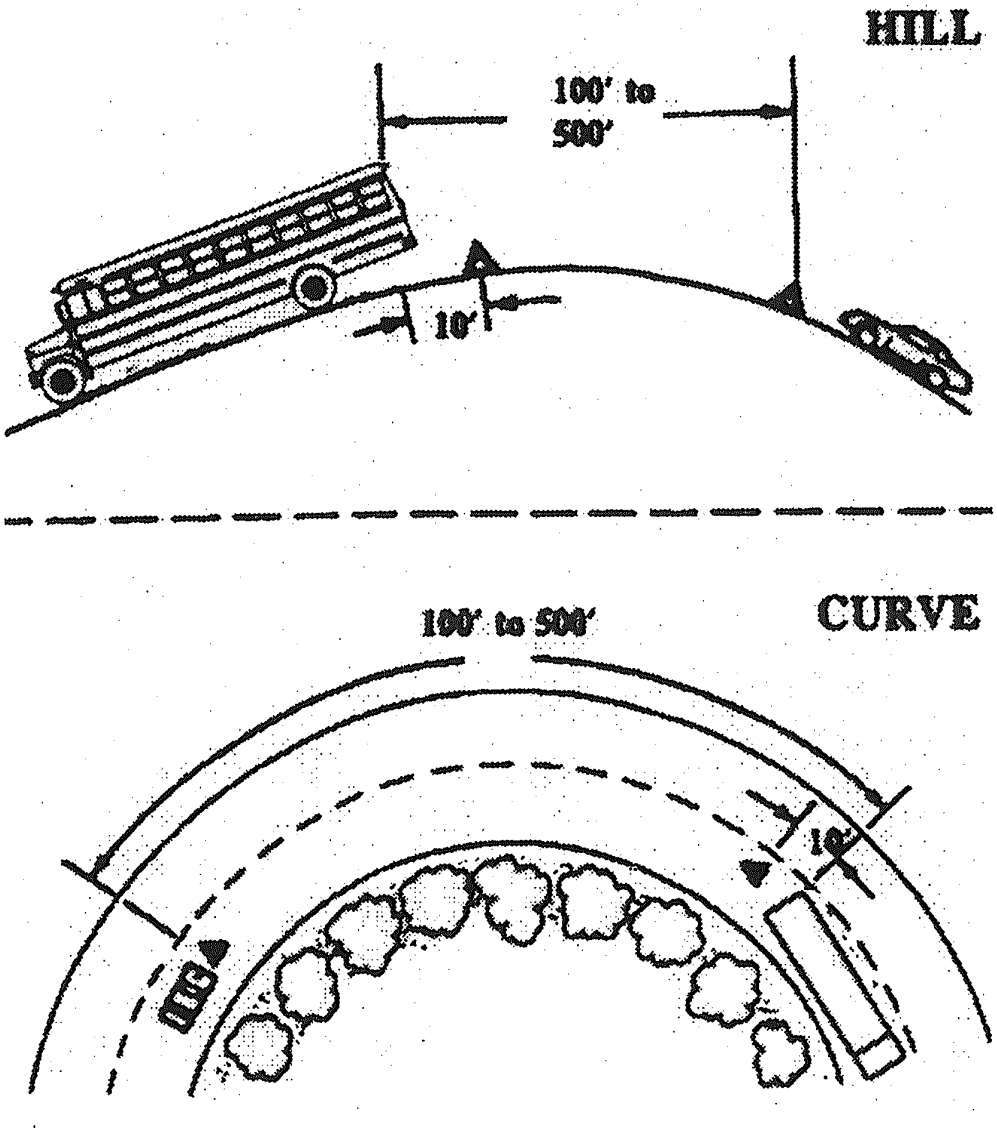
crashed into the rear of a parked vehicle because they thought it was moving normally.

If you must stop on a road or shoulder of a road, set your emergency reflective triangles within 10 minutes. Placement should be at the following locations:

- On the traffic side of the vehicle, within 10 feet from the front or rear corners to mark the location of the vehicle.
- About 100 feet behind and ahead of the vehicle, on the shoulder or in the lane you are stopped in. (See figure below).

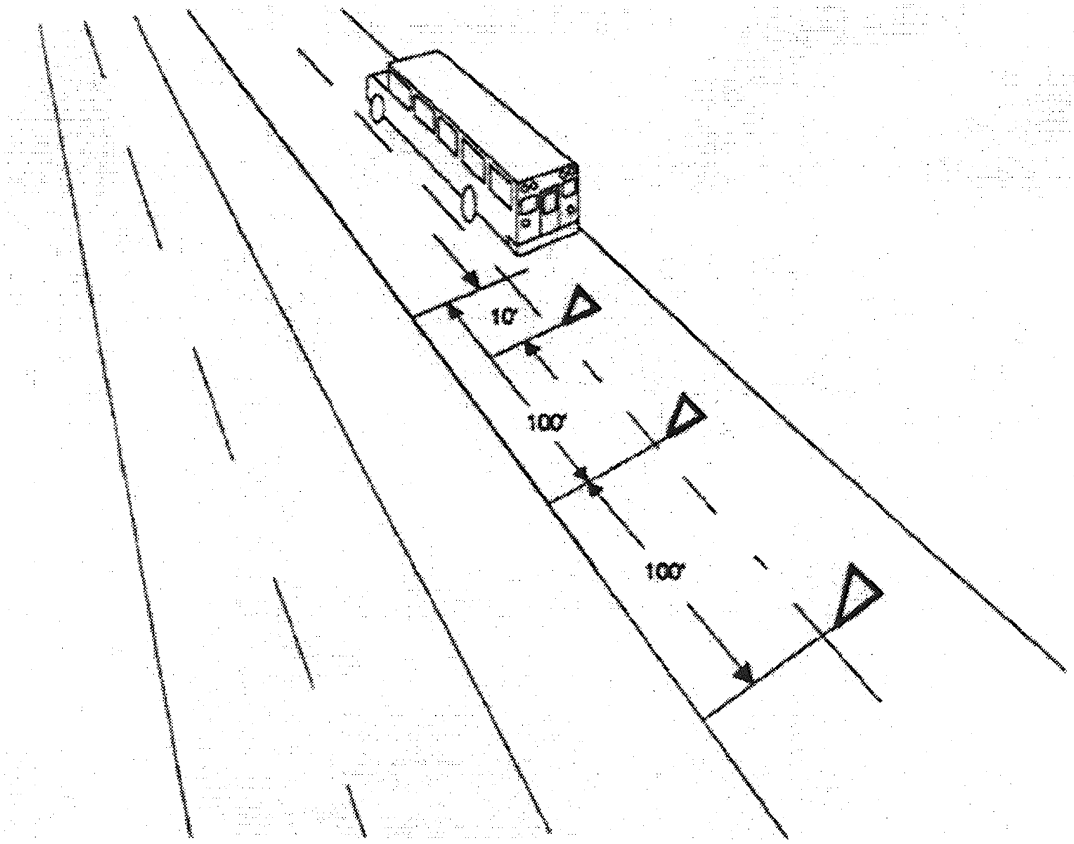


Back beyond any hill, curve, or other obstruction that prevents other drivers from seeing the vehicle within 500 feet. (See figure below).



Reminder: If the line of sight is obstructed due to a hill or curve, move the rearmost triangle to a point giving adequate warning.

If you must stop on or by a one-way or divided highway, place warning devices 10 feet, 100 feet, and 200 feet toward the approaching traffic. (See figure below)



When placing the triangles, hold an assembled triangle toward the oncoming traffic. This enhances safety by increasing visibility to other drivers (especially at night).

When the triangles are unfolded for use, the weighted base must be turned so it makes a cross with the bottom of the triangle to keep the triangle from tipping over.

Fire Extinguisher – The bus shall be equipped with at least one pressurized 5-pound, dry-chemical fire extinguisher of a type approved by UL, with a total rating of not less than 2A10BC. The operating mechanism shall be sealed with a type of seal that will not interfere with use of the fire extinguisher. [1 CCR 301-25, 2251-R-59.01]

> ***The fire extinguisher contains a dry powder that can become compacted. Remove the extinguisher occasionally and shake upside down several times to loosen the compacted powder to make the extinguisher more effective.***

Fire extinguisher shall be mounted in the extinguisher manufacturer's bracket (automotive type) and located in the driver's compartment in full view of, and readily accessible to the driver. A pressure gauge shall be mounted on the extinguisher as to be easily read without removing the extinguisher from its mounted position. [1 CCR 301-25, 59.01 (a)]

Fire Extinguisher Operation

- Hold the extinguisher upright. It should not be held on its side when operating.
- Twist and pull safety pin, breaking seal.
- Squeeze handle to discharge powder. Aim at the base of the fire closest to you and progress forward, moving the discharge cone from side to side in a sweeping motion.
- Turn extinguisher on and off as desired to control the fire.
- After use, report extinguisher for replacement or recharge.

With engine fires, never open the hood, it could cause a flashback. Do your best to direct the fire extinguisher stream through grill or under fenders.

If possible, stand upwind from burning material to prevent standing in smoke and heat. Avoid standing near areas of flammable, unburned materials that could catch fire in a flashback.

The fire extinguisher is to help you safely evacuate students from a burning vehicle. It does not have sufficient capacity to extinguish a major vehicle fire.

Reminder: Safety of the students is your first priority, not the fire!

First Aid Kit(s) - 1 CCR 301-25, 2251-R-59.02 - The bus shall carry a first aid kit which shall either be mounted securely in full view or the location plainly indicated by appropriate markings, in the drivers compartment. Additional kits may be installed. The kits shall be mounted in such a manner that they can be removed, if necessary.

1 CCR 301-25, 2251-R-59.02(a) - The kit shall be sealed. The seal verifies the integrity of the contents without opening the kit. The seal shall be designed to allow easy access to the kits content.

Contents of the 24 unit First Aid Kit:

Item	Unit(s)
Adhesive Tape	1
1" adhesive bandage	2
2" bandage compress	1
3" bandage compress	1
4" bandage compress	1
3" x 3" plain gauze pads	1
Gauze roller bandage 2" wide	2
Plain absorbent gauze - 1/2 square yard	4
Plain absorbent gauze - 24" x 72"	3
Triangular bandages	4
Scissors, tweezers	1
Space rescue blanket	1
Non-Latex disposable gloves, pair	1
CPR mask or mouth to mouth airway	1
Moisture and dustproof kit of sufficient capacity to store the required items.	

Caution: Replace gloves on a yearly basis. Be aware that people can be allergic to latex. Never administer medicines, ointments, sprays, or other chemicals.

Body Fluid Cleanup Kits - Body fluids of all persons should be treated as if they contain infectious agents (germs). The term “body fluids” includes blood, semen, drainage from scrapes and cuts, feces, urine, vomit, respiratory secretions (e.g. nasal discharge) and saliva. Contact with body fluids presents a risk of infection with a variety of germs. However, in general, the risk is very low and dependent on a variety of factors including the type of fluid with which contact is made. Put on disposable

gloves prior to the clean up process. Body fluids must be contained or removed immediately, using established district procedures. Wash contacted area with warm, soapy water as soon as possible. [1 CCR 301-25, 2251-R-59.04]

Contents For Body Fluid Cleanup Kit:

Item	Unit(s)
Antiseptic towelette	1
Disinfectant towelette	1
Absorbing powder(capable of ½ gallon absorption)	1
Non-latex disposable gloves, pair	1
Disposable wiper towels	2
Disposable scoop bag with closure mechanism and scraper	1
Moisture and dustproof kit of sufficient capacity to store the required items.	

Supplies to be disposed of must be secured in the scoop bag and placed in a hazardous materials (haz-mat) container. A second bag is required if items must be placed in a container other than an approved haz-mat receptacle. Replenish supplies as soon as possible after they are used.

11.4. SMALL VEHICLE REQUIRED EMERGENCY EQUIPMENT

1 CCR 301-25, 2251-R-59.05(a) - Three (3) emergency triangle reflectors in a securely mounted case.

1 CCR 301-25, 2251-R-59.05 (b) - One 24 unit first aid kit meeting the same list as the school bus.

1 CCR 301-25, 2251-R-59.05 (c) - The small vehicle, shall be equipped with one securely mounted 2½ pound dry chemical fire extinguisher of a type approved by UL, with a minimum rating of 1A10BC.

1. **Optional Emergency Equipment may include:**
    - Blankets
    - 2-way radio, cellular phone
    - Emergency information forms
    - Accident check list
    - Student list
    - Flashlight

- Disposable mask
- Bag of salt, kitty litter, or sand

2. **Documents** - If involved in an accident, the investigating officer may ask the driver to provide:
   - The appropriate driver's license
   - DOT medical card
   - Proof of insurance
   - Vehicle registration
   - Pre-trip documentation
   - Current CDE Affidavit of Annual Inspection

3. **Emergency Packet** – Your District may require additional information.
   - Seating Charts (2)
   - CDE Accident Form, Stu-5
   - Exchange of Information Form
   - Witness Information Form

11.5 EMERGENCY PROCEDURES

Despite good design, engineering, and preventative maintenance programs, there may be mechanical failures. The driver should do the following in case of a bus breakdown:

11.5.a Mechanical Failure/Breakdown Procedure

1. Stop the bus as far to the right of the road as possible or on the shoulder of the road, as conditions permit.
2. Activate 4-way hazard lamps, if operable.
3. Keep passengers in the bus unless conditions are unsafe.
4. If location of the bus is unsafe, evacuate the children to a safe place away from traffic. Conditions such as possibility of fire, bus stalled on railroad tracks or other dangers may warrant evacuating the students.

Reminder: If emergency conditions exist, evacuate the students first and then worry about securing the external area around the bus.

