NC BUS FLEET:
North Carolina
School Transportation Fleet Manual

Vehicles
Preventive Maintenance
School Bus Inspections

North Carolina Department of Public Instruction
School Support Division, Transportation Services
6319 Mail Service Center, Raleigh, NC 27699-6319
Phone 919-807-3570 • Fax 919-807-3578

www.ncbussafety.org

Table of Contents

INTRODUCTION

North Carolina school children deserve the safest transportation possible. A well-maintained school bus driven by a well-trained professional bus driver helps ensure their safety. The state's fleet of school buses is kept safe through the work and dedication of thousands of employees of local education agencies (LEAs). The North Carolina Department of Public Instruction (DPI) Transportation Services section works in partnership with these LEAs, providing consultation on school bus transportation and administering the resources needed for school bus operations.

This manual provides requirements and guidance related to the fleet of school buses and service vehicles. It includes:

Vehicle Purchase, Replacement and Disposal
Preventive Maintenance
Vehicle Inspection

Vehicles

The State Board of Education is given statutory authority to fund public school transportation operations and the replacement of vehicles. Specifically, it is the responsibility of the State Board of Education to periodically

"...adopt such rules and regulations with reference to the construction, equipment, color, and maintenance of school buses. No school bus shall be operated for the transportation of pupils unless such bus is constructed and maintained as presented in such regulations."

North Carolina General Statute 115C-240(c)

The statute assures that public school buses throughout the State are built to the same standards and are uniform in appearance. DPI Transportation Services works in partnership with the Department of Administration, Division of Purchase and Contract, to establish a statewide term contract for vehicles meeting the specifications developed by a statewide Vehicle Specifications Committee. At any time, the latest version of this document standardizes the construction and equipment to be included on North Carolina school buses. This authority does not extend to private contractors that may provide school bus transportation to a local LEA. School buses operated by private contractors should meet all federal motor vehicle safety standards (FMVSS's) applicable to school buses. Similarly, school buses and activity buses owned by an LEA which are not subject to state replacement must also meet all FMVSS's for school buses or multi-function school activity buses.

The purchase of an initial school bus or service vehicle is the responsibility of the LEA. These vehicles are then replaced at state expense after having reached specified mileage or time criteria. In order to be eligible for state replacement, a vehicle must be used only for purposes allowed by general statute and must be maintained as prescribed in this manual. Funds generated from the sale of surplus vehicles are returned to the state fund used to purchase new (replacement) vehicles.

Because the State is responsible for replacing school buses, no school bus is to be altered in appearance, color, lettering, or equipment unless authorized by the Department of Public Instruction, Transportation Services Section. In general, items that are included in subsequent year specifications may be retrofitted to older model buses. Additional equipment may be added to

school buses as described on page 13 "Alterations and Modifications to School Buses" of this manual. It is important that the installation of new equipment or alteration of appearance be coordinated through and approved by DPI Transportation Services to ensure the integrity and longevity of the fleet.

Preventive Maintenance

Essential preventive maintenance activities provide a uniform standard necessary to ensure a safe transportation environment for the students in the Public Schools of North Carolina. It is each LEA's responsibility to maintain school buses as described in this manual. While the maintenance programs presented in this manual represent the minimum requirements for all school buses and service vehicles, more frequent service may be warranted at times. The purpose of the maintenance programs outlined herein is to promote repair consistency and cost efficiency, and to assure that school buses and service vehicles are maintained in safe operating condition.

This manual is used in conjunction with the state's system for fleet management – the Business Systems Information Portal (BSIP), a project of the North Carolina Department of Transportation (NCDOT). BSIP is an online information system through which 100 school bus garages are provided access to their fleet maintenance data. The bus garages share the system with NCDOT and the State Highway Patrol. Data entered by the users are updated in real time and scheduled maintenance activities are reported on a daily basis. The principal areas addressed by BSIP are as follows:

- Vehicle replacement status and basic identifiers (e.g. warranty date, VIN)
- Preventive maintenance and inspection scheduling
- Inventory management for repair parts, fuel and tires
- Vehicle maintenance and repair costs histories

Timely updating of fleet maintenance data in BSIP is a critical component of proper preventive maintenance.

School Bus Inspections

North Carolina General Statute 115C-248(a) states the following:

"The superintendent of each local school administrative unit, shall cause each school bus owned or operated by such local school administrative unit to be inspected at least once each 30 days during the school year for technical defects or other defects which may affect the safe operation of such bus."

Every 30 calendar days, each school bus (and activity bus) is required to be inspected for mechanical or safety-related defects. This manual outlines a consistent set of items to be inspected on each school bus. Further, criteria that require a bus be placed "out of service until repaired" are provided so that each technician has a consistent process by which to assess a bus during the inspection.

The success of this maintenance program will be assured through the cooperation of all LEA transportation employees. Assignment of personnel to the prescribed duties listed in this manual is essential in order for the preventive maintenance program to function properly and to be cost efficient. The prescribed school bus garage operational procedures should be followed as closely as possible.

While state funds are allocated for the replacement and maintenance of school buses, it is the responsibility of the LEA to provide facilities and equipment. This is outlined in General Statute 115C-249 (Purchase and Maintenance of School Buses). Section (e) reads as follows:

> *"It shall be the duty of the county board of education to provide adequate buildings and equipment for the storage and maintenance of all school buses and service vehicles owned or operated by the board of education of any local school administrative unit in such county. It shall be the duty of the tax-levying authorities of such county to provide in its capital outlay budget for the construction or acquisition of such buildings and equipment as may be required for this purpose."*

Additional information concerning NC school bus transportation can be obtained online at www.ncbussafety.org.

Questions regarding the contents of this manual should be directed to DPI Transportation Services at 919.807.3570 (www.ncbussafety.org/contact.html).

VEHICLES

Each local board of education is authorized to own and operate a school bus fleet under Statute 115C-239. These fleets include school buses for basic to-and-from-school transportation and the service vehicles required for maintenance of those buses and delivery of fuel to those buses. The local boards originally purchased these vehicles over a period of many years. The state assumed the responsibility of replacing these vehicles in the 1930's under Statute 115C-240(e)(f). The rate at which vehicles are replaced depends on the age and mileage of the vehicles, subject to appropriations from the General Assembly. The State Board of Education has the responsibility of purchasing the vehicles and allocating those vehicles to the local boards fairly and equitably on an annual basis.

In keeping with this charge, school buses are classified in one of several categories as indicated below:

Status Codes

E2RB - A bus titled to the LEA that has been replaced by the state and authorized for use as a regular route bus, subject to replacement by the state as the need arises and as funds are available.

E2RC - A Capital Outlay bus titled to the LEA that has not been replaced by the state and authorized for use as a regular route bus, subject to replacement by the state as the need arises and as funds are available.

E2LC - A bus loaned to the LEA, authorized for temporary operation from state funds as a regular route bus due to additional transportation needs. Authorization is contingent on a commitment by the LEA to order a capital outlay bus or eliminate the need for an additional bus within 18 months.

E2RR - A bus designated for replacement by DPI Transportation Services due to age or mileage depending on funds available.

E2NR - A bus purchased from the state that is not on state replacement but is used as a regular route bus. Any such bus cannot be older than buses operating on the current replacement schedule and is allowed only as authorized by DPI Transportation Services.

E3 - Wrecked

E4 - A vehicle titled to the LEA, having already been replaced by the state with a new vehicle, no longer needed by the LEA and is designated to be sold as surplus. These vehicles are not to be used for any purpose and must be parked in a safe location that allows easy access. E4 vehicles will be priced by the area transportation consultant at fair market value. Proceeds from sale of an E4 vehicle will be used to fund the purchase of replacement service vehicles. It is required that E4 vehicles be cranked every three months to help maintain mechanical integrity. School buses and fuel trucks sold to an LEA may be discounted. No parts shall be removed except as described on page 36 “Utilization of Surplus Equipment” of this manual.

E6 - Sold Equipment This status is assigned to any vehicle after it is sold or otherwise discarded

E8 - Local Vehicles (e.g. activity buses, administrative staff cars, driver's education vehicles, local school buses, local maintenance vehicles, mowing/landscaping equipment etc.). These vehicles are typically not directly involved in the to/from school transportation for grades K-12. No state funds may be expended for parts/labor/fuel for these vehicles. By convention, these vehicle and equipment numbers are 7000 and 8000 series

EOB - A school bus that has been turned in for credit and is available for transfer to another county. This is a bus that has not yet reached the replacement criteria and can be used to replace a total loss bus or to redeem a bus credit

EOS - A service vehicle available for transfer to another county. This is a vehicle that has already been replaced and can be used on a temporary basis as a spare vehicle by another county, as coordinated by DPI Transportation Services.

ESP - A bus titled to the LEA and was once authorized for use as a regular route bus, but because of current demands is not being utilized on a daily basis. At such time that the fleet is reviewed for bus replacements, a status ESP "parked" buses will not be included in the replacement pool. They can be used as a spare and will count towards the 10% spare fleet.

ESS - A bus titled to the LEA, having already been replaced by the state with a new bus, authorized for use as a spare bus when a regular route bus is not available due to mechanical failure or routine maintenance. ESS buses cannot be used for any other purpose.

EZ - A bus that has been rendered inoperable due to an accident or mechanical condition and is available statewide for cannibalization.

Capital Outlay Purchases

An LEA may purchase vehicles to increase the size of the fleet that provides school transportation. The need for this action is generally the result of growth, opening/closing of schools or re- districting. An LEA is given this authority under Statute 115C-249(a) and the request for such additions must be approved by DPI Transportation Services.

For warranty purposes, it is in the best interest of the LEA and the state to ensure that the newest school buses are in regular route service. New Capital Outlay buses are received as In-Service buses (status E2RC). If these buses are not needed in the fleet, they will be converted to local school or activity buses (8000 number), sold or turned in for credit.

As allowed for in the Public School Law, DPI Transportation Services will review all requests for capital outlay vehicles. LEAs will have to justify any capital outlay purchases if the county already has any ESP buses or bus credits.

School Bus - When needs exceed resources, a local board may request that a school bus be added to the state replacement schedule. The state will pay for the operation of a temporary bus (Status E2LC) as long as the local board commits to the purchase of a new bus by submitting a letter requesting such use and issuing a purchase order within eighteen months to purchase a new bus. The new bus will be added to the state replacement schedule upon delivery to the local board. Under certain circumstances, an LEA may purchase a used bus from another LEA for the purpose of capital outlay upon approval of DPI Transportation Services. As long as the model year of the used bus is within 8 years of the current model year, the used bus will be placed on the replacement schedule upon approval from DPI Transportation Services. The model years will coincide with fiscal years (i.e. 1997-98 equates with 1998 model year).

Service Truck - These service vehicles (typically pickup trucks or cargo vans) are used by the garage mechanics to access the fleet for maintenance and service. The buses are typically staged at schools or other parking facilities mid-day and are available for routine inspections and minor servicing. The service trucks are used to respond to road calls in the event a bus becomes disabled. A local board may add a service truck (pickup/cargo van) to the state replacement schedule if the ratio of buses operated per service truck inventory exceeds 25. The truck purchased must be new and meet the specifications of the current state contract for service vehicles. At such time that the truck purchased by the local board is replaced by the state, the replacement will be of the same type trucks currently available on the state term contract for DPI service vehicles. Four-wheel drive, extended cab or service body may be added to a service truck but the local board must bear the cost of this option.

Fuel Truck - Fuel trucks are the primary source for distributing fuel to the school bus fleet. With the buses typically staged away from the garage, a remote system of fueling is essential. A local board may request that DPI review the need for an additional fuel truck. Several factors will be considered in granting the request including growth and current logistics for fueling the buses (i.e., school locations and staging areas). . The general rule is one fuel truck per 75 school buses. In order to add a truck, the fleet must be 35 buses over the general rule. DPI approval is needed. If the request is approved, the local board may proceed with the purchase and the state will add the fuel truck to the replacement schedule (It is illegal to dispense gasoline from a mobile fuel dispensing vehicle into another vehicle.)

Wreckers - Wreckers are used to tow disabled school buses to the garage or another site for repairs. Any other use requires a refund to the state. If an LEA wishes to add a wrecker to the state replacement schedule, they must seek approval from DPI and they are required to purchase the initial body and chassis. Upon approval and delivery, the vehicle is placed on the schedule to replace the wrecker chassis when appropriate. The body, which includes the wrecker boom, can only be transferred to a new chassis if the original chassis is damaged (upon approval by DPI Transportation Services) or the local board will need to purchase a new body

In the event of an accident where a wrecker is involved, if the wrecker boom and body was damaged beyond repair it will be the LEA's responsibility to replace it through local funds or insurance purchased by the LEA.

Other service vehicles - An LEA may purchase tire trucks, lube trucks and other vehicles used for the maintenance of the state’s school bus fleet. State funds may be used to maintain these vehicles but these vehicles will not be subject to state replacement. DPI Transportation services must approve use of state funds for such vehicles.

Vehicle Replacements

The Transportation Services Section is charged with allocating resources designated by the North Carolina General Assembly for school bus replacement among all local education agencies in the state in an equitable manner. DPI Transportation Services designates funds generated from the sale of used vehicles for the replacement of service vehicles. Once vehicles are replaced, they remain titled to the LEAs; however, their authorized use is at the discretion of the state.

School Bus Replacement Criteria - DPI Transportation Services will consider all of the following in determining which buses in the statewide fleet are to be replaced in a given year:

1. Age of the bus
2. Mileage of the bus
3. Condition of the bus
4. Availability of funds
5. Unique circumstances about a given bus
6. Buses destroyed by accident or vandalism (total loss)

An E2RB or E2RC bus must have been operated by an LEA as authorized under General Statute 115C-242 to be considered for replacement. Any use of a replacement bus by an LEA or other entity for purposes other than "to-and-from-school" shall require reimbursement to the State for depreciation of capital equipment.

In general, an LEA will receive a bus of similar construction and size to the one being replaced. If a bus to be replaced has a capacity greater than is being currently offered as replacement, the State will use the largest capacity bus currently offered on contract as the replacement. If an LEA is not replacing a wheelchair lift bus, but desires a lift, the LEA must purchase the lift according to guidelines established for equipment replacement by DPI Transportation Services. An LEA may be allowed to adjust capacities depending on bus offerings in a given year.

Other vehicles replacement criteria - Service vehicles (pickups, cargo vans), fuel trucks, and wrecker chassis are replaced by the State much in the same manner as school buses. The funds to purchase service vehicles come primarily from the sale of surplus buses and service vehicles.

DPI Transportation Services designates the service vehicles to be replaced, using similar criteria as for buses (i.e. mileage, age and condition) subject to the amount of funds available. Once service vehicles have been replaced, a small number of extras are retained in a spare status (EOS), available for transfer to another in the event a regular service vehicle is destroyed by vandalism or accident. These extra trucks can only be used upon written approval from DPI Transportation Services. These vehicles are not intended for daily use and can only be used when a regular truck is out of service.

Parked Buses

A parked school bus is a bus titled to the LEA that was once authorized for use as a regular route bus, but because of current demands is not being utilized on a daily basis. At such time that the fleet is reviewed for bus replacements, a status ESP "parked" bus will not be included in the replacement pool. It can be used as a spare and will count towards the 10% spare fleet.

Only buses that are 8 or more years old (based on current model year being delivered) can be converted to status ESP. Parked buses will not be reinstated while "parking" other buses during the same year except for special cases where one bus contains a lift or is 42 capacity or smaller.

Upon designating a vehicle as a Status ESP (parked) bus, the LEA has several options available to it with regard to that vehicle:

Activity or Local School Bus Conversion – As long as the model year of a replacement bus (E2RB) is in excess of 8 years of the model year currently being replaced, the bus can be considered for conversion. An E2RC can be converted at any time.

By notifying DPI Transportation Services in writing, an LEA may convert a parked bus to an activity bus by making appropriate mechanical adjustments to the vehicle. This includes the removal of lettering referring to "school bus" and North Carolina Public Schools. An LEA may

also convert a parked bus to a local school bus (e.g. for a locally-funded program) by notifying DPI Transportation Services in writing of the 8000-level number to be assigned.

In the instance of conversion, the LEA relinquishes its right for another bus in its place in the future as the parked bus is removed from the State inventory.

Turn in to the state - By mutual agreement the LEA may surrender a bus to the state for disposition. DPI Transportation Services may opt to sell the vehicle or use it in another capacity in North Carolina. In return, Transportation Services will issue a "credit" to the LEA to be redeemed for a bus in the future should a need arise for additional vehicles. Note: This does not necessarily entitle the LEA to a new vehicle immediately, but it guarantees a vehicle once a need is demonstrated. No bus that has been designated as Status ESP (parked) for more than 8 years, or is older than the current model year being replaced, will be accepted by the State for credit purposes.

Reinstatement Requirement - An LEA may opt to retain a parked bus as a yellow school bus to be used as a spare vehicle. It may be reinstated to status E2RB subject to operation for 91 days on a regular route during a single school year and be approved by DPI Transportation Services. Proper documentation on formTD-10 IS REQUIRED. A bus may only be reinstated as long as the model year of the bus is more recent than the oldest buses eligible for replacement. After that, the LEA permanently relinquishes the right to have that bus replaced in the future.

Surplus Vehicles

The Transportation Services Section is charged with designating the old buses and service vehicles that are to be removed from active service and replaced with a new vehicle. The number of vehicles removed and replaced annually depends on the annual appropriation from the General Assembly. Funds realized from the disposal of old vehicles revert to the state vehicle replacement fund.

School Bus - Buses that have been replaced by the state are sold via DPI Transportation Services. These buses shall be priced by the area consultant and listed on the "School Buses for Sale" website. Every effort should be made by the LEA to assist in the sale of surplus vehicles. By placing the vehicle in a visible location with a "For Sale" sign and/or advertising in any free publication, will help expedite the sale. Proceeds from the sale of surplus buses are returned to the state vehicle replacement fund.

Service Vehicles - A local board may purchase service trucks that have been replaced by the state. The local board agrees to pay the price that is set by DPI Transportation Services. If the local board does not wish to purchase the truck, it is sold through DPI Transportation Services. Service vehicles, fuel trucks, tire trucks and wreckers shall have all lettering removed. The LEA is responsible for painting over the lettering that distinguishes it as a county truck. If necessary, repaint driver door yellow (Unless sold to another school system). DPI Transportation Services will determine which trucks are retained as spares Proceeds from the sale of surplus trucks are returned to the state vehicle replacement fund.

Surplus Vehicle Sale Preparation - Prior to being sold, all buses shall have the bus appearance altered in the following manner. The front and rear panel which formerly had "School Bus" indicated shall be painted from the flashing light on the left to the flashing light on the right, a color other than school bus yellow. Also, the area of the body, which formerly indicated "NC Public Schools", shall be painted a color other than school bus yellow. The painted area is to be the full length of the bus (See APPENDIX F). The stop arm shall be removed or painted black and the eight light warning system disabled. If a bus is sold to a public or private school system, an

agreement can be made between the Transportation Consultant and the purchaser concerning letter removal, and stop sign removal depending on the future use of the bus.

Surplus vehicle sale procedure

1. Prices are set by DPI consultant
2. Advertise vehicle on DPI website, local paper or place a for sale sign in vehicle parked in public view
3. Receive certified check, cashiers check or money order to NCDPI from customer.
4. Sign title over to customer.
5. Complete a damage / flood and mileage statement and give to customer.
6. Director or cost clerk will forward payment and form TDE6 to DPI Transportation services in Raleigh.
7. Bulk sales should be directed to Transportation Services in Raleigh.
8. If bus is sold to a Charter school only county name must be removed.

Surplus buses and service vehicles will be priced for sale or bid on a TD-13 Discarded Equipment Form by your regional area transportation consultant. Buses and service vehicles shall not be sold unless priced in writing on the proper form prior to sale by the area transportation consultant.

Cannibalized Vehicles – In some cases, DPI Transportation Services may designate a vehicle as Salvage ("cannibalized") so that useful parts from the surplus vehicle can be used in other state replacement vehicles. This is often used when a wrecked vehicle has a useful engine, transmission, etc. Once completely stripped of parts, upon DPI approval, the bus will be sold for scrap metal to a local salvage company or at a reduced price following the same procedures as other sold vehicles.

Alterations and Modifications to School Buses

Because of the State's responsibility to replace school buses, no school bus is to be altered in appearance, color, lettering, or equipment unless authorized by the Department of Public Instruction, Transportation Services Section. It is permissible to update older model school buses to the current year school bus specifications. Any safety item included in the most recent issue of the North Carolina School Bus Specifications may be added. However, the items must be of the same model and type of material as described in the specifications and also installed in the manner described in the specifications. The following list includes safety items that may be added to update older school bus without specific written approval.

Items that have been added to bus specifications in recent years:
(Note: the following is for example purposes, but is not an all-inclusive list)

- Passenger Advisory System
- PowerPoint
- Integrated Child Restraint Seats
- Cohesive Brake Linings (FF)
- Strobe Stop Signs
- LED Lighting
- Reflective lettering
- Polyurethane paint
- Reflective stop sign material
- Air dryer
- Automatic slack adjusters
- Parking brake interlock
- Synthetic differential lube
- Driver fan
- Exhaust pipe extension turn down
- Pro-form fire block seat material
- Strobe lights
- Rear Scope lens
- Roof hatches
- Backup alarms
- Right side hand rails

Items not included in specifications, but approved for addition to school buses

- External Motion Detection System
- Vandal Locks (requires electronic interface to ensure emergency exits are unlocked before the bus will start)
- Two-way Communications
- Global Positioning Devices
- Electronic Control Module Monitoring Devices
- Exhaust Braking System
- Secured trash can / broom holder (non-metallic)
- Video Cameras

Other safety or cost efficiency items not included in the school bus specifications may be installed on your school buses. However, Transportation Services must receive a written request and approval granted prior to actual installation on a bus. Any item added would be considered a pilot test and must be reviewed by a Transportation Services staff member prior to the bus being put in service.

Note: Some items that have been updated in the specifications through the years should not be changed on older model buses to ensure the integrity of the bus configuration. For instance, tire sizes must not be changed because of the internal odometer and speedometer calibrations. Mirror configurations are certified by the manufacturer and can only be changed with written approval from DPI Transportation Services, to ensure appropriate measures that the new configuration meets Federal Motor Vehicle Safety Standard # 111.

Tort Claims - Insurance

School buses and service vehicles are covered through a program of "self-insurance" rather than by an actual insurance policy. Damage to a vehicle is covered either by the insurance of the (other) at fault party or repairs are made from state transportation funds. Driver negligence for school buses and service vehicles is covered through the state Tort Claims Act – G.S. 143-300.1, which reads in part:

> ***§ 143 300.1. Claims against county and city boards of education for accidents involving school buses or school transportation service vehicles.***
>
> *(a) The North Carolina Industrial Commission shall have jurisdiction to hear and determine tort claims against any county board of education or any city board of education, which claims arise as a result of any alleged mechanical defects or other defects which may affect the safe operation of a public school bus or school transportation service vehicle resulting from an alleged negligent act of maintenance personnel or as a result of any alleged negligent act or omission of the driver, transportation safety assistant, or monitor of a public school bus or school transportation service vehicle when:*
>
> *(1) The driver is an employee of the county or city administrative unit of which that board is the governing body, and the driver is paid or authorized to be paid by that administrative unit,*
>
> *(1a) The monitor was appointed and acting in accordance with G.S. 115C 245(d),*
>
> *(1b) The transportation safety assistant was employed and acting in accordance with G.S. 115C 245(e), or*
>
> *(2) The driver is an unpaid school bus driver trainee under the supervision of an authorized employee of the Department of Transportation, Division of Motor Vehicles, or an authorized employee of that board or a county or city administrative unit thereof,*

and which driver was at the time of the alleged negligent act or omission operating a public school bus or school transportation service vehicle in accordance with G.S. 115C 242 in the course of his employment by or training for that administrative unit or board, which monitor was at the time of the alleged negligent act or omission acting as such in the course of serving under G.S. 115C 245(d), or which transportation safety assistant was at the time of the alleged negligent act or omission acting as such in the course of serving under G.S. 115C 245(e).

Tort Claims coverage is contingent on compliance with G.S. 115C-242 which refers to the allowable uses of a school bus (instructional purposes, primarily transporting students to and from school). As a result, a service vehicle driver is covered only when responding to or servicing a bus which is operating pursuant to that statute.

Note that a service vehicle is not covered by the Tort Claims Act when it is responding to an activity vehicle breakdown. An LEA should carry liability insurance to cover the driver and collision insurance to cover property damage to a service vehicle which is damaged while servicing an activity bus or other local vehicle. For a wrecker, both the boom and chassis should be covered.

If a service vehicle is used out of State, it will not be covered under the Tort Claims Act if it is not being used for 115C-242 purposes. As to school buses and service vehicles performing allowed 115C-242 duties which are in out of State accidents, the tort claim limit is still $500,000.00. The State is not responsible for any judgment from an out-of-state court that exceeds that amount.

In summary, any drivers and service vehicles that are ever used to service local vehicles should be insured by the LEA since neither funds from the Tort Claims Act nor the state transportation allotment can cover damages or judgments resulting from activity not directly related to school buses being used for instructional purposes.

PREVENTIVE MAINTENANCE PROCEDURES

PM MANUAL COMMITTEE MEMBERS

The preparation of this preventative maintenance section was a cooperative effort between LEA representatives and NCDPI. The committee would like to thank those around the state that provided input and feedback during the preparation of this manual.

The members of this committee were selected as representatives from the nine NCPTA districts of the state.

District 1 Rick Stiles (Haywood)
District 2 Alfred Schrum (Lincoln)
Kenny Warlick (Cleveland)
District 3 Donnie Rose (Yadkin)
District 4 Al Smith (Alamance)
District 5 Jeff Garmon (Cabarrus)
District 6 Bill Winstead (Wilson)
District 7 Shannon Ennis (Johnston)
District 8 David Twiddy (Dare)
District 9 Wade Tyndall (Lenoir)
NCDPI James Hawkins (Eastern) – PM Committee Chair
NCDPI Charles Ball (Central)
NCDPI Randy Henson (Western)

Ex officio members:

NCDPI - Derek Graham – Section Chief
NCDPI - Craig Warren – Consultant

Preventive Maintenance Overview

The following program must be documented by proper completion of all currently required preventive maintenance forms. Documentation of maintenance is essential to conducting an effective, safe and cost-efficient maintenance program and in justifying budget needs and allocations.

The key operational factor upon which this PM program is based is vehicle mileage since the last recorded preventive maintenance service. Therefore, ***accurate odometer operation and mileage recordings are essential*** as well as accurate record-keeping of all routine daily records.

The performance of this maintenance program must be in accordance with all safety rules and regulations prescribed by the Occupational, Safety and Health Administration, the State Board of Education, and the local education agency.

All brake repairs shall be checked for operating safety and efficiency by using a Tapley Brake Meter or equivalent meter. The percent of brake efficiency shall be recorded for future reference.

Each mechanic should be provided a copy of the Preventive Maintenance Manual.

For pre-2007 engines, 15W40, CI-4 / CI-4+ engine oil, or current manufacturer recommendations, SHALL BE USED IN ALL DIESEL engines. Gasoline service vehicles should use the manufacturer recommended oil.

This vehicle service is to be recorded on a BSIP-generated DP02 Repair Order by the technician performing the service. This form is to be turned in daily to the appropriate person.

Factors that affect oil contamination are as follows:

1. Cold running engine (use at least 185 degree thermostat)
2. Faulty air filtration system
3. Poor operating engine (rich fuel mixture)
4. Weather conditions

Oil Analysis - A proper oil analysis program allows technicians to make more informed maintenance decisions. The timely equipment condition information provided through oil analysis results can help users decrease maintenance expenses through component life extension, extended oil drains, and breakdown avoidance. A garage should keep a large supply of Oil Analysis Kits on hand. Always use recommended procedures when drawing an oil sample in order to ensure accurate results. A copy of the analysis results should be kept in the PM file of the particular bus sampled. If analysis results require that oil be changed, a DP01 work order should be generated under the heading BUS # (Mileage) Unscheduled Oil Change per sample results.

Access to service and maintenance manuals is required to be available at each school bus garage for each year model vehicle. The manuals, CD or website will be made available by the bus manufacturer.

Scheduling

The transportation director or other designated employee shall review BSIP screen ZIP24 (Select variant DPI_ PM) each workday morning. The daily work schedule should be adjusted accordingly dependant upon what vehicles are displayed. One advantage of reviewing the screen daily is that it allows each county to service all vehicles before they exceed the preventive maintenance mileage maximum of the specific maintenance plan for the bus.

