COLORADO
Department of Education
School Finance and Operations Division

Annual Inspection and Maintenance Resource Guide

2025

SCHOOL TRANSPORTATION UNIT

http://www.cde.state.co.us/transportation

Introduction

The Colorado Department of Education (CDE) School Transportation Unit has promulgated this resource guide to assist public school districts, charter schools, as well as Boards of Cooperative Educational Services (BOCES) with developing policies and procedures for the safe transportation of students. These guidelines provide manufacturer recommendations, industry standards, and best practices that are consistent with the Colorado Minimum Standards Governing School Transportation Vehicles, 1 CCR 301-25, and the Colorado Rules for the Operation, Maintenance, and Inspection of School Transportation Vehicles 1 CCR 301-26. This publication is intended to serve as a transportation provider resource toward compliance with legislation and regulations.

Acknowledgments

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Vehicle Inspection Program

Vehicle Inspection Program

This program is established to ensure reasonable and adequate standards of safety and inspection of vehicles used to provide transportation and support student programs.

The CDE School Transportation Unit shall be responsible for administering and monitoring this inspection program to ensure compliance.

This guide is structured to provide the information, form instruction, and criteria for operating a comprehensive Vehicle Inspection Program. Along with program requirements, this guide contains information for record-keeping, forms for reporting and recording the inspections, and procedures for inspecting the various vehicle components/systems.

This guide should clarify many of the gray areas that occur when operating a Vehicle Inspection Program. However, this guide will not answer all technical or interpretive questions, nor will it eliminate the need for trained personnel to exercise professional judgment when performing vehicle inspections.

The emphasis of ALL vehicle inspections is "SAFETY" and in every case, the districts, charter schools, certified outside inspection sites, and inspectors must exercise judgment to ensure the greatest degree of safety for vehicle operators, passengers, and other motorists.

Resources used in the preparation of this guide are as follows:

- 1 CCR 301-25 Colorado Minimum Standards Governing School Transportation Vehicles http://www.cde.state.co.us/transportation-3
- National Standards for School Buses and Operations https://www.nasdpts.org/resources/Documents/NCSTFiles/NCST%202015%20Specifications%20and%20Procedures%204.20.18.pdf
- Federal Motor Vehicle Safety Standards https://www.ecfr.gov/current/title-49/subtitle-B/chapter-V/part-571
- Service and Repair Manuals from various school bus body and chassis manufacturers
- Other Industry Standards for Maintenance and Repair Procedures

Inspection and Preventive Maintenance requirements can be found in the following two documents:

- 1 CCR 301-25 Colorado Minimum Standards Governing School Transportation Vehicles http://www.cde.state.co.us/transportation-3
- 1 CCR 301-26 Colorado Rules for the Operation, Maintenance and Inspection of School Transportation Vehicles http://www.cde.state.co.us/transportation-5

State Statute

Colorado law provides for the State Board of Education to adopt and enforce regulations governing the safe operation of school buses used for the transportation of students pursuant to Sections 22-51- 107, 22-51-108, and 42-4-1904 C.R.S.

Exemptions

1CCR 301-26

1.3 The Commissioner, or designee, may provide an exemption to the Rules for the Operation, Maintenance, and Inspection of School Transportation Vehicles to the extent the Commissioner finds an exemption to beappropriate.

Non-Compliance

1CCR 301-26

3.2 CDE shall revoke or suspend the certificate for a school transportation annual inspector, school transportation annual inspector hands-on tester, school transportation entry-level driver instructor, CDE ELDT hands-on trainer, or inspection sites under the following circumstances:

3.02(a) A school transportation annual inspector, school transportation annual inspector hands-on tester, school transportation entry-level driver instructor, CDE ELDT hands-on trainer, or inspection site does not meet the requirements outlined in these rules; or

3.02(b) School transportation annual inspections, school transportation entry-level driver instruction, or hands-on training and tests have not been properly conducted.

Any school district not in compliance with these rules and regulations shall not be entitled to any transportation fund reimbursement pursuant to Section 22-51-107, C.R.S. as amended.

Annual Inspection

Annual Inspection Requirements

A CDE Inspection Site Certificate is required at each facility/location where annual inspections for school transportation vehicles are performed. The district or service provider shall post the CDE Inspection Site Certificate at the inspection site.

School districts and service providers shall ensure all school transportation vehicles and trailers pursuant to 1 CCR 301-26-R-12.1 have a CDE Annual Inspection conducted by a CDE Certified Annual Inspector.

Recently purchased school transportation vehicles shall successfully pass a CDE annual inspection completed by a qualified and certified CDE Annual Inspector prior to transporting students.

All annual inspection criteria of school transportation vehicles must meet or exceed the manufacturer's specifications and the Colorado Minimum Standards 1 CCR 301-25. The annual inspection shall be documented and shall include at a minimum all fields listed on the CDE Annual Inspection and Preventive Maintenance Requirements Form (STU- 26).

All annual inspection criteria of trailers must meet or exceed the manufacturer's specifications and shall include at a minimum all fields listed on the CDE Trailer Annual Inspection and Preventive Maintenance Requirements Form (STU-27). This applies only to trailers that will be towed by a small-capacity vehicle transporting students to the extent that trailering is a necessary component of a district sponsored program.

Annual inspection results shall be documented on the CDE Affidavit of Annual Inspection for School Transportation Vehicles Form (STU-25). A copy of the current Affidavit is maintained inside the vehicle and a copy is placed in the vehicle file.

During the annual inspection, all four wheels shall be pulled for a full inspection of the foundation brake system. The three exceptions (which are a minimum standard, some inspection facilities require a higher standard) are:

- School transportation vehicles with fewer than 4,000 miles since the previous annual inspection shall have two different wheels pulled (one front and one rear) than those pulled for the previousinspection.
- School transportation vehicles shall have two different wheels pulled (one front and one rear) than those pulled for the previous inspection.
- Trailers pursuant to 1 CCR 301-26-12.05(c) shall have 50 percent of the wheels pulled different than those pulled for the previous inspection.

If personnel not certified as an inspector are assisting a certified inspector, those individuals may inspect vehicle components/systems provided the certified inspector ensures they are properly trained in inspection procedures and the associated repair/out-of-service criteria. In such cases, the certified inspector remains responsible for the proper inspection of all items.

For the purposes of this program:

- Use of the term "vehicles" shall be understood to include all school buses, multifunction buses, and small-capacity vehicles used for the

transportation of students.

- Use of the term "inspection" shall be understood to mean a full and complete CDE Annual Inspection.
- An "inspection" cannot be completed on a nonoperational vehicle.

Preventative Maintenance Brake Inspections

PM Brake Inspection and Documentation Requirements

Hydraulic Brake System Checks

1 CCR 301-26, 13.00

13.11 The preventive maintenance inspection interval of hydraulic brake systems shall not exceed 6,000 miles and shall include, at a minimum, inspection and documentation of:

Required

Master Cylinder Fluid Level
Clarity Inspect for Brake Fluid
Leakage Adequate pedal reserve
Proper Hydraulic/Vacuum Assist
Operation Parking Brake Operation

Air Disc Brake System Checks

1 CCR 301-26, 13.00

13.10 The preventive maintenance inspection interval of air disc brake systems shall not exceed 6,000 miles and shall include, at a minimum; inspection and documentation of:

Required

Air Disc Brake Rotor Inspection
Mechanical Wear Indicator Inspection
Running Clearance Inspection

Optional (Recommended)

Governor Cut-in PSI_____ Cut-out PSI _____

Warning Lamp and Buzzer Operation
Application Test
Check Valve Test
SR-1 Valve Test
Park Brake Test
Service Brake Test

Air Drum Brake System Checks

Required

Air Drum Brake Rod Travel RF_____LF_____RR_____LR_____

Optional (Recommended)

Governor Cut-in PSI _____ Cut-out PSI _____

Warning Lamp and Buzzer Operation
Application Test
Check Valve Test
SR-1 Valve Test
Park Brake Test
Service Brake Test

13.9 The preventative maintenance inspection on air drum brake systems shall include, at a minimum, that the brake rod travel has been measured and documented. The applied pressure method shall be used.

13.09(a) The inspection interval shall not exceed 4,000 miles for buses equipped with a manual slack adjuster air brake system.

13.09(b) The inspection interval shall not exceed 6,000 miles for buses equipped with an automatic slack adjuster air brake system.

Brake Inspector Requirements

1 CCR 301-26, 13.00 Maintenance and Repair

13.12 If brake adjustment or repair is needed, the work shall be completed by or supervised by a DOT or equivalent qualified brake inspector meeting the requirements of the Federal Motor Carrier Safety Regulations, 49 CFR section 396.25. In addition, these regulations are available at https://www.ecfr.gov/.

Equivalency to the requirements of 49 CFR 396.25 would be, for example, an ASE Certification for the type of braking system that is being worked on.

A Brake Inspector Qualification Form (STU-24) meeting the requirements of 49 CFR 396.25, can be found on the forms page on the CDE website at
http://www.cde.state.co.us/transportation/transform

Guidance Q and A

Question 1: Does a CDL with an air brake endorsement qualify a person as a brake inspector under §396.25?

Guidance: **No.**

Certifications

Certification

Certification for the CDE Vehicle Inspection Program is divided into three categories:

- CDE Annual Inspector
- CDE Hands-On Tester
- CDE Inspection Site

Certifications for the categories of CDE Annual Inspector and CDE Hands-On Tester shall be valid for three (3) years from the date of issue and require re-certification every three (3) years thereafter. Site Certifications are valid if the site meets 1 CCR 301-26, 4204-R-11.00 requirements.

CDE Annual Inspector

This certification ensures that the Inspector is knowledgeable of **1 CCR 301-25 Colorado Minimum Standards Governing School Transportation Vehicles, 1 CCR 301-26 Colorado Rules For The Operation, Maintenance, and Inspection Of School Transportation Vehicles**, the requirements for record-keeping, and that they have a general knowledge of how to conduct an actual vehicle inspection. This certification requires the individual to score a passing grade on a closed book written test and pass a CDE Hands-On Test. The CDE Annual Inspector Candidate must submit a CDE Application for CDE Annual Inspector Qualification or Recertification Form (STU-20) to CDE verifying all requirements have been satisfied.

CDE Annual Inspector Qualification Requirements from 1 CCR 301-26, 4204-R-8.00

8.1 A school transportation annual inspector is a person qualified to perform annual inspections on a school transportation vehicle to confirm the vehicle complies with CDE regulations.

8.2 School transportation annual inspectors shall meet or exceed the following requirements:

8.02(a) The school transportation annual inspector shall possess a valid driver's license with the proper class and endorsements for the size and type of vehicle(s) to be inspected.

8.02(b) The school transportation annual inspector shall provide to the school district, charter school, or service provider a Brake Inspector Qualification Certificate meeting the requirements of the Federal Motor Carrier Safety Regulations, 49 CFR section 396.25.

8.02(c) The school transportation annual inspector shall have at least two years of verifiable experience in the maintenance of light, medium, or heavy-duty vehicles.

8.02(d) The school transportation annual inspector shall successfully pass the CDE initial hands-on performance test proctored by a certified school transportation annual inspector hands-on-tester.

8.02(e) The school transportation annual inspector shall successfully pass the CDE annual inspector qualification written test initially, and every three years

thereafter pass the CDE annual inspector recertification written test.

8.02(e)(1) When the test is given in paper format, a representative of the school district, Charter school, or service provider, other than a school transportation annual inspector candidate, shall grade the written test.

8.02(f) The school transportation annual inspector shall have training on the maintenance of electric vehicles prior to inspecting an electric vehicle.

8.3 A school district, charter school, service provider, or operator of an inspection site may submit a CDE Application for CDE Annual Inspector Qualification or Recertification Form (STU-20) to CDE verifying that the above requirements have been satisfied. CDE will then issue an Annual Inspector Certificate.

8.4 If any of the above requirements become invalid, the annual inspector certificate is invalid until the requirement(s) is made valid.

8.5 If a school transportation annual inspector has an expired certificate, the certificate can be recertified as follows:

8.05(a) If the certificate has been expired less than six months, then the CDE Annual Inspector Recertification Written Test is required.

8.05(b) If the certificate has been expired between six and 12 months, then the CDE Annual Inspector Qualification Written Test is required.

8.05(c) If the certificate has expired for more than one year, then both the CDE Annual Inspector Qualification Written Test and the CDE hands-on performance test are required.

Annual Inspector Qualification File Requirements (IQF)

Required Documents

- Current Copy of Operator License 8.02(a)
- Brake Inspector Qualification Certificate 49 CFR 396.25 and8.02(b)
- Documentation verifying two (2) years of experience (resume, job history) 8.02(c)
- CDE Initial Hands-On Performance Test (score sheet)8.02(d)
- CDE Annual Inspector Written Test (graded answer sheet)8.02(e)
- Proof of Electric Vehicle Training *IF APPLICABLE* 8.02(f)
- Signed Job description 4.1

Suggested Documents

1. Copy of STU-20 Application
2. Copy of qualification letter
3. Copy of Certificate

CDE Hands-On Tester

This certification ensures the CDE Hands-On Tester has the qualifications and knowledge to proctor the CDE Hands-On Test to a CDE Annual Inspector Candidate. Certification requires a minimum of two years of experience as a CDE Annual Inspector, to have satisfactorily completed a four-hour CDE School Transportation Annual Inspector Hands-On Tester training, and to have completed a four-hour brake training in the last three years or have maintained an ASE School Bus or Medium/Heavy Duty Truck or Transit Bus Brake Certification. The CDE Annual Inspector Hands-On Tester Candidate must submit a CDE Application for CDE Annual Inspector Qualification or Recertification Form (STU-30) to CDE verifying that all requirements have been satisfied.

CDE Hands-On Tester Qualification Requirements from 1 CCR 301-26, 4204-R-9.00

9.1 *A School transportation annual inspector hands-on tester is a person qualified to proctor hands-on tests to annual inspector candidates.*

9.2 *School transportation annual inspector hands-on testers shall meet or exceed the following requirements:*

9.02(a) *The school transportation annual inspector hands-on tester shall have a current CDE Annual Inspector certificate and maintained it for a minimum of two years.*

9.02(b) *The school transportation annual inspector hands-on tester shall have satisfactorily completed a minimum of four hours of verifiable medium/heavy brake system training in the last three years or have maintained an ASE School Bus or Medium/Heavy Duty Truck or Transit Bus Brake Certification.*

9.02(c) *The school transportation annual inspector hands-on testers shall have completed a minimum of four hours of verifiable medium/heavy brake system training in the last three years or have maintained an ASE School Bus or Medium/Heavy Duty Truck or Transit Bus Brake Certification.*

9.02(d) *The school transportation annual inspector hands-on tester candidate shall submit a CDE Application for the Qualification/Recertification of a CDE Annual Inspector Hands-On Tester Form (STU-30) verifying that the above criteria have been satisfied. CDE will then issue an Annual Inspector Hands-On Tester Certificate.*

9.02(e) *The school transportation annual inspector hands-on tester shall conduct at least two hands-on tests every three years or attend a CDE school transportation annual inspector hands-on recertification training to recertify as a school transportation annual inspector hands-on tester.*

9.3 If any of the above requirements become invalid, the hands-on tester certificate is invalid until the requirement(s) is made valid, by retaking the tester training class in rule 9.02(b).

Hands-On Tester Qualification File Requirements

Required Documents

- Copy of a current Annual Inspector Certificate showing that the tester has maintained a CDE Annual Inspector certificate for a minimum of two years prior to application 9.02(a)
- Evidence that the tester has satisfactorily completed a four-hour CDE School Transportation Annual Inspector Hands-On Tester training 9.02(b)
- Evidence that the tester has completed a four-hour brake training in the last three years or has maintained an ASE School Bus or Medium/Heavy Duty Truck orTransit Bus Brake Certification 9.02 (c)
- If the Annual Inspector Hands-on Tester has recertified, evidence that they have attended a recertification class or have proctored two hands-on tests shall be in this file.

Hands-On Tester Documentation Files

The Hands-On Tester should maintain a separate file for each applicant that has been tested. The file should include copies of the:

1. Hands-On Test Checklist STU-19
2. The Hands-On Test Score Sheet STU-21
3. Application shows that all requirements except the Hands-On Test have been completed and signed by a supervisor. (The Hands-On Tester does not complete the score line or initial this document upon completion of the test. This is done by the applicant's supervisor.) STU-20

The applicant should keep their original copy of the STU-20 and get a copy of the Hands-On Test Score Sheet STU-21 for their IQF.

CDE Site Certification

The site certification verifies that the school district shop or independently owned repair facility has met the basic health and safety requirements to qualify as a CDE Inspection site and that the proper tools and equipment are available at the time that a CDE Annual Inspection is being done.
The district or service provider shall submit a request for an inspection site certificate on the CDE Application for Inspecting Site Certification Form (STU-22) indicating that all criteria have been satisfied.

CDE Site Certificate Requirements from 1 CCR 301-26, 4204-R-11.00

11.1 A CDE Inspection Site Certificate is required at each facility/location where annual inspections for school transportation vehicles are performed.

11.2 The inspection site shall meet or exceed the following criteria to acquire and maintain an inspection site certificate:

11.02(a) The inspection site shall be large enough to accommodate the vehicle, equipment, and tools necessary to perform the inspection.

11.02(b) The inspection site shall have a floor surface or pad adequate to safely support the maximum weight of the largest vehicle to be inspected.

11.02(c) The inspection site shall have adequate lighting and ventilation.

11.02(d) The inspection site or inspector shall, at the time of inspection, have the equipment and tools necessary to properly complete the annual inspection.

11.02(e) The inspection site or inspector shall have tools designed and calibrated to take accurate readings of appropriate measurements, such as brakes and tires.

11.3 The operator of an inspection site shall submit a request for an inspection site certificate on the CDE Application for Inspecting Site Certification Form (STU-22) that the above criteria have been satisfied.

11.4 The operator of an inspection site shall post the CDE Inspection Site Certificate at the inspection site.

Study Materials and Documents Needed to Prepare for Annual Inspector Certification Testing and Qualification

Study materials for the Hands-On Test are listed in numbers 1 and 2 below and may be found in this section, beginning on the next page. The Introduction to the Hands-On Performance Test, the Guide for the Operational Check of Air System listed in 1 and 2 below, and the STU-19 cannot be used by the applicant for reference during the hands-on test. The applicant may use the STU-26 Checklist for reference and to demonstrate proper documentation.

The written test questions are based on the rules listed in numbers 3 and 4 below. The written test is a closed-book test. CDE rules listed below can be found in the Rules Appendix of this guide or at the CDE website at http://www.cde.state.co.us/transportation/guidelinesandregulations

Copies of the current forms listed below can be located on the CDE website at http://www.cde.state.co.us/transportation/transform

- Introduction to the Hands-On Performance Test
- Guide for the Operational Check of Air System One Way Check Valves, Double Check Valve, and SR-1 Valve
- Rules for the Operation Maintenance and Annual Inspection of School Transportation Vehicles 1 CCR 301-26
- Colorado Minimum Standards Governing School Transportation Vehicles 1 CCR 301-25 (Current Version)
- STU-13 CDE Annual Inspector Test Answer Sheet
- STU-19 Hands-On Tester Checklist
- STU-20 Application for CDE Annual Inspector Qualification or Recertification
- STU-21 Annual Inspector Hands-On Performance Test Score Sheet
- STU-24 CDE Brake Inspector's Qualification Certificate
- STU-25 Affidavit of Annual Inspection for School Transportation Vehicles
- STU-26 CDE Annual Inspection/Preventative Maintenance Checklist

- STU-27 Trailer Annual Inspection/Preventative Maintenance Checklist

Hands-on Performance Test

Introduction to the Hands-On Performance Test

Revised September 2015

Since the purpose of this test is to determine the applicant's knowledge of what areas to inspect and how the applicant would know if something did not meet inspection standards, the score shall not be deducted, or the test shall not be terminated if certain items to be checked do not apply to the bus or vehicle being inspected.

The applicant must know about vehicle mechanics and be able to recognize components. The applicant must know if the bus being inspected is safe and meets inspection criteria established by the Colorado Department of Education.

The applicant needs to verbalize all items, procedures, and criteria, to confirm to the tester what the applicant is inspecting.

Since the applicant must be familiar with references, the applicant shall be allowed to use any reference available except for this Introduction when taking the Hands-On Test. (The CSPTA Reference Manual for School Bus Technicians, and Service Manuals are permitted). The CDE Annual Inspection Form is recommended.

Portions of the test will require one item, as a minimum, to be inspected where there are several items the same (tires, wheels, seats, windows, etc.). The applicant will be required to inspect just one item, with the understanding that an actual inspection would require every item to be inspected.

Hands-On Test Components

Air Brakes

Description: Applicant's procedures to be followed in the AIR BRAKES Hands-On Test. Note: Air brake check procedures vary from vehicle to vehicle and mechanic to mechanic. Different applicants may have learned different procedures. However, all procedures must be designed to see that the correct safety devices operate at the correct times.

Scoring Standard: Applicant should be able to perform and document (when needed) the following AIR BRAKE SYSTEM checks.

Air Brake Checks (inside the cab)

Items to be tested:

1. Warning Light/ Buzzer
2. Park Brake Valve operation (PP-1)
3. Air system build-up time
4. Cut-in and cut-out pressures
5. Air consumption on one full application
6. Air loss on full application held for 1 minute
7. ABS System operation and light

Procedure for testing listed items above:

- Fanning off the air pressure with the brake pedal, the applicant should note that both the warning light and buzzer do come on and at what pressure. (approximately 60 psi ± 10).
- Fanning off more air pressure, the applicant should note that the PP-1 valve pops and at what pressure. (should be 20 - 40 psi).
- With the engine off, and fan off, all the air in the system. The applicant should restart the engine and set an RPM of approximately 1200 - 1500 and note the time to rebuild the system to 120 psi (approximately 4 minutes).
- Restart the engine and rebuild the air system to cut out pressure. With the engine running, Fan off air pressure to the cut-in pressure and note. (should be a minimum of 85 psi).
- With primary and secondary air at system cut-out pressure applicant should (engine off, key on) make one full brake application. (Air consumption should be noted (10 psi ±2).
- Holding the brake application for 1 minute, the applicant should note the air drop. (Not more than 3 psi).
- With your foot on the brake pedal, turn the key on, and listen for each valve to exhaust. After taking your foot off the brake pedal, turn the key off then turn it back on, and listen for all ABS solenoids cycling. After tests, the ABS light should cancel (some models may differ). Perform any other tests as required by the manufacturer.

Air Brake Checks (valves)

Items to be tested:

1. One-way valves
2. Two-way valves
3. SR-I valve/system
4. Safety valve Procedure for testing items above:

Note: Procedures for testing items above are suggestions only. The applicants, school districts, or manufacturer's procedures may differ, and still be as effective.

- With the primary and secondary air at system cut-out pressure and engine off, the applicant should drain the wet tank (noting that primary and secondary tanks remain at full pressure).
- Applicant should then drain the secondary tank (noting that the primary tank remains at full pressure). Restart the engine and rebuild the air system to cut out pressure. With the engine off, the applicant should drain the primary tank (noting that the secondary tank remains at full pressure).
- Now, with an assistant applying the brakes, the applicant should watch to see that the primary brakes (rear) apply (noting that the SR-1 valve/system is working).
- With system pressure building the applicant should pull out the safety valve to make sure that it releases air.

Air Brake Checks (under the bus)

Items to be checked:

1. Air Dryer (if applicable)
2. Tanks (wet (supply), primary, and secondary)
3. Hoses (routing and condition) and ABS wiring

The procedure for inspecting the items above shall be visual and the applicant should verbalize items such as proper drain, proper mounting, condition, and hoses have proper routing.

- The applicant should verbalize the fact that if there is no air dryer the wet tank shall have a water ejection valve and a safety valve.

Air Brake Checks (under the hood)

Items to be checked:

1. Air Compressor
2. Drive Belt (if applicable)
3. Compressor, Governor, and Line Mountings
4. Coolant Lines and Fittings
5. Oil Lines and Fittings
6. Filter System
7. General condition and leaks

The procedure for the listed items above shall be visual and verbal

- If the compressor is not belt driven the applicant should verbalize this fact.

Air Brake Checks (foundation)

Items to be checked:

1. Shoes or pads
2. Measurement and documentation of shoes and/or pads
3. Mounting
4. Drums or Rotors
5. Measurement and documentation of Drums or Rotors
6. Brake Chambers
7. Slack Adjusters (automatic test failure if not commented, not adjusting Auto Adjuster)
8. Calipers (Air gap, and piston movement/free play)
9. ABS tone ring and sensor

Procedure for the listed items above shall be visual and verbal as well as showing the ability to demonstrate how to measure both shoes/pads and drums/rotors.

- The applicant should visually inspect the shoes/pads and verbalize items like wear, cracking, heat problems, and contamination, or shoes/pads loose from the base.
- The applicant should demonstrate the measurement of shoes/pads and either document

or verbalize doing so.

- The applicant should physically and visually inspect the shoe/pad mounting and verbalize items like hold-down pins, springs, anti-rattle springs or clips, rollers, s-cams, and s-cam bushings.
- The applicant should physically and visually inspect drums/rotors and verbalize items like cracks, hard spots, heat discolored, orbelled.
- Applicant should demonstrate the proper method of measuring the drums/rotors checking for out-of-roundness, run-out, and over/under sizing, and either document or verbalize doing so according to manufacturerspecifications.
- The applicant should visually inspect the brake chamber/caliper and verbalize items like mounting condition, sizing/matching, dents, connectors, andlines.
- The applicant should visually inspect the slack adjusters and verbalize items like splines, clevis locknuts, 90° angle.
- The applicant should visually inspect the brake caliper, dust boot, mounting bolts, and caliper slide for proper operation and seal condition.
- Visually inspect the ABS tone ring and sensor for mounting, corrosion, and overall condition.

Air Brake Checks (adjustment)

Items to be checked:

1. The applicant will demonstrate how to adjust the brakes
2. The applicant will demonstrate or verbalize documentation of chamber rod travel
3. The applicant will demonstrate or verbalize documentation of the air gap check.

The procedure for the air drum brake adjustment check shall be the applied method:

- The applicant should verbalize the fact that a system has automatic slack adjusters.
- The applicant should demonstrate or verbalize the proper adjustment procedure for either type of slack adjuster (manual vs automatic). This includes verbalizing that automatic slack adjusters are NOT to be adjusted.
- The applicant should demonstrate the proper method of measuring anddocumenting rod travel.

Procedure for the air disc brake air gap check and adjustment:

- The applicant shall demonstrate or verbalize the manufacturer's procedure for checking the pad-to-rotor clearance and documentation. This will include the proper adjustment procedure.
- The applicant should demonstrate and verify that the caliper movesfreely.