5. Notify your school authorities, giving bus number, location of the bus, description of the breakdown and if you have to evacuate the vehicle.
6. Place emergency triangles as specified previously in this unit.

11.5.b Accident Procedures

In the case of an accident the driver should:

- Stop and secure the vehicle immediately.
- Activate 4-way hazard lights, if operable.
- Remain at the scene of the accident (there is a severe penalty for any person convicted of leaving the scene of the accident).
- Make certain all passengers are safe. If it is determined that it is unsafe to keep passengers inside the school transportation vehicle, evacuate the passengers to a safe place, away from traffic.
- Notify the proper law enforcement authority and school administrator immediately. If necessary, request emergency medical assistance. On accident alert days, follow the reporting procedures as set out by the local law enforcement agency.
- Check for injuries; render any person injured in the accident reasonable assistance. *Remember: Never do more than you are trained to do.*
- Remain alert regarding fire or the possibility of fire in any of the vehicles involved in the crash.
    - Check for ruptured fuel tank and fuel lines.
    - Check for electrical fire.
    - Check for hot tires that may catch fire. This is caused by metal rubbing against a tire from impact to the final resting place.
- Mark the scene with emergency reflective triangles as specified earlier in this unit if possible.
- Information such as names, license numbers, registration numbers, location, time, road and weather conditions, insurance information, and witnesses, should be obtained and accurately written down.
- If possible, a transportation staff member should be at the scene to render assistance and take pictures.

Do not move the bus unless instructed by a law enforcement officer/fire department or as posted.

Exceptions: C.R.S. 42-4-1602 (2). When an accident occurs on the traveled portion, median, or ramp of a divided highway and each vehicle involved can be safely driven, each driver shall move such vehicle as soon as practicable off the traveled portion, median, or ramp to a frontage road, the nearest suitable cross street, or other suitable location.

If vehicles have to be moved, mark the pavement around each tire, if possible.

Never admit fault, but be cooperative with the investigating officer. Provisions will need to be made for transporting children to their homes or to school.

1 CCR 301-26, 4204-R-210.02 - When a bus approaches the scene of an accident in which the school transportation vehicle is not involved, the operator should determine the necessity of being of assistance and provide reasonable assistance. Thereafter, immediately continue on the routine schedule.

Remember: Never do more than you are trained to do.

11.6 SCHOOL BUS EMERGENCY EVACUATIONS

Planning for emergencies and knowing what to do at the time of an emergency will prevent panic and confusion. When a large number of passengers are moving rapidly to evacuate a bus, there is always the possibility of panic and injury. The safety of the students is to be given first priority. In the majority of emergency situations, the bus is the safest place for the passengers unless extenuating circumstances warrant evacuation from the bus.

The following are examples of serious types of emergencies that may require emergency evacuation. In most cases, the front door evacuation is the safest.

- **Front-end accidents** - Determine which of the exits may be used.
- **Rear-end accidents** - Follow the same procedures for a front-end accident. Do not use the rear exit. Look for fire.

- **Broadside accidents** - Determine which exit may be used. Follow the same procedures as for front/rear-end accidents.

- **Rollover accidents** - Remain as calm as possible; use rear exit, roof hatches, if available, and windows along top if they are free of broken glass. If fire does not exist and the bus is not lying on the front door side, this exit may also be used. Follow steps outlined for front/rear-end evacuation.

- **Fire** - Follow the evacuation procedures outlined for rear-end and front-end accidents. Use the exit furthest from the fire. DO NOT PANIC. Many injuries are caused by panic rather than by fire itself. This can be avoided if everyone stays calm.

- **Railroad crossing** - Use front-end or rear-end accident evacuation procedures. Stay clear of all traffic, and keep students in a group. DO NOT re-enter the bus. Have students move away from tracks, in the direction of the oncoming train at a 45° angle from the tracks.

- **Blizzard** - (visibility zero). Remember, it is warmer inside than out.

- **Flood waters** - Remain calm. Do not drive through water rushing across the roadway unless instructed to do so by a law enforcement officer. If the vehicle stalls during a water crossing, notify dispatch. Evacuate passengers if situation warrants. What is the safest option for the students?

Reminder: Under no circumstances should any student move another student who is injured without the permission of the bus driver or emergency responder attending the accident. The driver needs to be aware of language barriers and prepare ahead of time to address the situation.

11.6.a General Procedures for Evacuations

Follow these general procedures in any evacuation. Above all—remain calm.

Evaluate the situation.

- Is evacuation necessary?
- Injuries?
- Which exit is best to use?
- Determine a safe waiting area.
- Notify proper authorities.

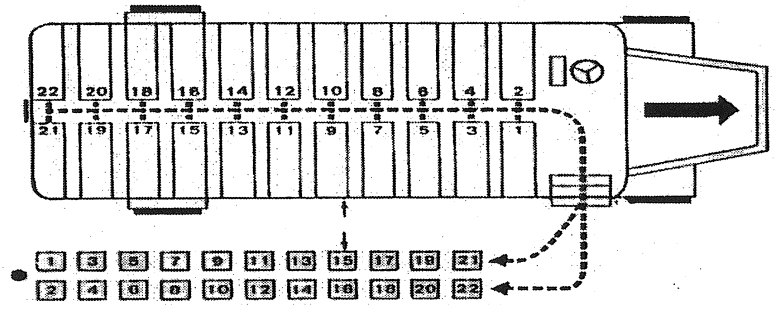
There may be different procedures and practices between practice drills and real evacuations.

Secure Vehicle (all drills)

- Set park brake.

- Put transmission in reverse (manual) or neutral (automatic) or Park if so equipped.
- Turn off engine.
- Turn on 4-way hazard lamps (if operable).
- Determine which door is best to use for the evacuation.
- Know the number of students on the bus.

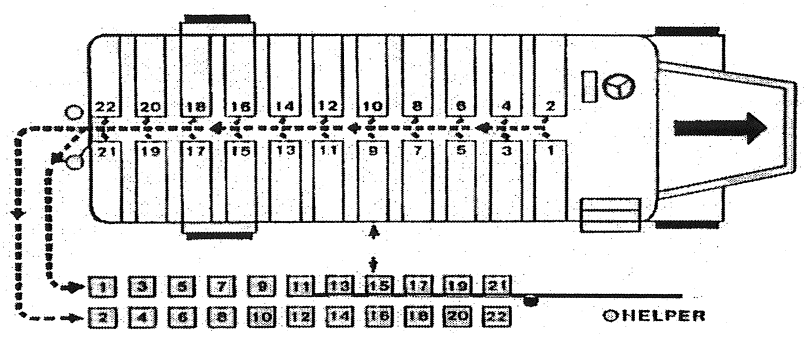
11.6.a (i) Front Door Evacuation



Emergency Evacuation Using Front Door

- Notify the proper authorities and school administrators as soon as possible.
- Driver should stand and face students.
- Get students' attention - speak clearly and concisely.
- Announce - "Remain seated, emergency evacuation, front door." Tell students the location of the safe waiting area, at least 100 feet or more from the bus and roadway. All belongings are to be left on the bus. Students should be supervised, if possible.
- Evacuate the bus by dismissing students. Driver should move backwards down the aisle, dismissing the students row by row.
    - If possible, give the first aid kit(s) to the first two responsible students exiting the bus. Do not impede the flow of the students exiting.
    - Begin at the front of the bus, starting at the right side; alternate side-to-side, row by row, until students have exited the bus.
- Check each seat as you move back to the front of the bus to make sure all students have evacuated the bus.
- Account for all students.
- Render first aid if necessary.

11.6.a (ii) Rear Door Evacuation



Emergency Evacuation Using Rear Door

Use the rear door when front door evacuation is impossible or unsafe to use, or when it is imperative to evacuate as quickly as possible by using rear exits.

- Notify proper authorities and school administrators as soon as possible.
- Announce, “Remain seated, emergency evacuation, rear door.” Tell students the location of the safe waiting area. All belongings are to be left on the bus.
- Assign two (2) “helpers” to assist students. Have them “sit” on the floor at the emergency door and “scoot” out of the door onto the ground. One helper is positioned with their back to the emergency door, so door will not swing against the students. The other helper is positioned on the other side of door area.
- Helpers need to hold a hand open, palm upward and extended for the student to place his/her hand on it. The other hand will support the upper part of the arm of the student to minimize the possibility of the student falling forward.

Helpers are very important in preventing injuries when exiting the bus from the rear door.

- Evacuate the bus by dismissing students. Driver will move backwards from rear row of seats, dismissing students row by row.
- Begin at the back row and continue to the front; alternate side-to-side, row-by-row, until students have exited the bus. If possible, give the first aid kit(s) to the last two responsible students when they are out of the bus.

- Students should sit at the rear door, then scoot through the door onto the ground with the helper assistance.
- Students should walk to the safe waiting area.
- Check all seats for students as you move towards the back of the bus.
- Have the helpers “assist” you out of the rear of the bus.
- Account for all students.
- Render first aid as necessary.

11.6.a (iii) Emergency Evacuation - Front & Rear Doors (Combined)

Follow procedures outlined for both front door and rear door evacuations. (Driver will not be able to dismiss the rows.)

The fastest method for bus evacuation is the combined evacuation, using front and rear doors.

11.6.a (iv) Side Door Evacuation

Follow the above procedures for a rear door evacuation with the following exception to dismissing the students:

Begin at the seat nearest the exit, approximately 6th from the rear. Work to the rear alternating side-to-side, (a closed space), then return to seat immediately in front of the rear side exit and work to the front alternating side to side.

Using a side door exit is a more difficult evacuation procedure because of the height of the door from the ground. With small children you might have to assist them from the door to the ground.

11.6.a (v) Emergency Evacuation Using Side & Front doors

Begin at the seat nearest the side exit, work to the rear alternating side to side (a closed space). Use a helper to evacuate front door students. Driver should return to the front of the bus, check for students while exiting through the front door.

11.6.a (vi) Emergency Evacuation - Students With Special Needs

Care should be taken to plan for students with special needs who are riding on the bus. Know procedures to be followed to safely evacuate each student. It is advisable to talk to parents or guardians of the students with disabilities to properly plan for an emergency evacuation. Teachers and school staff who work with these students can also help communicate the individual needs of each child. The CDE Guidelines for Transporting Students With Disabilities gives guidelines for preparing an evacuation plan. Responsible students may be assigned to help a student with special needs get to a safe area away from the bus, traffic and other dangers. The plan should address each student's characteristics and abilities. A written plan should be developed, maintained with the route sheet, and out of sight of everyone who may get on the bus. All drivers should be familiar with where the plan is located and review it prior to departing on a route.

11.7 EMERGENCY EVACUATION DRILLS REQUIRED

1 CCR 301-26, 4204-R-216.00 Emergency Evacuation Drills

216.01 Emergency evacuation drills shall be conducted at least twice during each school year for route operators and students who are transported the day of the drill.

216.01 (a) One drill shall be through the emergency door(s) unless district/service provider policy precludes such practice.

216.01 (b) One drill shall be conducted in the fall and the second drill conducted in the spring.

216.01 (c) Substitute and activity trip operators of 16 or greater capacity vehicles shall be involved in the drills.

216.02 Students on activity trips shall receive emergency evacuation instruction prior to departure.

216.03 Records shall be maintained documenting that the required evacuation drills were conducted or evacuation instruction was given.

Students should know the location of the first aid kits, how to shut off the engine, and set the park brake; unless disabilities of students preclude this.

The emergency evacuation drill should be as close to the real thing as possible. The drill should be discussed with the students prior to the day of the drill. The drill should follow the evacuation procedures for the appropriate exit(s) used. When possible, make sure to include students with special needs in the discussion, as well as having them participate in the actual drill. If you wish to include students with special needs in the drill, get permission from parents/guardians.

Stand, facing students and tell them they are having an emergency evacuation drill. Remind students to leave books, lunches, etc., on the bus. The drill should be timed. Most important is how the students exit the bus; calmly, orderly, and following directions. When the drill is over, have the students get back on the bus. Spend a few moments discussing the drill. Point out the positive things that occurred and discuss ways to improve the drill.

11.8 MEDICAL EMERGENCIES

CHECK - the student's condition.

CALL - the appropriate district representative. Give bus/route number, location, and type of emergency.

CARE - administer first aid, if necessary, until assistance arrives.

Refer to the CDE 1st Aid Guide For School Bus Drivers and Bus Assistants found in Unit 14.

UNIT TWELVE – SMALL VEHICLE TRAINING

This section, ACTIVITY TRIP SMALL VEHICLE/MULTFUNCTION BUS OPERATOR RULES FOR THE OPERATION OF SCHOOL TRANSPORTATION VEHICLES, 1 CCR 301-26 through the end of the unit is designed to be removed and copied for the district small vehicle training.

"What type of training does transportation provide and how does the department make that decision?" The first step to answer this question is to understand the types of vehicles and the type of operation that will be provided to the student. Small vehicle operators can operate three types of vehicles; the Type A bus, a multi-function bus of 15 or less capacity, or a small vehicle. A person transporting students to an activity may do this provided they meet all of the Small Vehicle Operator requirements. If the transportation required is a route, the driver must meet all of the route operator requirements found in 1 CCR 301-26, 4204-R-202.01 and 1 CCR 301-26, 4204-R-207.00. The district may have additional requirements that must also be met.

The definitions of types of vehicles, route, and many other definitions can be found in the School Transportation Glossary located in Unit 16.

12.1 TYPES OF VEHICLES

Type A Bus – School bus is a conversion body constructed upon a van-type compact truck or a front-section vehicle chassis, designed for carrying passengers with a driver side door. The vehicle will be under 21,001 pounds GVWR.

Multi-Function Bus – a motor vehicle built to federal school bus standards. Usually a different color and does not have the 8-way light system or stop arm.