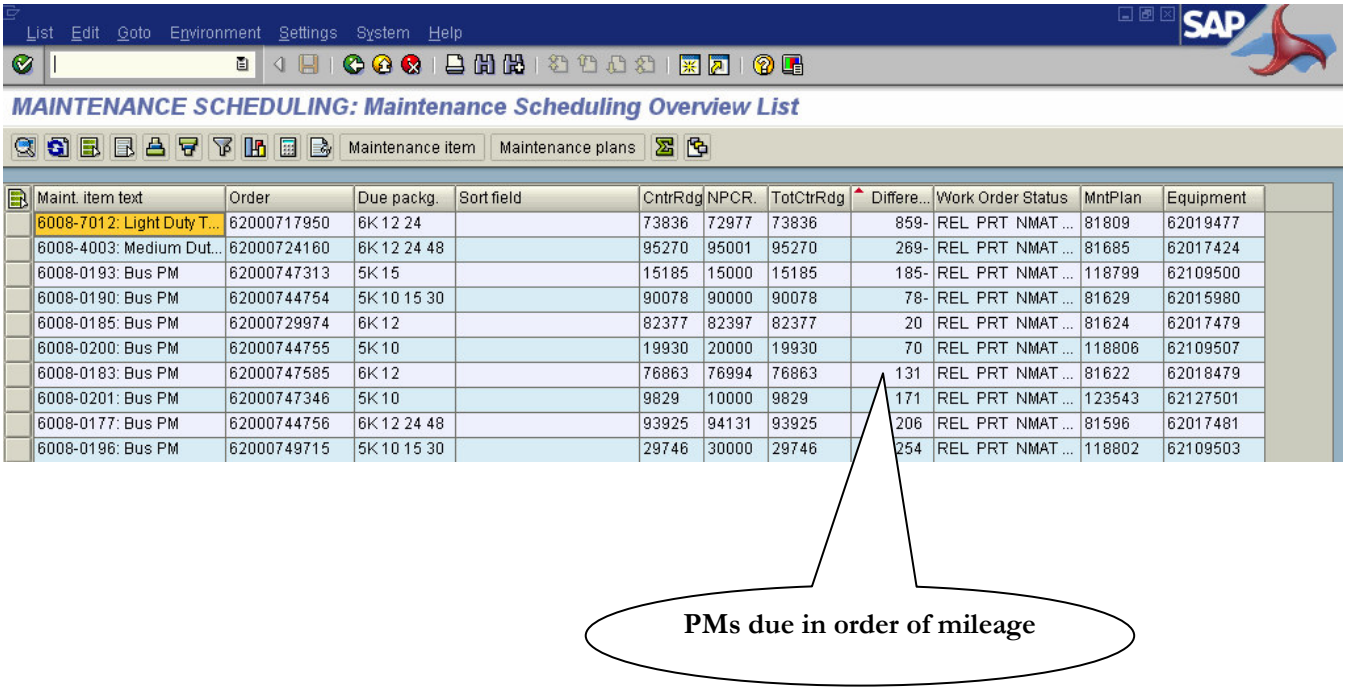
Early Display - All vehicles will appear for preventive maintenance 900 miles before they reach the maximum mileage allowed between preventive maintenance services. Vehicles due 30-day inspections will appear ten (10) days before they exceed the maximum days allowed between inspections. During the school year, each school bus and activity bus must be inspected each thirty-calendar day period to meet state statutes. NOTE: BSIP will continue to count days over an extended holiday period.

Goals – The primary goal is to perform each scheduled inspection and preventive maintenance activity on time for each vehicle. BSIP provides notification prior to the due-mileage of a PM. A 900 mile window ensures preventive maintenance service can be performed before the scheduled due-mileage for each bus is reached. BSIP also provides a 10-day advance notification prior to the due date of a 30-day inspection.

Vehicles Displayed - Only active vehicles that are being used should appear on the ZIP24 Screen. For sale, sold or cannibalized vehicles should be reported to the BSIP helpdesk for removal. The help desk will also deactivate the plans for local vehicles (other than activity buses) upon request.

Factors - The preventive maintenance program is supported by an automated scheduling system. The computer system schedules vehicles for preventive maintenance based on mileage that has been entered into BSIP through fuel entry or work orders.
Preventive Maintenance Scheduling - PMs are scheduled at intervals determined by the PM Plan. Scheduled Packaging determines what interval to be scheduled. Please note that PERFORMING PMs EARLY or LATE WILL NOT AFFECT THE SCHEDULE OF THE NEXT PM

Screen Display – A screen shot of the ZIP24, variant DPI_PM is shown below:



Preventive Maintenance Plans

Technicians should refer to OEM service maintenance manuals for specific preventive maintenance procedures.

New Vehicle Service

The success of any preventive maintenance program is determined by a number of factors. One of the initial factors, and possibly one of the most important, is the proper servicing of new vehicles prior to placing them into daily service. Without proper new vehicle servicing, the durability, service, and vehicle life will be adversely affected. The following section is devoted to explaining what is required in the proper service of new vehicles and how to correctly accomplish this required New Vehicle Service Refer to the New Vehicle Service Work Order.

The mechanic shall complete the New Vehicle Service Work Order during the new vehicle preventive maintenance service prior to the bus being placed in service. This order is created in BSIP for new vehicles and can be accessed via IW38 with an order type of DP07. The information requested for each item shall be completed. After the inspection is finished, the form shall be reviewed by the shop foreman/transportation director and filed in the Individual Vehicle Maintenance History file along with mechanic's signature and entered in the computer. A sample of the New Vehicle Service Work Order is shown below. NOTE: The mechanic is required to initial each service as it is performed as well as record all test results indicated on the new vehicle service work order

NEW VEHICLE SERVICE WORK ORDER

NOTE: Torque values for any bolt not specified in the vehicle service manual should be obtained from a bolt chart specifying torque .

FRONT AXLE
_____ Inspect and torque: steering gear mounting bolts and gear case bolts
_____ Inspect and torque: pitman arm nut _____ ft. lbs.
_____ Inspect and torque: tie rod, drag link nuts, tie-rod clamp bolts, and/or 3rd arm mounting nut
_____ Inspect and torque: backing plate or spider mounting bolts
_____ Inspect and torque: front spring u-bolts _____ ft. lbs.
_____ Inspect and torque: spring shackle and eye bolts or spring pivot bolts
_____ Inspect and torque: king pin lock bolt nuts
_____ Inspect and torque: wheel bolts _____ ft. lbs.
_____ Check steering shaft u-joints for free movement and trunion snap rings for seating
_____ Check and set toe-in
_____ Set Axle Stops for Wheels
_____ Bar test wheel bearing, Adjust if needed, Check Fluid Level, Use Synthetic fluid if needed

REAR AXLE
_____ Inspect and torque: spring u-bolts _____ ft. lbs.
_____ Inspect and torque: backing plate or spider mounting bolts
_____ Inspect and torque: spring shackles, eye bolts, or spring pivot bolts
_____ Inspect and torque: differential to axle housing and inspection cover to axle housing bolts
_____ Inspect and torque: axle bolts _____ ft. lbs.
_____ Inspect and torque: wheel bolts _____ ft. lbs.
_____ Bar test wheel bearing, Adjust if needed

UNDERCARRIAGE

_____ Inspect and torque: Body mounting bolts
_____ Inspect and torque: Frame fastener bolts
_____ Inspect and torque: U-joint nut and drive shaft center bearing bracket bolts
_____ Inspect and torque: Hose clamps and pipe fittings for air lines, air dryer, and tanks
_____ Inspect and torque: Bolts in transmission case and transmission mounting bolts
_____ Inspect and adjust: Brake chambers push rod to slack adjuster angle; If needed, refer to OEM Service manual for correct adjustment.
_____ Inspect routing and mounting of hose, pipes, battery cables, and wiring; Be observant for areas where any of the items may become worn by rubbing or damaged by vibration. Make appropriate corrections or repairs.

Other Miscellaneous

_____ Pressure test cooling system, visual inspection
_____ Test Engine DCA levels
_____ Lubricate all fittings
_____ Check all fluid levels
_____ Adjust headlamps
_____ Equip with tire chains (if needed)
_____ Perform NC Motor Vehicle Inspection

BODY

_____ Inspect all lights
_____ Adjust door controls and air regulator Door control linkage should be adjusted for the rear leaf of entrance door to close just prior to front leaf. Weather seals should lap against, not butt against each other.
_____ Adjust windshield wiper stroke and/or arms
_____ Inspect and torque seat mounting bolts, all seat belt mounting and operation
_____ Inspect and torque glass channel mounting screws
_____ Inspect and torque turn signal bolts and screws, lens screws
_____ Adjust mirrors and tighten (check in grid)
_____ Inspect all electrical connections in body electrical panel; for proper assembly and tightness.
_____ Inspect and torque: body to cowl bolts
_____ Inspect and torque: stop sign mounting screws; align and tighten blade mounting bolts
_____ Inspect and adjust brake pedal free travel
_____ Lubricate glass channels & latches with silicone (including emergency exits)
_____ Lubricate drivers seat tracts

ELECTRICAL SYSTEM

_____ Test starter current draw _____ Amps _____ Volts
_____ Alternator output test (regulated) _____ Amps
_____ Voltage regular test _____ volts

ENGINE

_____ Inspect routing of heater hose, install support brackets if needed, tighten clamps
_____ Inspect and torque: oil pan, valve cover and rocker arm cover bolts
_____ Inspect and torque: manifold and exhaust pipe bolts and nuts
_____ Inspect all electrical connections
_____ Inspect throttle controls
_____ Inspect/Adjust engine accessory drive belts

ROAD TEST
_____ Check travel angle
_____ Check steering gear operation (lock to lock), lost motion, shimmy
_____ Check rear axle and drive line noise
_____ Check transmission: operation, noise
_____ Automatic shift points up 1-2 ____ 2-3_____ 3-4 ____ (WOT)
_____ Automatic shift points down 4-2 _____ 2-1 _____
_____ Test for maximum mph _____ top speed
_____ Break meter test _____ % (Brake meter min. 60%)

AFTER ROAD TEST
_____ Adjust lubricant level in transmission and differential
_____ Park vehicle in a clean dry area, observe 5 min. later for leaks
_____ Property complete a TD-30
_____ Clean Bus: remove metal shavings, loose screws, stickers, etc.

PM Due Packaging

Due Packaging	Description
5K	5,000-Mile Preventive Maintenance Service
5K10K	10,000-Mile Preventive Maintenance Service
5K10K15K	15,000-Mile Preventive Maintenance Service
5K10K15K20K	20,000-Mile Preventive Maintenance Service
5K10K15K20K30K	30,000-Mile Preventive Maintenance Service
5K10K15K20K30K60K	60,000-Mile Preventive Maintenance Service
5K10K15K20K30K60K90K	90,000-Mile Preventive Maintenance Service

PM Task List

The PM task list consist of the operations that need to be completed for each PM. BSIP will track and generate the task list for each set of buses based on mileage and the plan that is assigned to the particular bus.

Most of the tasks have been taken from manufacturer's service recommendations. It is extremely important for each mechanic to become familiar with these manuals. If it is questionable on how the operation should be performed, this manual should be reviewed to ensure the correct service as prescribed by the manufacturer. One manual is usually sent with each bus.

Freightliner 2001 and newer

5000 Mile Intervals
Lube all fittings (007)
Oil sample if 0205 not done
Lube door/hood hinges and latches (007)
Bus pickup/travel time

10000 Mile Intervals
Inspect engine drive belt (006)
Check Eaton viscous fan drive (006)
Check radiator cap (006)
Replace outer air cleaner element (006)
Insp/lube window latches/tracks (006)
Insp/adj door latches/fasteners (006)
Check alternator, battery, starter (006)
Check and clean ground cables (006)
Check electrical wiring (006)
Check transmission breather (006)
Inspect air dryer (006)
Insp/clean air reservoir auto drain(006)
Inspect exhaust system (006)
Service wheel chair lift (006)
Insp/record brake lining thickness (006)
Record trans. shift points (006)
Road test-record brake panic stop (006)

15000 Mile Intervals
Change engine oil and filters
Change oil by-pass filters (003)
Change fuel filters (003)
Inspect engine and components (006)
Inspect cooling system (006)
Check coolant concentration/PH: (006)
Wash eng/battery comp/axles/slacks(002)

30000 Mile Intervals
Check engine support fastener (006)
Pres flush rad & change coolant (002)
Change trans spin-on filter (003)
Insp seat frames for cracks/mount (006)
Check frame fastener torque (006)
Check springs u-bolt torque (001)
Chk spr brake fastener torque-rear (006)
Check air bag fastener torque (001)
Chk suspension component clearance (006)
Insp suspen component & chk oper (006)
Check air springs u-bolt torque (006)
Check shock absorbers (006)
Check radius rod bushing (Hendr) (006)
Chk spring fastener torque (Hendr) (006)
Clean/repack/adjust wheel bearings (003)
Check wheel nut and rim nut (006)
Repl air dryer desiccant Ben AD-9 (003)
Change pwr str reser fluid/filter (003)
Replace inner air cleaner element (006)

60000 Mile Intervals
Adjust valves-MBE900 only (001)

90000 Mile Intervals
Change diff fluid/clean mag plug (003)
Adjust valves-CAT only (001)

IHC 2001 and newer

5000 Mile Intervals
Lube all fittings (007)
Oil sample if 0050 not done
Lube door/hood hinges and latches (007)
Bus pickup/travel time

10000 Mile Intervals
Change engine oil and filters
Change engine oil by-pass filter (003)
Inspect engine drive belt (006)
Check Eaton viscous fan drive (006)
Check radiator cap (006)
Clean fuel filter pre-strainer (006)
Inspect air cleaner assy/piping (006)
Inspect/lube window latches/tracks (006)
Inspect/adj door fasteners/latches (006)
Check alternator, battery, starter (006)
Check and clean ground cables (006)
Check electrical wiring (006)
Check transmission breather (006)
Inspect air dryer (006)
Insp/clean air reservoir auto drain(006)
Inspect exhaust system (006)
Service wheel chair lift (006)
Insp/record brake lining thickness (006)
Road test-record brake panic stop (006)
Wash eng/battery comp/axles/slacks(002)

20000 Mile Intervals
Change fuel filters (003)
Inspect engine and components (006)
Inspect cooling system (006)
Check coolant concentration/PH: (006)

30000 Mile Intervals
Check engine support fastener (006)
Pres flush rad & change coolant (002)
Change tranmission spin-on filter (003)
Insp seat frames for cracks/mount (006)
Check frame fastener torque (006)
Check springs u-bolt torque (001)
Chk spr brake fastener torque-rear (006)
Check air bag fastener torque (001)
Chk suspension component clearance (006)
Insp suspen component & chk oper (006)
Check air springs u-bolt torque (006)
Check shock absorbers (006)
Check radius rod bushing (Hendr) (006)
Chk spring fastener torque (Hendr) (006)
Clean/repack/adjust wheel bearings (003)
Check wheel nut and rim nut (006)

Repl air dryer desiccant Ben AD-9 (003)
Change pwr str reser fluid/filter (003)

60000 Mile Intervals
Change air filter element (003)

90000 Mile Intervals
Change diff fluid/clean mag plug (003)

Generic Bus Plans

5000 Mile Service
Perform Oil Sample
Lube grease fittings/check fluids (007)
Lube door/hood hinges and latches (007)
Bus pickup/travel time

15000 Mile Service
Wash engine/battery compartment (002)
Change oil and filter
Replace fuel filters (003)
Test and service air filter (006)
Check crankshaft end play (006)
Clean heater filter (002)
Adjust governor/throttle (linkage) (001)
Test coolant additive (DCA level) (006)
Replace coolant filter (006)
Pressure test cooling system (006)
Service battery (cable and comp.) (006)
Inspect and adjust engine belts (006)
Record alternator volt/amp reading (006)
Service air comp. (filter/ejector) (006)
Replace AT auxiliary filter (003)
Test steering gear operation (006)
Check spring ubolts (001)
Service wheel chair lift (006)
Visually inspect front end alignment (001)
Check or reline front brakes (006)
Turn front brake drums (if needed) (001)
Repack front wheel bearings (007)
Adjust brakes (001)
Bus pickup and delivery (020)
Brake test (panic stop reading) (006)
Road test (018)
Change auto trans. filter & fluid (007)

30000 Mile Service
Check or reline rear brakes (006)
Turn rear brake drums (if needed) (001)
Bar test rear wheel bearings (007)
Inspect S-cam bushings (006)

60000 Mile Service

Tune engine, Adjust Valves OEM SP (006)
Change power steering fluid & filter
Change air dryer element (007)
Drain/rep. brake fluid (hydraulic) (007)
Change differential fluid(007)
Drain/flush radiator (002)
Remove and inspect all wheel bearings
Undercoat bus (015)

Medium Duty Trucks

5000 Mile Service
Perform oil sample
Lube grease fittings/check fluids (007)
Lube door/hood hinges and latches (007)
Service battery (cable and comp.) (006)

15000 Mile Service
Change oil and filter
Replace fuel filters (003)
Test and service air filter (006)
Check crankshaft end play (006)
Clean heater filter (002)
Test coolant additive (DCA level) (006)
Replace coolant filter (006)
Pressure test cooling system (006)
Inspect and adjust engine belts (006)
Record alternator Amp/Volt reading (006)
Service air comp. (filter/ejector) (006)
Replace AT auxiliary filter (003)
Test steering gear operation (006)
Check spring ubolts (001)
Check front end alignment (toe in) (001)
Check or reline front brakes (006)
Turn front brake drums (if needed) (001)
Repack front wheel bearings (007)
Check brake adjustment (001)
Road test (018)
Change Auto trans. Filter & fluid (007)

30000 Mile Service
Wash eng/bat compart -Low Pressure (002)
Check or reline rear brakes (006)
Turn rear brake drums (if needed) (001)
Bar test rear wheel bearings (007)
Inspect S-cam bushings (006)
Check tension belt pulley (006)

Light Duty Cars/Trucks

5000 Mile Service
Change oil and filter
Lube grease fittings/check fluids (007)
Lube door/hood hinges and latches (007)
Service battery (cable and comp.) (006)
Rotate Tires
Ck. Brake lining, reline as necessary
Repack wheel bearings when brakes relined

15000 Mile Service
Replace fuel filters (003)
Test and service air filter (006)
Pressure test cooling system (006)
Inspect and adjust engine belts (006)
Record alternator Amp/Volt reading (006)
Test steering gear operation (006)
Check or reline front brakes (006)
Turn front brake drums (if needed) (001)
Repack front wheel bearings (007)
Road test (018)

30000 Mile Service
Wash eng/bat compart -Low Pressure (002)
Change auto trans. fluid & filter (007)
Check or reline rear brakes (006)
Turn rear brake drums (if needed) (001)
Repack rear wheel bearings (007)
Check tension belt pulley (006)
Test starter/rec. amp/volt reading (006)
Visually Check all steering linkages
Visually Check front end alignment
Check spring u-bolts

60000 Mile Service
Tune up engine (006)
Change power steering fluid & filter (006)
Drain/rep. brake fluid (hydraulic) (007)
Change differential fluid (007)
Drain/flush/change radiator (002)

90000 Mile Service
Adj. engine valves per service manual (001)
Remove & inspect wheel brngs (006)
Change Manual Transmission Fluid

OFFICE PROCEDURES

Required Maintenance Record Documentation

The following are maintenance record forms and other related documents, which are required to manage and document the school vehicle maintenance program. These forms are to be properly and thoroughly completed and filed appropriately. DPI Transportation Services staff members will review these records during the annual inspection and other times as needed. Occasionally these forms are updated to accommodate changing needs, however, sample forms have been provided in (APPENDIX G). These forms are also available at WWW.NCBUSSAFETY.ORG under the reports & forms section.

- TD-18A – Equipment Repair and Parts Order
- TD-18B – Fuel and Lubricant Issue Ticket
- TD-21 – Inventory Receipt (ME21N)
- TD-27 – Spare Vehicle Assignment Log
- TD-28D – Bus Driver Sign-In Sheet
- TD-28R – Reported Defects Log
- TD-28S – Service Call Log

Filing

All of the file folders listed in this section are essential for proper documentation of your vehicle maintenance program. An explanation of each folder listed below is presented in following sections.

Individual Vehicle History File – The Individual Vehicle History file should contain information that should be kept for the life of the vehicle. Examples include:

1. Line Setting Sheets
2. Warranty Information
3. Vehicle recall documentation
4. Major repair (warranty and non-warranty) documentation
5. Major damage documentation (e.g. flood, fire, crash)
6. Other information deemed necessary by the LEA

Individual Vehicle Inspection File - The Individual Vehicle Inspection file should include all monthly inspections. The Inspections should be filed with the most current record filed in the front of the file.

Individual Vehicle Preventive Maintenance (PM) File - The Individual Vehicle Maintenance file should include all completed preventive maintenance work orders. The maintenance orders should be filed with the most current record filed in the front of the file.

> Note: A county may elect to combine the Inspection and PM files for each bus, with documents filed chronologically or separated front and back with, for example, PM's in the front and Inspections in the rear.

Individual Vehicle Repair Order File - The Individual Vehicle Repair Order file should include all complete repair orders. The Orders should be filed with the most current record filed in the front of the file.

Individual Vehicle Work Order (TD-18) File - The Individual Vehicle Work Order file should include all incomplete work orders. The file should be reviewed when a vehicle comes to the shop and the work orders should be completed while the vehicle is in the shop. (NOTE: the shop foreman or personnel responsible to manage the maintenance of the vehicles usually maintain this file)

Vehicle Accident File - The Vehicle Accident File should include all accident reports. The Accident Reports should be filed so that they can be easily located by date and by vehicle.

Discarded Equipment File – This file should include documentation of all equipment sold (surplus buses and trucks, scrap metal, scrap tires. For vehicle sales, it is useful to include a copy of the payment check and vehicle title and retain that copy in this file.

Inventory Received file – Because of the variety of invoices received (unit pricing, total pricing, tax, freight, etc.) it is essential that proper pricing of individual items received in inventory be calculated prior to entry in BSIP. The TD-21 worksheet (paper or electronic) helps to facilitate proper data entry. Calculations or inventory receipts should be retained in paper or electronic (spreadsheet) files.

Fuel Issues File – A chronological file of all paperwork associated with issuing fuel from the fueling station or from fuel trucks must be maintained.

School Bus Driver Sign-in Sheet – A system through which school bus drivers can report vehicle defects on a daily basis is a critical part of proper maintenance. Hard copy forms containing the key information required on the TD-28 (Bus Driver Sign-in Sheet) must be maintained. Original files must be available at the LEA transportation office.

Service Call Logs – A system for logging incoming emergency maintenance calls (breakdowns) must be in place. Hard copy or electronic forms containing the key information required on the TD-17 Form (Service Call Log) must be available at the LEA transportation office.

E-Mail Communications – Regular communication from the Department of Public Instruction is sent to school transportation employees via an email list. Critical messages are assigned a numerical reference – for example, “DPI Message # 117 – Transportation Allotments Increased.” E-mail messages with DPI Message Numbers should be filed together in numerical order for future reference and to help prevent missed messages.

Data Entry Procedures

Entering maintenance data in BSIP is required to ensure proper documentation of required maintenance, labor charges and parts assignments. Because of the impact on vehicle mileage documentation, fuel issues should be entered in the system first. Following fuel issues, vehicle inspections should be entered, followed by preventive maintenance and, finally, “TD-18” maintenance work orders and inventory receipts.

Maintenance Activity Types

BSIP requires activity types to be associated with each work order. The following table indicates the different activity types and the kind of work order that should be coded to each.

Code	Description	Examples
2	Recall, Safety	Any recall that is related to a safety issue. *Examples: brake valve recall, handrail recall*,
3	Recall, Other	All other recalls not related to a safety issue. *Examples: roof hatch leak recalls, etc*.
4	Emergency	All unscheduled repairs of a vehicle *Examples: road calls, wrecker call, repairs at school, Repairs at shop that are not scheduled*.
5	Inspections	All Inspections *Examples: 30 day inspections, annual DMV Inspection*
7	Scheduled Correction	Any vehicle that is on a schedule for repairs. *Examples: All PM,s, a bus that is scheduled to have an engine replaced. A bus that is scheduled to have the brakes replaced prior to the brakes failing, a bus scheduled to be painted, a bus scheduled to have a wheel alignment. etc.*
12	Warranty	Any repairs made under warranty. Work done at the manufacturer, at the LEA's shop, by the manufacturer personnel or shop LEA personnel.
14	Wreck Repair	Any Repairs made due to an accident

Cause Codes

BSIP allows a code to be associated with the CAUSE of each work order. The following table indicates the different activity types and the kind of work order that should be coded to each.

Code	Causes	Examples
1	Breakdown	Any unscheduled repairs made due to a breakdown of a component at school or shop. Include only defects found by the technician or reported by anyone other than the driver. *Examples: Flat tires, malfunctioning lights, heaters, wipers, horn, broken glass, etc.*
2	Consumption, Fuel	Any repairs made for the sole purpose of increasing MPG. *Examples: Changing the air filter for the sole purpose of increasing MPG. Tune-ups for the sole purpose of increasing MPG.*
3	Consumption, Oil	Any repair made for the sole purpose of decreasing oil consumption. *Examples: Replacing gaskets or seals on the engine for the sole purpose of reducing oil consumption.*
4	Driver's Report	Any unscheduled repair made at school or shop that are reported by the driver. *Examples: Flat tires, malfunctioning lights, heaters, wipers, horn, broken glass, etc.*
5	Routine Inspections	All monthly inspections (30-Day Inspections)

Code	Causes	Examples
6	Lubrication	Any lubrication outside of PM
7	Pre-Delivery	All new vehicle Prep. All work involved in preparing a vehicle for first time use.
8	All PM's	All PM'S *Examples (05,06,07,08)*
9	Rework	Any Repairs made to components that were not repaired correctly the first time.
10	Road Call	Service Call: Any call for service on a route that requires travel to the vehicle before the vehicle can continue on the route; or if the vehicle can not be repaired and has to be towed to shop for repairs. *Example: Flat tires, inoperable warning lights, engine malfunction, stuck vehicle on route, vehicles out of fuel on route, etc.*
11	Routine	Catch -All Use for routine maintenance. *Examples: Summer repairs, inflating tires, checking fluids, fueling buses, etc.*
21	Capital Improvement	Addition of any equipment that will increase the value of the vehicle. *Example: Addition of an air conditioner, upgraded seats, must be DPI approved additions.*
22	Conversion	Not Used
23	Modification	Any approved modifications that will not increase the value of the bus. *Examples: Upgrade Crossing Arm, Roof Hatch, Strobe Lights, etc.*
24	Special Study	Any repairs or adjustments to equipment involved in a pilot study or research data study.
32	Accident, Reported	Any activities due to a reported accident. *Examples: Investigation, wrecker service, etc.*
33	All recalls	Repairs made due to safety recall or any other recall. *Examples: Repairs made due to safety recalls or any other recalls by request of the manufacture.*
34	Statutory Inspection	Annual DMV Inspections
35	Any Modification Required by law.	Any modification that is required to be made due to a law or code. Example: FMVSS Modification (crossing arm).
36	Theft	Any repairs made due the theft of the vehicle.
37	Vandalism	Any repairs made due to the act of vandalism. *Examples: Cut seats, broken glass, due to the act of a person cutting or destroying.*
38	Warranty	Any time or repairs associated with a component being repaired under warranty of the vehicle.
39	Natural Causes	Any repairs made due to act of nature. *Examples: Fallen trees, floods, storm, wind damage, etc.*
41	Abuse of Equipment	Any repairs due to Driver abuse of equipment. *Examples: Twisted drive shafts, broken axles, etc.*

Transportation Records Disposal

The following information is taken from the State of North Carolina Department of Cultural Resources, Division of Historical Resources, Archives and Records Section.

Accident Reports and Tort Claims File - Copies of accident reports, plaintiff's affidavits, and notices of tort claims. (See G.S. §143-300.1)

Disposition Instructions: Destroy in office 7 years after settlement of claim.

Annual Transportation Reports File - Summary reports listing the activities of a local education agency's transportation department. Reports include number of days fleet was in operation, total number of miles buses were driven, number of buses operated, salaries paid to drivers and other transportation personnel, number of personnel employed, list of local expenditures, transportation policy questionnaires, inventory data, and other related information. Copies of report are sent to the central office and the Department of Public Instruction.

Disposition Instructions: Destroy in office after 3 years.

Bus Inspection Reports File - Inspection reports of school buses or school transportation service vehicles.

Disposition Instructions: Destroy in office after 3 years.

Contract Transportation for Children w/ Disabilities and Other Contracted Services File - Records concerning contracted transportation services for children with disabilities or other pupils, or other groups. File includes contracts, bus driver routes, salary schedules, refund reports, school bus passenger reports, annual transportation reports, inspection reports, and other related records.

Disposition Instructions: Destroy in office after 3 years if no litigation, claim, audit, or other official action involving the records has been initiated. If official action has been initiated, destroy in office after completion of action and resolution of issues involved.

Cost of Transportation File - Records concerning the operation, maintenance, replacement, and insurance of school buses or other school transportation service vehicles. File includes requisitions, expenditure reports, and other related records.

Disposition Instructions: Destroy in office after 3 years and when released from all audits, whichever occurs later.

School Bus Inventory and Maintenance File – Fleet maintenance records compiled from the Business Systems Information Portal (BSIP) that concern the maintenance of school buses or school transportation service vehicles. File includes 30-day inspection worksheets, oil filter reports, fuel receipts, preventative maintenance charge tickets, bus fleet inventories, and other related records.

Disposition Instructions: Destroy in office after 3 years if no litigation, claim, audit, or other official action involving the records has been initiated.

School Bus Routes File - Records concerning routes taken by school buses. File includes descriptions of routes, passenger lists, bus run reports, and other related records.

Disposition Instructions: Destroy in office after 3 years.

Seat Belt File - Records concerning the use and installation of seat belts and other restraint systems in school buses. File includes consent forms and similar records showing student's name, bus number, date system requested, type of system requested, and signatures of school's principal and student's parent and/or guardian.

Disposition Instructions: Destroy in office when superseded or obsolete.

State Vehicle Fleet Management System (BSIP) (Electronic) File - BSIP is a electronic data processing record used by the local education agency to track inventory and maintenance of school buses or school transportation service vehicles. Preventative maintenance information and inventories of buses are entered into this electronic file.

DISPOSITION INSTRUCTION: General guidelines for disposing of machine readable and electronic data processing records may be found in STANDARD-4. MACHINE READABLE AND ELECTRONIC RECORDS. BSIP inventory and maintenance information should be retained in electronic form for 3 years after applicable inventories and maintenance reports are produced and then erased or deleted.

Transportation Information Management System (TIMS) (Electronic) File - TIMS is an electronic data processing record concerning the management of school transportation services. Bus scheduling and routing information, students' addresses, bus maintenance schedules, mileage of buses, and other related data are entered into this electronic file.

Disposition Instructions: General guidelines for disposing of machine readable and electronic data processing records may be found in STANDARD-4. MACHINE READABLE AND ELECTRONIC RECORDS. TIMS data and statistics should be retained in electronic form for 3 years after applicable statistical reports are produced and then erased or deleted.

Transportation Records File - Records documenting school bus maintenance and use. File includes number of hours driven, refund and materials received report, and transportation charge. File also includes summaries, reports, transportation audits, and similar records generated by the Transportation Management System (TIMS) and/or received from the N.C. Department of Public Instruction.

Disposition Instructions: Destroy in office after 3 years or when superseded, obsolete, or administrative value ends, whichever occurs first.

