

# **UNIT THREE - DRIVER AND VEHICLE READINESS**

## **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.

**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.***

**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.

**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.***

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

**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.

**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.

**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.

**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.

## **PRE-TRIP – THE VEHICLE**

### **OPERATIONAL RULES – PRE-TRIP INSPECTION**

#### **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.*

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.

### **VEHICLE APPROACH**

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

### **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.

### **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)
  - Oil 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.
  - Temperature 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.
  - Ammeter Gauge - Indicates electrical charge from the alternator to the electrical system. If discharging, stop engine and report the problem to fleet maintenance.
  - Voltmeter Gauge - Indicates condition of the battery.
  - Gauge - Should be operable and indicating a safe margin of fuel for the trip.
  - Air 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.
- **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.

## **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.

## 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.

## 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.

## 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.

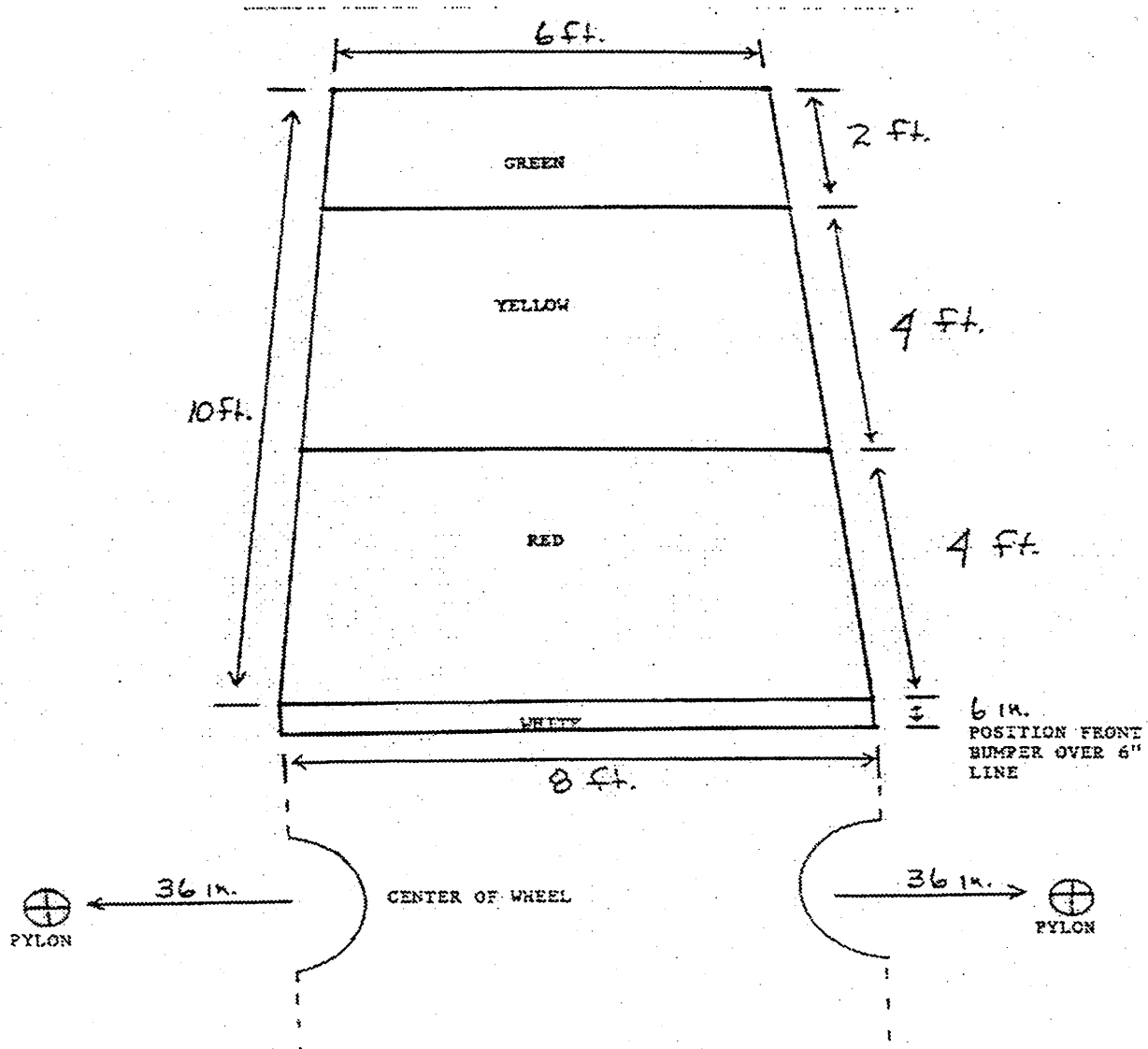


## MIRROR GRID FOR PROPER MIRROR ADJUSTMENT (Pre-FMVSS 111)

Front Mirrors - View front bumper and full painted area.