Small Vehicle – a motor vehicle that does not meet the requirements of a Type A, B, C, or D school bus. A small vehicle is designed for normal use by the general public. Students may be transported by a small vehicle on route or activity trip.

School districts shall inspect or have inspected annually all school transportation vehicles. Recently purchased school transportation vehicles shall have a CDE annual inspection before they are placed in service transporting children. (1 CCR 301-29, 2251-R-3.01) This includes small vehicles. The inspection must be accomplished by a CDE certified Annual Inspector

.

There are two sets of rules that apply directly to the small vehicle operation.

1 CCR 301-25, Colorado Minimum Standards Governing School Transportation Vehicles. These rules spell out the minimum requirements of the vehicle.
1 CCR 301-26, Rules for the Operation of School Transportation Vehicles. These rules spell out the minimum requirements of the driver. (Activity Trip Small Vehicle Rules have been extracted from the main document)

The small vehicle requirements – At a minimum the vehicle must have a CDE Annual Inspection, carry a 2 ½ pound dry chemical file extinguisher of a type approve by UL and rated for 1A10BC, three emergency triangle reflectors in a securely mounted case, and a 24 unit first aid kit. At the beginning of each day, prior to transporting students, the vehicle must have a pre-trip inspection. This must be accomplished by either the driver or an authorized district person.

The driver requirements – At a minimum the driver must meet the following requirements to transport students. They must possess a valid operator's license, be 21 years of age, provide an MVR meeting the insurability requirements of the district and/or insurance carrier, medical history (STU 17) with Dr. release for any yes answer, and complete an annual written test. When initially qualifying, the driver must pass a driving performance test. The driver must be able to perform all essential functions of the position.

Proof of these requirements must be kept on file in the transportation department. Each person must have a training outline that lists what training was accomplished, what date, how long did the training last and this should be signed by the instructor and the trainee. The structure of the small vehicle operator file is up to the district; it can be by year with everyone in one file, or by person.

12.2 TYPES OF TRAINING

Pre-service training - The activity trip/small vehicle operator shall be provided with a pre-service training program, including training appropriate to type of vehicle to be operated, written test, first aid information, adverse weather information, mountain driving information, and a driving performance test. The small vehicle operator does not have to take the adverse weather or the mountain driving written tests nor are they required to have a current first aid certificate. These are minimum requirements. The district may have additional requirements. Questions have been incorporated into the small vehicle test to cover all areas of the required training.

Re-certification training – The operator must take the CDE Small Vehicle written test annually. Annually, a medical information form (STU 17), and a current, approved, MVR must be submitted prior to authorization to drive students.

Pre-Trip

Training should be provided concerning pre-trip procedures for the type of vehicle to be operated. District procedure for reporting defects should be part of the pre-trip training. The operator of any school transportation vehicle will report the defects that are observed while the vehicle is assigned to the operator.

12.3 HOURS OF SERVICE

The small vehicle operator is required to meet the "Hours of Service" (HOS) rules outlined in 1 CCR 301-26, 4204-R-229.00. It should be documented on the trip form that the operator certifies compliance with the HOS rules.

The district should not require the driver to operate a vehicle if there is any portion of the HOS rules that the operator feels they are not in compliance with. The operator must be able to complete the trip under normal circumstances without violating this rule in order to be authorized to drive the trip.

Duty time is for any and all employers. Some examples of duty time are teaching, coaching, to include practice or games, tutoring students or working for an outside employer. All of this time added together cannot exceed any of the requirements of 229.00.

12.4 EMERGENCY PROCEDURES

The small vehicle operator should be trained in emergency procedures and location of emergency equipment should be identified. Evacuation procedures for the type vehicle being driven will be given to the students prior to departing on each trip. This should be documented on the trip form.

12.5 RAILROAD CROSSINGS

All small vehicle operators driving a Type A or multi-function bus must stop at all railroad crossings when carrying passengers or empty. Small vehicle operators do not stop at railroad crossings. (1 CCR 301-26, 4204-R-209.00) If it looks like a bus, it must stop.

12.6 OTHER APPLICABLE RULES

All small vehicle operators must follow the procedures outlined for Accident or Breakdown procedures. (1 CCR 301-26, 4204-R-210.00)

The small vehicle operator shall not exceed the posted speed limit, and when appropriate, use reasonable judgment to drive at a speed within the existing operating conditions. The small vehicle operator shall observe the 300 foot following distance when traveling in convoy.

ACTIVITY TRIP SMALL VEHICLE/MULTIFUNCTION BUS OPERATOR

RULES FOR THE OPERATION OF SCHOOL TRANSPORTATION VEHICLES

1 CCR 301-26

July 1, 2009

4204-R-200.00 Statement of Basis and Purpose

200.01 Colorado law provides for the State Board of Education to adopt and enforce regulations governing the safe operation of school buses used for the transportation of students pursuant to 42-4-1904 and 22-51-108, C.R.S.

200.02 The purpose of these amendments is to reflect recommendations from the National School Transportation Specifications and Procedures, Colorado State Patrol's Motor Carrier Safety Regulations, and other input from the School Transportation Unit and school districts/service provider transportation professionals.

200.03 Pursuant to 22-32-113, C.R.S., the board of education of a school district is authorized but is not required to furnish student transportation home to school, school to school, school to home, and on school sponsored activities. Public school districts may be subject to federal and state requirements relating to transportation for eligible students with disabilities and students meeting the definition of homeless.

200.04 These rules shall become effective July 1, 2009, for all student transportation.

4204-R-201.00 Applicability of Rules

201.01 These rules and regulations apply to all school transportation vehicle operators (school bus, multifunction bus, and small vehicle) transporting students to and from public school, school to school, or to school related events in vehicles, owned, leased, or rented by the district or under agreement with the district. Refer to The Colorado School Transportation Glossary and Colorado Minimum Standards Governing School Transportation Vehicles, 301-25, for definitions of the different types of school transportation vehicles.

201.01 (a) An agreement is payment to a service provider furnishing a scheduled service to students at least once per week.

201.02 These rules are not intended to include:

201.02 (a) Private motor vehicles used exclusively to carry members of the owner's household; or

201.02 (b) Transportation arrangements not authorized by the district including but not limited to; sharing of actual gasoline expense or participation in a car pool; or

201.02 (c) The operation of vehicles in emergency situations consistent with policies of the local board of education; or

201.02 (d) Student transportation under public transportation programs complying with 49 CFR 390 to 397. [22-51-104(1) (c)]

4204-R-202.00 School Transportation Vehicle Operator Classifications

202.01 Route operator: Route operators regularly transport students home to school, school to school and school to home. (Does not pertain to Activity Trip Small Vehicle operator)

202.02 Activity trip operator: Activity trip operators transport students to and from events sanctioned by the school district other than route operation as defined in 202.01.

202.02 (a) Small vehicle and multifunction bus (14 or less passenger capacity) activity trip operators shall meet or exceed the following requirements before transporting students:

(1) Possess a valid operator's license.

(2) Be a minimum of 21 years of age.

(3) Annual motor vehicle record check (refer to 207.02).

(4) Pre-service operator training for type of vehicle (refer to 207.04).

(5) Annual CDE small vehicle written test [refer to 207.06(b)].

(6) Shall meet qualification standards and insurance coverage as adopted by the local board of education/service provider.

(7) Medical history shall be provided annually on a CDE approved form. Any yes annotations shall require a doctors qualification.

(8) A driving performance test shall be part of initial certification.

(9) Documentation of activity trip operator qualifications shall be maintained by the district/service provider.

(10) Training topics, date, and duration shall be documented.

202.02 (b) Activity trip operators of greater than 15 passenger capacity vehicles shall meet or exceed the requirements for route operator (202.01).

4204-R-203.00 Commercial Driver's License (CDL) Endorsement

(Does not pertain to Activity Trip Small Vehicle operator)

4204-R-204.00 Para-Professionals

(Does not pertain to Activity Trip Small Vehicle operator)

4204-R-205.00 Physical Standards

205.01 (Does not pertain to Activity Trip Small Vehicle operator)

205.02 (Does not pertain to Activity Trip Small Vehicle operator)

205.03 (Does not pertain to Activity Trip Small Vehicle operator)

205.04 (Does not pertain to Activity Trip Small Vehicle operator)

205.05 School transportation vehicle operators, para-professionals, and bus assistants are required to be able to perform all essential functions including emergency evacuations when transporting students as determined by district/service provider job description or physical performance test.

205.06 School transportation vehicle operators, who have medical conditions which result in temporary loss of performance abilities as addressed in 205.05, shall provide satisfactory medical proof of restoration of health to the employing school district/service provider.

205.07 The employing school district/service provider has the authority to require at any time a medical evaluation of school transportation vehicle operators for any condition that could impair the operator's ability to operate the vehicle safely, and may take appropriate action on the outcome of such evaluation.

205.08 School transportation vehicle operators requiring vision correction by eyeglasses or contact lenses, shall be required to wear them at all times while operating the school transportation vehicle.

205.09 School transportation vehicle operators requiring hearing correction by a corrective device, shall be required to wear the properly functioning device at all times while operating the school transportation vehicle.

4204-R-206.00 Character Requirements

206.01 The school transportation vehicle operator character requirements shall be specified by the school district/service provider.

4204-R-207.00 Operator Requirements

(The following requirements are referenced in section 202.00.)

207.01 (Does not pertain to Activity Trip Small Vehicle operator)

207.02 Prior to operating a school transportation vehicle, and annually thereafter, a copy of the motor vehicle record shall be approved, meeting the requirements of the local board of education/service provider/insurance carrier and placed in the driver qualification file.

207.03 (Does not pertain to Activity Trip Small Vehicle operator)

207.04 The activity trip/small vehicle operator shall be provided with a pre-service training program including training for:

- Type of vehicle
- First aid information
- Adverse weather information
- Mountain driving information
- Driving performance test

207.04 (a) This shall be documented with topics, date, and duration.

207.05 (Does not pertain to Activity Trip Small Vehicle operator)

207.06 The operator shall pass the following appropriate written tests.

207.06 (a) (Does not pertain to Activity Trip Small Vehicle operator)

207.06 (b) Current CDE small vehicle written test during the pre-service training and annually thereafter for small vehicle route or activity trip operator level.

207.06 (c) (Does not pertain to Activity Trip Small Vehicle operator)

207.06 (d) (Does not pertain to Activity Trip Small Vehicle operator)

207.07 (Does not pertain to Activity Trip Small Vehicle operator)

207.08 All training required by section 207.00 shall be documented by the district/service provider.

4204-R-208.00 Student Medical Information

208.01 Medical and behavioral information as it relates to student transportation must be on file with the transportation department prior to the first day of service. This shall include medical and behavioral plans. [IDEA sec. 300.342(b) (2) and (3)]

(While transporting on activity trips, this information may be maintained by the activity sponsor on the trip.)

4204-R-209.00 Railroad Crossings

209.01 The following rules shall apply to all school/multifunction buses, whether transporting students or not, during the process of approaching, stopping, and crossing of railroad tracks.

209.01 (a) The four-way hazard lamps shall be activated not less than 200 feet from the railroad crossing to alert other motorists of the pending stop for the crossing.

209.01 (b) When stopped, the bus shall be as far to the right of the roadway as possible, and shall not form two lanes of traffic unless the highway is marked for four or more lanes of traffic.

209.01 (c) The bus shall be stopped within 50 feet but not less than 15 feet from the nearest rail.

209.01 (d) A prearranged signal shall be used to alert students to be quiet aboard the bus when approaching and stopped at railroad tracks. Turn off all noise making equipment (fans, heaters, radio, etc).

209.01 (e) After quietness aboard the stopped bus has been achieved, open the service door and operator window, listen and look in both directions along the track(s) for any approaching train(s) and for signals indicating the approach of a train.

209.01 (f) If the tracks are clear, the service door shall be closed prior to placing the bus in motion, the bus may then proceed in a gear low enough to permit crossing the tracks without having to shift gears. Hazard lamps shall be turned off after the bus has cleared the tracks.

209.01 (g) When two or more tracks are to be crossed, do not stop a second time unless the bus is completely clear of the first crossing and has at least fifteen (15) feet clearance in front and at least fifteen (15) feet clearance to the rear.

209.01 (h) Before crossing the tracks, ensure there is adequate clearance on the other side of the tracks and train right-of-way for the entire length of the bus plus 15 feet in case the bus must stop.

209.02 Buses are not required to stop at crossings controlled by an "exempt crossing" sign or at crossings controlled by a red, amber, green traffic control signal when it is in the green position, or when crossing is controlled by police officer or human flag person.

4204-R-210.00 Accident/Breakdown Procedures

210.01 The following procedures shall be observed in the case of an accident involving a school transportation vehicle.

210.01 (a) Stop the vehicle immediately.

210.01 (b) Remain at the scene of the accident. If the accident occurred on the traveled portion, median or ramp of a divided highway and each vehicle can be safely moved, move the vehicles to a nearby safe location. [42-4-1602(2), C.R.S.]

210.01 (c) Make certain all students are in a safe place. If it is determined that it is unsafe to keep students inside the school transportation vehicle, evacuate the students to a safe place, away from traffic.

210.01 (d) Render any person injured in the accident reasonable assistance.

210.01 (e) When a school transportation vehicle is involved in a traffic accident, three emergency reflectors shall be set to warn traffic to the distances as specified in 42-4-230, C.R.S.

210.01 (f) Notify the proper law enforcement authority and school administrator/service provider immediately. Request emergency medical assistance as necessary. On accident alert days, follow the reporting procedures prescribed by the local law enforcement agency.

210.01 (g) Information such as names, license numbers, registration numbers, location, time, and road and weather conditions should be obtained and accurately written down.

