

KENTUCKY SCHOOL BUS



INSPECTOR MANUAL



APRIL 2019

Kentucky School Bus Inspector Manual

School bus safety inspections should consist of a standardized inspection where vehicles are placed out-of-service based on uniform criteria. All school districts shall follow the inspection regulations, rules, procedures and out-of-service criteria for all vehicles utilized in student transportation. A paper or electronic file folder containing the state required documents shall be kept for the life of the school bus, as long as it is owned by the school district.

Resource Information

49 CFR PARTS 570.1-570.63, Vehicle in Use Inspection Standards
49 CFR PARTS 400-599, Federal Motor Vehicle Safety Standards
49 CFR PARTS 393, 396, Federal Motor Carrier Safety Regulations
49 CFR APPENDIX G to Subchapter B, Minimum Periodic Inspection Standards
Kentucky Administrative Regulations 702 KAR 5:030, Pupil transportation
National School Transportation Specifications and Procedures

702 KAR 5:030 Section 2

The superintendent shall require that a safety inspection be made on each school bus owned and operated by the board or contracted to the board at least once each month that the district's schools are in session. This inspection shall be made by a state approved inspector. If, upon inspection, a school bus is found to be in unsafe operating condition, the superintendent shall withhold the bus from operation until the required repairs are made. The superintendent shall keep the records of the bus safety inspections on file.

A school district that contracts for maintenance service shall establish an adequate record-keeping system. Each transportation department must keep a vehicle file folder on site with the same documentation as if the vehicle was being serviced by the school district. The contracted company must have a certified school bus inspector prior to awarding the contract. At any time the contracted company does not have a certified school bus inspector, it will not be able to release the bus back to the school district for use. School bus inspectors are only certified by the Kentucky Department of Education. Consideration of when to contract maintenance includes the prevention of driving excess miles to a contracted shop for minor repairs when other items could be performed at the same time. Regardless of fleet size or level at which a district operates, a staff member must be available to coordinate all inspections, service, preventive maintenance and other major repairs.

Important Safety Notice

Appropriate service methods and proper repair procedures are essential for the safe, reliable operation of all motor vehicles as well as the personal safety of the individual doing the work. This inspection manual provides general directions for accomplishing service and repair work with tested, effective techniques. Following them will help assure reliability.

There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual doing the work. This manual cannot

possibly anticipate all such variations and provide advice or cautions as to each. Accordingly, anyone who departs from the instructions provided in this manual must first establish that he or she compromises neither his or her personal safety nor the vehicle integrity by his or her choice of methods, tools or parts.

Out-Of-Service Criteria

The purpose of criteria is to identify critical school bus components and provide tolerances that inspectors can utilize to determine if a school bus is safe for student transportation. This document is intended to establish a baseline for inspecting and placing school buses out of service. It is the rule of thumb that if a safety feature is not working, the school bus shall be placed out of service.

As you read through the procedures, you will come across notes, cautions and warnings. Each one is there for a specific purpose. Notes give you added information that will help you complete a particular procedure. Cautions are given to prevent you from making an error that could damage the vehicle. Warnings remind you to be especially careful in those areas where carelessness may cause personal injury. The following list contains some general warnings that you should follow when you work on a vehicle.

- Always wear safety glasses for eye protection.
- Use safety stands whenever a procedure requires you to be under the vehicle.
- Be sure that the ignition switch is always in the OFF position, unless otherwise required by the procedure.
- Set the parking brake when working on the vehicle. Place wheel chocks to the front and rear surfaces of the tires to provide further restraint from inadvertent vehicle movement.
 - o Automatic transmissions should be set to PARK unless instructed otherwise for a specific operation.
 - o Manual transmissions should be in REVERSE (engine OFF) or in NEUTRAL (engine ON) unless instructed otherwise for a specific operation.
- Operate the engine only in a well-ventilated area to avoid the danger of carbon monoxide.
- Keep yourself and your clothing away from moving parts when the engine is running, especially the fan and belts.
- Do not smoke while working on the vehicle.
- To avoid injury, always remove rings, watches, loose hanging jewelry and loose clothing before beginning to work on a vehicle. Tie long hair securely behind the head.
- Keep hands and other objects clear of the radiator fan blades. Electric cooling fans can start to operate at any time by an increase in under-hood temperatures, even when the ignition is in the OFF position. Therefore, care should be taken to ensure that the electric cooling fan is completely disconnected when working under the hood.

Caution A school bus has many parts dimensioned in the metric system as well as the English system. Some fasteners are metric and are very close in dimension to well-known English fasteners in the inch system. Mismatched or incorrect fasteners can result in damage to the vehicle or possibly personal injury.

Vehicle Entry and Exit

Warning Failure to exercise due care when entering and exiting vehicles can result in personal injury. Entry and exit should be made slowly, deliberately and carefully.

A three-point stance should be used. This means three out of four extremities should be in contact with the vehicle at all times. Face inward toward the steps and handholds when entering and exiting. Always keep steps and handholds in continuous good repair. Keep steps, grab handles and shoes free of grease, mud, dirt, fuel, ice and snow. Use extra care during inclement weather.

Vehicle Maintenance Program

A careful examination of school bus fleets indicates that the most efficient and successful pupil transportation programs are a result of a commitment to a comprehensive, well-planned vehicle maintenance program. The maintenance of vehicles is done on a schedule and is preventive in nature. While it may appear that scheduled maintenance increases the overall operating costs, the opposite is true. Preventive maintenance, when properly applied, will assure that a vehicle is safe to operate, experiences fewer costly road failures, and is overall more reliable and economical to operate than a vehicle maintained on a demand or breakdown basis.

Scheduled servicing and thorough periodic inspections by the service department should be carried out in accordance with the recommendations of the manufacturer's service manuals, making allowance for any unusual operating conditions. Since all vehicles are designed and constructed to operate within specific limitations, each district must establish strict service intervals that will achieve optimum safety, vehicle longevity and cost savings. In no instance should maintenance intervals be greater than the manufacturer's recommendations.

The service interval for all vehicle components, not being the same, necessitates grouping components into separate service intervals. This can be done by identifying and grouping needed service or inspection more frequently (brakes, steering, tires) and then those with the next higher frequency rate, and so on, until the entire fleet has been scheduled for service and/or inspection. The terrain of the county may necessitate more frequent checks of transmissions and brake services. Driving on gravel roads may require more frequent air filter changes.

Although it might be time consuming, a comprehensive maintenance system is the key to keeping school buses running economically and efficiently. To be effective, a maintenance system must focus on preventing problems. This means frequent checks of all buses, routine preventive work for the technician, and replacing parts that are worn out. Preventive maintenance means that buses are less likely to have major breakdowns on the road. A preventive maintenance schedule means lower term costs.

At a minimum, your bus schedule maintenance program should include the following:

- individual vehicle file folders
- service manual access
- documented pre-trip inspections by drivers
- scheduling preventive maintenance inspections

- service intervals that are no greater than the manufacturer's recommendations
- documented monthly safety inspections by a certified school bus inspector
- records of repairs and services performed on each vehicle
- parts and labor costs
- fuel and oil usage

Fleet Preventive Maintenance Schedule

The Preventive Maintenance Inspection (PMI) control system is designed to give shop management an improved method for scheduling and controlling the necessary cycles of maintenance inspections performed in local school districts.

Repair Procedure

The bus driver will complete a Driver Inspection Report each day, which is to be turned in to the director or designee at the end of each week. All repairs will be performed and documented by the signature of the Technician completing the repair. After repairs are completed, the driver's copy of the work order will be furnished for verification and a copy will be placed in the individual vehicle file folder.

The work order is a three-part form, which is to be completed at the time work is performed on any vehicle. Initial work order writing is to be performed by the service manager, with the hard copy distributed to the technician performing the work.

A vehicle out-of-service ticket is to be affixed to the steering wheel of any vehicle restricted from use due to preventive maintenance, inspection or repair. The out-of-service ticket shall remain with the vehicle until the required work is performed, at which time the ticket will be removed and filed in the individual vehicle file folder with the work order.

Preventive Maintenance Inspections

The following recommended preventive maintenance inspections are minimum recommendations. These recommendations should be followed, unless following the manufacturer recommendations. The manufacturer recommendations are located in the service manual for the school buses. If a school district is following the manufacturer recommendations, a copy of the service manual for the recommendations should be kept on file for reference. When using a manual form, each inspection type should be documented utilizing a different color paper to easily identify when a specific inspection has been done.

Using the PMI control system will enable the school system to certify, at least once each month, that each school bus used during that month has received the proper safety inspection.

Each model bus may require services at different intervals. Always use the service manuals for your protection and to decrease your liability, which also may save your district money. Each chassis has a specific way of diagnosis, repairs and torque. When following the manual, downtime and the comeback rate will be lessened. Always use original equipment manufacture (OEM) or equivalent parts and use quality oils and fuel.

The A inspection is a monthly safety inspection and that is always done with the B, C and D inspections. Each inspection includes everything in an A inspection and then triggers a

work order for additional work to be done, such as an oil change or other items found to be deficient. Every time a school bus is inspected or has work done, a work order shall be completed and filed.

An A inspection shall be completed once each calendar month (not to exceed 30 days), when school is in session or the bus is in use. When using a manual form, this form should be white.

The B inspection is in addition to the A inspection and includes an oil change. On a propane school bus, the mileage for an oil change is 5,000 miles, or not to exceed the manufacturer's recommendation. On the diesel bus, the mileage is 6,000 miles, or not to exceed the manufacturer's recommendation. If a bus is to have an oil change outside of these guidelines, an oil analysis shall be completed and the data kept in the school bus file. When using a manual form, this form should be pink.

The C inspection is for a propane school bus as an addition to the A and B inspection and includes a tune-up. This should be done between 12,000 and 18,000 miles. When using a manual form, this form should be yellow.

The D inspection is an A and B inspection that includes transmission fluid changes. This should be done between 24,000 and 36, 000 miles. When using a manual form, this form should be green.

On-Demand Maintenance

Preventive maintenance is one of the surest ways to keep a school bus in top performing standards, but there are times when other actions can trigger a work order and maintenance on a school bus. These include telephone calls from community members, school bus driver daily pre-trip inspections, accidents, vandalism or other irregular events.