Side Mirrors - View wheel and pylon.

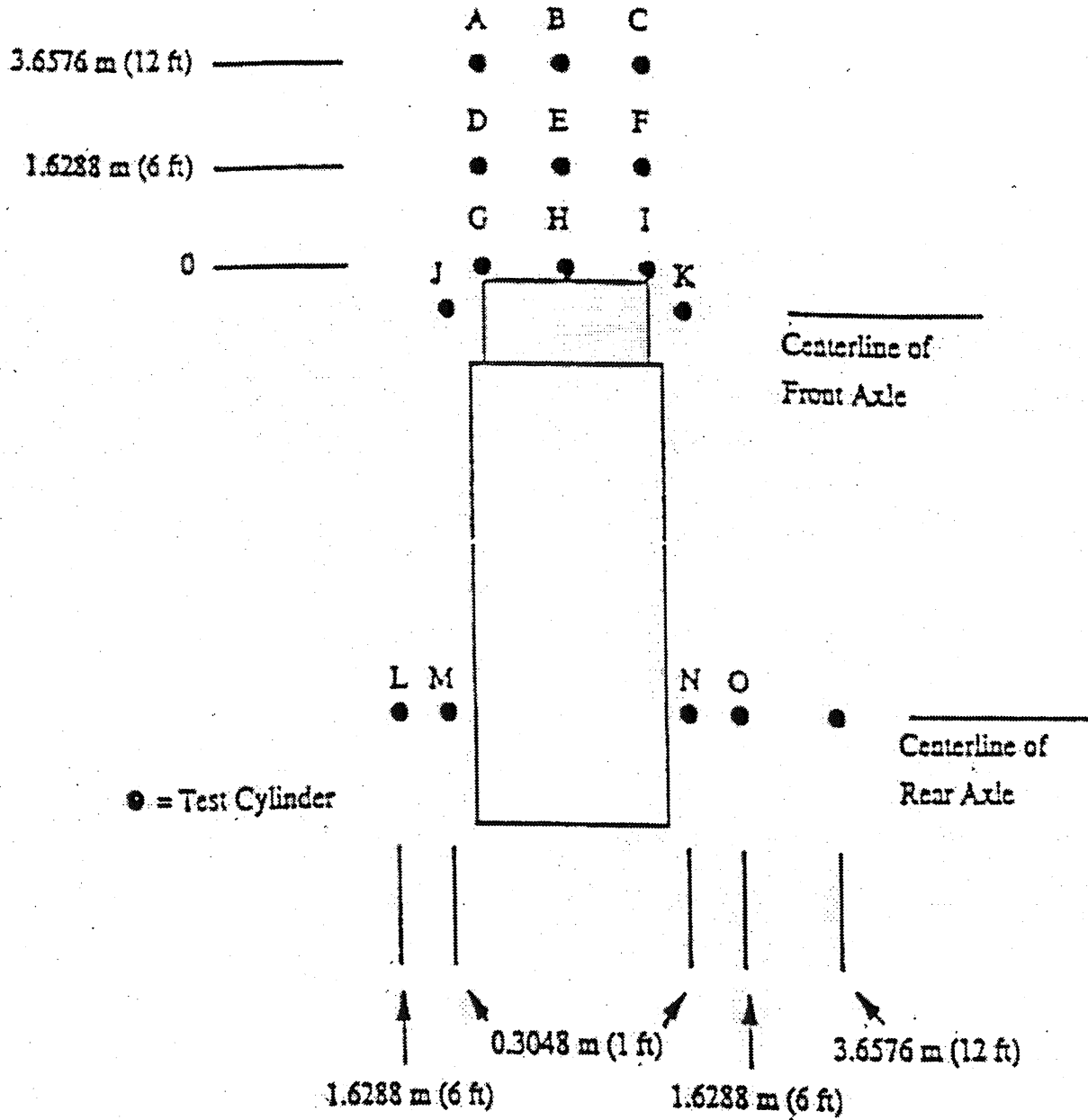
Assists driver when judging distance in front of vehicle.



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.

## **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.

### **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.

### **ENGINE SHUTDOWN**

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

### **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.

### **DOCUMENTATION**

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

## **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.**

**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

**Feel for Trouble:**

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

**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

**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.

## **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.

## **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