210.01 (h) Provisions shall be made for transporting students to their homes or school.

210.01 (i) If the accident results in injury requiring treatment away from the scene; death; or the total property damage for the accident equals or exceeds $2,500, the STU-5 form

shall be completed and sent to the CDE within 20 business days.

210.02 When a school transportation vehicle operator approaches the scene of an accident in which the school transportation vehicle is not involved, the operator should determine the necessity of being of assistance, provide reasonable assistance, and thereafter immediately continue on the routine schedule.

210.03 The following procedures shall be observed, in the case of a school transportation vehicle breakdown:

210.03 (a) Make certain all students are in a safe place. If it is determined that it is unsafe to keep students inside the school transportation vehicle, then evacuate the students to a safe place, away from traffic.

210.03 (b) When a school transportation vehicle is broken down, three emergency reflectors shall be set to warn traffic to the distances as specified in 42-4-230, C.R.S.

210.03 (c) Notify the school district administrator/service provider (give location, type of breakdown, etc.).

210.03 (d) Provisions shall be made for transporting students to their homes or school.

4204-R-211.00 Speed Limits

211.01 The maximum school transportation vehicle speed limit shall be as posted and in compliance with the laws and ordinances of the jurisdiction in which the school transportation vehicle is being operated; however, speed should be governed by reasonable judgment and existing operating conditions.

4204-R-212.00 Convoy Distance

212.01 A school transportation vehicle shall not follow another convoy vehicle within 300 feet when traveling outside the corporate limit of a town or city. This is not intended to prevent a school transportation vehicle from passing another motor vehicle.

4204-R-213.00 Substitute Assignment

213.01 A school transportation vehicle operator shall not have the authority to assign a substitute operator without the prior approval of the district/service provider.

4204-R-214.00 Pre-trip Vehicle Inspection

214.01 Each school transportation vehicle shall have a daily pre-trip inspection performed and documented by the school transportation vehicle operator, or a district/service provider authorized transportation employee, prior to the vehicle being placed in service. The pre-trip inspection requirements shall include as a minimum: lights (inside and outside), mirrors, emergency equipment, wheels, tires, wipers, horn, exhaust system, student seating secured and in safe condition, and brake system checks:

- Hydraulic - pump and hold check
- Park brake and service brake on both air and hydraulic systems

Additional inspection items may be determined by the district/service provider.

4204-R-215.00 Repairs and Maintenance

215.01 The district/service provider shall have a system to document defects reported and necessary repairs completed.

215.02 All repairs and regular maintenance shall be documented utilizing a district/service provider designed system within a separate file for each vehicle.

4204-R-216.00 Emergency Evacuation Drills

216.01 (Does not pertain to Activity Trip Small Vehicle operator)

216.02 Students on activity trips shall receive emergency evacuation instruction prior to departure.

216.03 Records shall be maintained documenting that the required evacuation drills were conducted or evacuation instruction was given.

4204-R-217.00 Strobe Lamps

217.01 When a school transportation vehicle is equipped with a roof mounted strobe lamp, the use of the strobe lamp is permitted only when the vehicle presents a hazard to other motorists such as loading or unloading students in inclement weather or to enhance visibility of the vehicle when barriers inhibit such visibility.

217.02 A school transportation vehicle operator may use the strobe, in addition to the hazard lamps, to warn other motorists that the vehicle is not in motion or is being operated at a speed of twenty-five miles per hour or less.

4204-R-218.00 Use of Tobacco Products, Controlled Substances, or Alcohol

218.01 Use of tobacco products, controlled substances, or alcohol aboard any school transportation vehicle shall be prohibited at all times.

4204-R-219.00 Food or Drink

219.01 The school transportation vehicle operator shall not consume food or drink unless the vehicle is stopped at a safe location with the park/emergency brake set.

4204-R-220.00 Backing

220.01 The school transportation vehicle operator shall use extreme caution when backing. Before backing on roadway or school grounds, the horn or audible warning device shall be sounded and hazard lamps actuated.

4204-R-221.00 Towing

221.01 School transportation vehicles shall not be operated with a trailer or other vehicle attached while **st**udents are being transported.

221.01 (a) Exemption: district Vo-Ag program small vehicles meeting the current CDE towing criteria may tow trailers to the extent that trailering is a necessary component of their Vo-Ag program.

4204-R-222.00 Authorized Passengers

222.01 No one except school personnel and students regularly assigned to a school transportation vehicle for a particular route and schedule may ride in such vehicle, unless he or she has received prior authorization from the appropriate district/service provider administrator or designee.

4204-R-223.00 Transportation of Unsafe Items

223.01 School transportation vehicles shall not transport any items, materials, or equipment which in any way would endanger the lives, health, or safety of the students and school transportation vehicle operator. In addition, any item or items, which could break or produce injury if tossed about inside of the school transportation vehicle shall be properly stored or secured to reduce the danger to a minimum. In addition, the school transportation vehicle operator shall make a reasonable and prudent determination that all carry on items are properly handled in order to minimize the danger to all others.

223.02 All aisles and exits shall be clear of luggage and/or equipment when transporting students.

4204-R-224.00 Route Planning

224.01 (Does not pertain to Activity Trip Small Vehicle operator)

4204-R-225.00 Standees

225.01 Students shall not be permitted to stand in any school transportation vehicle while the vehicle is in motion. This does not preclude authorized persons (such as paraprofessionals) from completing their duties as required.

4204-R-226.00 Vehicle Capacity

226.01 The number of passengers transported on any school transportation vehicle shall not exceed the vehicle passenger seating capacity. Small vehicle capacity shall not exceed the number of safety belts as designed by the vehicle manufacturer.

4204-R-227.00 Safety Belts

227.01 A school transportation vehicle operator shall have the safety belt fastened, worn correctly, and properly adjusted whenever the school transportation vehicle is in motion.

227.02 Students in a small vehicle shall have their safety belts fastened, worn correctly, and properly adjusted prior to the small vehicle being put in motion.

4204-R-228.00 Fueling

228.01 School transportation vehicles shall not be fueled while students are on board, except in instances when unloading the students would present a greater hazard or peril to their safety.

4204-R-229.00 Hours of Service for School Transportation Vehicle Operators

229.01 The school transportation vehicle operator, including small vehicle operators, shall not drive nor shall the school district/service provider permit or require an operator to drive:

229.01 (a) In excess of 10 hours or after being on-duty 14 hours until completing 10 hours off duty. This would include on-duty time for all employers. Ten hours off duty may be consecutive or accumulated in two or more periods of off duty time with one period having a minimum of 6 consecutive hours off duty.

229.01 (b) After being on-duty for more than 70 hours in any seven consecutive days.

229.02 A school district/service provider may comply with part 395 of the Federal Motor Carrier Safety Regulations (FMCSR) in place of this section.

229.03 Definitions:

229.03 (a) Adverse driving conditions - In case of emergency, an operator may complete the trip without being in violation if such trip reasonably could have been completed absent the emergency.

229.03 (b) Day - Means any 24-consecutive hour period beginning at the time designated by the school district/service provider.

229.03 (c) On-duty time - Includes all time worked for any and all employers, including all driving and non-driving duties.

229.03 (d) Off-duty time - School transportation vehicle operators may consider waiting time at special events, meal stops, or activity trips as off-duty if the following criteria is met: (compensated waiting time does not necessitate on-duty time)

(1) The operator shall be relieved of all duty and responsibility for the care and custody of the vehicle, its accessories, and students, and

(2) The operator shall be at liberty to pursue activities of his/her choice including leaving the premises on which the bus is located.

229.04 All school transportation vehicle operators shall document that they are in compliance with this section, hours of service.

229.04 (a) An operator's daily log, or equivalent, shall be completed for the trip in the operator's own handwriting, when the trip requires a scheduled or unscheduled overnight stay away from the work reporting location.

229.05 The school transportation vehicle operator shall not transport students, nor shall the school district/service provider require the operator to transport students, while the operator's ability or alertness is so impaired, through fatigue, illness or any other cause, as to make it unsafe for the operator to transport students.

4204-R-230.00 School Buses Operated on Mountainous Terrain

230.01 (Does not pertain to Activity Trip Small Vehicle operator)

4204-R-231.00 Substance Abuse Testing

231.01 (Does not pertain to Activity Trip Small Vehicle operator)

4204-R-232.00 Cell Phones/Two-Way Radios

232.01 School districts/service providers shall have a procedure to govern the use of cell phones and two-way radios by school transportation vehicle operators. This procedure shall include limiting the use of these devices while the vehicle is in motion and restricting the use of personal cell phones.

4204-R-233.00 Service Door

233.01 (Does not pertain to Activity Trip Small Vehicle operator)

4204-R-234.00 Headlight Operation

234.01 The school transportation vehicle's headlights or daytime running headlights shall be activated while the vehicle is in motion.

4204-R-235.00 School District Rules

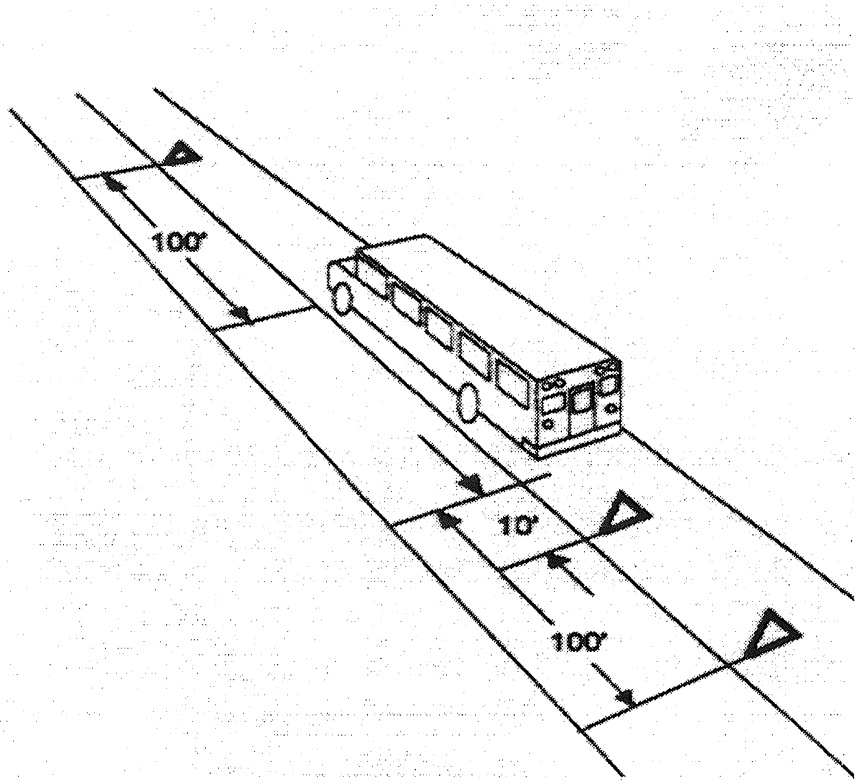
235.01 These rules shall not preclude a school district/service provider from establishing a more rigid standard or policy when deemed necessary by the local board of education/service provider.

PROPER TRIANGLE PLACEMENT

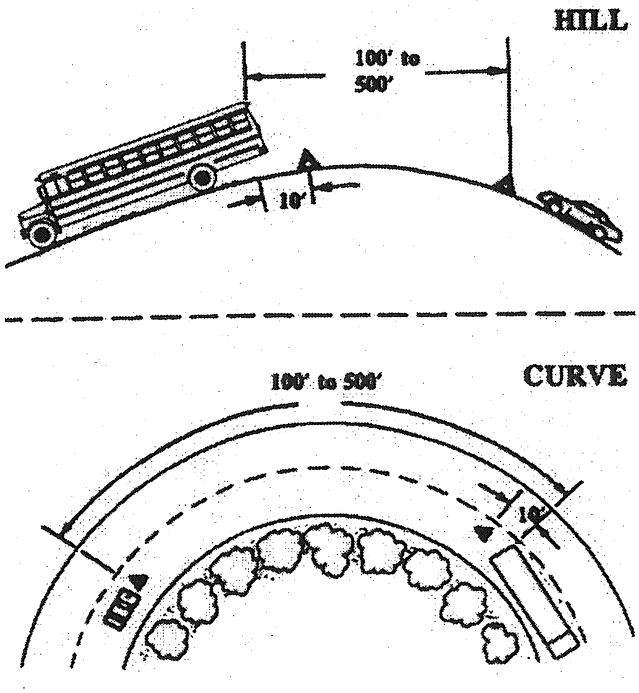
When you pull off the road and stop, activate the 4-way hazard lamps. Taillights may not provide adequate warning to motorists. Drivers have crashed into the rear of a parked vehicle because they thought it was moving normally.

If you must stop on a road or shoulder of a road, set your emergency reflective triangles within 10 minutes. Placement should be at the following locations:

- On the traffic side of the vehicle, within 10 feet from the front or rear corners to mark the location of the vehicle.
- About 100 feet behind and ahead of the vehicle, on the shoulder or in the lane you are stopped in. (See figure below).