A school bus driver is required by federal and state law to complete a pre-trip inspection each day prior to driving the school bus. Drivers may notice lights are not working properly, brakes feel out of adjustment, heaters are not working or another component needs to be addressed. This repair work is indicated by the driver on the pre-trip inspection form and is turned in to the service department for repair at the end of his or her route, or per department procedures.

Some items, such as brakes and lights, will cause the school bus to be put out-of-service immediately and require a work order to be completed with an out-of-service tag attached to the steering wheel without allowing the vehicle to be used for the intended run. At this time, the driver may be given a spare bus to use.

Once the work has been completed by the service department, the bus is released back to the driver by the certified inspector, who checks the appropriate box on the work order stating the bus has been repaired and is approved for use. A copy is kept in the vehicle file folder, and the remaining copies are kept with the school bus for the remainder of the week. A pre-trip inspection form is replaced weekly on the school bus.

Instructions for Preventive Maintenance Inspection Reports

The following is a guide regarding the expected time it will take to do inspections and reinspections. It does not include any time needed to complete any deficiencies found during the inspection process.

A Inspection	45 minutes
B Inspection	1 hour
C Inspection	1 hour, 30 minutes
D Inspection	2 hours, 30 minutes
Reinspection	15 minutes*

Here are descriptions of each inspection type and intervals for a preventive maintenance schedule:

A Inspection Monthly, not to exceed 30 days

This is a safety inspection. Write a work order. Check all fluid levels and top off each one. Air all tires unless replacement is needed. Repair all lights. Put all driver complaints on the work order and note as driver complaints. Document on the work order all work that was completed. See items in the “Operation to Perform” section for A Inspection.

A B Inspection 6,000 miles, not to exceed the manufacturer’s recommendation in the service manual.
5,000 miles on propane, not to exceed the manufacturer’s recommendation in the service manual.

This inspection includes an oil and oil filter change. Lube all grease fittings. Take an oil sample (diesel only). Check the coolant freeze points and conditioner. Check the diesel air filter restriction gauge. Document on the work order all work that was completed. See “Operation to Perform” for B Inspection.

A B C Inspection for Propane Powered Units 12,000 to 18,000 miles or according to the manufacturer’s recommendation

This inspection includes a tune-up. Replace the air filter engines and all emission filters. Replace propane engine fuel filter. Service the battery and clean and seal the cables. Check the engine air filter restriction gauge. Document on the work order all work that was completed. See “Operation to Perform” for C Inspection.

A B C D Inspection 24,000 to 36,000 miles

This inspection includes a more in-depth diagnosis of components such as transmission and rear end services. Replace the coolant filters. Replace the transmission auxiliary filters. Replace the secondary and primary fuel filters. The D Inspection will include body shop work. Document on the work order all work that was completed. See “Operation to Perform” for D Inspection.

Quality Control and Reinspection - Work to Perform

Only recheck items on work order because the bus already has been checked by one inspector, one or more technicians and possibly the service manager.

RECOMMENDED SCHOOL BUS OUT-OF-SERVICE CRITERIA

National School Transportation Specifications and Procedures

The numbers listed in brackets or parenthesis reference items within the Code of Federal Regulation (CFR), which determines the criteria for the items. More detailed explanations can be found within each item in the CFRs. As an inspector, you should become familiar with what is federally required as well as state and local requirements.

BODY EXTERIOR

- A. Any panel, rub rail or trim that is loose, torn, dislocated or protruding from the surface of the bus, creating a hazard (393.203); or
- B. Any engine, battery or other door that is not properly secured (393.203).

BODY INTERIOR

Aisle

- A. Aisle does not have the required clearance (571.217); or
- B. Obstructions in aisle that prevent passengers from egress to emergency exits (393.62) (393.203).

Door (Entrance)

- A. The student entrance door does not open or close properly;
- B. Door control handle does not lock in the closed position; or
- C. Door is equipped with a padlock or similar locking device (excludes interlock systems).

Floor

Floor not maintained to prevent slipping or tripping by passenger(s).

Handrail

- A. Handrail loose or missing; or
- B. Handrail fails the nut/drawstring test as defined by NHTSA.

Panels

Any panel (e.g., ceiling, side or wheel well) protruding, having sharp edges or not secured so is likely to cause injury.

Seat (Driver)

- A. Driver seat is not securely fastened to vehicle and/or fails to maintain adjusted position (393.93); or
- B. Any part of the driver's safety restraint assembly is missing, not properly installed or defective as to prevent proper securement of occupant [393.93(a)(b)] (571.209).

Seat(s) and Barrier(s)

- A. Any seat or barrier that is not securely attached to the vehicle (393.91);
- B. Any seat or barrier material(s) that compromises the integrity of compartmentalization and occupant protection (571.222); or
- C. Seat spacing fails to comply with 571.222.

Stepwell

- A. Any part of the stepwell or support structure that is damaged; or
- B. Any part of the stepwell tread that is loose, torn or damaged that would present a tripping hazard.

BRAKE SYSTEM(S)

Adjustment

Any one brake beyond the adjustment limit (See Table 1: Brake Adjustment Specifications.)

Air System

- A. Absence of effective braking action upon application of service brakes [393.48 (a)];
- B. Audible air leak at chamber (e.g., ruptured diaphragm, loose chamber clamp, et cetera) [386.3(a)(1)];
- C. If an air leak is discovered and either the primary or secondary reservoir pressure is not maintained when these conditions exist [396.3(a)(1)]:
 - 1. Governor is cut in;
 - 2. Reservoir pressure is between 80 and 90 pounds per square inch;
 - 3. Engine is at idle; and
 - 4. Service brakes are either fully applied or released; or
- D. ABS malfunction indicator light not functioning as designed or illuminated on all ABS required vehicles.

Axle Brakes, General

- A. Chamber size mismatched on axle [393.47(b)];
- B. Mismatched brake chamber long stroke verses regular stroke [393.47(b)]; or
- C. Mismatched slack adjuster length [393.47(c)].

Brake Shoe/Pad/Lining

- A. Any lining thickness less than allowed by 393.47;
- B. Lining pad is cracked, broken, not firmly attached or missing (393.47) (surface or heat cracks in the lining should not be considered out of service);
- C. The friction surface of drum, rotor or friction material are contaminated by oil, grease or brake fluid (393.47);
- D. Loose or missing component (e.g., chambers, spiders, support brackets) (393.47);
- E. Fails to make contact with drum/rotor (e.g., frozen, binding, uneven) [393.48(a)];
- F. Absence of braking action on any axle (e.g., failing to move upon application of a wedge, S-cam, cam or disc brake);

- G. Rotor or drum has evidence of metal to metal contact on the friction surface [393.47(d)(1)]; or
- H. Brake pad, lining or shoe missing [393.47(a)].

Drums/Rotors

- A. External crack(s) that open upon application [393.47(a)]; or
- B. Any portion of the drum or rotor (discs) missing, broken, misplaced or cracked through rotor to center vent [393.47(a)].

Hoses and Tubing

- A. Brake hose with any damage extending through the outer reinforcement ply [393.45(a)];
- B. Audible leak at other than a proper fitting or connection [393.45(a)];
- C. Any bulge or swelling when brakes are applied [393.45(a)];
- D. Any restriction due to cracked, broken or crimped line/hose [393.45(a)]; or
- E. Any line, tubing, hose or connection that is not constructed to meet standard (571.106).

Hydraulic Brake System

- A. System brake failure light or low fluid light on or inoperative (393.51);
- B. Reservoir is below minimum level [393.45(a)] (571.106);
- C. Any seeping, leaking or swelling of hose(s) under pressure [393.45(a)];
- D. Any leak in master cylinder unit [393.45(a)] (571.106).
- E. Any observable fluid leak in the brake system;
- F. Brake failure warning system is missing, inoperative, disconnected, defective or activated while the engine is running with or without brake application [393.51(b)];
- G. ABS malfunction indicator light not functioning as designed or illuminated on all ABS required vehicles.

Parking Brake

- A. Fails to hold vehicle in stationary position on normal roadway conditions (absence of ice or snow) in forward or reverse (393.41) [571.105 S5.2.1 and S5.2.3(b)].
- B. Parking brake warning lamp fails to function as designed.

Pedal Reserve

No pedal reserve with engine running [393.40(b)].

Power Assist Unit

Fails to operate [396.3(a)(1)].

DIFFERENTIAL

Cracked or leaking housing [393.207(a)].

DRIVESHAFT

- A. Driveshaft guard loose, missing, improper placement or bent (393.89); or
- B. Universal joint(s) worn or faulty, or obvious welded repair [393.209(2)(d)].

ELECTRICAL/BATTERY

Battery

- A. Battery not secured (393.30);
- B. Signs of leaking or excessive corrosion; or
- C. Battery lacks cranking capacity to start engine.

Cables

- A. Electrical cable insulation chafed, frayed, damaged or compromised insulation burnt, causing bare cable to be exposed [393.28, 396.3(a)(1)];
- B. Loose or corroded connections at battery posts or compromised insulation protection to electrical components [393.28, 393.77(b), 396.3(a)(1)]; or
- C. Missing or damaged protective grommets insulating main electrical cables through metal compartment panels (393.30).

Components

- A. Broken or unsecured mounting of electrical components [396.3(a)(1)]; or
- B. Electrical cable unsupported, hanging or missing clamps that may cause chafing or frayed conditions [393.28, 396.3(a)(1)].

Windshield Wipers

- A. Inoperative, missing or damaged wiper (393.78); or
- B. Wiper does not clean sweep area of driver's windshield (393.78).

EMERGENCY EQUIPMENT

- A. Fire extinguisher missing, not of proper type or size, not fully charged, has no pressure gauge, is not secured or is not readily accessible to the driver or passengers (393.95);
- B. Any additional state-specific equipment (e.g., first aid kit, body fluid kit, webbing cutter and emergency reflectors) that fails to meet state specifications and places the vehicle out of service; or
- C. Missing emergency triangles (571.125).

EMERGENCY EXITS

- A. Any emergency door, window or roof hatch that fails to open freely or completely as defined in 571.217;
- B. Door prop-rod device is missing or inoperative (571.217);
- C. Any emergency exit equipped with a padlock or similar locking device (excludes interlock systems);
- D. Any vehicle that lacks the required number of emergency exits (571.217);
- E. Any emergency exit not properly labeled and marked both inside and outside the vehicle as specified by 571.217;
- F. Any item or modification that reduces the size of the opening and limits egress to the emergency exit by all passengers; or

- G. Emergency exit warning device is not audible in the driver seating position and/or the vicinity of the emergency door or window (571.217).