Guide for the Operational Check of the Air System One Way Check Valves, Double Check Valve, and SR-1 Valve

Listed below are the recommended procedures to perform these checks.

- With the primary and secondary air pressure at the system cut-out pressure and the engine off, the technician should drain the wet tank. The primary and secondary tanks should remain at full pressure.

- Chock the wheels and release the spring brake. The technician should drain the secondary air tank. The primary air tank should remain at full pressure. Thepark brake valve should not pop out or set.
- Restart the engine and build the air pressure to system cut-out pressure.
- With the engine off and the wheels chocked, ensure that the spring brake is released. The technician should drain the primary air tank. The secondary air tank should remain at full air pressure. The park brake valve should not pop out of set.
- With an assistant applying the brakes the technician should watch to see that the primary brakes (rear) apply. This is checking to ensure that the SR-1 valve is working. There should be air available to make 3 – 5 brake applications before the spring brakes set.
- If the park brake valve pops out or sets during test steps #2 or #4 the double-check valve is defective and should be replaced.
- If the air pressure drops in any of the tanks other than the one being drained during steps #1, #2, or #4, one of the one-way check valves is defective and should be replaced.
- The green needled air pressure gauge or the (F) on Bluebird TC models indicates the primary air gauge/tank. The red needled air pressure gauge or the (R) on Bluebird TC models indicates the secondary airgauge/tank.

Hydraulic Brakes

Description: The applicant procedures to be followed in the hydraulic brake hands-on test.

Note: Hydraulic brake check procedures vary from vehicle to vehicle, and mechanic to mechanic. Different applicants may have learned different procedures. However, all procedures must be designed to see that the correct safety devices operate at the correct times.

Scoring Standard: The applicant should be able to perform and document (when needed) the following hydraulic brake checks.

Hydraulic Brake Checks (inside the cab)

Items to be checked:

1. Warning Light/Gauge (if applicable)
2. Warning Buzzer (if applicable)
3. Power Assist System
4. ABS Light (if applicable)
5. Parking Brake Pedal or Hand Lever

Procedure for testing the above items:

- The applicant should check that all warning lights work.
- The applicant should check that the buzzer system works (ifapplicable).
  - If equipped with an electric booster, the applicant should check that the electric motor runs when the brake is applied (key on or off).
- The applicant should be able to check the operation of the power assist system.
  - Check for proper pedal effort and pedal drop.

- Check for assist in pedal operation.
- The applicant should check to see that the ABS Light comes on with an initial start and goes off shortly (if applicable).
- The applicant should check that the parking brake pedal or hand lever does apply the parking brake and does return to the off position freely.
- Bring the engine to 1,000 RPM with the parking brake applied. The vehicle should not move.

Hydraulic Brake Checks (valves)

Items to be checked: (all if applicable)

1. Load Leveling Valve
2. Proportioning or Combination Valve
3. ABS Valve or System
4. Pressure Valve for electric/Hydraulic Boost

Procedures for testing the items above:

- The applicant should check to see that all lines and linkage to the load-leveling valve are intact and free to operate.
- The applicant should check to see that all lines and wiring to the proportioning or combination valve are intact.
- The applicant should check to see that all lines and wiring to the ABS valve or system are intact.
- The applicant should check that the electric motor on the power assist does run when the brake pedal is applied. (Key off or on, engine not running).

Hydraulic Brake Checks (under the bus)

Items to be checked:

1. Lines
2. Parking Brake Cables
3. Parking Brake

Procedures for testing the items above:

- The applicant should check for proper mounting, securement, condition, andleaks.
- The applicant should check for proper mounting, routing, andcondition.
- The applicant should visually check the overall condition and adjustment of the parking brake.

Hydraulic Brake Checks (under the hood)

1. Master Cylinder for fluid level and leaks and fluid condition
2. Lines for leaks, routing, and condition
3. Power Assist System for proper mounting and condition

The procedure for inspection of the items above shall be visual and the applicant should verbalize what the applicant is seeing.

Hydraulic Brake Checks (foundation)

1. Shoes and/or pads
2. Measurement and documentation of Shoes and/or Pads
3. Mounting hardware
4. Calipers and Wheel Cylinders
5. Drums or Rotors
6. Measurement and documentation of Drums or Rotors
7. Self-Adjusters
8. ABS tone ring and sensor
9. ABS Integrated Traction Control/Stability Control and related dash indicators.

Procedures for testing the items above shall be visual and verbal as well as showing the ability to demonstrate how to measure shoes, pads, drums, and rotors.

- The applicant should physically and visually inspect the shoes/pads and verbalize items like wear, cracking, heat problems, contamination, or loose from the base.
- The applicant should demonstrate the measurement of the shoes/pads and either document or verbalize doing so.
- The applicant should physically and visually inspect the shoe and/or pad mounting and verbalize items like: Hold-down pins, springs, anti-rattle springs or clips, and all remaining hardware.
- The applicant should physically and visually inspect the calipers and wheel cylinders and verbalize items like leakage, corroded slides, worn bushings, and any other hardware problems.
- The applicant should physically and visually inspect drums or rotors and verbalize items like cracks, hard spots, heat discolored, belled, out of round, warped, out of parallelism, or excessive runout.
- The applicant should demonstrate the proper method of measuring the drums/rotors document readings and compare them to manufacturer specifications. This should include a demonstration of the calibration of the brake drum/rotormicrometer.
- The applicant should visually inspect and verbalize that the self-adjuster is all intact and that it is operational.
- Visually inspect the ABS tone ring and sensor for mounting, corrosion, and overall condition.

Hydraulic Brake Checks (adjustment)

The applicant will demonstrate how to adjust the brake according to the manufacturer's specification and document.

The procedure for adjusting shall be one of an industry standard with the result being a firm brake pedal with adequate brake pedal reserve and no brake drag.

Exhaust

Description: The applicant should be able to check the following components.

Scoring Standard: The applicant should be able to perform the following exhaust checks.

Hangers and Shields

Items to be checked:

1. Hangers and Shields condition
2. Hangers and Shields security
3. Proper distance

Procedure for testing items above:

- Check all hangers and shields for severe rust and corrosion, and free from bends or other damage that may affect the performance of the hanger or shield.
- Check all hangers and shields for security to ensure performance/noise reduction.
- Check that the exhaust system is properly shielded where required.

Muffler, Manifold, Turbo, Emissions System

Items to be checked:

1. Exhaust or Oil leaks
2. Cracks
3. Gaskets/Donuts
4. Emissions System

Procedure for testing items above:

- Check for exhaust leaks at the muffler and manifold. Check for exhaust and oil leaks at the turbo (if applicable).
- Check for cracks in the manifold or turbo (if applicable), and check the muffler for seam cracks, or any other opening.
- Check the manifold or turbo gaskets (if applicable) and check the exhaust pipe flange gasket (donut) for proper sealing.
- Check all emissions-related components for leakage andsealing.

Exhaust Pipe; Tailpipe and Header Pipe(s)

Items to be checked:

1. Length
2. Leaks (visual inspection only)
3. Condition
4. Routing
5. Clamps

Procedure for testing items above:

- Check that the exhaust pipe meets 1 CCR 301-25 Colorado Minimum Standards Section 22.00.
- Check the entire length of the exhaust pipe forleaks.
- Check the condition of the entire exhaust pipe.
- Check that the entire exhaust system is routedproperly.
- Check all the exhaust system clamps.

Steering and Suspension

Description: The applicant should be able to check the following components.

Scoring Standard: The applicant should be able to perform the following steering and suspension checks.

Steering

Items to be checked:

1. Steering Wheel
2. Steering Column and Shaft
3. Steering Box
4. Steering Pump
5. Pitman Arm
6. Drag Link
7. Steering Knuckle
8. Tie Rod and Tie Rod ends
9. Wheel Bearings/Kingpins or Ball Joints
10. Castle Nuts/Cotter Pins
11. Steering Stabilizer Shock
12. Steering Radius Stops

Procedure for testing items above:

- The applicant should check (verbalize) for cracks, security, proper position and free play. Applicant should know how to find the free play criteria as listed in 49 CFR 570.60 https://www.ecfr.gov/current/title-49/subtitle-B/chapter-V/part-570/subpart-B/section-570.60
- Check for absence or looseness of U-bolts of positioning parts; worn, faulty, or repair-welded U-joints. Check the shaft bearingcondition.
- Check for leakage, hose condition, and mountingsecurity.
- Check the mounting, belt tension and condition, fluid level, hose condition, and overall satisfactory operation of the system.
- Check for security, cracks, and no welded repairs.
- Check the play in the ball and socket joints, there should not be any movement ofa stud nut under steering load, or any motion other than rotational of more than manufacturer specification.
- Check security and overall condition.

- Check for loose or missing clamps or clamp bolts, and looseness in any threaded joint. Check ball socket joints as per item in procedure (6).
- Check wheel bearings and kingpins for excessive play and freedom of movement. Verbally describe the inspection of the bearings if the hub was removed.
- Check security and cotter pin placement.
- Check security, damage, and leakage (if applicable).
- Check proper adjustment. (Tires not rubbing or chafing on turns. No binding).

Suspension

Items to be checked (one front and one rear axle):

1. Springs
2. Rubber Spring or Air Suspension (if applicable)
3. U-bolts
4. Spring Hangers, Spacers, Pins and Bushings
5. Shocks
6. Stabilizer Bars

Procedure for testing above items:

- Check for cracked, broken/missing leaves or coils. Check for leaves displaced in a manner that could result in contact with a tire, rim, brake drum, frame, etc.
- Check for deflated suspension (system failure, leaks, ride height, etc.). Check for broken or missing rubber springs and shifting or chafing ofcomponents.
- Check for torque, cracks, broken, loose, or missing U-bolts (verbalize the procedure for inspection of torque).
- Check for excessive wear, cracks, breaks, looseness, ormissing.
- Check for the integrity of rubber bushings or isolators to see that the shock is not broken, bent, or leaking and that the shock is secure.
- Check bushings and security of fasteners.

Tires and Wheels

Description: The applicant should be able to check the following components.

Scoring Standard: The applicant should be able to perform the following tire and wheel checks

Tread Depth and Inflation

Items to be checked:

1. Tread Depth
2. Inflation Pressure

Procedure for testing items above:

- Measure tread depth in 32nds of an inch. The measurement should be made in a major tread groove, in the area observed to have the least tread, but not at a wear bar. The

applicant should know the minimum allowable tread depth according to DOT specifications and documents.

- Measure inflation pressure, and compare the reading to the tire manufacturer's requirements, and vehicle manufacturer's specifications and document. The applicant needs only to do one tire from each axle but should understand that all tires are required for an actual inspection.

Tire Matching

Items to be checked:

1. Correct placement of radial or bias tires
2. Tire sizes on each axle
3. Size and Tire Tread on same axle

Procedure for testing items above:

- The applicant should check that radial and bias ply tires have not been mixed on the same axle. Different axles are OK.
- The applicant should check that tire sizes are matched on the same axle. Different axles are OK.
- The applicant should check that tire size and tire tread match between tires on the same axle.

Tire and Wheel Condition

Items to be checked:

1. Tires
2. Lug nuts
3. Wheels (rims)
4. Valve stem caps
5. Date code on tire (Age of casing)

Procedure for testing items above:

- The applicant should check tires for cracks, cuts, bulges, bruises, or excessive curbing.
- The applicant should check lug nuts for rusting (between the nut and wheel), and tightness.
- The applicant should check the wheel for cracks, broken welds, or excessive runout due to a bent rim. Also, the wheels on the same axle are the same size and width.
- The applicant should check that valve stem caps are installed.
- Compare and consider casing age and industrystandard.

Identification and Body

Description: The applicant should be able to check the following components.

Scoring Standard: The applicant should be able to perform the following IDENTIFICATION AND BODY checks.

Lettering and Paint

Items to be checked:

1. Lettering size
2. Clarity
3. Paint colors
4. ID coloring
5. Placement

Procedure for testing items above:

- Check all lettering for size and location per 1 CCR 301-25 (Colorado Minimum Standards).
- Check lettering for clarity.
- Check that body and bumper colors are following 1 CCR 301-25 (Colorado Minimum Standards).
- Check that ID lettering for condition and that it is in the appropriate colors and reflective backgrounds (when required). Check the retroreflective tape at emergency exits and on the sides of the bus for condition and compliance with FMVSS108.
- Check for proper placement of all lettering and identification.

Body Interior

Items to be checked:

1. Seats and panels
2. Flooring
3. Step well area
4. Windows
5. Interior storage

Procedure for testing items above:

- Check all seat cushions, seat backs, and panels for cuts, tears, and protruding sharp edges. Check that all seat cushions are securely fastened. Check seat frames for security. Check seat foam for integrity.
- Check flooring for rips or tears. Check for floor molding that has become loose.
- Check the step well area for non-skid flooring where required. Check the handrail for security, sharp protrusions, and areas that may grab loose clothing.
- Check windows for use of approved safety glass with a visible permanent mark. Check the windows for proper opening distance.
- Check interior storage areas for proper securement (mounted to the floor, ceiling, etc.), no sharp projections, etc.

Body Exterior

Items to be checked:

1. Bumpers and tow hooks
2. Body panels

Procedure for testing items above:

- Hood latches Check bumpers for security and proper construction.
- Bumpers should be free from severe bends or crimping.
- Check the body panels and rub rails for damage that may affect the integrity of the structure. Check for sharp or protruding edges.
- Check that the hood latches hold the hood secure.

Emergency Equipment

Description: The applicant's procedures are to be followed in the EMERGENCY EQUIPMENT hands-on test.

Scoring Standard: The applicant should demonstrate knowledge of the equipment involved.

Emergency Reflectors

Items to be checked:

1. Triangles
2. Triangle Storage Box
3. Triangle Storage Box
4. Mounting

Procedure for testing items above:

- The applicant should check the operation of the triangles and visually check the condition of each (a sealed box shall indicate a previous inspection and will not need to be unsealed).
- Check the storage box for the condition and operation of the lid.
- Check the storage box mounting for security and in a location easy to locate.

Fire Extinguisher

Items to be checked:

1. Fire Extinguisher size and rating
2. Operating mechanism
3. Mounting
4. Pressure gauge

Procedure for testing items above:

- Check the fire extinguisher for size, type, and rating.
  - School Bus 5-pound dry chemical, approved by UL, with a total rating of not less than 2A10BC.
  - Small Vehicle 2.5-pound dry chemical, approved by UL, with a total rating of not less than 1A10BC.
- Check the operating mechanism for a safety pin and a seal that will break easily and not interfere with the operation of the extinguisher once broken.
- Check the mounting bracket for operation, and that it securely holds theextinguisher.
- Check the pressure gauge for readability without removal from the bracket, and that the reading indicates charged. Look for the current extinguisher inspection tag. (1 CCR 301-25)

First Aid Kits

Items to be checked:

1. Location
2. Contents
3. Mounting
4. Kit size (rating)
5. Number of kits required

Procedure for testing items above:

- Check that the kits are in plain view (not obstructed or covered), or that the location is properly or clearly identified.
- Check that the contents are as they should be or are sealed indicating that they have been previously checked.
- Check that the kits are securely mounted, and the mounting isoperable.
- Check that the kit size matches the year of manufacture for the vehicle (24-unit kits are appropriate for all vehicles).
- Check that the kit requirements meet the minimum standards in place at the date of manufacture.

Body Fluid Cleanup Kit

Items to be checked:

1. Location
2. Contents
3. Mounting

Procedure for testing items above:

- Check that the kit is in plain view, or that the location is properly identified.
- Check that contents are as they should be or are sealed indicating that they have been previously checked.

- Check that the kit is securely mounted, and the mounting isoperable.

Emergency Exits and Doors

Description: The applicant should be able to check the following components.

Scoring Standard: The applicant should be able to perform the following EMERGENCY EXITS AND DOORS checks.

Alarms

Items to be checked:

1. Driver audibles
2. Switch condition
3. Switch enclosure

Procedure for testing items above:

- Check that the alarm (buzzer) is audible to the driver when seated in the driver's seat when an emergency exit is opened.
- Check the condition of the switch. Check the plunger, contacts, andcase.
- Check that the switch is enclosed and secure.

Ignition Interlock Systems (if applicable)

Items to be checked:

1. Back Emergency Door Switches
2. Side Emergency Door Switches and Wheelchair Lift Doors and Switches
3. Emergency Door and Starter Interlock Warning Buzzers
4. Circuit wiring and solenoids

Procedures for testing items above:

- Momentarily start the engine and shut it off, then with the back-door vandal lock secured, restart the engine. If the rear door switch is working, the engine should not restart.
  - Check the switch for secure mounting and covering.
  - Check that the emergency door buzzers sound when attempting a restart.
- Secure the vandal lock on the side emergency door (if applicable). Attempt to restart the engine. If the side emergency door switch is working, the engine should not restart.
  - Check the switch for secure mounting and covering.
  - Check that the emergency door and starter interlock buzzers sound when attempting a restart.
  - Repeat this procedure for each side emergency exit as applicable.
- By checking the performance of the interlock system as outlined above, you will have checked the operation of the circuit wiring and solenoids.
- Check the interlock solenoid(s) for secure mounting.
- Check the interlock wiring for proper routing (free from chafing andcuts).

Emergency Exits

Items to be checked:

1. Seals
2. Latches
3. Head Bumper
4. Door Assembly and Glass
5. Aisle Width at the door
6. Flip Seat (if applicable)
7. Hold-open device

Procedure for testing items above:

- Check seals of all doors, windows, and roof escape hatches for contact and leaks.
- Check all latches for security andintegrity.
- Check the head bumper pad for proper placement, cuts, tears, and security.
- Check the door for damage that may affect the integrity of the structure.
- Check the glass for approved type safety glass with a visible permanent mark and good visibility.
- Check for unobstructed aisle width at all emergency exits.
- Check for proper flip seat operation (if applicable).
- Check the hold-open device for proper operation.

Fuel Systems

Description: The applicant must be able to check the following components.

Scoring Standard: The applicant should be able to perform and document (if needed) the following FUEL SYSTEM checks.

Fuel Tank

Items to be checked:

1. Tank Mounting
2. Leakage
3. Tank Venting
4. Fuel Filler Cap
5. Tank Drain Plug
6. Fuel Door Interlock Switch (Alt. Fuel If applicable)
7. Tank Certification Date (Alt. Fuel If applicable)

Procedure for checking items listed above:

- Check the fuel tank for a secure mounting in an approved cage. Tank mounting should be free from wedged rocks or iron that could rub and possibly penetrate the tank.
- The tank should be checked for any visible leakage.
- Check the tank for proper venting outside the passenger area of the bus.
- Check the fuel filler cap for leakage and proper placement outside the passenger area of the bus.

- Check the fuel tank drain plug for leakage and proper placement. Check the size of the plug and check that it does not protrude beyond thecage.
- Check that the fuel door interlock switch works properly. With the fuel door open, the bus should not start.
- Check certification date.

Fuel Lines and Filters

Items to be checked:

1. Lines/Filters
2. Mounting
3. Condition

Procedure for checking items listed above:

- Thoroughly check all fuel lines/filters for leakage.
- Check that all fuel lines/filters are properly mounted andsecure.
- Check the condition of all lines/filters to ensure that they are free from cracking, kinks, chafing, crimping, or wear.

System Leaks

Items to be checked:

1. Carburetor or injection pump for leaks
2. Carburetor or injection pump mounting
3. Transfer pump for leaks and mounting

Procedure for checking items listed above:

- The carburetor or injection pump should be checked for fuel, oil, or air leaks.
- Check that the carburetor or injection pump is securely mounted.
- Check the transfer pump (electric or mechanical) for leakage and secure mounting.

Lighting

Description: The applicant procedures to be followed in the LIGHTING hands-on test.

Scoring Standard: The applicant should be able to perform (when needed) the following LIGHTING checks. LED lamp failure is above approximately 25 percent of LED's not working. (This is in keeping with the national standard with NCST).

Switches

Items to be checked:

1. Operation
2. Mounting

Procedure for testing items listed above:

- Check to see that the switches operate characteristically, are free from binding, and have defined detents to hold in position.
- Check that the switches are mounted securely.

Eight-way lights (complete system)

Items to be tested:

1. Flashing frequency
2. Visibility
3. Operation and sequencing
4. Pilot or Indicator Lights
5. Stop Sign and Diaphragm (if applicable)

Procedure for testing items listed above:

- Check to see that the lights flash on completely and off completely between 60 and 120 flashes per minute.
- Check the lenses and bulbs for cleanliness and brightness, the lights should be able to be seen at a distance of 500 feet.
- Check visors and the black background for aiding visibility in sunshine.
- Check that the start switch engages the 8-way light system. (door open or closed) Check that the door switch properly sequences the 8-way lights from yellow to red when the door is opened and red to off when the door is re-closed.
- Check that the door switch sequences the lights directly to red if the door is already open.
- Check that the override switch sequences the lights directly to red if engaged.
- Check that the cancel switch turns the 8-way light system off if engaged.
- Check that the master switch does not allow the 8-way light system to engage when in the off position.
- Check the indicator lights (or pilot lights) for sequencing and operation.
- Check the stop sign lights for visibility of lenses, flashing frequency, and reflectorized material (not faded).
- Check that the stop sign is operational.

Lights

Items to be checked:

1. Headlights
2. Taillights
3. License Plate Lights
4. Brake Lights
5. 4-way Hazards Lights
6. Back up Lights
7. Interior Lights
8. Reflectors

9. Clearance Lights
10. Turn Signal Lights
11. Light Monitor
12. Strobe Light (if

applicable) Procedure for checking

items listed above:

- Check the headlights for proper illumination, alignment, and high beam/low beam operation.
- Check for proper and secure mounting.
- Check taillights for proper illumination, lenses, and mounting.
- Check the lenses for cleanliness and proper type.
- Check the license plate light for illumination and mounting.
- Check the lensesfor cleanliness.
- Check that the brake lights illuminate at the proper time. (either when the brake pedal is applied and/or when the retarder/secondary braking system is engaged)
- Check the lenses for cleanliness and proper type. The retarder was required to be wired into the brake light system on 10/1/93 (Colorado Minimum Standards).
- Check that the 4-way hazard lights illuminate the turn signal lenses only.
- Check that the 4-way hazard lights are independent of other lighting systems and that they are usable with the key on or off.
- Check the lenses for cleanliness and proper type.
- Check that the backup lights illuminate at the proper time (when the transmission has been placed in reverse and the key is on). The controlling switch may be either mechanical or hydraulic.
- Check the lenses for cleanliness and propertype.
- Check all dome and step well lights for proper illumination.
- Check all instrumentation, all indicator lights, and all switch lights for proper illumination.
- Check the reflectors for proper type, color, cleanliness, and the degree of fading.
- Check clearance lights for proper lenses (color and type).
- Check for illuminationand cleanliness.
- Check that the turn signal lights self-cancel after completing a turn.
- Check the lenses for cleanliness and proper type.
- If equipped, check that all indicators function.
- Check for proper function, mounting, and color.

Special Needs Equipment

Special needs equipment/items to be checked (if equipped):

1. Lift –Interlock (after Jan 2005)
2. Tie-downs
3. Track Floor and Wall
4. CPS Restraints – Integrated seats
5. Other equipment tie-downs

6. Decals (Oxygen)
7. Belt Cutter
8. FMVSS 210 Ready Seat Frames
9. Air Conditioning

Documentation, Records, and Retention

Vehicle Inspection Forms

The CDE Annual Inspector shall utilize CDE Form STU-26 or equivalent, or STU-27 or equivalent, to record any defects, deficiencies, adjustments made, parts replaced or repaired during the inspections. The forms section of this document provides further guidance pertaining to proper completion of the forms. A repair order must accompany the checklist documenting the repairs made, adjusted measurements, and parts used for all repairs. For the inspection to be valid, at least one certified annual inspector must participate.

Once the inspector(s) completes the inspection form, the original will be placed in the appropriate vehicle file folder at the inspection site along with the accompanying repair order or service invoice, and a copy of the STU-25 Affidavit. Electronic filing systems or fleet management systems may be used for all documentation, however, utilizing a backup filing method is encouraged.

The result of the inspection shall be documented on the CDE Affidavit of Annual Inspection for School Transportation Vehicles Form (STU-25). One copy must be placed in the vehicle, and a copy also be placed in the vehicle file.

1 CCR 301-26 Colorado Rules for The Operation, Maintenance, and Inspection of School Transportation Vehicles pertaining to Documentation and Records

4.1 *School districts, charter schools and service providers shall outline job responsibilities and develop job qualification standards for each school transportation vehicle operator and school transportation paraprofessionals, **annual inspector**, and school transportation entry level driver instructor, consistent with federal and state regulations. A copy of these requirements shall be provided to each school transportation vehicle operator, annual inspector, school transportation entry-level driver instructor, and paraprofessional upon employment. A signed copy shall also be maintained in the applicable qualification file.*

4.2 *School districts, charter schools, and service providers shall maintain separate files for each school transportation vehicle operator, school transportation paraprofessional, school transportation entry-level driver instructor, and school transportation annual inspector with written documentation evidencing all listed requirements indicated in Rule 5.00, Rule 6.00 and Rule 7.00, and Rule 8.00, as applicable. Training documentation shall include the trainer's name, date of the training, description of the training, duration of each topic covered, and the signature of all attendees.*

4.02(a) *If a school transportation vehicle operator, school transportation paraprofessional, or school transportation annual inspector works for more than one school district, charter school, service provider, or operator of an inspection site, each employer shall maintain a file with documentation in accordance with this rule.*

Clarification: It is not required that districts, charters, or service providers duplicate required items in the IQF and DQF files if the files are combined.

12.2 *Annual inspection results shall be documented on the CDE Affidavit of Annual Inspection for School Transportation Vehicles Form (STU-25).*

12.02(a) A copy of the current Affidavit must be maintained inside the vehicle and a copy must be placed in the vehicle file.

12.3 All annual inspection criteria of school transportation vehicles must meet or exceed the manufacturer's specifications. The annual inspection shall be documented and shall include, at a minimum, all fields listed on the CDE Annual Inspection and Preventive Maintenance Requirements Form (STU-26).

12.4 All annual inspection criteria of trailers must meet or exceed the manufacturer's specifications, and shall include, at a minimum, all fields listed on the CDE Trailer Annual Inspection and Preventive Maintenance Requirements Form (STU-27)

Section 13

13.2 School districts, charter schools, and service providers shall have a system to document preventative maintenance, reported defects, and repairs made to school transportation vehicles.

13.3 School districts, charter schools, and service providers shall maintain separate files for each school transportation vehicle with documentation of all annual inspections, all preventative maintenance, and all reported damage, defects, or deficiencies and the corresponding repair and maintenance performed.