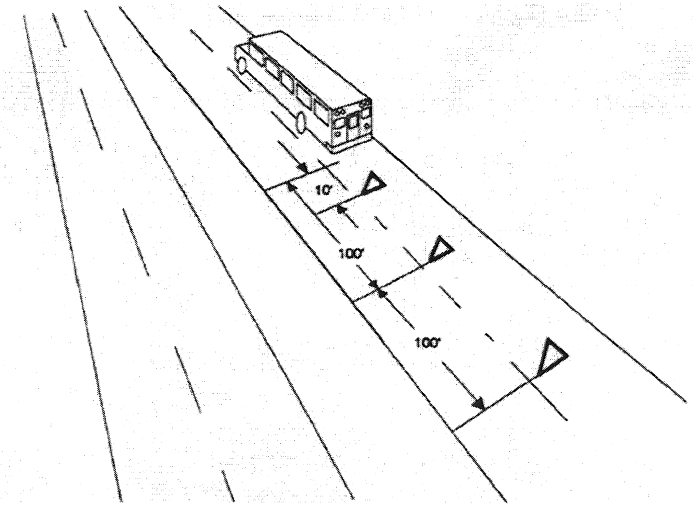


Back beyond any hill, curve, or other obstruction that prevents other drivers from seeing the vehicle within 500 feet. (See figure below).



Reminder: If the line of sight is obstructed due to a hill or curve, move the rearmost triangle to a point giving adequate warning.

If you must stop on or by a one-way or divided highway, place warning devices 10 feet, 100 feet, and 200 feet toward the approaching traffic. (See figure below).



When placing the triangles, hold an assembled triangle toward the oncoming traffic. This enhances safety by increasing visibility to other drivers (especially at night).

When the triangles are unfolded for use, the weighted base must be turned so it makes a cross with the bottom of the triangle to keep the triangle from tipping over.

12.7 FIRST AID INFORMATION FOR SMALL VEHICLE AND MULTIFUNCTION BUS OPERATORS

(July, 2009)

Here is useful information in the event of a medical emergency. Remember these general guidelines:

Be Prepared. Ensure your vehicle has the required first aid kit and it is complete.

Be Calm. Children will react to your anxiety, which can make the situation worse. Reassure your victim that you can help.

Be Smart. Remember that first aid is not a substitute for medical care. Call Emergency Medical Services (EMS) or dial 911 immediately for any serious injury. Notify appropriate school administrator for any injury.

Good Samaritan Law

This law, CRS 13-21-108, was enacted to protect those "who in good faith renders emergency care or emergency assistance." To be protected under this law, a person must not, or expect to be, compensated for services rendered or go beyond your scope of training.

- Ask a conscious victim if you may assist them.
- Use common sense and a reasonable level of skill, not to exceed the scope of the individual's training in emergency situations.

Recognizing an Emergency

The most noticeable indicators of an emergency are abnormal sights, odors, noises, and personal appearances or behaviors. An emergency or serious illness may be difficult to recognize. If you suspect that something may be wrong, check the injured or ill person.

Universal Precautions

Many people are afraid to act in an emergency. They may be concerned they may contract a disease from the injured party. Take steps to minimize the risk of disease transmission. The risk of contracting a disease by administering first aid is very low.

Following basic guidelines can help reduce disease transmission when providing first aid:

- Be prepared by having a first aid kit handy and stocked with protective equipment and supplies.
- Before providing care, use protective barriers, such as eye protection, non-latex disposable gloves or a clean dry cloth, between the victim's body fluids and yourself.

- Avoid contact with body fluids when possible.
- Cover any cuts, sores, scrapes and skin conditions you may have.
- Do not eat, drink or touch your mouth, nose or eyes when giving first aid.
- Do not touch objects that may be soiled with blood or body fluids.
- Wash your hands with soap and water as soon as possible after providing care to a victim.

ALLERGIC REACTIONS

Severe allergic reactions can create a condition known as anaphylactic shock or anaphylaxis. This condition can cause death quickly if not treated immediately. Allergic reactions generally occur quickly, often within seconds or minutes after contact with the allergen.

Signals of an allergic reaction include:

- Red, swollen skin.
- Hives, itching or rash.
- Nausea, vomiting, weakness or stomach cramps.
- Dizziness.
- Trouble breathing, including coughing and wheezing.
- Tingling sensation in mouth or throat – feels like throat is closing
- Low blood pressure.
- Shock.
- Feeling of apprehension
- Swollen tongue or face.

Care:

- Ask if person has allergies and have they been exposed.
- Check the person's airway, breathing and circulation.
- Call 911 if they have trouble breathing or throat is closing.
- Help the person get into a position that is comfortable for breathing.
- Keep them calm.
- Look for a medical ID bracelet.
- If student has an Epi-Pen – assist student with injection into their outer thigh.
- If an Epi-Pen is administered, call 911 and provide pen to emergency responders.

ASTHMA / INHALERS

Asthma may require the use of a bronchodilator (inhaler). Colorado State Statute allows students to carry inhalers and Epi-Pens on the school vehicle.

Signals of an asthma attack include:

Mild: Fatigue, cough, paleness, restlessness

Moderate: Cough, irritability, shortness of breath, increased respiratory rate, audible wheezing.

Severe: Nasal flaring, blue color around mouth and nail beds, extreme breathing difficulty.

Care:

- Help the person sit up.
- Check the expiration date on the inhaler.
- Read and follow any instructions printed on the inhaler.
- Shake the inhaler.
- Remove the cover.
- Have the person place his/her lips tightly around the mouthpiece.
- As the person breathes in slowly, administer the medication by quickly pressing down on the inhaler canister.
- The person should continue to take a full, deep breath and hold it for 10 seconds.

CHOKING

Choking occurs when a foreign object becomes lodged in the throat or windpipe, blocking the flow of air. Choking cuts off oxygen to the brain, administer first aid as soon as possible. If victim is coughing, encourage them to keep coughing. Stay with victim and monitor their progress.

The universal sign for choking is hands clutched to the throat. If the person doesn't give the signal, look for these indications:

- Inability to talk.
- Difficulty breathing or noisy breathing.
- Inability to cough forcefully.
- Skin, lips or nails turn bluish.
- Loss of consciousness.

Care:

- Perform abdominal thrusts until the blockage is dislodged.

- If you are the only rescuer, perform back blows and abdominal thrusts before calling 911.

CUTS AND SCRAPES

- Apply pressure to the cut with clean gauze or towel to control bleeding.
- If dressing becomes saturated, add more gauze and press firmly.
- DO NOT remove any dressing.
- If cut is serious, get medical attention.
- If there is a puncture wound, DO NOT remove the object. Call 911.
- Cover with an adhesive bandage if the cut is in an area that can become dirty easily.

DIABETES

Diabetic emergencies are caused by either too much or too little sugar in the victim's blood. Diabetics usually carry some form of sugar or glucose tablets to take in the event of a diabetic emergency.

Signals of a diabetic emergency include:

- Changes in level of consciousness
- Change in behavior
- Rapid breathing or pulse
- Feeling and looking ill

Mild: Hunger, shaky, sweaty, fast pulse and respiration.

Moderate: Headache, dizziness, impaired vision, confusion, drowsiness.

Severe: Loss of consciousness, seizures.

Conscious Care:

- If student is alert, escort into school/home
- Given them some type of sugar, preferably in liquid form.
- Fruit juices or non-diet sodas can be used as well as sugar dissolved in water.
- Honey sticks or small tubes of frosting work well and are easy to transport.
- Place honey or frosting between the lip and the gums and rub in.
- Call 911 if necessary.

Unconscious Care:

- Call 911 if the person is unconscious or semi-conscious.
- Verify airway is clear.

- Check breathing.
- Monitor signs of life until help arrives.

HEAT EMERGENCIES

Heat related emergencies can range from mild – heat cramps, to life-threatening – heat stroke. You must recognize and give first aid. A victim with mild signs can get worse quickly and develop potentially life-threatening problems, such as heatstroke. Children are especially sensitive to extreme temperatures.

Heat related emergencies include:

Heat Exhaustion

- Muscle cramps
- Sweating
- Headache
- Nausea
- Weakness
- Dizziness
- Thirst

CARE

- Cool the victim with wet towels, water spray and fanning
- Move victim to a cool, shady area
- Give cool liquids immediately

Heat Stroke

- Vomiting
- Fever (over 106°)
- Hot, red, dry skin
- May stop sweating
- Seizures or no response
- Loss of consciousness
- Rapid, weak pulse
- Rapid, shallow breathing
- Not able to drink

CARE

- Call 911
- Move victim to a cool, shady area

- Loosen or remove clothing
- Cool the victim with wet towels, water spray and fanning
- If conscious – give small amounts of cool water

NOSE BLEED

- Have victim sit upright and slightly forward.
- Hold firm pressure below the bony part of the nose for 10 minutes.

SEIZURES

GRAND MAL

- Eyes roll upward
- Loss of consciousness
- Jerking movements of extremities
- Vomiting
- Soiling may occur
- Interrupted/Starring

CARE

- Stay calm
- Do not restrain convulsive movements
- Protect victim from harmful surroundings
- DO NOT put anything in victims mouth
- Observe length and time of seizure.
- Turn victims face to side to prevent chocking
- Notify emergency contact person.
- Let student rest for 15-30 minutes.

SHOCK

Shock is a physical state of the body. Shock can result from a severe injury, an illness or infection. Symptoms are the result of the body trying to save oxygen for the most vital body parts, including the heart and brain.

Symptoms Include:

- Disorientation
- Confusion
- Loss of consciousness
- Clammy, pale skin

Care:

- Have the victim lie down with their legs elevated 10 to 12 inches.

- If victim has no back or neck injuries and is unconscious, turn them on their side to keep their airway open.
- Do not give the victim fluids.
- Keep them comfortable.

12. 8 MOUNTAIN DRIVING INFORMATION FOR SMALL VEHICLE AND MULTIFUNCTION BUS OPERATORS

(July, 2009)

Mountain driving presents unique problems and situations that require greater attention to the same driving skills and expertise expected of all operators of school buses and small vehicles. Steep grades, winding roads, blind curves, falling rocks, wildlife, and unpredictable weather can present great potential risk and serious consequences. Other hazards include high winds, sightseeing motorists and bicyclists. The margin for error is reduced and minor mistakes can develop into major problems. Mountain driving requires a high level of concentration and a respect for the terrain.

- Be alert and well rested. Do a personal fitness check. Be aware of your own limitations.
- Inquire about weather and road conditions prior to departure but be aware of sudden weather changes.
- Ensure that the vehicle used is in safe mechanical condition and has all the needed equipment by performing a complete pre-trip inspection prior to departure.

Increase the following distance in inclement weather to accommodate limited visibility and expanded stopping distance.

MAINTAINING CONTROL

The driver must keep the vehicle under control by maintaining a safe road speed (at or below the posted limit). Drivers should maintain control of the vehicle by primarily using the transmission (gearing down) and then using the service brakes.

SPEED CONTROL

Maintaining Vehicle Control with the Transmission and Engine - Engine compression is the first source of braking power. Before coming down a long steep grade, select a gear low enough to maintain a safe speed with engine compression, while minimizing brake use. This is especially important with a standard transmission. You should be aware that an automatic transmission may up-shift even when manually placed in a lower gear if the engine reaches maximum RPM's. If RPM's are too high, it may not be possible to downshift a standard transmission.

Maintaining Vehicle Control With the Brakes - In mountain driving, the force of gravity plays a major role. Gravity will tend to make the vehicle speed up when going down steep grades. The speed of the vehicle must be low enough to prevent brake overuse and avoid overheating.

Brake shoes and pads are designed to push against the brake drum and rotors to slow the vehicle. This action creates friction, which produces heat. While brakes are designed to take a lot of heat they can fail from excessive heat caused by attempting to slow down from too high a speed, too many times, or too quickly.

Brake “fade” (less stopping power) occurs when heat build-up causes the brake lining to glaze or deteriorate at high temperatures. This decreases the effectiveness of the brakes, and in extreme cases, will no longer slow the vehicle. Never exceed a safe controlled speed. The most effective braking method is to firmly apply the brakes to 5 mph below your safe speed, release the brake and allow the vehicle speed to increase. Repeat as needed when vehicle exceeds safe speed.

Effect of Speed on Stopping Distance - Whenever speed is doubled, it takes an average of four times as much distance to stop and the vehicle has four times the destructive power if it crashes.

Effect of Vehicle Weight on Stopping Distance - The heavier the vehicle, the more work the brakes must do to stop it and the more heat they generate.

CURVES

Speed and Curves – Set the vehicle to a safe speed before entering a curve. Never exceed the posted speed limit. Since the posted speed limit is designed for a standard vehicle, road conditions and the weight of your vehicle will determine your safe speed which may be below what is posted. Only accelerate after passing the middle of a curve. Gravity can produce this slight acceleration on downhill curves. Braking in a curve may result in reduced vehicle control.

Lane Position In Curves - Stay centered in the lane to keep a safe clearance on all sides of the vehicle. Watching your and other vehicles lane position will help avoid collisions. Hugging either side reduces margin for error or space needed to avoid hazards such as rocks, soft shoulders, other vehicles, animals, bicyclists or other obstructions.

BACKING

Avoid backing unless there is no other safe alternative. When vehicles meet on a road that is not wide enough for both vehicles to pass safely, the vehicle going downhill must yield the right-of-way by backing up to a wider place or stopping to leave adequate space.

EMERGENCIES

As you drive, always expect the unexpected. In cases of emergencies, always look for areas that can be used to safely slow or stop your vehicle. Sideswiping hillsides, rocks, small trees, or guardrails may be a safer alternative to avoid more serious consequences. Utilize emergency escape ramps or lanes, if available. Hitting wildlife may also be safer than swerving and losing control of your vehicle. Use your best judgment when making decisions in emergency situations.

OTHER CONSIDERATIONS IN MOUNTAIN DRIVING

Passenger Well-Being - When planning a mountain trip, think about your passengers.

- Breaks should be taken as needed where safe pullout areas can be found.
- Motion/car sickness - Have the passenger sit up front with one or more windows open for fresh air. You may need to adjust your driving to accommodate the needs of your passengers.
- Altitude Sickness - Even passengers that live in high altitude areas may suffer from altitude sickness. Make sure they drink fluids, relax and get to a lower altitude as soon as possible.

