CHAPTER 9

FORWARD CONTROL BUSES

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LESSON TOPICS:

FORWARD CONTROL BUSES

OBJECTIVES:

- To enable the driver to gain knowledge and display the necessary skills to safely and properly operate a forward control bus.
- To ensure safe and efficient transportation of students with this gained knowledge of skills to properly operate a forward control bus.

INSTRUCTOR GUIDELINES/NOTES	CONTENT
	INTRODUCTION Due to the differences in forward control buses versus the more common conventional style buses, this unit will focus on the driver adapting to these differences: A. Mirrors B. Turning radius C. Backing D. Driver's seat E. Distance from students F. Foot position G. Air operated door H. Driving fundamentals I. Stopping distance **VOCABULARY** **AIR OPERATED DOOR –** (automatic door) operates on air pressure by an electrical switch located on the control panel. **CONTROLLED SLIPPING** – steering recovery technique. **CONVENTIONAL (TYPE C) –** engine is in front of the windshield and the entrance door is behind the front wheels. **CONVEX MIRROR** – the center of the mirror is higher than it's sides. **COUNTER-STEER** – to turn the steering wheel back in other direction.

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	CROSSOVER MIRROR – mirror that shows the front of the bus and down to the pavement. **DOG HOUSE** – the inside cover of the engine, located by the driver's seat. **DOUBLE NICKEL** – a mirror that provides a long view along the left and right sides of the vehicle to enable the driver to view the rear tires at ground level; minimum distance of two hundred feet (200') to the rear of the bus and at least twelve feet (12') perpendicular to the side of the bus at the rear tire. **EGRESS** – to exit. **FORWARD CONTROL (TYPE D)** – a body installed upon a chassis with the engine mounted in front; the front axle is behind the windshield and the engine is beside the driver's seat; the entrance door is ahead of the front wheels. **HAND-OVER-HAND** – a steering technique where hands cross over one another. **INGRESS** – to enter. **PIVOT POINT** – the rear-end swing from the rear tire of the bus while making turns; rear overhang swings in opposite direction of turn. **PUSH-PULL** – a steering technique where one hand pushes the steering wheel up while the other hand pulls the steering wheel down. **TRACKING** – the path of front tires on a separate path of rear tires when turning; a visual technique used to

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	teach drivers proper lane positioning. **WEST COAST** –a rear visual outside long mirror that provides view along the left and right side of the vehicle. **WHEELBASE** – the distance from the front tires to the rear tires. **DIFFERENCES OF FORWARD CONTROL VS. CONVENTIONAL BUSES** The are many differences between a forward control and conventional bus. One of the major differences is visibility in relation to mirrors, side windows, windshields and maneuverability. In operating a forward control vehicle, the driver will notice almost immediately that visibility is greater due to the width of the windshield. **MIRRORS** There are currently seven (7) mirrors on the forward control bus. Mirrors will be different on each bus, depending upon the year of manufacture. There may be a West Coast mirror and two (2) convex mirrors on each side or there may be a set of double nickel mirrors with two (2) convex mirrors on each side which could bring the total of mirrors to nine (9), counting the inside rear view mirror. The double nickel replaces the West Coast mirror. The driver of a forward control bus does not have as clear a view of the windows down the left side. The mirrors can be difficult to adjust in order to achieve full view. The driver will need assistance in the adjustment due to the height of the mirrors.

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	TURNING RADIUS Whenever you drive a forward control bus, be aware that the longer the wheelbase – the wider the turn. The forward control bus has a shorter wheelbase than the conventional bus so turns can be made easier in close areas. The wheelbase and rear wheels must be considered while making turns and while rounding curves. The forward control is generally easier to maneuver in tight places. Making left and right turns can be achieved with less room available, which decreases incident potential. **BACKING** In backing the forward control bus, there is very little difference since both vehicles are straight. Use of the mirrors is a must for backing all buses. All mirrors must be in proper adjustment to meet the needs of the individual driver. Since the turning radius is smaller, care must be taken when backing and turning the wheel. You must remember that you have an overhang in front of the axle and in the rear, so be aware that the right or left corner will strike any object near the bus, if the driver turns the wheel in excess of what is required. **The secret to teaching backing is to go slow.** **DRIVER'S SEAT** When entering a forward control bus, it is apparent that the driver's seating arrangement is much different than in a conventional bus. The housing for the engine (dog house) is an obstacle. In the older forward control

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	buses, the dog house is not to be climbed upon for any reason. The driver must get into the driver's seat by careful maneuvering. The newer forward control buses have a plate on the dog house that will allow the driver to step on or walk over.