Documentation for reported defects must include all the following:

13.05(a) The name of the school district, charter school, or service provider;

13.05(b) Date and time the report was submitted;

13.05(c) All damage, defects, or deficiencies of the school transportation vehicle;

13.05(d) The name of the individual who prepared the report.

13.5 Following a reported damage, defect, or deficiency of a school transportation vehicle, school districts, charter schools, and service providers or a representative agent must repair the reported damage, defects, or deficiencies, or document that no repair is necessary, ensuring that the vehicle is in safe and proper operating condition prior to transporting students.

Record Retention

Transportation Records

General Description: Records generally relating to the operation and maintenance of the school district's transportation program. The specified retention period applies to the information contained within the record, regardless of the physical format of the record (paper, microfilm, computer disk or tape, optical disk, etc.).

Duplicate Copies: Provided that no retention period is specified for duplicate copies, retain those that are created for administrative purposes for 1 year and retain those created for convenience or reference purposes until no longer needed or for 1 year, whichever is first. Duplicate copies should not be retained longer than the record copy.

Annual Inspector

Documentation	Per 1 CCR 301-26	Retention Duration
Job Description	4.1	Duration of employment
Copy of driver's license with proper class and endorsements	8.02(a)	Current
Brake Inspector Qualifications	8.02(b)	Duration of employment
Initial 2 years of verifiable experience	8.02(c)	Duration of employment
Initial Hands-On Score Sheet	8.02(d)	Duration of employment
Initial and Recertification CDE Written Test	8.02(e)	Duration of employment
Electric Vehicle Training (if applicable)	8.02(f)	Duration of employment
Annual Inspector Certificate	8.3	Current plus 5 years
Annual Inspector Re-Certification Written Test (if applicable)		Duration of employment

Annual Inspector Hands-On Tester

Documentation	Per 1 CCR 301-26	Retention Duration
Annual Inspector Certificate	9.02(a)	Proof of at least 2 years
CDE Hands-On Tester Training	9.02(b)	Permanent
Brake Inspector Training	9.02(c)	Permanent
Hands-On Tester Certificate	9.02(d)	Permanent

Vehicle Maintenance

Documentation	Per 1 CCR 301-26	Retention Duration
Vehicle Defect/Corrective Actions	13.2	Vehicle Life plus 18 months
Preventative Maintenance Forms	13.2	Vehicle Life plus 18 months
Annual Inspection Forms	13.3	Vehicle Life plus 24 months

Forms

All forms can be found on the School Transportation pages of the CDE website. It is recommended that forms be downloaded from the transportation page of the website as needed. Sourcing forms from the website **ensures** users have the most current form and are complying.

STU-13 CDE Annual Inspector Test Answer Sheet

This form is to be used for the Annual Inspector written test process. Instructions for completing the various sections of this form are as follows:

The applicant completes the lines with their name and the test date. A supervisor shall grade the test, fill in their name, and fill in the score and specific test number. This form shall be used to document answers for either the initial 100-question qualification test or the 50-question recertification test.

A completed and graded copy shall be kept in the IQF (inspector qualification file).

STU-19 Hands-On Test Checklist

The form is for use by the Annual Inspector Hands-On Tester to assist in documenting scoring during the testing process. This form mirrors the guide to the hands-on test.

Instructions for completing the various sections of this form are as follows:

Heading - The Hands-On Tester shall complete the form including the name of the applicant, date, a description of the vehicle (body, chassis, and model year), the vehicle unit number/id #, and the vehicle type (A, B, C, D, MFB, or small capacity vehicle).

Body – The Hands-On Tester should mark each line or item as it is verbalized by the technician taking the test. Additional notes taken during the test should be detailed and complete. When the test is complete, the score is tallied and transcribed onto the STU-21 Score sheet.

The completed copy should be kept in an applicant test file by the Hands-On Tester.

STU-20 Application for Annual Inspector Qualification or Recertification

The completed application must be submitted to CDE via email documenting that the applicant for CDE Annual Inspector has met all the requirements of 1CCR 301-26 to inspect school transportation vehicles or that the applicant qualifies for recertification.

Instructions for completing the various sections of this form are as follows:

Heading - Print the applicant's name. The name must be legible; this will assist in proper spelling on the certificate. In the event this form is being used for recertification, the inspector number shall be included. Fill in the inspection site name and mailing address of the inspection site. Also include the applicant's current phone number and a current email address, along with the supervisor's email address. (The certificate and accompanying letter from CDE are sent to the applicant and their supervisor via email. These documents are no longer mailed.)

Supervisor verification – The six sections, 1 CCR 301-26, Section 8.02(a) through 8.02(f), indicating

the required qualifications must be initialed (or checked if using the form electronically). Dates, scores, and the Hands-On Testers number must be completed as required. The supervisor completes the form by filling in the applicant's name (printed please), certifying that they have met the requirements, signs, and dates the document.

A copy should be kept in the IQF (inspector qualification file) and a copy submitted to CDE via email.

STU-22 Application for Inspecting Site Certification

This application is submitted via email to CDE to verify that the inspection site meets the requirements of 1CCR 301-26. It is only necessary to submit this form once, as long as the inspection site has not moved or had major renovations. The district or service provider shall post the CDE Inspection Site Certificate at the inspection site. Posting a copy is acceptable.

Instructions for completing the various sections of this form are as follows:

Heading – Print the inspecting site name and mailing address. Complete the line requiring the site's physical address only if it is different from the mailing address. The shop phone number(s), contact name, and email address are also required.

Supervisor verification - Five sections must be initialed, 11.02(a) through 11.02(e), indicating the required qualifications are complete (or checked if using the form electronically), and the form must be signed and dated by the site supervisor. The site supervisor's name should be printed legibly on the line preceding the signature line.

The name of the inspection site must be printed in the blank provided in the certification statement.

A copy should be kept on file at the inspection site and a copy submitted to CDE.

STU-24 CDE Brake Inspector's Qualification Certificate

This form or an equivalent, meeting the requirements of 49 CFR Part 396.25 is required to be maintained in the qualification file of the annual inspector, technician, or other district or service provider employee that is responsible for the inspection, maintenance, service or repairs of any brakes on the district, charter school, or service provider's vehicles.

"Brake Inspector" means any employee of a district or service provider who is responsible for ensuring all brake inspections, maintenance, service, or repairs to any school transportation vehicle, subject to the district or service provider's control, meets CDE and applicable Federal standards.

No school district, charter school, or service provider shall require or permit any employee who does not meet minimum brake inspector qualifications to be responsible for the inspection, maintenance, service, or repairs of any brakes on its vehicles.

The brake inspector's qualification certificate may be filled out by the inspector but must be signed by a supervisor certifying that the inspector meets the stated requirements.

Instructions for completing the various sections of this form are as follows:

Statement - The inspector's name shall be printed on the certification statement blank provided.

Qualifications - The inspector shall place a check mark on each line indicating the duties that the applicant is qualified to perform, inspect, maintain, repair, or service.

Requirements - The inspector shall then place a checkmark on the line preceding each requirement that applies.

Signature – The signature line, date, driver's license number, endorsement line, and license expiration date shall be completed.

Supervisor verification – The supervisor shall insert the inspector's name in the statement verifying qualification.

A copy shall be kept in the IQF (inspector qualification file).

STU-25 Affidavit of Annual Inspection

The annual inspection results shall be documented on the CDE Affidavit of Annual Inspection for School Transportation Vehicle Form (STU-25).

Instructions for completing the various sections of this form are as follows:

Fill in the inspection site name, physical address, unit number, body manufacturer, chassis manufacturer, vehicle model year, and license plate number. Indicate the inspection results by placing a checkmark on the appropriate line. The Inspector shall sign, date, and document their inspector number for this form to be valid.

A copy of the current Affidavit is maintained inside the vehicle and a copy in the vehicle file.

STU-26 CDE Annual Inspection/Preventive Maintenance Checklist and STU-27 Trailer Annual Inspection/Preventive Maintenance Checklist

This form or equivalent shall be used for each vehicle inspection completed. This form is not valid without the signature of at least one CDE Certified Annual Inspector.

Instructions for completing the various sections of this form are as follows:

Heading - Fill in the inspection site name, model year of the vehicle, body manufacturer, chassis manufacturer, license plate number, and inspector number(s). The inspector(s) signature line is to be signed (not initialed) by everyone participating in the actual inspection. A person who is merely turning on lights or shaking the steering wheel is not participating in the inspection. If the form is being used for an annual inspection, then the odometer reading for the previous annual inspection should be used. If the form is being used for a preventive maintenance (PM) inspection, then the previous PM mileage should be documented (an annual inspection is also considered a PM for the purpose of brake inspection documentation). Previous inspection date and odometer reading must be completed unless the vehicle is new to the district or service provider. Also required is the current inspection odometer reading, the date the inspection was started, the date the inspection was completed, and the unit number of the vehicle.

Status Code - As each numbered item is inspected, a process code shall be placed in the "Codes

Required" column depending on the inspection results. The inspection procedures for the various

"Inspection Items" along with the "Repair" or "Out Of Service" criteria can be found in the Technicians' Guide. Only one code should be placed on the line. Example 1: The code 1 is placed in this column if the item(s) inspected meets all requirements of FMVSS and the manufacturer, is in proper working order, and exhibits no signs of defects. Example 2: If an item is both inspected and adjusted, a "2" for adjusted should be placed on that line. Codes and their number equivalent are found at the bottom of the form. Because this form is provided for documenting both annual and preventive maintenance inspections, the " * " found in this column indicates the item(s) on that line are required only during an annual inspection. If any code is used other than the code for inspected or N/A, additional information and documentation should be included in an attached repair order.

Inspector Initials – The column for inspector(s) initials is only required to be completed if more than one inspector is participating in the inspection. A technician without Annual Inspector credentials should not initial in this column. It is the responsibility of the CDE Certified Annual Inspector to complete this form.

Inspection Items - This section includes five (5) main categories (Road Test Inspection, Under Hood Inspection, Interior Inspection, Under Vehicle Inspection, and Around Vehicle Inspection) based on the vehicle area to be inspected. This simplifies the method of grouping the items. Under each of the main categories, there are specific items listed that are to be inspected.

Comments – Inspection line items with a code other than "1" for inspected, should have some further comment(s) or clarification about that item on a repair order that accompanies the inspection form. When documenting further comments, ensure that the technician can readily identify the item to which the comments apply. One method of doing this is to list the section letter and item number from the form.

A copy of the completed form and the attached repair order shall be placed in the vehicle file.

Specific Line information for the STU-26

A-8 Governor cut-in and cut-out pressures should be documented. If the measured pressure requires adjustment, repair, or a part replacement to achieve a proper reading, that should be documented on the attached repair order along with the adjusted cut-in and cut-out pressures.

A-9 Gauge Pressure loss should be documented. If pressure loss is excessive, the resulting repair/adjustment and retested reading should be documented on the attached repair order.

A-11 Buzzer and light actuation and park brake valve actuation should be documented. Repair/adjustment and retested reading should be documented on the attached repair order.

B-6 Coolant freeze point should be documented. If the coolant is changed or adjusted, that information and the new reading should be documented on the attached repair order.

E-8 Air brake equipped vehicles equipped with slack adjusters must have the appropriate line checked indicating the type of slack adjuster. Slack adjuster measurements should be precise. Usually measuring to the 1/16 of an inch is adequate (rounding off is not good documentation). The applied method is required.

Measurements found to be out of spec should be documented, and the repaired measurement documented on the attached repair order.

E-10 Tire pressure should be measured and adjusted per the manufacturer's recommendation.

E-11 Tread depth measurements should be documented as observed. Rotation or replacement and corresponding readings shall be documented on the attached repair order.

E-16 The pad or shoe location is indicated in the line after LF, RF, etc. and prior to the colon (:). The pad or shoe measurement follows the colon. Example: a vehicle with disc brakes would have a reading such as: LF O : 10/32, indicating that the measurement is of the left front outer pad. Pad or shoe replacement and corresponding readings shall be documented on the attached repair order.

E-17 Complete the lines indicating manufacturer specification and document measurements from the previous year's annual inspection as well as current measurements. If the vehicle is newly purchased, indicate this by writing a note on the repair order. If the vehicle was last inspected by another shop or district, an effort should be made to attain this information for complete documentation. If the information is not available, note this on the repair order. Drum or rotor replacement and corresponding readings shall be documented on the attached repair order.

E-18 Air disc brake pad to rotor clearance should be documented as observed. If initial measurements are not within specifications, final measurements and repairs should be documented on the repair order.

Specific Line information STU-27

T-9 Pad or shoe location is indicated in the line after LF, RF, etc., and prior to the colon (:), with pad or shoe measurement following the colon. Example: a vehicle with disc brakes would have a reading such as: LF O : 10/32, indicating the measurement is of the left front outer pad. Pad or shoe replacement and corresponding readings shall be documented on the attached repair order.

T-10 Complete the lines indicating manufacturer specification and document the measurements from the previous year's annual inspection as well as the current measurements. If the vehicle is newly purchased, make a note on the repair order to indicate this. If the vehicle was last inspected by another shop or district, an effort should be made to attain this information for complete documentation. If the information is not available, then note this on the repair order. Drum or rotor replacement and corresponding readings shall be documented on the attached repair order.

T-11 Tire pressure should be measured and adjusted per the manufacturer's recommendation, to include the spare(s).

T-12 Lug nut torque should be verified and documented.

Hands-On Tester Qualification Recertification

The application shall be submitted to CDE documenting that the CDE Hands-On Tester has met all 1CCR 301-26 requirements to proctor the Hands-On test and that the applicant qualifies for recertification.

Instructions for completing the various sections of this form are as follows:

Heading - Print the applicant's name (legibly, to assist in correct certificate spelling), and direct contact phone number. If the form is being used for recertification, fill in the Hands-On Tester number. Include the annual inspector number, mailing address, email address, the name of the inspection site, and the site phone number.

Qualification verification – 1 CCR 301-26, Sections 9.02(a) through 9.02(e) indicate the required qualifications must be initialed (or checked if using the form electronically). Dates of annual inspector qualification, training or certification must be completed as required. The applicant shall sign and date the application.

A copy should be kept on file by the Hands-On Tester.

EDAC STAMP

Note: EDAC is the Educational Data Advisory Committee. Required forms receive approval and are issued a new EDAC approval stamp annually and some biannually. The EDAC stamp is located at the bottom right corner of the document. The stamp is dated for the school year in which it is to be used.

Forms not requiring the EDAC process and stamps have a revision date at the bottom right of the document. To be sure that you are using the most current form please download all forms only when needed from the forms page on the CDE School Transportation website. Forms are updated annually on May 1.

CDE School Transportation Vehicle Resources

Colorado Rack and Load Test

Background

After a 1971 school bus rollover crash in Gunnison, Colorado, the Colorado Rack and Load Test was developed to test structural integrity in the event of a school bus rollover. The Colorado Rack and Load Test simulates a rollover crash by applying a constant load along the full length of the school bus body. When testing for Colorado Rack compliance, the test requires that two prescribed cycles of load be applied to the body immediately above the passenger windows. During testing, the bus structure cannot deflect more than 5 1/8 inches when measured diagonally and all emergency exits must be functional during the full application of the force and after the release of the force.

Requirements

In addition to complying with FMVSS 220 School Bus Rollover Protection test procedures, school buses transporting students from home to school, school to school, school to home, and a school district, charter school, and service provider for activity trips (school-related events) must meet the requirements of Colorado Minimum Standards Governing School Transportation Vehicles 1 CCR 301-25 and Colorado Operations, Maintenance and Annual Inspection Rules for School Transportation Vehicles 1 CCR 301-26.

Per 1 CCR 301-26 the CDE rules are not intended to include:

2.02(e) *Transportation provided by a company or individual as part of their operation as a common carrier (RTD, taxi, limousine, etc.) or transportation network company operating pursuant to C.R.S. 40-10.1-602, under the jurisdiction of the US Department of Transportation or the Public Utilities Commission; except that such service providers (other than public transit) that are contracted to provide route transportation carrying 12 or more students per route shall comply with these Rules without regard to the operator's status as a common carrier.*

State Statute

Section 22-51-108 – Rules - The State Board of Education shall promulgate rules for the administration of this article. Such rules shall include reasonable and adequate standards of safety in the maintenance and operation of buses, the maintenance of records by school districts, the state charter school institute, and facility schools, the length of bus routes, the number of children to be transported in the various types of buses, and such other rules pertaining to pupil transportation as will promote the welfare of the students and afford reasonable protection to the public.

Kentucky Pole Test

Background

The Kentucky Pole Test will test the strength of the school bus roof in case of a pole, or another sharp object impacts the bus during a rollover. A school bus will pass this test if the body panels of the bus remain intact, and that the roof does not bend more than 10 inches into the passenger compartment.

Kentucky Pole Test originated after a Governor's Task Force on School Bus Safety recommended enhanced school-bus design following the death of 24 children, their driver and two adult chaperones when the church bus they were riding in was struck head-on by a drunk driver. The resulting bus fire killed the 27 passengers, and 34 others sustained injuries when emergency evacuation through the rear door was hindered. The Kentucky Pole Test was developed in 1989.

During the test, a school bus rollover is simulated with an eight-inch diameter pole impacting the roof with enough force to cause the roof to bend into the passenger compartment between eight to 10 inches.

Throughout this test, the body panels cannot separate. While this test was developed for the state of Kentucky, the test is widely utilized throughout multiple North American states and provinces as a required specification.

This requirement was added to the Colorado Minimum Standards Governing School Transportation Vehicles 1 CCR 301-25 in the standards that went into effect on April 30, 2015. Prior to that, there was no requirement for Colorado school buses to meet this standard.

Requirements

Minimum Standards 1 CCR 301-25

6.3 *Effective January 1, 2025, pursuant to Section 8 of these rules, vehicles with a capacity of more than 12 passengers that do not meet the definition of a Type A School Bus or a Type A Multifunction Bus, or meet the Colorado Rack and Load, Kentucky Pole Test, and FMVSS School Bus Safety Standards, as required, are prohibited from transporting students for any reason.*

8.7 On Type B, C, and D buses, the bus body shall meet the test standards of the Kentucky Pole Test as outlined in rule 8.8.

Colorado Rack and Load Test and Kentucky Pole Test Verification

The following information is provided to assist in identifying that a bus meets Rack and Load and Kentucky Pole Test requirements as specified in rule. It has been broken down by the manufacturer. Information was provided by the manufacturers. Due to the ever-changing climate in school bus manufacturing, some of the manufacturers listed have been consolidated by Company ownership, although still listed separately for ease of use of the document.

All known current manufacturers are listed. Those not currently certified for use in Colorado are included, with the indication of such.

Manufacturer

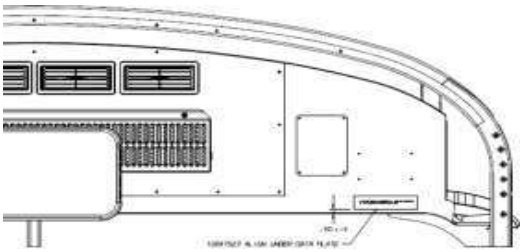
Bluebird:

All Type C and D models of Bluebird buses 1982 and newer meet the rack and load requirements. Micro Birds manufactured by Blue Bird between 1982 and 2009, inclusive, also meet the rack and load requirements. Buses built prior to 1982 will need to be verified by contacting the local dealer with the vehicle body # or VIN number.

Certification Decal Example below.

Location: Right-hand side of the front bulkhead, below the FMVSS Certification Label

This bus is manufactured in compliance with COLORADO MINIMUM STANDARDS GOVERNING SCHOOL TRANSPORTATION VEHICLES in effect on the date of manufacture.



Collins Bus:

The three Collins school bus brands sell a common product line differentiated largely by brand engineering.

The option code found on a line set ticket for the Colorado rack requirement is code 225. If the Colorado certification decal is not present and you do not have a copy of the line set ticket contact the Collins Inside Sales Representatives at (800)533-1850.

Certification Decal Example below.

Location: Installed on the front bulkhead by the FMVSS (Same except for the state name)

Certification Label

Corbeil Bus Corporation:

Corbeil Bus Corporation was created from the acquisition of its predecessor Les Enterprises Michel Corbeil by Collins Industries in 2007.

Certification Decal Example below. **Location:**

No available example at the time of printing.

Mid Bus:

The company was acquired by Collins Bus Corporation in 1998.

Location: Installed above the driver door to the left of the driver.

No indication on the decal of state standards.
This could be identified by determining the state of origin.

GreenPower Motor Company:

Greenpower exclusively builds all-electric vehicles

Type “A” electric school buses Nano BEAST, and the Beast were approved for use in Colorado in 2024.

IC Bus LLC:

(Am Tran) In 1991, the company was acquired by Navistar International. In 2000, the company was rebranded as International Truck and Bus (some vehicles continued with Am Tran branding). In 2002, the name was changed again to IC Corporation, and today is known as IC Bus.

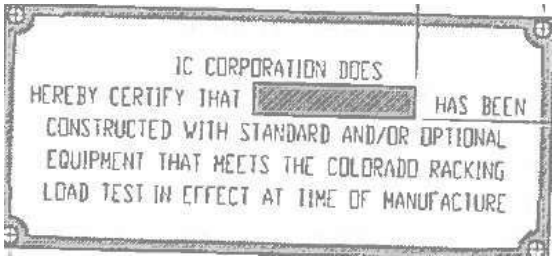
Check the line set sheet for Option Code. Option codes for pre 2004 vehicles are G45ACCP; Option Code 2004 and newer vehicles to present is 47ARJ. If the certification decal is present, this is a verification of rack and load compliance.

If you do not have a copy of the order form or line set ticket, or the bus is lacking the certification decal, you may also contact your local dealer to verify if the bus has the required option code. This will require providing the last eight characters of the vehicle VIN #.

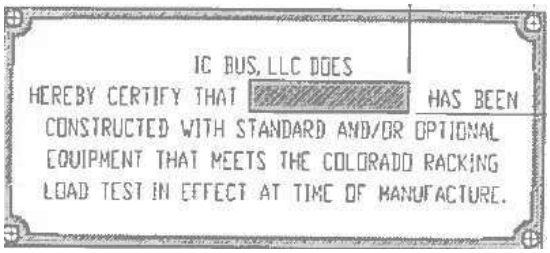
Certification Decal Example below.

Location: The label would be aft of the entrance door above the first passenger window

Pre-2014



Current



Note: There are two earlier versions of this plate, pre-2012, and pre-2002 with the difference being only the company name.

Lion Electric Company:

Previously known as Lion Bus/Autobus Lion, Lion Electric Company renamed itself in 2017 as part of its focus on electric vehicle production.

Micro Bird:

(Girardin Minibus Inc.) Girardin forms part of the Micro Bird joint venture with Blue Bird Corporation. As part of Micro Bird, Girardin is a manufacturer of bus bodies for minibuses for cutaway van chassis.

The option for Rack and Load is RLD and has been offered since 1999. RLD only appears on the order and is not printed on the vehicle or documents provided with the vehicle. The best way to validate whether or not a vehicle is compliant is to identify that the certification decal on vehicles produced after September 2017 is present in the bus or send the VIN or Body number - both appear on the certification label – to your local Bluebird dealer for verification.

Certification decal examples are below.

Location: Applied under the certification label, top left over the windshield on the bulkhead.

Sept. 2017 to Current Model Year

Post-2010
Note: No reference to Colorado Standards
Call for verification

Pre-2010
Note: No reference to Colorado Standards
Call for verification

Starcraft Bus:

Type A School bus/MFSAB Starcraft Bus- Chevrolet Express Quest DRW school bus, non-wheelchair equipped, Chevrolet Express Prodigy DRW MFSAB, non-wheelchair equipped, Ford E-Series Quest DRW school bus, non-wheelchair equipped, Ford E-Series Prodigy DRW MFSAB, non-wheelchair equipped. Starcraft was acquired by Collins Bus in 2020.

Thomas Built Buses:

Thomas Built Buses has not offered compliance with the Colorado Rack and Load test as standard on all their products, year after year. Thomas Built Buses has offered Colorado Rack and Load compliant vehicles as standard on some models, but only for certain years.

With so many variables, the best solution at this time will be to request from Thomas Built Buses, certification on an individual unit basis. Thomas Built Buses can supply a letter for that specific bus if it was manufactured in compliance. Contact Ricky Stanley at (336)841-5927 or your local Thomas dealer.

Certification Decal Example below.

Location: This tag would be located beside the federal label in the driver's area.

Titan:

Currently not certified for use in Colorado

Certification Decal Example below.

Location: The plate will be mounted on the front bulkhead or panel above and to the right of the driver's seat.

Trans Tech:

The Colorado Rack and Load Test certification is an available option on the SST and CST (School Bus / MFSAB) body model Series as of model year 2013 to present.
If the Colorado certification decal is not present on the bus, verification may be attained by contacting Trans Tech Bus with the VIN # at (845) 988-2333.

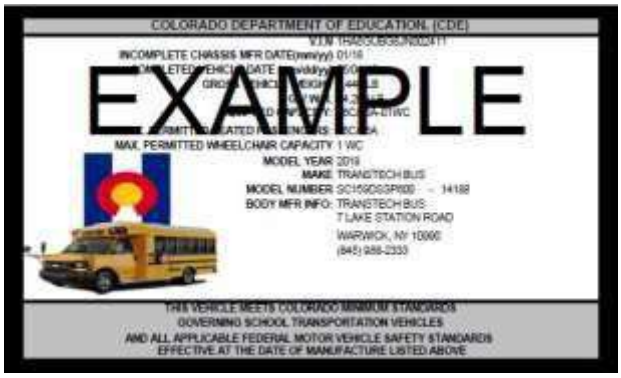
Option codes are found on a line set ticket for the Colorado rack requirement.

BODY STRUCTURE:

CODE	QTY	DESCRIPTION
03-0003	1	COLORADO RACK PACKAGE

Certification Decal Example below.

Location: The Decal will be located in the driver's area, in the vicinity of the mirror located directly above the driver's seat



US Bus:

In November 2007, the U.S. Bus Corporation was reorganized and relocated to Warwick, New York. Acquired by Trans Tech Bus. It is unknown if the rack and load requirement was an option from this manufacturer or if all units produced met the standard. There is no way to verify if these vehicles meet the rack and load requirements if the certification decal is not present, as records for specific VINS are not available.

Van Con:

Currently not certified for use in Colorado

Van Con exclusively manufactures school buses on cutaway van chassis.

Kentucky Pole Test Verification by Manufacturer

Bluebird:

All models of Bluebird buses built October 1990 and later meet the test standards of the Kentucky Pole Test.

Collins:

N/A

IC Bus:

All models of IC buses built in 1992 and later meet the test standards of the Kentucky Pole Test.

Micro Bird:

N/A

Thomas:

All models of Thomas buses built in 2004 and later meet the test standards of the Kentucky Pole Test.