Bicycles - Bicyclists on the road have the same rights and responsibilities as motor vehicles. Pass only when necessary and only when it can be done in a safe manner. State law requires a three foot separation between bicycles and vehicles on the roadways. It is permitted for vehicles to cross the double yellow line to provide this cushion of safety. Be aware at higher speeds, the tail wind created by vehicles can affect the bicyclist.

Other Motorists – Many motorists are uncomfortable on mountain roads due to fear and may crowd the center of the road. Sightseeing motorists may drift to either side of the roadway or stop abruptly. Be aware of pedestrian traffic in unexpected locations on or off the roadway.

Self Preservation - When driving long distances, you may experience fatigue, illness or minor aches and pains. Safe driving involves smart driving. Pay attention to your body and take measures to remain alert and prevent muscle soreness. The only remedy for fatigue is sleep. Always use your best judgment. Pull over and stop anytime you cannot drive safely.

12.8 ADVERSE DRIVING CONDITIONS INFORMATION FOR SMALL VEHICLE / MULTIFUNCTION BUS OPERATORS

(July, 2009)

There are some general procedures for driving in adverse weather. Before Driving:

1. Check the weather report.
2. Check road conditions prior to departure.
3. When planning your route, consider alternate routes. Be aware of options for safe pullout/stop areas in extreme weather conditions or emergencies.
4. Conduct a thorough pre-trip inspection of the vehicle you will be driving.

Pre-Trip - During inclement conditions, a thorough pre-tip inspection is crucial. Pay special attention to items such as windshield wipers and fluid levels, suspension, tire conditions, defrosters and lights. lso, double check that you have the necessary safety equipment inside the vehicle including an ice scraper, sunglasses/hat, gloves, first aid kit, emergency triangles and an emergency contact list with a communication device (i.e. two-way radio or cell phone).

Speed Control - Driving in inclement weather, it is important to slow the vehicle gradually, avoid aggressive braking or steering and increase following and scanning distance.

Slippery Surfaces - You cannot steer or brake a vehicle unless you have traction. There are some road conditions that reduce traction and require lower speeds. It will take longer to stop and be harder to turn without skidding when the road is slippery. Wet roads can double stopping distance. Reducing speed to accommodate surface conditions is advised.

Identifying Slippery Surfaces - It may be hard to know if the road is slippery. Some common slippery surfaces can be:

- **Shaded Areas** - Shady parts of the roads may remain icy and slippery long after open areas have melted and dried.
- **Bridges** - When the temperature drops, bridges freeze before the road does. Be especially careful when the temperature is close to freezing (32° F).
- **Melting Snow & Ice** – Roads are most hazardous when snow or ice begins to melt. Be extra cautious of packed snow or icy roads when the outside temperature is near the melting/freezing point (32° F).
- **Black ice** - When the temperature is below freezing and the road appears wet, it could be black ice. This is a thin layer of transparent ice that can be found anywhere. Especially prone to this are high-traffic intersections and windswept areas.

- **Hail** – While similar to ice, hail provides a unique set of hazardous circumstances. Hail on roadways can produce an extremely slippery and uneven road surface.
- **Rain** – When it starts to rain, the water mixes with oil and other road grime. This makes the road very slippery. Standing water on the roadway may lead to additional challenges such as hydroplaning.
- **Mud/Mudslides** – Wet, non-paved roads or paved roads where excessive mud is present can be slippery and may be virtually impassable.
- **Other** – Anti-icing and De-Icing materials used on roadways (i.e. gravel, magnesium chloride and salt) are intended to improve traction. However, in some instances they can decrease traction.
- **Hydroplaning** - When water or slush collects on the road, the vehicle can hydroplane. This occurs when tires lose contact with the road and have little or no traction. You may not be able to steer or brake. Control can be regained by releasing the accelerator (and depressing the clutch pedal with a standard transmission). If hydroplaning, do not use the brakes to slow down.

  It does not take a lot of water or high speeds to cause hydroplaning. Excessive speeds in wet road conditions may lead to hydroplaning. Hydroplaning is more likely to occur if tire pressure is low or the tread is worn. Be especially careful driving through puddles. The water is often deep enough to cause hydroplaning.
- **Water on Roadways** - Water on brake drums will reduce braking efficiency. A light application of the brakes can prevent excessive water between the drum and brake pads. During excessively wet conditions or after passing through standing water, it may be necessary to apply the brakes slightly for a short distance to dry them out and restore normal braking.

  Never attempt to drive in flowing water as the depth and force of current is unknown. Dangers may not be visible. There may be debris, downed power lines or the road may be washed out.

- **Snow** - There are different types of snow that provide different levels of traction. The most traction comes from dry granular or very cold snow. Packed snow may provide better traction than freshly fallen snow. As variations in temperatures occur at or near the freezing/melting point (32°F), vehicles will have the least amount of traction. This presents the most dangerous road conditions of ice on snow or snow on ice.

Magnesium Chloride - Used as a de-icer on the highways in the winter. It will coat lights and windows, causing visibility problems. Wash the vehicle soon as practicable, including the underside to prevent corrosion of parts. It may irritate the skin and eyes in some people. When this occurs, wash the affected area with mild soap and water.

Storms – Sudden storms can produce heavy rains, hail, flash flooding and lightning. If in a severe storm in these conditions, especially lightning, you are safest in your vehicle. Avoid touching metal objects or pulling over in high-risk areas (canyons, near power lines or tall trees).

Reduced Visibility – Motorists can expect to experience any and all of the following driving hazards that may result in reduced visibility. Drive at a speed that allows you to stop within a distance you can see.

- Fog
- Sun
- Dust
- Rain
- Snow
- Debris
- Smoke
- Hail/Graupel
- Darkness
- Light variations
- Vegetation
- Terrain

Additional Hints and reminders:

- Check road conditions prior to departure.
- Road shoulders are softer and may provide better traction than a slick roadway. However, the weight of some vehicles may cause these areas to give way. Plow blades typically overshoot the road shoulder leaving a “false shoulder” of snow with little foundation for vehicle support.
- Speed should be conservative when conditions are less than perfect. Maintain a speed that allows you to stop quickly in the event of the unexpected.
- Know your limits and your vehicle’s limits. Pull off to a safe location rather than continuing in adverse and unsafe conditions.
- Test traction conditions and braking ability before an emergency presents itself. Do this in a safe location and when no other traffic or hazards are present.
- Excessive heat may cause the asphalt to soften or become slippery.

MEDICAL INFORMATION
ACTIVITY TRIP/SMALL VEHICLE OPERATORS

OPERATORS NAME	WORK PHONE ( )	BIRTH DATE	STATUS ☐ New Operator ☐ Re-Certification
SCHOOL OR DEPARTMENT	SCHOOL CONTACT PHONE ( )	SCHOOL CONTACT NAME	

DO YOU CURRENTLY HAVE ANY OF THESE CONDITIONS?

YES	NO		YES	NO	
☐	☐	**Head/brain injuries or disorders**	☐	☐	**Diabetes or elevated blood sugar controlled by:** ☐ diet ☐ pills ☐ insulin
☐	☐	**Seizures, epilepsy** ☐ Medication _____	☐	☐	**Nervous or psychiatric disorders, e.g., severe depression** ☐ Medication _____
☐	☐	**Eye disorders or impaired vision including corrective lenses**	☐	☐	**Loss or altered consciousness**
☐	☐	**Ear disorders, loss of hearing or balance including hearing correction device**	☐	☐	**Fainting, dizziness**
☐	☐	**Heart disease or heart attack, other cardiovascular condition** ☐ Medication _____	☐	☐	**Sleep disorders, pauses in breathing while asleep, daytime sleepiness, loud snoring**
☐	☐	**Heart surgery (valve replacement, bypass, angioplasty, pacemaker)**	☐	☐	**Stroke or paralysis**
☐	☐	**High blood pressure (DOT standards)** ☐ Medication _____	☐	☐	**Chronic low back pain**
☐	☐	**Muscular disease**	☐	☐	**Regular, frequent alcohol use**
☐	☐	**Shortness of breath**	☐	☐	**Narcotic or habit forming drug use**
☐	☐	**Lung disease, emphysema, asthma, chronic bronchitis**	☐	☐	**Other conditions that could affect driving ability:** _____ _____
☐	☐	**Kidney disease**			
☐	☐	**Severe digestive problems**			

For any Yes answer, indicate onset date, diagnosis, and any current limitation. List any medications (including over-the-counter medications) used regularly. A Yes answer shall require a doctor's release to drive a district vehicle.

I certify that the above information was provided voluntarily and is complete and true. I understand that failure to accurately complete this form will exclude me from driving a district vehicle while transporting students.

Operator Signature _____ **Date** _____

Transportation Official _____ **Title** _____

District Name _____

STU-17 (7/09)

SVO DRIVING PERFORMANCE TEST (district name)

OPERATOR NAME _____ DATE _____ EXAMINER _____

This Driving Performance Test is designed to give the operator feedback as to how they are doing as a small vehicle operator. This feedback will assist them in improving their driving skills for the safety of the students.

Subject	Excellent	Satis-factory	Needs Improv.	Subject	Excellent	Satis-factory	Needs Improv.
Pre-trip Inspection (complete, orderly, mirror adjustment))				**Lane Position** (properly centered, drifts, wanders)			
Accelerating (smooth, too slow, too fast, other)				**Looking** (in mirrors, checking blind spots)			
Anticipates (traffic light changes, objects of danger, actions of others)				**Passing** (checks mirrors, signals, check blind spot, smoothness, adjust speed)			
Backing (mirror usage, clearance, controlled, audible warning)				**Railroad Crossings** (hazards, inside quiet, door and window open, distance)			
Braking (too soon, too late, too hard, too easy, smooth, retarder use)				**Reading the Road Ahead** (12 second rule)			
Courteous to Other Roadway Users				**Signaling** (no signal, too early, too late)			
Entering and Leaving Freeway (signals, checks traffic, smooth lane changes, proper speed)				**Speed** (adjust to conditions, too fast, impedes traffic)			
Following Distance				**Stopping** (at stop line, complete stop, too close to vehicle in front, hesitant)			
Hand Placement on Steering Wheel (hand position, thumbs-up, turning)				**Turns** (over steer, under steer, turn too soon, too late or too wide, turns from and into proper lane)			
Identification (traffic signs & signals, intersections, other highway users, critical objects)				**Lane Changes** (checks mirrors, signals, check blind spot, smoothness, adjust speed)			

Any items marked Needs Improvement must have corrective action taken quickly and documented on reverse.

Examiner Comments: _____

_____

_____

_____

_____

To Be Completed by Operator

The findings of this performance test as listed on this form have been discussed with me.
I agree with the findings of this performance test as listed.
Any disagreements are listed below or are attached.

Operator's Signature _____ Date _____

Examiner's Signature _____ Date _____

Operator's Comments_____

_____

_____

_____

Corrective Action Taken_____

_____

_____

_____

UNIT THIRTEEN – TRAINING TECHNIQUES FOR THE ADULT LEARNER

Tell me, I forget. Show me, I remember. Involve me, I understand. Eureka! (An Ancient Chinese Proverb)

When deciding the best way to conduct training on a specific subject, consider these statistics from the National Training Laboratories in Bethel, Maine.

Average Retention Rates

5%	*Lecture*
10%	*Reading*
20%	*Audio-Visual*
30%	*Demonstration*
50%	*Discussion*
75%	*Practice by doing (Hands-on)*
90%	*Teach Others/Immediate Use*

13.1 DEFINITION OF TRAINING

Training is a learning process that involves the acquisition of knowledge, sharpening of skills, concepts, and rules.

This unit will provide techniques that will help your department achieve effective communication. Modifying an individual's habits is best accomplished with effective two-way communication. Good training is interactive.

Most school bus drivers are entering the classroom for the first time in many years. Adult learners bring with them unique experiences and often, fears of the classroom environment. Many adults have an anxiety about testing situations, past failures in an academic setting, and the belief that the ability to learn declines with age. They may even view driver training as an implication that the driving skills they have acquired are flawed. This feeling fosters resistance to training.

- The adult learner may express concern about memory loss. Adults perceive some of what is presented as meaningless information that they are not motivated to retain.
- The material that is inconsistent with what was previously learned or what they believe can also affect memory.
- Adults will be expected to learn material that includes extensive memorization.
- Motivation, desire to learn the materials, relevance of the material, reduction of anxiety associated with the classroom setting, and physical environmental factors are all anxieties that can affect memory.
- Adults cannot be forced to learn. You, the trainer, are a "facilitator of learning." The trainer must present the program in a manner that provides each trainee the tools to be a successful learner.
- Each trainee's ability should be evaluated and their strengths identified.

13.2 CLASSROOM

It is essential to recognize the importance of the learning environment as it affects learner outcome. Adults typically benefit more from "hands-on" learning and working with peer groups. Some of your training will be structured as a lecture or in a classroom setting, so it is important to arrange the room in a way that enhances the learning environment.

When arranging the classroom, keep in mind that the adult learner may have diminished vision or hearing. Be sure that the lighting is adequate for participants. Eliminate or reduce outside noises that may distract or interfere with hearing. Smaller rooms are better than larger rooms because of the sound reflection.