DISTANCE FROM STUDENTS

Upon entering the forward control bus, it's obvious that the driver is in an isolated area. This creates potential problems. Student behavior is more difficult to manage because of this space – the sound of the motor is loud and the driver cannot always hear the students – the students cannot always hear the driver giving instructions. The driver is restricted by space which could cause problems if he/she needs to leave his/her area quickly. The time it would take to actually get to a student takes longer, so the driver has to be alert to potential safety problems.

FOOT POSITIONS

Older Type D forward control driver seats have little or no lateral movement. Forward and reverse movement of the driver's seat is adequate. To obtain the best possible foot position, all drivers should adhere to the following:

1. Adjust the driver's seat to the best possible body configuration.
2. Adjust the seat so that the right foot can reach the foot pedals for safe operation of the vehicle.

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	3. When moving the right foot from the accelerator to the brake, lift the right foot completely off the accelerator pedal and place on the brake pedal. Do no mistake the accelerator for the brake pedal. 4. When depressing the brake pedal, it is recommended that only light steady pressure be applied, using the forward portion of the right foot (ball) to apply the brake. **AIR OPERATED DOOR** Forward control buses are equipped with an air operated door, activated by an electrical switch located on the control panel. All air operated doors are not equipped with a delay switch. Even though this door is easier to operate, the driver must constantly be aware of passenger movement to guard against student injury and/or egress. **TURNING** When turning a forward control bus, you should pull further into the intersection before turning. As with turning any vehicle, you must have your speed reduced, be in the proper lane for turning and constantly monitoring the mirrors and traffic environment. **STOPPING DISTANCE** Tests have shown no significant differences in stopping distances comparing a forward control vehicle to a conventional. In a forward control bus, the driver feels the stopping distance is longer due to the increased

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	distance of the driver from the rear of the vehicle. Note that forward control vehicles seem to slide more than the conventional when making a panic stop. **NOTE: THE MAIN CONCERN REGARDING THE DIFFERENCES BETWEEN CONVENTIONAL AND FORWARD CONTROL BUSES IS THE CHANGING BACK AND FORTH OF DRIVING ONE TYPE OF VEHICLE AND THEN THE OTHER TYPE OF VEHICLE. WHEN A DRIVER MAKES SUCH A CHANGE, THEY MUST CONTINUALLY BE AWARE OF THE DIFFERENCES AS THEY ADAPT.**

NAME: _____ DATE: _____

FORWARD CONTROL BUS
TEST
****PLEASE ANSWER TRUE OR FALSE****

1. _____ The crossover mirror shows the front of the bus.
2. _____ The forward control bus has a longer wheelbase than a conventional bus.
3. _____ The Type D forward control bus has greater visibility to the rear than a conventional bus.
4. _____ The best steering technique for a non-tilt steering wheel is the push-pull method.
5. _____ Proper lane positioning is vital before turning at an intersection.
6. _____ Proper hand positioning on the steering wheel is at the clock position of 10 and 3.
7. _____ To counter steer is to turn the steering wheel counter clockwise.
8. _____ A right turn in a forward control bus can be made in less space than a right turn in a conventional bus.
9. _____ When making a left turn, the vehicle is moved partially into the intersection before starting the turn.
10. _____ Stopping distance is increased when operating a forward control bus.
11. _____ A Type D bus is a conventional bus.
12. _____ The housing for the engine compartment is referred to as the dog house.
13. _____ Some differences between a forward control and conventional bus are mirrors, windshields and maneuverability.
14. _____ Drivers should climb onto the dog house to enter and exit the driver's seat on all forward control buses.
15. _____ Communication between driver and passenger is more difficult to achieve on a forward control bus.

INSTRUCTOR'S SIGNATURE: _____DATE: _____

FORWARD CONTROL BUS
TEST
****PLEASE ANSWER TRUE OR FALSE****

ANSWER KEY

The answer key is only released to KDE endorsed trainers.

1.