Vehicle Inspections File - Records concerning inspections as required by the Department of Transportation, Division of Motor Vehicles, Enforcement Section. File includes inspection certificates, monthly summary lists, and receipts and statements for vehicle inspection certificates.

Disposition Instructions: Transfer original records to the Department of Transportation, Division of Motor Vehicles, Enforcement Section when generated. Destroy duplicates in office after 18 months and when released from all audits, whichever occurs later.

BUS GARAGE PROCEDURES

Fleet Assignments and Management

According to General Statutes 115C-241:246, the LEA superintendent or designee has the responsibility for assigning students to buses, assigning buses to schools, establishing routes, etc. In general, the transportation director is responsible for maintaining a current list of school buses in operation on a daily basis and the assignments of those buses. G.S. 115C-240(d) requires that all LEAs use the Transportation Information Management System (TIMS) or an equivalent system for routing. LEAs are also required to use DOT's Business Systems Improvement Portal (BSIP) for fleet maintenance. These systems should be maintained on a timely basis to ensure real-time accuracy of fleet assignments and status.

Extra Bus Schedule Documentation - When a school bus is not available for regular service due to maintenance or accident, a spare bus may be used in its place. This is the only time that a spare bus may be used. Careful documentation on the allocation of spare buses must be kept, including the location, bus numbers and dates out/in. The TD-27 (Spare Bus Assignment Form) fulfills this requirement.

Garage Procedures - Proper garage operation is essential to a cost effective preventive maintenance program. The maintenance programs presented in this manual requires that the operation of the school bus garage be conducted in the manner described below.

The following procedures should be utilized at the garage:

- The garage shall be kept in a clean, workable, safe condition at all times.
- A designated parking area should be available for vehicles awaiting maintenance or repair.
- Regularly scheduled maintenance (PM and 30-day inspection) is flagged in BSIP and work orders are automatically generated. When a vehicle is brought to the bus garage for other non-scheduled maintenance, a work order should be initiated in BSIP (or prepared on a hard copy TD-18) and held by the supervisor in charge of maintenance until assigned to a technician.
- A technician driving a vehicle at any time should consider it to be a road test. They should always be alert and aware of any defects. Any defects detected shall be reported and added to a repair order.
- It is essential for broken odometers to be repaired immediately whenever they are detected as malfunctioning. Correct vehicle mileage is essential for the proper scheduling of the preventive maintenance program by the computer. LEA's should get a speedometer shop to set new odometer mileage reading to old odometer reading (if possible).

Selected Repair Guidelines

The following recommendations should supplement the procedures provided by the original equipment manufacturer (OEM):

- When performing preventive maintenance on brakes, it is recommended that one person adjust all brakes.

- When the brakes are relined, the brake drums shall be turned (if needed) and not to exceed manufacturers drum wear specifications and the wheel cylinders/calipers rebuilt (if needed). The repairing mechanic shall record the brake lining thickness at the thickest point above the rivet head, in the proper place on the work order when performing a major service work order. A tread depth gauge measured in thirty-seconds shall be used to measure rivet depth.

- All S-cam shall be checked per OEM specifications.

- Automatic transmissions, engines and differentials replaced by stock units and left to be rebuilt later, shall be stored in a designated area and tagged with the number of the bus from which removed and the apparent defects or symptoms. Rebuild all major components and sub-assemblies to the manufacturers recommended specifications.

- The responsibility for maintaining safe tires on school buses (regular and spare) will be assigned by the foreman and/or supervisor. This does not relieve other employees of responsibility. Any employee who detects an unsafe tire (just as any other defect), on any vehicle maintained by the school bus garage, becomes responsible for changing the tire or repairing that defect, or informing the foreman or director that such action is needed. The determining factor of when to change a tire will be when it has worn to the point where the thinnest tread has only 4/32" on steering axle and 2/32" on rear axle of tread depth remaining (radial tires). Proper front-end alignment is essential to cost effective tire life. When installing tires on vehicles, new tires are required to be installed on the front axle. Rear duel tires shall be matched for size to within a maximum of 1/4" diameter of each other if possible. New tires are required on the front axle of all school buses.

- All tires and wheels to be repaired should be washed (weather permitting) before being taken to the tire shop.

- All new tires and newly delivered recap tires should be balanced after mounting and before being placed on a vehicle or in the storage rack.

- Used batteries shall be washed and cleaned properly prior to placing in the battery room (or designated area) for recharging or storage. A ventilated location is required to recharge batteries.

- As needed, add antifreeze that meets OEM specifications to the cooling system of each bus. Antifreeze protection should be maintained according to OEM recommendation. (50/50 Mixture)

- Engine coolant DCA level test kits shall be used to determine if maintenance of the cooling system is needed.

- Perform the annual North Carolina motor vehicle inspection required by G.S. 20-183.3(a) and attach the proper sticker to the assigned windshield location. This is may be performed only by certified N.C. inspectors at approved garages.

Personnel Utilization

An important factor in the effectiveness of a preventive maintenance program is the ability and willingness of all transportation personnel to work together with one goal in mind: a cost efficient and safe preventive maintenance program. The assignment of personnel to specific daily job duties is essential for the preventive maintenance program presented in this manual to be successful.

Regular Maintenance and Related Information

In general, maintenance activities are categorized as scheduled or unscheduled. Schedule maintenance activities include all preventive maintenance (PM) and 30-day inspections. Unscheduled maintenance is usually initiated by a defect found during the inspection or results from a report from the driver.

Reporting of defects by drivers:

- Bus Drivers are required to sign in each day where the bus is parked (e.g. using form TD-28D) to report any defect or problem detected during the pre-trip/post-trip inspection or identified while the bus was running.
- Immediately upon arrival of all buses, a designated person should call, fax or e-mail the bus garage giving a report of mechanical problems on the TD-28D (bus driver sign in) form. Other processes may be used; however, all reported problems shall be addressed on a daily basis.
- The transportation director shall assure that a process is in place to address reported defects and make needed repairs.
- In the event critical repairs cannot be made before the bus needs to run again, a spare bus should be assigned to run in its place.
- Personnel assigned to repair problems reported on the TD-28D shall turn in the list of defects with notation and corrections along with the TD-18 repair order.
- The foreman and/or director should check the repair order against the TD-28D form.

Typically, basic maintenance, fueling and observations are conducted during the day at the bus parking area (bus lot, bus garage or school) and more involved maintenance activities are conducted at the bus garage. Depending on the LEA, these tasks may be conducted by fuel truck drivers or technicians, as assigned by the transportation director.

- Fuel vehicles according to a regular schedule (fuel dispensed must be charged to the nearest tenth of a gallon on form TD-18B Fuel Issue Ticket)
- Obtain odometer readings for each vehicle fueled
- Check oil, water, tires and under-hood observation
- Analyze and repair defects or problems reported by bus drivers each day
- Perform 30-day inspections prior to scheduled due-date
- Perform scheduled preventive maintenance prior to scheduled due-mileage
- Perform unscheduled maintenance
- Perform other maintenance tasks assigned by the transportation director / supervisor

The transportation director should ensure that staff know proper safety procedures to be followed when conducting maintenance procedures. For instance, any time someone is working under a bus, chock blocks are to be used.

Service Vehicle Maintenance and Operation

The transportation director is responsible for the proper use, care and maintenance of all school garage service vehicles. This includes pickup trucks (or vans), fuel dispensing trucks, tire trucks, and wreckers. All service vehicles are recommended to be inspected each 30 days in the same manner as school buses and activity buses and annually in accordance with the Division of Motor Vehicles regulation G. S. 20-183.3(a).

All school garage service vehicles are to be maintained in good operating condition and in a safe state of repair. Interior upholstery must be maintained for the safety and comfort of the driver. (Seat cover cannot be ripped, torn or holes worn through.) Body repair and repainting of service vehicles should be conducted as needed and service vehicles should be cleaned inside and out at least once a month.

Vehicle Body Repair & Repainting

While the appearance of school buses and service vehicles may not always directly affect safety, it does affect the public's perception of the safety and mechanical condition of the school bus fleet. Driver attitudes and care of their assigned vehicles are influenced considerably by the appearance of those vehicles. Vehicles shall be repaired and repainted as needed. If a county does not have in-house painting facilities, contracted painting should be used.

Utilization of Surplus Equipment

In some cases, rather than being sold, a bus may be classified as salvage by DPI Transportation Services. With the approval of the regional area transportation consultant, parts may be used from school buses which have been identified for salvage. Parts cannot be removed from any route bus (E2RB,RC,RR,LC), spare bus (ESS), parked bus (ESP), for sale bus (E4), credit bus (E0B), OR sold bus (E6) under any circumstances. **PARTS CAN ONLY BE REMOVED FROM SALVAGE (STATUS EZ) BUSES.**

Parts removed from other vehicles without proper authorization shall be reinstalled by the school bus garage staff.

To obtain a listing of salvage buses, utilize BSIP screen IE36. Select a variant, such as DPI_EZ, that will select Status Included = EZ and Fleet Object Type 6000.

Permission to use major components (Engine, transmission, differential) must be requested prior to installation on a regular bus. Contact a DPI area transportation consultant for the procedures required to utilize major components from a salvage vehicle.

Sale of All Other Surplus Items

Sale of all other surplus items generates revenue for the replacement of service vehicles or is returned to the LEA. Proper procedures must be followed and paperwork submitted using the appropriate form. (See APPENDIX G).

Surplus Sale Forms (Available at NCBUSSAFETY.ORG)

1. TD-6B – Bus Sale Form
2. TD-6M – Local Scrap Metal Sale Form
3. TD-6T – Scrap Tire Pickup Form

Discarded Materials, Equipment & Supplies

Obsolete Parts and Scrap Metal - Obsolete parts (those that cannot be returned to the vendor) and scrap metal may be sold through State Surplus Property or locally. Following are three options related to this activity.

1. Contact your DPI field consultant to write up a lot of surplus parts or scrap metal for sale through state surplus. Revenue goes into the service truck replacement fund.
2. Include these surplus items in a local sale conducted by the school system. Revenue goes to the LEA. A detailed list including inventory numbers and quantities must be generated in order to remove the inventory from BSIP and report on TD-1. Other documentation must be mailed or emailed to DPI Transportation Services.
3. If you have access to a scrap metal dealer, scrap metal may be sold directly. Notify your DPI field consultant of this activity. The check must be made out from the dealer to the Department of Public Instruction. Revenue goes into the service truck replacement fund.

Scrap Tire Casings - 130A-309.09A. Local government solid waste responsibilities. (a) "…Each unit of local government shall implement programs and take other actions that it determines are necessary to address deficiencies in service or capacity required to meet local needs and to protect human health and the environment…."

Options for these casings are as follows:

1. Send the casings to be recapped to be used again on school buses.
2. Declare the casings to be scrap and contact the State Surplus contractor to pick up the scrap tires. Revenue goes to the service truck replacement fund.

If you have more casings than you need, you many determine that those casings still have value. State law permits several types of sales.

1. Contact your DPI field consultant to write up a lot of tires for sale through state surplus. Revenue goes to the service truck replacement fund.

2. Return the casings to a vendor with which your LEA does business in exchange for fair market value and receive a credit to your account. All such transactions must be documented and retained in files for inspection by local auditors and DPI consultants.

Provided the original tire was purchased with state funds, transfer the casings to another county school bus garage for the purpose of being recapped. This may only be done with the written approval of a DPI Transportation Services staff member. A copy of the approval must be maintained in the files documenting the transaction.

30 DAY INSPECTION MANUAL

Introduction

This section of the manual has been developed for those engaged in school bus or activity bus inspection with the goal of inspection uniformity thereby increasing the likelihood that fewer buses will be operated in an unsafe condition. (From this point forward, activity buses are referred to as school buses.)

A committee from a variety of Federal & State resources developed the regulations described herein. North Carolina General Statute 115C-248(a) states the following:

> *"The superintendent of each local school administrative unit shall cause each school bus owned or operated by such local school administrative unit to be inspected at least once each 30 days during the school year for technical defects or other defects which may affect the safe operation of such bus."*

This means that each school and activity bus being operated is required to have an inspection every 30 (calendar) days. Furthermore, in cases where a vehicle was not in operation and has not been inspected in the past 30 days, that bus must have a 30-day inspection completed prior to any students being transported on it. A computer database operated by the state schedules buses for inspection and causes them to appear 10 days before they exceed the required 30-day interval. This should give Technicians' ample time to conduct the inspection before they are in violation of N.C.G.S 115C-248(a).

The 30-day inspection is the backbone of the school bus Preventive Maintenance Program. If transportation personnel will thoroughly pursue the following description of a 30-day inspection, the procedures in the remaining preventive maintenance sections of this manual will be easier to perform on the entire transportation fleet.

Any questions, comments, or inquiries regarding this inspection manual shall be directed to the North Carolina Department of Public Instruction, Transportation Services Section. Phone # 919-807-3570

A copy of this manual must be present during each 30-day inspection.

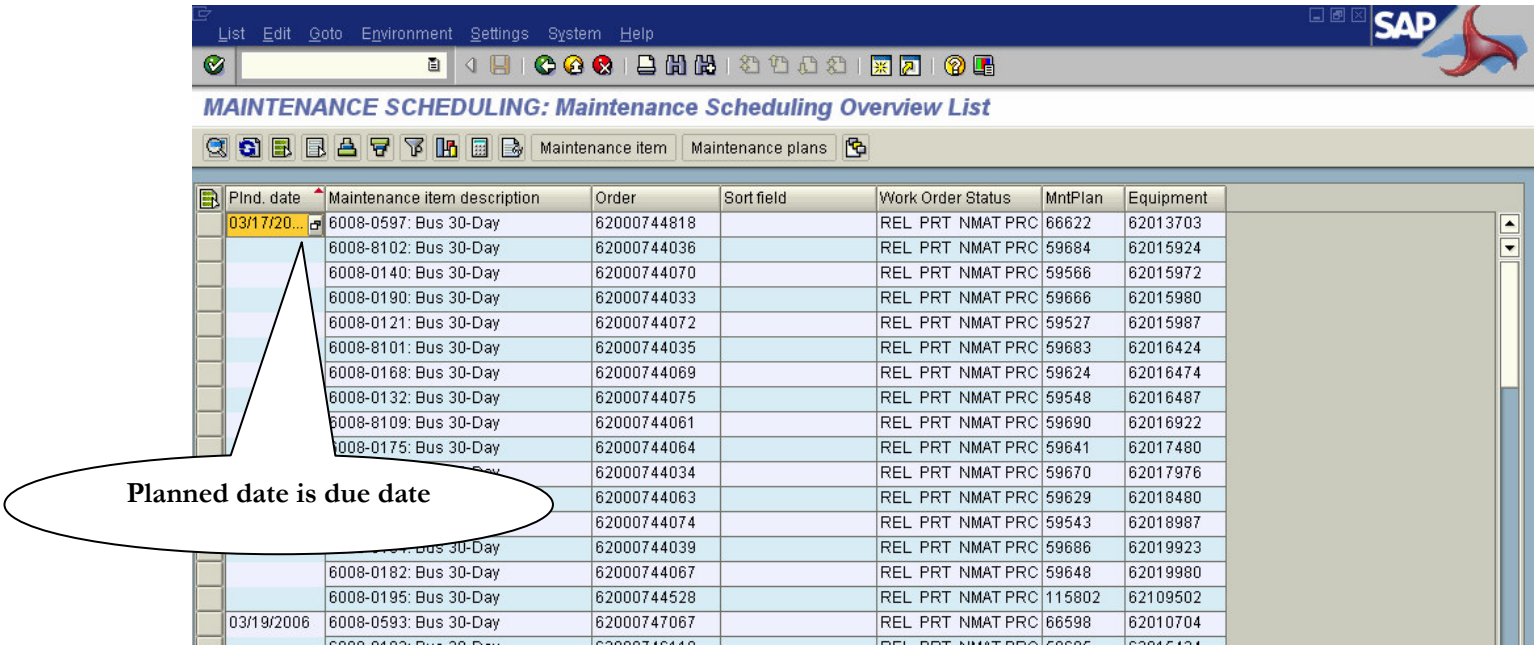
30-Day Inspection Scheduling

Inspect buses as they appear on the ZIP24 Maintenance Scheduling screen. For each bus BSIP will generate a DP02, 30-day inspection, work order 10 days before its due date. That due date is determined by the reference date set when technically completing the previous 30-day inspection. On any assigned day of any month that buses are operated (weather permitting), a technician(s) designated by the foreman or director, will inspect all items listed on the BSIP work order.

To complete the 30-day inspection, the technician, will completely inspect and road test each bus due a 30-day inspection. All defects should be recorded on the BSIP work order and scheduled for repairs as soon as possible. If two or more technicians are performing an inspection, each technician shall initial, on the work order, the items inspected by them personally. **Any defects that would place the bus out of service should be repaired the same day or a spare should be called to take its place.**

On all buses equipped with air brakes, the travel of the air chamber push rods(front and rear) shall be measured at this time , recorded on the work order, and adjusted if needed per manufacturer's specifications listed in the Brake section on page 46.

A sample ZIP24 maintenance scheduling screen is shown below. It is important to note that the "Planned Date" field on this screen, and at the top of the actual BSIP 30-day inspection document, indicates the day that the inspection is due. Once the inspection is completed and entered into BSIP the NEXT inspection will be due (Planned Date) 30 days after the reference date that was set.



Plnd. date	Maintenance item description	Order	Sort field	Work Order Status	MntPlan	Equipment
03/17/20...	6008-0597: Bus 30-Day	62000744818		REL PRT NMAT PRC	66622	62013703
	6008-8102: Bus 30-Day	62000744036		REL PRT NMAT PRC	59684	62015924
	6008-0140: Bus 30-Day	62000744070		REL PRT NMAT PRC	59566	62015972
	6008-0190: Bus 30-Day	62000744033		REL PRT NMAT PRC	59666	62015980
	6008-0121: Bus 30-Day	62000744072		REL PRT NMAT PRC	59527	62015987
	6008-8101: Bus 30-Day	62000744035		REL PRT NMAT PRC	59683	62016424
	6008-0168: Bus 30-Day	62000744069		REL PRT NMAT PRC	59624	62016474
	6008-0132: Bus 30-Day	62000744075		REL PRT NMAT PRC	59548	62016487
	6008-8109: Bus 30-Day	62000744061		REL PRT NMAT PRC	59690	62016922
	6008-0175: Bus 30-Day	62000744064		REL PRT NMAT PRC	59641	62017480
		62000744034		REL PRT NMAT PRC	59670	62017976
		62000744063		REL PRT NMAT PRC	59629	62018480
		62000744074		REL PRT NMAT PRC	59543	62018987
		62000744039		REL PRT NMAT PRC	59686	62019923
	6008-0182: Bus 30-Day	62000744067		REL PRT NMAT PRC	59648	62019980
	6008-0195: Bus 30-Day	62000744528		REL PRT NMAT PRC	115802	62109502
03/19/2006	6008-0593: Bus 30-Day	62000747067		REL PRT NMAT PRC	66598	62010704

30-Day Inspection Processes

This section is designed to describe the necessary processes surrounding the 30-day inspection that must be followed. It covers paperwork/business processes while leaving the technical aspects to the discretion of the technician. A suggested technical flow for performing the 30-day inspection is shown in APPENDIX A.

The technician should receive (or print out) the DP02 work order from BSIP. That sheet will contain information about the vehicle, the work order number, and the date that the 30-day inspection is due.

While progressing through the 30-day inspection, the technician should write any defects on the work order sheet. If two or more technicians are performing an inspection, each technician must initial on the work order beside any items inspected by them personally. The work order should be signed at the bottom by all associated technicians and dated with the date the inspection was completed.

The technician should complete the entire inspection before making any repairs.

Any repairs that do not require that the bus be taken out of service, “minor repairs”, that can be repaired with the equipment available may be repaired in the field. Any parts (including fluids) and labor time associated with this field repair should be noted on a TD-18 form created for that vehicle. Once the repair is completed the technician should indicate that the defect was repaired on the DP02 work order.

Minor repairs for which parts are not available but that may be repaired in the field on a subsequent trip, shall be noted in the remarks section of the work order. The technician should fill out a TD-18 immediately, or request a DP01 repair work order upon return to the shop. The technician should also secure the necessary parts to be able to complete the field repair on a future trip.

Minor repairs which cannot be repaired in the field should be noted in the remarks section of the work order and a TD-18 or DP01 work order created and printed. This work should be performed the next time the vehicle is at the garage for any service (such as preventative maintenance).

Any problems found during the inspection which would require that the bus be taken out of service, “essential repairs”, that can be repaired with available parts and equipment should be repaired immediately following the inspection of that bus. Any parts (including fluids) and labor time should be noted on a TD-18 form created for that vehicle. Once repaired, the technician should indicate the defect was repaired on the DP02 work order.

If the technician is unable to complete all essential repairs before the bus will transport students again, a spare should be called in for that bus. No bus may be operated to transport students with an out of service condition present.

If an essential repair can be completed in the field at a later time, the technician should make note of it on the work order and fill out a TD-18 immediately, or request a new DP01 repair work order upon return to the shop. The vehicle should be repaired as soon as possible and returned to regular service.

Essential repairs which must be repaired at the garage should be noted on the 30-day inspection work order and a TD-18 or DP01 created. This repair should be worked into the schedule at the garage as time permits so that the vehicle may be returned to regular service.

The paperwork, including TD-18s, should be returned to the technician’s supervisor upon return to the garage. The supervisor should look over the paperwork and create and print the necessary DP01 work orders (if TD-18s were not created). The supervisor should then sign the work order and return it to person responsible for entering the data into BSIP.

The work order should be entered into BSIP in a timely manner, and technically completed on the IW-32 screen. **The reference date MUST be set to the date the technician indicated the 30-day inspection was completed.** The DP02 work order should then be filed in the Individual Vehicle Inspection file. Any completed TD-18s should be entered into BSIP, and also filed appropriately.

Message to Technicians

This section of the manual has been prepared by a statewide committee as a guideline for the proper inspection of school buses. It includes federal and state regulations and procedures identified in previous editions of this manual and others identified by the committee. These regulations and procedures are designed to provide the safest transportation possible for the precious cargo being transported by North Carolina school districts. Any deviation from these regulations and procedures could result in the injury or death of our children. The Transportation Department plays a vital role in the education and development of North Carolina's school children. By maintaining a safe school bus, the bus technician helps provide a means for a child to get to school and obtain an education.

The 30-day inspection is for the purpose of detecting any and all items which have failed, or could reasonably be expected to fail, before the next regularly scheduled monthly inspection. This publication attempts to cover a majority of the items that are required to be inspected and serviced on school buses for the 30-day inspection. Due to evolving specifications and make-up of schools buses, it would be virtually impossible to include every single item that could malfunction. *When a problem is encountered that is not covered in this manual, the safety of the bus driver, passengers and motoring public should always be the most important factor considered.* It will be up to the technician doing the inspection, in consultation with the shop foreman or transportation director, to make the decision whether the bus should be allowed to stay in service or be replaced by a spare until repairs are made.

It is highly recommended that a technician and an assistant inspect a school bus. One person will assist in various light checks, braking checks and steering checks from the driver seat. The technician will be outside of the bus to verify that the different systems are working properly.

The inspection and repair of a school bus is to be broken down into two steps.

1. The bus must be properly inspected for defects. This process should not be interrupted once an inspection has begun. The inspectors must carefully check all the items listed on the work order. If a defect is found, the problem must be noted at the proper place on the form. **No repairs shall be made until the inspection process is completed.**

2. After completing the inspection, the technicians should review the defects found and repair them. A TD-18 shall be filled out to indicate repairs made. If it becomes apparent that a bus with an out-of- service defect cannot be repaired before it is to be dispatched on the next route, a spare vehicle must be secured.

The technician should review this manual often in order to achieve the best possible results.

A detailed description of out-of-service criteria for 30-day inspections is contained in APPENDIX B of this document.

A copy of this manual must be present during each 30-day inspection.

30-Day Manual Revision Committee Members

The preparation of this section of the manual was a cooperative effort between the North Carolina Pupil Transportation Association (NCPTA) and the North Carolina Department of Public Instruction (NCDPI), Transportation Services Section. The committee would like thank those around the state the provided input and feedback during the preparation of this manual.

NAME	NCPTA DISTRICT	COUNTY	EMAIL ADDRESS
Ronnie Baldwin	District 1	Buncombe	ronaldbaldwin@bcsmail.org
Rich Laird	District 2	Mecklenburg	rd.laird@cms.k12.nc.us
Robert Boggs	District 3	Iredell	tcampbell@iss.k12.nc.us
Jay Temple	District 4	Davidson	jtemple@davidson.k12.nc.us
Jeff Garmon	District 5	Cabarrus	jgarmon@cabarrus.k12.nc.us
Ralph Trango	District 6	Wake	rtrango1@wcpss.net
Mickey Beasley	District 7	Johnston	mickeybeasley@johnston.k12.nc.us
David Twiddy	District 8	Dare	david.twiddy@dare.k12.nc.us
Frankie Floyd	District 9	Craven	frankie.floyd@craven.k12.nc.us
Charles Ball	NCDPI		cball@dpi.state.nc.us
James Hawkins	NCDPI		jhawkins@dpi.state.nc.us
Randy Henson	NCDPI		rhenson@dpi.state.nc.us (Committee Chair)

ex oficio members:

Derek Graham	NCDPI	dgraham@dpi.state.nc.us
Jean Strickland	NCDPI (editing)	jstrickl@dpi.state.nc.us
Craig Warren	NCDPI	cwarren@dpi.state.nc.us

30-DAY BUS INSPECTION PROCEDURES

The following sections are mandated by North Carolina General Statute 115C-248(a) and are the procedures for performing a 30-day inspection on North Carolina Public School Buses in all 100 counties.

Brakes

Brake Testing Procedure
Inspection criteria for this section are based upon Federal Motor Carrier Safety Regulations.

An inspector or technician on all school buses shall perform a brake performance test when PM services are conducted. A consistent method for brake testing is to use a brake-testing device during each 30-day inspection and record braking efficiency on an inspection form. A reading between 60-65 percent should result in further investigation of the braking system by the technician. This brake performance test will not override any other defect found during the brake inspection. **REGARDLESS OF THE TYPE OF BRAKING SYSTEM USED ON THE BUS, IT MUST BE ABLE TO PRODUCE A BRAKING EFFICIENCY OF AT LEAST 60 PERCENT UNLOADED.**
The vehicle shall be removed from service until repairs are made if brake reading is below 60 percent.

The purpose of requiring 60 percent braking efficiency is to be able to test the bus while unloaded. Sixty (60) percent braking efficiency is the equivalent of the 43.5 percent braking efficiency required by law with a full load. Best results will be obtained if brakes are depressed fully but not locked during meter testing.

393.52 **Brake Performance**

1. Upon application of its service brakes, a motor vehicle or combination of motor vehicles must under any condition of loading in which it is found on a public highway be capable of:
    a. Developing a brake force at least equal to the percentage of its gross weight specified in the table in paragraph (c) of this section;
    b. Decelerating to a stop from 20 miles per hour at not less than the rate specified in the table in paragraph (c) of this section; and
    c. Stopping from 20 miles per hour in a distance, measured from the point at which movement of the service brake pedal or control begins, that is not greater than the distance specified in the table in paragraph (d) of this section.
2. Upon application of its emergency brake system and with no other brake system applied, a motor vehicle or combination of motor vehicles must, under any condition of loading in which it is found on a public highway, be capable of stopping from 20 miles per hour in a distance, measured from the point at which movement of the emergency brake control begins, that is not greater than the distance specified in the table in paragraph (d) of this section.
3. Conformity to the stopping-distance requirements of paragraphs (a) and (b) of this section shall be determined under the following conditions:
    a. Any test must be made with the vehicle on a hard surface that is substantially level, dry smooth, and free of loose material.
    b. The vehicle must be in the center of a 12-foot-wide lane when the test begins and must not deviate from that lane during the test.

4. Vehicle brake performance table:

Type of Motor Vehicle (1)	Service Brake Systems			Emergency Brake Systems
	Braking force as a Percentage of gross Vehicle or combination weight (2)	Deceleration in feet per second per second (3)	Application and braking distance in feet from initial speed of 20 m.p.h. (4)	Application and Braking distance in feet from initial speed of 20 m.p.h. (5)
A. Passenger-carrying vehicles. (1) Vehicles with a seating capacity of 10 persons or less, including driver, and built on a passenger car chassis.....	65.2	21	20	54
(2) Vehicles with a seating capacity of more Than 10 persons, including driver, and built on a passenger car chassis; vehicles built on a truck or bus chassis and having a manufacturer's GVWR of 10,000 pounds or less.....	52.8	17	25	66
(3) All other passenger-carrying vehicles....	43.5	14	35	85
B. Property-carrying vehicles. (1) Single unit vehicles having a manufacturer's GVWR of 10,000 pounds or less.....	52.8	17	25	66
(2) Single unit vehicles having a manufacturer's GVWR of more than 10,000 pounds, except truck tractors. Combinations of a 2-Axle towing vehicle and trailer having a GVWR of 3,000 pounds or less. All combinations of 2 or less vehicles in a driveaway or towaway operation.....	43.4	14	35	85
(3) All other property-carrying vehicles and Combinations of property-carrying vehicles.....	43.5	14	40	90

NOTE:

1. There is a definite mathematical relationship between the figures in columns 2 and 3. To obtain the percentage of braking force take the deceleration number and divide by 32.2 feet per second. (For example, 21 divided by 32.2 equals 65.2 percent.) Column 2 is included in the tabulation because certain brake-testing devices utilize this factor.

2. The decelerations specified in column 3 are an indication of the effectiveness of the basic brakes, and as measured in practical brake testing are the maximum decelerations attained at some time during the stop. These decelerations as measured in brake tests cannot be used to compute the values in column 4 because the deceleration is not sustained at the same rate over the entire period of the stop. The deceleration increases from zero to a maximum during a period of brake-system application and brake-force buildup. Also, other factors may cause the deceleration to decrease after reaching a maximum. The added distance, which results because maximum deceleration is not sustained, is included in the figures in column 4 but is not indicated by the usual brake-testing devices for checking deceleration.