Trans Tech:

Option code not shown online set. Requirements are met and exceeded as part of the standard design of the Trans Tech safety cage and body.

Titan: **Currently not certified for use in Colorado**

GreenPower Motor Company: **Currently not certified for use in Colorado**

Lion Electric Company:

Starcraft Bus:

Van Con: **Currently not certified for use in Colorado**

Certified Models List

Available at http://www.cde.state.co.us/transportation/

Bus manufacturers not listed on the CDE website in the Certified Model List have not certified to the Colorado Department of Education that their product(s) meet or exceed the Minimum Standards and all applicable FMVSS in effect at the time of manufacture, may not be purchased by school districts, charter schools, or contractors for the use of transporting students to and from school in the state of Colorado and will not pass the CDE annual inspection per 1 CCR 301-25 2251-R-3.01.

Because the bus make and model are on the Certified Manufacturers list posted on the CDE website, it does not always mean that a particular bus is built to meet the Colorado standards, just that it can be. If the listed make and model was originally built for and originally purchased in another state, it is the district, charter school, or service provider, and annual inspectors' responsibility to verify that the bus meets all Colorado Minimum Standards.

Regulation 1 CCR 301-25 Effective October 30, 2024

Colorado Minimum Standards Governing School Transportation Vehicles

COLORADO MINIMUM STANDARDS GOVERNING SCHOOL TRANSPORTATION VEHICLES 1 CCR 301-25

1.0 Statement of Basis and Purpose

1.1 Colorado law provides for the State Board of Education to adopt and enforce regulations governing the safe operation of school buses and school transportation vehicles used for the transportation of students pursuant to C.R.S., Sections 22-51-108 and 42- 4-1904.

1.2 The purpose of these rules is to adopt and enforce regulations governing the reasonable and adequate standards of safety for school buses and school transportation vehicles that promote the welfare of the students and afford reasonable protection to the public. The purpose of the amendments is to update the minimum standards to align with recent federal standards and reflect current industry practices.

1.02(a) This does not include informal or intermittent arrangements, such as sharing of actual gasoline expenses or participation in a carpool and the use of vehicles rented and\or leased that are operated in other states.

1.02(b) Exemption: Vehicles that carry students as part of their operation as a common carrier under the jurisdiction of the United States Department of Transportation or Colorado Public Utilities Commission are not included within the definition of a school transportation vehicle, including transportation network companies; except that common carriers (other than public transit) that are contracted to provide route transportation carrying 12 or more students per route shall comply with sections 6 through 49 of these Rules without regard to the operator's status as a common carrier.

1.3 The Commissioner, or designee, may provide an exemption to these Minimum Standards to the extent the Commissioner finds an exemption to be appropriate.

2.0 Effective Date

2.1 Except as indicated in Rule 6.01(a), of these rules, school transportation vehicles manufactured, per the date listed on the certification plate, or decal, on or after the effective date of these rules, for the purpose of transporting Colorado students shall meet or exceed the Minimum Standards.

2.2 School districts, charter schools, and service providers are discouraged from operating school buses, per Rule 7.15, of these rules, that were manufactured, per the date listed on the certification plate, or decal, which are over 25 years of age.

2.3 School districts, charter schools, and service providers shall not sell or lease any school bus or school transportation vehicle(s) over 20 years of age, per the date listed on the certification plate, or decal, to any other school district, charter school, or service provider for the use of transporting Colorado students for any purpose. Likewise, a school district, charter school, or service provider shall not purchase any school bus or school transportation vehicle over 20 years of age.

2.4 School districts, charter schools, and service providers are discouraged from operating school transportation small-capacity vehicles, per rule 7.19**,** of these rules, that were manufactured, per the date listed on the certification plate, or decal, which are over 15 years of age.

3.0 Testing and Certification

3.1 School bus manufacturers shall provide annual certification to the Colorado Department of Education that their products meet or exceed the regulations in Colorado Minimum Standards and all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect at the time of manufacture. School bus manufacturers shall record and report to CDE the test results as required by Section 8, Construction, of these rules. All school bus bodies that meet applicable FMVSS regulations and comply with the Minimum Standards shall be certified by the school bus manufacturer by attaching a certification plate or decal.

3.2 It shall be the responsibility of the school district, charter school, and service provider to ascertain whether all school buses purchased, leased, or under contract to the school district, charter school, or service provider meet all specifications of the Minimum Standards. This verification should be obtained at the time of delivery, in addition to the statement of compliance in the purchase bid, contract for, or lease agreement.

3.3 When selling a school transportation vehicle, it is the responsibility of the school district, charter school, or service provider to eliminate the school district, charter school, or service provider's full name from the vehicle.

3.4 New and used school bus dealers, and service providers, shall register with the Colorado Department of Education, School Transportation Unit, certifying that only school transportation vehicles meeting or exceeding Colorado Minimum Standards will be sold leased, rented, or used in contracted services to a school district, charter school, or service provider providing transportation from home to school, school to school, and to school-related events in Colorado. There shall be no fee to register. Service providers will be required to renew their registration every five years.

3.5 All school transportation vehicles must meet and continue to meet all applicable FMVSS regulations in effect on the date of manufacture, per the date listed on the certification plate or decal.

4.0 Responsibility of Suppliers

4.1 Dealers, distributors, manufacturers of school buses, and school transportation vehicles each have a responsibility to comply with the Minimum Standards on or after the effective date of these rules.

4.2 Dealers, distributors, or manufacturers that supply school buses and school transportation vehicles for use in the State of Colorado that do not meet the specifications of these rules shall be notified of non-compliance and a written notice will be sent to all school districts, charter schools, and service providers within the state of Colorado advising that equipment supplied by such dealer, distributor, or manufacturer that is not in compliance with the Minimum Standards.

4.02(a) If a dealer, distributor, or manufacturer has been notified of non-compliance in accordance with rule 4.2 of these rules and replaces or modifies the equipment to meet the Minimum Standards, a written notification of compliance will be issued from the Colorado Department of Education (CDE) within 30 days after proof of compliance.

4.3 Under 49 U.S.C. 30101, et seq., a vehicle is regarded as being sold for use as a school bus if, at the time of sale, it is evident that the vehicle is likely to be significantly used to transport students to or from school or school-related events. The National Highway Transportation Safety Administration (NHTSA) prohibits the purchase or lease of new school transportation small-capacity vehicles pursuant to 49 US Code, Section 30112(a)(2). While Federal regulations do not prohibit the use of vans by schools, they do require any van (with a capacity of more than 10) sold or leased for use as a school bus to meet the safety standards applicable to school buses. Each state prescribes its own regulations that apply to the use of any vehicle that is used to transport students. See Section 6.0 of these rules.

5.0 Bus Delivery Requirements

5.1 The bus manufacturer shall provide the following materials and information for direct delivery to the customer upon request:

5.01(a) Line set tickets for each individual unit including chassis and body,

5.01(b) Copy of the pre-delivery service performed and verified by a checkout form for each individual unit,

5.01(c) Warranty book and statement of warranty for each individual unit,

5.01(d) Service manual (hard copy or electronic copy) for each individual unit or identical units for all major components of the bus (e.g., body, chassis, transmission, etc.) and

5.01(e) Parts manual (hard copy or electronic copy) for each individual unit or identical units for all major components of the bus (e.g., body, chassis, transmission, etc.).

6.0 Prohibited Use

6.1 Under federal law (49 USC 30112(a)), a new over-the-road motor coach bus shall not be sold for the purpose of transporting school-age students to and from school or to school-related events unless it meets all FMVSS regulations for school buses.

6.01(a) Upon passage of a local Board of Education resolution, a school district, charter school, or service provider may purchase an over-the-road motor coach bus and/or attain a short-term rental of a motor coach bus from a contract carrier for the transportation of students to school-related events. Such a resolution shall specify that consideration was given to the standards of safety to promote the welfare of students, including recommendations from national transportation organizations.

6.2. A motor coach shall not be used for transporting students to and from school or school to school for route purposes.

6.02(a) A board resolution is not necessary for transporting students on common carriers.

6.3 Type B, C, and D multifunction buses shall not be used for transporting students to and from school for route purposes.

6.4 Effective January 1, 2025, pursuant to Section 8 of these rules, vehicles with a capacity of more than 12 passengers that do not meet the definition of a Type A School Bus or a Type A Multifunction Bus, or meet the Colorado Rack and Load, Kentucky Pole Test, and FMVSS School Bus Safety Standards, as required, are prohibited from transporting students for any reason.

6.5 Per the effective date of these rules, school transportation vehicles, per Rule 7.17, of these rules, owned or leased by the school district, charter school, or service providers that are used for student transportation shall not have the windows obstructed in any way by advertising, decorations, or vehicle wraps.

6.05(a) Exception: Tint applied by the vehicle manufacturer to industry standards.

6.05(b) Exception: Route identification is permitted per I CCR 301-26, 17.05(b).

6.6 Any type of passenger vehicle with a fiberglass roof shall not be permitted to transport students unless it meets Colorado Rack and Load.

7.0 Definitions

7.1 Boards of Cooperative Educational Services - (BOCES) means a regional educational service unit designed to provide supporting, instructional, administrative, facility, community, or any other services contracted by participating members pursuant to Section 22-5-103(2) of Title 22.

7.2 Charter School - a charter school is a public school that operates pursuant to a charter contract entered into pursuant to the provisions of Article 30.5 of Title 22. As used in this title, unless the context otherwise requires, “Charter School” includes any type of Charter School created pursuant to the provisions of Article 30.5 of Title 22, Section 22-1-101(2).

7.3 Colorado Rack and Load Test - is designed to verify the structural integrity and crashworthiness of school bus design as outlined in rule 8.8 and rule 8.9 of these rules. The test simulates a rollover crash by applying a constant load along the full length of the bus body. This ensures that all push-out windows and emergency exits will be fully functional after an accident occurs.

7.4 GVWR - means Gross Vehicle Weight Rating.

7.5 Kentucky Pole Test - is designed to verify that the interior panels above the window will not separate and expose sharp edges in the event of a crash. The test involves a rollover simulation, in which the bus strikes a pole-like object, which forces the roof to bend into the passenger compartment. Standards require that separation of body panels must not occur when the roof bends between 8-10 inches.

7.6 Fifteen Passenger Van - is a van, not a Type A school bus, that has the capacity of transporting more than 12 passengers, not including the driver.

7.7 Lease - more than seven consecutive calendar days**.**

7.8 Local Board of Education (LEA) - means the Board of Education of a school district or the governing board of a BOCES.

7.9 Motorcoach - is a bus that has a high elevated floor, with a full row of luggage bays found below the main cabin. It also has premium features such as restrooms, reclining seats, power outlets, television, etc.

7.10 Multifunction School Activity Bus (MFSAB) - is a type of school bus that is required to meet all FMVSS regulations applicable to school buses, except those requiring the installation of traffic control devices. Pursuant to Rule 6.3, of these rules, Type B, C, and D multifunction buses should not be used for transporting students to and from home to school for route purposes.

7.10(a) Exception: Per 1CCR 301-26, 19.1, Type A multifunction buses may be used to transport students to and from school, school to school for route purposes and activities. See Section 19.11(c).

7.11 Public School District - means a public school district that derives its support, in whole or in part, for money's raised by a general state, county, or district tax pursuant to C.R.S. Section 22-1-10.

7.12 Regenerative Braking System - this is a mechanism found on most hybrid and full electric vehicles. It captures the kinetic energy from braking and converts it into the electrical power that charges the vehicle's high-voltage battery. Regenerative braking also slows the vehicle down, which assists the use of traditional service brakes.

7.13 Rented - seven or less consecutive calendar days.

7.14 SAE - acronym for Society of Automotive Engineers, Inc.

7.15 School Bus - means a passenger vehicle that is designed and used to carry more than 12 passengers in addition to the driver, and which the Secretary of Transportation determines is likely to be significantly used for the purpose of transporting pre-primary, primary, or secondary school students to or from school or an event related to school. School buses are specifically designed for maximum safety.

7.16 School Bus Eight-Way Alternating Flashing Warning Signal Lamps - are amber and red lamps mounted at the same horizontal level intended to identify the vehicle as a school bus and to inform other users of the highway that such vehicle is stopped or about to stop on the roadway to take on or discharge school children.

7.17 School Transportation Vehicle - means every motor vehicle that is owned by a school district, charter school, or service provider and operated, rented, or leased for the transportation of students to and from school, from school to school, or to school-related events, or which is privately owned and operated for compensation provided that such transportation service is sponsored and approved by the local Board of Education or schools governing body and operating within the State of Colorado.

7.18 Secondary Braking System - includes retarders, engine brakes, turbo brakes, driveline, brakes, etc.

7.19 Small-Capacity Vehicle - means a motor vehicle, which does not meet the requirements of Type A, B, C, or D school buses, designed for general purpose use. These vehicles (12 passengers including the driver or less) may be used to carry students to and from school, from school to school, or to school-related events, and shall meet or exceed all applicable rules and regulations.

7.20 Specially Equipped Bus - any bus that is designed, equipped, and/or modified to accommodate students with special transportation needs.

7.21 Transportation Network Company (TNC) - transportation provided by a company or individual as part of their operation as a common carrier, or Transportation Network Company operating pursuant to C.R.S. 40-10.1-602(3), under the jurisdiction of the US Department of Transportation or the Public Utilities Commission.

7.22 Type A School Bus - is a conversion or body constructed utilizing a cutaway front-section vehicle with a left-side driver's door and a gross vehicle weight rating (GVWR) of 21,500 pounds or less.

7.23 Type B School Bus - is a body constructed and installed upon a stripped chassis. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The service door is behind the front wheels.

7.24 Type C School Bus - is constructed utilizing a chassis with a hood and fender assembly. This includes the cutaway truck chassis, including the cab, with or without a left-side driver door, and with a GVWR greater than 21,500 pounds. The service door is behind the front wheels.

7.25 Type D School Bus - is constructed utilizing a stripped chassis, the engine may be behind the windshield and beside the driver's seat; or it may be at the rear of the bus, behind the rear wheels. The service door is ahead of the front wheels.

7.26 Vehicle Seating Capacity - is the number of passengers (excluding the driver) assigned by the manufacturer as indicated on the certificate plate, or decal and cannot be changed by the purchaser.

7.27 Wheelchair Tie-Down Occupant Restraint System (WTORS) - is a system or device for securing wheelchairs and a system of belts for restraining occupants seated in the secured wheelchairs. This can include both strap-type and docking-type securement systems.

8.0 Construction

8.1 All metal surfaces that will be painted shall be chemically cleaned, etched, zinc phosphate coated, and zinc-chromate or epoxy primed or conditioned by an equivalent process. Particular attention shall be given to lapped surfaces, welded connections of structural members, cut edges, punched or drilled hole areas in sheet metal, closed or box sections, unvented or undrained areas, and surfaces subject to abrasion during vehicle operation.

8.2 The floor shall be at least 14-gauge, mill applied, zinc-coated steel sheet, and shall be on one plane. There shall be a main floor cross member of at least 10-gauge steel or equivalent extending the full width of the floor plate and permanently attached. There shall be a minimum of two intermediate floor cross members of at least 16-gauge steel equally between the main floor cross members and permanently attached.

8.02(a) Type A buses 14,500 GVWR or less, may use other metal or material with strength and corrosion resistance at least equivalent to all-steel construction as certified by the bus body manufacturer.

8.3 The subfloor shall be either five ply nominal 5/8 inches thick plywood or a material of equal or greater strength and insulation R-value and it will equal or exceed properties of exterior-type softwood plywood C-D grade, as specified in National Bureau of Standards (NBS) Product Standard 1-83. Type A buses, 14,500 GVWR or less, shall have nominal ½-inch thick plywood or equivalent material equal to or exceeding the properties listed above.

8.4 Ceiling Panels: If the ceiling is constructed to contain lap joints, the forward panel shall be lapped by the rear panel, and the exposed edges shall be beaded, hemmed, flanged, or otherwise treated to eliminate sharp edges.

8.5 All body components shall be designed and constructed to avoid the entrapment of moisture and dust.

8.6 All openings between the chassis and passenger-carrying compartment made for any reason must be sealed.

8.7 On Type B, C, and D buses, the bus body shall meet the test standards of the Kentucky Pole Test as outlined in rule 8.8.

8.8 In addition to complying with FMVSS 220 test procedures, the body manufacturer shall record and report the downward vertical movement of the force at 0, 25, 50, 75, and 100% of the maximum force (both loading and unloading). The expected force-deflection curve is Illustrated schematically in Figure 1a. Low load nonlinearities may indicate joint confirmation; high load nonlinearities may indicate yielding structural members.

8.08(a) A second load cycle shall be performed following the procedure given in the first paragraph. The expected force-deflection curve is Illustrated schematically in Figure 1b. Any hysteresis following the initial shakedown will be revealed by this second cycle.

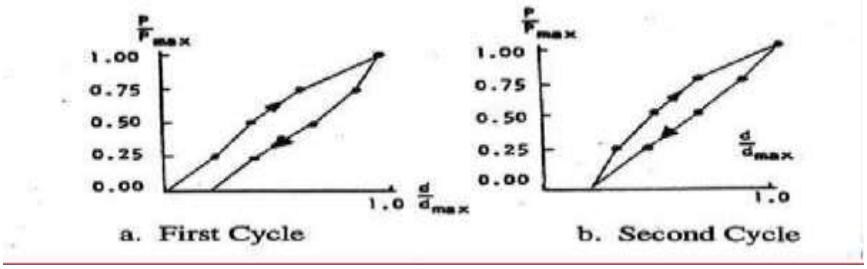


Figure 1. Static Load Test Load-Deflection Curves

8.9 A diagonal (racking) load test shall be performed on Type A, B, C, and D school buses to ensure adequate shear stiffness and strength of the bus body. Details of the tests are provided below. A two-cycle loading sequence shall be conducted following the procedure described in rule 8.08 of these rules.

8.09(a) Requirements: When a force equal to 1 ½ times the GVW is applied to the edge of the roof of the vehicle's body structure through a force application plate as specified in (b), Test Procedures:

8.09(a)(1) The diagonal movement of the force at any point on the application plate shall not exceed 5 ⅛ inches.

8.09(a)(2) Each emergency exit of the vehicle provided in accordance with FMVSS 217 shall be capable of operation as specified in that standard during the full application of the force and after the release of the force.

8.09(b) Test Procedures: Each vehicle shall be capable of meeting the requirements of (1) and (2) when tested in accordance with the procedures set forth below.

8.09(b)(1) The vehicle shall be supported on a rigid surface along the lower edge of the frame or along the body sills in the absence of a frame.

8.09(b)(2) The load shall be applied through a force application plate that is flat and rigid. The dimensions of the plate shall be chosen to ensure that the plate edges never make contact with the vehicle skin during testing. A typical width is 18 inches. A typical length is 20 inches less than the length of the vehicle's roof measured along its longitudinal centerline.

8.09(b)(3) Place the force application plate in contact with the edge of the vehicle roof. Orient the plate so that its flat, rigid surface is perpendicular to a diagonal line connecting the most distant points on an interior cross-section of the vehicle. The rear edge of the plate shall be positioned approximately 20 inches from the rear edge of the vehicle roof. A temporary stand may be used to support the plate until a force is applied.

8.09(b)(4) Apply an evenly distributed force in a diagonally downward direction through the force application plate at any rate not more than 0.5 inches per second, until a force of 500 pounds has been applied.

8.09(b)(5) Apply additional force in a diagonally downward direction through the force application plate at a rate of not more than 0.5 inches per

second until the force specified in (a) has been applied and maintains this application of force.

8.09(b)(6) Measure the diagonal movement of any point on the force application plate that occurred during the application of force in accordance with rule 8.09(b)5 and upon the emergency exits as specified in rule 8.09(a)2 of these rules.

8.09(b)(7) Release all diagonal force applied through the force application plate and operate the emergency exits as specified in rule 8.09(a)(2) of these rules.

8.09(c) Test Conditions: The following conditions apply to the requirements specified in Rule 8.09(b)(3).

8.09(c)(1) Temperature: the ambient temperature is any level between 32 degrees Fahrenheit and 90 degrees Fahrenheit.

8.09(c)(2) Windows and Doors: Vehicle windows, doors, and emergency exits are in the fully closed position and latched but not locked.

8.09(d) An alternative method of testing for the racking load test shall be as follows:

8.09(d)(1) The racking load shall be applied along a line connecting the most distant points on a transverse cross-section of the bus interior. It produces a shear distortion of the cross-section as shown in Figure 2.

A representative method of loading which employs a hydraulic jack to load a two-frame test assembly is Illustrated in Figure 2.

The maximum jack load for the two-frame assembly is determined by the following formula:

J = 2P J - maximum jack load for two-frame test assembly

P = load/frame

where P = DVW divided by N

DVW = dynamic vehicle weight

N = total number of bus body frames and DVW = DF x GVW

DF = dynamic factor, not less than 1.5

GVW = gross vehicle weight

Thus, for a DF = 1.5, a GVW = 22,000 pounds-force (lbf), and N = 11, the dynamic vehicle weight is DVW = 33,000 lbf, the load/frame is P=3000 lbf and the maximum jack load is j = 6000 lbf.

8.09(d)(2) When a complete bus body is rack loaded, the total load DVW must be distributed uniformly along the bus body. One method is to mount a series of hydraulic jacks along the length of the bus interior. Seats may be removed to facilitate jack mounting. The rack load will be considered to be uniformly distributed when the variation in the hydraulic jack readings is less than 10%. A maximum load for DVW shall be the sum of all jack readings.

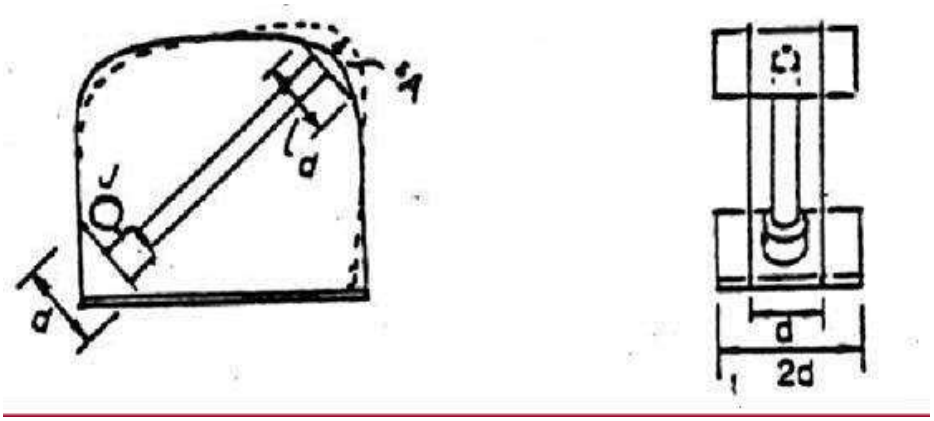


Figure 2: Transverse Cross Section Side View.

Arrangement of Hydraulic Jack for Rack-Loading of Two-Frame Assembly

8.09(d)(2)(A) The test may be performed on a complete bus body or on a representative section composed of at least two complete frames (body posts plus roof bows) and floor. Standard seats may be installed in the test section in a manner identical to that of the full bus body. Fabrication procedures for the test assembly shall be identical to normal bus body production.

8.09(d)(2)(B) A two-cycle loading sequence shall be conducted, with intermediate and final load and deflection readings recorded according to the procedure described.

8.09(d)(2)(C) The maximum deflection in line with the jack (A, maximum) shall not exceed four inches.

8.09(d)(3) Manufacturers shall specify which testing method was used and submit appropriate certification information as called for and 3.1 of these rules.

9.0 Aisle

9.1 The minimum aisle clearance between seats and for all emergency doors shall be 12 inches at seat level.

9.2 In forward (front engine) Type D buses, the aisle passage area shall not be less than 12 inches, measured from floor level up, between the engine cover and any other object. Cool-down fastening devices used on the engine cover shall be designed to prevent hooking or catching on clothes or clothing.

10.0 Axles

10.1 The rear axle shall be single-speed.

11.0 Battery (Low Voltage)

11.1 On Type B, C, and D buses, a drawer-type pull-out tray shall be provided to facilitate servicing or removal of battery(ies) not used for the motive propulsion of the bus. The battery(ies) shall be enclosed by a vented compartment, provided with drain ports, a hold-down carrier mounted to avoid blocking filler ports, and a latching device to prevent accidental opening. Under-coating shall be provided and applied to the battery box. The battery tray is to be equipped with a safety device to keep the tray from sliding completely out.

11.2 On Type A buses equipped with more than one battery, all batteries should be positioned in one location.

11.3 Battery labels should be placed at all locations where batteries are installed.

11.4 Batteries shall be equipped with sufficient battery cable to allow the drawer-type pull-out tray to fully extend.

12.0 Brakes

12.1 Type C and D buses shall be equipped with full compressed air brake systems. Both air drum brake and air disc brake applications are acceptable.

12.2 Air Brakes:

12.02(a) Compressors: On buses using full compressed air brakes for service, emergency, and parking brakes, the compressor shall be a standard production model but the minimum 12 cubic foot per minute displacement

12.02(b) Moisture ejection valve: An automatic heated, moisture ejection valve or air-drying system shall be properly installed. This is made to automatically eject moisture, sludge, and/or foreign matter and maintain clean, dry air lines.

12.02(c) Control requirements: The control valve for the parking brake system shall be designed and constructed to conform with the following:

12.02(c)(1) The parking brake control valve shall be visible to the driver and shall be mounted on the dash panel within 15 inches to the right of the steering column.

13.0 Bumpers

13.1 Front bumper shall:

13.01(a) Be at least 3/16 inch thick of pressed steel channel, one-piece construction with a minimum of eight-inch width (high), except Type A buses under 14,500 GVWR.

13.01(b) Be of extended design to offer maximum protection of fender lines without permitting snagging or hooking.

13.01(c) Be attached to the frame and extend forward of the grille, headlights, fender, or hood sections to provide maximum protection.

13.01(d) Be of sufficient strength to ensure that the front of the bus may be lifted by means of a bumper-type jack without permanent deformation of the bumper.

13.2 Rear bumper shall:

13.02(a) Be of pressed steel channel or equivalent material, at least 3/16 inch thick, and shall be a minimum of eight inches wide (high) on Type A buses and shall be a minimum of 9 ½ inches (high) on Type B, C and D buses.

13.02(b) Be wrapped around the back corners of the bus and extend forward at least 12 inches from the rear-most point of the body at the floor line.

13.02(c) Be fastened to chassis frame side rails in such a manner as to develop the full strength of the bumper section from a rear or side impact. Bracing materials shall have an impact ratio comparable to that of the bumper material and shall be fastened at the ends and radii of the bumper, attached to the side of the frame only, and not to the body at any point.