To design a classroom, consider the following:

- Size of the room
- Equipment availability
- Number of participants
- Structure of the presentation
- Desired interaction with the group

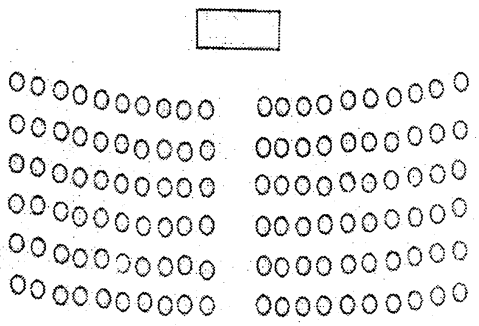
Classroom Designs

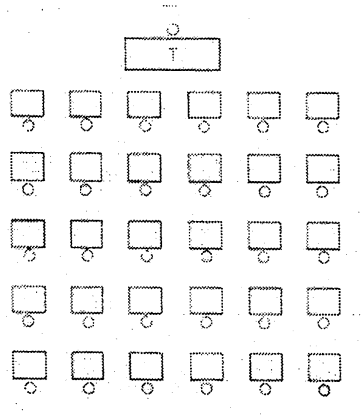
The use of tables will provide a convenient writing surface as well as a place to set a coffee cup or other beverage container. In addition, sitting at a table provides a certain feeling of "safety." It conceals more than half of the participant's body which may allow the person to be less self-conscious and thus able to focus more easily on what is being taught.

Chairs can also be used effectively to create a desired atmosphere. To design the classroom appropriately, consider:

FORMAL

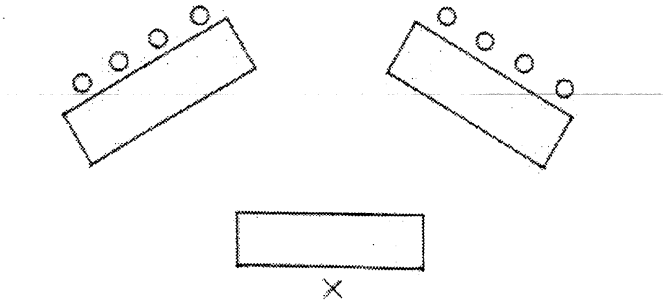
For a formal presentation or a lecture, design the room in a structured manner that does not encourage discussion, questions or interaction of the participants during the class. This can be accomplished by arranging the tables, desks or chairs in a series of rows.





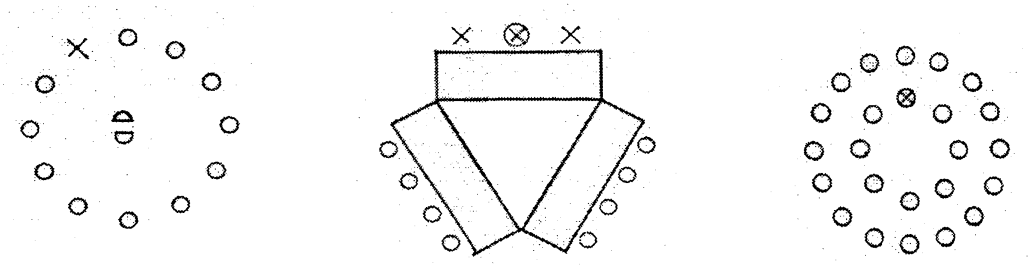
CASUAL

Place desks, tables or chairs at an angle to create a more relaxed atmosphere. This arrangement can still be conducive to a lecture, but encourages more participation from the trainees.



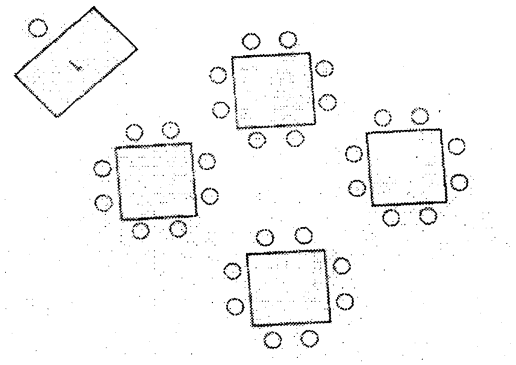
INTERACTIVE

Place the seating arrangement in a circle to create the feeling of interaction among the participants. This is a very relaxed mode of teaching but can make the use of teaching aids difficult.



TEAM BUILDING

Arranging the seating and or tables in small groups creates interaction among the groups and encourages team playing. This style is great for projects and teaching problem-solving. Each group can be working on the same topic or on different topics.



Maintaining an effective classroom environment:

- Arrange the tables and chairs for the appropriate teaching style
- Provide coffee and soft drinks or allow them to be brought into the classroom
- Eliminate distractions as much as possible
- Provide a well-lighted classroom
- Use multi-sensory teaching aides
- Dress appropriately
- Smile
- Set expectations
    - Be on time
    - Turn off cell phones
    - Courteous to those who are speaking
- Do introductions
- Start on time and end on time
- Allow students to move around the room during class
- Provide frequent breaks
- Keep moving; do not stand behind a podium
- Make eye contact with everyone

- Learn names the first session, and then call them by their name or nickname
- The opening session sets the tone for the course
- Be energetic
- Have fun!!!

13.3 TRAINING AIDS

The objective of training aids is to **support or assist** your presentation, not to be your presentation. Aids can greatly enhance the driver's understanding of the subject, but it can also detract or even ruin your training. The key is being flexible. If one type of aid doesn't work, try others, or go without any aids.

The different types of training aids can be divided into two main types:

Projected and Real Life - Projected aids use an image on the screen or monitor of the subject such as slides, overheads, or video. Real-life aids use a three dimensional representation to support the subject. This may include a cut-a-way sample of a transmission or brake chamber, or the bus itself.

Projected Aids –

- **Overhead projectors** can help create a central focus on the subject as well as graphically-display pictures, maps, and other materials to enhance the learning process. When using an overhead projector during a presentation, point to the display on the projector, not the screen. Do not turn your back to the audience. Also, remember to turn the projector off when changing displays or when it is not needed. The bright light can distract the participants. Transparencies can be easily made on most copiers and laser printers. Check your owner's manual. Adding color enhances this type of aid.
- **Flip charts** are a great tool for emphasizing bullet thoughts as well as writing down ideas in problem-solving sessions. A flip chart is good for encouraging class participation during the presentation of material.
- **Smart Boards** can provide a combination of mediums to enhance your training program.
- **Power Point** is a highly-effective computer training aid. You can customize your own presentation to fit your individual program.
- **Video** is one of the most popular uses of projected aids. Videos can be an effective tool for your training program. When using a pre-

made video program, be familiar with the video and know where you can stop the action for discussion, or emphasize a certain point and relate how it applies to your drivers. A lot of valuable information can be obtained from the use of videos.

You can develop your own training video with just a camcorder. One method is to record the title drawing on paper then record the different scenes in sequence. Another less formal method is to record the scenes you want, without titles or audio and just discuss what is viewed.

DVD's and **interactive mediums** may also be used.

Real Life Training Aids - This type of training aid is limited only by your own imagination and budget. Examples include: cut-away models, brake system display boards, magnetic cars on a metal board, or lifting the bus on a hoist to see the underside. Hands-on training is highly effective.

Role-playing is a fun change of pace in the use of training aids is. Create a scenario and have two or three class members play the parts while the others critique. Use experienced drivers or staff members to interact with new drivers in the role-play. You can have the same situation or a different situation played out by the class members, giving everyone a chance to role-play and critique. It is important to establish positive norms for the group that is *Use what is available to you. Be creative. Create your own aids.*

Remember: a smile is also an excellent visual aid.

Other Resources: Vehicle maintenance personnel, web sites, police, Colorado State Patrol, firemen, hospitals, railroad authorities, highway department, school resource officer, school principal, insurance agents, vendors, and Administrator's Reference Manual.

13.4 THE MOTIVATING TRAINER

Training is a learned skill. With practice and feedback from peers and participants, every trainer can improve in the ability to demonstrate each of the four characteristics of a motivating trainer:

- Expertise
- Empathy
- Enthusiasm
- Clarity

Characteristics of a Motivating Trainer:

- **Expertise** - The trainer with expertise in the subject matter is confident, knowledgeable of the subject matter, and easily develops credibility with trainees. A thorough knowledge of a topic gives a trainer confidence and enables flexibility and creativity in working with trainees. Knowledge of content allows the trainer to focus on the trainees needs with spontaneity. A trainer tied to notes or a manual cannot "read" the learners and respond to their nonverbal cues. Never attempt to teach something you do not know.
- **Empathy** - An empathetic trainer is aware of the trainees' needs and expectations. The trainer adapts the instruction to the trainees' level of experience and skill. Trainees know when their trainer is in touch with them, and are motivated by demonstrations of empathy.
- **Enthusiasm** - Trainers who are enthusiastic care about and value their subject matter and show their feelings for what they teach. Enthusiastic trainers are believable because of their commitment to, and involvement with, their subject matter.
- **Clarity** - Clarity of instruction is teaching something in a way that is easy for trainees to understand. It is organized in an orderly and logical fashion. Since trainees have different learning styles, teaching with clarity implies that various instructional methods are used so that all can follow the training.

13.5 MAKING HUMOR WORK

"You don't have to teach people to be funny. You only have to give them permission." Dr. Harvey Mindes.

Every trainer can make humor work in training by developing a unique style of humor and using it to enhance the training experience.

Some suggestions for making humor work:

- Take your job as a trainer seriously and yourself lightly. Be willing to laugh at yourself.
- Humor is working when you laugh with your participants, not at them.
- Avoid sarcastic humor. Rather than bringing people together, it tears them apart and is never appropriate.
- Avoid ethnic humor or humor that "puts down" any individual or group. It is never appropriate.

- Relate any humorous story or joke to the training topic. Ask "Does it work?" rather than just, "Is it funny?" Humor consultants suggest using a humor sandwich. Tell the point you want to make, then give it back as a humorous story that illustrates the point. Finally, provide the other side of the sandwich by restating the content point.
- Use the KISS approach to humor. Keep it Short and Simple! The average length of a story or joke is about 15 seconds.
- The "facts" of the story should be logical and believable. Control the set-up and punch line.
- When telling a funny story, master the pause. Give your participants time to visualize the story and grasp the situation so the punch line will be even funnier.

13.6 TIPS FOR RESPONDING TO QUESTIONS

In any training session the trainer is not the only one who gets to ask a question, and that's good. Questions from drivers show their interest and keep them actively involved.

- Be prepared for the types of questions that may be asked. Make notes in your outline of questions that could be asked about the content you are presenting.
- Repeat the question to the group when it is asked. This helps to make sure everyone heard the question, and it lets you be sure you heard it correctly.
- Answer the question, don't avoid or evade it. If the answer will come later in the training, say so.
- If you don't know the answer, admit it. Offer to respond to the person with the answer later . . . **and then do it**.
- Make sure the drivers know that the only "bad" question is the one that they had, but did not ask.
- Don't laugh at or make fun of anyone's question.
- You may want to let another driver in the session answer the question, particularly if it is an opinion question or a question with many correct answers. This keeps all drivers involved.
- Use the 25-75% Rule. When answering the question, direct 25% of your eye contact to the person who asked it, and 75% to the rest of the drivers. This again, keeps everyone involved in the question and answer process.

13.7 TIPS FOR ASKING QUESTIONS

- Use the Ask-Pause-Call technique. Ask the question, pause a few seconds, then call on someone by name to answer it.
- If the driver has trouble answering the question, “coach” for the correct answer. Coaching means helping the driver answer correctly. Give clues and hints, or break the question down into smaller questions.
- Make sure all participants have an opportunity to answer questions.
- “Dignify” any incorrect answers the drivers may give. In other words, help them avoid embarrassment when they tried but did not answer correctly. Remember, it is your responsibility as the trainer to make sure that the correct answer is provided so all can hear.

Examples of responses to coach for the correct answer:

- “That was a good try.”
- “Yes, you’re getting close.”

Ask open questions to encourage the participants to think and to find out what they know. An open question requires the person to explain what has been learned. Such a question cannot be answered “yes” or “no,” or with one word.

Examples of open questions:

- What are some student management techniques for misbehaving students?
- What are some rules for driving in mountainous terrain?

Motivate with positive language

- Be specific. Saying “I appreciate the great work you did preparing that report,” is better than merely saying “good job.”
- Use the team member’s name. Everyone appreciates hearing his or her name linked to something positive. Saying, “Pat, thanks for coming in early to prepare for the meeting,” packs a big punch.
- Capitalize on compliments. Trying to balance a compliment by offering one of your own diminishes the value of the compliment you received. Instead, say “Thanks for noticing. You’ve made my day.”

The creativity connection

- The four most important words you can use to spur creativity are “What do you think?” Inviting team members to share their opinions can pay off big.
- Encourage trainees to build on one another’s ideas.
- Avoid negatives by substituting the word “opportunity” for “problem” every time you communicate.
- Total honesty - Make sure trainees feel free to say what they think – no politics or no game playing. Encourage everyone to express his/her views and to contribute his/her beliefs.
- Total amnesty - Avoid any repercussions for things said. It is the only way you can be sure trainees really feel free to speak their minds.

UNIT FOURTEEN – CDE FIRST AID

The CDE "First Aid Guide for School Bus Drivers and Bus Assistants" is a standalone program that can be used to meet the requirements of 301-26. This program may be used in place of your current first aid program. This program does not require an instructor and is good for 2 years. You may use a classroom training session to do the course if you would prefer.

To complete the course, each person taking the training must score 100% on the test and the reference where the answer was found must be listed next to the answer. The test is an open book test. Upon completion, score the test. If 100% has been obtained, complete the card. The person who grades the test must then sign as the designee.

You do not have to use this program to meet the requirement of [301-26, 4204-R-202.01 (h)]. You may continue to use the program you currently are using. To get copies of the test, answer key and completion cards, contact CDE, Transportation Unit.

The information and recommendations contained in this curriculum have been compiled from sources believed to be reliable; the Colorado Department of Education makes no guarantee as to, and assumes no responsibility for, the correctness, sufficiency, or completeness of such information or recommendations. Other or additional safety measures may be required under particular circumstances.