3. The distances in column 4 and the decelerations in column 3 are not directly related. "Brake system application and braking distance in feet" (column 4) is a definite measure of the overall effectiveness of the braking system, being the distance traveled between the point at which the driver starts to move the braking controls and the point at which the vehicle comes

to rest. It includes distance traveled while the brakes are being applied and distance traveled while the brakes are retarding the vehicle.

4. The distance traveled during the period of brake-system application and brake-force buildup varies with vehicle type, being negligible for many passenger cars and greatest for combinations of commercial vehicles. This fact accounts for the variation from 20 to 40 feet in the values in column 4 for the various classes of vehicles.

The term “GVWR” refers to gross vehicle weight rating and the term “GVW” refers to gross vehicle weight.

Brake Stroke Measurement & Brake Adjustment

Another way to determine if the brakes require adjustment is to measure the at-rest and applied distance of the brake push rods. This procedure is to bring reservoir pressure between 90 and 100 psi (620-690KPA), turn the engine off, release the park brake, and take an at-rest measurement from the end of the brake chamber to the center of the push rod clevis. Re-apply the brakes and check the measurement again at the same points. Subtract the difference and this would be your applied stroke. Then check the chart for the appropriate brake chamber and determine if the brake needs adjusting. Refer to manufacturer's service manual for correct brake adjustment procedure.

Commercial Vehicle Safety Alliance
North American Uniform Out-Of-Service Criteria
Reference Charts

CLAMP TYPE BRAKE CHAMBER DATA

TYPE	OUTSIDE DIAMETER	BRAKE ADJUSTMENT LIMIT
6	4-1/2" (114mm)	1-1/4" (32mm)
9	5-1/4" (133mm)	1-3/8" (35mm)
12	5-11/16" (145mm)	1-3/8" (35mm)
16	6-3/8" (162mm)	1-3/4" (45mm)
20	6-25/32" (172mm)	1-3/4" (45mm)
24	7-7/32" (184mm)	1-3/4" (45mm)
30	8-3/32" (206mm)	2" (51mm)
36	9" (229mm)	2-1/4" (57mm)

NOTE: A brake at the adjustment limit is not a violation.

"LONG STROKE" CLAMP TYPE BRAKE CHAMBER DATA

TYPE	OUTSIDE DIAMETER	BRAKE ADJUSTMENT LIMIT
12	5-11/16" (14.5cm)	1-3/4" (4.5cm)
16	6-3/8" (162mm)	2.0" (51mm)
20	6-25/32" (172mm)	2.0" (51mm)
24	7-7/32" (184mm)	2.0" (51mm)
24*	7-7/32" (184mm)	2.5" (64mm)
30	8-3/32" (206mm)	2.5" (64mm)

* For 3" maximum stroke type 24 chambers
NOTE: A brake at the adjustment limit is not a violation.

Inside Bus- Air Brake Component Check

Air Brakes – All of the following items shall be inspected on Air Brake Equipped Vehicles:

1. **Air Pressure Gauges** – On buses built after March 1975, check for the presence of two gauges (or single gauge with dual needles). One gauge or needle should indicate air pressure available to the primary air brake system, and the other should indicate air pressure available to the secondary brake system. Both gauges must be accurate to within + 7% (at 100 lbs. x 7% = 7lbs.)
   The vehicle shall be removed from service until repairs are made if gauge(s) are not working.

   Note: If bus is equipped with anti-lock braking system, refer to appropriate Manufacturer's Service Manual for inspection criteria.

2. **Air Compressor Governor** – Check air brake system governor operation. While building up system air pressure, note pressure at which governor cuts-out (compressor quits compressing). With engine still running, pump brakes to lower air pressure until governor cuts-in (starts compressing again).
   Note: Repairs should be made if cutout pressure is below 120 p.s.i.
   The vehicle shall be removed from service until repairs are made if the cutout pressure is too low (below 100 psi.) or too high (above 130 psi.).

3. **Air Compressor Operation** – Air reservoir shall be drained thoroughly before making this check. Check time required for system air pressure to build up from 85 to 100 psi with engine at fast idle (approximately 1,200 RPM) Repairs shall be made if time for system buildup (85-100 psi) exceeds 40 seconds. Air compressor should also be checked for oil leaks.

4. **Parking Brake** – With vehicle stopped, apply park brake. Place transmission selector in drive position and accelerate engine to a fast idle (approximately 1,200 rpm's), vehicle should not move forward.
   The vehicle shall be removed from service until repairs are made if vehicle moves with parking brake applied.

   Note: Buses equipped with Rear Diesel engine and Allison World Transmission shall be checked at 900 R.P.M.

5. **Air Leaks** – To check the vehicle for air leaks the system shall be charged to (100 psi minimum). The engine should then be turned off, and the park brake released. Make sure a wheel chock secures the vehicle to prevent any movement. With brakes in released position, check for air pressure leak (pressure drop) for at least one (1) minute. Note pressure drop, if any. Firmly apply the service brake. Do not release. Note pressure drop, if any. If air is leaking, but the rate is less than two (2) psi per minute (brakes released) or 3 psi per minute (with service brake applied) repair the vehicle.
   The vehicle shall be removed from service until repairs are made if: pressure leaks more than two- (2) psi per minute (brakes not applied); more than three- (3) psi per minute (with service brake applied).

6. **Low Air Warning** – Check operation of low air warning buzzer and light by building air pressure to 100-125 psi and perform the following procedures.

a. Switch ignition key switch to on position.
b. Drop air pressure. Low air warning buzzer and light should activate by the time the pressure drops to 50 psi.
c. Start the engine and build system air pressure. Warning buzzer and light should deactivate by 70 psi.

The vehicle shall be removed from service until repairs are made if any of the following conditions exist:

- Low air warning light is inoperative.
- Low air buzzer is inoperative.
- Buzzer or light fails to operate by 50 psi or continues to operate above 70 psi.

Note: If air brake gauge failed previous check for accuracy, do not perform this check until gauge is repaired.

Inside Bus- Hydraulic Brake Component Check

1. **Hydraulic Brakes** – All of the following items shall be checked on hydraulic brake equipped vehicles:

    a. Any visible leaks in the brake or hydraulic assist system.
    The vehicle shall be removed from service until repairs are made if any leaks are found in the brake or hydraulic system.

    b. Check the brake warning and backup systems using the appropriate manufacturer procedure below.

Brake Failure Warning System Check	
NAVISTAR	
CONDITION	NORMAL OPERATION
PARK BRAKE LIGHT	
Key switch in START position w/park brake released – (Bulb check).	Light ON
Key switch ON w/park brake applied.	Light ON
BRAKE PRESSURE LIGHT	
Key switch OFF.	Light OFF, electric hydraulic Pump operates when service Brakes are applied.
Key switch in ON position. Engine not operating (pump and bulb check).	Light ON and electric hydraulic Pump operation (some vehicles) SEE NAVISTAR MANUAL. Light ON and electric hydraulic Pump operates when service Brakes are applied.
Key switch in START position.	Light ON momentarily and Electric hydraulic pump operates
Key switch in ON position and Engine operating with service Brakes applied.	Light OFF.

2. **Brake Pedal Reserve** (distance from floor) upon one firm brake application (engine off, hydraulic boost depleted).
The vehicle shall be removed from service until repairs are made if brake pedal (reserve) is less than one inch from floor.

3. **Brake Pedal Fade** (continues to fall to floor after initial firm application) with engine off. **The vehicle shall be removed from service until repairs are made if there is any brake pedal fade (falling away) after initial firm application.**

4. **Brake Hardware and Components** inside the bus for secure mounting, routing, and condition including pushrod and clevis assembly, brake pedal assembly and rubber cover pad (if originally equipped). Repair rubber cover if it is worn. **The vehicle shall be removed from service until repairs are made if rubber cover pad is missing or worn out.**

5. **Emergency Brake Control Assembly**. **The vehicle shall be removed from service until repairs are made if emergency brake control assembly is hard to operate or doesn't latch and release properly.**

6. **Parking Brake Operation With Vehicle Stopped** (engine running), apply park brake. When engine torque is applied by placing transmission selector in "Drive" and accelerating the engine to a fast idle (approximately 1,200 rpm's) the vehicle should not move forward. **The vehicle shall be removed from service until repairs are made if park brake doesn't hold or functions improperly.**

Steering / Battery

Inside Bus-Steering Component Check

Check for play in the steering system (at the steering wheel) using the following procedures:

1. **Visual check** – from inside the bus with the engine running, rotate the steering wheel lightly from side to side until the turning motion is observed at the tires and note free play (lash) at the steering wheel outer diameter. This procedure must be performed with the vehicle on the ground. Repair steering wheel if cracked (plastic) or worn in the contact area. **The vehicle shall be removed from service until repairs are made if free play (lash) exceeds the amounts specified in the chart below**.

STEERING WHEEL PLAY (LASH) MEASUREMENTS

Steering Wheel Size	Free Play (Lash) Measurements Power Assist
16" or less	4-1/2" +
18"	4-3/4" +
20"	5-1/4" +
22"	5-3/4" +
Note: For power systems, if steering wheel movement exceeds 45 degrees before steering axle tires move, proceed as follows: Rock steering wheel left to right between points of power steering valve resistance. If that motion exceeds 30 degrees the vehicle shall be placed out of service until repaired.	

To check power assist operation run the engine at fast idle turning the steering wheel a full right and left turn to feel for binding, jamming, or belt slippage.

2. **Steering column** - Check steering column inside bus for up and down play (perpendicular to shaft) and for proper mounting. The firewall rubber boot should also be checked for proper seal. Make repairs if the boot is found damaged or torn.
   The vehicle shall be taken out of service until repairs are made if any of the following conditions exist:
   - Side-to-side play in steering column exceeds ¼ inch or up and down play exceeds one (1) inch.
   - Column assembly mounting (including floor mounting plate) or fasteners are loose.
   - Tilt/telescopic assembly (if equipped) will not stay in the locked position.
   - Steering column U-joint inside the bus (if equipped) is loose, damaged, or noisy after lubrication.
   - Flexible coupling, if equipped (rag joint) has loose or missing fasteners, damaged flexible disc, or elongated holes.
   - Any column U-joint, pinch bolt, other column fasteners, or input shaft coupling is loose, damaged, or missing.
   - Steering gearbox is loose on frame, or fasteners or lock tabs are loose or missing.

Outside Bus-Steering Component Check

Steering Gear Box and other external components will be checked using the following procedure:

1. Vehicle shall be on the ground and not suspended. Have an assistant move the steering wheel back and forth repeatedly to load steering components. Visually observe the following external steering and related suspension/frame components for looseness while the assistant works the steering (also see specific procedures under each component).

   a. Column shaft, hardware, and steering linkage boots
   b. Column U-joints or flexible coupling (as equipped)
   c. Coupling at steering gearbox
   d. Steering gearbox
   e. Pitman Arm
   f. Drag link
   g. Steering knuckle or arms
   h. Tie rod ends
   i. Idler arm (as equipped)

Check the vehicle frame cross members and frame cross members and frame braces (including associate rivets and fasteners for looseness and condition).

2. Have the assistant carefully operate steering to full left and right turn, check for power assist pop off, and steering stops.

3. As a follow-up to the above steering check, also perform a visual and hands-on check of each of the listed components. See the following chart for details of component inspection.

Inspection Procedures	Repair (or note) If:	Out of Service if:
Steering Gear Box Mounting		
Check mounting, condition, and tightness of steering gear box, and check frame, frame braces, and associated rivets or fasteners for looseness and condition.		Steering gear box loose or any mounting bolts loose or missing. There is any binding in steering gear box.
Pitman Arm		
Check the pitman arm for looseness or misalignment at sector shaft splines and looseness at all joints. Check looseness of pinch bolt and fasteners and condition of pitman arm.	Pitman arm grease fitting (if originally equipped) is loose or missing (repair).	Any play is observed between pitman arm and sector shaft. Pinch bolt at sector shaft is loose or missing. Pitman arm to sector shaft timing marks are misaligned.

Inspection Procedures	Repair (or note) If:	Out of Service if:
Drag Link		
Check the drag link ends, shaft, and fasteners for looseness and condition (on vehicles with I-beam suspension).	Any drag link end grease fitting (as equipped) is loose, or missing, or will not take grease (repair). Drag link end boot is damaged or missing (repair). Drag link needs lubrication (repair). Drag link dust boot (as originally equipped) is cut, damaged, or missing (repair).	Drag link ball stud is loose in pitman arm or upper steering arm. Any nut is loose or missing, or cotter pin is missing. Drag link shaft is damaged or bent. Drag link end (non-adjustable type) has more than 1/16 inch axial (not rotational) play. Horizontal socket type (adjustable) drag link end has more than 1/16 inch axial or laterial play.
Steering Arm		
1) Check upper steering arm (Ackerman arm) and left and right side lower steering arms for securement and condition. 2) Check condition and securement of steering stops and lock nuts.		Any steering arm has been bent, is cracked, or is damaged. Any steering arm attachment point is loose, or any fasteners, or cotter pin is missing. Either steering stop or lock is loose, damaged, or missing.
Tie Rod and Ends		
check the tie rod ends, tie rod, dust boots, and clamps or fasteners (as equipped) for looseness, damage, and condition.	Tie rod end dust boot is cut, damaged, or missing (repair). Tie rod end needs lubrication (repair). Any tie rod end grease fitting is loose, or missing, or will not take grease (repair).	Tie rod clamps, fasteners, or cotter pin is stripped, missing, or loose. Any clamp (as equipped) is mispositioned. Any tie rod end is cracked or damaged. Any tie rod end has more than 1/16 inch axial play. Tie rod end ball stud is loose in steering arm or idler arm.
Idler Arm		
check idler arm assembly (as equipped) for looseness, damage, and condition.	Idler arm needs lubrication (repair). Idler arm grease fitting is loose, or missing, or will not take grease (repair).	Any idler arm fasteners are loose or missing. Idler arm is cracked, or damaged, or cotter pin is missing. Idler arm up and down play is greater than 1/4 inch total (1/8 inch either direction).

Outside Bus Battery Check

1. Hold down – Check for tightness, condition, and type of battery hold down. Make repairs as soon as possible if battery hold down assembly or tray is loose, corroded, or damaged causing insecure mounting of battery.

2. Battery Terminals – Check terminals for cleanliness, tightness, and condition. Make repairs as soon as possible if terminals are loose, damaged, corroded, or have missing hardware.

3. Battery Cables – Check cable assemblies for routing, securement, condition, and size. Make repairs if the following conditions exist: cable or insulation is cracked, damaged, or corroded; cable is misrouted, unsecured, or grommet is missing; cable is routed against the exhaust or any other extremely hot surface and, cable is smaller than original equipment size.

4. Cleanliness – Check cleanliness of batteries. Repair if battery top or sides are corroded, greasy, dirty, or wet with electrolyte. If battery is cracked or damaged it shall be replaced before operating.

5. Tray – Check battery tray for operation, condition, and securement. Make repairs if the following conditions exist: battery slide tray is corroded, dirty, or hard to slide in and out; battery slide tray securement device or tray stop is missing or nonfunctional; battery tray does not slide in and out; battery slide tray or box is damaged or deteriorated reducing security of batteries; battery box door does not open or will not stay latched.

Engine Compartment

Fluid Levels

1. Brake Fluid – Check fluid level and condition. Make repairs if any of the following conditions exist:
   - Level of brake fluid in either side of master cylinder reservoir is lower than ¼ inch from top or below "Add" mark (if equipped)
   - Brake fluid shows evidence of excessive water, oil, or dirt contamination. If fluid is low, an inspection shall be made.

   The vehicle shall be removed from service until repairs are made if any evidence of a fresh leak is detected or fluid is excessively low (less than ¼ full).

2. Power Steering Fluid /Hydraulic Brake Assist Fluid – Check the power steering reservoir fluid levels and condition. Make repairs if power steering fluid is below cold "Add" mark or if power steering fluid shows evidence of excessive water, oil, or dirt contamination.
   The vehicle shall be removed from service until repairs are made if fluid is excessively low (less than ¼ full).

3. Oil – Check the level and condition of oil. Repair if engine oil is below "Add" mark.
   The vehicle shall be removed from service until repairs are made if no oil is observed on dipstick or evidence of fuel or water contamination in the oil.

4. Transmission Fluid – Check the level and condition of transmission fluid. Make repairs if any of the following conditions exist:
   - Transmission fluid is below "Add" mark
   - Transmission fluid shows evidence of excessive water or dirt contamination
   - Transmission fluid shows need of servicing (discoloration and/or burnt smell).

   The vehicle shall be removed from service until repairs are made if the transmission fluid is not present on dipstick or is above the full mark (overfilled).

5. Windshield Washer Fluid – Check windshield washer fluid level. Make repairs if the reservoir is low or the windshield washer does not spray windshield.

6. Coolant – Check coolant (antifreeze) level and condition. Make repairs if any of the following conditions exist:
   - Coolant level in radiator or reservoir is low
   - Coolant shows evidence of excessive oil, dirt, contamination, rust and corrosion.

   The vehicle shall be taken out of service until repairs are made if coolant cannot be seen in reservoir or in radiator tank with cap removed.

Belts

1. Tightness – Visually and physically check all drive belts for proper tension. If available, use a tension gauge. If a gauge is not available, use a ruler to measure the deflection of the belt (s) up and down at the widest point between the drive and driven pulley(s). Make repairs if any belt exceeds tension reading recommended by manufacturer, if a tension gauge is used. If ruler method is used, make repairs if any belt is less than ½ inch deflection (too tight) when firm pressure is applied.
   The vehicle shall be taken out of service until repairs are made if any of the following conditions exist:
   - Any belt tensioner that does not pivot or move freely and apply spring pressure on belt.
   - Any tension on belts that is too loose (based on specifications of type tension gauge used).
   - Tension of any belt (using ruler method) that is too loose when firm pressure is applied (greater than ¾ inch deflection).
   - Any slippage is detected.

2. Condition – Visually inspect belt(s) for glazing, oil contamination, dry rotting, cuts, and separation of plies. Check belts for twisting and distortion. Make repairs if any of the following conditions exist:
   - Belt is glazed
   - Belt is oil saturated, dry-rotted, cut, or plies of belt(s) are separated
   - Belt is distorted or twisted.

3. Routing – Visually inspect belt for rubbing or contact with objects other than pulleys and for routing around correct pulleys. Make repairs if any of the following conditions exist:
   - Belt is making contact with objects other than pulley or belt is routed around incorrect pulley.

4. Belt Alignment – Visually inspect belts for proper alignment. Make repairs if any belt is not inline or if any belt is misaligned that could result in failure.

Hoses

NOTE: References to hoses includes all types of hoses located in the engine compartment, including power steering, coolant, air compressor intake, vacuum, brake hydraulic assist, engine oil, and transmission hoses.

1. Clamps and Connections – Visually and physically check that hose connections or clamp(s) are tight. Make repairs if any of the following conditions exist:
   - Hose connection or clamp(s) is loose or too tight digging into hose
   - Hose connection or clamp(s) is stripped/damaged.

2. Condition – Visually inspect all hoses for cuts, abrasions, wear, oil saturation, dry rotting, or "ballooning." Make repairs if any hose is cut, abraded, worn, oil saturated, dry-rotted, or "ballooned" to the point that failure could occur.

3. Routing – Visually inspect routing and securement of all hoses. Make repairs if any hose is misrouted or unsecured so heat damage, abrasion, or cuts could result in failure.

Air Filter Assembly

Check air cleaner assembly (housing, lid, piping, gasket, seal, and clamp(s) for securement, condition and check filter minder). Check for presence of wing nut and seal (if equipped). Make repairs if any of the following conditions exist:

- Any portion of the air cleaner assembly or mounting is loose or damaged, including piping, nuts, bolts or clamps; worn or damaged seals/gaskets
- Any air or vacuum leaks or missing components.

Vehicle shall be removed from service if the diesel air filter restriction exceeds manufacturer's specifications.

Power Steering Pump

Check securement and condition of power steering pump.
The vehicle shall be removed from service until repairs are made if any portion of the power steering pump, mounting brackets or fasteners is cracked, loose or missing.

Air Compressor and Filter

Check securement and condition of air compressor and filter assembly. Make repairs if air compressor air filter (if equipped) is dirty or cover is missing. Make repairs if hose from engine air cleaner to air compressor is damaged, torn, or missing.
The vehicle shall be removed from service until repairs are made if compressor mounting brackets or fasteners is cracked, loose or missing.

Water Pump

Check condition of water pump and pulley. Make repairs if any of the following condition(s) exist:

- Evidence of a coolant leak from the water pump, seal, gasket surface, or weep hole
- Water pump fasteners are loose, damaged, or missing.

The vehicle shall be removed from service until repairs are made if water pump is noisy, bearing is damaged, or coolant is leaking out.

Fan

Check fan blade and fan clutch assembly for securement and condition.
The vehicle shall be removed from service until repairs are made if:

- Fan has any cracked, bent, or broken blades
- Any portion of fan mounting is loose
- Fan clutch is seized or loose.

Alternator

1. Check securement and condition of alternator assembly. Make repairs if alternator is noisy.
   The vehicle shall be placed out of service until repairs can be made if any portion of the alternator, mounting brackets or fastener is cracked, loose, or missing.

2. Routing and Condition Check routing, securement, and condition of all wiring and any electrical cable in the engine compartment. Make repairs if any of the following conditions exist:
   - Any loose, damaged, or corroded wiring connector or terminal end
   - Any repair has been made using improper gauge wiring.

The vehicle shall be taken out of service until repairs can be made if:

- There is any unsecured or poorly routed wiring that could cause a potential short or fire due to abrasion.
- Heat damage.
- Burnt wiring or wiring missing insulation (other than ground wires) is present.

Fuel System and Lines

Visually check the condition, operation, and securement of all fuel system components including fuel lines and routing in the engine compartment. Make repairs if any of the following conditions exist:

- Evidence of dirt, algae, or water in the fuel water separator (if equipped)
- Any unsecured, poorly routed, loose fuel line or hose that could cause potential fire due to abrasion or heat damage.

The vehicle shall be removed from service until repairs can be made if any fuel system connection is stripped, loose, cracked, or leaking.

Radiator

1. Radiator Mounting – Check radiator assembly and mounting for securement and condition. Make repairs if any portion of the radiator or mounting system is cracked, damaged, loose or missing fasteners.

2. Cap – Check condition of radiator cap. Warning – always use proper procedures when removing radiator cap. Make repairs if any of the following conditions exist:

   - The radiator cap is hard to open or close
   - The radiator cap is the wrong pressure rating
   - Visible damage to the pressure seat or vacuum relief seat of the cap.

   The vehicle shall be taken out of service until repairs can be made if the radiator cap is missing.

3. Reservoir – Check coolant reservoir (including any overflow tank) and sight glass (if equipped) for mounting and condition. Make repairs if any portion of the coolant reservoir or mounting system is cracked, damaged, leaking, loose or missing fasteners.

4. Fan Shroud – Check fan shroud for mounting and condition. Make repairs if any portion of the fan shroud or shroud mounting is cracked, damaged, loose, missing fasteners or fan shroud is missing.

Underneath Bus

Front Suspension Checks

1. Wheel Bearings – Inspect front wheel bearings and related components for condition and proper adjustment of bearings.

NOTE – It is important to correctly identify the source of any play. To determine if the play is in the wheel bearings, have an assistant fully apply the brakes while rechecking play. If movement disappears with brakes applied, then play was in the wheel bearings.

Make repairs if any of the following conditions exist:

- Minor seepage of grease or oil around the dust cover
- Dust cover or fasteners is loose or missing.

The vehicle shall be taken out of service until repairs can be made if: there is any noise, binding, or roughness discovered in bearings; wheel bearing endplay exceeds manufacturer's specifications (maximum of .010" in and out play measured at bearing hub).

2. I-Beam – Inspect I-beam axle assembly.
   The vehicle shall be taken out of service until repairs can be made if:
   - I-beam has been cut, modified or damaged (other than qualified machine shop to repair axle eye)
   - There is any bluing or other evidence that the I-beam has been heated.

3. King Pins – Inspect king pin assemblies. Make repairs if any of the following conditions are found:
   - Locking pin is loose
   - End cap O-rings or bolts are loose or missing.

   The vehicle shall be taken out of service until repairs can be made if:
   - Locking pin is backing out, loose, or missing.
   - Kingpin movement is more than ¼ inch measured at the outside edge of the tire.
   - Vertical (up and down) play in kingpin assembly is greater than .030".
   - Thrust bearing is damaged or missing.

   NOTE – If play is beyond specifications, wear may be kingpin, axle eye, and/or king pin bushings. Vehicle shall be removed from service if side play at outside edge of tire is greater than ¼ inch. Do not tighten kingpin lock (if equipped) or grease kingpin before inspecting kingpin assembly.

4. Spring Hanger, Shackles and Attachments– Inspect condition of spring hangers and pinch bolts. Make repairs if any of the following conditions exist:
   - Front spring hanger has significant side wear at the spring eye
   - Front spring hanger is worn
   - Pinch bolt is stripped or missing so that spring pin cannot be clamped tightly.

   The vehicle shall be taken out of service until repairs can be made if:
   - Any front spring shackle or hanger is loose, cracked, broken.
   - Front spring mount-to-frame fastener is loose, missing, broken, cracked.
   - Frame is cracked at any spring mounting location.

5. Pins and Bushings – Inspect pins and bushings as follows: Inspect front spring pins and bushings for wear, lubrication and securement.
   The vehicle shall be removed from service until repairs can be made if wear exceeds ¼ inch or bushing is missing .

6. A-Frames and Bushings – Inspect A-frames and bushings for condition and securement. Make repairs if rubber-bushing is split, badly deteriorated or badly extruded from suspension joints;
   The vehicle shall be taken out of service until repairs are made if:
   - A-frame assembly is bent, missing or broken;
   - Fasteners/u-bolts are loose or missing;
   - Mounting of bushing assembly is not secure.
   - Rubber bushing is missing.
   - A-frame, bushing or pivot arm has more than .050 free play at pivot point.

7. Ball Joints – Inspect ball joints for condition, securement, and lubrication. Make repairs if any of the following conditions exist:

- Zerk (grease) fitting is missing, damaged or ball joint will not take lubrication
- Any ball joint has more than 3/32-inch axial play.

The vehicle shall be taken out of service until repairs are made if the following conditions exist:

- Ball joint mounting is loose or missing
- Cotter pin is missing.
- Ball joint to A-frame mounting is cracked, loose or has been welded.

8. U-Bolts – Inspect spring U-bolts for condition and securement. Make repairs if U-bolt is misaligned or rust underneath any U-bolt nuts indicates the possibility of looseness.
   The vehicle shall be taken out of service until repairs are made if any shock mount bracket, U-bolt, seating plate or nut is loose, missing, cracked or stripped.

9. Shocks – Inspect shocks for condition and securement. Make repairs if there is wetness around shock body due to leaking shock fluid or any shock mounting or fastener is loose.
   The bus shall be removed from service until repairs can be made if any shock is broken or missing.

10. Springs – Inspect front springs for condition, securement, and alignment. Make repairs if any of the following conditions exist:
    - Loose, missing, broken or worn spring clips
    - Coil or leaf spring has flattened, and ride height is less than manufacturer's specifications
    - Rubber bumper is missing.

    The vehicle shall be taken out of service until repairs are made if:
    - Either front spring saddle is missing (if equipped).
    - Any leaf spring is broken, cracked or missing.
    - Spring eye is worn or spread such that bushings are loose in spring eye.
    - Coil spring is broken or insecurely mounted.
    - Non-OEM blocks or spacers are installed.
    - There is misalignment of spring leaves or other evidence that center pin is loose or broken.
    - Either front coil or leaf spring is worn so that the rubber frame bumper is damaged or worn due to frequent bottoming of front suspension.
    - Alignment wedge is loose or damaged.
    - Air bag type spring assembly is damaged/leaking.

11. Wheel Seals – Check for condition and leakage. Make repairs if either front wheel seal is damaged or leaking.
    Remove bus from service until repairs can be made if evidence of fresh oil is found on the brake linings, drums or rotors.

Front Brakes

1. Brake Hoses – Inspect front brake flexible hoses for condition, securement, and routing. Make repairs if any of the following conditions exist:
   - Any front brake flex hose supporting brackets are damaged or have loose fasteners
   - Any front brake flex hose is rubbing or routed against other components.

   The vehicle shall be taken out of service until repairs can be made if;
   - Any front brake hose or connection is leaking fluid or air pressure.
   - Any front brake hose is kinked, collapsed or bulging,
   - Any front brake hose has damaged plies, cords or is damaged below outer covering.

2. Lines – Inspect air and hydraulic brake lines for routing, securement and condition. Make repairs if any of the following conditions exist:
   - Brake line bracket or securement system is loose or missing
   - Brake line is rubbing on other components or abraded
   - Brake line is not of OEM material, size or type

   The vehicle shall be taken out of service until repairs are made if; brake line is crimped or damaged significantly and restricting air pressure or hydraulic fluid; brake line or connection is leaking air pressure or hydraulic fluid.

3. Chambers – Inspect front brake chamber assembly for securement, condition, and proper size. Make repairs if front brake chamber or mounting fastener is damaged/loose.
   The vehicle shall be taken out of service until repairs can be made if:
   - Front brake chamber-mounting bracket is cracked, bent or broken.
   - If either chamber is not of the original size.
   - Size of chambers is not matched left and right (both sides must be the same size).
   - Non-manufactured holes are found in the spring brake housing.

4. Slacks – Inspect slack adjusters and S-cam assemblies for wear, condition, operation, and securement. Make repairs if any of the following conditions exist:
   - Slack adjuster mounted so that adjuster bolt is facing chamber
   - S-cam shaft and S-cam bushing total wear (up and down) is greater that .040”
   - S-cam in and out endplay is more than .060”
   - Slack adjuster is dirty and prevents the lock sleeve from seating and the technician from inspecting for cracks.

   The vehicle shall be taken out of service until repairs are made if:
   - Any portion of the slack adjuster or S-cam is missing, broken, cracked, or badly worn.
   - S-cam snap ring is missing.
   - Slack adjuster has a frozen or stripped worm gear or ratchet assembly.