13.02(d) Extend beyond the rear-most part of the body surface at least 1-inch, measured at floor lines.

13.02(e) Not allow spaces, projections, or cutouts that will permit a hand-hold or foot-hold.

13.02(f) Have the front ends enclosed by end caps or other protective metal or have the ends rounded or tucked in and shall be free from sharp edges or projections likely to cause injury or snagging.

13.02(g) Have a gasket, rubber, or equivalent, installed to close the opening between the top of the rear bumper and body metal.

13.02(h) Be of sufficient strength to permit being pushed by another vehicle of similar size. The bumper shall be of sufficient strength to ensure that the rear of the bus may be lifted by means of a bumper-type jack without permanent deformation of the bumper.

14.0 Color

14.1 All exterior metal shall be painted National School Bus Glossy Yellow (NSBY) except for:

14.01(a) Lettering and numbering shall be black, white, or yellow for the bumper area.

14.01(b) Bumpers and frames shall be black.

14.01(b)(1) Exception: Bumpers may be colored blue or green to reflect the type of fuel being used in the vehicle.

14.01(c) Rub rails shall be black or yellow.

14.01(c)(1)Exception: Rub rails may be colored blue or green on an electric vehicle (EV) or to reflect the type of fuel being used in the vehicle.

14.01(d) The background area for alternating flashing warning lights shall be black.

14.01(e) The roof of the bus may be painted white, not to extend below the drip rails on the sides of the body.

14.01(f) Student window frames, post and service door frame may be black.

14.01(g) The hood of the bus may be painted matte black.

15.0 Cooling System

15.1 A permanent ethylene-glycol base or environmentally safe equivalent anti-freeze shall be provided to protect the cooling system to -30° Fahrenheit when tested at normal engine temperature.

15.2 The cooling system shall be equipped with a visual fluid level indicator.

16.0 Defrosters

16.1 A defroster system shall be installed of sufficient capacity to keep the windshield area, the left front side window to the rear of the driver's vision, and the service door glass area free of condensation or ice.

16.2 The defrosting system shall conform to the requirements of the Society of Automotive Engineers, Inc. (SAE) J381-202006.

16.3 A minimum of one and no more than three adjustable 6-inch auxiliary fans shall be installed to complement the defroster system used by the manufacturer. Such fans shall be controlled individually by two-speed switches located on the control panel. The fan blade shall be covered with the protective cage.

16.3(a) The fans shall be located to not interfere with the driver's horizontal line of sight vision.

17.0 Doors

17.1 The service door shall be power or manually operated, under the control of the driver, and so designed to afford easy release and prevent accidental opening. When the manual lever is used, no parts shall come together to sheer or crush fingers.

17.2 Manual door controls shall not require more than 25 pounds of force to operate at any point throughout the range of operation as tested on a 10% grade both uphill and downhill. Power door controls shall be located within easy access of the driver.

17.3 The service door shall be located on the right side of the bus opposite the driver and within the driver's direct view.

17.4 Power-operated doors shall be equipped with a separate manual emergency release, readily accessible in the door area, either above the service door, to the side of the service door, or on the dash, so that the door may be opened in the event of an emergency. The release shall be plainly labeled with instructions for use.

17.5 There shall be a head bumper pad installed on the inside at the top of the entrance door. The pad shall be approximately three inches wide (high), at least one inch thick, and extend across the entire top of the service door opening.

18.0 Drive Shaft

18.1 Each drive shaft or section thereof shall be equipped with adequate metal guard(s) to prevent whipping through the floor or dropping to the ground if broken.

19.0 Electric Drive High Voltage Specs (EV)

19.1 An electric-powered school transportation vehicle shall meet all Federal Motor Vehicle Safety Standards and all SAE standards that are applicable at the time of manufacture.

19.2 EV-Specific Labeling

19.02(a) Each door, cover, or other panels that afford immediate access to any high voltage area shall be plainly marked with a hazard warning label which shall read WARNING - HIGH VOLTAGE or DANGER - HIGH VOLTAGE. This label shall be in a highly conspicuous place. All high-voltage access areas shall be equipped with a lock or otherwise secured to prevent unauthorized access.

19.02(b) An EV identifying label shall be affixed to the right rear corner of the bus body. An additional label shall be applied to the right side of the bus rearward of the entrance door and to the left side of the bus in front of the driver's window.

19.3 EV High Voltage Drive System Batteries

19.03(a) EV High Voltage Batteries shall not be in or accessible from the interior of the school bus.

19.03(b) Energy storage for the EV High Voltage Drive System shall be protected from crash impacts and shall be encased in a non-conductive, acid-resistant compartment. This compartment shall be well-ventilated to preclude the possibility of hydrogen gas buildup. Energy storage shall be in an area and in such a way as to provide ease of service.

19.03(c) EV High Voltage Batteries shall require automatic electrical isolation in the case of a vehicle crash.

19.03(d) EV High Voltage-Powered Vehicles: Buses utilizing a high voltage propulsion system (more than 48 nominal volts) shall meet the requirements of FMVSS 305, Electric Powered Vehicles: Electrolyte Spillage and Electrical Shock Protection, except for the following

19.03(d)(1) The propulsion power source (batteries, fuel cells, etc.) shall be located outside the passenger compartment.

19.03(d)(2) The propulsion power source enclosure shall be constructed to conform to the power source manufacturer’s requirements and recommendations.

19.03(d)(3) Due to the much larger size and quantities of the propulsion power sources on larger vehicles, buses over 10,000 lbs. are permitted to exceed the 5.0-liter spillage. Electrolyte damage from

propulsion batteries and the requirements to statically rotate the vehicle on its longitudinal access post-test.

19.4 EV High Voltage Wiring Standards and Protection

19.04(a) Wire, cable, and conductor insulation in the High Voltage System shall provide adequate insulation for the voltage used and for ambient temperatures ranging from -15 degrees Fahrenheit to 120 degrees Fahrenheit. All high voltage circuits shall be bright orange in color or otherwise labeled as HIGH VOLTAGE. All high-voltage circuits shall provide adequate and automatic protection against electrical overloads caused by short circuits or other excessive current conditions through the use of fuses, circuit breakers, and ground fault interruption.

19.04(b) The EV Drive System shall have a system for protecting system components from thermal damage due to electrical overload. This system shall include temperature sensors at critical points and be capable of reducing EV Drive System electrical power when necessary.

19.04(c) The EV High Voltage System shall be designed so that when the ignition switch is off or in accessory mode, the propulsion motor is positively disconnected. All other accessories powered by the main propulsion battery circuit shall remain operable when the ignition switch is in accessory mode.

19.04(d) All Buses shall be equipped with an additional manual and automatic switch or device independent of the propulsion motor disconnect controls that permit the positive disconnection of all circuits from the Drive System Batteries. This switch shall be operable from outside the vehicle. Each door or panel providing access to this switch shall be plainly marked to indicate that it is a main-power-disconnect switch or device.

19.04(e) The ignition switch circuit shall be linked to the Battery Management System and shall prevent driving the vehicle while it is connected to an external battery charging source.

19.04(f) The charging connection point shall be outside the passenger compartment.

19.04(g) The High Voltage System shall be designed to prevent the passenger compartment from becoming energized.

19.04(h Battery packs shall be cooled and heated as necessary to maintain proper operating temperatures.

19.5 EV Instrumentation

19.05(a) In addition to the required gauges, the instrument display panel must also contain an indication showing the state of charge (power and/or range).

19.05(b) The instrument display panel shall have a warning light that indicates when an EV drive system component exceeds a safe temperature. The warning light should illuminate prior to critical temperature to allow sufficient time to safely stop the bus.

19.05(c) The instrument display panel shall have a warning light that indicates when an EV Drive System has a mechanical or electrical fault.

19.6 EV Range

19.06(a) All electric school buses shall have an OEM design that is capable of operating with a range of 100 miles or more on a current charge.

19.07(a) All electric school buses shall comply with FMVSS 141 producing sound while in motion below 20 mph.

19.8 Propulsion System

19.08(a) The propulsion system on all-electric school buses shall be of sufficient power to propel the vehicle fully loaded up to 65 mph.

19.08(b) The propulsion system may be mounted utilizing a normal drivetrain or positioned in a way to provide direct power to the wheels. All propulsion systems must be contained below the floor line and cannot come into contact with the road surface.

19.9 Brakes

19.09(a) On electric school buses, brakes may produce regenerated power.

19.09(b) Park brake testing procedure:

19.09(b)(1) Allow the brake system air pressure to build to at least 100 psi.

19.09(b)(2) Place the drive selector of the vehicle in low gear, release the parking brake, and drive the vehicle forward to a speed of three (3) to five (5) mph.

19.09(b)(3) While in motion place the vehicle in neutral and engage the parking brake and the vehicle should stop.

19.10 Passenger Heating System

19.10(a) On electric school buses the heating system must be capable of meeting performance and design standards without a fuel-fired heater. See Section 27.0 of these rules.

19.10(b) Heating systems that are independent of other cooling system functions may forgo the use of manual shutoff valves to the passenger compartment as long as the flow of coolant can be stopped by means of a heating system shut down or an electric heater control valve.

20.0 Emergency Equipment

20.1 All school transportation vehicles, except for small-capacity vehicles, shall be equipped with at least one pressurized, five-pound, dry-chemical fire extinguisher, with a total rating of not less than 2A10BC. The operating mechanism shall be sealed with a type of seal that will not interfere with the use of the fire extinguisher.

20.01(a) The fire extinguisher shall be securely mounted in an extinguisher bracket (automatic type) and located in full view of and readily accessible to the driver within the cab, or in a location plainly indicated by appropriate signage. A pressure gauge shall be mounted on the extinguisher to be easily read without removing the extinguisher from its mounted position.

20.01(b) Fire extinguishers shall be inspected annually for charging and certification to standards by a certified fire extinguisher technician.

20.2 Small-capacity vehicles shall be equipped with one securely mounted, 2 ½ pound, dry chemical fire extinguisher with a minimum rating of 1A10BC.

20.3 First Aid Kit: All school transportation vehicles shall carry one First Aid Kit which shall be securely mounted in full view of the driver or with the location plainly indicated by appropriate signage. Additional kits may be installed. The kit(s) shall be mounted for easy removal.

20.03(a) The kit shall be sealed. The seal verifies the integrity of the contents without opening the kit. The seal shall be designed to allow easy access to the kit's contents. If zip ties are used to seal the kit, they must be breakaway zip ties.

20.03(b) Consideration should be given to replacing items in the First Aid Kit every 36 months due to the breakdown of materials.

Contents of the 24-Unit First Aid Kit:

Item	Unit(s)
Adhesive tape	1
1-inch bandage compress	2
2-inch bandage compress	1
3-inch bandage compress	1
4-inch bandage compress	1
4-inch x 3-inch plain gauze pads	1
Gauze roller bandage 2-inch wide	2
Plain absorbent gauze -½ square yard	4
Plain absorbent gauze- 24-inch by 72 inches	3
Triangular bandages	4
Scissors, Tweezers	1
Space rescue blanket	1
Non-latex disposable pair of gloves	1
CPR mask or mouth-to-mouth airway	1

Moisture and dustproof kit of sufficient capacity to store the required items.

20.4 Emergency Reflectors: All school transportation vehicles shall carry three bidirectional emergency triangle reflectors in compliance with C.R.S. 42-4-230, and with FMVSS 125, contained in a securely mounted case easily accessible to the driver or in a location plainly indicated by appropriate markings.

20.5 Body Fluid Cleanup Kit: All school transportation vehicles shall have a one removable body fluid cleanup kit accessible to the driver, within the cab, or in a location plainly indicated by appropriate signage.

Contents of the Basic Body Fluid Clean-Up Kit:

Item	Unit(s)
Antiseptic towelette	1
Disinfected towelette	1
Absorbing powder (capable of 1/2-gallon absorption)	1
Non-latex disposable pair of gloves, pair	1
Disposable wiper towels	2
Disposable scoop bag with closure mechanism and scraper	
Moisture and a dustproof container of sufficient capacity to store the required items.	

20.05(a) Consideration should be given to replacing items in the Body Fluid Cleanup Kit every 36 months due to the breakdown of materials.

20.6 All school transportation vehicles shall be equipped with one durable webbing cutter having a full-width handgrip and a protected blade. The cutter shall be mounted in a location accessible to the seated driver.

20.06(a) Seat belt cutters shall be replaced after they have been used, or if there is any sign of rust or corrosion on the blade.

20.7 Emergency Equipment shall be securely mounted, clearly visible, or in a location plainly indicated by appropriate signage

21.0 Emergency Exits

21.1 All emergency exits shall conform to FMVSS 217.

21.2 A district**,** charter school, and service provider, may choose to have more emergency exits installed.

21.3 Emergency doors may be installed in place of emergency windows.

21.03(a) Emergency door(s) shall be equipped with a three-point latch mechanism. The inside door handle shall be designed with a guard for protection against accidental release.

21.03(b) The exterior door handle shall be of a permanent hitch-proof design and mounted with enough clearance to permit opening without touching the door surface.

21.03(c) All emergency door openings shall be completely weather-stripped. No obstruction shall be higher than 1/4 inch across the bottom of any emergency door opening.

21.03(d) A head bumper pad shall be installed over the emergency door on the inside of the bus body. The pad shall be approximately 3-inches wide (high), at least 1-inch thick, and extend across the entire top of the emergency door opening. The padding shall be of the same materials as the padding used over the service door.

21.03(e) The rear emergency door shall contain upper and lower glass panels that comply with FMVSS 205. Glass in the emergency door shall provide the maximum area of visibility for the safe operation of the bus.

21.03(f) The emergency window glass shall meet FMVSS 205. Glass shall be tempered unless specified laminated by the purchaser.

22.0 Exhaust System

22.1 The tailpipe shall not exit the right side of the bus body

22.2 The exhaust system shall be insulated in a manner to prevent any damage to any fuel system component

22.3 There shall be a switch to manually start the diesel particulate filter regeneration process

22.4 The tailpipe shall be flush with but not extend more than one inch beyond the perimeter of the body for side exit or the bumper for rear exit.

22.5 Tailpipe shall not exit beneath any fuel filler location or beneath any emergency door or lift door.

23.0 Floor Coverings

23.1 The floor in the under-seat area, including tops of wheel housings, driver's compartment, aisle**,** and the kick board shall be covered with fire-resistant rubber floor covering or equivalent that is non-skid and wear-resistant.

23.2 The floor covering in the aisle shall be fire-resistant rubber or equivalent, non-skid wear-resistant**,** and ribbed. The minimum overall thickness shall be .1875 inches measured from the tops of the ribs.

23.3 The floor covering shall be permanently bonded to the floor and must not crack when subjected to sudden changes in temperatures. Bonding or adhesive material shall be waterproof and shall be of the type recommended by the manufacturer of floor covering material. All seams must be sealed with a waterproof sealer.

23.4 Cove molding or new and emerging coatings shall be used along the side walls and rear corners. All floor seam separations shall be properly bonded or secured.

23.5 The entrance step treads, including the edge at floor level, shall be of the same quality as the aisle material. Step treads shall have an integral white or yellow nosing of 1 1/2 inch or more or use diagonal stripes. Treads shall be permanently bonded to the metal steps and sealed to prevent water from getting underneath the step tread.

23.05(a) New and emerging coatings may be used in lieu of step treads but shall incorporate white or yellow nosing. A sealed and insulated plate shall be provided when required to access the fuel tank sending unit. The plate shall not be installed under flooring material. Type A buses 14,500 GVWR and under are exempt.

24.0 Frame

24.1 No holes shall be permitted in the chassis rails except when drilled at the manufacturing plant or authorized by the manufacturer.

24.2 Any welding to the frame side rails that is necessary by design to strengthen, modify, or alter basic vehicle configuration shall be authorized and documented by the manufacturer.

25.0 Fuel System

25.1 All fuel tank specifications shall conform to FMVSS 301, FMVSS 303, FMVSS 305, National Fire Protection Association code 52, and/or National Fire Protection Association Code 58, as applicable.

25.2 The engine supply line shall not be mounted below the fuel tank. Wiring shall be hidden whenever possible.

25.3 The fuel fill cap opening in the body skirt shall be equipped with a hinged cover held closed by a spring or other conveniently operated. Type A buses under 14,500 GVWR and small-capacity vehicles are exempt.

26.0 Handrail

26.1 For Type A, B, C**,** and D buses an assist handrail not less than 20 inches in length designed to provide maximum loading assistance, shall be provided in an unobstructed location inside the service door.

26.2 At least one handrail shall be installed inside the service door. The handrail shall be a minimum of 1 inch in diameter and be constructed from corrosion-resistant material(s). The handrail(s) shall assist passengers during entry or exit and shall be designed to prevent entanglement, as evidenced by the passing of the NHTSA String and Nut Test.

26.3 The handrail may be offered in a color provided by and applied by the manufacturer.

27.0 Heating System

27.1 All school buses shall be equipped with two or more hot water heaters capable of delivering water to the system at a rate of six gallons per minute using an ambient temperature of 0 degrees Fahrenheit to +10 degrees Fahrenheit and maintaining passenger compartment temperature of 50 degrees Fahrenheit. One of the heaters shall be in the rear half of the bus on or behind the rear wheel axle line. This standard must be obtained without a secondary heating source.

27.01(a) Lift-equipped buses may place the rear heater under the last row of seats or wall mount. The front heater may be wall-mounted.

27.2 Buses shall be equipped with front heater(s) and integrated defroster system of capacity to provide heat for the front part of the bus (including the driver's compartment) and to keep the windshield area, service door glass, driver's left glass area, and step well clear of moisture, ice, and snow.

27.3 Heater cores and fans shall be completely encased but designed to permit servicing heater assembly by removing all or part of the case.

27.4 Heater hose installation in the engine compartment shall include two shut-off valves shutting off coolant completely when necessary.

27.04(a) One shut-off valve mounted between the water pump outlet and heater hose connection.

27.04(b) One shut-off valve mounted between the motor block and the return heater hose connection.

27.04(c) Heater hoses shall be adequately supported to guard against excessive wear due to vibration. Hoses shall not rub against the chassis, body, or other edges.

27.5 The body manufacturer shall add the required amount of permanent ethylene glycol base or environmentally safe equivalent antifreeze after heaters have been connected to protect the cooling system of the bus to -30 degrees Fahrenheit tested at normal engine temperature.

27.6 A heater water flow regulating valve shall be installed for convenient operation by the driver.

28.0 Identification

28.1 School buses shall bear the words "SCHOOL BUS" in black letters at least eight inches high on both the front and rear of the body. Lettering shall be placed without impairment of its visibility. All lettering shall conform to Standard Alphabets for Highway Signs,

Series B 2000. Lettering shall have a retro-reflective NSBY material background pursuant to Rule 36.1 of these rules.

28.2 School buses shall bear the name of the school district/ charter school, and service provider on each side of the bus. The lettering must be black, standard, unshaded letters, and at least 5 inches in height. If there is insufficient space due to the length of the name of the school district, charter school or service provider, terms such as community, consolidated, and district may be abbreviated.

28.3 Small-capacity vehicles shall bear the name of the school district, charter school, and service provider plainly visible on each side of the vehicle.

28.4 The manufacturer's original rated capacity of the vehicle shall be printed to the left of the service door on the lower skirt in two-inch characters. The word “capacity” may be abbreviated. (Example: Cap.48)

28.5 The numbering of individual buses for identification purposes is permissible.

28.6 Lettering and numerals shall be painted or may be pressure-sensitive markings of similar performance quality.

28.7 “STOP” shall be printed on the rear of the bus in letters at least eight inches high. “ON FLASHING RED” shall be printed below “STOP” in letters at least 4 1/2 inches high. An LED message panel giving safety messages to alert motorists may be used instead of the above lettering. These letters shall be placed in the area(s) visible to the approaching motorist.

28.8 The school district, charter school, and service provider logo may be placed above the side window drip line or along the side of the bus but shall not interfere with any required lettering.

28.9 Only signs and lettering specifically permitted by state law or regulation, and any marking necessary for safety and identification shall appear on the outside of the bus.

28.09(a) Advertising, approved by the local Board of Education, charter school’s or service provider’s governing board, may appear only on the side(s) of the bus in the following areas:

28.09(a)(1) The location and securement of the advertising shall have prior written CDE approval.

28.09(a)(2) The signs shall not extend from the body to allow a handhold or present a danger to pedestrians.

28.09(a)(3) The signs shall not interfere with the operation of any door, window, required lettering, lamps, reflectors, or other devices.

28.09(a)(4) The signs shall not be placed on side emergency door(s).

28.09(a)(5) Advertising signs shall not interfere with retro-reflective tape on the side of the bus.

28.09(a)(6) Bumper stickers and/or signage are considered advertising. Consistent with rule 28.09(a)(1) of these rules, advertising shall have prior written CDE approval.

28.10 The exterior of the battery compartment shall be labeled with the word “Battery”.

28.11 Identification of fuel type shall be located outside and adjacent to the fuel filler opening.

28.12 Multifunction buses shall bear the words “ACTIVITY BUS” in black letters at least 8 inches high on both the front and rear of the body. Lettering shall be placed without impairment of its visibility. All lettering shall conform to Standard Alphabets for Highway Signs, Series B 2000.

29.0 Insulation

29.1 The bus body shall be fully insulated in the roof including roof bows and all body panels. Insulation 1-inch minimum thickness shall be fiberglass or equivalent and fire resistant.

30.0 Interior

30.1 Inside body height shall be 72 inches or more, measured metal to metal at any point on the longitudinal center line from front vertical bow to rear vertical bow. Type A school buses of 14,500 GVWR or less shall have 62 inches or more inside height, measured metal to metal. Neither measurement shall include air conditioning units.

30.2 The interior of a school transportation vehicle shall be free of all projections likely to cause injury. Therefore, the use of low-profile interior cameras is encouraged.

30.3 Global Positioning System Tablets

30.03(a) Tablets shall be mounted in a location that will not interfere with the driver's vision.

30.03(b) Wiring for the tablet is to be routed to not interfere with controls, vision, or become a tripping hazard. Wiring shall be hidden whenever possible.

30.03(c) When the vehicle is placed in gear, the tablet may go black, but it is still permitted to give auditory directions. Once the vehicle is placed into “park” the screen may then become visible. Districts, charter schools, and service providers may opt to have the screen visible while driving to aid substitute and new operators.

31.0 Lamps and Signals

31.1 All lamps, signals, reflectors and their installation shall conform to the requirements of The Society of Automotive Engineers, Inc. (SAE) J2442. No lettering, symbols, or arrows, except manufacturer's markings, shall be on any lens.

31.2 Tail and stop (brake) lamps:

31.02(a) The bus shall be equipped with four combination red stop/tail lamps. Two combination stop lamps shall have a lens diameter of at least seven inches or 38.48 square inches. Two combination tail lamps shall have a lens diameter of at least 4 inches or 12 ½ square inches.

31.02(b) If the bus is equipped with a retarder, secondary braking system/or another system that supplements the service brake system, the four brake lamps shall be illuminated when the braking system or other supplemental system is activated.

31.3 Interior lamps: Interior lamps shall be provided which adequately illuminate the aisle. A separate lamp shall be provided in the step well.

31.4 Back-up lamps: Back-up lamps shall have a lens diameter of at least 7 inches or 38.48 square inches, or a 4 inch LED shall be provided.

31.5 Turn signal lamps:

31.05(a) The bus shall be equipped with two amber turn signals in front and two amber turn signals in the rear. The rear turn signal shall be at least 7 inches or a total of 38.48 square inches in diameter.

31.05(b) On buses over 30 feet, a minimum of one additional turn signal shall be mounted on each side below the window and behind the service door axis plane.

31.6 All school buses shall be equipped with an alternating flashing eight-way warning signal lamp system.

31.7 The amber flashing warning signal lamps shall be energized manually by a switch. The flashing red warning signal lamp system shall be a sequential mode type.

31.8 The flashing warning signal lamp system shall have two pilot or indicator lights; one shall show amber light when the amber signal lamps are flashing and the other shall show red light when the red signal lamps are flashing.

31.08(a) The areas around the lens of each alternating flashing signal lamp shall be black.

31.08(b) Visors shall be provided and securely mounted to adequately shade and protect the dual-lamp assemblies from sunlight above but not to obstruct the rear and side effectiveness of the warning lamps. LED warning signal lamps are not required to use visors.

31.9 Type D rear engine buses shall have two hazard lamps each visible to the rear when the engine door is open. The lamps shall be wired to be illuminated when the main hazard lamp circuit is energized.

31.10 A white flashing strobe light may be installed on the roof of a school bus. An amber lens may be used upon approval of a local traffic regulatory authority. The light shall have a single clear lens emitting light 360 degrees around its vertical axis and may not extend above the roof more than eight inches. A manual switch and a pilot light must be included to indicate when the light is in operation. The lamp must not be capable of activating emergency traffic control light switches.

32.0 Mirrors

32.1 Exterior mirrors shall meet FMVSS 111.

33.0 Mounting, Body, and Chassis

33.1 Insulation material shall be placed at all attachment points between the body and chassis frame on all buses and shall be attached to the chassis frame or body to prevent movement under severe operating conditions.

33.2 The body front shall be attached and sealed to the chassis cowl to prevent the entry of moisture and gases.

34.0 Multifunction School Activity Bus

34.1 A Multifunction School Activity Bus, pursuant to rule 7.10 of these rules, shall meet the standard contained in these Minimum Standards. The Multifunction School Activity Bus shall comply with the following:

34.01(a) Color shall not be traditionally National School Bus Glossy Yellow as required by Rule14.1 of these rules.

34.01(b) Shall not have the identification of “SCHOOL BUS,” as required by rule 28.1 of these rules.

34.01(c) Shall not have the identification of “STOP ON FLASHING RED,” as required by Rule 28.7 of these rules.

34.01(d) Shall not have a school bus eight-way alternating flashing warning signal lamps, as required by Rule 31.6 of these rules

34.01(e) Shall not have a stop signal arm, as required by Rule 42.1 of these rules.

34.01(f) Shall not be required to have the retro-reflective material color, as required by Rule 36.3 of these rules.

34.01(f)(1) Exception: A Multifunction School Activity Bus is required to meet the requirements of Rule 36.4 of these rules.

35.0 Overall Size

35.1 The overall length of school buses shall not exceed 40 feet pursuant to C.R.S. 42-4-504(2).

35.2 The overall width of the school bus shall not exceed eight feet six inches (8 ½ feet) pursuant to C.R.S. 42-4-502.

36.0 Retro-Reflective material

36.1 Retro-reflective material shall be installed on the bus conforming to the requirements of FMVSS 131 and 217.

36.2 Rear of bus body: strips of between 1 inch and 2 inch retro-reflective NSBY material shall be applied horizontally above the rear windows and above the rear bumper, extending from the rear emergency exit perimeter marking outward to the left and right rear corners of the bus, with vertical strips applied at the corners connecting the horizontal strips.