UNIT FIFTEEN – WEBSITES & ACRONYMS

Every effort has been made to include all manufacturers, suppliers, and contacts. We apologize if anyone has been left out.

CDL / PRE-SERVICE TRAINING

Commercial Drivers License Practice Tests
www.roadwarriors.com

Commercial Drivers License Practice Tests
www.cristicdl.com/otc/

COLORADO

CCS Compatibility List
http://www.carseatdata.org/

Colorado CPS Program Website
http://www.carseatscolorado.com

Colorado Department of Education
http://www.cde.state.co.us/

Colorado Department of Revenue
www.colorado.gov/cs/Satellite?c=Page&cid=1212657832969&pagename=Revenue-

C-DOT Safe Routes to School Program
http://www.saferoutesinfo.org
http://www.dot.state.co.us/bikeped/

Colorado General Assembly
http://www.leg.state.co.us/

Colorado Motor Carrier Safety Unit - CSP
http://csp.state.co.us/mcsap.html

Colorado Operation Lifesaver
http://www.co-ol.org/

Colorado School District Self Insurance Pool
http://www.csdsip.net/index.html

Colorado State Pupil Transportation Association
http://cspta.org/

Colorado State Statutes
http://www.michie.com/colorado/lpext.dll?f=templates&fn=main-h.htm&cp

Colorado Transportation Reimbursement Data
http://www.cde.state.co.us/cdefinance/sftransp.htm

Early Intervention Colorado
www.eicolorado.org

Environmental Protection Agency
http://www.epa.gov/

Environmental Protection Agency, Region 8
www.epa.gov/region8/

Motor Carrier Safety Unit Colorado State Police
www.csp.state.co.us

Regional Air Quality Council
www.raqc.org/

Safe Routes to School
http://www.coloradodot.info/programs/bikeped

State of Colorado – Fire and Police Radio Traffic Communications
http://www.scancolorado.com

Traffic and Road Conditions
http://www.cotrip.org/home.htm

FEDERAL

Federal Highway Administration (ISTEA and Transportation Equity Act)
http://www.fhwa.dot.gov/

Federal Motor Carrier Safety Administration (Federal Motor Carrier Safety Regulations) http://www.fmcsa.dot.gov/

Federal Motor Vehicle Safety Standards - NHTSA
http://www.access.gpo.gov/nara/cfr/waisidx_03/49cfr571_03.html

Federal Resource Center for Special Education
www.dssc.org/frc

NATIONAL

American Academy of Pediatrics
http://www.aap.org/

American School Bus Council
http://www.americanschoolbuscouncil.com/

Bullying in the Workplace
www.safety-council.org/info/OSH/bullies.html

Workplace Bully
http://www.tipsofallsorts.com/bully.html

Council for Exceptional Children
http://www.cec.sped.org

Insurance Institute for Highway Safety
www.iihs.org

Hybrid School Bus
www.hybridschoolbus.org

National Association of Pupil Transportation (NAPT)
http://www.napt.org/

National Association of State Directors of Pupil Transportation Services (NASDPTS)
http://www.nasdpts.org/

National Child Passenger Safety Board
http://www.cpsboard.org

National Coalition for School Bus Safety
http://www.ncsbs.org

National Head Start Bureau
http://www.acf.dhhs.gov/programs/hsb/index

National Highway Traffic Safety Administration
http://www.nhtsa.dot.gov/

National Safe Kids Campaign
http://www.safekids.org

National Safety Belt Coalition
http://www.nsc.org/traf/sbc.htm

National School Specifications and Procedures
http://www.ncstonline.org/

National School Transportation Association
http://www.yellowbuses.org

National Transportation Safety Board
http://www.ntsb.gov/Surface/Highway/highway

No Name Calling Week
http://www.nonamecallingweek.org

Peak Parent Center
http://www.peakparent.org

Pupil Transportation Safety Institute
http://www.ptsi.org

Safer Car
http://www.safercar.gov

Safety Belt Safe USA
http://www.carseat.org

School Bus Driver (by, about and for bus drivers)
http://user.mc.net/hyden/

School Bus Information Council
http://www.schoolbusinfo.org/

U.S. Congress
http://www.thomas.loc.gov

U.S. Department of Education, Office of Civil Rights
http://www.ed.gov/offices/OCR

U.S. Department of Labor, Occupational Safety and Health
http://www.osha.gov

U.S. DOT Docket Management System
http://www.dms.dot.gov

US Environmental Protection Agency
http://www.epa.gov/

PUBLICATIONS

CDE – Colorado Administrators Manual
www.cde.state.co.us

CDE – Colorado School Bus Driver Trainer's Manual
www.cde.state.co.us

CDE – Guidelines for Transporting Students with Disabilities
www.cde.state.co.us

Colorado Driver's Handbook
www.colorado.gov/cs/Satellite?c=Page&cid=1212657832969&pagename=Revenue-

Commercial Driver's License Manual
www.colorado.gov/cs/Satellite?c=Page&cid=1212657832969&pagename=Revenue-

CDE DOES NOT ENDORSE ANY OF THE FOLLOWING PUBLICATIONS

Legal Routes
www.myroadmap@legalroutes.com

School Bus Fleet
www.schoolbusfleet.com

School Bus News
www.stnonline.com

School Transportation Director
www.schooltransportationdirector.com

School Transportation News
www.stnonline.com

The Energy Bus
www.TheEnergyBus.com

STUDENTS WITH DISABILITIES

Council of Administrators of Special Education Legal Updates
http://www.members.aol.com/casecec/art2.htm

National Association of State Directors of Special Education
http://www.nasdse.org

Special Children
http://specialchildren.about.com/

U.S. Department of Education, Special Education Programs
http://www.ed.gov/offices/OSERS/OSEP

WC-19 Wheelchairs
http://www.rercwts.org/wc19.html

ACRONYMS

ADA	Americans with Disabilities Act – 1990 federal legislation that prohibits discrimination on basis of disability
AAMVA	American Association of Motor Vehicle Administrators
AI	Annual Inspector
ASL	American Sign Language
BAC	Blood Alcohol Concentration
CBC	Criminal Background check
CBI	Colorado Bureau of Investigation
CCR	Colorado Code of Regulations
CDE	Colorado Department of Education
CDL	Commercial Motor Vehicle
CFR	Code of Federal Regulations
CMV	Commercial Motor Vehicle
CRS	Colorado Revised Statutes
CSPTA	Colorado State Pupil Transportation Association
CSRS	Child Safety Restraint System
DOT	Department of Transportation
DPS	Department of Public Safety
DQF	Driver Qualification File

FMCSR Federal Motor Carrier Safety Regulations

FMVSS Federal Motor Vehicle Safety Standards

FWS Federal Work-Study

GA Graduate Assistant

GCWR Gross Combination Weight Rating

GVW Gross Vehicle Weight

GVWR Gross Vehicle Weight Rating

HOS Hours of Service

IDEA Individuals with Disabilities Education Act

IQF Inspector Qualification File

IR Incident Report

LED Light-Emitting Diode

MFV Multi-Function Vehicle

NAD National Association for the Deaf – professional association/certifying Entity

NAPT National Association of Pupil Transportation

NASDPTS National Association of State Directors of Pupil Transportation Services

NASPA National Association of Student Personnel Administrators

NBS National Bureau of Standards

NCCP National Center for Children in Poverty

NCST National School Transportation Specifications and Procedures

NFB National Federation of the Blind

NFPA National Fire Protection Association

NSBY National School Bus Yellow

OCR	Office for Civil Rights
OEM	Original Equipment Manufacturer/Manufacturing
SAE	Society of Automotive Engineers
SAHS	Standard Alphabets for Highway Signs
SVO	Small Vehicle Operator
TSA	Transportation Safety Administration
UL	Underwriters Laboratories
VR	Vocational Rehabilitation
WTORS	Wheelchair Tie-down and Occupant Restraint System
504	Section 504 of the Rehabilitation Act of 1973

UNIT SIXTEEN – GLOSSARY OF TERMS

SCHOOL TRANSPORTATION GLOSSARY

School Transportation Unit

Revised April 2010

This glossary includes the more common terms used in student transportation.

It is very important to improve communication among ourselves and people outside the industry to understand the meaning of the common terms used. This glossary is a beginning to improve the understanding of many of the terms used.

Activity Bus refers to a former school transportation vehicle category referring to large non-school bus vehicles purchased specifically for activity trips. These vehicles were required to have the wording ACTIVITY BUS on the front and rear. See previous revisions of CDE Minimum Standards, 301-25, for more details.

Activity Trip transportation provided that does not fit the definition of a route or run. Can be field trips or athletic trips.

Agreement is payment to a service provider furnishing a scheduled service transporting students at least once per week.

Annually means to the last day of the month twelve months later.

Appropriate describes what would be suitable for a specific type of vehicle, for example; suitable driver training for a small multifunction bus as compared to a small vehicle may be based on the specific features of that vehicle.

Capacity is the number of designated seating positions provided in a new bus per manufacturer's body/seating plan. This is also known as Equipped Seating Capacity.

> When used in reference to a school or multifunction bus, the term Capacity refers to passenger count only. When used in reference to a small vehicle the term Capacity refers to both passenger and driver count. For example: a 15 capacity van has 14 passenger seats and the driver for 15.
>
> The term Passenger Capacity may be used to clarify that the number is passenger count only.

CDE refers to the School Transportation Unit, Colorado Department of Education.

Character refers to the personality and work ethic that determines the type of school bus driver an employee will be. The district determines the type of character traits desired.

District Authorized Driver refers to a person that the school district has authorized to operate a district vehicle without that person being an employee of the district. The district must verify that this person meets the applicable Rules for the Operation of School Transportation Vehicle, 301-26.

Driver Qualification File (DQF) refers to a collection of the CDE required documentation to meet the route operator requirements.

Inspecting Site refers to the CDE certified garage or facility where the school transportation vehicles are annually inspected. This site may be owned and operated by the district or an outside facility.

Inspector refers to the CDE certified annual inspector who certifies the annual inspection of a school transportation vehicle.

Multifunction Bus shall be a motor vehicle, built to federal multifunctional school activity bus standards and Colorado school bus standards with the exceptions listed in the CDE Minimum Standards, 301-25, designed for transporting students. These buses may be used to carry students on activity trips. Multifunction buses of 15 or less capacity may also be used on route.

OEM refers to original equipment manufacturer.

Para-Professional is a district employee who assists on a school transportation vehicle.

Preventative Maintenance refers to scheduled regular maintenance and inspection performed on a school transportation vehicle.

Pre-Service is the training time from when a driver is hired to when the driver is qualified to transport students.

Public refers to an agency or a structure operated for general use governed by an elected board.

Roadway is defined in Colorado statute 42-1-102 (85) as “that portion of a highway improved, designed, or ordinarily used for vehicular travel, exclusive of the sidewalk, berm, or shoulder, . . .” In other words, the traffic lane from the centerline to the fog line.

Route is one or more runs assembled as a package. A route is normally operated by the same school transportation vehicle and driver.

Retarder refers to a secondary braking system meeting CDE Minimum Standards, 301-25.

Run is a single designated course regularly traveled by a school transportation vehicle transporting students home to school, school to school, and school to home.

Safe refers to reducing the hazards of a specific activity to an acceptable level.

School Bus - A motor vehicle built to Federal Motor Vehicle Safety Standards and the CDE Minimum Standards, 301-25, designed for carrying students on either routes or activity trips.

TYPE A-- school bus is a conversion or body constructed upon a van-type compact truck or a front-section vehicle chassis, designed for carrying passengers with driver side door and GVWR of 21,000 pounds or less.

TYPE B-- school bus is a conversion or body constructed and installed upon a van or front-section vehicle chassis, or stripped chassis, with a gross vehicle weight rating of more than 10,000 pounds, designed for carrying passengers. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The entrance door is behind the front wheels.

TYPE C--Type "C" school bus is a body installed upon a flat back cowl chassis with a gross vehicle weight rating of more than 10,000 pounds, designed for carrying passengers. The entire engine is in front of the windshield and the entrance door is behind the front wheels.

TYPE D--Type "D" school bus is a body installed upon a chassis, with the engine mounted in the front or rear, with a gross vehicle weight rating of more than 10,000 pounds, designed for carrying passengers. The engine may be behind the windshield and beside the driver's seat; it may be at the rear of the bus, behind the rear wheels. The entrance door is ahead of the front wheels.

School District refers to the public school district including charter schools or private carrier under contract to a public school district subject to the CDE transportation regulations.

School Transportation Vehicle includes school bus, small vehicle, multifunction bus, and activity bus used in the operation of transporting students as defined in the CDE Minimum Standards, 1 CCR 301-25.

School Year is from July 1 to June 30 of the next year.

Seating Capacity is the number of designated seating positions provided in a vehicle, including the driver's position. In determining seating capacity, each wheelchair securement location shall be counted as four (4) designated seating positions.

Small Vehicle is a motor vehicle that does not meet the requirements of a Type A, B, C, or D school bus. A small vehicle is designed for normal use by the general public. Students may be transported by a small vehicle on route or activity trips.

Special Needs Student is any student requiring an accommodation. This may range from a gifted and talented student to a student who is severely disabled.

Storage Space as used in student transportation refers to a section of traffic lane used to allow vehicles to stop while waiting to turn or between railroad tracks.

Students with Disabilities refers to individuals who have a physical/behavioral/mental impairment that limits a major life activity.

Tiering is a routing term indicating how many schools a route vehicle normally transports to during the morning or afternoon. For example, a 3-tier system normally refers to separate runs to an elementary school, a middle school, and a high school.

UNIT SEVENTEEN - FORMS