

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.

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.

STANDARD OPERATING PROCEDURES

Please follow your district vehicle operating procedures.

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.

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.)

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.

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.

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.

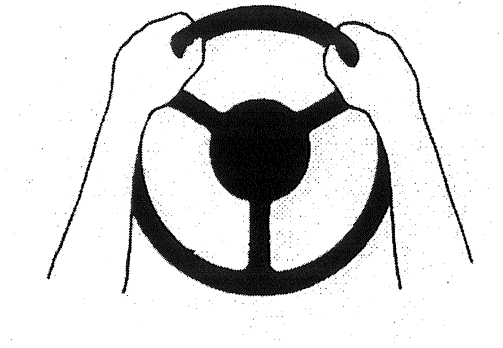
STEERING AND TURNING

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.

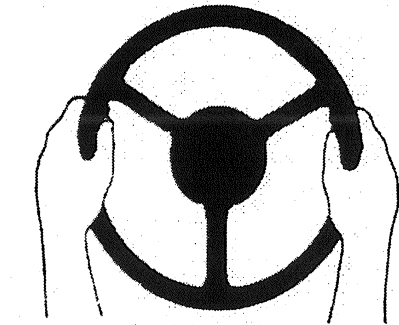
NOTE: USING AN "UNDERNEATH GRAB" TECHNIQUE IS NOT PERMITTED.

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:

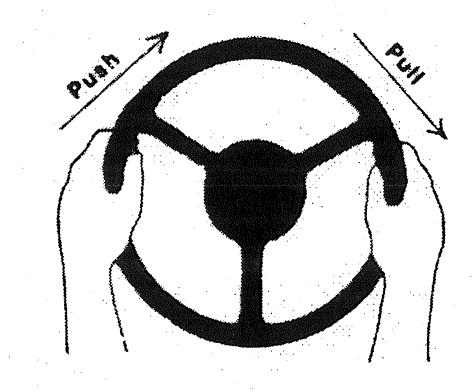
(Recommended when air bags are installed in the steering wheel)



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.

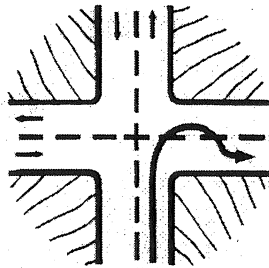
RIGHT TURN

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.



LEFT TURN

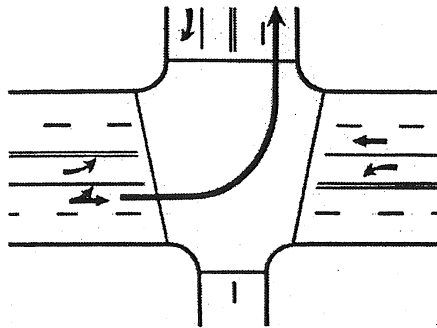
MAKING A LEFT TURN

- 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 ALWAYS yield the right-of-way. Never take it!

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.

LANE USE AND POSITION ON THE ROADWAY

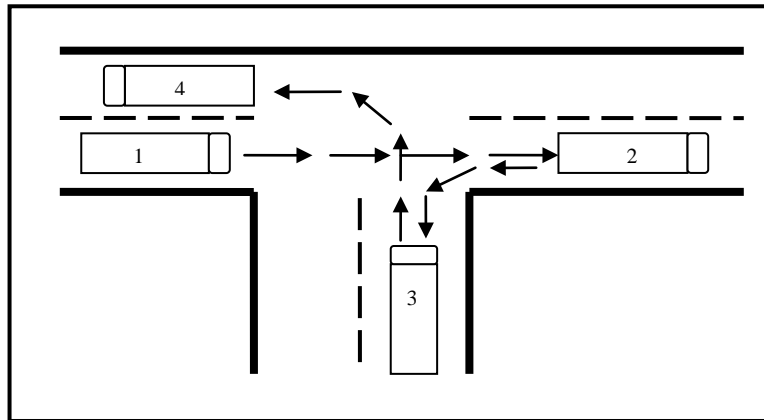
- Center vehicle in the proper lane. Do not encroach on other lanes.
- The shoulder or parking lane is only for stopping and parking.
- When there is more than one lane for traffic going the same direction, travel in the farthest right driving lane unless passing or turning to the left.
- When following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

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.

TURNING AROUND



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.

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.

STARTING AND STOPPING ON A HILL

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.

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

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

ROUNABOUTS

- 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.

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)

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.

LIGHT RAIL TRACK CROSSING PROCEDURES

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.

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.



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.