



Tail Swing Safety for School Bus Drivers

Reference Guide and Test

INTRODUCTION

Making turns in a school bus is a maneuver that needs to be thoroughly practiced for it to be performed safely. Once you get the hang of it, it becomes second nature. However, there are several issues to be aware of each time you are approaching or making a turn. And **one of the most important parts of the bus to pay attention to while making these maneuvers, is the back end of the bus.**

Tail swing occurs when the movement of the rear portion of the vehicle swings in the opposite direction of the front end, while the front end turns. So if you are making a right turn with the school bus, the tail swing of the bus would swing to the left. When making a left turn, the tail swing of the bus would swing to the right.

Even veteran drivers have clipped a sign, rolled a curb, or rubbed a vehicle with the tail end of their bus. By knowing your bus and paying extra attention on approach and through a turn, the chances of running into problem objects with the tail end of the bus will be significantly reduced.

The video goes over several practices and demonstrations for understanding and applying tail swing safety. The video will also cover field exercises and focus on demonstrations of tail swing when exiting bus stalls.

Your guide throughout the video is Martin Ward, CEO at Mid-Placer Transportation Agency. He will give on camera instruction to Leslie Harrison, a school bus driver on many training techniques that can be applied to understand the effect that tail swing has, as well as the length of the tail swing on different styles of buses.

An Understanding of Tail Swing

1) Tail swing collisions, while making turns, are among the most common types of accidents in a school bus. Most of the accidents are minor and usually involve the tail end of the bus colliding into something small such as a mail box or stop sign. However, these accidents can also involve pedestrians and bicyclists.

2) So why is it so different to make a turn in a school bus as opposed to a typical automobile? The answer to that is that it is fairly simple to make a turn in a passenger

car without hitting anything. With a vehicle as long as a school bus is, you must allow enough room for both the front AND rear wheels to complete the turn.

3) There are several factors that play into the tail swing of a school bus. This includes:

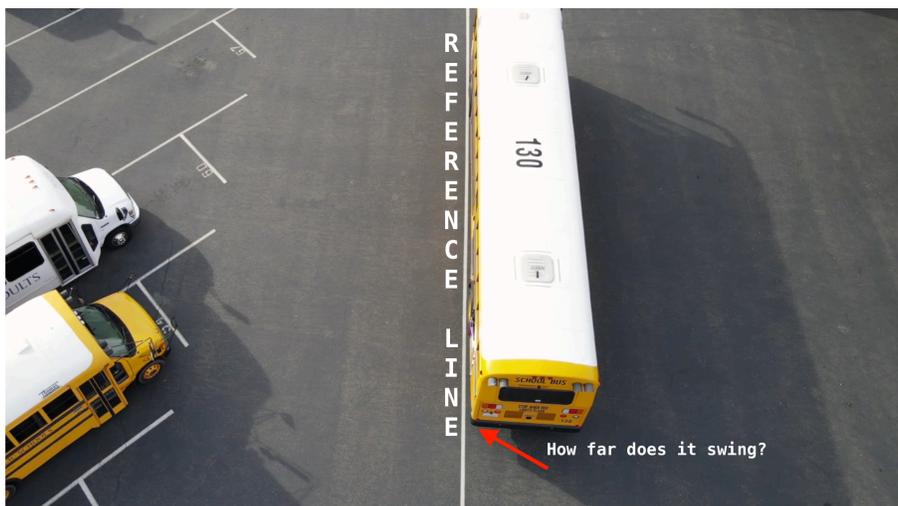
- a) The length and width of the bus.
- b) Problem objects presented at the turn.
- c) The distance between the rear axle and bumper.

4) **The primary area of the bus that DETERMINES its tail swing is the distance from the rear axle all the way to the bus's rear bumper.** The longer the distance is between these two points, the greater the tail swing will be when negotiating turns.

Tail Swing on a TRANSIT Style School Bus

5) There is a training exercise that can be practiced to help you get a visual aid on the tail swing of the school bus you will be driving. As mentioned above, tail swing will be different on different styles of buses. The first training exercise that we go over is on a transit style school bus.

6) In the video, Martin has Leslie pull the the bus on the right side of the line. The line is a reference to show the amount of swing that the rear end of the bus makes when maneuvering a sharp turn.



7) The purpose of the exercise is to fully lock the wheels and see how much the tail end of the bus swings over the line while slowly moving forward. Then they will exit the bus to be able to get an exact measurement.

8) In the demonstration the video illustrated, after putting the wheels to a full lock (to the right) and moving the bus forward, you can get a visual idea of the tail swing on the bus you will be operating.

9) In the example we've shown, the tail end of the transit bus swung approximately 12 to 13 inches over the white line. And to reiterate what Martin brought up in the video, **when making a turn, you should account for 2 feet of clearance from the bus's tail swing in a transit style bus.**

Tail Swing on a CONVENTIONAL Style School Bus

10) **A conventional style school bus is typically longer from its rear axle to the bumper than the transit style bus is.** In the video, we provide the same type of training exercise that was done with the transit style school bus. Martin has Leslie lock the wheels to the right and performs the same training exercise. Then they exit the bus to get a measurement.