ENGINE

- A. Any critical component that fails to function as designed (396.3); or
- B. Any fluid leak that would affect the safe operation of the vehicle (396.3)

EXHAUST SYSTEM

- A. The exhaust system is leaking or discharging directly below or at a point forward of the driver or passenger compartment [393.83(g)]; or

Note: Does not apply to proper venting for emission systems.

- B. No part of the exhaust system shall be located and likely to result in burning, charring or damaging the electrical wiring, the fuel supply or any combustible part of the vehicle [393.83(a)].

FUEL SYSTEM

LPG Fuels

- A. Any fuel leakage from the LPG system detected audibly or by smell and verified by either a bubble test using non-ammonia, non-corrosive soap solution, or a flammable gas detection meter [396.3(a)(1)].

Note: Verification is needed to ensure that the sound is not either internal to the fuel system (such as gas flowing in a pressure regulator, or pressure equalizing between manifold tanks) or a leak in the air brake system.

- B. Any fuel leakage from the LPG system detected visibly (evidence such as ice buildup at fuel system connections and fittings) and verified by either a bubble test using non-ammonia, non-corrosive soap solution, or a flammable gas detection meter [396.3(a)(1)].

Note: Some brief fuel leakage or decompression may occur during refueling, causing temporary frosting of LPG fuel system parts. If the vehicle has been refueled shortly before inspection, care must be taken to distinguish these temporary frosting occurrences from actual leaks.

Liquid Fuels

- A. Any part of the fuel tank or fuel system not securely attached to the vehicle (393.65);
- B. A fuel system with a dripping leak at any point (393.67 tank); or
- C. Dripping leak (396.3(a)(1) leak other than tank); or
- D. Missing fuel cap or system does not seal as designed.

LAMPS/SIGNALS

- A. Any one of the following lamps not working: brake, turn signal, tail, head (low beam), school bus overhead warning light (amber or red), hazard warning or stop arm lamp (571.108, 571.131);

Note: vehicle LED lamps must have more than 25% of the diodes unlit to be considered not working.

- B. Horn fails to function as designed (393.81);
- C. Any critical brake, telltale lamp, buzzer or gauge that fails to function as designed;
- D. Required stop arm(s) fail to operate with overhead red lights as mandated (571.131); or
- E. If equipped, a crossing control device fails to extend and retract as designed.

MIRRORS (571.111)

- A. Any mirror required to provide the driver with the entire field of view, missing, damaged, clouded or otherwise obscured that would place children in a hazardous position;
- B. Any crossover mirror system or portion thereof that fails to hold a set adjustment;
- C. Any crossover mirrors directed to view any area other than for which they were intended; or
- D. Any part of the required field of vision obscured or not visible from the driver seated position.

STEERING SYSTEM

Ball/Socket Joints

- A. Any movement under steering load of a nut stud [396.3(a)(1)];
- B. Any motion, other than rotational, between any linkage member and its attachment point of more than 1/8 inch measured with hand pressure only [393.209(d)]; or
- C. Any obvious welded repair [393.209(d)].

Front Axle Beam

Any crack(s) or obvious welded repair [396.3(a)(1)].

Nuts

Loose or missing fasteners on tie rod, Pitman arm, drag link, steering arm or tie rod arm [396.3(a)(1)].

Pitman Arm

- A. Looseness of the Pitman arm on the steering gear output shaft [393.209(d)]; or
- B. Any obvious welded repair [396.3(a)(1)] [393.209(d)].

Power Steering

- A. Auxiliary power assist cylinder loose [393.209(e)];
- B. Power steering system belts frayed, cracked or slipping [393.209(2)(e)]; or
- C. Power steering system leaking or insufficient fluid in reservoir [393.209(2)(e)].

Steering

- A. Any modification or condition that interferes with free movement of any steering

- component [393.209(d)]; or
B. Steering travel restricted through the limit of travel in both directions [570.60(c)].

Steering Column/Wheel

- A. Absence or looseness of U-bolts or other positioning part(s) [393.209(c)];
- B. Welded or repaired universal joint(s) [393.209(d)];
- C. Steering wheel not properly secured [393.209(a)]; or
- D. Steering wheel lash/free play exceeds performance test (see Table No. 2) [393.209(b)].

Steering Gear Box

- A. Mounting bolt(s) loose or missing [393.209(d)];
- B. Crack(s) in gearbox or mounting brackets (393.209(d)) [396.3(a)(1)];
- C. Any obvious welded repair(s) [396.3(a)(1)] [393.209(d)]; or
- D. Looseness of yoke-coupling to the steering gear input shaft [393.209(d)].

Tie Rods/Drag Links

- A. Loose clamp(s) or clamp bolt(s) on tie rod or drag link(s) [396.3(a)(1)]; or
- B. Any looseness in any threaded joint [396.3(a)(1)].

SUSPENSION COMPONENTS

Air Suspension

- A. Deflated air suspension (one or more deflated air spring/bag) [393.207(f)]; or
- B. Air spring/bag is missing, broken or detached at either the top or bottom (393.207(f)).

Axle Parts/Members

- A. Any U-bolt or other spring to axle clamp bolt(s) which are cracked, broken, loose or missing [393.207(a)];
- B. Any axle, axle housing, spring hanger(s) or other axle positioning parts which are cracked, broken, loose or missing that results in shifting of an axle from its normal position [393.207(a)];
- C. Any worn (beyond manufacturer specifications) or improperly assembled U-bolt, shock, kingpin, ball joint, strut, air bag or positioning component [570.61 (a)];
- D. Any spring hanger, assembly part or portion of leaf which is broken, separated or missing [393.207(c)]; or
- E. Any broken coil spring [393.207(d)].

Bumpers

- A. Front bumper is missing or not properly secured [393.203(e)]; or
- B. Rear bumper is missing or not secured (393.86).

Chassis/Frame/Unibody

- A. Any cracked, loose, sagging or broken, frame side rail. [393.201(a)];
- B. Any damage permitting the shifting of the body or imminent collapse of frame [393.201(a)];

- C. Any cracked, loose or broken frame member affecting support of functional components (e.g., steering gear, engine, transmission, body part or suspension) [393.201(a)];
- D. Any crack 1 ½ inches or longer in the frame side rail web that is directed toward bottom flange [393.201(a)]; or
- E. Any crack extending from the frame side rail web around the radius and into the bottom flange [393.201(a)].

Crossmembers

- A. Any cross member, outrigger or other structural support that is cracked, missing or deformed that affects the structural integrity of the vehicle (393.201);
- B. Three or more adjacent crossmembers broken or detached (393.201); or
- C. Any area of the floor that is sagging or soft due to broken crossmembers (393.201).

Outriggers/Body Supports

Any crossmember, outrigger or other structural support that is cracked, missing, deformed or has rust holes where damage affects the safe operation of the vehicle.

TIRES/WHEELS/HUBS

Hub

- A. Excessive wheel bearing or kingpin play that exceeds ¼ inch (393.70) (570.61).
- B. Any bearing (hub) cap, plug, or filler plug that is missing or broken, allowing an open view into hub assembly [396.3(a)(1)];
- C. Smoking from wheel hub assembly due to bearing failure [396.3(a)(1)];
- D. Any wheel seal is leaking. This must include evidence of contamination of the brake friction material [396.5(b)];

Note: Grease or oil on the brake lining edge, back of shoe or drum edge and oil stain with no evidence of fresh oil leakage are not conditions for an out-of-service violation.

- E. Lubricant is leaking from the bearing hub and is accompanied by evidence that further leakage will occur [396.5(b)]; or
- F. No visible or measurable amount of lubricant showing in bearing hub [396.5(a)].

Tire Inflation

Tire is flat or has noticeable leak [393.75(a)(3)].

Tire Sidewall

- A. Any sidewall cut, worn or damaged to the extent that the steel or fabric cord is exposed [393.75(a)]; or
- B. Any observable bump, bulge or knot related to sidewall or tread separation [393.75(a)].

Tire Tread Depth

- A. Any front tire worn to less than 4/32 inch [393.75(b)]; or
- B. Any rear tire worn to less than 2/32 inch [393.75(c)].

Tire Type

Caution: Tires shall be the same size and have the same tread pattern. The diameter of both tires must not have more than ½ inch difference. There should be no more than a ¾ inch difference in the circumference of the two tires. Casings that are more than 5 years old shall not be retreaded.

- A. Any school bus operated with regrooved, recapped or retreaded tires on the front axle [393.75(d)]; or
- B. Any tire not of proper type (e.g., load range, size, mismatched on axle).

Wheels/Rims/Spiders

- A. Any nuts, bolts, studs, lugs or holes that are elongated, broken, missing, damaged or loose [393.205(b)];
- B. Any cracked or broken wheel or rim [393.205(a)]; or
- C. Any lock or slide ring broken, cracked, improperly seated, sprung or with mismatched rings [393.205(a)].

WHEELCHAIR LIFT-EQUIPPED VEHICLES

- A. Wheelchair lift does not function as designed or is inoperable;
- B. Platform lift manufactured after April 1, 2005 must meet all the following criteria, (as referenced in FMVSS 403 and 404):
 - 1. Jacking prevention;
 - 2. Manual backup operating mode;
 - 3. Interlocks to prevent forward or rearward mobility of the vehicle unless lift is stowed and lift doors are closed;
 - 4. Wheelchair retention device; and
 - 5. Platform outer barrier, inner roll stop and threshold warning device.
- C. Any hydraulic line leaking during lift operation;
- D. Wheelchair restraint system is missing, incomplete or improperly installed, loose, damaged or does not adhere to the securement manufacturer's recommendations; or
- E. Any required wheelchair occupant restraint system not in compliance (571.222).

WINDOWS

- A. Any glass or glazing that is broken through or missing (393.60);
- B. Any glass not of approved type [393.60(a)];
- C. Windshield has discoloration or other damage in that portion extending upward from the height of the topmost portion of the steering wheel, but not including a 2-inch border at the top and a 1-inch border at each side of the windshield or each panel thereof, except as follows:
 - 1. Color or tint applied by the manufacturer for the reduction of glare;
 - 2. Any crack not over ¼ inch long, if not intersected by any other crack;
 - 3. Any damaged area that can be covered by a disc ¾ inch in diameter, if not closer than 3 inches to any other such damaged area; or
 - 4. Driver's side area window(s) has chips, clouding or cracks that obscure the driver's vision [393.60(c)]; or
- D. No operable defrosting and defogging system to clear the driver's windshield (571.103).

