

*Video Communications*  
*Presents:*

**Backing Up Procedures for  
School Bus Drives**

**Reference Guide and Test Questions**

## **Introduction**

This video is designed to demonstrate backing up training exercises for school bus drivers. In addition, we will demonstrate how to apply these backing up procedures in normal driving conditions.

All of the training information in this video is designed to assist school bus drivers about how to properly back up a school bus. However, every school district has their own procedures for backing up a school bus. ***Be sure to always follow the backing up procedures mandated by your school district.***

## **Major objectives of this video**

1. The driver will have to learn steering control.
2. The driver will have to understand and apply depth perception.
3. The driver will have to learn and apply ground reference points.
4. The driver will have to learn to control the movement of the bus.

## **Training exercises**

1. Straight line backing
2. Serpentine backing
3. Sharp crossover backing
4. Stall backing
5. Field Exercises

## **Terms that bus drivers should understand**

**Ground reference line** - anything on the ground that the driver uses as a reference point.

**Vehicle reference** - Bottom of the tire or the back axle of the school bus.

**Parallel reference** - Sight down the side of the bus to line it up with the ground reference.

## **Part I - Straight Line Backing Training Exercise**

### **Straight line backing using the *Left Side of the Bus***

1. The bus is parked parallel to the ground reference line. The bus is parked 6" from the ground reference line.
2. The driver will be asked to back up the bus in a straight line, keeping the bus 12" distance from the ground reference line.
3. The driver will be asked to monitor the backing up procedure of the bus, while looking into the left flat mirror.
4. After the exercise is completed, the driver will get out of the bus and measure the distance and the parallel.

## **Straight line back up maneuver**

The driver must take these steps before starting the straight line backing up maneuver.

1. Focus on left side flat mirror, select reverse gear, release brake, activate hazard lights, beep horn and start the backing up procedure
2. The driver, while backing up the bus, must look into the left flat mirror.
3. The driver aligns the bus with ground reference and must keep the bus within 12" of the ground reference.
4. The driver stops the bus and then leaves to critique the maneuver. The bus is 10" from the ground reference and it's parallel. The exercise has been successfully completed.
5. Drivers when practicing this exercise, are also learning to judge depth perception in the flat mirror.

## **Part 2 - Serpentine backing up procedure**

Serpentine backing up procedures demonstrates how to weave a bus through a series of cones, while backing up a school bus. Once a bus driver has acquired these skills, the serpentine backing up techniques can be applied in many normal driving situations.

1. The driver must understand the following concepts when doing the serpentine procedure.
  - a. Ground reference is represented by the white line that runs out through a series of cones.
  - b. The vehicle reference is the bottom of the rear tire.
  - c. The driver must learn to understand which mirror to look into at which time.
  - d. The driver must be able to judge depth perception, when looking into the mirrors.
2. A review of the steps the driver should follow when performing this exercise.
  - a. Know when to look into the left flat mirror.
  - b. Know when to look into the right flat mirror.
  - c. Know how to turn your hands in the correct direction.
  - d. Know how to use the flat mirror to gauge the ground reference point.
  - e. Know how to judge depth perception, so the driver will avoid hitting a problem object.
3. The serpentine exercise
  - a. Release the brake.
  - b. Check the mirrors.
  - c. Beep the horn and proceed with the exercise.
  - d. The driver, while backing up the bus, monitors the cones in the mirrors and switches mirrors from one side to another as he proceeds through the exercise.
  - e. The driver maneuvers around the final cone; he brings the bus parallel to the ground reference line and stops the bus.

*The serpentine exercise is a teaching tool; but don't forget, the goal is to apply these lessons to everyday driving situations.*

### **Part 3 - Sharp Crossover backing up procedure**

In this exercise the driver will move the bus from one side of the ground reference to the other side of the ground reference, in the shortest distance that is possible.

1. The instructor explains how the bus should be set up at the beginning of the exercise.
  - a. The bus will be lined up to the ground reference.
  - b. The vehicle reference is the bottom of the tire.
  - c. The bus should be parallel and about 12" from the ground reference.
2. Steps the instructor will use during the sharp crossover exercise.
  - a. The instructor will move the bus from the **right hand side of the ground reference to left side of the ground reference**, in the shortest distance possible.
  - b. Proper order of steps: select reverse gear, turn on hazard lights, release parking brake, beep the horn and proceed with the exercise.
3. Demonstration of exercise
  - a. Begin the exercise with a full lock left turn
  - b. Monitor the bus movement in the left flat mirror
  - c. At the point where the vehicle reference and the ground reference intersect, the driver shifts his eyes from the left flat mirror to the right flat mirror.
  - d. At the point of recovery, the driver goes to a full lock right and continues to back up the bus and comes to a stop parallel to the ground reference, and within 12 inches.
4. Skills that drivers will have to acquire for this exercise
  - a. Driver will have to know how to use the full lock steering position.
  - b. Driver will have to know when to switch from the left flat mirror to the right flat mirror.
  - c. Driver will have to judge accurately where the vehicle and ground reference points intersect.

### **Part 4 - Stall backing procedure**

Stall backing is a procedure that bus drivers will be using every school day. During this exercise, the instructor will have a new driver demonstrate the stall backing exercise.