5. Pushrods – Inspect pushrod assembly for condition, securement, and alignment. Make repairs if the following conditions exist:
   - Any portion of pushrod is rubbing against body of chamber or chamber is misaligned
   - Pushrod on the left and right side are not mounted in identical (same) slack adjuster location hole (same effective slack adjuster length).

   The vehicle shall be taken out of service until repairs are made if any portion of the pushrod assembly (locknut, pushrod, clevis and pin, or cotter pin) is loose, missing or damaged.

6. Linings – Inspect brake lining through inspection cover or hole.
   The vehicle shall be taken out of service until repairs are made if:
   - Lining is broken, cracked, or loose on shoe.
   - Shoe platform or webbing is cracked/damaged.
   - There is any loose, damaged, or missing foundation brake hardware within the drum.
   - Friction surface is contaminated with oil, grease, or brake fluid.
   - Lining with a thickness less than 3/16 inch on a continuous lining or ¼ for a shoe with two pads. (IF EQUIPPED WITH DISC STYLE BRAKES, MINIMUM IS 1/8”)

7. Drums – Inspect front brake drums for condition.
   The vehicle shall be removed from service until repairs can be made if:
   - There is any grease, oil or brake fluid on the inside of the drum.
   - Any drum is not mounted securely to hub.
   - Fasteners are loose.

- Drums have external crack or cracks that open upon brake application.

8. Rotors – Inspect front brake rotors for mounting and condition.
   The vehicle shall be removed from service until repairs can be made if:
   - Rotor mounting is not secure.
   - Friction surface is contaminated with oil, grease, or brake fluid.
   - Any rotor friction surface is significantly grooved or damaged.

9. Wheel Cylinders or Calipers – Inspect wheel cylinders or calipers for leaks, mounting and condition. Make repairs if brake lining/pad indicates tapered wear.

Vehicle shall be removed from service until repairs can be made if:

- Any wheel cylinder or caliper is not securely mounted.
- Loose or missing fasteners are present.
- Rotor/ drum damage is observed.
- Wheel cylinder /caliper is sticking.

10. Brake Adjustment
    a. For hydraulic drum brakes, Check front brake adjustment at every inspection.
    b. For S-cam or air disc brakes at every monthly inspection, brake chamber pushrod travel must be checked at all four wheel positions and brakes must be adjusted as necessary to achieve less than or equal to the maximum pushrod travel. PUSHROD TRAVEL MUST BE MEASURED AND RECORDED ON THE TD-30.

       Procedure:

       - Chock Tires
       - Release all Brakes
       - Verify Air Pressure is Between 90-100 PSI.
       - Mark All Push Rods with Chalk
       - Fully Apply Brake
       - Measure the Distance the Push Rod Travels at Each Chamber
       - Record Push Rod Travel
       - Compare Measurement to the Brake Chamber chart in this manual.

    c. If adjustment is needed, wheels must be raised off of the ground.

       The vehicle shall be removed from service until repairs are made if there is any damage or condition that prevents proper adjustment of S-cam or air disc type brakes.

    d. Automatic slack adjusters- Do not adjust brakes on vehicles with automatic slack adjusters unless the brake adjustment limit exceeds maximum adjustment limits. Compare Measurement to the Brake Chamber chart in this manual. If limit is exceeded, self-adjusting mechanism needs to be repaired or replaced. Follow slack adjuster manufacturer's adjustment procedure when adjustments must be made.

    e. Automatic slacks must be checked every 30 days; Pushrod travel must be measured and recorded on the TD-30.

Procedure:

- Chock Tires
- Release all Brakes
- Verify Air Pressure is Between 90-100 PSI.
- Mark All Push Rods with Chalk
- Fully Apply Brake
- Measure the Distance the Push Rod Travels at Each Chamber
- Record Push Rod Travel
- Compare Measurement to the Brake Chamber chart in this manual.

The vehicle shall be removed from service until repairs can be made if any automatic slack adjuster arm or mechanism is damaged or loose.

Engine / Transmission Mounts / Starter Mounting

1. Engine/Transmission Mounts – Inspect engine and transmission mounts for condition and securement. Repairs shall be made if the following conditions exist:
    - Mounting fasteners are loose, missing, or broken
    - Any mount is cracked or has deteriorated rubber.

2. Starter Mounting – Inspect starter for securement and condition. Check for presence of heat shield (if equipped). Make repairs if any of the following conditions exist:
    - Loose heat shield
    - Starter mounting bolts, studs or nuts are loose, damaged, missing, or broken
    - Loose or damaged starter
    - Missing heat shield (if equipped).

Transmission Checks

1. Transmission Bolts – Inspect transmission assembly and mounting fasteners for condition and securement. Make repairs if any transmission assembly fastener is loose, missing, or damaged. The vehicle shall be taken out of service until repairs are made if:
    - Transmission is not mounted securely to flywheel housing
    - External indication that any torque converter bolt is loose or missing.

2. Linkage – Inspect transmission linkage for routing, condition, and securement. Make repairs if any of the following conditions exist:
    - Modulator cable or vacuum hose routed where it is subject to excessive heat or abrasion
    - Linkage hardware or fasteners are loose
    - Exposed modulator cable or damaged casing
    - Deteriorated or loose modulator vacuum hose.

    The vehicle shall be taken out of service until repairs are made if:

    - Linkage is bent, damaged, binding or severely misadjusted.
    - Linkage hardware or fasteners are missing.
    - Linkage is damaged so as to cause it to stick or bind.
    - Modulator vacuum hose is leaking or not connected.

3. Lines – Inspect transmission lines for securement, routing, and condition. Make repairs if any of the following conditions exist:
    - Transmission line unsecured or routed subject to excessive heat or abrasion
    - Transmission line crimped; transmission line of improper type
    - Transmission line is worn or deteriorated to the point that failure could occur.

4. Auxiliary Filter – Inspect transmission external filter assembly (if equipped) for securement and condition. Make repairs if external filter mounting is loose or missing fasteners or filter canister is damaged.
   The vehicle shall be taken out of service until repairs are made if the body of the transmission filter housing, including all hose connections, are cracked or damaged.

5. Cooler – Inspect transmission cooler (as equipped) for securement and condition. Make repairs if the mounting of separate transmission cooler is loose, leaking or has loose/missing fasteners.

6. Clutch Operation (if equipped)

    a. Check pedal, linkage, clutch and release bearing for wear, slippage, and abnormal noises in the engaged and released positions. Make repairs if the following conditions exist:
        - Loose bolts or nuts
        - Noisy release bearing
        - Clutch is out of adjustment.

        The vehicle shall be taken out of service until repairs are made if:

        - The clutch cannot be adjusted to specifications.
        - Release bearing is excessively noisy.
        - Clutch is slipping, grabbing, or has excessive chatter when engaging clutch.
        - Linkage or return spring is binding or sticking.
        - Transmission is hard to shift.

    b. Visually check clutch pedal pad for wear. Make repairs if the pedal cover pad is worn.
       The vehicle shall be removed from service if the clutch pedal cover pad is missing or built up with extender block not of OEM design.

    c. Check clutch master and slave cylinders for hydraulic leaks and operation. The vehicle shall be removed from service until repaired if either master or slave cylinder is leaking or inoperable.

7. Clutch Adjustment (if equipped)-Check free play travel of the clutch pedal. This is the first easy movement of the clutch pedal and shall be no more than 1½ inches and no less than ¾ inch of travel.

Fluid Leaks

1. Oil – Inspect for engine oil leaks at all potential locations and determine severity. Make repairs if any of the following conditions exist:
    - Engine oil leakage is causing deterioration of any rubber parts such as steering linkage boots, hoses, etc.
    - Engine oil is dripping at any location (except on exhaust system).

   The vehicle shall be removed from service until repairs are made if fresh engine oil is found on any portion of exhaust system.

2. Coolant – Inspect all potential locations for coolant leaks. Make repairs if there is coolant seepage at radiator, hoses, heater core, engine oil cooler, thermostat housing, head gaskets, freeze plugs, reservoir, water pump or other potential locations.
   The vehicle shall be removed from service until repairs are made if the coolant leakage is excessive and could result in engine failure.

3. Transmission – Inspect for transmission fluid leaks at all potential locations and determine severity. Make repairs if transmission fluid is causing deterioration of any rubber parts, such as steering linkage boots, hoses, etc. or if transmission fluid is seeping at any location (except on exhaust system).
   The vehicle shall be removed from service until repairs are made if fresh transmission fluid is found on any portion of the exhaust system.

4. Power Steering – Inspect the power steering for power steering fluid leaks at all potential locations and determine the severity. Make repairs if power steering fluid is causing deterioration of any rubber parts, such as steering linkage boots, hoses, etc. or if power steering fluid is seeping.
   The vehicle shall be removed from service until repairs are made if the power steering fluid is dripping. .

Fuel Tank

1. Leaks – Inspect fuel tank assembly for leaks.
   The vehicle shall be taken out of service until repairs are made if any of the following conditions exist:
   - Fuel leakage from the tank.
   - Fuel cap is missing.
   - Fuel tank has any cracks.
   - Connections are loose at the tank.

2. Mounting – Inspect fuel tank mounting system and barrier for securement and condition.
   The vehicle shall be taken out of service until repairs are made if:
   - Any portion of fuel tank mounting system is missing, loose, cracked, or broken (including support brackets, retaining straps, and chassis frame).
   - Fuel tank mounting fasteners are loose or missing.
   - Crash barrier assembly is damaged, insecurely mounted or missing.

3. Hoses – Inspect all fuel lines and under-bus fuel system components for routing, securement and condition.
   The vehicle shall be taken out of service until repairs are made if:
   - Fuel line or hose is unsecured or is routed subject to excessive heat or abrasion.
   - Fuel line or hose is deteriorated or damaged.
   - Clamps are loose or missing (including cracks or damage that may cause potential leakage).
   - Under-bus fuel system filter, water separator, or other components are insecurely mounted, cracked or damaged.

4. Wiring – Inspect fuel tank sending unit wiring for securement, routing, and condition. Make repairs if any wiring or connection has been damaged or missing insulation.
   The vehicle shall be taken out of service until repairs are made if any portion of sending unit wiring (including ground) or connections is unsecured or routed subject to excessive heat or abrasion.

Brake Equipment

Bleed Reservoirs – With air system fully charged, check manual operation of safety relief valve. Partially open manual petcock valve on the first (wet) tank. Allow tank to drain until all moisture and contamination are drained. Make repairs if there is moisture in reservoir (desiccant type air dryer equipped vehicles only). Repair if excessive oil is found in air system.

The vehicle shall be taken out of service until repairs are made if:

- Safety valve leaks or does not release pressure.
- Excessive sludge or oil contamination in the reservoir (more than (8) fluid ounces).
- Reservoir is cracked or leaks due to corrosion.

Driveline

1. Drive shaft – Inspect drive shaft for condition. Make repairs if drive shaft balancing weight (if originally equipped) is missing or drive shaft has foreign material wrapped around it.
   The vehicle shall be taken out of service until repairs are made if:
   - Drive shaft is bent or seriously dented
   - Cracks or other damage in the drive shaft, which could cause structural failure.

2. U-Joints – Inspect U-joints or constant velocity joints (if equipped) for condition, phasing (alignment of joints), lubrication, and presence of all hardware. Make repairs if U-joints or constant velocity joints are dry of lubrication, or zerk (grease) fitting (if equipped) is missing, clogged or inaccessible.
   The vehicle shall be taken out of service until repairs can be made if:
   - Hardware or fasteners are missing in any U-joint or CV joint assembly.
   - U-joint has significant cross-shaft-to-bearing cup play or CV joint has significant play.
   - U-joint or CV joint shows evidence of significant rusting of bearings.
   - Bearing cup in yoke is loose.

3. Yokes – Inspect drive shaft yokes for condition and lubrication. Make repairs if any of the following conditions exist: drive shaft splines are unlubricated; dust cap on yoke is missing; zerk (grease) fitting is missing or clogged; cork washer in dust cap is missing.
   The vehicle shall be taken out of service until repairs are made if any yoke has significant play in splines or if any yoke is cracked or damaged.

4. Hanger Bearings – Inspect hanger bearings and rubber insulators for condition and securement. Make repairs if hanger bearing rubber insulator is deteriorated, damaged, oil soaked or hanger- bearing support is misaligned.
   The vehicle shall be taken out of service until repairs are made if:
   - Bearing outer race is loose in insulator.
   - Inner race is loose on shaft.
   - Significant play in hanger bearing.
   - Missing or damaged hardware/fasteners in hanger bearing or support assembly.

5. Guards – Inspect for presence and condition of drive shaft guards. Make repairs if any drive shaft guard is bent, damaged, loose or has damaged mounting fasteners.
   The vehicle shall be taken out of service until repairs are made if guard is missing.

6. Drive Shaft Park Brake – Inspect drive shaft park brake assembly for adjustment and condition. Check mounting, securement, linkage, drum and all other related hardware. Make repairs if

lining is worn down to 2/32 inch from top of rivet head; lining is contaminated with grease/oil.

The vehicle shall be taken out of service until repairs are made if:

- Lining is broken, cracked or loose.
- Drum is cracked or has excessive heat damage or scoring of friction surface.
- Actuating/mounting hardware or fastener is damaged, loose/missing.
- Park brake is not adjusted per manufacturer's specifications.

Rear Suspension

1. Axle Housing – Inspect axle housing for condition and leakage. Make repairs if there is leakage at or around axle housing ends.

   The vehicle shall be taken out of service until repairs are made if:

   - Any portion of axle housing is cracked or bent; any portion of axle housing is leaking lubricant due to cracks, porous metal, or defective weld.

2. Vent – Inspect condition of axle housing vent. Make repairs if vent cap is clogged, if vent hose (if originally equipped) is cracked, clogged, or missing.

3. Differential – Inspect differential assembly for condition, lubricant level, and leakage. Make repairs if any of the following conditions exist:
   - Lubricant level is low
   - Differential gaskets or seals are leaking
   - Any external differential hardware or fasteners are loose or missing.

   The vehicle shall be taken out of service until repairs are made if:

   - Lubricant is excessively low in the differential.
   - Differential pinion yoke has endplay or side play exceeding manufacturer's specifications.
   - Pinion/yoke end nut is loose or missing.

4. Springs – Inspect rear springs for condition, securement, and alignment. Make repairs if any of the following conditions exist:
   - Any loose, missing, broken, or worn spring clips
   - Any leaf spring or air suspension ride height is less than manufacturer's specifications
   - Rubber frame bumper is missing.

   The vehicle shall be taken out of service until repairs are made if:

   - Any leaf spring is broken or missing.
   - Air bag type spring assembly is damaged/leaking.
   - Air lines or valves are damaged/leaking.
   - Misalignment of spring leaves or other evidence that centering pin is loose or broken.
   - Either rear leaf spring is worn to the point that suspension bottoming has damaged rubber frame bumper.

5. U-Bolts – Inspect spring U-bolts for condition and securement. Make repairs if any U-bolt is misaligned or if there is rust underneath U-bolt nuts indicating possibility of looseness.

   The vehicle shall be taken out of service until repairs are made if any U-bolt seating plate or shock mount bracket nut is loose missing cracked, or stripped.

6. Shocks – Inspect shocks for condition and securement. Make repairs if any of the following conditions exist:
   - Wetness around shock body due to leaking shock fluid
   - Shock mounting or fastener is loose.

The bus shall be removed from service until repairs are made if any shock is broken or missing .

7. Spring Hanger – Inspect condition of spring hangers and pinch bolts. Make repairs if any of the following conditions exist:
   - Spring hanger has significant side wear at the spring eye
   - Spring hanger is worn, pinch bolt is stripped or missing so that spring pin cannot be clamped tightly.

   The vehicle shall be taken out of service until repairs are made if spring shackle/hanger is loose, cracked or broken.

8. Pins and Bushings – Inspect condition of pins and bushings. Inspect front spring pins and bushings for wear, lubrication and securement.
   The vehicle shall be removed from service until repairs are made if wear exceeds ¼ inch or bushing is missing.

9. Spring Hanger/Shackles/Attachments– Inspect condition of spring hangers and pinch bolts. Make repairs if any of the following conditions exist:
   - Front spring hanger has significant side wear at the spring eye
   - Front spring hanger is worn, pinch bolt is stripped or missing so that spring pin cannot be clamped tightly
   - Any hanger is found with a small crack (1/2 inch or less) that are welded (steel only).

   The vehicle shall be taken out of service until repairs are made if:
   - Front spring shackle/hanger is loose, cracked or broken.
   - Front spring mount-to-frame fastener is loose, missing, broken or cracked.
   - The frame is cracked at any spring mounting location.
   - Spring hanger or bracket is cracked or broken (1/2 inch or more).
   - Any mounting fastener is loose or missing.

10. Seals – Inspect rear wheel seals for condition and leakage. Make repairs if there is wetness or dripping of grease around axle flange, axle flange stud or nut is loose or missing.
    The vehicle shall be taken out of service until repairs are made if evidence of fresh oil is found on the brake linings or drums/rotors.

11. Wheel Bearings – Inspect rear wheel bearings for condition and proper adjustment.
    - Raise the rear wheels (wheels unloaded) and release park brake.
    - Grasp tire and attempt to rock wheel assembly to check for movement.

    The vehicle shall be taken out of service if there is any detectable looseness or roughness in rear wheel bearings.

Rear Brake

1. Hoses – Inspect rear brake flexible hoses for condition, securement, and routing. Make repairs if rear brake hose-supporting bracket is damaged, has loose fasteners, or rear brake hose is rubbing or routed against other components.
   The vehicle shall be taken out of service until repairs are made if:
   - Rear brake hose or connection is leaking fluid or air pressure.
   - Rear brake hose is kinked, collapsed or bulging.
   - Has damaged plies or cord.
   - Any damage below outer covering.

2. Lines – Inspect air and hydraulic brake lines for routing, securement, and condition. Make repairs if any of the following conditions exist:

- Brake line or securement system is loose/missing
- Brake line is rubbing on other components or is frayed/worn.

The vehicle shall be taken out of service until repairs are made if:

- Brake line is bent, crimped/damaged significantly restricting air pressure or hydraulic fluid.
- Brake line or connection is leaking air pressure or hydraulic fluid.
- Any brake line is not of proper size or type.

3. Chambers – Inspect rear brake chamber assembly for securement, condition, and proper size. Make repairs if rear brake chamber or mounting fastener is damaged or loose.

The vehicle shall be taken out of service until repairs are made if:

- Rear brake chamber mounting bracket is cracked, bent or broken.
- Either chamber is not original size.
- Chamber is not matched (both sides to be same size).

4. Slacks – Inspect slack adjusters and S-cam assemblies for wear, condition, operation, and securement. Make repairs if any of the following conditions exist:
   - Slack adjuster is dirty and prevents technician from inspecting for cracks or prevents the lock sleeve from seating
   - Slack adjuster is mounted so that adjuster bolt is facing chamber (older model Chevrolet and Ford manual slacks)
   - S-cam shaft and/or S-cam bushing total wear (up and down) is greater than .040”
   - S-cam in and out endplay is more than .060”.

   The vehicle shall be taken out of service until repairs are made if:
   - Any portion of slack adjuster or S-cam is missing, broken, cracked, or badly worn.
   - S-cam snap ring is missing.
   - Slack adjuster has frozen or stripped worm gear or ratchet assembly.

5. Pushrods – Inspect pushrod assembly for condition, securement, and alignment. Make repairs if pushrod is rubbing against body of chamber or chamber is misaligned.

The vehicle shall be taken out of service until repairs are made if:

- Any portion of pushrod assembly (locknut, pushrod, clevis and pin or cotter pin) is loose, missing, or damaged.
- Pushrod on left and right sides are not mounted in identical (same) slack adjuster location holes (same effective slack adjuster length).

6. Linings – Inspect brake lining through inspection cover or hole. Make repairs if any of the following conditions exist:
   - Friction surface is contaminated with oil, grease, or brake fluid; lining is worn to within 1/8 inch of shoe table (riveted type shoe)
   - Lining is worn to within 1/16 inch of shoe table (bonded type lining).

   The vehicle shall be taken out of service until repairs are made if:
   - Lining is broken, cracked, or loose on shoe.
   - Shoe platform or webbing is cracked or damaged.
   - Any loose, damaged or missing foundation brake hardware is within the drums.

7. Drums– Inspect rear brake drum for condition.

The vehicle shall be taken out of service until repairs are made if:

- Grease, oil or brake fluid is on the inside of the drum
- Drum is not mounted securely to hub or fasteners are loose.

8. Rotors – Inspect rear brake rotor for mounting and condition.

The vehicle shall be taken out of service until repairs are made if:

- Rotor mounting is not secure.
- Friction surface is contaminated with oil, grease, or brake fluid.
- Rotor friction surface is significantly grooved or damaged.

9. Wheel Cylinders or Calipers – Inspect wheel cylinder or caliper for leaks and mounting, and condition. Make repairs if there is uneven brake lining or brake pad wear wheel cylinder
   The vehicle shall be taken out of service until repairs are made if:
   - Caliper is not securely mounted or has loose or missing fasteners.
   - There is rotor or drum damage.
   - Evidence that any wheel cylinder/caliper may be sticking.

Brake Adjustment

a. Manual Slack Adjuster or air disc brakes must be checked at every monthly inspection. Brake chamber pushrod travel must be checked at all four wheel positions and if travel is out of specification (see Air Brake Chamber Stroke Measurements on page 8), brakes must be adjusted to achieve minimum pushrod travel.

The vehicle shall be taken out of service until repairs are made if:

- There is damage or condition that prevents proper adjustment of S-cam or air disc type brakes
- Any brake adjustment is out of specification .

b. Automatic Slack Adjusters (ASA) must be checked as follows: Check the pushrod travel before any adjustment is made. If needed, manually adjust the ASA following the manufacturers adjustment procedures. (NOTE: If an automatic slack adjuster is out of adjustment, check/inspect the ASA for a malfunction and make repairs).

The vehicle shall be removed from service until repairs are made if: any automatic slack adjuster arm or mechanism is damaged or loose; adjusted stroke (pushrod travel) of any automatic slack adjuster equipped brake exceeds maximum shown in charts on page 46.

Body Securements and Structure

1. Body Hold-Downs – Inspect for securement and condition of all body hold-downs, chassis cowl mounts and frame pads. Body hold-downs include any J-bolt, U-bolt, or clamp type hold-down used to secure body to chassis frame. Make repairs if any of the following conditions exist:
   - Body hold- down is loose or misaligned, cracks or stripped fasteners at floor sill securement points
   - Padding between frame rails and floor sills is missing or grossly misaligned.

   The vehicle shall be taken out of service until repairs are made if:
   - Originally installed body hold-down or cowl mount is missing.
   - Three or more body hold-downs are loose, misaligned or have missing hardware.
   - Three or more body hold-downs have cracks or stripped nuts at floor sill securement point.

2. Floor – Inspect condition of floor structure, sills, and braces. Make repairs if there are any minor cracks in floor sills, braces or welds.
   The vehicle shall be taken out of service until repairs are made if:
   - Holes or cracks in floor sheet metal create an opening to the passenger compartment.
   - Entire cross-section of any floor sill or brace is broken.
   - Any broken weld or mounting of a floor sill/brace resulting in complete separation more than one (1) foot in length.
   - Any broken weld in the mounting of the bracing (K-member) at the front of the body floor (between step-well and driver's area).

3. Outriggers – Inspect body outriggers and hardware for condition and securement. Make repairs if any body outrigger is cracked, loose or missing hardware.
   The vehicle shall be taken out of service until repairs are made if the originally installed (as required by manufacturer) outrigger is missing.

4. Braces – Inspect for condition and securement of all chassis and body braces. Make repairs if there is a cracked brace underneath the body or bumper brace is broken, cracked, or missing.

5. Skirts – Inspect body skirts for securement and condition. Make repair if body skirt brace has cracked/broken sheet metal or mounting points.

6. Frame Rails – Inspect condition of chassis frame rails, cross-members, and all hardware attaching points. Make repairs if ONE bolt is missing from front cross member.
   The vehicle shall be taken out of service until repairs are made if:
   - There are cracks in either frame rail or cross-member
   - There are any loose, missing rivet or other fastener securing a cross-member to the frame
   - Missing more than one front cross-member bolt.

Exhaust System

1. Exhaust Leaks – With engine running and at operating temperature, inspect exhaust system for leaks, condition, and securement. Make repairs if exhaust junction gasket or hardware is broken/missing or if there is any physical damage to exhaust system.
   The vehicle shall be taken out of service until repairs are made if there is leakage, which is audible or felt around any portion of the exhaust system including manifold, pipe sections or junctions.

2. Mounting – Inspect mounting of the exhaust system. Make repairs if any of the following conditions exist
   - Exhaust system hanger not securely mounted
   - Loose exhaust pipe or clamp; clamp is missing
   - Originally installed exhaust hanger missing, broken or detached from the exhaust system/frame mounting point.

3. Muffler – Inspect condition of the muffler. Make repairs if the muffler is cracked or if there is other significant physical damage to the muffler.
   The vehicle shall be removed from service until repairs are made if the muffler is leaking and produces an audible sound or exhaust is felt from the leaking area (weep hole is excluded).

4. Tailpipe – Inspect the condition of tailpipe and insure that it extends beyond the rear bumper. Check the tailpipe and make sure it extends at least to the edge of the rear bumper, but no more than two inches beyond bumper or exits behind the rear tires to the left or right and extends to edge of bus body. Make repairs if the tailpipe is cracked or other significant damage to the tailpipe.
   The vehicle shall be removed from service until repairs are made if the tailpipe is leaking and produces an audible sound or exhaust is felt from the leaking area.

Wheels and Tires

1. Tread Depth – Inspect and measure all tires for tread depth and record on inspection form. Measurement shall be taken at the most worn groove of the tire. Measurement shall not be taken at a wear bar. Make repairs if front tire has reached 4/32 and rear tire has reached 2/32.
   The vehicle shall be taken out of service until repairs are made if:
   - Tread depth of either front tire is less than 4/32-inch (2/32-inch for rear tires) at three points spaced equally around the circumference of the tire in the same major tread groove.
   - Measured tread depth of either front tire is 2/32-inch or less (1/32-inch for rear tires) measured at the most worn single point of the tire, except at wear bar.
   - Recapped tire has been re-grooved.
   - Front tire is a recapped or re-grooved tire.
   - There is evidence that any tire has been re-grooved using unapproved procedure.

2. Pressure – With tire cold, check pressures on all tires and record on inspection form. Make repairs if any of the following conditions exist:
   - Pressure in tire is less than the maximum cold inflation pressure stated on the sidewall of the tire, minus 20%; pressure in tire is greater than 5% above maximum cold inflation pressure stated on sidewall of the tire. Adjust pressure if there are more than 20% differences in tire pressure on a particular axle.

3. Damage – Inspect for damage to wheels and tires. Make repairs if any of the following conditions exist:
   - Tire is mounted so it cannot be filled with air
   - Foreign material in the tire tread which could cause damage or loss of air pressure
   - Valve cap or extension is missing
   - Minor dents or bends in a rim.

   The vehicle shall be taken out of service until repairs are made if any of the following conditions exist:
   - Cuts, abrasion, or other damage to tire sidewall resulting in exposed or damaged cord.
   - Separation, bulges (other than normal manufacturer bulge) or other damage within the carcass of the tire.
   - Cracks that run around the bead or sidewall of the tire are present.
   - Retread tire that has any separation of the tire tread from the tire carcass that could result in tire or tread failure.
   - Valve stem is damaged.
   - Damage to the lock ring assembly or lock ring groove of a multi-piece rim, including rust or corrosion which could cause the lock ring not to seat fully.
   - Cracks or breaks at the lugholes or any other part of a rim or cast spokes.
   - Dents or bends in a rim that could result in failure of a rim or separation of the tire from the rim.

   NOTE: Weather cracking shall not be only cause for rejection.

4. Matching – Inspect for matching of tire construction, tire design, tire size, and load rating on each axle. Make repairs if there is mismatching of inner and outer dual tire diameter greater than 3/8 inch.
   The vehicle shall be taken out of service until repairs are made if any of the following conditions exist:
   - Any tire marked for other than highway use is found.
   - Tire is not of the proper type, size and minimum load rating.
   - Any tire on an axle that is not of the same type (e.g., lug or rib) and size.
   - Tire is below minimum load rating.
   - Radial and bias ply tires are intermixed on the same axle.

5. Alignment – Inspect tires for evidence of proper alignment. Make repairs if tire is feather-edged, cupped, tread wear is uneven or if lateral run out of tire/rim assembly exceeds ¼ inch.
   The vehicle shall be removed from service until repairs are made if tires/rim are grossly misaligned, affecting steering.

6. Wheel Hardware – Inspect for presence, type, condition, and securement of all wheel hardware. Check for proper spacing of rear dual wheels and tires.
   The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
   - Improper matching of rims and lock rings.
   - Evidence of slippage of wheel assembly on cast spoke hub.
   - Stud holes are elongated.
   - Any wheel or stud is loose, rusting or corrosion indicating possible looseness.
   - Wheel stud or nut is broken or missing.
   - Improper spacer has been installed between dual wheels.

7. Color and Condition – Paint color on wheel assemblies of North Carolina School Buses shall remain black. If color other than black is detected or if wheels are faded, repairs shall be made as soon as possible. (Exception will be made if OEM was equipped with gray wheels)

Inside Bus

Emergency Equipment

1. Fire Extinguisher – Check fire extinguisher for presence, correct pressure, inspection sticker, tag, inspection date, mounting and accessibility, proper UL (Underwriters Laboratory) rating, nozzle for looseness, damaged parts, presence of a safety pin and tamper proof seal. Make repairs if any of the following conditions exist:
   - Loose bracket mount to panel
   - Inspection tag will expire before next scheduled inspection
   - Pressure is above or below the green zone
   - Fire extinguisher is not accessible to driver or not secured in mounting bracket/box.

   The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
   - Rating is less than 2 ½ pound minimum (2002 and newer must have 5 lb. minimum and 10BC rating).
   - No fire extinguisher on bus.
   - Tamper proof seal material cannot be broken.