RECOMMENDED SCHOOL BUS INSPECTION PROCEDURES

WARNING! Please READ and follow these instructions to avoid personal injury or death. Prior to performing any inspection procedures, always ensure that the vehicle is properly secured, wheels are chocked and the ignition key is controlled. Proper safety equipment should always be used.

When working on or around a vehicle, the following general precautions should be observed at all times:

- A. Park the vehicle on a level surface, apply the parking brakes and always block the wheels.
- B. Always wear safety glasses and other appropriate safety gear.
- C. Stop the engine and remove the ignition key when working under or around the vehicle.
- D. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, EXTREME CAUTION should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.

BODY EXTERIOR

- A. Visually inspect the body exterior to ensure there is not any panel, rub rail or trim that is loose, torn, dislocated or protruding from the surface of the bus that would create a hazard.
- B. All engine, battery or other doors must be securely mounted and properly installed.

BODY INTERIOR

Aisle

- A. Visually inspect the aisle to ensure all aisles, including aisle (or passageway between seats) leading to emergency door are a minimum of 12 inches.
- B. Visually inspect to ensure there are no obstructions in an aisle that would prevent passengers from egress to emergency exits.
- C. On buses with a side emergency door, check that aisle space from the center aisle to the side of the emergency door is 12 inches by measuring between the vertical line of the seat back and the face of the next seat cushion or bottom of a flip seat.
- D. On buses equipped with flip seats, inspect to ensure the seat cushion rises to a vertical position automatically when not occupied.

Door, Entrance

Visually inspect and operate the entrance door and inspect the door to ensure it properly opens and closes without any obstruction of movement. Inspect the manually operated door to ensure it will maintain open and closed positions. The door shall not have any locking device except for interlock systems. On power-operated entrance doors, the emergency release valve, switch or device to release the entrance door must be placed above or to the immediate left or right of the entrance door and must be clearly labeled.

Floor

Visually inspect the floor covering, aisle and cove molding strips for condition and adhesion. Check fastening holes for cracks, and check condition of rubber in aisle to ensure that there are no unsealed holes or cracks through the underside of the bus and no damage to the coverings that could cause a trip or slip hazard.

Handrail

The handrail must be securely mounted and all OEM hardware present. Perform the NHTSA nut-and-string-test as described and illustrated below.

Nut-and-String Test

The Handrail Inspection Tool and Procedure

The inspection tool is inexpensive and the procedure for detecting potentially fatal handrail designs is quite simple. The inspection tool is a standard ½-inch hex nut measuring ¾ inch across the flats. This nut is tied to ¼-inch thick cotton cord measuring 36 inches in length with overhand knots. The drawstring should have a minimum length of 30 inches when tied to the nut and attached so that a pull of at least 10 pounds does not separate the nut from or break the drawstring.

Steps to conduct a handrail inspection are:

- Stand on the ground outside of the bus;
- Drop the inspection tool between the handrail and stepwell wall, simulating the typical way students exit the bus;
- Draw the inspection tool through the handrail in a smooth, continuous, slow motion; and
- Repeat this procedure several times (a minimum of three times).

Note: It is important to drop the inspection tool over the handrail in such a way as to simulate a child exiting the bus. This is a drop-and-drag test. Do not create a snagging situation by placing the nut in an area that would not be exposed to a drawstring or other articles.

Inspection Results

Take the bus out of service and repair it if the inspection tool catches or snags anywhere on the handrail. If the nut separates from the drawstring, or the drawstring breaks, reassemble the tool and retest. If the inspection tool pulls freely without catching or snagging, the bus should not be rejected.

Panels

Visually inspect all interior sidewall, rear, ceiling and driver's area paneling for secure fastening, projections or sharp edges and general condition.

Seat(s) and Barrier(s)

- A. Visually inspect all seats and barriers to ensure all are securely mounted and not loose or broken.
- B. All seats shall be forward-facing and securely fastened to the bus body. Passenger



seat cushions shall be fastened to prevent the cushions from disengaging from the seat frames in the event of an accident. There shall be a minimum space of 24 inches between the forward surface of a seat back and the rear surface of the seat or barrier ahead, measured across the seat cushion without depressing any surface. The forward surface may have side bolsters that briefly reduce the width to less than 24 inches, provided the remainder of the seat measures at least 24 inches.

- C. Seats and barriers should appear symmetrical. Seats or barriers that do not appear symmetrical should be physically inspected to ensure seat covering and/or padding is not significantly compromised and complies with FMVSS 571.222.

Seat, Driver

- A. Visually inspect driver's seat to ensure it is securely fastened to the vehicle.
- B. Visually inspect the driver's seat for its ability to maintain the adjusted position. Inspect driver's restraining device (seat belt) for fraying, attaching hardware and the capacity of the seat belt for maintaining the driver in the seated position.

Stepwell

Visually inspect the stepwell to ensure structural stability of the support structure. Inspect the stepwell treads to ensure proper securing and adhesion to the stepwell. Visually inspect step treads for any excessive worn areas that may pose a tripping or slip hazard.

BRAKE SYSTEMS

Air System

- A. With full system air pressure, depress the brake pedal and determine whether effective braking forces are applied to each wheel-end brake. There should be no audible air loss at supply lines, fittings, valves or brake chambers.
- B. With full system pressure, make a single full service brake application with the parking brake and ignition off. Note the gauges and listen for air leaks. Release the service brake.
- C. If an air leak is detected at any point in the inspection process, check the vehicle's air loss rate following these procedures:
 1. Set the engine at idle and release the brakes;
 2. Reduce the air pressure in the reservoir to 80 psi;
 3. Make a full brake application with the governor cut in; and
 4. Check the air pressure gauge after initial application for air loss. Air pressure should be maintained or increase. A drop in pressure indicates a serious air leak in the brake system.

Air Brakes Measurement

The following procedure is based on the applied stroke method for measuring the movement of the brake chamber push rod:

- A. Release the spring brakes and visually check each brake to ensure it is in the normal released position.
- B. With the brakes released, make a mark where the pushrod exits the brake chamber.
- C. With the engine off, make a series of brake applications to reduce the reservoir pressure to between 90 and 100 psi.

- D. Apply and hold a full brake application (90 to 100 psi).
 E. Measure the distance between the mark and the face of the brake chamber. The difference between measurements is called the *chamber applied stroke*.

Note: Any brake that is beyond the readjustment limit will require repairs and/or adjustment. (See Table 1: Brake Adjustment Specifications below.)

Table 1: Brake Adjustment Specifications

Brake adjustment: Shall be less than those specifications listed under “Brake Adjustment Limit.” (Dimensions are in inches.)

Clamp-Type Chamber Data

Type	Outside Diameter	Brake Adjustment Limit
6	4 1/2	1.25
9	5 1/4	1.375
12	5 11/16	1.375
16	6 3/8	1.75
20	6 25/32	1.75
24	7 7/32	1.75
30	8 3/32	2.0
36	9	2.25

“Long Stroke” Clamp-Type Brake Chamber Data

Type	Outside Diameter	Brake Adjustment Limit
12	5 11/16	1.75
16	6 3/8	2.0
20 (2 1/2” Rated Stroke)	6 25/32	2.0
20 (3” Rated Stroke)	6 25/32	2.5
24 (2 1/2” Rated Stroke)	7 7/32	2.0
24 (3” Rated Stroke)	7 7/32	2.5
30	8 3/32	2.5

DD-3 Brake Chamber Data

Type	Outside Diameter	Brake Adjustment Limit
30	8 1/8	2.25

Note: This chamber has three air lines and is found on motorcoaches.

Wedge Brake Data

The combined movement of both brake shoe lining scribe marks shall not exceed 1/8 inch (3.18 millimeters).

Brake Shoe/Pad/Lining

- A. Visually inspect all brake linings/shoes/pads. Linings may be checked through inspection slots. All shoes/pads/linings shall comply with the applicable standards.
- B. The brake lining/pad thickness shall not be less than $\frac{3}{16}$ inch at the shoe center for a shoe with a continuous strip of lining; less than $\frac{1}{4}$ inch at the shoe center for a shoe with two pads; or worn to the wear indicator - if the lining is so marked - for air drum brakes.
- C. The brake lining/pad thickness shall not be less than $\frac{1}{8}$ inch for air disc brakes or $\frac{1}{16}$ inch or less for hydraulic disc brakes.
- D. Visually inspect the brake lining/pad to ensure that it is firmly attached to the shoe, is not cracked or broken and that the friction surface is not saturated with oil, grease or brake fluid.
- E. Visually inspect all brake components mounting hardware for any loose, cracked, broken or missing items. This inspection should be performed with the brakes released and with the brakes applied. It may be necessary to remove inspection access covers or brake dust covers or in some instances pull wheels and drums to accomplish the inspection.

Chamber Size

Visually inspect all brake chambers to ensure they are properly marked, in good operating condition, have no visible damage and are properly matched. Chambers must be matched by size, type and stroke.

Drums/Rotors

- A. Visually inspect all brake drums/rotors for any external cracks that open when brakes are applied. (Do not confuse short hairline internal check cracks with flexural cracks.)
- B. Inspect to see whether any portion of the drum/rotor missing or in danger of falling away.

Note: It may be necessary to remove inspection access covers or brake dust covers or in some instances pull wheels and drums to accomplish the inspection.

Hoses and Tubing

- A. Carefully perform a visual inspection of all system hoses, lines and tubing.
- B. Inspect all hoses, lines and tubing for any audible leak (if air) or visible leak (if hydraulic); any bulging/swelling when the system is pressurized; any hose, line

or tubing is cracked, broken or crimped in such a manner as to restrict flow; any hose, line or tubing that is abraded (chafed) through the outer cover to the fabric layer; as well as for proper securement and support.