11) In the conventional bus, the tail end of the bus swung approximately 27 inches over the reference line. Martin confirms to Leslie that **when making a turn in a conventional bus, you must account for AT LEAST 3 feet of clearance when making a turn.**

12) You should be able to see why the length from the rear axle to the bumper makes such a difference by now. The tail swing on the conventional bus is significantly more than it was on the transit bus. With the transit bus having approximately 13 inches of tail swing and the conventional bus closer to 27 inches.

13) Now take those measurements and round UP to the next foot. On a transit, it would be 2 feet. On a conventional it would be a minimum of 3 feet. That means when you are making a sharp turn, to make sure you are at least that distance away from vehicles, signs, pedestrians or any other obstructions when preparing to make a turn.

14) **It is also important to understand that whether you are making a right turn with a left swing, or a left turn with a right swing, the amount of tail swing is going to be the same on either side.**

15) In the video, Leslie asks about the smaller special needs buses. As we previously mentioned, school buses come in all shapes and sizes. However, Martin shows that the distance from the rear axle to the bumper is extremely short and would not pose many issues with its tail swing.

16) Take the time to practice these training techniques to help you get a visual idea of the tail swing on the bus you would typically drive.

Tail Swing While Exiting Bus Stalls

17) Tail swing issues present challenges for school bus drivers before they even leave the bus yard. School buses are often parked close together. This is to utilize as much space as possible to store these extremely large vehicles.

18) There have been many instances of school bus drivers running the tail end of their bus into another bus. School buses are EXPENSIVE. Expensive to buy. Expensive to drive. And expensive to fix. It is important that you pay close attention when pulling out of bus stalls. Always think of the other buses around you. **If you simply get in the bus and try cranking the wheel without monitoring mirrors and the tail end of your bus, you will hit another bus.**

19) To safely exit out of a stall:

- a) pull straight forward until you know you will have enough clearance with your bus's tail swing.
- b) You should be monitoring your left or right flat mirror depending on the direction that the rear of the bus will be swinging.
- c) Only start turning the wheel when you are certain that the rear end of the bus will not collide with the bus next to it.

Tail Swing on Roadways

20) **Anytime you are approaching a stop light, stop sign or simply going to make a turn, you should always be looking ahead so you know where to position your bus.** By looking ahead you can identify problem objects, vehicles and pedestrians.

21) School bus drivers have to drive down some pretty narrow roads. Setting up for a turn while keeping the bus's tail swing in mind becomes critical in these locations. When setting up for the turn, you must remember to have enough space to complete the turn on the road you will be turning onto. All the while you will need to avoid the tail end of the bus hitting any objects during the turn.

22) In the video we give an example of a bus on a narrow, rural road. The driver needs to make a left turn while avoiding a stop sign with the tail end of their bus. SUCCESS! The bus was able to complete the sharp turn without clipping the stop sign. Sometimes it is extremely close when making turns and avoiding problem objects.

23) Throughout the video, we have covered many issues in regards to tail swing of the school bus. We have demonstrated techniques that can be practiced to help understand tail swing. We have gone over tail swing on different styles of buses and given real world examples. Now take what you have learned and apply it. By focusing and applying the methods that were illustrated in this video, the likelihood of accidents happening can be significantly reduced.

TEST QUESTIONS

1) Tail swing occurs when the movement of the rear portion of the vehicle swings in the opposite direction of the front end, while the front end turns.

TRUE or FALSE

2) If you are making a right turn with the school bus, the tail swing of the bus would swing to the right.

TRUE or FALSE

3) Tail swing collisions are among the most common types of accidents that occur on a school bus.

TRUE or FALSE

4) The tail swing on a transit style bus is significantly greater than a conventional bus.

TRUE or FALSE

5) The distance from the front axle to the rear bumper is what determines tail swing.

TRUE or FALSE

6) Factors that play into the tail swing of a school bus are:

- a) The length and width of the bus.
- b) Problem objects presented at the turn.
- c) The distance between the rear axle and bumper.
- d) All of the above

7) When making a turn in a Conventional bus, you should account for 2 feet of clearance.

TRUE or FALSE

8) When making a turn in a transit bus, you should account for 2 feet of clearance.

TRUE or FALSE

9) Fully crank the wheel before moving the bus to exit a bus stall safely.

TRUE or FALSE

10) Always look ahead so you know where to position your bus when approaching turns.

TRUE or FALSE

ANSWER KEY

- 1) **TRUE**
- 2) **FALSE**
- 3) **TRUE**
- 4) **FALSE**
- 5) **FALSE**
- 6) **d**
- 7) **FALSE**
- 8) **TRUE**
- 9) **FALSE**
- 10) **TRUE**