   NOTE: Six years from the manufacturing date all type ABC, BC, or Halon fire extinguishers require a six year maintenance. They are also required to have a hydro-test twelve (12) years from the manufacturing date. To determine the manufacturing date, look for a stamped date on the bottom of the cylinder, on the label, or around the rim. These are required to meet National Fire Protection Association (NFPA) requirements in pamphlet #10 and OSHA requirements.

2. First Aid Kit – Check the box and condition. Check to insure that the box is labeled as First Aid Kit. Check the contents of the box for the following:

   - 2 pkg. – 4-inch bandage compresses
   - 2 pkg. – 2-inch bandage compresses
   - 2 pkg. – 1-inch adhesive compress (16 per pkg.)
   - 2 pkg. – 40-inch triangular bandage with two safety pins

- 2 sets – Plastic gloves (1 pair medium and 1 pair large)

Make repairs if partial contents are missing.
The vehicle shall be removed from service until repairs are made if entire contents or kit are missing.

3. Body Fluid Cleanup Kit – Check the container for condition. Check the contents of the box for the following.

    - 1 – 2 oz. Package of T.I.L.S.C. powder sanitizes-deodorizes-encapsulates.
    - 1 – odor reducing mask
    - 1 – pair protective gloves (large)
    - 2 – antiseptic wipes
    - 2 – paper crepe towels
    - 1 – scraper
    - 1 – plastic disposal bag w/scoop and tie

    Make repairs if partial contents are missing.
    The vehicle shall be removed from service until repairs are made if entire contents or kit are missing.

4. Reflectors – Check for emergency roadside reflectors. These are required on all buses 2000 and newer. Check quantity for three reflectors.
    Remove the bus from service if reflectors are missing .

Neutral Safety Switch

Check to determine if automatic transmission bus has a functional neutral safety switch that will allow the starter to operate only in park or neutral.
The vehicle shall be removed from service until repairs are made if the starter will engage in any gear other than park or neutral.

Shifter

Check that shifter operates easily, that it correctly indicates the gear that the transmission is in and has a functional detent mechanism with a ball knob (handle) on end of shift lever. Make repairs if shifter does not shift easily into all gears, indicator is misaligned or shifter has a loose ball or knob (handle). **The vehicle shall be removed from service until repairs are made if:**

- Shifter will not shift into all available gear positions.
- The indicator indicates wrong gear.
- Detent is non-functional, or if ball or knob (handle) is missing from end of shifter lever.

Engine Controls

1. Key Switch – Check for presence of key. Remove if key is found in ignition switch. Make repairs if the key sticks, is loose or not mounted in OEM location.
    The vehicle shall be removed from service until repairs are made if:
    - Switch operates without a key.
    - Bus equipped with a push button or a device other than key type switch.
    - Engine will not crank/start.
    - Switch doesn't function properly in start, run, off or accessory position.
    - Switch is intermittent in any position.

2. Accelerator – Check and insure the accelerator pedal, control design and mounting securement are OEM. Inspect the pedal assembly and linkage for loose/missing hardware. All engine types must have two throttle return springs. Check for smooth operation of pedal assembly and linkage in the accelerating and coast position. Inspect for unauthorized built up pedal, (i.e., wooden blocks installed on pedal). Make repairs if pedal cover (as originally equipped) is worn out, linkage is missing one return spring or is not equipped with dual return springs (external type).

   The vehicle shall be removed from service until repairs are made if:
   - Pedal and assembly are not mounted securely.
   - Control design and mounting are not of OEM design.
   - Accelerator control and linkage sticks or doesn't operate freely.
   - Pedal is built-up with extender block or not of OEM design.

3. Engine Shutdown – Only OEM approved ignition controlled is shutdown acceptable on all buses. On 1985 and older buses equipped with manual engine shutdown, check for free operation of shutdown over full range with minimum effort.

   The vehicle shall be removed from service until repairs are made if:
   - Engine cannot be started.
   - Shutdown or operation is difficult.
   - Bus was originally equipped with ignition switch type controlled shutdown and has been retrofitted with manual type shutdown.

Gauges, Indicators, Dash Lights & Horn

1. Gauges – Check from drivers position the visibility, OEM location, readability, operation, accuracy and condition of the following gauges.

   - Speedometer and odometer
   - Oil Pressure
   - Temperature
   - Fuel
   - Voltmeter and ammeter
   - Air Pressure
   - Tachometer

   Make repairs if any of the following conditions exist:
   - Oil pressure, temperature, fuel, voltmeter or ammeter gauges are inoperable, inaccurate, damaged or difficult to read
   - Odometer inoperable or is not working properly
   - Odometer unreadable
   - Tachometer fails to function properly

   The vehicle shall be removed from service until repairs are made if:
   - Oil or temperature warning system is not functioning or is unreadable.
   - Speedometer doesn't work or is confirmed to be inaccurate.
   - Speedometer is unreadable or damaged.
   - Air pressure gauge is inaccurate, unreadable or not working.

2. Indicators and Dash Lights – Check for the presence and operation of the following indicators.
   - Low air pressure
   - High beam light
   - Left and right turn signal and 4-way hazard

- All dash and control panel lights for illumination at gauges and switches.
- ABS braking system indicator light. (if equipped)
- E-Stroke monitor. (if equipped)

Make repairs if dash lights are inoperable, one or more lights for the control switches are inoperable, one or more panel lights is inoperable.

3. Horn – Check horn and horn button for proper operation (must be OEM design).
   The vehicle shall be removed from service until repairs are made if horn fails to function as designed.

Engine Warning Lights and Buzzer

Check for presence and operation of the following warning lights and buzzer.

1. High coolant temperature dash warning light or buzzer on diesel buses.
   The vehicle shall be removed from service until repairs are made if high coolant temperature warning light or buzzer is inoperative (either constant or momentary).
2. Low oil pressure, dash warning light and buzzer on bus.
   The vehicle shall be removed from service until repairs are made if the low oil pressure warning light or buzzer is inoperative (either constant or momentary).
3. Low air warning buzzer
   The vehicle shall be removed from service until repairs are made if either the air brake warning light or buzzer is non-functioning (either constant or momentary).

Interior Wiring, Cab Hoses and Fire Wall Seals

1. Interior Wiring – Inspect visible wiring for mounting, condition, chafing, abrasion, corrosion, loose connectors, or improper repairs. Make repairs if any of the following conditions exist:
   - Wiring or connectors are unsecured, corroded, or improperly routed
   - Any connector/connection is unsecured.

   The vehicle shall be removed from service until repairs are made if:
   - Any wire or connector is cut or severely chafed.
   - Wire/conductor is exposed or routed against a sharp edge.
   - Any interference with the driver controls.

2. Cab Hoses – Inspect all hoses for leaks, condition, routing, abrasion and presence of heater hose shielding. Make repairs if: hoses are weathered, cracked, worn or improperly routed; hose is unshielded in the driver's compartment.

3. Firewall Seals – Inspect firewall for cracks, unsealed openings and sound insulation material. Make repairs if sound deadening/insulation package is unsecured or deteriorated.
   The vehicle shall be removed from service until repairs are made if there are open holes or unsealed area in the firewall.

Bus Interior

1. Floor – Inspect floor covering, plywood sub-floor (if installed), aisle and cover molding strips for condition, adhesion and/or fastening holes or cracks and ribbed rubber aisle. Make repairs if any of the following conditions exist:
   - "Watch Your Step" decal missing or unreadable

- Rubber floor covering loose, deteriorated, or cracked
- Plywood rotten or soft
- Cover molding loose or fasteners are missing.

The vehicle shall be removed from service until repairs are made if the following exist:

- Unsealed holes or cracks through the underside of the bus.
- Aisle-molding strip is not securely fastened to the floor or aisle or if cover molding presents a sharp edge or protrusion.
- Any damage to the rubber floor covering which could cause a tripping hazard

2. Step-well – Check condition of step-well and tread. Make repairs if any of the following conditions exist:
   - Step tread not secure or sealed at inside edge where it meets the next step
   - Step-well tread and leading edge at aisle not flush and securely adhered
   - Step-well tread worn more than four inches in width.

   The vehicle shall be removed from service until repairs are made if step-well support structure is broken or step-well is rusted through.

3. Handrails – Check for the presence and secure mounting of entrance handrails.
   The vehicle shall be removed from service until repairs are made if:
   - Entrance handrail is missing or not securely mounted
   - Handrail fails the "NHTSA String and Nut Test" .

4. Paneling – Check all interior sidewall, rear, ceiling, and driver's area paneling for secure fastening, projections or sharp edges, and condition. Make repairs if any of the following conditions exist:
   - Unauthorized items affixed to the interior paneling of the bus, graffiti or unauthorized stickers (seating charts and safety information are approved) on interior panels
   - Loose or missing attachment screws on any maintenance access pane
   - Interior paneling is mildewed or paints (where required) is missing or damaged.

   The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
   - sharp edges, rust-through, or projections from paneling that could cause injury to passengers or driver .

5. Loose Objects Secured – Check to insure that all objects within the bus are secure.
   The vehicle shall be removed from service until repairs are made if there are any aerosol cans, containers with flammable/volatile chemicals or any unlabeled container located inside the bus.

6. Dog House/Engine Cover – Inspect dog house/engine cover for seals, soundproofing, weather-stripping, prop-rod and latch operation. Make repairs if any of the following conditions exist:
   - Soundproofing not present or deteriorated
   - Latch is hard to operate or does not secure dog house/engine cover properly

   The vehicle shall be removed from service until repairs are made if seals or weather stripping allow air/fume leaks into the driver's compartment.

7. Entrance Door/Entrance Controls (Manual and air/electric) Inspect for presence of safety pad (above door), door bumpers and weather stripping around the door. Check air door release valve for leaks. Check to see that amber lights do not activate before door is opened. Make repairs if any of the following exist:
   - Manual door handle locks when in opened position, amber lights activate before door safety latch is released. (There should be no more than 3/16-inch play in safety latch when door handle is closed).

Windshield Wipers & Washers

1. Operation – Inspect both wipers for:
    - Swept area field of view and effectiveness of wiping
    - Proper operation of both wipers on high and low speeds
    - Condition/mounting of switches/knobs
    - Condition and mounting of wiper motors and linkage
    - Inspect for proper washer operation

Make repairs if any of the following conditions exist:

- Either wiper does not operate on low or high speed
- Wiper goes past edge of glass
- Washer does not operate or is misadjusted
- Blades do not effectively clear driver's field of vision
- Wiper motor or linkage is visibly damaged or loose
- Switch/knob mounting is loose or missing

The vehicle shall be removed from service untilrepairs are made if either wiper fails to operate.

2. Park – Inspect for parked position of wipers when turned off. Make repairs if wipers do not automatically return to parked position out of driver's line of sight when turned off.

3. Blades – Inspect blades for condition, mounting, and tension. Make repairs if blades do not clean windshield properly. Repair if either blade is damaged, deteriorated, loose, or does not hold proper tension against windshield.

Heaters, Defrosters, A/C & External Driver Fan

1. Heaters – Inspect heater system for:
    - Heating performance and water control valve
    - Blower operations, condition, and control switches
    - System leaks, condition, and hose shielding
    - Condition of ductwork and heater box
    - Condition of heater filter and clean if necessary

    Make repairs if any of the following conditions exist:
    - System is not producing adequate heat
    - Water control valve hard to operate
    - Heater blowers do not work on all speeds, are noisy or vibrate
    - Blower switches are damaged, loose or blower operates intermittently
    - Heater hoses are cracked, swollen, or badly chafed
    - Shielding missing or does not completely cover hoses.

    The vehicle shall be removed from service until repairs are made if any portion of heating system within the passenger area creates sharp edges, projections or other hazards to passengers.

2. Defrosters – Inspect windshield defroster system for:
    - Airflow, heat, and coverage area
    - Blower operations, condition, and control switches
    - Condition of ductwork, diffusers, and fresh air control (if equipped)

3. Air Conditioner – Inspect A/C for:
    - A/C performance for cooling
    - Blower operations, condition, and control switches
    - System leaks, condition, and hose shielding
    - Condition of ductwork
    - Check condition of evaporator filter and clean if necessary

    Make repairs if any of the following conditions exist:
    - Defroster blower does not work on low or high speed
    - Blower switches are damaged or loose
    - Ductwork or diffusers are loose or damaged
    - Fresh air control (if equipped) does not function
    - Airflow is not present at all defroster outlets.

4. External Driver Fan – Inspect driver fan for:
    - Presence of fan, mounting and condition
    - Blade condition
    - Protective cage mounting and condition
    - Operation and switch.

    Make repairs if any of the following conditions exist:
    - Fan mounting loose or fan will not stay in adjustment
    - Fan blade damaged
    - Switch loose
    - Fan non-operational

    The vehicle shall be removed from service if protective cage is missing, loose, or damaged.

Mirror Adjustments and Condition

1. Interior Rearview Mirror – Check interior rearview mirror for size, condition, and mounting. All interior mirrors shall be OEM design. Make repairs if any of the following conditions exist:
    - Any portion of reflective surface is deteriorated
    - Mirror mounting loose
    - Stickers or other items obstruct any portion of the driver's view
    - Driver's view of images not clear due to distortion or other causes

    The vehicle shall be removed from service until repairs are made if mirror is missing or will not hold a set adjustment.

2. Outside Rearview Mirrors – Check outside rearview mirrors for vision, condition and mounting. Check rearview mirrors to insure that the view provides the driver with a view along the left and right sides of the bus. Correct mirror adjustment will provide driver a view of rear tires at ground level and a minimum of two hundred feet to the rear of the bus. It will also provide a view at least twelve feet perpendicular to the side of the bus at a distance of thirty-two feet back from the front bumper. Make repairs if mirrors are not in correct adjustment or mounting brackets/mirror assembly is loose. All mirror systems must meet criteria of and be in compliance with FMVSS111.

    The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
    - Mirror is missing
    - Mirror is cracked, pitted, clouded or deteriorated to extent vision is obscured
    - Mirror will not hold set adjustment

3. Crossover Mirror System – Check crossover mirrors for vision, condition, and mounting. Correct adjustment will provide the driver with indirect vision of an area at ground level from the front bumper forward (12 feet) and the entire width of the bus. It will also provide the driver with indirect vision of the area at ground level around the left and right front corners of the bus, to include the tires and service entrance on all types of buses to a point it overlaps with the rear vision mirror system. Make repairs if mirrors are not in correct adjustment or if mounting brackets or mirror assembly is loose. All mirror systems must meet criteria of and be in compliance with FMVSS111.

   The vehicle shall be removed from service until repairs are made if:

   - Mirror is missing
   - Mirror is cracked, pitted, clouded or deteriorated to the extent that vision is obscured
   - Mounting of any mirror and bracket made by different manufacturers.

Driver's Seat and Belt

Check Driver seat and belt for condition, mounting, and operation. Make repairs if any of the following conditions exist:

- Seat (air or manual) adjustment binds or difficult to operate
- Seat adjustment loose or adjustment hardware missing
- Seat upholstery or foam deteriorated or damaged
- Seat bottom loose in frame or mispositioned
- Seat belt retractor cover/belt covers are damaged or loose
- Seat belt does not fully extend and retract.

The vehicle shall be removed from service until repairs are made if any of the following conditions exist:

- Seat frame and mounts are cracked, broken or distorted.
- Seat moved from OEM position (unless repositioned using written OEM approved mounting instructions).
- Driver seat belt is missing or inoperable.
- Seat belt is routed improperly.
- Seat belt buckle and tongue assemblies do not latch and release properly.

Passenger Seats

1. Frames – Inspect passenger seat frames for condition of welds, tubing, and hardware. Check for presence of non-OEM seat frames. Make repairs if seat back frame is repaired using non-OEM hardware.

The vehicle shall be removed from service until repairs are made if:

- Seat frames or welds are broken or cracked.
- Seat frame hardware has been added or modified which results in projections or sharp edges.
- Non-OEM seat frames have been installed.

2. Mounting – Inspect condition of passenger seat mounting. Make repairs if seat mounting at floor or seat rail is loose.

   The vehicle shall be removed from service until repairs are made if any seat mounting fasteners are of lower grade or different type than OEM fasteners for the specific locations.

3. Pads – Inspect seat back foam for specifications and condition. All North Carolina School Buses must meet FMVSS222. Check for thickness and density of foam around frame. Make repairs if

any portion of seat frame is felt when pressing down on seat back top or if any portion of seat back foam is missing or damaged.
The vehicle shall be removed from service until repairs are made if any seat foam is missing.

4. Cuts (and other upholstery damage) – Inspect seat upholstery for condition and damage. Make repairs if any of the following conditions exist:
    - Seat upholstery cut or torn and foam is visible through cut
    - Seat upholstery not repaired properly.

    The vehicle shall be removed from service if any vehicle that came equipped with fire-block upholstery (all lift buses and all othersmanufactured after late 1996) has been retrofitted with upholstery other than fire-block.

5. Bottoms & Flip-Up Seat –To remain in compliance with FMVSS222 all seat bottoms must be secured and remain secured when students are transported. Inspect seat bottoms for securement and condition. Make repairs if seat bottom is not securely anchored to seat frame or seat bottom padding/cover has damage and deterioration.

6. Inspect flip-up type seat bottom at side emergency door (if equipped) for proper operation. There must be clear access to the emergency door with a minimum aisle width of twelve (12) inches between seats.
    The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
    - Not a clear minimum twelve- (12) inch aisle width to the side emergency door.
    - Flip-up seat bottom will not raise or lower.
    - Will not stay in the raised position or automatically retract properly when not occupied.

7. Modesty Panels & Courtesy Panels – Inspect modesty panels and courtesy panels for condition, mounting, and padding. Make repairs if any of the following conditions exist:
    - Covering or padding damaged
    - Mounting frame or attaching hardware missing/damaged

    The vehicle shall be removed from service until repairs are made if:
    - Bus is not equipped with a padded safety barrier in front of any passenger seat that does not have another seat in front of it.
    - Fire-blocking crash barrier fabric is repaired or replaced using unapproved procedures or non-fire blocking material.

Emergency Door / Window / Hatches

1. Operation – Inspect for operation and condition of rear emergency door and side door, door latch, door hold open feature (if equipped), door seal, emergency windows and emergency exits/ventilator (roof hatches). Make repairs if any of the following conditions exist:
    - Rear door opens too far and damages lights
    - Door handle, latch or mounting hardware loose
    - Mounting of guard for inside rear door handle loose
    - Emergency door latch does not operate smoothly and easily when closing or opening
    - Door hold open feature (if equipped) does not function or secure door in the open position
    - Inside door handle is not equipped with a guard
    - Emergency door does not open and close from the inside and outside easily
    - Weather-strip seal is damaged or does not seal properly
    - Roof hatch seal is damaged or dislodged
    - Roof hatch does not open easily to full “emergency open” position.

The vehicle shall be removed from service until repairs are made if:

- Emergency door or window will not open properly.
- Is equipped with any type of a hasp, lock, or any other locking device (except for OEM interlock system).
- Bus will start with any emergency door locked (OEM interlock system).
- Latch mechanism will not secure door, hatch, or window in closed position.

2. Buzzers – Check operation of buzzers for emergency doors, emergency exit windows and emergency exit roof hatches. Make repairs if buzzer fails to operate or gives false alarms.
The vehicle shall be removed from service until repairs are made if: emergency exit buzzer circuit fails to operate; emergency door fails to operate panel buzzer.

3. Labeling and Pad – Inspect for label and opening instructions for emergency door, emergency windows, and emergency exit/ventilator (roof hatch). Make repairs if any of the following conditions exist:
    - Emergency exits are not clearly labeled inside and outside the bus as "Emergency Door" or "Emergency Exit"
    - Emergency door, emergency windows, or emergency exit roof hatches do not have readable instructions for operation on the inside of the exit (or readable from the inside)
    - Emergency exit door pad is ripped or has loose mounting
    - Door pad is missing or has any protruding edge.

Windshield, Side & Rear Windows

1. Glass cracks – Inspect windshield and all windows for cracks and other damage. Make repairs if any of the following conditions exist:
    - Windshield cracks in the driver's direct field of vision or any pock marks that obstruct the driver's vision or any pock mark larger than a quarter anywhere on windshield
    - Cracks in the windshield or any window, greater than two inches in length
    - Crack in non- laminated safety glass.

    The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
    - Glass is missing
    - Laminated windshield or laminated window glass is broken or splintered that might cause injury when touched.

2. Fogging – Check windshield and windows for fogging and reduced visibility or improper level of tinting. Make repairs if glass is starting to fog around the edges or is reduced in visibility through the windshield or any windows.
The vehicle shall be removed from service until repairs are made if:
    - Windshield or any window that provides visibility to any mirror is fogged more than two inches in from the outer border.
    - Windshield /window fogging or clouding results in reduced visibility of a mirror.
    - Tinting on the windshield or windows to the side of the driver that is not 70% light transmission or clearer.
    - Tinting on any windows behind the driver's location that is not 28% light transmission or clearer.

3. Latches and Window Operation – Check latches and windows for condition and operation. Make repairs if any of the following conditions exist:
    - Latches are hard to operate or any window does not move up and down freely
    - Windows do not stay closed
    - Window will not move (full travel) up and down

The vehicle shall be removed from service if there is any loose, damaged, or protruding window hardware that would be a hazard to passengers.

4. Sun Visor – Check drivers sun visor for condition and operation. Make repairs if any of the following conditions exist:
    - Sun visor is too tight and cannot be adjusted
    - Driver sun visor is cracked, damaged, clouded, dirty
    - Visor will not stay in position or has unauthorized stickers. (Cannot be altered from OEM)

    The vehicle shall be removed from service until repairs are made if sun visor is missing or has sharp/protruding edges that could cause personal injury.

Wheelchair Lift, Door and Securement System

1. Operate lift through complete cycle and inspect for proper operation, condition, safety features, manual backup system, fluid leaks, mounting, barrier operation, warning light, buzzer operation and overall condition. Make repairs if any of the following conditions exist:
    - Dome light at inside lift area inoperative
    - Lift door or latch does not operate smoothly
    - Fluid seepage at the lift
    - White light (if equipped) at exterior lift area inoperative
    - Lift control cable or wiring damaged or routed improperly
    - Lift does not fold, unfold, lift and lower properly
    - Lift jerks or binds
    - Lift leaks fluid onto or below floor
    - There is excessive side play (more than two inches) in the lift mechanism when the platform is partially or fully extended
    - Lift jacks up the vehicle
    - Manual backup system does not function properly.

    The vehicle shall be removed from service until repairs are made if:
    - Elevator lift platform is not flush with floor in “up” position
    - Any part of the lift mechanism or hardware is damaged, missing, or not secure including cams, clips, pins, rollers, and platform fasteners.

2. Inspect wheelchair and occupant securement (tie-down) system for condition, mounting, proper type, and location. Make repairs if any of the following conditions exist:
    - Track filled with dirt and trash
    - Wheelchair tie down track or fasteners are loose, broken, or sections of track are not continuous within each wheelchair position
    - Wheelchair or occupant securement straps are broken, frayed, or will not operate
    - Wheelchair or occupant securement track mounted using lag type bolts or sheet metal screws.

3. Check for presence of a durable webbing cutter (if equipped) on all buses equipped with restraining devices or wheelchair positions. Must be securely mounted in the driver’s compartment, and within easy reach of the driver. Repair if no durable webbing cutter is present and properly mounted within easy reach of driver (if equipped).

Outside Bus

All Exterior Lights & Backup Alarm

LED lights, make repairs if 20% of LED bulbs are not operating in a light unit. (Eight Light Warning Lamps Require 100% of LEDs Operating)

1. Headlights – Check both headlights for brightness, operation, condition of sealed beams and visible misaiming. Check high beam indicator operation and headlight switch. Make repairs if any of the following conditions exist:
    - Left and right sealed beams are different type (halogen vs. conventional)
    - Sealed beam does not operate on low and high
    - Sealed beam lens foggy, cracked, or light is dim
    - High beam indicator does not function
    - Any obvious misaiming of headlights; dimmer switch sticks, hard to operate or doesn't function
    - Headlight switch is damaged and/or not securely mounted
    - Knob is missing

    The vehicle shall be removed from service until repairs are made if: lights go out after being on a short time; operation is intermittent; headlight circuit fails to operate.

2. Turn Signals – Check turn signals (including bulbs and lenses) for operation and condition. Make repairs if any of the following conditions exist:
    - Front, rear or side-mounted turn signal lens is cracked
    - Front, top of fender, rear, or side-mounted turn signal does not flash or is dim
    - Turn signal indicator does not properly indicate right and left
    - Turn signal switch does not function properly or will not maintain set position
    - Turn signal switch does not cancel or return to neutral position
    - Front, rear or side mounted turn signal lens is damaged or white light is visible
    - Any turn signal lens has darkened, faded or dirty significantly affecting visibility or color of the light
    - Front signals fail to operate.

    The vehicle shall be removed from service until repairs are made if rear turn signal fails to operate.

3. Hazard Lights – Check hazard lights for operation and condition. Make repairs if any of the following conditions exist:
    - Lens is cracked, darkened or dirty
    - Four-way hazard light fails to function
    - Hazard switch does not function or will not maintain set position with steering wheel in the straight- ahead position.

4. Side Marker Lights – Check side marker lights (if installed) for operation and condition. Make repairs if any side marker light fails to function or is cracked/damaged/darkened.

5. Brake Lights – Check brake lights and lens for operation and condition. Make repairs if any of the following conditions exist:
    - Three or less brake lights fail to function
    - Brake light lens is cracked/damaged
    - White light is visible
    - Brake light lens is darkened, faded or dirty significantly affecting the visibility or color of the light

    The vehicle shall be removed from service until repairs are made if:
    - Brake light circuit fails to function.
    - Brake pedal is in released and brake light switch sticks or lights stay on.

- Brake light lens is not red or is not proper type meeting SAE specifications.

6. Tail Lights – Check tail light and lens for operation and condition. Make repairs if any of the following conditions exist:
   - Tail light fails to function
   - Taillight lens is cracked
   - Taillight lens is darkened, faded or dirty significantly affecting the visibility/color of the light; taillight lens is damaged
   - White light is visible.

   The vehicle shall be removed from service until repairs are made if:
   - Taillight circuit fails to function.
   - Tail light lens is not red.
   - Taillight lens is not proper type meeting SAE specs.

7. Backup Lights – Check backup lights for proper operation and condition. Make repairs if either backup light doesn't function or if any backup lens is cracked.
   The vehicle shall be removed from service until repairs are made if:
   - Backup light stays on all of the time
   - Backup lights stay on in any gear position other than reverse.

8. Backup Alarm – Check operation and condition (if equipped) of backup alarm. Check operation by placing transmission selector in reverse gear (engine running) and listening for audible alarm sound. Make repairs if backup alarm doesn't function properly. Backup alarms required on all 1997 and newer buses.

9. Parking Lights – Check parking lights (if equipped) for proper operation. Make repairs if any of the parking lights (if equipped) are inoperable or if any park light lens is cracked / broken / darkened

Clearance Lights, Reflectors & Strobe Light

1. Clearance and Marker Lights – Check lights and lens for operation, condition, and location. Make repairs if any of the following conditions exist:
   - Clearance light fails to function
   - Clearance light lens damaged or white light visible
   - Rear clearance light lens not red
   - Intermediate or front lens not amber
   - Clearance light lens has darkened, faded or dirty which significantly affects the visibility or color of the light.

2. Reflectors – Check reflectors for condition and location.
   Reflectors are required as follows:
   - Buses over 30' in length
   - Two- (2) red on rear, one (1) intermediate amber on side
   - Buses under 30' in length: is same, except intermediate amber is not required.

   Make repairs if any of the following conditions exist:
   - Reflector is damaged or cracked
   - Required reflectors are missing
   - Reflector is faded significantly affecting its original color.

3. Strobe Light- Check roof mounted white flashing strobe light (if equipped) for operation, location and condition. Make repairs if the strobe light does not function. Strobe lights required on all 1998 and newer buses.

Eight Light System, Stop Arm & Crossing Arm

Eight Light Warning Lamps Require 100% of LEDs Operating

1. Eight Light Warning System Lights – Check eight light warning system lights for operation and condition. Make repairs if any of the following conditions exist:
    - Amber or red pilot light fails to function
    - Light hood (if equipped) is damaged so that it obstructs visibility of the light

    The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
    - Amber or red light does not function or is dim.
    - Amber/red lights (both front and rear) do not alternately flash (side to side).
    - Warning light is not red (outer) or amber (inner) or is not the proper type.
    - Warning light lens is damaged and white light is visible.
    - Warning light lens has darkened, faded, misaimed, or dirty affecting the color of the light or reducing the visibility to less than 500 feet in bright sunlight.
    - Warning lights do not function.

2. Stop Arm – Check stop arm for specifications, operation (fully extends to 90 degrees), and condition. Make repairs if any of the following conditions exist:
    - Wiring ground strap loose or not properly routed and secured
    - Hinge or bushing is dry of lubrication
    - Stop arm assembly or blade mounting loose
    - Stop arm extends more or less than 90 degrees
    - Stop arm does not fully extend or retract or is slow
    - Air operated stop arm diaphragm has air leak
    - Stop arm (paint or decal) is significantly faded or discolored.

    The vehicle shall be removed from service until repairs are made if:
    - Stop arm light does not operate
    - Does not flash between 60 and 120 times per minute.
    - Stop arm does not operate as designed.

3. Crossing Control Arm – Crossing arms required on all 1977 and newer buses. Check front bumper mounted student crossing arm for operation, condition, mounting and retention device (i.e. magnet). Make repairs if any of the following conditions exist:
    - Crossing arm mount bolts loose
    - Hinge bushings need lubrication or are damaged
    - Air leaks from air operated diaphragm
    - Arm does not fully extend (90 degrees)
    - Arm is improper height (level with bumper) when out.

    The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
    - Bus is not equipped with a student crossing arm assembly and arm.
    - Crossing arm does not extend 60 degrees from bumper.
    - Crossing arm does not deploy when stop arm is activated.

General Condition, Bus Exterior

1. Mirror Mounts and Mirror Glass – Check exterior mirror mounting, brackets and mirror glass for tightness and condition. Make repairs if any of the following conditions exist:
    - Mounting, bracket bolts or mirror glass loose
    - Mounting or bracket bolts missing.