Hydraulic Brakes Measurement

- A. With the brake pedal in the full upright position, measure the distance between the brake pedal and the floor or firewall. With the engine running, a single firm brake application shall be made and the distance between the brake pedal and the floor or firewall shall be measured a second time. The difference shall be recorded.
- B. With the vehicle stopped and the engine running, depress the brake pedal. The system must be able to maintain brake pedal height under moderate foot force (40 to 60 pounds) for one minute without pumping. With vehicle in a stopped position and the brake pedal depressed under moderate foot force (40 to 60 pounds) there should be a minimum of one-third of the total available pedal travel (according to the manufacturer's specification) remaining on non-powered systems.

Hydraulic Brake System

- A. With the engine off, turn the ignition switch to the on position and check the instrument panel for visible and audible warning signals to indicate system malfunction. If the bus is equipped with vacuum assist, it shall have a visible warning signal and gauge to indicate any loss of vacuum. Audible signals must be loud enough to be heard over engine noise.
- B. Visually inspect the master cylinder to determine if it is below the minimum fill requirements, is leaking, is loose or is improperly mounted.
- C. Visually inspect the hydraulic fluid reservoir level in the master cylinder unit. Inspect for any fluid leaks on wheel cylinders/calipers, master cylinders, hose connection and hydrovac and on buses using vacuum-assisted brakes. Check for brake fluid around the brake booster between the booster and firewall.

Parking Brake

- A. With the engine operating and the park brakes set, place the transmission in both forward and reverse gears to determine if the brakes will hold the vehicle stationary.
- B. Visually and physically check the condition of parking brake system and the parking brake warning light.

Pedal Reserve

- A. With the brake pedal in the full upright position, measure the distance between the brake pedal and the floor or firewall. With the engine running, a single firm brake application shall be made and the distance between the brake pedal and the floor or firewall shall be measured a second time. The difference shall be recorded.
- B. With the vehicle stopped and the engine running, depress the brake pedal. The system must be able to maintain brake pedal height under moderate foot force (40 to 60 pounds) for one minute without pumping. With the vehicle in a stopped position and the brake pedal depressed under moderate foot force (40 to 60 pounds) there should be a minimum of one-third the total available pedal travel (manufacturer's specification) remaining on non-powered systems.

Power Assist Unit

- A. Electric/hydraulic assist: With the engine off, depress the brake pedal. The electric/hydraulic brake assist motor must operate.

- B. Hydrovac assist: With the engine off, the driver shall pump the brakes to exhaust all reserve. Hold firm pressure on the brake pedal and start the engine. The pedal should fall slightly. Failure of the pedal to fall slightly indicates a malfunction of the power-assist unit.
- C. Hydroboost: After two or three brake applications with the engine off, start the vehicle while maintaining pressure on the brake pedal. The pedal should push briefly and then fall as the power assist engages.

Slack Adjuster Length

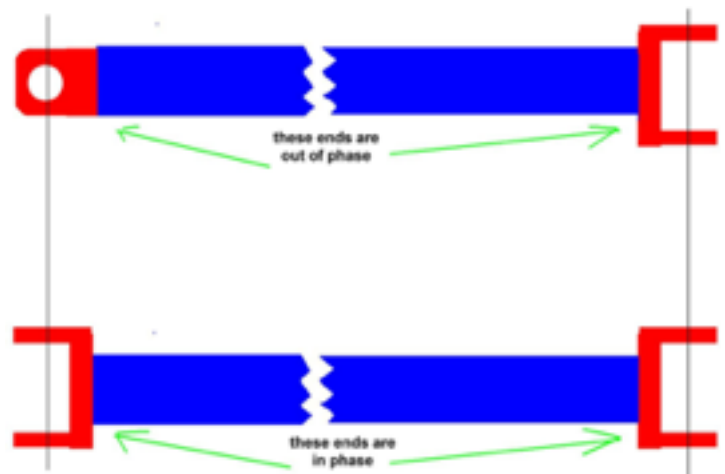
Measure from the center of the S-cam to the center of the push rod clevis pin. All slack adjusters on a single axle shall be of the same type and length.

DIFFERENTIAL

Visually inspect the differential and differential housing for cracks and leaks. Pay careful attention shall be made to the areas of mounting attaching hardware and wheel-end areas. The housing vent shall be inspected to ensure that it is not clogged and is functional by twisting the vent cap by hand.

DRIVESHAFT

- A. Visually and physically inspect each segment of the driveshaft and associated hardware. Inspect for bends, cracks, missing weights or debris entangled in the shaft.



Each shaft more than 18 inches long shall be equipped with a suitable guard to prevent an accident or injury in the event of its fracture or disconnection. Check to ensure that the driveshaft guards are not loose, bent or missing.

- B. Visually and physically inspect each universal joint and center bearing. The universal joints and center bearings shall not be loose or worn and shall have all attaching hardware securely fastened. Check for lateral and vertical movement of the universal joints and center bearings by grasping the universal joint and attempting to move the joint laterally and vertically. Inspect universal joints for substandard or welded repairs.
- C. Visually inspect the driveshaft for proper phasing. (See illustration.)

ELECTRICAL/BATTERY

Battery

- A. Visually and physically inspect that the battery (or batteries) is securely mounted and no signs of leaking or excessive corrosion.
- B. Crank the engine to ensure adequate battery capacity to start the engine.

Cables

- A. Visually inspect all electrical cabling and wiring for chafed, frayed, damaged or burnt insulation.
- B. Visually and physically inspect the battery terminals for corroded or loose connections. Inspect electrical cabling for unsuitable insulation.
- C. Inspect for missing or damaged protective grommets insulating all electrical cables through metal compartment panels. All electrical cabling passing through a metal surface shall pass through an insulated grommet to provide adequate protection against chafing and shorting.
- D. Visually and physically inspect for any broken or unsecured mounting of electrical components.
- E. Visually and physically inspect electrical cabling for securement, routing or any unsecured wiring that may cause chafing or frayed conditions.

Windshield Wipers

Operate the wiper and washer system. The wiping system should be power-driven with at least two speeds and should be able to clean the area of the windshield within the wiping pattern. Wipers should operate with a minimum of 45 cycles per minute.

EMERGENCY EQUIPMENT

- A. Visually inspect that the fire extinguisher is readily accessible to the driver and passengers, is fully charged, is of proper type and size, is properly secured and has a working pressure gauge.
- B. Visually inspect any other state-required equipment such as first aid kits, body fluid kits, webbing cutters and emergency reflectors and ensure these items are fully stocked, functional and properly secured.

EMERGENCY EXITS

- A. Visually inspect all emergency exits.
 - 1. Operate all emergency exits. Exits must open freely and completely.
 - 2. Door prop rods must operate freely and hold the door or exit in the open position without obstructing the exit.
 - 3. There shall be no padlocks or any other locking devices on exits except interlocking systems.
- B. Visually inspect all exits to ensure they are clearly labeled and marked on both the inside and outside of the bus.
- C. Ensure that all exits have an audible device to alert the driver of an open exit door or window.

Note: FMVSS 571.217 defines the number of exits for each type of bus.

ENGINE

- A. Visually inspect the engine and surrounding components for evidence of fluid leaks and loose or damaged components. Start the engine. While engine is operating, visually and audibly monitor the engine for proper operation, leaks and unusual noises of engine or components.
- B. Inspect the cooling fan according to the manufacturer's recommendations.

- C. Visually and physically inspect all drive belts for proper alignment and tension according to the manufacturer's recommendations. All belts shall be free of cracking, frays, fluid, glazing and excessive wear. Inspect belt-tensioner according to the manufacturer's recommendations.
- D. Visually inspect all hydraulic, coolant, fuel and pneumatic hoses for damage, proper routing, proper type and proper securement. Hoses shall be routed to avoid contact with exhaust, rotating or moving engine components or sharp edges. Hoses shall not be cracked, leaking, swollen or chafed.

EXHAUST SYSTEM

- A. Visually and audibly inspect the complete exhaust system including the muffler, diesel particulate filter (DPF) and diesel oxidation catalyst (DOC) for leaks, restrictions and damage and to ensure that exhaust is not discharging directly below the driver or passenger compartment. All exhaust emission control devices shall be installed and operating according to the manufacturer's recommendations.
- B. Inspect for the presence and condition of heat shielding over and around all piping and components where specified by vehicle manufacturer.
- C. Visually and physically inspect all exhaust system mounting hardware for loose, missing or damaged components and to ensure the system is securely attached. Inspect to ensure all clamps are in place and secure.
- D. Visually inspect exhaust system for indications of and areas likely to result in burning, charring or damaging of the electrical wiring, the fuel supply or any combustible part of the vehicle.

FUEL SYSTEM

- A. Visually inspect all parts of the fuel tank, fuel tank cage and fuel system to include lines, hoses, filters, fill cap and fittings for indications of damage or leaks.
- B. Visually and physically inspect fuel lines and hoses for proper securement and routing and missing or loose clamps that may cause chafing or come in contact with electrical components.

LAMPS/SIGNALS

- A. Visually inspect all lamps such as brakes, turn signals, taillights, headlights (low beam), overhead warning lights (amber and red), hazard warning lights and stop arm lights to ensure proper visibility and operation. Turn signals should flash at a rate of 60 to 120 times per minute.
- B. Inspect that the horn functions and is audible from approximately 200 feet away.
- C. Inspect the crossing control device (if equipped) for proper operation (e.g., that it extends and retracts as designed).

MIRRORS

Visually inspect all mirrors to identify any mirror that is damaged, clouded or otherwise has an obscured area. All mirrors should hold a set adjustment and should be directed to view the area for which they are designed.

STEERING SYSTEM

Ball and Socket Joints

- A. With the bus on the ground, examine the ball joint nut stud for movement while the steering wheel is being rocked in a back-and-forth action. Examine the ball and socket joint for weld repairs.
- B. Check for lateral and vertical movement by grasping the tie rod and drag link sockets attempting to laterally and vertically move the ball joint. (Rotational movement will not be considered.) Any motion other than rotational and greater than 1/8 inch that can be detected by movement with two hands with moderate strength in any connecting joint is a defect.

Front Axle Beam

Visually examine the front axle beam for any obvious bend or twist, cracks or welded repair.

Hoses/Fluids

Visually examine the power steering fluid reservoir for proper fluid level. With the system operating, inspect all system components, hoses and fittings for leaks.

Nuts

Visually examine all tie rods, Pitman arm, drag link, steering arm and tie rod arm for looseness and missing fasteners.