36.3 "School Bus" signs: shall be marked with retro-reflective NSBY material comprising background for the lettering of the front and/or rear "School Bus" signs.

36.4 Sides of the multifunction bus body shall be marked with white retro-reflective material at least 1 3/4 inches in width, extending the length of the bus body and located (vertically) as close as practicable to the floor line.

36.5 Sides of the school bus body: shall be marked with retro-reflective NSBY material at least 1 3/4 inches in width, extending the length of the bus body and located (vertically) as close as practical to the floor line

37.0 Rub Rails

37.1 There shall be one rub rail located on each side of the bus at approximately seat level which shall extend from the rear side of the service door completely around the bus body (except for emergency and/or access door) to the point of curvature near outside cowl on the left side.

37.2 There shall be one rub rail located at approximately the floor line which shall cover the same longitudinal areas as the upper rub rail, except at the wheel housing, and shall extend at least to the radii of the right and left rear corners.

37.3 There shall be one rub rail located on each side of the bus at the bottom of the side skirts, or a side skirt stiffener of equivalent strength.

37.4 Rub rails shall be attached at each body post and all other upright structural members.

37.5 Rub rails shall be four inches or more in width, 16-gauge steel, or equivalent strength, constructed in corrugated or ribbed fashion, and shall be self-draining.

37.6 Rub rails shall be applied to the outside of the body panels. Pressed-in or snap-on rub rails do not satisfy this requirement.

38.0 Seats/Restraining Barriers

38.1 Type A school buses shall be equipped with restraining barriers conforming to FMVSS 222.

38.2 No bus shall be equipped with any type of seats that are not secured to the floor by the manufacturer.

38.3 The forward-most pupil seat on the right side of the bus shall be located not to interfere with the driver's vision. The seat shall not be farther forward than the barrier behind the driver or the rear of the driver's seat when adjusted to its rear-most position.

38.4 Use of a flip seat at any side emergency door location and conformance with FMVSS 222, including required aisle width to the side door, is acceptable. Any flip seat shall be free of sharp projections on the underside of the seat bottom. The underside of the flip-up seat bottoms shall be padded or contoured to reduce the possibility of snagged clothing or injury during use. Flip seats shall be constructed to prevent passenger limbs from becoming entrapped between the seat back and the seat cushion when in the upright position. The seat cushion shall be designed to rise to a vertical position automatically when not occupied.

38.5 School bus student seats and seat spacing shall meet FMVSS 222.

38.6 School bus seat materials shall meet FMVSS 302.

38.7 Integrated child seats shall not be installed at an emergency exit.

38.8 Each individual wheelchair securement system shall consist of materials from one brand only.

39.0 Specially Equipped Buses

39.1 Aisles

39.01(a) All school buses equipped with a power lift shall provide a minimum 30 inch pathway leading from any wheelchair position to at least one 30 inch-wide emergency exit door

39.2 Identification

39.02(a) Specially equipped buses shall display the International Symbol of Accessibility on all four sides of the bus.

39.02(a)(1) Such emblems shall be white on a blue or black background and shall not exceed 12 inches square in size.

39.02(b)(2) Such emblems shall be of high-intensity retroreflective material meeting the requirements of the Federal Highway Administration's Standard Specifications for the Construction of Roads and Bridges on Federal Highway Projects, FP- 24.

39.3 Lighting

39.03(a) Doorways in which lifts are installed shall be equipped with a special interior light that is located above the lift, and that provides a minimum of two-foot candles of illumination measured on the floor of the bus immediately adjacent to the lift during lift operations.

39.4 Power Lifts and Ramps

39.04(a) The power lift shall be located on the right side of the bus body.

39.04(b) Vehicle Lift and installation

39.04(b)(1) Vehicle lifts and installations shall comply with the requirements set forth in 49 C.F.R., 571.403 and 49 C.F.R., 571.404.

39.04(b)(2) The lifting mechanism(s) and platform shall be capable of operating effectively with a wheelchair and occupant mass of at least 600 pounds per 49 C.F.R., 38.23 and 38.159.

39.04(c) A ramp device may be used in lieu of a mechanic lift if the ramp meets all of the requirements of the Americans with Disabilities Act (ADA) as found in 36 C.F.R., 1192.83.

39.04(c)(1)The floor of the ramp shall be covered with non-skid material.

39.04(c)(2) The ramp shall be of weight and equipped with a handle or handles to permit one person to put the ramp in place and return it to the storage location.

39.04(c)(3) The ramp shall be equipped with a protective flange on each longitudinal side to keep the wheelchair on the ramp.

39.5 Special Service Entrance

39.05(a) Power lift-equipped bodies shall have a special service entrance to accommodate the power lift.

39.05(b) The special service entrance and door shall be located on the right side of the bus and shall be designed so as not to obstruct the regular service entrance.

39.05(c) The opening may extend below the floor through the bottom of the body skirt. If such an opening is used, reinforcements shall be installed at the front and rear of the floor opening to support the floor and give the same strength as other floor openings.

39.05(d) Drip molding shall be installed above the special service entrance to effectively divert water from the entrance.

39.05(e) Door posts and headers at the special service entrance shall be reinforced sufficiently to provide support and strength equivalent to the areas of the side of the bus not used for the special service entrance.

39.6 Special Service Entrance Doors

39.06(a) A single door or double door may be used for the special service entrance.

39.06(b) A single door shall be hinged to the forward side of the entrance unless this would obstruct the regular service entrance. If the door is hinged to the rearward side of the doorway, the door shall utilize a safety mechanism that will prevent the door from swinging open should the primary door latch fail.

39.06(c) If double doors are used, the system shall be designed to prevent the door(s) from being blown open by the aerodynamic forces created by the forward motion of the bus and/or shall incorporate a safety mechanism to provide secondary protection should the primary latching mechanism(s) fail.

39.06(d) All doors shall have a positive fastening mechanism to hold the door(s) in the “open” position when the special service entrance is in use per 21.03(a) of these rules.

39.06(e) All doors shall be weather-sealed, per 21.03(c) of these rules.

39.06(f) When manually operated dual doors are provided, the rear door shall have at least a one-point fastening mechanism to the header, and the forward-mounted door shall have at least three one-point fastening mechanisms per 21.03(a) of these rules.

39.06(f)(1) One fastening mechanism shall be to the header, one to the floor line of the body, and the other shall be into the rear door.

39.06(g) The door and hinge mechanism shall have strength that is greater than, or equivalent to, the strength of the emergency exit door.

39.06(h) Door materials, panels, and structural components shall have strength equivalent to conventional service and emergency exit doors.

39.06(h)(1) Color, Rub rail extensions, lettering, and other exterior features shall match adjacent sections of the body.

39.06(i) Each door shall have windows set in a waterproof manner that are visually similar in size and location to adjacent non-door windows per 21.03(e) of these rules.

39.06(i)(1) Glazing shall be of the same type and tinting (if applicable) as standard fixed glass in other body locations per 21.03(f) of these rules,

39.06(j) Door(s) shall be equipped with a device that will actuate an audible or visible signal located in the driver's compartment when the door(s) is not securely closed, and the ignition is in the "on" position.

39.06(k) A switch shall be installed so that the lift mechanism will not operate when the lift platform door(s) is closed.

39.06(l) Special service doors shall be equipped with padding at least three inches wide and one inch thick at the top edge of the door opening and shall extend the full width of the door opening.

39.7 Support Equipment and Accessories (New Information)

39.07(a) If transporting oxygen that is not in use, the oxygen shall be secured. Consideration should be given to utilizing a securement device meeting SAE J3043, if applicable.

39.8 Wheelchair Tie-Down and Occupant Restraint System (WTORS)

39.08(a) Each individual wheelchair securement system shall consist of materials from one brand or manufacturer only.

39.08(b) Each wheelchair tie-down and occupant restraint system shall be designed, installed, and operated with forward-facing, wheelchair-seated passengers.

39.08(b)(1) All wheelchair tie-down and occupant restraint systems shall comply with all applicable requirements of FMVSS 222, FMVSS 302, and SAE J2249.

39.08(c) Wheelchair securement positions shall be located so that wheelchairs and their occupants do not block access to the lift door.

39.08(d) When the wheelchair tie-down occupant restraint system (WTORS) is not in use, the WTORS shall be secured. A storage device should be used to keep the WTORS clean, secure within the passenger compartment, and readily accessible.

39.08(e) Each wheelchair position in a specially equipped school bus shall have a minimum clear floor area of 30 inches laterally by 48 inches longitudinally. Additional floor area may be required for some wheelchairs. 49 C.F.R., 38(d)(2).

39.08(f) Occupant Restraint System: If the upper torso belt anchorage is higher than 44 inches measured from the vehicle floor, an adjustment device shall be supplied as part of the occupant restraint system.

40.0 Steering Gear Assembly

40.1 All school bus chassis, and all passenger capacities, shall be equipped with heavy-duty, truck-type integral power steering. Power steering components shall be compatible with GVW.

40.2 No changes shall be made to the steering apparatus that are not authorized in writing by the manufacturer.

40.3 There shall be a clearance of at least two inches between the steering wheel and any other surface or control.

41.0 Steps

41.1 The first service doorstep shall be not less than ten inches from the ground while the vehicle is in motion and not more than 16 inches from the ground when measured from the top surface of the step to the ground. An auxiliary step may be provided to compensate for the increase in ground-to-first step clearance. The auxiliary step is not required to be enclosed.

41.2 Step risers shall not exceed a height of 10 inches. When plywood is used on the top step, the riser height may be increased by the thickness of the wood.

41.3 The surface of the steps shall be of non-skid material.

42.0 Stop Signal Arm

42.1 The stop signal arm shall meet FMVSS 131. The stop signal arm may extend up to but shall not exceed 6 1/2 feet in length from the side of the bus.

42.2 Rubber spacers shall be installed on either the side of the bus or the stop arm to prevent the sign from making abrasive contact with the side of the bus.

42.3 The wind guard shall be provided to keep the sign in the retracted position.

43.0 Storage Compartment

43.1 A metal container of adequate strength and capacity for the storage of tire chains, tow chains, and such tools as may be necessary for minor emergency repairs while the bus is en route may be provided. The storage container may be located either inside or outside the passenger compartment. If inside, the storage compartment shall be securely fastened to prevent the contents from spilling and shall have a latched or secured cover other than a seat cushion.

44.0 Sun Visor

44.1 An interior, adjustable, sun visor shall be installed not less than six inches wide and 30 inches long. Type A school buses 14,500 GVWR or less shall have a sun visor according to the manufacturer's standard size.

45.0 Tires and Rims

45.1 Minimum tire and rim sizes for vehicles with a 10,000 GVWR or greater, shall be in accordance with FMVSS 120.

45.2 Type B, C, and D school buses shall have dual rear tires.

45.3 All wheels shall be one-piece disc type.

46.0 Tow Hooks

46.1 Two heavy-duty tow hooks/loops shall be factory installed on the front of Type C and D buses.

46.2 Two heavy-duty tow hooks/ loops shall be factory installed on the rear of school buses.

46.3 Hooks/loops shall not extend beyond the front or rear bumper of any school bus.

47.0 Undercoating

47.1 The entire underside of the bus body, including floor sections, cross members, and below-floor line side panels, shall be coated with rust-proofing material.

47.2 The undercoating material shall be applied with a suitable airless or conventional spray equipment as per manufacturer-recommended film thickness and shall show no evidence of voids in the cured film.

47.3 The undercoating materials shall not cover any exhaust components of the chassis.

48.0 Ventilation

48.1 School transportation vehicles more than 20 feet in length shall be equipped with a multi-speed powered exhaust roof ventilator or powered vent fan in the roof hatch, mounted in the rear half of the bus.

49.0 Windshield Wipers and Washers

49.1 The wipers shall be operated by one or more air or electric motors. If one motor is used, the wiper shall work in tandem to give a full sweep of the windshield.

49.2 All wiper controls shall be located within easy reach of the driver and designated to move blades from the driver's direct view when in the stop position.

49.3 The system reservoir capacity shall be a minimum of one gallon.

50.0 Wiring

50.1 All wiring shall conform to the requirements of the Society of Automotive Engineers, Inc. (SAE) J2202.

50.01(a) An appropriate identifying diagram (color plus a name or number code) for all chassis electrical circuits shall be provided to the body manufacturer for distribution to the end user.

50.01(b) A body wiring diagram, sized to be easily read, shall be furnished with each bus body or affixed to an area convenient to the electrical accessory control panel.

50.01(c) Each wire passing through a metal opening shall be protected by a grommet.

51.0 Incorporation by reference

51.1 The foregoing rules incorporate by reference the Federal Motor Vehicle Safety Standards (FMVSS), 49 C.F.R., Part 571 (as codified as of May 11th, 2023, unless an earlier version is applicable). They also incorporate by reference ADA regulations in 48

C.F.R., Part 38 and in 36 C.F.R., § 1192.83, as codified on the effective date of these rules. The foregoing rules do not incorporate by reference any later amendment or editions to the Federal Motor Vehicle Safety Standards or to the cited ADA regulations. The Federal Motor Vehicle Safety Standards and the cited ADA regulations are available at https://www.ecfr.gov/. They are also available for public inspection during regular business hours from the Colorado Department of Education, 201. Colfax Ave., Denver, Colorado 80203

51.2 The foregoing rules also incorporate by reference (1) certain standards promulgated by the Society of Automotive Engineers, Inc. ("SAE"), as published at https://www.sae.org/standards/; (2) codes promulgated by the National Fire Protection Association and available at https://www.nfpa.org/for-professionals/codes-and-standards/list-of-codes-and-standards; and (3) the Standard Specifications for the Construction of Roads and Bridges on Federal Highway Projects, available at https://highways.dot.gov/federal-lands/specs; (4)the Standard Alphabets for Highway Signs from the Federal Highway Administration's Manual on Uniform Traffic Control Devices, available at https://mutcd.fhwa.dot.gov/knowledge/hwy_sign_calculator/index.cfm. These standards are incorporated as they stood on May 30, 2024. The foregoing rules do not incorporate by reference any later amendment or editions to these standards. The incorporated standards are available at the foregoing websites and are available for public inspection during regular business hours from the Colorado Department of Education, 201 E. Colfax Ave., Denver, Colorado 80203.

Previous Year's Minimum Standards

The following revisions to the Colorado Minimum Standards for School Transportation Vehicles can be found on the **CDE Website** under ***Guidelines and Regulations***.

Effective April 30, 2015: Minimum Standards for Vehicles Manufactured 2015-2023

Effective September 1, 2007: Minimum Standards for Vehicles Manufactured 2007-2015

Effective February 1, 1999: Minimum Standards for Vehicles Manufactured 1999-2007

Effective October 1, 1993: Minimum Standards for Vehicles Manufactured 1993-1999

Colorado Rules for the Operation, Maintenance, and Inspection of School Transportation Vehicles

The current version of the Colorado Operation Rule can be found on our website under *Guidelines and Regulations* or on the *homepage* listed under CDE Rules.

References

Glossary

ABS - Anti-lock Braking System

ASE - Automotive Service Excellence

CCR - Code of Colorado Regulations

CDE – Colorado Department of Education

CDL - Commercial Driver's License

CFR – Code of Federal Regulations

CRS - Colorado Revised Statutes

CSPTA - Colorado State Pupil Transportation Association

CV Joint - Constant-velocity joint

DPF - Diesel Particulate Filters

DQF – Driver Qualification File

DOT – Department of Transportation

EDAC - Educational Data Advisory Committee

EVAP - Evaporative Emission Control System

FBI – Federal Bureau of Investigation

FMVSS - Federal Motor Vehicle Safety Standards

ID – Identification

IQF – Inspector Qualification File

LED – Light emitting Diode

LF – Left Front (tire)

LR – Left Rear (tire)

OEM - Original Equipment Manufacturer

PSI – Pounds per Square Inch

RF – Right Front (tire)

RPM – Revolutions per minute

RR – Right Rear (tire)

U Joint - Universal Joint

Additional Resources

If clicking on the link does not properly redirect you to the site or gives you an error message, try copying and pasting it to the search bar of your browser.

FMVSS's https://www.ecfr.gov/current/title-49/subtitle-B/chapter-V/part-571

Colorado School District Self Insurance Pool https://www.csdsip.org/

National Congress on School Transportation https://nasdpts.org/NCST-NSTSP

USDOT Dockets and Regulations https://www.transportation.gov/regulations

Federal Laws https://www.congress.gov//

Federal Register https://www.govinfo.gov/help/cfr

National Transportation Safety Board https://www.ntsb.gov/Pages/default.aspx

National Highway Traffic Safety Administration https://www.nhtsa.gov/

Federal Motor Carrier Safety Administration https://www.fmcsa.dot.gov/

EPA's Clean School Bus USA Program https://www.epa.gov/cleandiesel/clean-school-bus

Colorado Department of Transportation http://www.cotrip.org/home.htm

Motor Carrier Safety Unit – CSP https://www.colorado.gov/csp

Colorado Legal Resources http://www.lexisnexis.com/hottopics/Colorado/

Electronic Code of Federal Regulations https://www.ecfr.gov/cgi-bin/searchECFR?ob=randidno=andq1=exhaust+systemandr=andSID=ab50dda13297012b805c06b96b78347bandmc=true

CDE Annual Inspection:

Procedures, Repair Criteria, and Out-of-Service Criteria

SECTION A: Road Test Inspection

Section A. Road Test inspection

NOTE: This Manual is laid out to logically coincide with the inspection of front engine vehicles.

Rear engine vehicles may have to be inspected in a different sequence; all componentry and procedures apply.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Driver's Seat and Seat Belt 1) Check the driver's seat and belt for specifications (type/adjustability), operation, condition, and mounting.	Seat adjustment binds or is difficult to operate. Seat adjustment is loose, or adjustment hardware is missing. Seat upholstery or foam is deteriorated or damaged. Seat upholstery is the wrong type (vinyl/cloth). The seat bottom is loose in frame or miss--positioned. Seat belt retractor covers, or belt covers are damaged or loose.	The driver's seat will not adjust as designed. Seat mounting is unstable, loose at the floor, or seat mounting hardware is missing. Driver's seat belt missing or not an approved type. The seat frame is exposed due to deterioration of upholstery or foam. The mounting of retractors or belt guides is not secure. Seat belt webbing or stitching is frayed or damaged. The belt is routed improperly. The seat belt does not extend or retract freely. The seat belt buckle and tongue assembly do not latch or release. Non-OEM extenders have been added to the belt or belt mounting.
2) Check under the seat storage compartment if		The compartment or drawer is not secured.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Steering *Play* Check for play in the steering system at the steering wheel: 1) Visual check - from inside the bus with the engine running, rotate the steering wheel lightly from side to side until turning motion can be observed at the tires. Note free play (lash) at the steering wheel's outer diameter. Note: Procedure must be performed with the vehicle on the ground.		Free play (lash) exceeds the amounts specified in Chart A-1.
2) To check power assist operation, run the engine at fast idle (approximately 1000-1200 rpm) and turn the steering wheel full right then full left, and feel for binding, jamming, or belt slippage.		Power assist is inadequate or there is binding, jamming, or slippage.

3) Visually check the condition of the steering wheel.	The steering wheel plastic is cracked.	The steering wheel is loose on the column. The steering wheel is a non-OEM design. Plastic is missing so the metal steering wheel reinforcement is exposed.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Column 1) Check the steering column inside the bus for up-and-down play (parallel to the shaft), side-to-side play (perpendicular to the shaft), and for proper mounting.	The rubber boot at the bulkhead (if equipped) is torn, ripped, or missing.	Side-to-side play in the steering column exceeds ¼ inch or up and downplay exceeds 1 inch. Column assembly mounting (including floor mounting plate) or fasteners are loose. Any modification or other condition that interferes with the free movement of any steering component.
2) Check the operation of tilt and telescoping functions (if equipped).	Does not tilt or telescope.	Does not latch securely in place.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Instruments/Gauges, Indicators Lights, Warning Systems, Horns *Gauges* Check from the driver's position the OEM location, visibility, readability, illumination, operation, accuracy, and condition of the following gauges and warnings:	Gauges don't sweep during instrument cluster check. (refer to manufacturer's specifications)	Instrument Cluster Inoperative
1) Speedometer and odometer	The odometer doesn't work or is not working properly. The odometer is unreadable.	The speedometer is known not to work or is confirmed to be inaccurate The speedometer is unreadable or damaged.
2) Oil pressure	The oil pressure gauge is inaccurate, damaged, or difficult to read.	The oil gauge does not function or is unreadable. Oil pressure gauge or tube leaks.
3) Temperature	The temperature gauge is inaccurate, damaged, or difficult to read.	The temperature gauge does not function or is unreadable.
4) Fuel	The fuel gauge is inaccurate, damaged, or difficult to read.	The fuel gauge does not function or is unreadable.
5) Voltmeter or ammeter	The voltmeter/ammeter is inaccurate, damaged, or difficult to read.	The voltmeter/ammeter does not function or is unreadable.
6) Air pressure		Air pressure gauge(s) are known to be inaccurate, unreadable, or not working.
7) Tachometer (if equipped)	Inoperative	
8) Hour meter (if equipped)	Inoperative	
9) Transmission Temperature Gauge (if equipped)	Inoperative	
10) Vacuum	Vacuum gauge is known to be inaccurate, unreadable, or not working.	

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Indicators, Dash Lights Check for the presence and operation of the following indicators:	Light bulb for the following gauge or indicators is inoperative:	Light bulb for the following gauge or indicators is inoperative:
1) Low air pressure or vacuum warning light	The low air pressure warning light does not engage at 60 psi. (high or low)	Low air pressure or vacuum light inoperative.
2) High beam indicator light	High beam indicator inoperative.	
3) Left and right tum signal and 4-way hazard	Left or right tum signal or 4-way hazard inoperative.	
4) Check all dash and control panel lights for illumination at gauges and switches.	Oil pressure /Temperature / Fuel / Voltmeter / Ammeter / Shift Indicator light is inoperative One or more lights for control switches are inoperative. One or more panel lights are inoperative.	All dash or control panel lights are inoperative. Speedometer lights are inoperative.
Engine Warning Lights and Buzzer Check for the presence and operation of the following warning lights on all diesel buses and buzzers in 1990 and later.		
1) High coolant temperature dash warning light and buzzer.		The high-water temperature dash warning light or buzzer is Inoperative.
2) Should be mounted securely in OEM location.	Loose.	Not mounted in OEM location.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
3) Should operate freely in each function (i.e., start, run, off, and accessory position).		The engine will not crank or start. Switch sticks in any position. Doesn't function properly in start, run, off, or accessory position or is intermittent in any position.
Fast Idle Switch Check the operation of the switch.	Switch On does not engage.	Switch Off does not disengage fast idle.
Dash Decals 1) Warning: Electric hydro-max brake booster must be functional with the Ignition switch off (if applicable).	Regen decal, or ether starts missing	If the decal is missing on buses equipped with hydro-max braking systems and electrical emergency booster motors.
2) Wait to Start - Glow Plugs, Grid heater.	Decals are missing or not legible on buses equipped with glow plug or grid heater systems. Light does not illuminate during the instrument panel light check.	
3) *"Do not move the bus with the lift down"*	If the decal is missing or not legible.	
Horn(s) Check for the operation of horn(s) and for the location and condition of the horn switch.	The horn sounds only one tone.	Horn(s) does not operate properly. The horn button is not mounted in the original OEM location. The horn button sticks or is intermittent such as when the steering wheel is rotated.
Shifter - Automatic Transmission 1) Check that the shifter operates easily, and Touchpad operates	Does not shift easily into all gears.	Will not shift into all gear positions.

2) Correctly indicates the gear that the transmission is in.	Slightly misaligned but indicates the correct gear.	Indicates the wrong gear.
3) LED correctly indicates transmission gear	Some LED’s out but can still determine which gear transmission is in.	LED's out and/or cannot determine which gear transmission is in.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
4) Has a functional detent mechanism with a loose knob or handle.		The detent is non-functional. The knob or handle does not shift easily into all gears.
5) Check Markings on the touchpad.	Touch-pad numbers faded or worn. Touch-pad cracked.	The buttons on the touchpad are unreadable.
Shifter - Manual Transmission 1) Check that the shifter operates easily	Does not shift easily into all gears.	Will not shift into all gears. Hangs between gears.
2) Condition of lever and knob.	The lever is bent, or the knob is cracked. Loose knob. The pattern has worn-off the knobs (floor shift only).	The lever is not securely attached. The knob is missing or indicates the wrong pattern.
Neutral Safety Switch Check for a functional neutral safety switch that allows the starter to operate only in park or neutral.	Out of adjustment.	The starter will engage in any gear other than park or neutral.
Retarder indicator lights Inspect lights for condition and operation.	Any light is inoperative or damaged.	