    The vehicle shall be removed from service until repairs are made if:
    - Mirror brackets are severely bent, broken, or mounting is insecure.
    - Mirror glass is discolored.
    - Mounting of mirror or bracket made by different manufacturers.
    - Driver or passenger mirror is missing.

2. Body Glass – Check all body glass, gaskets and frames for cracks, discoloration and looseness. Make repairs if any side glass is cracked, loose or discolored.

    The vehicle shall be removed from service until repairs are made if:
    - Windshield glass is cracked and could be dislodged.
    - Glass is discolored and prevents driver from having clear visibility.
    - Glass is missing.
    - Any piece of glass is non-OEM.

3. Bumpers – Check bumpers for mounting, condition, color, reflective tape (if equipped) and body seal (rear bumper). If bus is equipped with reflective strip on rear bumper, no other stickers are allowed to cover reflective strip (except vinyl reflective type). Make repairs if any of the following conditions exist:
    - Bumper is not black
    - Bumper is equipped with any unauthorized stickers or decals (only stickers approved by DPI Transportation Services are to be installed)
    - Bumper has bent brackets/braces

    The vehicle shall be removed from service until repairs are made if:
    - Bumper is significantly bent.
    - Bumper has protruding metal.
    - Bumper-mounting system is cracked or broken.
    - Bumper has cracked welds.
    - Bumper has missing or loose fasteners.

4. Body Damage – Check body exterior for accident damage, scratches, dents, etc. Make repairs if body has small dents, scratches, etc. or has rusted spots.

    The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
    - Body part damaged/dislocatedcreating a protrusion or sharp edge
    - Body panels, rivets, or other components are damaged/corroded to the point where joint strength or body structural integrity is compromised.

5. Paint – Check the paint on body and trim for required coloration and condition. Make repairs if paint is faded, discolored, rusted, or damaged.

    The vehicle shall be removed from service until repairs are made if the paint is not National School Bus Yellow or warning light hoods and background are not black.

6. Reflective Markings – Check reflective markings for coloration, reflectivity and condition. Make repairs if reflective markings are faded, discolored, damaged or peeling.

    The vehicle shall be removed from service until repairs are made if reflective markings are missing around any emergency exit or door. Reflective markings required on 1995 and newer buses.

7. Lettering – Check all lettering for required type, size, location, and color.

The vehicle shall be removed from service until repairs are made if bus is not equipped with the following lettering or they are not legible:

- "School Bus" (8" letters) on front and rear.
- "North Carolina Public Schools" (6" letters) on both sides. (5" before 1997)
- "County or School Unit Name" (3" letters) below "North Carolina Public Schools" on both sides.
- "Bus Number" (6" letters) on front sides and rear.
- "Emergency Door" (2" letters) on all emergency doors.

8. Emergency Door Operation – Check emergency door for operation from exterior of bus. Make repairs if emergency door latch mechanisms or hinges need lubrication.
   The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
   - Emergency door latch mechanism is stuck or requires more than 40 pounds to release
   - Emergency door handle is mounted horizontally to allow "hitching" onto the bus.

9. Engine Hood – Check hood for operation, condition, and safety latch. Make repairs if any of the following conditions exist:
   - Hood is misaligned or rubbing cowl
   - Hood is rubbing air filter assembly
   - Hood hinges are not lubricated or are damaged
   - Bumper or securement device is damaged or missing

   The vehicle shall be removed from service until repairs are made if any of the following conditions exist:
   - Hood cannot be opened as designed
   - Safety latch does not secure hood
   - Hood prop rod or hold open feature does not function properly

10. Cleanliness – Check exterior of bus for cleanliness. Make repairs if the exterior of the bus is dirty.
    The vehicle shall be removed from service if the bus is dirty to the point that visibility through any window or light lens is significantly reduced.

Road Test

Road Test – Every bus is required to have a road test when monthly inspections are performed. The following items shall be checked during the road test.

1. Travel angle – The travel angle shall be checked while the vehicle is being driven. Observe centerline on highway and check for side evenness to centerline.
   The vehicle shall be taken out of service until repairs are made if travel angle is uneven

2. Steering Gear Operation – Check steering gear for smooth operation, lost motion, and shimmy. Refer to chart on page 50 for maximum free play in steering.
   The vehicle shall be removed from service until repairs are made if:
   - Free play exceeds maximum allowable amount.
   - Excessive tire shimmy occurs.
   - Roughness is detected in steering gear.

3. Engine Performance – Check engine for acceleration, smooth operation, noise in engine or valve train, and excessive smoke. Make repairs if engine fails to operate efficiently.

The vehicle shall be removed from service if excessive noise is detected or if engine fails to operate properly

4. Rear axle and driveline – Check rear axle and driveline for vibration and noise. Make repairs if noise is detected.
   The vehicle shall be removed from service until repairs are made if excessive noise and vibration are detected.

5. Transmission – Check transmission operation for up-shift, downshift and slippage. Make repairs if rough up-shift or downshift is experienced.
   The vehicle shall be removed from service until repairs are made if transmission is slipping.

6. Road Speed Control – Check road speed control for proper operation. Check operation for high limit cut-off and low limit cut-in. Make repairs if high limit is 48 mph or above and if low cut-in is 42 or below.
   The vehicle shall be removed from service until repairs are made if road speed control fails to operate or allows vehicle to exceed 50 MPH.

7. Instrument Gauges, Speedometer, and Odometer – Check all instrument gauges for proper operation. Make repairs if any gauge fails to operate properly. Check speedometer and odometer for proper operation. Make repairs if speedometer needle is erratic or if odometer fails to operate.
   The vehicle shall be removed from service until repairs are made if speedometer fails to operate.

8. Hydraulic Brake Warning Light – Check operation of hydraulic brake warning light.
   The vehicle shall be removed from service until repairs are made if warning light fails to operate.

9. Low Air Warning Buzzer and Light – Check low air warning buzzer and light for proper operation.
   The vehicle shall be removed from service until repairs are made if warning buzzer or light fail to operate properly.

APPENDIX A

30-DAY INSPECTION (step-by-step)

Following is one suggested approach for conducting the 30-day inspection. It is important to conduct the inspection first, then to make repairs as needed.

Do not make repairs until inspection is completed.

1. Review last inspection sheet.

2. Visually inspect under the vehicle for leaks.

3. Place wheel chock under front right tire.

Inside the Bus

4. Enter the driver door. Check condition of hinges, panels, and door bumpers.

5. Inspect condition of handrails, steps and floor covering.

6. Operate the driver seat and the seat belt for secure mounting, condition, and proper operation. Adjust the seat through all positions and operate the seat belt.

7. Inspect the ignition switch (driver's key should not be in ignition). Check the ignition switch for proper operation.

8. Check to ensure air gauge is below ten pounds (if air brake vehicle)

9. With the ignition switch in the off position, depress the brake pedal on hydraulic brake buses and inspect the brake motor for proper operation.

10. With the ignition switch in the on position, check the operation of the low-air light, brake warning light, buzzer and any engine lights.

11. With the transmission in drive, check the operation of the neutral safety switch.

12. With the transmission in neutral and parking brake applied, turn the ignition switch to "start" and check the starter for proper engagement and disengagement.

13. Inspect the engine for noise, idle, misfire, and smoke.

14. Inspect volt gauge and oil pressure gauge for immediate reaction.

15. Notice reaction in the air gauge for proper build.

16. Inspect the interior roof, rear view mirror and sun visor for secure mounting, condition, and proper operation.

17. Inspect the windshield wipers and washer for proper operation.

18. Inspect all front glass for cracks, clarity, glazing, and secure mounting.

19. Check the inspection sticker for expiration date and condition.

20. Inspect the heater, defroster unit, fan output and temperature control lever for proper operation. Lubricate the control lever if needed.

21. Inspect the condition of water valves and hoses.

22. Check condition of brake and accelerator pad condition.

23. Inspect the dash for secure mounting and condition. Inspect all the accessories, and radio for proper operation, mounting and condition.

24. While in the drivers seat check and measure the steering play.

25. Turn on headlights, check the operation of the dimmer switch. Check the operation of the high beam indicator. Leave park lights on.

26. Operate directional lights, turning wheel to left and right, checking the auto return of switch, if equipped.

27. Operate four way flashers and leave on.

28. Turn on interior lights. Observe step light for proper operation.

29. Check operation of air build, both needles. If adequate, place transmission in drive and test parking brake.

30. Check e-brake warning lights, if equipped.

31. Place brake-holding tool on pedal. (An assistant is recommended during 30 day inspection process)

32. Step up in cab, check for fire extinguisher condition, first aid kit and spill kit (reflectors if equipped).

33. Check for condition of all required decals on bulkhead.

34. Release door switch from emergency to normal.

35. Activate eight-way lighting system, place shifter in reverse.

36. Walk to rear of bus and activate all roof buzzers and emergency exit levers, listening for buzzer operation. Open all emergency exits and check for binding and sticking. Inspect all emergency exit decals and lettering.

37. Operate rear door to full open position and check operation of holdback.

38. Check warning, lights, flashers, and reverse lights and buzzer if equipped. Listen for roof warning light operation.

39. Inspecting seats for cover damage, loose seat bottoms, secure mounting and any weak cushions.

40. Indicate if cleanliness of bus is not acceptable on the 30-day form.

41. Remove the brake-holding tool, sit in seat.

42. Place transmission in neutral; check operation of front warning lights.

43. Activate door switch and check operation of entrance door. Leave red warning lights on.

44. Replace brake-holding tool. (an assistant is recommended to aid with outside checks)

Outside the Bus

45. Exit entrance door and inspect right rear view mirrors.

46. Inspect right side hood hold down strap.

47. Visually inspect reflectors, headlights, markers, and body condition as you go around the bus.

48. Check tire-tread. Check the right front tire pressure wheel condition. Check hub and wheel holding hardware for cracking or rust. Remove plug and check fluid if equipped.

49. Check extended walk arm mounting, diaphragm, and return cables and springs.

50. Inspect bumper bolts and grill as you go around

51. Inspect left side hood hold-down strap.

52. Check tire-tread. Check the left front tire pressure wheel condition. Check hub and wheel holding hardware for cracking or rust. Remove plug and check fluid if equipped.

53. Inspect left side rear view mirrors.

54. Check condition of drivers window slides and latch.

55. Check condition of extended stop arm, base, and diaphragm.

56. Open electrical box and inspect condition or wiring and mounting. Lock after inspecting.

57. Open battery box, slide out batteries and inspect cable and mounting.

58. Inspect for proper lettering and condition of bus body/paint on right side.

59. Check rear tire tread. Check the left rear tire pressures, and wheel condition. Check hub and wheel holding hardware for leaks, cracking or rust.

60. Go around rear of bus checking all lights, reflectors. Check exhaust tip for extending past bumper.

61. Inspect for proper lettering and condition of bus body/paint at rear of bus.

62. Check tire tread. Check the right rear tire pressures, and wheel condition. Check hub and wheel holding hardware for leaks, cracking or rust.

63. Inspect for proper lettering and condition of bus body/paint on left side.

64. Inspect condition of fuel cap and fuel tank area.

65. Indicate if exterior cleanliness of bus is not acceptable on the 30-day form.

66. Step up into bus and shut off eight-way lighting, park lights and hazards.

Engine Compartment

67. Lift hood on bus.

68. Check washer fluid level.

69. Check alignment of belts, balancer and any vibration of engine accessories.

70. Begin inspecting at right rear of engine compartment and check around engine to the left side. Check for loose hoses, wires, leaks, and all engine and mounting bolts.

71. If equipped with filter minder, note the reading, if required inspect the air cleaner housing, filter, and manifold.

72. Check automatic transmission level.

73. Return to cab and turn engine off. Release parking brake.

74. Inspect all hoses and pump for seepage and leaks. Inspect the radiator, fan shroud, charge air cooler, oil cooler, top tank, and support rods for secure mounting, condition, corrosion, and leaks.

75. Check engine oil level.

76. Check master cylinder and fill if required and equipped.

77. Inspect the engine compartment brake lines or hoses for secure mounting, condition, leaks, routing, chafing, kinked or damaged lines.

Under the Bus

78. Lift front axle with bottle jack as required, all small bearing axles only. (7500 lb. GM)

79. Inspect steering shaft, u-joints, and slip joint.

80. Inspect steering box for mounting, leaks and any rust on bolts.

81. Inspect condition of pitman arm and drag link.

82. Inspect front left brake hose.

83. Inspect condition of brake can and all mounting hardware.

84. Measure slack adjustment travel. (Repeat this step on all four slack adjusters) See P. 8 for instructions.

85. Check free-play.

86. Check wheel bearing and kingpin play.

87. Examine under the left front tire area, check the condition of kingpins and front axle.

88. Inspect left tie-rod end.

89. Visually inspect tie-rod tube for straightness.

90. Inspect and note the remaining shoe or pad thickness.

91. Inspect front left spring, u-bolts, and hangers.

92. Inspect all around the oil pad and underneath of engine.

93. Inspect right front spring, u-bolts, and hangers.

94. Inspect and note the remaining shoe or pad thickness on the right front.

95. Inspect the right front tie-rod end.

96. Check condition of right kingpin, and front axle.

97. Check the right front free-play.

98. Inspect the brake hose, brake can, and all brake hardware.

99. Check wheel bearing and kingpin play.

100. Inspect engine crossover and engine mounts for condition.

101. Inspect front out-riggers and wheelhouses.

102. Insect around transmission, Check for leaks, loose wires and mounting.

103. Visually check front u-joint, check down drive shaft for proper alignment.

104. Follow battery cables to box, check routing, clamps and frame insulators.

105. Follow frame down left side of bus. Checking all lines, floors, body clamps, outriggers and cross members, for condition.

106. Inspect air tanks and drain.

107. Inspect air-dyer if equipped.

108. Inspect the front half of the left rear spring, hanger and u-bolts.

109. Inspect the pinion seal and rear u-joint.

110. Follow drive shaft forward, inspecting u-joints and carrier bearings.

111. Inspect exhaust as you travel up the drive shaft.

112. Follow exhaust up to engine clamp.

113. Follow frame down right side of bus. Checking all lines, floors, body clamps, outriggers, cross members, for condition.

114. Inspect fuel tank. Check all mounting bolts, cages, lines, and wiring.

115. Inspect the front half of the right rear spring, hanger and u-bolts.

116. Inspect condition of right rear tire sidewalls.

117. Inspect the condition of the rear half of the right rear spring, hanger and u-bolts.

118. Inspect the condition all right rear hoses, brake cans, calipers, spider bolts and brake hardware for condition.

119. Check the free-play on the right rear brake.

120. Inspect and note the remaining shoe or pad thickness on the right rear.

121. Check differential vent for cleanliness

122. Inspect for brake hoses rubbing frame.

123. Inspect and note the remaining shoe or pad thickness on the left rear.

124. Check the free-play on the left rear brake.

125. Inspect the condition all left rear hoses, brake cans, calipers, spider bolts and brake hardware for condition.

126. Inspect the condition of the rear half of the left rear spring, hanger and u-bolts.

127. Inspect condition of left rear tire sidewalls.

128. Loop the rear floor section from the left side to the right side, inspecting the frame, bumper mounting, exhaust hangers, and joints.

Road Test

129. Remove wheel chock. Prepare for test drive. Wear seat belt.

130. Place transmission in drive and move vehicle forward.

131. Hold wheel loosely in hands and apply brakes, checking for any pulls.

132. Test brake several times during the teat drive, checking for excessive noise, growls, pulls, and pedal travel. Record brake meter reading (optional) on 30-day sheet.

133. Proceed with test drive and feel for any pulling in wheel. Check for shakes and vibrations. Check return of wheel after turns and travel alignment.

134. Ensure transmission is shifting smoothly and at the correct time.

135. Operate bus to max speed and test the governor operation.

136. Check all mirrors for clear vision and adjustment.

137. Check speedometer and odometer for normal operation.

138. Listen for body snaps, and floor noises.

139. Listen for rear axle noise and vibration.

140. Check operation of water temp gauge, charging gauge for voltage, fuel gauge for bouncing, oil pressure dropping, and steady air pressure.

141. Listen for air governor cut out and air dryer operation if equipped.

142. Check exhaust for excessive smoking. Notice engine power for proper engine condition.

143. Operate at least one stop, operate eight-way lighting and walk, stop arm. Check door switches and handles for proper operation.

144. Park bus, let engine cool down, shut engine down.

145. Step on brake pedal and check pressure, listen for pressure leaks.

146. Set parking brake and drain air to less than ten pounds.

147. Notice operation of child reminder system if applicable.

148. Remove key and leave in designated location.

149. Complete and sign 30-day form.

APPENDIX B

Out of Service Items

1) The vehicle shall be removed from service until repairs are made if brake reading is below 60 percent.
2) The vehicle shall be removed from service until repairs are made if air pressure gauge(s) are not working.
3) The vehicle shall be removed from service until repairs are made if the cutout pressure is too low (below 100 psi) or too high (above130 psi).
4) The vehicle shall be removed from service until repairs are made if vehicle moves with parking brake applied.
5) The vehicle shall be removed from service until repairs are made if pressure leaks more than two- (2) psi per minute (brakes not applied); more than three- (3) psi per minute (with service brake applied).
6) The vehicle shall be removed from service until repairs are made if either light or buzzer is inoperative or buzzer fails to operate by 50 psi or continues to operate above 70 psi.
7) The vehicle shall be removed from service until repairs are made if any leaks are found in the brake or hydraulic system.
8) The vehicle shall be removed from service until repairs are made if brake pedal (reserve) is less than one inch from floor.
9) The vehicle shall be removed from service until repairs are made if there is any brake pedal fade (falling away) after initial firm application.
10) The vehicle shall be removed from service until repairs are made if rubber cover pad is missing or worn out.
11) The vehicle shall be removed from service until repairs are made if emergency brake control assembly is hard to operate or doesn't latch and release properly.
12) The vehicle shall be removed from service until repairs are made if park brake doesn't hold or functions improperly.
13) The vehicle shall be taken out of service until repairs are made if any of the following conditions exist: side-to-side play in steering column exceeds ¼ inch or up and down play exceeds one (1) inch; column assembly mounting (including floor mounting plate) or fasteners are loose; tilt/telescopic assembly (if equipped) will not stay in the locked position; steering column U-joint inside the bus (if equipped) is loose, damaged, or noisy after lubrication; flexible coupling, if equipped (rag joint) has loose or missing fasteners, damaged flexible disc, or elongated holes; any column u-joint , pinch bolt, other column fasteners, or input shaft coupling is loose, damaged, or missing; steering gearbox is loose on frame, or fasteners or lock tabs are loose or missing.
14) The vehicle shall be removed from service until repairs are made if any evidence of a leak is detected or fluid is excessively low (less than ¼ full),
15) The vehicle shall be removed from service until repairs are made if fluid is excessively low (less than ¼ full).
16) The vehicle shall be removed from service until repairs are made if: no oil is observed on dipstick; evidence of fuel or water contamination in the oil.
17) The vehicle shall be removed from service until repairs are made if the transmission fluid is not present on dipstick or is above the full mark (overfilled).
18) The vehicle shall be taken out of service until repairs are made if coolant cannot be seen in reservoir or in radiator tank with cap removed.
19) The vehicle shall be taken out of service until repairs are made if any of the following conditions exist: any belt tensioner does not pivot or move freely and apply spring pressure on belt; any tension on any belt is too loose (based on specifications of type

tension gauge used); tension of any belt (using ruler method) is too loose when firm pressure is applied (greater than ¾ inch deflection) or if any slippage is detected.

20) Vehicle shall be removed from service if the diesel air filter restriction exceeds manufacturer' specifications.

21) The vehicle shall be removed from service until repairs are made if any portion of the power steering pump, mounting brackets or fasteners is cracked, loose or missing.

22) The vehicle shall be removed from service until repairs are made if compressor mounting brackets or fasteners is cracked, loose or missing.

23) The vehicle shall be removed from service until repairs are made if water pump is noisy, bearing is damaged, or coolant is leaking out.

24) The vehicle shall be removed from service until repairs are made if: fan has any cracked, bent, or broken blades; any portion of fan mounting is loose; fan clutch is seized or loose.

25) The vehicle shall be placed out of service until repairs can be made if any portion of the alternator, mounting brackets or fastener is cracked, loose, or missing.

26) The vehicle shall be taken out of service until repairs can be made if: there is any unsecured or poorly routed wiring that could cause a potential short or fire due to abrasion; heat damage or if there is any burnt wiring or wiring (other than ground wires) missing insulation.

27) The vehicle shall be removed from service until repairs can be made if any fuel system connection is stripped, loose, cracked, or leaking.

28) The vehicle shall be taken out of service until repairs can be made if the radiator cap is missing.

29) The vehicle shall be taken out of service until repairs can be made if: there is any noise, binding, or roughness is discovered in bearings; wheel bearing endplay exceeds manufacturer's specifications (maximum of .010" in and out play measured at bearing hub).

30) The vehicle shall be taken out of service until repairs can be made if: I-beam has been cut, modified (other than qualified machine shop to repair axle eye) or damaged; there is any bluing or other evidence that the I-beam has been heated.

31) The vehicle shall be taken out of service until repairs can be made if: locking pin is backing out, loose, or missing; kingpin movement is more than ¼ inch measured at the outside edge of the tire; the vertical (up and down) play in kingpin assembly is greater than .030"; thrust bearing is damaged or missing.

32) Vehicle shall be removed from service if side play at outside edge of tire is greater than ¼ inch.

33) The vehicle shall be taken out of service until repairs can be made if: any front spring shackle or hanger is loose, cracked, broken; front spring mount-to-frame fastener is loose, missing, broken, cracked; the frame is cracked at any spring mounting location.

34) The vehicle shall be removed from service until repairs can be made if wear exceeds ¼ inch or bushing is missing.

35) The vehicle shall be taken out of service until repairs are made if: A-frame assembly is bent, missing or broken; fasteners/u-bolts are loose or missing; mounting of bushing assembly is not secure; rubber bushing is missing; A-frame, bushing or pivot arm has more than .050 free play at pivot point.

36) The vehicle shall be taken out of service until repairs are made if the following conditions exist: ball joint mounting is loose, missing or cotter pin is missing; ball joint to A-frame mounting is cracked, loose or has been welded.

37) The vehicle shall be taken out of service until repairs are made if any shock mount bracket, U-bolt, seating plate or nut is loose, missing, cracked, stripped.

38) The bus shall be removed from service until repairs can be made if any shock is broken or missing.

39) The vehicle shall be taken out of service until repairs are made if: either front spring saddle (if equipped) is missing or any leaf spring is broken, cracked or missing; spring

eye is worn or spread such that bushings are loose in spring eye; coil spring is broken or insecurely mounted; non-OEM blocks or spacers are installed; there is misalignment of spring leaves or other evidence that center pin is loose or broken; either front coil or leaf spring is worn so that the rubber frame bumper is damaged or worn due to frequent bottoming of front suspension; alignment wedge is loose or damaged; air bag type spring assembly or bag is damaged/leaking.

40) Remove bus from service until repairs can be made if evidence of fresh oil is found on the brake linings, drums or rotors.

41) The vehicle shall be taken out of service until repairs can be made if; any front brake hose or connection is leaking fluid or air pressure; any front brake hose is kinked, collapsed, bulging, has damaged plies, cords or is damaged below outer covering.

42) The vehicle shall be taken out of service until repairs are made if; any brake line is crimped or damaged significantly and restricting air pressure or hydraulic fluid; any brake line or connection is leaking air pressure or hydraulic fluid.

43) The vehicle shall be taken out of service until repairs can be made if; front brake chamber-mounting bracket is cracked, bent, broken or if either chamber is not of the original size; size of chambers is not matched left and right (both sides must be the same size); non-manufactured holes are found in the spring brake housing.

44) The vehicle shall be taken out of service until repairs are made if: any portion of the slack adjuster or S-cam is missing, broken, cracked, or badly worn; S-cam snap ring is missing; slack adjuster has a frozen or stripped worm gear or ratchet assembly.

45) The vehicle shall be taken out of service until repairs are made if any portion of the pushrod assembly (locknut, pushrod, clevis and pin, or cotter pin) is loose, missing or damaged.

46) The vehicle shall be taken out of service until repairs are made if: lining is broken, cracked, or loose on shoe; shoe platform or webbing is cracked/damaged; there is any loose, damaged, or missing foundation brake hardware within the drum; friction surface is contaminated with oil, grease, or brake fluid; lining with a thickness less than 3/16 inch on a continuous lining or ¼ for a shoe with two pads; IF EQUIPPED WITH DISC STYLE BRAKES, MINIMUM IS 1/8”

47) The vehicle shall be removed from service until repairs can be made if: there is any grease, oil or brake

48) fluid on the inside of the drum; any drum is not mounted securely to hub; fasteners are loose; drums with external crack or cracks that open upon brake application.

49) The vehicle shall be removed from service until repairs can be made if: rotor mounting is not secure; friction surface is contaminated with oil, grease, or brake fluid; any rotor friction surface is significantly grooved or damaged.

50) Vehicle shall be removed from service until repairs can be made if any wheel cylinder or caliper: is not securely mounted; has loose or missing fasteners; has rotor/ drum damage; wheel cylinder /caliper is sticking.

51) The vehicle shall be removed from service until repairs are made if there is any damage or condition that prevents proper adjustment of S-cam or air disc type brakes.

52) The vehicle shall be removed from service until repairs can be made if any automatic slack adjuster arm or mechanism is damaged or loose.

53) The vehicle shall be taken out of service until repairs are made if: transmission is not mounted securely to flywheel housing; there is external indication that any torque converter bolt is loose or missing.

54) The vehicle shall be taken out of service until repairs are made if: linkage is bent, damaged, binding or severely misadjusted; linkage hardware or fasteners are missing or linkage is damaged so as to cause a sticking or binding; modulator vacuum hose is leaking or not connected.

55) The vehicle shall be taken out of service until repairs are made if the body of the transmission filter housing, including all hose connections, are cracked or damaged.

56) The vehicle shall be taken out of service until repairs are made if: the clutch cannot be adjusted to specifications; release bearing is excessively noisy; clutch is slipping, grabbing, or has excessive chatter when engaging clutch; linkage or return spring is binding or sticking; transmission is hard to shift.
57) The vehicle shall be removed from service if the clutch pedal cover pad is missing or built up with extender block not of OEM design.
58) The vehicle shall be removed from service until repaired if either the master or slave cylinder is leaking or inoperable.
59) The vehicle shall be removed from service until repairs are made if fresh engine oil is dripping on any portion of exhaust system.
60) The vehicle shall be removed from service until repairs are made if the coolant leakage is excessive and could result in engine failure.
61) The vehicle shall be removed from service until repairs are made if fresh transmission fluid is dripping on any portion of the exhaust system.
62) The vehicle shall be removed from service until repairs are made if the power steering fluid is dripping.
63) The vehicle shall be taken out of service until repairs are made if any of the following conditions exist: fuel leakage from the tank, connections, or cap; fuel tank has any cracks; connections are loose at the tank.
64) The vehicle shall be taken out of service until repairs are made if: any portion of fuel tank mounting system (including support brackets, retaining straps, and chassis frame) is missing, loose, cracked, or broken; fuel tank mounting fasteners are loose or missing; barrier assembly is damaged, insecurely mounted or missing.
65) The vehicle shall be taken out of service until repairs are made if: fuel line or hose is unsecured or is routed subject to excessive heat or abrasion; fuel line or hose is deteriorated or damaged (including cracks or damage that may cause potential leakage) or clamps are loose or missing; under-bus fuel system filter, water separator, or other components are insecurely mounted, cracked or damaged.
66) The vehicle shall be taken out of service until repairs are made if any portion of sending unit wiring (including ground) or connections is unsecured or is routed subject to excessive heat or abrasion.
67) The vehicle shall be taken out of service until repairs are made if: safety valve leaks or does not release pressure; excessive sludge or oil contamination in the reservoir (more than (8) fluid ounces); reservoir leaks due to corrosion or is cracked.
68) The vehicle shall be taken out of service until repairs are made if: drive shaft is bent or seriously dented; there are cracks or other damage in the drive shaft, which could cause structural failure.
69) The vehicle shall be taken out of service until repairs can be made if: hardware or fasteners are missing in any U-joint or CV joint assembly; U-joint has significant cross-shaft-to-bearing cup play or CV joint has significant play; U-joint or CV joint shows evidence of significant rusting of bearings; bearing cup is loose in yoke.
70) The vehicle shall be taken out of service until repairs are made if any yoke has significant play in splines or if any yoke is cracked or damaged.
71) The vehicle shall be taken out of service until repairs are made if: bearing outer race is loose in insulator or inner race is loose on shaft; there is significant play in hanger bearing; there are missing or damaged hardware/fasteners in hanger bearing or support assembly.
72) The vehicle shall be taken out of service until repairs are made if drive shaft guard is missing.
73) The vehicle shall be taken out of service until repairs are made if: lining is broken, cracked or loose; drum is cracked or has excessive heat damage or scoring of friction surface; actuating/mounting hardware or fastener is damaged, loose/missing; park brake is not adjusted per manufacturer's specifications.