Pitman Arm

- A. While the steering wheel is being rotated in a back-and-forth motion; visually inspect the Pitman arm and output shaft connection for looseness at the output shaft joint.
- B. The Pitman arm shall also be inspected for damage, cracks or welded repairs.

Power Steering

- A. Manually manipulate the auxiliary power assist cylinder to check for looseness. Start the bus and rotate the steering wheel in a back-and-forth action to ensure the power steering pump is operable.
- B. With the engine stopped, inspect the system drive belt(s) for any fraying, cracks or fluid saturation. Check belt tension. On units equipped with automatic tensioner, ensure that tensioner moves freely.
- C. Inspect the fluid reservoir while at operating temperature to ensure the fluid level is not below the add mark. Inspect for signs of fluid leakage.

Steering

- A. Visually inspect for any modification or other condition that interferes with free movement of any steering component. Turn the steering wheel through a full right and left turn and feel for binding or jamming conditions. Both front wheels must be capable of being turned to full right or full left without binding or interference.
- B. Inspect turn stops by observing for shiny spots and/or signs of wear due to contact with other vehicle components on the sides of tires, drag links, Pitman arm, shock absorbers or brake lines.

Steering Column/Wheel

- A. Inspect the steering column for any looseness in bolts, clamps, positioning parts or universal joints. Inspect the flexible coupling in the steering column (if the vehicle is so equipped) for excessive misalignment and tightness of clamp bolt or nut.
- B. Inspect the steering column and components for damage, cracks or welded repairs. Inspect steering wheel to ensure it is properly positioned and secured.
- C. Place the steering axle wheels in a straight ahead position and have an assistant turn the steering wheel until movement is observed at the left road wheel. Measure the steering wheel movement from starting position to wheel movement position. Compare this measurement to the applicable listing in Table 2: Steering Wheel Free Play below.

Table 2: Steering Wheel Free Play

Steering wheel free play shall not exceed these requirements:

Steering Wheel Diameter	Manual System Movement 30	Power System Movement 45
16" (41 cm)	2" (5.1 cm)	4 1/2" (11.5 cm)
18" (46 cm)	2 1/4" (5.4 cm)	4 3/4" (12 cm)
20" (51 cm)	2 1/2" (6.4 cm)	5 1/4" (13.5 cm)
22" (56 cm)	2 3/4" (7 cm)	5 3/4" (14 cm)

Steering Gear Box

- A. Visually examine the steering gear box for any loose, damaged or missing mounting bolts. Inspect for cracks in the gear box, mounting brackets or any obvious welded repairs.
- B. While having an assistant rock the steering wheel back and forth, visually inspect the steering shaft and gear box for any looseness where the steering gear box is mounted to the frame. Visually inspect steering shaft coupler for cracks, damage or looseness.
- C. With the engine operating, inspect for excessive fluid and/or oil leaks (observable movement of fluid).

Tie Rods/Drag Links

- A. While having an assistant rock the steering wheel back and forth, visually inspect the tie rod ends, crossbar and drag links for any looseness at the steering linkage pivot points.
- B. Check for lateral and vertical movement by grasping the tie rod and drag link sockets, attempting to laterally and vertically move the ball joint (rotational movement will not be considered). Any motion other than rotational greater than 1/8 inch that can be detected by movement with two hands with moderate strength in any connecting joint is a defect.
- C. Check the crossbar for structural damage and the crossbar clamps for secure mounting.

SUSPENSION COMPONENTS

Axle Parts/Members

- A. Visually and physically inspect all front and rear axle components. Inspect all U-bolts and other suspension-to-axle mounting hardware for cracks, breaks, looseness or improper type.
- B. Inspect the axle, axle housing, spring hanger(s), shackles and other axle components for alignment, cracks, breaks and loose or missing items that could result in shifting of an axle from its normal position.
- C. Inspect the front axle beam for signs of improper repair (e.g., welding or heating).
- D. Inspect for any worn (beyond manufacturer specifications) or improperly assembled U-bolt, shock, kingpin, ball joint, strut, air spring or positioning components.
- E. Inspect all leaf spring hangers, hanger assemblies or portions of the leaf springs for broken, separated, sagging, bent, abnormally worn (beyond manufacturer specifications), shifted or missing components.
- F. Inspect pins and bushings for wear, off-center spring eye, rubbing shackles or non-symmetric joints. Inspect for any broken, weak or damaged coil spring and mounting assemblies.
- G. Visually and physically inspect all hydraulic shock absorbers for leaks, looseness, damage or missing components.
- H. Inspect air suspension (if equipped). Observe that the vehicle is lifting level. With the air system fully charged, inspect for any audible or visual air leakage at the air spring assembly, supply hoses and connections.

Caution: Use caution when underneath the vehicle. There may not be sufficient room underneath the vehicle should a problem occur with the air suspension system.

Bumpers

Visually inspect front and rear bumpers for missing attaching hardware or broken hardware. Ensure bumpers are properly mounted and secure and there is no point protruding beyond the confines of the vehicle that would create a hazard.

Chassis/Frame/Unibody

- A. Visually inspect frame for cracks, loose attaching hardware or sagging, broken or unapproved welds to the frame side rail or flange.
- B. Visually and physically inspect body hold-down components for damage that would permit shifting of the body.
- C. Inspect for cracked, loose, bent, broken or unapproved welds to the frame member that affect support of functional components (e.g., steering gear, engine, transmission, body parts or suspension). Welding to the frame should be performed only by the manufacturer or a designee.

Note: Inspect for any crack 1½ inches or longer in the frame side rail web that is directed toward bottom flange or any crack extending from the frame side rail web around the radius and into the bottom flange.

Crossmembers

- A. Visually and physically inspect all crossmembers, attaching hardware and other structural supports for cracks or deformations. Visually inspect for three or more

-
- adjacent crossmembers that are missing, broken, damaged or loose.
- B. Inspect any area of the floor that is sagging, weak or damaged due to broken, damaged or loose crossmembers.

Outriggers/Body Supports

Visually inspect all outriggers and attaching hardware for cracks, missing bolts and damage.

TIRES/WHEELS/HUBS

Hub & Assemblies

- A. Visually inspect the kingpin and wheel bearing assemblies for looseness or damage or missing or loose fasteners. This shall include locking pins, draw keys, caps and bearings.
- B. Physically inspect the kingpin and bearing assemblies for play as follows: With the tire raised off the ground, grasp the tire at the top and attempt to move the wheel assembly in and out. If movement is present, help to identify the source by following this procedure:

Have an assistant fully apply the brakes while rechecking play. If movement disappears with the brakes applied, then play is in the wheel bearings. If movement remains, it is most likely in the kingpin area. Assembly shall not have excessive kingpin play that exceeds .250 inch measured at outside edge of tire or wheel bearing movement that exceeds .010 inch measured at bearing hub.

- C. Visually inspect A-frames and bushings on Type A vehicles. Inspect bushings for wear, cracking, splitting or severe extrusion from suspension parts.
- D. For vehicles equipped with “wet hubs” or oil bath hubs, visually check the site glass for lubricant level.

Tire Inflation

- A. Use a tire pressure gauge to verify and record pressure.
- B. Visually inspect valve stems for damage and presence of valve cap.

Tire Sidewall

Inspect tire sidewalls for cuts, wear and any observable bumps or bulges.

Tire Tread Depth

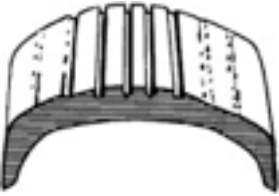
- A. Inspect for any front tire worn to less than $\frac{1}{8}$ inch.
- B. Inspect and record with a tire tread gauge for any rear tire worn to less than $\frac{1}{16}$ inch.

Tire Type

- A. Visually inspect the steer axle (front) to ensure that no recapped, regrooved tires are present.
- B. Visually inspect tires for improper wear patterns. (See Tire Wear Chart below.)
- C. Check for proper type (i.e., load range, size, mismatched on axle).



Overinflation: Excessive wear at the center of the tread indicates that the air pressure in the tire is consistently too high. The tire is riding on the center of the tread and wearing it prematurely. Many times, this visual method of inflation (inflating the tires until there is no bulge at the bottom) is at fault; tire inflation pressure should always be checked with a reliable tire pressure gauge.



Underinflation: This type of wear usually results from consistent underinflation. When a tire is underinflated, there is too much contact with the road by the outer treads, which wear prematurely. Tire pressure should be checked with a reliable pressure gauge. When this type of wear occurs and the tire pressure is known to be consistently correct, a bent or worn steering component or the need for wheel alignment could be indicated. Bent steering or idler arms cause incorrect toe-in and abnormal handling characteristics on turns.



Feathering: This is a condition in which the edge of each tread rib develops a slightly rounded edge on one side and a sharp edge on the other. By running your hand over the tire, you can usually feel the sharper edges before you'll be able to see them. The most common cause of feathering is incorrect toe-in setting, which can be cured by having it set correctly. Occasionally toe-in will be set correctly and this wear pattern still occurs.



Side Wear: When an inner or outer rib wears faster than the rest of the tire, the need for alignment is indicated. There is excessive camber in the front suspension, causing the wheel to lean too much to the inside or outside, which puts too much load on one side of the tire. Misalignment could be due to sagging springs, worn ball joints, worn control arm bushings or worn kingpin bushings.



Cupping: Cups or scalloped dips appearing around the edge of the tread on one side or the other almost always indicate worn (sometimes bent) suspension parts. Adjustment of wheel alignment alone will seldom cure the problem. Any worn component that connects the wheel assembly to the vehicle (ball joint, kingpins, wheel bearing, shock absorber, springs, bushings, et cetera) can cause this condition. Occasionally, wheels that are out of balance will wear like this, but wheel imbalance usually shows as bald spots between the outside edges and center of the tread.

Wheels/Rims/Spiders

- A. Inspect all nuts, bolts, studs, lugs and holes for damage. Visually inspect for broken, damaged, missing or loose fasteners. Rust around fasteners or on rim surface is sometimes an indication of cracked or loose mounting hardware.
- B. Visually inspect the rim for, cracks, welds or broken components. Visually inspect for any lock or slide ring that is broken, cracked, improperly seated, sprung or has mismatched rings.