1. The instructor explains to the driver that during the stall backing exercise, all of the skills that we have demonstrated will be used.

Skills include:

- a. Mirrors - which ones to look into.
- b. Judging distance to the sides of the stall.
- c. Depth into the stall.

2. The driver will position the bus so that the bus's left rear wheels are at the top of the stall. Then the driver will begin the exercise by flaring the bus slightly out to the right. Once the bus is properly positioned, the driver will slowly and carefully back the bus into the stall.
3. Demonstration of backing the bus into the stall and parking it.
  - a. Select an empty stall.
  - b. Line up left rear wheel with the parking stall.
  - c. Beep the horn before backing up and parking the bus.
  - d. Judge the distance on both sides of the stall.
  - e. Use both mirrors when backing into the stall.

## **Part 5 - Field Exercises**

### **1st field exercise will explain how to back up the bus from a turnaround**

1. The bus approaches the turnaround and makes a turn to the left.
2. The bus stops and prepares to back up a small street.
3. The driver turns on hazard lights, puts bus in reverse, checks the mirrors and begins backing up the bus.
4. When backing up the bus, the driver monitors any problem objects and uses the side of the road as the ground reference point.
5. Since the road curves, and the driver can't do straight line backing, the driver uses the serpentine backing technique during this maneuver.
6. The driver backs up the road "no further than it absolutely necessary."
7. This field exercise demonstrates that the lessons learned in the training exercises can effectively be applied in the field.

### **2nd field exercise will explain how to turn a bus around in a cul de sac**

#### Incorrect method to navigate a cul de sac

1. In this example the driver will attempt to navigate around the cul de sac by following the perimeter of the cul de sac.
2. Eventually the driver will run out of room. He will then have to maneuver the bus back and forth several times, before having enough room to exit the cul de sac.

#### Correct procedure for turning around in a cul de sac

1. The bus enters the cul de sac and instead of trying to drive around the perimeter of the cul de sac, the driver picks a point approximately 1/3 of the way on the left and then drives to that point.
2. The driver then stops the bus, backs the bus up until the bus is positioned to leave the cul de sac and then exits.
3. By using this maneuver, the driver will need to only back the back up a single time. It's a

quicker and safer method to navigate a cul de sac.

**3rd field exercise will explain how to do a turn around using stall backing and sharp crossover backing up techniques.**

1. The bus driver pulls the bus forward and brings it to a stop. He'll be backing the bus up a street, perpendicular to the street where he has stopped the bus.
2. When backing up the bus, the driver looks into the right hand flat mirror.
3. He uses the right hand side of the road as his ground reference.
4. He also uses depth perception as he moves back.
5. The driver uses a full lock right while making the turn into the adjacent street. He holds the full lock right throughout the turn. This is the same maneuver he performed during stall backing and the sharp crossover.
6. The driver doesn't back up the bus any further than is necessary.

**Summation:**

Backing up a school bus is a procedure that school bus drivers are required to perform on a daily basis.

Success at backing up a school bus is a result of the bus driver learning the basic skills required in backing up the bus. This will give bus drivers confidence in their ability to back up a bus.

This video provides standard procedures for backing up a bus, however ***always follow the standards of your district*** when performing backing up procedures.

## TEST QUESTIONS

1. The ground reference line is always a well defined white or yellow line that school bus drivers can use to line up their bus.

True \_\_\_\_\_ False \_\_\_\_\_

2. The rear bumper of the bus is used to define the vehicle reference.

True \_\_\_\_\_ False \_\_\_\_\_

3. When performing a straight line backing maneuver on the left side of the bus, which mirror should you use?

- a. Left Flat \_\_\_\_\_
- b. Left convex \_\_\_\_\_
- c. Right Flat \_\_\_\_\_

4. When a driver must back up a bus onto a side street, if there are too many problem objects on the street, should the driver ask one of his students to leave the bus and act as a guide when backing up the street?

True \_\_\_\_\_ False \_\_\_\_\_

5. Is it necessary for the bus driver to use both flat mirrors when backing up a bus during a serpentine backing up maneuver?

True \_\_\_\_\_ False \_\_\_\_\_

6. When backing up a bus, the driver will not be able to see the rear tire because the angle of view of the flat mirror is too limited to pick up the flat mirror.

True \_\_\_\_\_ False \_\_\_\_\_

7. Is it necessary to use the left flat mirror and the right flat mirror, when performing the sharp crossover.

True \_\_\_\_\_ False \_\_\_\_\_

8. The best way to navigate around a cul de sac is to position the bus on the outer perimeter and then slowly circle the cul de sac.

True \_\_\_\_\_ False \_\_\_\_\_

9. When backing into a stall, only use the left side flat mirror. Using both mirrors is too distracting.

True \_\_\_\_\_ False \_\_\_\_\_

10. Depth perception, when looking into the flat mirrors, requires the bus driver to judge distances accurately because mirrors distort objects.

True \_\_\_\_\_ False \_\_\_\_\_

## ANSWERS

1. F

2. F

3. a.

4. F

5. T

6. F

7. T

8. F

9. F

10. T