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Windshield, Mirrors, Driver Visor and Hardware *Windshield* Inspect the windshield for cracks and other damage.	The windshield leaking around the gasket or seal.	Windshield Glazing. (Not including a 2-inch border at the top, a 1-inch border at each side, and the area below the topmost portion of the steering wheel.) Any crack, discoloration, or vision-reducing matter except: (1) coloring or tinting applied at the time of manufacture (2) any crack not over 1/4inch wide, if not intersected by any other crack (3) any damaged area not more than 3/4inch in diameter, if not closer than 3 inches to any other such damaged area Crack in the windshield greater than twelve (12) inches in length. Is any glass missing?
Windshield Visibility/Fogging 1) Check windshield and windows for fogging, reduced visibility, or improper level of tinting.	Glass fogging around edges, but less than two (2) Inches.	The windshield is fogged more than two (2) inches from the outer border. Any windshield or window fogging or clouding results in reduced visibility of a mirror. Any reduced visibility through the windshield or any windows within the driver's immediate field of vision.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
2) Check windshields and windows for objects or signs obstructing the driver's vision.	Tinting on windshield or windows to the side of the driver which is not 70% light transmission or clearer. Tinting on any windows behind the driver's location which is not at least 28% light transmission or clearer.	Any object obstructing or interfering with the driver's vision to the front, sides (to include the first two windows behind the front barriers), or rear.
Latches and Window Operation Check latches and windows for condition and operation.	The latches are broken. Latches are difficult to operate. Windows do not operate.	Any loose or damaged window hardware protruding into the passenger compartment.
Mirrors - General Inspect for condition and operation of mirrors.	The mirror mounting is loose; the mirror does not remain where positioned by the driver.	Mirrors broken or cracked adversely affect the driver's field of vision (FMVSS 111) Chart A-2.
Mirrors - Rear view Check exterior rearview mirrors for specifications, condition, mounting, and adjustment.	Loose mounting brackets.	Any exterior rearview mirror is broken, cracked, or loose in the frame. Either mirror does not give driver a clear view down to the lower outside edge of the rear tire at ground level, on both sides to the rear. Any bracket is broken, or mirror mounting is insecure. The reflective surface is deteriorated. Any mirror does not meet applicable specifications as to type and size.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Mirrors - Convex Check convex crosswalk and side-view mirrors for specifications (correct type, size, and location) condition, mounting, and adjustment.	Any mirror is out of adjustment.	Required convex mirrors are not present. Any mirror or mounting that is cracked, broken, or loose. Any reflective surface has deteriorated. Mirrors do not meet specifications for the bus manufacture date. Mirrors do not give the driver a clear view of the area around the front of the bus.
Mirrors - Interior Check the interior rearview mirror for size, condition, and mounting.	Any portion of the reflective surface is obstructed by a sun visor or stickers.	The mirror does not meet the minimum size/design requirements. The mirror does not have rounded corners and protected edges. Any reflective surface has deteriorated. The driver's view of images in the mirror is not clear due to distortion or other causes. The mirror mounting system is loose/broken.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
		The driver's view of images in the mirror is not clear due to distortion or other causes. The mirror mounting system is excessively loose/broken.
Driver Visor Inspect the driver's sun visor for condition and operation.	The driver's sun visor is clouded, loose, dirty, or has unauthorized stickers.	The driver's sun visor cannot be adjusted or will not stay in position. The driver's sun visor is cracked, broken, or damaged. The Sun visor is missing.
Windshield Wipers and Washers *Wiper Operation* Inspect both wipers for: 1) Swept area field of view.	The wiper goes past the perimeter of the glass.	Either wiper does not effectively clear the driver's field of vision.
2) Proper operation of both wipers on high and low speeds and condition and mounting of switch(es) and knob(s).	Either wiper does not operate on low speed. Switch(es) mounting loose or knob(s) loose.	Either wiper does not operate properly at high speed. Knob(s) missing.
3) Condition and mounting of wiper motor and linkage.	Either the wiper motor or linkage is visibly damaged or loose.	
4) Inspect for proper washer operation.	The washer does not operate, is improperly adjusted or is out of fluid.	

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Wiper Park Inspect for the parked position of wipers when turned off.		When turned off, either wiper does not automatically return to the parked position out of the driver's line of sight.
Wiper Blades Inspect blades for condition, mounting, and tension.		Either blade is damaged, deteriorated, loose, or does not hold proper tension against the windshield.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Air Brake System	NOTE: If the vehicle is equipped with an Anti-Lock Braking System, refer to the manufacturer's service manual for inspection criteria.	
Air System Build Time Check air system build time from fully depleted to fully charged.		Depleted to fully charge time exceeds 4 minutes.
Air Brake System Governor Check and record governor cut in psi and cut out psi.	Out of adjustment (if it can be adjusted).	Cannot be adjusted. PSI does not meet the manufacturer's specifications.
Gauge(s) For vehicles equipped with air brakes check for the presence of two air pressure gauges (or a single gauge with dual needles). One gauge or needle should indicate air pressure available to the primary brake system and one to the secondary brake system. Check Low-Pressure Warning Device actuates at the proper gauge reading.		Any gauge is missing or cannot be read. The gauge is not accurate. Any gauge is not in the OEM location. More than a 15-psi difference in the dual air brake system (dual gauges). Low-Pressure Warning Device is missing, inoperative, or does not operate at 55 psi and below, or 1/2 the governor cut-out pressure, whichever is less.
Consumption Check for consumption with full brake application.		Excessive consumption (per manufacturer's spec).
Air leaks With a fully charged air system, engine off, and full brake application -observe air loss.		Air loss of 3 psi or more (per air system test procedure).

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Service Brake *Operation* Check for proper operation and adjustment of the service brake as follows: Pedal-free travel, adequate pedal height and reserve, ABS booster operations (Hydraulic), and brake action/operation (hydraulic and air)		Brake action is erratic. No pedal-free travel. Inadequate pedal height or reserve.
Condition Check air brake pedal assembly for adjustment, mounting, condition, operation, and rubber cover pad (if originally equipped).	The rubber cover pad is worn through or is worn smooth in any area.	The rubber cover pad is missing (If originally equipped). Any part of the pedal and assembly is damaged, loose, missing, or has been modified. The pedal is equipped with any type of extender block.
Service Brake Hydraulic Brakes NOTE: Since there are four (4) distinct types of hydraulic brake systems in use on school transportation vehicles, this guide will cover each system individually. It is imperative that you know the type of system you will be inspecting to ensure that the proper inspection procedure is used. The four (4) types of systems are: System 1. Standard Vacuum Assisted Hydraulic Brakes System 2. Hydraulic Power Assisted Hydraulic Brake with Accumulator Backup System 3. Hydraulic Power Assisted Hydraulic Brakes with Electric Pump Backup and Driveshaft Park Brake Systems System 4. Hydraulic Power Assisted Hydraulic Brakes with Spring Set (hydraulically released) Parking Brakes (Ford Maxi brake)		

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
System 1. Standard Vacuum Assisted Hydraulic Brakes		
1) **Inspect for Visible leaks** in the hydraulic brake system.		Any leaks found.
2) **Check brake pedal reserve** (distance from floor) upon firm brake application (engine running).		The brake pedal (reserve) is less than one (1") inch from the floor.
3) **Check brake pedal fade** (pedal falls to the floor when held down with the engine running or with the engine		Any brake pedal fade.
4) **Check vacuum gauge operation** and low vacuum light and buzzer (if equipped) with full vacuum below eight (8) in mercury (hg).		The vacuum gauge (if equipped) is inoperative, inaccurate, or not clearly visible. Low vacuum indicator light or buzzer inoperable.
5) **Check for brake warning light** illumination with the ignition key in the "Start" position. Check brake failure warning light is not on during normal operation.		The brake failure warning light does not light when the key is moved to the start position. The brake failure warning light comes on (or stays on) during normal operation (with/without brakes applied).
6) **Check for vacuum drop** when brakes are not applied.		Vacuum reserve drops (with engines off).
7) **Check vacuum assist (booster)** operation. With the engine off apply brakes several times. Depress and hold the brake pedal while starting the engine. The pedal should "fall away" slightly, indicating increased pressure appliedby the assist unit.		The vacuum assist system malfunctions (the pedal does not "fall away" slightly when the engine is started).
8) **Brake Reserve** Tum engine off and apply brakes. There should be enough reserve in the vacuum system to allow at least one (1) power-assisted brake application.		Vacuum reserve is insufficient to allow at least one (1) brake application.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
9) **Check all brake hardware components** inside the bus for secure mounting, routing, and condition. including: a. Pushrod and clevis assembly. b. Brake pedal assembly and rubber cover. c. Emergency brake control assembly.	Rubber covers are worn through or worn smooth in any area. The Park brake doesn't hold or function properly.	The brake pedal assembly, pushrod, clevis, or emergency brake control assembly is not securely mounted, has loose, missing, or worn hardware, or is damaged. The rubber cover Is missing (if originally equipped) or worn through or worn smooth in any area or any type of "extender block". Emergency brake control is hard to operate or doesn't latch and release properly.
10) Parking Brake Operation: a. With the vehicle stopped (engine running), apply a parking brake. b. When engine torque is applied or by placing the transmission selector in gear (automatic transmission) and accelerating the engine to a fast idle		The parking brake doesn't hold or function properly. Adjustment is needed (lever type with adjustment knob). Repair prior to leaving the vehicle.
System 2. Hydraulic Power Assisted Hydraulic Brakes with Accumulator Backup		
1) **Inspect for any visible leaks** in the brake or hydraulic assist system.		Any brake or hydraulic assist fluid leaks are found.
2) **Check brake pedal reserve** upon one (1) firm brake application (engine off, accumulator depleted).		The brake pedal does not have at least a 1-½inch reserve (distance from the floor).
3) **Check brake pedal fade** (test minimum 1 ½ minutes, engine off). Firmly apply the brake pedal and hold.		Pedal falls to the floor (fades) when held down (engine off) indicating brake system leak.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
4) **Check brake warning light illumination** with the ignition key in the "Start" position. Check brake failure warning light is not on during normal operation (with/without brakes held).		The brake failure warning light does not light when the key is moved to the start position or stays on during normal operation.
5) Power assist check: a. With the engine off apply the foot brake several times, then hold down. b. Start the engine; the pedal should fall, then push back against your foot. c. Listen for the engine drive belt. Release the brake pedal. d. Tum engine off. Depress the brake pedal. e. Accumulator should hold enough pressure to allow two (2) assisted brake applications.		The power assist unit is malfunctioning (the pedal doesn't fall or push back). The engine drive belt is squealing.
6) **Check all brake hardware components** inside the bus for secure mounting, routing, and condition, including: a. Pushrod and clevis assembly b. Brake pedal assembly and rubber cover pad (if originally equipped) c. Emergency brake control assembly		The brake pedal assembly, pushrod, and clevis, or emergency brake control assembly is insecurely mounted, has loose, missing, or worn hardware, or is damaged. The rubber pedal cover pad is missing (if originally equipped) or worn out. The pedal is equipped with any type of "extender block". Emergency brake control is hard to operate or does not latch and release properly.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
7) **Parking Brake Operation**: a. With the vehicle stopped: (engine running), apply the parking brake. b. When engine torque is applied by partially engaging the clutch in second gear and reverse (manual transmission) or by placing the transmission selector in "Drive" and "Reverse" (automatic transmission) and accelerating the engine to a fast idle (approximately 1,200 RPM), the vehicle should not move.		The Park brake does not hold or function properly.
System 3. Hydraulic Power Assisted Hydraulic Brakes with electric pump backup and driveshaft park brake system		
1) **Inspect for any visible leaks** in the brake or hydraulic assist system.		Any leaks are found in the brake or hydraulic assist system.
2) **Check brake warning and backup** systems using the appropriate chassis manufacturer's procedure In the Chart.		The brake system does not pass the entire test in the appropriate chart.
3) **Check brake pedal reserve** (distance from floor) upon one (1) firm brake application (engine off, hydraulic boost depleted).		The brake pedal (reserve) is less than one (1) inch from the floor.
4) **Check brake pedal fade** (continues to fall to the floor after initial firm application) with the engine off.	The rubber cover pad is worn through or worn smooth in any area.	There is any brake pedal fade (falling away) after initial firm application.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
5) **Check all brake hardware components** inside the bus for secure mounting, routing, and condition, including: a. Pushrod and clevis assembly b. Brake pedal assembly and rubber cover (if originally equipped) c. Emergency brake control assembly		The brake pedal assembly, pushrod, clevis, or emergency brake control assembly is unsecured, has loose, missing, or worn hardware, or is damaged. The rubber pedal cover pad is missing (if originally equipped) or worn out. The pedal is equipped with any type of "extender block". Emergency brake control is hard to operate or doesn't latch and release properly.
6) **Check Parking Brake:** a. With the vehicle stopped (engine running), apply a parking brake. b. When engine torque is applied by partially engaging the clutch in second gear and reverse (manual transmission) or by placing the transmission selector in "Drive" and "Reverse" (automatic transmission) and accelerating the engine to a fast idle (approximately 1,200 R.P.M.), the vehicle should not move.		Emergency brake control is hard to operate or doesn't latch and release properly. Adjustment is needed, (lever type with adjustment knob), do so now. The parking brake doesn't hold or function properly.
System 4. Hydraulic Power Assisted Hydraulic Brakes with Spring Set (Hydraulically released). Parking Brakes (Ford Maxi brake)		
1) **Inspect for any visible leaks** in the brake or power assist system.		Any leaks found in either system.
2) **Check brake warning** and backup system using Chart A-3.		The brake systems do not pass all tests in Chart A-3.
3) Check brake pedal travel Push brake pedal down as far as possible.		The brake pedal travels more than halfway down.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
4) Check for brake pedal fade a. Pedal falls away to the floor when held down (with the engine running and with the engine off), indicating brake system leaks.		Any brake pedal fade
5) Check the Parking Brake System a. With the engine running, release the parking brake. b. Check to ensure the brakes are released (the bus will move). c. Turn the engine off. d. System must hold pressure for at least five (5) minutes. e. With the vehicle stopped and the engine running), apply the parking brake. f. When engine torque is applied by partially engaging the clutch in second gear and reverse (manual transmission) or by placing the transmission selector in "Drive" and "Reverse" (automatic transmission) and accelerating the engine to a fast idle (approximately 1,200 R.P.M.), the vehicle should not move.		The parking brake system will not hold pressure (i.e., with released brakes) for at least five (5) minutes. The vehicle will move with parking brakes applied.
6) Brake hardware and components 1) Check all brake hardware and components inside the bus for secure mounting, routing, and condition, including: 2) Brake pedal assembly and rubber cover pad (if originally equipped) 3) Brake pedal pushrod and clevis assembly Emergency brake control assembly	Brake pedal rubber cover pad Is loose or worn through or worn smooth in any area.	The rubber pedal cover pad is missing (if originally equipped) or worn out. The pedal is equipped with any "extender block". The brake pedal assembly, pushrod, and clevis, or emergency brake control assembly is insecurely mounted, has loose, missing, or worn hardware, or is damaged.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Parking Brake, Air *Park Brake* Check for proper operation and adjustment of the parking brake as follows: With the vehicle stopped, apply the parking brake. When engine torque is applied by placing the transmission selector in "Drive" and "Reverse" (automatic transmission) and accelerating the engine to a fast idle (approximately 1000-1200 RPM), the vehicle should not move.	The vehicle moves after speeding up the engine (transmission in gear) with a parking brake applied.	The vehicle moves after speeding up the engine (transmission in gear) with a parking brake applied. No brakes on the vehicle are applied upon actuation of the parking brake control, including driveline hand-controlled parking brakes.
Parking Brake Lever/Knob	Pin or knob loose.	Missing knob or lever. The knob is broken or cracked.
PP-1 (pop-off style) Check the emergency brake control valve. Check condition, location, mounting, and type of valve and knob. With pressure above 45 psi, apply and release the valve to check operation.	Label identifying valve is missing or unreadable.	The valve is not mounted securely (In its original position). Not OEM type. Inoperative. Leaks.
PP-1 Park brake control valve Check for emergency activation of the valve by pumping down brakes (starting with at least 60 psi in the air system) and noting the air pressure at which the valve "pops		Park brake pop-off valve fails to "pop out" between 20 to 40 psi
Brake Valves Inspect all brake system valves for securement and condition.	Mounting loose.	Any audible air leak from any brake valve. Any brake valve is cracked, damaged, or not mounted securely. Any valve exhaust port is obstructed.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Low Air Warning: Check the operation of the low-air warning buzzer and light. With the ignition key switch in run position (engine off), pump the air brake pedal to drop air pressure. Low air warning buzzer and light should activate at approximately 60 psi.		The light or buzzer is inoperative. The light or buzzer fails to operate by 60 psi.
Registration, Insurance Card *Registration* Check for a valid registration certificate in the vehicle.	The registration certificate is not on the bus, it is invalid, or not legible.	The registration certificate is not on the bus, it is invalid, or not legible.
Insurance Card Check for a valid insurance card in a mounted transparent holder.	The insurance Card is not on the bus, it is invalid, or not legible.	The insurance Card is not on the bus, it is invalid, or not legible.
STU-25 Check for the previous annual inspection form.	The previous annual inspection form is not on the bus or not legible.	The previous annual inspection form is not on the bus or not legible.
Pre-Inspection Road Test Record any abnormalities with the following equipment during the road test:		
Ignition/Starting Check for starting, proper idle, and stalling.	Rough or low idle.	The engine will not start or is difficult to start. Engine stalls. The starter drags, is noisy, or does not engage properly.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Engine Operation Check for missing or hesitation, performance when accelerating, and excessive smoke. Check the engine for any unusual noises, knocks, or rattles.	Engine smoking is abnormal. The noise source was determined not to be harmful to the engine.	The engine is misfiring, skipping, or there is excessive hesitation upon acceleration. The source of noise could result in engine failure.
Oil Pressure Indication.		Oil pressure not normal Oil pressure malfunction light illuminated.
Governor Performance and Shutdown of Engine.		The engine will not shut down. The governor does not limit engine rpm.
Clutch		Any unusual noise or vibration is observed.
Transmission Record any abnormalities with any of the following equipment during a		Any unusual noise or vibration is observed.
Steering		Any unusual noise or vibration is observed.
Brakes		Any unusual noise or vibration is observed.
Defroster(s) Inspect windshield defroster system for: 1) Airflow, heat, and coverage area.	Airflow is insufficient to keep the windshield clear	Airflow Is not present at any defroster outlet.

Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
2) Blower operation, condition, and control switches.	Any defroster blower does not work at low speed, is noisy, or vibrates. Blower switches are damaged or loose.	Any defroster blower does not work at high speed.
3) Condition of ductwork, diffusers, and fresh air control (if equipped).	Any ductwork or diffusers are loose or damaged. Fresh air control (if equipped) does not function.	Any diffuser is missing or blocked.
4) Condition of ductwork and heater box. Record any abnormalities with any of the following equipment during the road test:	Heater ductwork or heater box components are missing, damaged, loose, or obstructed.	Any portion of the heating system within the passenger area creates sharp edges, projections, or other hazards to passengers or drivers.
Heaters 1) Inspect the heater system for heating performance, and water control valve operation (interior).	Not producing adequate heat. The water control valve is hard to operate.	The vehicle does not produce any heat. The control valve stuck closed.
2) Blower operation, condition, and control switches.	Heater blowers do not work at any speed, are noisy, or vibrate. Blower switches are damaged, or loose, or the blower operates intermittently.	
3) System hose leakage, condition, and hose shielding (shielding required for exposed hoses on the interior of all buses).		Heater cores, hoses, or valves have visible leakage. Heater hoses are cracked, swollen, or badly chafed. Shielding is missing or does not completely cover the
4) Condition of ductwork and heater box.	Heater ductwork or heater box components are missing, damaged, loose, or obstructed	Any portion of the heating system within the passenger area creates sharp edges, projections, or other hazards to passengers or driver
Driver Auxiliary Fan(s) Inspect auxiliary fan(s) for:		Fan not OEM approved. (i.e. plastic blade).

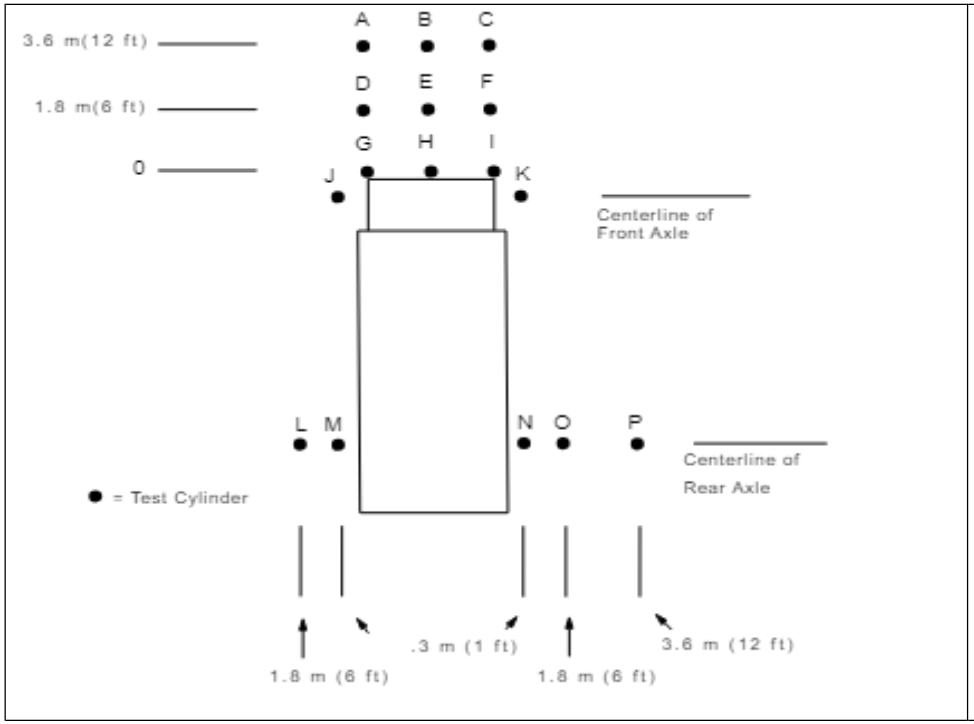
Section A. Road Test Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
1) Presence of fan, mounting, and condition.	The fan is not present. Fan mounting is loose, or the fan will not stay in	
2) Blade condition.	The fan blade is damaged.	
3) Protective cage mounting and condition.	The protective cage is loose or damaged	The protective cage is missing.
4) Operation and switch.	The fan does not operate, one (1) speed does not function, or the fan is noisy or vibrates. The switch is loose or damaged.	
Gauges and Instrumentation		Any unusual indication.

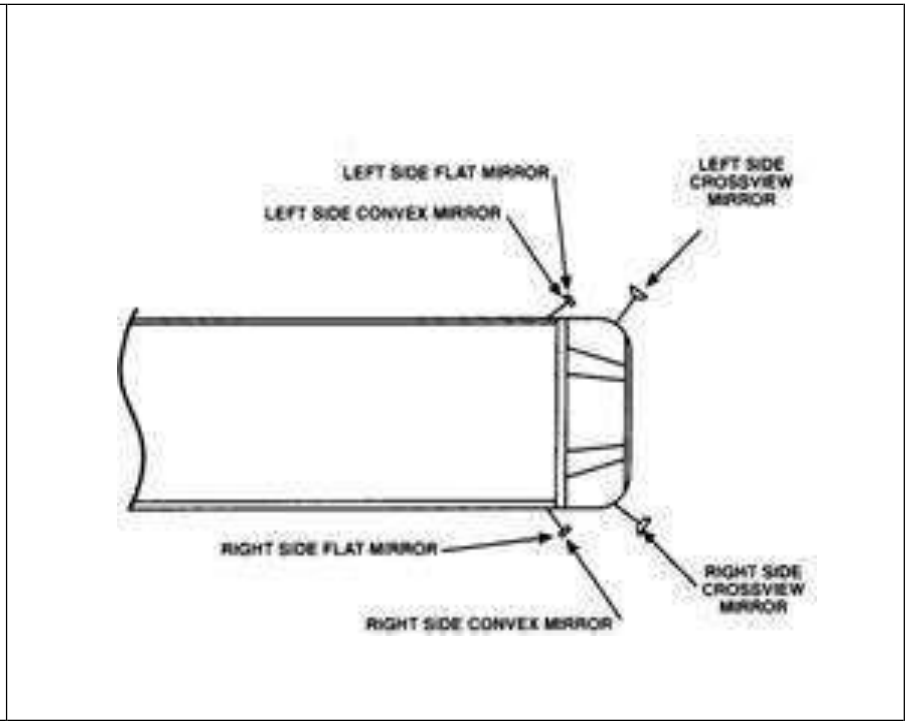
CHART A-1: STEERING WHEEL PLAY (LASH) MEASUREMENTS

Lash may not exceed the following:

Steering Wheel Size	Play (Lash) Manual Steering	Play (Lash) Power Steering
16 inches or less	2 inches	4 ½ inches
18 inches	2 ¼ inches	4 ¾ inches
20 inches	2 ½ inches	5 ¼ inches
22 inches	2 ¾ inches	5 ¾ inches

CHART A-2: FMVSS 111 MIRROR ADJUSTMENT





REAR VIEW MIRRORS (SYSTEM A) Used together, left-side flat mirror and left-side convex mirror must provide a view of "M" and, continuing from there, 200 feet rearward of the mirror surface. Used together, the right-side flat mirror and right-side convex mirror must provide a view of cylinder "N" and, continuing from there, 200 feet rearward of the mirror surface.

CROSSVIEW MIRRORS (SYSTEM B) Any cylinder "A-P" can be viewed using either of the cross-view mirrors, but all must be visible. Only those cylinders that the driver can view by direct vision and are forward of the front bumper may be excluded.

CHART A-3: WARNING LIGHTS AND BUZZER

FORD			
Normal			
	Indic		
MODE	**Brake Lamp**	**Brake Elec. Mtr. Lamp**	**Buzzer**
1) Engine Off – Ignition Off a. No brake applied b. Brake applied	 Off Off	 Off On	 Off On
2) Engine Off - Ignition On or START with or without brake applied	On	On	On
3. Engine ON with or without brake applied	Off	Off	Off
GMC			
1) Engine OFF – Ignition OFF a) No brake applied b) Brake applied	 Off On	 Off Off	 Off Off
2) Engine OFF – Ignition ON with or without brake applied.	On	On	On
3) Engine OFF – Ignition on START with or without brake applied.	On	Off	On

CHART A-4: NAVISTAR BRAKE FAILURE SYSTEM WARNING CHECKS

Navi	
CONDITION	**NORMAL OPERATION**
PARKING BRAKE LIGHT	
Key switch in START position with the parking brake released (bulb check)	Light ON
Key switch ON with parking brake applied.	Light ON
BRAKE PRESSURE LIGHT	
Key switch OFF	Light OFF, An electric hydraulic pump operates when service brakes are applied.
The key switch is in the ON position and the engine not operating (pump and bulb check).	Light ON, An electric hydraulic pump operation (some vehicles). SEE NAVISTAR MANUAL.
	Light ON, An electric hydraulic pump operates when service brakes are applied.
Key switch in ON position and engine operating with service brakes applied.	Light OFF
Key switch in START position.	Light ON Momentarily an electric hydraulic pump operates.
Key switch in ON position and engine operating with service brakes applied.	Light OFF

CHART A-5: FORD NORMAL BRAKE SYSTEM CONDITIONS

Ford																					
Controls												Indicators									
Engine		Ignition			Service Brake		Parking Brake					Service Brake		Electric* Pump				Parking Brake			
							Off		On					Light		Buzzer		Light		Buzzer**	
Off	On	Off	On	Start	Off	On	Part Rel	Full Rel	Part Set	Full Set		Off	On	Off	On	Off	On	Off	On	Off	On
X		X			X			X	OR	X		X		X		X		X		X	
X		X				X		X	OR	X					X		X	X		X	
X				X	X or X					X			X				X		X		X
	X		X		X or X					X		X		X		X			X	X	
	X		X		X or X		X			X		X		X		X			X	X	
	X		X		X or X			X				X		X		X		X		X	
	X		X		X or X				X			X		X		X					X
	X		X		X or X					X		X		X		X				X	

* Whenever the ignition switch is in the START position, the Hydro-Max electric pump will cycle momentarily.

**The parking brake buzzer will sound momentarily during the application of the parking brake in cold ambient conditions.