WHEELCHAIR LIFT-EQUIPPED VEHICLES

- A. Visually inspect and operate the wheelchair lift to ensure proper function as designed. Inspect for any leaks that would hinder the operation of the lift.
- B. Inspect all safety systems of the wheelchair lift (e.g., hand rails, ramp stops, et cetera) and ensure they are functioning as designed and in compliance with FMVSS 403 and 404.
- C. Ensure that all pinch points are protected from seated passengers.
- D. Visually inspect all wheelchair and occupant securement devices to ensure none are missing or broken and that straps are not frayed.

- E. Ensure all components for each wheelchair position are compatible in accordance with manufacturers' specifications.
- F. Visually and physically inspect all anchorage points, tracking and fasteners for securement.

WINDOWS

- A. Inspect for any glass or glazing that is broken through or missing (393.60);
- B. Inspect for any glass not of approved type [393.60(a)];
- C. Inspect for discoloration or other damage in the portion of the windshield extending upward from the height of the topmost portion of the steering wheel, but not including a 2-inch border at the top and a 1-inch border at each side of the windshield or each panel thereof, except as follows:
 - 1. Color or tint applied by the manufacturer for the reduction of glare;
 - 2. Any crack not over ¼ inch long, if not intersected by any other crack;
 - 3. Any damaged area that can be covered by a disc ¾ inch in diameter, if not closer than 3 inches to any other such damaged area; or
 - 4. Driver's side area window(s) have chips, clouding or cracks that obscure the driver's vision [393.60(c)].
- D. Inspect to determine whether there is an operable defrosting and defogging system to clear the driver's windshield (571.103).

REMINDER

Preventive maintenance is the key to having a safe fleet. This guide is a basic guideline, but each manufacturer may have specific recommendations for their buses. Know how to locate and utilize the specification guides for minimum requirements by KDE, as well as where to locate and utilize the service manuals for each bus. Each manufacturer also has online videos available on its websites to assist with completing tasks specific to its products.

INSTRUCTIONS FOR PREVENTATIVE MAINTENANCE INSPECTION REPORTS

INSPT	Operation to Perform
	ROAD AND LOT TEST
ABCD	Check engine oil
ABCD	Check ignition switch-start bus
ABCD	Check engine for noise, idle, knocks, smoke, et cetera
ABCD	Check engine oil pressure
ABCD	Inspect all gauges for response
ABCD	Take out on 1- or 2-mile trip
ABCD	Check for build-up time of air pressure from 50 to 90 psi, it shouldn't exceed 5 minutes
ABCD	At this time it would be OK to do LAB test, for leaks, alarm, button.
ABCD	Check brake performance on road test
ABCD	Check all pedals and pads
ABCD	Check engine governor
ABCD	Check transmission shift
ABCD	Check horn
ABCD	Check steering play
ABCD	Check air bleed off
ABCD	Check park brake cable, linkage
ABCD	Test park brake on lot for holding, et cetera
ABCD	Check windshield washer
ABCD	Check windshield wipers
ABCD	Check all glass
ABCD	Check all heaters defrosters
ABCD	Check engine shutdown operation
ABCD	Check clutch disengagement
	REAR AXLE
ABCD	Check differential
ABCD	Check pinion seal
ABCD	Check fluid level
ABCD	Check shocks, antilock braking system and linkage
ABCD	Check all brackets
ABCD	Check center bolt
ABCD	Check brake chambers
ABCD	Check shackles
ABCD	Check breather
ABCD	Check drums, hubs
ABCD	Check U-bolts
ABCD	Check rebound clips
ABCD	Check slack adjusters
ABCD	Check spring leaves
ABCD	Check axle housing
ABCD	Check brake lines and connections

INSPT	Operation to Perform
ABCD	Check brake linings
ABCD	Perform brake check
ABCD	Check seals
ABCD	Checking backing plate
INSPT	Operation to Perform
	DRIVE LINE
ABCD	Check yokes and splines
ABCD	Check flange bolts
ABCD	Check U-Joints
ABCD	Check center bearings
ABCD	Check air lines and hangers
	CHASSIS FRAME
ABCD	Check tail pipe
ABCD	Check muffler
ABCD	Check exhaust pipe
ABCD	Check exhaust hangers
ABCD	Check lines, fittings
ABCD	Check mounting bolts
ABCD	Check fuel tank, straps
ABCD	Check frame rails
	FRONT AXLE
ABCD	Check brake lining
ABCD	Check brake lines and connections
ABCD	Preform brake check
ABCD	Check rebound clips
ABCD	Check slack adjuster
ABCD	Check center bolts
ABCD	Check tie rod ends
ABCD	Check axle
ABCD	Check U-bolts
ABCD	Check backing plate
ABCD	Check brake chamber
ABCD	Check shocks
ABCD	Check shackles and brackets
ABCD	Check linkage
ABCD	Check steering gear and U-joint
ABCD	Check spring leaves
ABCD	Check thrust bearings and shims

INSPT	Operation to Perform
	TRANSMISSION
ABCD	Check for leaks
ABCD	Check fluid level
ABCD	Check linkage
ABCD	Check modulator
ABCD	Check breather
ABCD	Check mountings
INSPT	Operation to Perform
	CLUTCH
ABCD	Check mechanical clearance
ABCD	Check return spring
	ENGINE
ABCD	Check for any water leaks
ABCD	Check radiator
ABCD	Check alternator belt
ABCD	Check for fuel leak
ABCD	Check exhaust flanges
ABCD	Check battery volts
ABCD	Check alternator
ABCD	Check diesel exhaust fluid
ABCD	Check under hood wiring
ABCD	Check water pump
ABCD	Check power steering pump
ABCD	Check antifreeze (with refractometer)
ABCD	Check for any oil leaks
ABCD	Check alternator volts
	CAB AND BODY
ABCD	Check handles and mirrors
ABCD	Check all seat belts
ABCD	Check doors and stops
ABCD	Check door handles and hinges
ABCD	Check weather strips and seals
ABCD	Check all under dash wiring
ABCD	Check radio AM/FM radio
ABCD	Check two-way radio
ABCD	Check stop arm
ABCD	Check seat upholstery
ABCD	Check emergency and safety equipment
ABCD	Check fenders

INSPT	Operation to Perform
ABCD	Check body panels
ABCD	Check bumpers
ABCD	Check camera system
ABCD	Check battery
ABCD	Check hand rail with string and nut
ABCD	Check crossing gate
ABCD	Check license plate
ABCD	Check fuel cap
ABCD	Check hood and latches
ABCD	Check sun visor
ABCD	Check all lights and reflectors
ABCD	Check for insurance card and license registration
ABCD	Check child reminder operation
INSPT	Operation to Perform
	CAB AND BODY
ABCD	Check bus for cleanliness in floor and other areas
ABCD	Check diesel exhaust fluid (DEF) cap
	WHEELS AND TIRES
ABCD	Check for alignment
ABCD	Check wheels and rims
ABCD	Check lugs and studs
ABCD	Check tires for balance
ABCD	Check wheel and axle stops
ABCD	Record left rear outer tire depth
ABCD	Record left rear inner tire depth
ABCD	Record right rear outer tire depth
ABCD	Record right rear inner tire depth
ABCD	Record left front tire depth
ABCD	Record right front tire depth
ABCD	Record left front pressure
ABCD	Record right front pressure
ABCD	Record left rear outer pressure
ABCD	Record left rear inner pressure
ABCD	Record right rear outer pressure
ABCD	Record right rear inner pressure
	TO BE DONE ON (B, C, D) INSPECTIONS
BCD	Change motor oil
BCD	Change oil filter
BCD	Lube all grease fittings
BCD	Collect oil sample for analysis (if doing one)

INSPT	Operation to Perform
BCD	Lube throw-out bearing
	TO BE DONE ON (C) INSPECTION
C	Tune up engine, if manufacture recommends
C	Change fuel filter
C	Check fuel door interlock
	TO BE DONE ON (D) INSPECTION
D	Clean engine and accessories
D	Check crossmembers
D	Torque all body bolts
D	Change air filter
D	Front end alignment (by machine)
D	Inspect brake lining and record
D	Remove, clean, check and replace (if necessary) front wheel bearing, race
D	Remove, clean, check and replace (if necessary) rear wheel bearing, race
D	Check front brakes, brake drums and hubs; replace if necessary
D	Check rear brakes, brake drums and hubs; replace if necessary
D	Torque all U-Bolts to manufacture specifications
D	Change internal transmission filter, if recommended by manufacturer
D	Change external transmission filter
D	Check king pins
D	Check spindles
D	Check grease drains
D	Check wheel cylinders
D	Check pedal shaft side play
D	Check air compressor
D	Check engine mounts

**BOARD OF EDUCATION
KENTUCKY DEPARTMENT OF EDUCATION
PREVENTIVE MAINTENANCE INSPECTION REPORT**

**Inspection
White N**

DATE: / /
ODOMETER:
INSPECTOR:

VEHICLE NUMBER
VEN. NUMBER

In space after each item indicate condition as follows:

**(V) ITEM IS O.K.
(N/A) NOT ON VEHICLE**

(O) ADJUSTMENTS MADE

**(X) REPAIRS NEEDED
WRITE ON WORK ORDER**

The following items will be inspected on N inspection

ROAD TEST ON LOT

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Engine Oil (Quarts Low)	N	Brake Performance	N	Parking Brake	N
Ignition Switch	N	Pedals & Pads	N	Windshield Washer	N
Engine Operation	N	Drive Test (On Lot)	N	Windshield Wipers	N
Oil Pressure	N	Transmission Shift	N	Glass	N
Instruments	N	Horn	N	Heaters & Defrosters	N
Road Test	N	Steering Play	N	Shutdown Operation	N
Air Pressure Buildup	N	Air Bleed Off	N	Clutch Disengagement	N
Park Brake Valve	N	Park Brake Cable & Link	N		

REAR AXLE

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Differential	N	Shackles	N	Spring Leaves	N
Pinion Seal	N	Breathers	N	Axle Housing	N
Fluid Level (Pts)	N	Drums & Hubs	N	Brake Lines & Connections	N
Shocks, ABS & Linkage	N	U-Bolts	N	Brake Lining	N
Brackets	N	Rebound Clips	N	Brake Check	N
Center Bolts	N	Slack Adjusters	N	Seals	N
Brake Chamber	N	Backing Plates	N		