74) The vehicle shall be taken out of service until repairs are made if: any portion of axle housing is cracked or bent; any portion of axle housing is leaking lubricant due to cracks, porous metal, or defective weld.
75) The vehicle shall be taken out of service until repairs are made if: lubricant is excessively low in the differential; differential pinion yoke has endplay or side play exceeding manufacturer's specifications; pinion/yoke end nut is loose or missing.
76) The vehicle shall be taken out of service until repairs are made if: any leaf spring is broken or missing; air bag type spring assembly or air bag is damaged/leaking; airlines or valves are damaged/leaking; misalignment of spring leaves or other evidence that centering pin is loose or broken; either rear leaf spring is worn to the point that suspension bottoming has damaged rubber frame bumper.
77) The vehicle shall be taken out of service until repairs are made if any U-bolt seating plate or shock mount bracket nut is loose missing cracked, or stripped.
78) The bus shall be removed from service until repairs are made if any shock is broken or missing.
79) The vehicle shall be taken out of service until repairs are made if front spring shackle/hanger is loose, cracked or broken.
80) The vehicle shall be removed from service until repairs are made if wear exceeds ¼ inch or bushing is missing.
81) The vehicle shall be taken out of service until repairs are made if: front spring shackle/hanger is loose, cracked or broken; front spring mount-to-frame fastener is loose, missing, broken or cracked; the frame is cracked at any spring mounting location; spring hanger or bracket is cracked (1/2 inch or more) or broken; any mounting fastener is loose or missing.
82) The vehicle shall be taken out of service until repairs are made if evidence of fresh oil is found on the brake linings or drums/rotors.
83) The vehicle shall be taken out of service if there is any detectable looseness or roughness in rear wheel bearings.
84) The vehicle shall be taken out of service until repairs are made if: rear brake hose or connection is leaking fluid or air pressure; rear brake hose is kinked, collapsed, bulging or has damaged plies or cord; any damage below outer covering.
85) The vehicle shall be taken out of service until repairs are made if: brake line is bent, crimped, damaged significantly restricting air pressure or hydraulic fluid; brake line or connection is leaking air pressure or hydraulic fluid; any brake line is not of proper size or type.
86) The vehicle shall be taken out of service until repairs are made if: rear brake chamber mounting bracket is cracked, bent, or broken; either chamber is not original size or size of chamber is not matched (both sides to be same size).
87) The vehicle shall be taken out of service until repairs are made if: any portion of slack adjuster or S-cam is missing, broken, cracked, or badly worn; S-cam snap ring is missing; slack adjuster has frozen or stripped worm gear or ratchet assembly.
88) The vehicle shall be taken out of service until repairs are made if: any portion of pushrod assembly (locknut, pushrod, clevis and pin or cotter pin) is loose, missing, or damaged; pushrod on left and right sides are not mounted in identical (same) slack adjuster location holes (same effective slack adjuster length).
89) The vehicle shall be taken out of service until repairs are made if: lining is broken, cracked, or loose on shoe; shoe platform or webbing is cracked or damaged; any loose damaged or missing foundation brake hardware is within the drums.
90) The vehicle shall be taken out of service until repairs are made if: grease, oil or brake fluid is on the inside of the drum; drum is not mounted securely to hub or fasteners are loose.
91) The vehicle shall be taken out of service until repairs are made if: rotor mounting is not secure; friction surface is contaminated with oil, grease, or brake fluid; rotor friction surface is significantly grooved or damaged.

92) The vehicle shall be taken out of service until repairs are made if: caliper is not securely mounted or has loose or missing fasteners; there is rotor or drum damage; evidence that any wheel cylinder/caliper may be sticking.

93) The vehicle shall be taken out of service until repairs are made if: there is damage or condition that prevents proper adjustment of S-cam or air disc type brakes; any brake adjustment is out of specification.

94) The vehicle shall be removed from service until repairs are made if: any automatic slack adjuster arm or mechanism is damaged or loose; adjusted stroke (pushrod travel) of any automatic slack adjuster equipped brake exceeds maximum shown in charts on page 46.

95) The vehicle shall be taken out of service until repairs are made if: originally installed body hold-down or cowl mount is missing; three or more body hold-downs are loose, misaligned or have missing hardware; three or more body hold-downs have cracks or stripped nuts at floor sill securement point.

96) The vehicle shall be taken out of service until repairs are made if: holes or cracks in floor sheet metal create an opening to the passenger compartment; entire cross-section of any floor sill or brace is broken; any broken weld or mounting of a floor sill/brace resulting in complete separation more than one (1) foot in length; any broken weld in the mounting of the bracing (K-member) at the front of the body floor (between step-well and driver's area).

97) The vehicle shall be taken out of service until repairs are made if originally installed (as required by manufacturer) outrigger is missing.

98) The vehicle shall be taken out of service until repairs are made if: there is any crack in either frame rail or cross-member; there is any loose, missing rivet or other fastener securing a cross-member to the frame.

99) The vehicle shall be taken out of service until repairs are made if there is any leakage, which is audible or felt around any portion of the exhaust system including manifold, pipe sections or any junction.

100) The vehicle shall be removed from service until repairs are made if the muffler is leaking and produces an audible sound or exhaust is felt from the leaking area (weephole is excluded).

101) The vehicle shall be removed from service until repairs are made if the tailpipe is leaking and produces an audible sound or exhaust is felt from the leaking area.

102) The vehicle shall be taken out of service until repairs are made if: tread depth of either front tire is less than 4/32-inch (2/32-inch for rear tires) at three points spaced equally around the circumference of the tire in the same major tread groove; measured tread depth of either front tire is 2/32-inch or less (1/32-inch for rear tires) measured at the most worn single point of the tire, except at wear bar; recapped tire has been re-grooved; front tire is a recapped or re-grooved tire; there is evidence that any tire has been re-grooved using unapproved procedure.

103) The vehicle shall be taken out of service until repairs are made if any of the following conditions exist: cuts, abrasion, or other damage to tire sidewall resulting in exposed or damaged cord; separation, bulges (other than normal manufacturer bulge) or other damage within the carcass of the tire; cracks that run around the bead or sidewall of the tire; retread tire that has any separation of the tire tread from the tire carcass that could result in tire or tread failure; valve stem is damaged; damage to the lock ring assembly or lock ring groove of a multi-piece rim, including rust or corrosion which could cause the lock ring not to seat fully; cracks or breaks at the lugholes or any other part of a rim or cast spokes; dents or bends in a rim that could result in failure of a rim or separation of the tire from the rim.

104) The vehicle shall be taken out of service until repairs are made if any of the following conditions exist: any tire marked for other than highway use; tire is not of the proper type, size and minimum load rating; any tire on an axle are not of the same type (e.g.,

lug or rib) and size; tire is below minimum load rating; if radial and bias ply tires are intermixed on the same axle.

105) The vehicle shall be removed from service until repairs are made if tires/rim are grossly misaligned, affecting steering.

106) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: improper matching of rims and lock rings; evidence of slippage of wheel assembly on cast spoke hub; stud holes are elongated; any wheel or stud is loose, rusting or corrosion indicating possible looseness; wheel stud or nut is broken or missing; improper spacer has been installed between dual wheels.

107) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: rating is less than 2 ½ pound minimum, 2002 and newer must have 5 lb. minimum and 10BC rating; no fire extinguisher on bus; tamper proof seal material cannot be broken.

108) The vehicle shall be removed from service until repairs are made if entire contents or kit are missing.

109) The vehicle shall be removed from service until repairs are made if entire contents or kit are missing.

110) Remove the bus from service if reflectors are missing.

111) The vehicle shall be removed from service until repairs are made if the starter will engage in any gear other than park or neutral.

112) The vehicle shall be removed from service until repairs are made if: shifter will not shift into all available gear positions; the indicator indicates wrong gear; detent is non-functional, or if ball or knob (handle) is missing from end of shifter lever.

113) The vehicle shall be removed from service until repairs are made if: switch operates without a key; bus is equipped with a push button or a device other than key type switch; engine will not crank/start; switch doesn't function properly in start, run, off or accessory position; switch is intermittent in any position.

114) The vehicle shall be removed from service until repairs are made if: pedal and assembly are not mounted securely; control design and mounting are not of OEM design; accelerator control and linkage sticks or doesn't operate freely; pedal is built-up with extender block or not of OEM design.

115) The vehicle shall be removed from service until repairs are made if: engine cannot be started; shutdown or operation is difficult; bus was originally equipped with ignition switch type controlled shutdown and has been retrofitted with manual type shutdown.

116) The vehicle shall be removed from service until repairs are made if: oil or temperature warning system is not functioning or is unreadable; speedometer doesn't work or is confirmed to be inaccurate; speedometer is unreadable or damaged; pressure gauge is inaccurate, unreadable or not working.

117) The vehicle shall be removed from service until repairs are made if horn fails to function as designed.

118) The vehicle shall be removed from service until repairs are made if high coolant temperature warning light or buzzer is inoperative (either constant or momentary).

119) The vehicle shall be removed from service if the air brake warning light or the air brake buzzer are non-functioning (either constant or momentary).

120) The vehicle shall be removed from service until repairs are made if the low oil pressure warning light or buzzer is inoperative (either constant or momentary).

121) The vehicle shall be removed from service until repairs are made if: any wire or connector is cut or severely chafed; wire/conductor is exposed or routed against a sharp edge; any interference with the driver controls.

122) The vehicle shall be removed from service until repairs are made if there are any open holes or unsealed area in the firewall.

123) The vehicle shall be removed from service until repairs are made if the following exist: unsealed holes or cracks through the underside of the bus; aisle-molding strip is not

securely fastened to the floor or aisle or if cover molding presents a sharp edge or protrusion; any damage to the rubber floor covering which could cause a tripping hazard.

124) The vehicle shall be removed from service until repairs are made if step-well support structure is broken or step-well is rusted through.

125) The vehicle shall be removed from service until repairs are made if: entrance handrail is missing or not securely mounted; handrail fails the "NHTSA String and Nut Test".

126) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: any sharp edges, rust-through or projections from paneling that could cause injury to passengers or driver.

127) The vehicle shall be removed from service until repairs are made if there are any aerosol cans, containers with flammable/volatile chemicals or any unlabeled container located inside the bus.

128) The vehicle shall be removed from service until repairs are made if seals or weather stripping allow air/fume leaks into the driver's compartment.

129) The vehicle shall be removed from service until repairs are made if either wiper fails to operate.

130) The vehicle shall be removed from service until repairs are made if any portion of heating system withinthe passenger area creates sharp edges, projections or other hazards to passengers.

131) The vehicle shall be removed from service if protective cage around driver fan is missing, loose, or damaged.

132) The vehicle shall be removed from service until repaired if any mirror is missing or if any mirror is cracked, pitted, clouded or deteriorated to the extent that vision is obscured or will not hold a set adjustment.

133) The vehicle shall be removed from service until repairs are made if: any crossover mirror is missing; any mirror is cracked, pitted, clouded or deteriorated to the extent that vision is obscured or will not hold a set adjustment; mounting of any mirror and bracket made by different manufacturers.

134) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: seat frame and mounts are cracked, broken or distorted; seat moved from OEM position (unless repositioned using written OEM approved mounting instructions); driver seat belt is missing or inoperable; seat belt is routed improperly; seat belt buckle and tongue assemblies do not latch and release properly.

135) The vehicle shall be removed from service until repairs are made if: seat frames or welds are broken or cracked; seat frame hardware has been added or modified which results in projections or sharp edges; non- OEM seat frames have been installed.

136) The vehicle shall be removed from service until repairs are made if any seat mounting fasteners are of lower grade or different type than OEM fasteners for the specific locations.

137) The vehicle shall be removed from service until repairs are made if any seat foam is missing.

138) The vehicle shall be removed from service if any vehicle that came equipped with fire-block upholstery (all lift buses and all others manufactured after late 1996) has been retrofitted with upholstery other than fire-block.

139) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: not a clear minimum twelve- (12) inch aisle width to the side emergency door; flip-up seat bottom will not raise or lower; will not stay in the raised position or automatically retract properly when not occupied.

140) The vehicle shall be removed from service until repairs are made if: bus is not equipped with a padded safety barrier in front of any passenger seat that does not have another seat in front of it; fire-blocking crash barrier fabric is repaired or replaced using unapproved procedures or non-fire blocking material.

141) The vehicle shall be removed from service until repairs are made if: emergency door will not open properly; is equipped with any type of a hasp, lock, or any other locking device

(except for OEM interlock system); bus will start with any emergency door locked (OEM interlock system); latch mechanism will not secure door, hatch, or window in closed position.

142) The vehicle shall be removed from service until repairs are made if: emergency exit buzzer circuit fails to operate; emergency door fails to operate panel buzzer.

143) The vehicle shall be removed from service until repairs are made if any of the following conditions exist; glass is missing; laminated windshield or laminated window glass is broken or splintered that might cause injury when touched.

144) The vehicle shall be removed from service until repairs are made if: windshield or any window that provides visibility to any mirror is fogged more than two inches in from the outer border; windshield /window fogging or clouding results in reduced visibility of a mirror; tinting on the windshield or windows to the side of the driver that is not 70% light transmission or clearer; tinting on any windows behind the driver's location that is not 28% light transmission or clearer.

145) The vehicle shall be removed from service if there is any loose, damaged, or protruding window hardware that would be a hazard to passengers.

146) The vehicle shall be removed from service until repairs are made if sun visor is missing or has sharp/protruding edges that could cause personal injury.

147) The vehicle shall be removed from service until repairs are made if: elevator lift platform is not flush with floor in "up" position; any part of the lift mechanism or hardware is damaged, missing, or not secure including cams, clips, pins, rollers, and platform fasteners.

148) The vehicle shall be removed from service until repairs are made if: headlights go out after being on a short time; operation is intermittent; headlight circuit fails to operate.

149) The vehicle shall be removed from service until repairs are made if rear turn signal fails to operate.

150) The vehicle shall be removed from service until repairs are made if: brake light circuit fails to function; brake pedal is released, brake light switch sticks or lights stay on; brake light lens is not red or is not proper type meeting SAE specifications.

151) The vehicle shall be removed from service until repairs are made if: taillight circuit fails to function; tail light lens is not red; taillight lens is not proper type meeting SAE specs.

152) The vehicle shall be removed from service until repairs are made if: backup light stays on all of the time; backup lights stay on in any gear position other than reverse.

153) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: amber or red light does not function or is dim; amber/red lights (both front and rear) do not alternately flash (side to side); warning light is not red (outer) or amber (inner) or is not the proper type; warning light lens is damaged and white light is visible; warning light lens has darkened, faded, misaimed, or dirty affecting the color of the light or reducing the visibility to less than 500 feet in bright sunlight; warning lights do not function.

154) The vehicle shall be removed from service until repairs are made if any stop arm light does not flash or does not flash between 60 and 120 times per minute or if stop arm does not operate as required.

155) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: bus is not equipped with a student crossing arm assembly and arm; crossing arm does not extend 60 degrees from bumper; crossing arm does not deploy when stop arm is activated.

156) The vehicle shall be removed from service until repairs are made if: mirror brackets are severely bent, broken, or mounting is insecure; mirror glass is discolored; driver or passenger mirror is missing; mounting of any mirror or bracket made by different manufacturers.

157) The vehicle shall be removed from service until repairs are made if: windshield glass is cracked and could be dislodged; glass is discolored and prevents driver from having clear visibility; glass is missing, any piece of glass is non-OEM.

158) The vehicle shall be removed from service until repairs are made if: bumper is significantly bent; bumper has protruding metal; bumper-mounting system is cracked or broken; bumper has cracked welds; missing or loose fasteners.
159) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: body part is damaged or dislocated creating a protrusion or sharp edge; body panels, rivets, or other components are damaged/corroded to the point where joint strength or body structural integrity is compromised.
160) The vehicle shall be removed from service until repairs are made if the paint is not National School Bus Yellow or warning light hoods and background are not black.
161) The vehicle shall be removed from service until repairs are made if reflective markings are missing around any emergency exit or door. Reflective markings required on 1995 and newer buses
162) The vehicle shall be removed from service until repairs are made if all exterior lettering is not readable.
163) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: emergency door latch mechanism is stuck or requires more than 40 pounds to release; emergency door handle is mounted horizontally to allow “hitching” onto the bus.
164) The vehicle shall be removed from service until repairs are made if any of the following conditions exist: hood cannot be opened as designed; safety latch does not secure hood; hood prop rod or hold open feature does not function properly.
165) The vehicle shall be removed from service if the bus is dirty to the point that visibility through any window or light lens is significantly reduced.
166) The vehicle shall be taken out of service until repairs are made if travel angle is uneven.
167) The vehicle shall be removed from service until repairs are made if: free play exceeds maximum allowable amount; excessive tire shimmy occurs; roughness is detected in steering gear.
168) The vehicle shall be removed from service if excessive noise is detected or if engine fails to operate properly.
169) The vehicle shall be removed from service until repairs are made if excessive noise and vibration are detected during road test.
170) The vehicle shall be removed from service until repairs are made if transmission is slipping.
171) The vehicle shall be removed from service until repairs are made if road speed control fails to operate or allows vehicle to exceed 50 MPH.
172) The vehicle shall be removed from service until repairs are made if speedometer fails to operate.
173) The vehicle shall be removed from service until repairs are made if hydraulic brake warning light fails to operate.
174) The vehicle shall be removed from service until repairs are made if low air warning buzzer or light fails to operate properly.

APPENDIX C

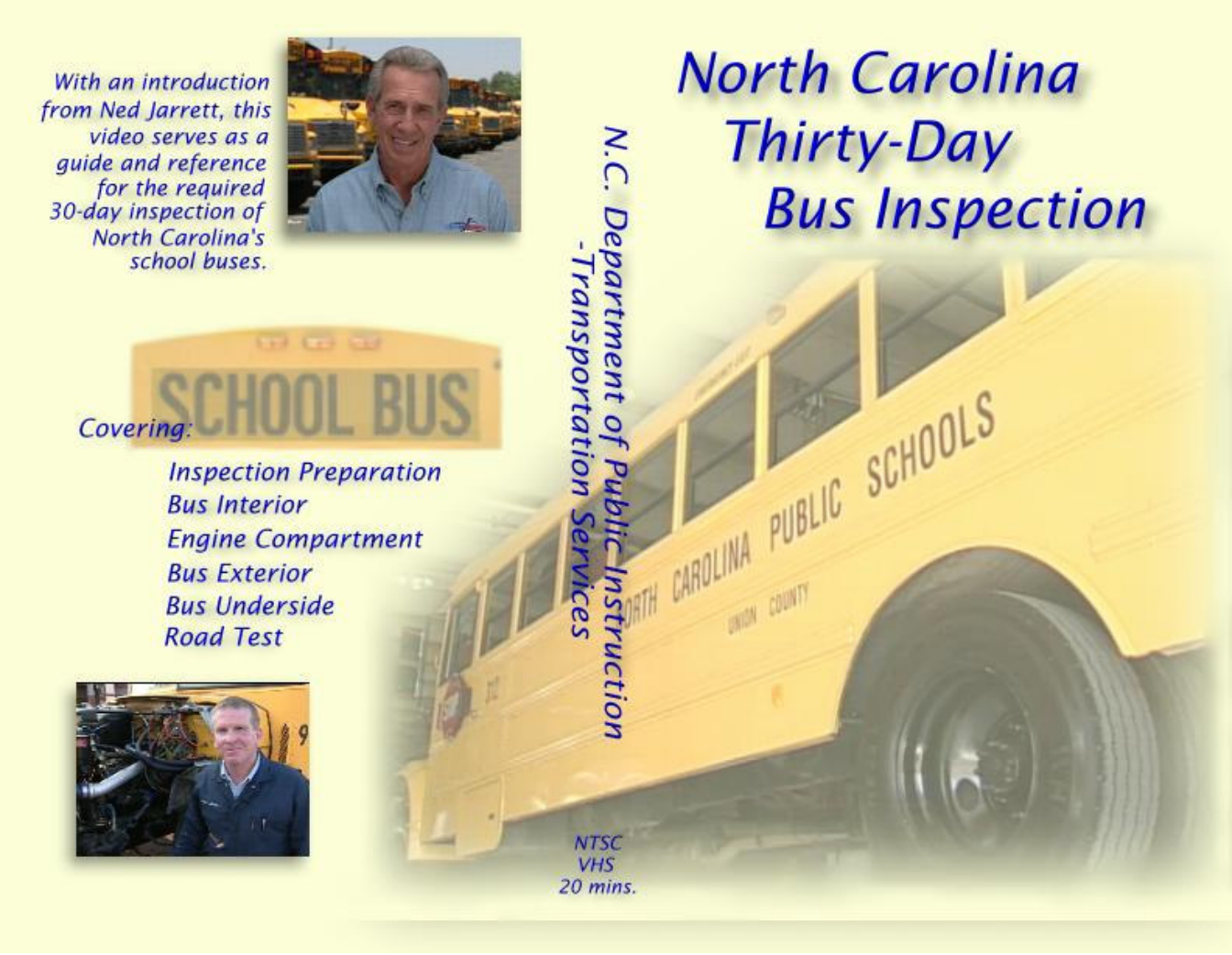
PUBLIC SCHOOL LAW G.S. 115C-248

§ 115C-248. Inspection of school buses and activity buses; report of defects by drivers; discontinuing use until defects remedied.
(a)The superintendent of each local school administrative unit, shall cause each school bus owned or operated by such local school administrative unit to be inspected at least once each 30 days during the school year for mechanical defects, or other defects which may affect the safe operation of such bus. A report of such inspection, together with the recommendations of the person
making the inspection, shall be filed promptly in the office of the superintendent of such local school administrative unit, and a copy thereof
shall be forwarded to the principal of the school to which such bus is assigned.
(b) It shall be the duty of the driver of each school bus to report promptly to the principal of the school, to which such bus is assigned, any mechanical defect or other defect which may affect the safe operation of the bus when such defect comes to the attention of the driver, and the principal shall thereupon report such defect to the superintendent of the local school administrative unit. It shall be the duty of the superintendent of the local school administrative unit to cause any and all such defects to be corrected promptly.
(c) If any school bus is found by the principal of the school, to which it is assigned, or by the superintendent of the local school administrative unit, to be so defective that the bus may not be operated with reasonable safety, it shall be the duty of such principal or superintendent to cause the use of such bus to be discontinued until such defect is remedied, in which event the principal of the school, to which such bus is assigned, may permit the use of a different bus assigned to such school in the transportation of the pupils and employees assigned to the bus found to be defective.
(d) The superintendent of each local school administrative unit, shall cause each activity bus which is used for the transportation of students by such local school administrative unit or any public school system therein to be inspected for mechanical defects, or other defects which may affect the safe operation of such activity bus, at the same time and in the same way and manner as the regular public school buses for the normal transportation of public school pupils are inspected. A report of such inspection, together with the recommendations of the person making the inspection, shall be filed with the principal of the school which uses and operates such activity bus and a copy
shall be forwarded to the superintendent of the local school administrative unit involved. It shall be the duty of the driver of each activity bus to make the same reports to the principal of the school using and operating such activity
bus as is required by this section. If any public school activity bus is found to be so defective that the activity bus may not be operated with reasonable
safety, it shall be the duty of such principal to cause the use of such activity bus to be discontinued until such defect is remedied to the satisfaction of the person making the inspection and a report to this effect has been filed in the manner herein prescribed. Nothing in this subsection shall authorize the use of State funds for the purchase, operation or repair of any activity bus. (1955, c.
1372, art. 21, s. 8; 1961, c. 474; 1975, c. 150, s. 2; 1981, c. 423, s. 1.)

APPENDIX D

30 Day Inspection Video

An instructional video produced in 2000 was provided to each school bus garage in North Carolina as an educational tool for new technicians and a refresher for others performing 30 day inspections.



APPENDIX E

Sample printed 30-day inspection

ORDER # 62000791533 | PLANT | ASSIGN
EQ/INV.# | SAP EQ.# | METER READING 184537.0 MI
EQ. DESC. IHC ACTIVITY BUS | | PM DUE AT
YEAR 1984 | MAKE INTERNATIONAL | MODEL 3800
PLANNED DATE 06/05/2006 | LIC PLATE | VIN #

WORK DESCRIPTION

6076-8121: Bus 30-Day

OPERATION	DESCRIPTION	TIME	VMRS CODE
0010	Adjust brakes	_____	013-001-000

OPERATION	DESCRIPTION	TIME	VMRS CODE
0020	Perform 30 day Safety Inspection	_____	

Perform 30 day Safety Inspection

SCHOOL _____ DATE _____ MILEAGE _____

OK	ITEM INSPECTED	NEEDS REP.	OK	ITEM INSPECTED	NEEDS REP.
(1)___	Steering:fluid? ___	___	(22)___	Clean:int.___ ext.___	___
(2)___	Brake,foot(check/adj)	___	(23)___	Fire ext.___ First aid kit	___
(3)___	Clean slacks w/brush	___		Body fluid kit ___	
(4)___	Drain air tanks compl	___	(24)___	Seats:all covers/foam/frames	___
(5)___	Brake:fluid? _____	___		(seat cushions secure?)	
(6)___	Brake,park(check/adj)	___	(25)___	Seat belts(all)	___
(7)___	Stop sign/walking arm	___	(26)___	Exhaust system	___
(8)___	Batteries & cables	___	(27)___	Cooling system:added ___	___
(9)___	Tire PSI:LF___ RF___		(28)___	Antifreeze protection _____ deg.	
	LRO___ LRI___ RRO ___ RRI___		(29)___	Engine:oil added ____qt.	___
(10)___	Tire Tread:LF___ RF___		(30)___	Drain fuel/water separator	___
	LRO___ LRI___ RRO ___ RRI___		(31)___	Engine belts(adjust all)	___
(11)___	Ent.steps/handrails	___	(32)___	Trans:fluid added _____	___
(12)___	Door controls(all)	___	(33)___	Drive shaft	___
(13)___	Warning buzzers(all)	___	(34)___	Diff:lube added ___	___
(14)___	Bus body glass (all)	___	(35)___	Springs/hangers	___
(15)___	WS Wipers (arm travel)	___	(36)___	Lettering/paint	___
	Washer fluid added_____		(37)___	Body & sheet metal damage	___
(16)___	Sun Visor	___	(38)___	WC mounts(if equipped)	___
(17)___	Horn	___	(39)___	WC lift(if equipped)	___
(18)___	Lights (all)	___	(40)___	Governor_____ MPH max.	_____
(19)___	Turn signals/cancel	___	(41)___	Check travel angle	___
(20)___	Mirrors (all)	___	(42)___	Brake stroke meas.	___
(21)___	Dash instruments (all)	___		LF____ RF____ LR____ RR____	

ROAD TEST COMPLETED ___ w/OPTIONAL BRAKE METER TEST ____%

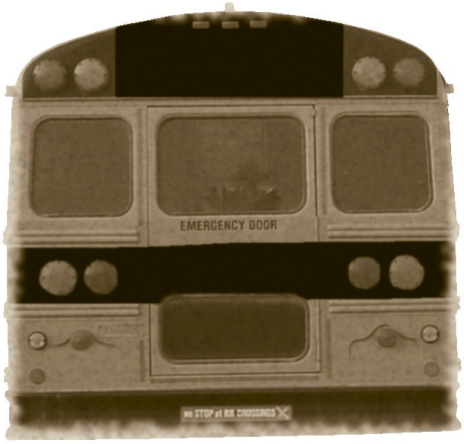
REMARKS:

_____

MECHANIC'S SIGNATURE _____

SUPERVISOR'S SIGNATURE _____ DATE _____

Paint Scheme for Buses Being sold to the Public.



APPENDIX G

Sample Forms

Inventory Receipt Report - TD-21

Vendor: _____

Invoice Number: _____

Date: _____

Material Document Number: _____

Purchase Order Number: _____

Quantity	DOT Number	Manufacturer Number	Description	Unit Price	Total	Storage / Bin Location
	< Total Qty.			Total >		

TD-28D Bus Driver Sign-In Sheet

SCHOOL: _____ DATE: _____ PRINCIPAL: _____

BUS NO	TIME ARRIVED	IF BUS IS O.K. HERE	NO. TRANSPORTED	REMARKS TO MECHANIC	BUS DRIVER (SIGN)

TD-28S Service Call Log

Updated April 17, 2006

BUS NO	Time Recorded	Phone Called From	Nature of Trouble	Actual Problem	Mechanic	Problem Resolved

Date	Time	Temp	**Weather:**	Clear	Cloudy	Overcast	Raing	Fog	Frost	Snow
			[redacted]							
			[redacted]							

DATE: _____

TD-28R Reported Bus Defects Log

Updated April 17, 2006

BUS NO	Time	Defect	Assigned Mechanic	Date Corrected

Spare Bus Assignments – TD-27

Updated 04/17/2006

Spare Bus #	Bus # Spare is Replacing	Reason	Date Assigned	Temporary Location of Spare	Date Returned to Garage

BUS SALE FORM – TD-6B

DATE: _____

COUNTY: _____

TRANSPORTATION DIRECTOR: _____
SIGNATURE

Enclosed is check # _____ in the amount of $_____
In payment for the vehicle(s) listed below.

Checks should be a cashier check or money order made out to NC Department of Public Instruction. (PERSONAL CHECKS ARE NOT ACCEPTED)

Bus/ Vehicle #	Model Year	Make	VIN #	Sale Price

Sold To: (Name) _____

(Address) _____

_____

(Phone) _____

Please send the check (made out to NCDPI) and this completed form for processing to:

NCDPI -Transportation Services
6319 Mail Service Center
Raleigh, NC 27699-6319

http://www.ncbussafety.org/StateForms.html *Updated April 3, 2006*

Local Scrap Metal Sale Form – TD-6M

DATE: _____

COUNTY: _____

TRANSPORTATION DIRECTOR: _____
SIGNATURE

Enclosed is check # _____ in the amount of $_____

Checks should be a cashier check or money order made out to NC Department of Public Instruction. (PERSONAL CHECKS ARE NOT ACCEPTED)

Lot Weight	Sale Price

Sold To: (Name) _____

(Address) _____

_____

(Phone) _____

Please send the check (made out to NCDPI) and this completed form for processing to:

NCDPI-Transportation Services
6319 Mail Service Center
Raleigh, NC 27699-6319

http://www.ncbussafety.org/StateForms.html *Updated April 3, 2006*

Scrap Tire Pick Up Form – TD-6T

FROM: _____ County Schools

_____ Transportation Director

_____ Phone Number

SUBJECT: Sale of Used Tires

Used tires in the quantity listed below were picked up by North & South Truck Tire Sales

_____ Date Contractor was contacted

_____ Date scheduled for pick up

_____ Date contractor arrived

_____ Number of tires picked up

_____ Total cost **(number of tires X $1.05)**

Transportation Director Signature: _____

North & South Truck Tire Representative: _____

Please fax a copy of this completed form to DPI – Transportation Services at (919) 807-3578 and make a copy for the representative when tires are picked up.

Please make any comments or concerns you have about this service in the space below.

Updated April 3, 2006

http://www.ncbussafety.org/StateForms.html