DRIVE LINE

CHASSIS FRAME

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Yokes & Splines	N	Tail Pipe	N	Lines & Fittings	N
Flange Bolts	N	Muffler	N	Mounting Bolts	N
U-Joints	N	Exhaust Pipe	N	Fuel Tank & Straps	N
Center Bearings	N	Hangers	N	Frame Rails	N
Air Lines & Hangers	N				

FRONT AXLE

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Brake Lining	N	Tie Rod Ends	N	Shocks	N
Brake Lines & Connections	N	Axle	N	Shackles & Brackets	N
Brake Check	N	U-Bolts	N	Linkage	N
Rebound Clips	N	Backing Plate	N	Steering Gear & U-Joint	N
Slack Adjuster	N	Brake Chamber	N	Spring Leaves	N
Center Bolts	N	Rebound Clips	N	Thrust Bearings & Shims	N

TRANSMISSION

CLUTCH

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Leaks	N	Modulator	N	Mechanical (" Clear)	N
Fluid level (Quarts)	N	Breather	N	Return Spring	N
Shift Linkage	N	Mountings	N		

In space after each item indicate condition as follows:

(V) ITEM O.K.
(N/A) NOT ON VEHICLE

(O) ADJUSTMENTS MAKE

(X) REPAIRS NEEDED
WRITE UP ON WORK ORDER

The following items will be inspected on N inspection

ENGINE

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Water Leak	N	Battery Volts	N	Water Pump	N
Radiator	N	Alternator	N	Power Steering Pump	N
Fan Belt	N	Diesel Exhaust Fluid	N	Antifreeze	N
Fuel Leak	N	Oil Pressure	N	Oil Leaks	N
Exhaust Flanges	N	Wiring	N	Alt. Volts (to)	N

CAB AND BODY

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Handles & Mirrors	N	Seat Upholstery	N	License Plate	N
Seat Belts	N	Emergency & Safety Equip.	N	Fuel Cap	N
Doors & Stops	N	Fenders	N	Hood & Latches	N
Door Handles & Hinges	N	Body Panels	N	Sun Visor	N
Seals & Weatherstrips	N	Bumpers	N	Lights & Reflectors	N
Under Dash Wiring	N	Camera System	N	Insurance Card & Lic. Reg.	N
AM/FM Radio	N	Battery	N	Child Reminder Oper.	N
Two-Way Radio	N	Handrail String Test	N	Cleanliness	N
Stop Arm	N	Crossing Gate	N	Diesel Exhaust Fluid Cap	N

WHEELS AND TIRES

ITEM	Inspt	ITEM	Inspt	32th	ITEM	Inspt	Pres.
Alignment	N	Left Rear Outside Depth	N		Left Front Air Pressure	N	
Wheels & Rims	N	Left Rear Inside Depth	N		Right Front Air Pressure	N	
Lugs & Studs	N	Right Rear Outside Depth	N		Left Rear O. Air Pressure	N	
Tire Balance	N	Right Rear Inside Depth	N		Left Rear I. Air Pressure	N	
Wheel & Axle Stops	N	Left Front Depth	N		Right Rear O. Air Pressure	N	
		Right Front Depth	N		Right Rear I. Air Pressure	N	

The following items inspected on (N) inspection with all above

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Oil Change	N	Lube	N	Throw-Out Bearing	N
Oil Filter Change	N	Oil Analysis (If Needed)	N	Torque U-Bolts, Rear	N
Torque U-Bolts, Front	N	Torque, All Wheels	N		

**BOARD OF EDUCATION
KENTUCKY DEPARTMENT OF EDUCATION
PREVENTIVE MAINTENANCE INSPECTION REPORT**

Inspection
White A
Pink B
Yellow C
Green D

DATE: ___ / ___ / ___ VEHICLE NUMBER _____
 ODOMETER: _____
 INSPECTOR: _____

In space after each item indicate condition as follows:

(V) ITEM IS O.K. **(O) ADJUSTMENTS MADE** **(X) REPAIRS NEEDED**
(N/A) NOT ON VEHICLE **WRITE ON WORK ORDER**

The following items will be inspected on each inspection

ROAD TEST ON LOT

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Engine Oil (Quarts Low)	ABCD	Brake Performance	ABCD	Parking Brake	ABCD
Ignition Switch	ABCD	Pedals & Pads	ABCD	Windshield Washer	ABCD
Engine Operation	ABCD	Eng. Gov. () RPM	ABCD	Windshield Wipers	ABCD
Oil Pressure	ABCD	Transmission Shift	ABCD	Glass	ABCD
Instruments	ABCD	Horn	ABCD	Heaters & Defrosters	ABCD
Road Test	ABCD	Steering Play	ABCD	Shutdown Operation	ABCD
Air Pressure Buildup	ABCD	Air Bleed Off	ABCD	Clutch Disengagement	ABCD
Park Brake Valve	ABCD	Park Brake Cable & Link	ABCD		

REAR AXLE

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Differential	ABCD	Shackles	ABCD	Spring Leaves	ABCD
Pinion Seal	ABCD	Breathers	ABCD	Axle Housing	ABCD
Fluid Level (Pts.)	ABCD	Drums & Hubs	ABCD	Brake Lines & Connections	ABCD
Shocks, ABS & Linkage	ABCD	U-Bolts	ABCD	Brake Lining	ABCD
Brackets	ABCD	Rebound Clips	ABCD	Brake Check	ABCD
Center Bolts	ABCD	Slack Adjusters	ABCD	Seals	ABCD
Brake Chamber	ABCD	Backing Plates	ABCD		

DRIVE LINE

CHASSIS FRAME

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Yokes & Splines	ABCD	Tail Pipe	ABCD	Lines & Fittings	ABCD
Flange Bolts	ABCD	Muffler	ABCD	Mounting Bolts	ABCD
U-Joints	ABCD	Exhaust Pipe	ABCD	Fuel Tank & Straps	ABCD
Center Bearings	ABCD	Hangers	ABCD	Frame Rails	ABCD
Air Lines & Hangers	ABCD				

FRONT AXLE

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Brake Lining	ABCD	Tie Rod Ends	ABCD	Shocks	ABCD
Brake Lines & Connections	ABCD	Axle	ABCD	Shackles & Brackets	ABCD
Brake Check	ABCD	U-Bolts	ABCD	Linkage	ABCD
Rebound Clips	ABCD	Backing Plate	ABCD	Steering Gear & U-Joint	ABCD
Slack Adjuster	ABCD	Brake Chamber	ABCD	Spring Leaves	ABCD
Center Bolts	ABCD			Thrust Bearings & Shims	ABCD

TRANSMISSION

CLUTCH

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Leaks	ABCD	Modulator	ABCD	Mechanical (" Clear)	ABCD
Fluid Level (Quarts)	ABCD	Breather	ABCD	Return Spring	ABCD
Shift Linkage	ABCD	Mountings	ABCD		

In space after each item indicate condition as follows:

(V) ITEM O.K.
(N/A) NOT ON VEHICLE

(O) ADJUSTMENTS MAKE

(X) REPAIRS NEEDED
WRITE UP ON WORK ORDER

The following items will be inspected on each inspection

ENGINE

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Water Leak	ABCD	Battery Volts	ABCD	Water Pump	ABCD
Radiator	ABCD	Alternator	ABCD	Power Steering Pump	ABCD
Fan Belt	ABCD	Diesel Exhaust Fluid	ABCD	Antifreeze	ABCD
Fuel Leak	ABCD	Wiring	ABCD	Oil Leaks	ABCD
Exhaust Flanges	ABCD			Alt.Volts (to)	ABCD

CAB AND BODY

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Handles & Mirrors	ABCD	Seat Upholstery	ABCD	License Plate	ABCD
Seat Belts	ABCD	Emergency & Safety Equip.	ABCD	Fuel Cap	ABCD
Doors & Stops	ABCD	Fenders	ABCD	Hood & Latches	ABCD
Door Handles & Hinges	ABCD	Body Panels	ABCD	Sun Visor	ABCD
Seals & Weatherstrips	ABCD	Bumpers	ABCD	Lights & Reflectors	ABCD
Under Dash Wiring	ABCD	Camera System	ABCD	Insurance Card & Lic. Reg.	ABCD
AM/FM Radio	ABCD	Battery	ABCD	Child Reminder Oper.	ABCD
Two-Way Radio	ABCD	Handrail String Test	ABCD	Cleanliness	ABCD
Stop Arm	ABCD	Crossing Gate	ABCD	Diesel Exhaust Fluid Cap	ABCD

WHEELS AND TIRES

ITEM	Inspt	ITEM	Inspt	32th	ITEM	Inspt	Pres.
Alignment (Visually)	ABCD	Left Rear Outside Depth	ABCD		Left Front Air Pressure	ABCD	
Wheels & Rims	ABCD	Left Rear Inside Depth	ABCD		Right Front Air Pressure	ABCD	
Lugs & Studs	ABCD	Right Rear Outside Depth	ABCD		Left Rear O. Air Pressure	ABCD	
Tire Balance	ABCD	Right Rear Inside Depth	ABCD		Left Rear I. Air Pressure	ABCD	
Wheel & Axle Stops	ABCD	Left Front Depth	ABCD		Right Rear O Air Pressure	ABCD	
		Right Front Depth	ABCD		Right Rear I. Air Pressure	ABCD	

The following items inspected on (B,C,D) inspection with all above

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Oil Change	BCD	Lube	BCD	Throw-Out Bearing	BCD
Oil Filter Change	BCD	Oil Anaylsis (If Needed)	BCD		

The following items inspected on (C) inspection with all above

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Tune Up (Propane)	C	Fuel Filter	C	Fuel Door Interlock	C

The following items inspected on (D) inspection with all above

ITEM	Inspt	ITEM	Inspt	ITEM	Inspt
Clean Engine & Accessories	D	Wheel Bearings, Front	D	Kingpins	D
Crossmembers	D	Wheel Bearings, Rear	D	Spindles	D
Body Bolts Torque	D	Hubs & Drums, Front	D	Grease Drains	D
Air Filter	D	Hubs & Drums, Rear	D	Wheel Cylinders	D
Alignment-Machine Check	D	U-Bolts Torque, Rear&Front	D	Pedal Shaft Side Play	D
Brake Lining-Record	D	Trans. Filter, Int. (If Needed)	D	Air Compressor	D
		Trans. Filter, Ext.	D	Engine Mounts	D