End of Section A

SECTION B: Under Hood Inspection

Section B. Under Hood Inspection

NOTE: This Manual is laid out to logically coincide with the inspection of front-engine vehicles.
Rear engine vehicles may have to be inspected in a different sequence; all componentry and procedures apply.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Cable Operation: E-brake, Choke, Throttle, Kill Cable, Accelerator Linkage and Return Spring		
Cables Check all cables for operation, tension, and condition. Check that cables move freely. 1) E-brake 2) Choke 3) Throttle 4) Return spring 5) Ether start cable/starting system	Improper tension. Improper routing. The cable does not freely move or operate normally.	Any cable is frayed, cracked, damaged or missing. The control knob or entire manual choke assembly is missing. The cable is disconnected or broken. Choke doesn't operate.
Accelerator 1) Check the accelerator pedal, control design, and pedal assembly are OEM.	The pedal cover (as originally equipped) is worn through or smooth in any area.	Pedal and assembly not mounted securely. Pedal, control design, and mounting not OEM.
2) Inspect pedal assembly and linkage for loose or missing hardware.	The pivot pin does not move freely or is excessively worn.	Loose or missing hardware.
3) Check for the smooth operation of pedal assembly and linkage in the accelerating and coast position.		Accelerator control and linkage sticks or does not operate freely.
4) Inspect for unauthorized pedal modifications.		Pedal built up with extender or block(s), or not of OEM design.
Engine Shutdown 1) Only OEM-approved ignition-controlled shutdown is acceptable.		Not OEM or OEM-approved.
2) Check for free operation of shutdown over full range with minimum effort.	The cable is sticking or hard to operate. Instruction decal/label damaged or missing.	The engine can be started in a shutdown position, or it does not stop the engine.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Brake, Fuel, Cooling and Lubricant Lines, Fittings, and Electrical Wiring Check routing, securement, and condition (signs of chafing, kinking, deterioration) of all wiring and any electrical cable. Check hoses and lines for leaks in the system. Note: Wiring must be in OEM condition. The wire must be replaced with the proper size, type, and color. Routing should be OEM, properly secured, and in harness or loom where applicable.		
Brake Lines Visually check the condition, operation, routing, and securement of all brake lines, electrical wiring, and components.	Improper tension. There is any loose, damaged, or corroded wiring connector or terminal end. Air brake lines and fittings are not DOT-approved.	Any cable is frayed, cracked, damaged, or missing. Hose with any damage extending through the outer reinforcement ply. Any component is loose or missing. Any brake line or hose is leaking, cracked, broken, or crimped. Any unsecured or poorly routed wiring that could cause potential short or fire due to abrasion or heat damage. Any burnt wiring or wiring with missing insulation (other than ground straps). Repairs have been made using improper gauge wiring or methods. Any fitting not meeting DOT requirements.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Exhaust System Components Check routing, securement, and condition (signs of chafing, kinking, deterioration) of all Exhaust System electrical wiring, and inspect all mounting and shields.		
Exhaust Electrical Wiring	Any loose, damaged, or corroded wiring connector or terminal end.	Any cable/wire is frayed, cracked, damaged or missing. Is any component missing?
Exhaust Mounting and Shields The tailpipe shall be flush with but not extend more than one inch beyond the perimeter of the body for the side exit or the bumper for the rear exit.	Is any component loose, missing hardware, or damaged?	Is any component missing? Any exhaust leakage?
Turbo Inspect turbo and plumbing for leaks, mounting, connections, and condition.	Evidence of oil seepage. The heat shield is damaged or missing.	Any leak is observed in air, exhaust, or oil? Any mounting or connection loose? Any unusual noise or vibration is observed?
DPF System **Inspect the DPF system for mounting,** connections, and condition.	Any component loose, missing hardware, damaged, corroded wiring connector, or terminal end.	Any leaks in the system. Any mounting is loose.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Air Compressor, Filter, Filter Element Check routing, securement, and condition (signs of chafing, kinking, and deterioration) of all air compressors, air filter components, electrical wiring, and mounting. *Air Compressor and Filter* Check the securement and condition of the air compressor and filter assembly.	The air compressor air filter (if equipped) is dirty.	Any loose, leaking, or damaged hose or plumbing between the engine air filtration system and compressor (on vehicles that share filter). Any portion of the air compressor, compressor air filter, filter/compressor mounting bracketry, or filter cover fastener is cracked, loose, or missing. Any oil or coolant leaks from the compressor or plumbing? Any problem with piggy-backed power steering pumps either mounting or leaking?
Air Filter Check the securement and condition of the air compressor and filter	The air filter is dirty.	Air filter housing, mounting, or component is damaged.
Components - Air Cleaner 1) Check air cleaner assembly (housing, lid, piping, gasket(s), seal, clamps, and hoses for securement, condition, and filter restriction. Check for the presence of wing nut and seal (if equipped). Note: Do not disturb large two-stage air filters to check the condition of the element. If loosened or removed, it must be replaced.		Air filter restriction exceeds the manufacturer's specifications. Any portion of the air cleaner assembly or mounting is loose or damaged, including piping, nuts, bolts, or clamps. There are any worn or damaged seals or gaskets. There are any air or vacuum leaks or missing components.
2) Air Restriction Gauge (diesel engines) Check for presence and condition.		Any gauge is found missing or damaged.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
3) Charge Air Cooler: Check charge air cooler assembly, mounting, and plumbing for securement and condition (if equipped).	Any portion of the cooler mounting system is cracked, damaged, or has loose or missing fasteners.	Any portion of the cooler is cracked or leaking. Any plumbing connections are loose, damaged, or missing.
Windshield Washer Fluid Reservoir *Fluid Reservoir Condition* Check routing, securement, and condition (signs of chafing, kinking, and deterioration) of all windshield washer components, electrical wiring, and mounting.	Any component is cracked, damaged, or has loose or missing fasteners. There is any loose, damaged, or corroded wiring connector or terminal end.	Any component is cracked, loose, or leaking. Any plumbing connections loose, damaged, or missing. Any cable/wire is frayed, cracked, damaged or
Windshield Washer System Check windshield washer components, electrical wiring, and mounting.	Any component is cracked, damaged, or has loose or missing fasteners. There is any loose, damaged, or corroded wiring connector or terminal end.	Any component cracked, loose, or leaking. Any plumbing connections are loose, damaged, or missing. Any cable/wire is frayed, cracked, damaged, or

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Radiator Mounting, Core, Cap, Water Pump, Fan, Clamps, Hoses and Shutters Check routing, securement, and condition (chafing, kinking, and deterioration) of all radiator components, belts, hoses, electrical wiring, and mounting. Record coolant freeze point (minimum -30°F).	If the freezing point is above -30°F.	Any component damaged, cracked, loose, leaking, or inoperative.
Radiator Mounting Check radiator assembly and mounting for securement and condition.	Any portion of the radiator mounting system is cracked, damaged, or has loose or missing fasteners.	Any portion of the radiator is cracked or leaking.
Radiator Core Check the radiator core for securement and condition.		The core is damaged, cracked, or leaking.
Radiator Cap Check the condition of the radiator cap. **WARNING:** **ALWAYS USE PROPER PROCEDURES WHEN REMOVING THE RADIATOR CAP.**	The radiator cap is hard to open or close. The radiator cap has the wrong pressure rating. Any visible damage to the pressure seat or vacuum relief seat of the cap.	The radiator cap is missing or does not function properly.
Reservoir (pressurized) Check the coolant reservoir (including de- aerating tank) and sight glass (if equipped) for mounting and condition.	Sight glass (if OEM equipped) has been replaced with a plug. Sight glass is damaged or clouded.	Any portion of the coolant reservoir or mounting system is missing, cracked or damaged, is leaking, or has loose or missing fasteners.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Coolant Recovery Tank (non-pressurized) Check the condition, securement, and operation.	Any problem with the tank, connections, or missing parts?	
Water Pump Check the condition of the water pump and pulley.	There is evidence of coolant seepage from the water pump, seal, gasket surface, or weephole. Water pump fasteners are loose, damaged, or missing.	The water pump is noisy, the bearing is damaged, or the coolant is dripping out.
Fan Check fan blade and fan clutch/drive assembly for securement and condition.	Hydraulic drive type fan always remains in the "on position".	The fan has any cracked, bent, or broken blades. Any portion of the fan mounting is loose. The fan clutch is seized or loose. Any leak, mounting, rotation, or function problem with hydraulic motor. The electric fan does not operate. Hydraulic solenoid valve inoperative. The wiring for the fan (electric) or solenoid (hydraulic) is not secured, loose, damaged, or missing.
Fan Shroud Check the fan shroud for mounting and condition.	Any portion of the fan shroud or shroud mounting is cracked, damaged, or has loose, or missing fasteners.	The fan shroud is missing.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Heater Booster Pump Check for the operation and condition of the heater booster pump and plumbing {if equipped).	The booster pump is inoperative	The booster pump is leaking. The booster pump mounting is loose or has missing fasteners.
Hoses NOTE: Includes all engine compartment hose types, including power steering, coolant, air compressor intake, vacuum, brake hydraulic assist, engine oil, and transmission hoses.		
1) Clamp(s) and Connections: Visually and physically check that hose connections or clamp(s) are tight.	Any hose connection or clamp(s) is loose or is too tight when digging into the hose. Any silicone hose does not have a constant torque-type clamp on it.	Any hose connection or clamp(s) is stripped or damaged.
2) Condition: Visually inspect all hoses for cuts, abrasions and wear, oil saturation, dry rotting, or"ballooning."	Any silicone hose has been exposed to diesel fuel by contaminated coolant.	Any hose is cut, abraded, worn, oil-saturated, dry-rotted, or "ballooned" to the point that failure is imminent.
3) Routing: Visually inspect routing and securement of all hoses.	Any hose is misrouted or unsecured so that heat damage, abrasion, or cuts could cause long-term failure.	Any hose is misrouted or unsecured so that heat damage, abrasion, or cuts could cause imminent failure.
4) Type: Confirm hose is of the proper type for the application.		Any hose is found to be of the improper type for the application.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Alternator, Tensioner, All Drive Belts and Pulleys Check routing, securement, and condition (signs of chafing, kinking, and deterioration) of all alternator components, belts, and mounting. *Alternator* Check the securement and condition of the alternator	The alternator is noisy. Any mounting hardware missing. Battery wire does not have a rubber insulating boot over the connection on the back of the alternator if equipped.	Any portion of the alternator, mounting bracketry, or fastener is cracked, loose, or missing. The alternator is not charging. The pulley or fan is loose, bent, or does not run true. Bearings are worn or damaged.
Belt(s) 1) Tension. Visually and physically check all drive belts for proper tension. Note: 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). (See illustrations)	Any belt exceeds the tension reading recommended by the manufacturer if a tension gauge is used. Using the ruler method, any belt is less than ½ inch deflection (too tight) when firm pressure is applied.	Any belt tensioner does not pivot or move freely and applies spring pressure on the belt. Tension on any belt is too loose (based on specifications of the type of tension gauge used). Tension on any belt (using ruler method) is too loose when firm pressure is applied (greater than ¾ inch deflection)
2) Condition: Visually inspect belt(s) for glazing, oil contamination, dry rotting, cuts, and separation of plies. Check belts for twisting or distortion.	Any belt is glazed or cracked.	Any belt is oil saturated, dry-rotted, or cut, or plies of the belt(s) are separated. Any belt is twisted or distorted.
3) Routing: Visually inspect belt(s) for rubbing or contact with objects other than pulleys and for routing around correct pulleys.		Any belt is making contact with objects other than the pulley(s). Any belt is routed around incorrect pulley(s).
4) Belt Alignment: Visually inspect belts for proper alignment.	Any belt is not inline. (Less than 1/16 inch per foot)	Belt misalignment is excessive and could result in failure. (More than 1/16 inch per foot)

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Fluid Level and Conditions *Brake Fluid* Check brake fluid and brake power-assist hydraulic fluid (if equipped) for level and condition.		Level of brake fluid in either side of the master cylinder reservoir is low or below the add mark (if equipped). Brake fluid or power-assist fluid shows evidence of contamination. Brake power-assist hydraulic fluid is below cold "Add" mark. The cap is missing or the seal is damaged or missing.
Power Steering Fluid Check the power steering fluid level and condition.		The power steering fluid is below the cold "Add" mark. Power steering fluid shows evidence of contamination. The cap is missing or the seal is damaged or missing.
Oil Check the level and condition of the oil.		No oil is observed on the dipstick. There is evidence of fuel or water contamination in the oil or an overfill condition. The dipstick is missing. The oil level is at or below the add mark. The cap is missing or the seal is damaged or missing.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Transmission Fluid Check the level and condition of the transmission fluid. (Observe proper procedure when checking level)	Transmission fluid shows the need of servicing (discoloration and/or burnt smell).	Transmission fluid shows evidence of excessive contamination or an overfill condition. Transmission fluid is not present on the dipstick. Transmission fluid is at or below the add mark.
Windshield Washer Fluid Check the windshield washer fluid level.	The reservoir is low or the washer does not spray the windshield.	
Coolant Check coolant (antifreeze) level and condition.	The coolant level in the radiator or reservoir is low but still visible in the tank. Coolant shows evidence of rust and	The coolant level in the radiator or reservoir is low and not visible in the tank. Coolant shows evidence of excessive oil or fuel contamination.
Steering Column, Shaft, Clamp Bolts and Universal Joints Inspect the steering column for any looseness in bolts, clamps, positioning parts, or universal joints.	The steering shaft is in contact with any other component (hoses, wires, etc.).	Loose or missing U-bolts or other positioning parts. Any worn, faulty, or obviously repair-welded universal joints. Any modification or other condition that interferes with the free movement of any steering component.

Section B: Under Hood Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Power Steering System and Components 1) Check the securement and condition of the power steering pump. 2) Check the securement and condition of power steering components.	The pump has the wrong type of cap on the reservoir (vented or not vented).	Any portion of the power steering pump, mounting bracketry or fastener is cracked, loose, or missing. Is any component damaged, loose, or missing? Any mounting or connection is loose.
Brake Master Cylinder, Fluid Level 1) Check the securement and condition of the brake master cylinder. 2) Check fluid for level clarity and condition.		Are any master cylinder mounting brackets or fasteners cracked, loose, or missing? Fluid level is below 25% or add mark. Low fluid warning light on and/or inoperative. Fluid lines or connections leaking, restricted, crimped, cracked, or broken

ARTICLE B-1: BELT INSPECTION

1. Inspect all used drive belts (including those being replaced) for the following conditions. Note: For an installed belt, gently twist the belt about 90 degrees to see the sidewalls and bottom.

2. Inspect for glazing (shiny sidewalls). Glazing caused by friction is created when a loose belt slips in the pulleys. It can also be caused by oil or grease on the pulleys.

3. Inspect for separating layers. Oil, grease, or belt dressings can cause the belt to fall apart in layers. If engine parts are leaking, repair the oil leaks. Do not use belt dressings on any belt.

4. Check for jagged or streaked sidewalls resulting from foreign objects (sand/small gravel) in the pulley, or a rough pulley wall surface

5. Check for tensile breaks (breaks in the cord body). Cut belts are usually caused by large foreign objects in the pulley or by prying or forcing the belt during installation or removal.

6. On poly-V belts check for uneven ribs. Foreign objects in the pulley will erode under cord ribs, causing the belt to lose gripping power.

7. Inspect for cracks. Small, irregular cracks are usually signs of an old belt.

Replace the belt if any of the above conditions are found. Replace both belts in a set simultaneously; matched belts must be from the same manufacturer.

Glazing

Separating Layers

Streaking Sidewalls

Tensile Break

Uneven Ribs

Cracks

ARTICLE B-2: PULLEY INSPECTION

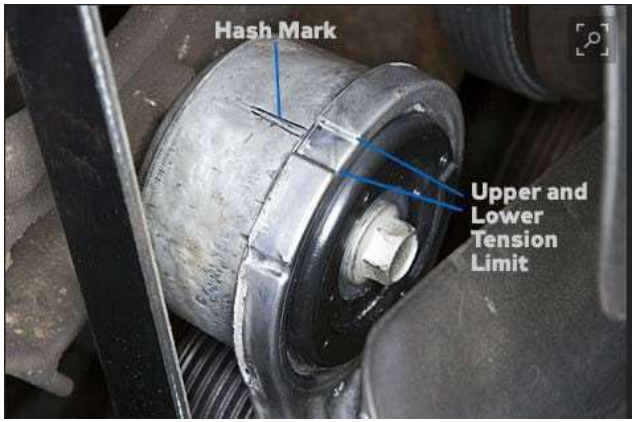
1. Check all pulley bearings for roughness. Replace bearings if they are rough.

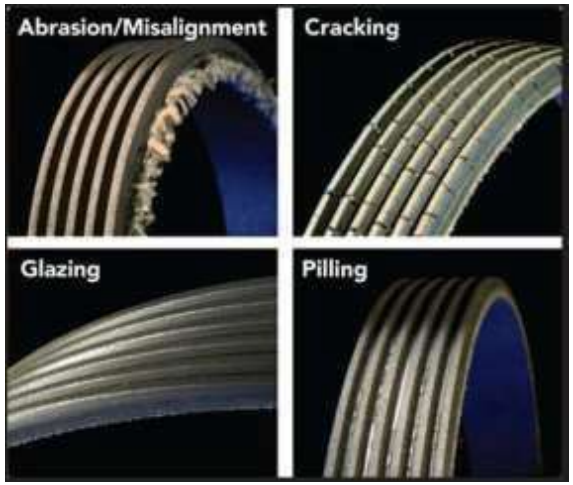
2. Inspect all pulleys for foreign objects, oil, or grease in grooves. Use a nonflammable cleaning solvent to remove oils. Use a wire brush to remove rust and a file to remove burrs.

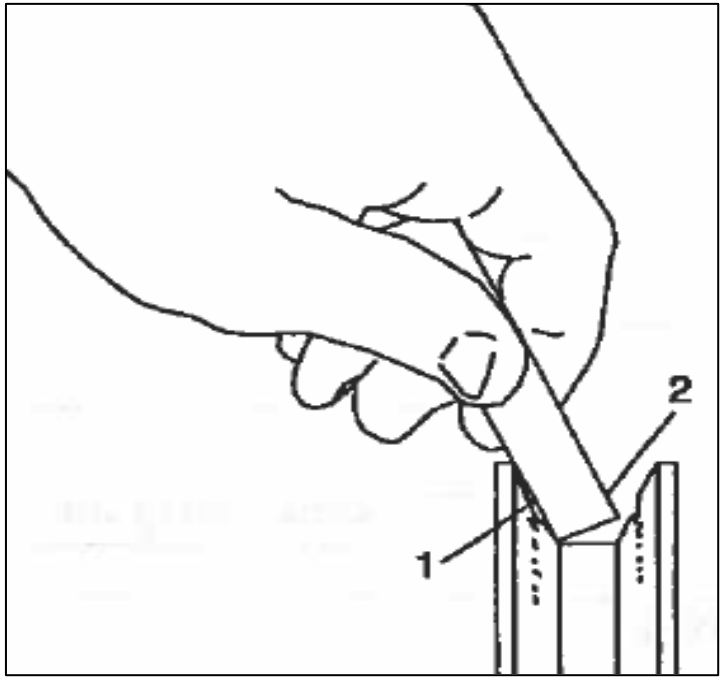
3. Inspect pulleys for wear on inner walls. Hold a small straightedge against the inside of the pulley walls or use a fingernail to find grooves in the inner walls. If grooves are found, replace the pulley.

4. Check the alignment of pulleys. Use a thin straightedge that is longer than the longest span between pulleys. Place straightedge into the V- grooves of two pulleys at a time. Straight edges should be parallel to the outer edges of pulleys; if not, pulleys are misaligned. Pulley misalignment must not be more than 1/16 inch per foot (1.5 mm for each 30.5 mm) of distance between pulley centers. If there is a misalignment of pulleys, adjust the pulleys or brackets if their positions are adjustable. Replace bent or broken pulleys, pulley brackets, or shafts.

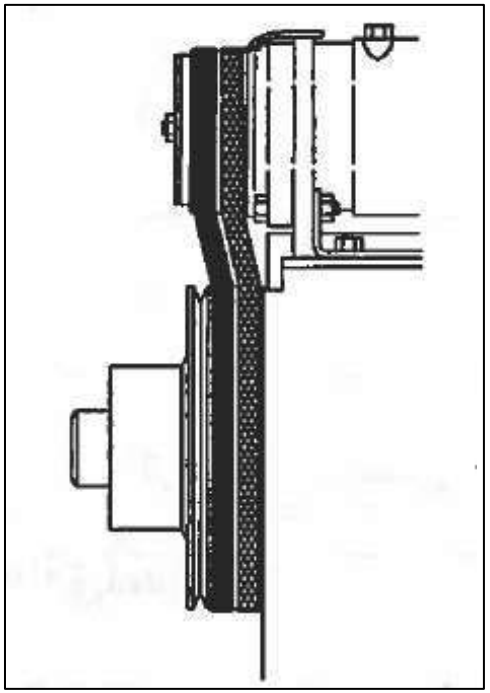
5. Check drive component mounting parts for loose fasteners, cracks, or damage. Tighten loose fasteners. Repair/replace cracked/damaged brackets.





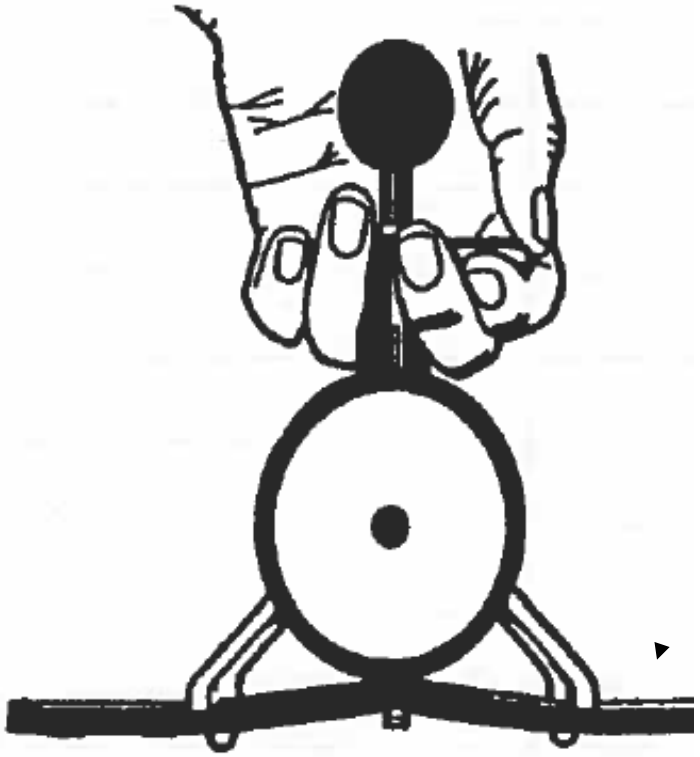


1. Groove in Pulley 2. Small Straight edge

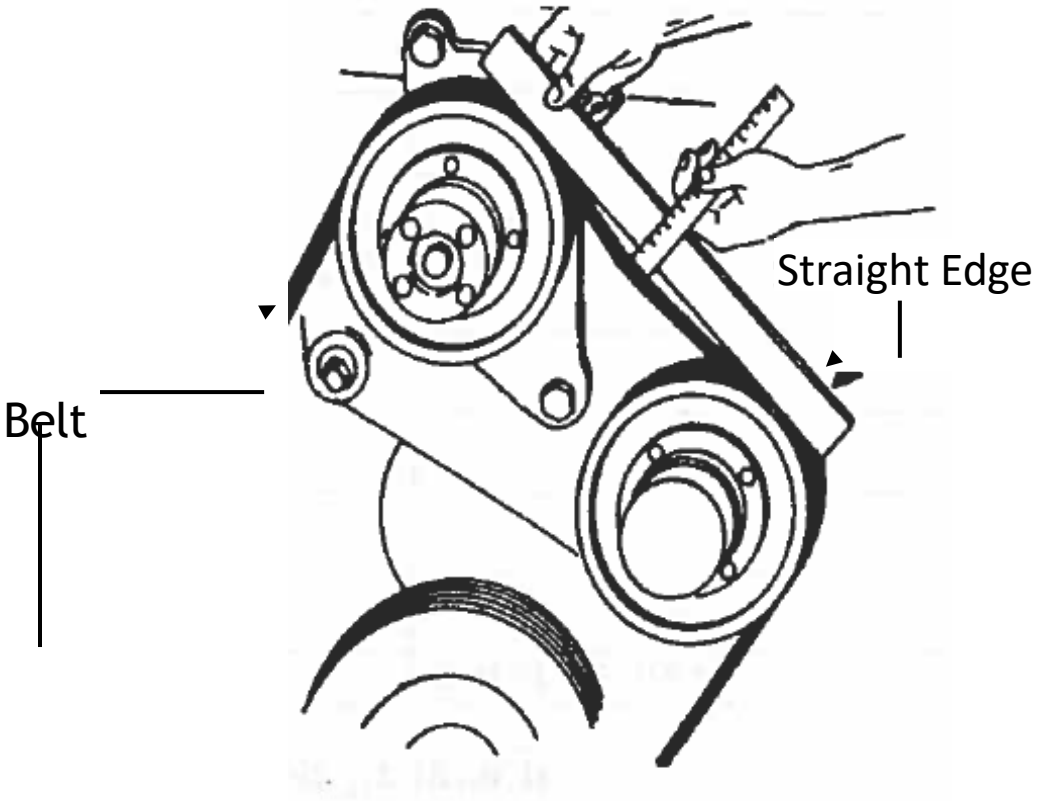


Side view of Misaligned Pulleys

ARTICLE B-3: CHECKING BELT TENSION



Checking Belt Tension Gauge Method



Measuring Belt Tension Rule Method

End of Section

SECTION C: Interior Inspection

Section C. Interior Inspection

NOTE: This Manual is laid out to logically coincide with the inspection of front engine vehicles.
Rear engine vehicles may have to be inspected in a different sequence; all componentry and procedures apply.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Heaters, Defrosters, Interior Lighting, Electrical Accessories Check all components for specification, condition, and operation.		
Heaters Inspect the heater system for: 1) Heating performance and water control valve (interior).	Not producing adequate heat. The water control valve is hard to operate.	The water control valve is inoperative when closed. Water control valve leaks
2) Blower operation, condition, and control switches.	Heater blowers do not work at any speed, are noisy, or vibrate. Blower switches are damaged, or loose, or the blower operates intermittently.	
3) Inspect for hose leakage, condition, and hose shielding.	Shielding is missing or does not completely cover the hoses.	Heater cores, hoses, or valves have visible leakage. Heater hoses are cracked, swollen, or badly chafed.
4) Condition of ductwork and heater box.	Heater ductwork or heater box components are missing, damaged, loose, or obstructed.	Any portion of the heating system within the passenger area creates sharp edges, projections, or other hazards to passengers or driver

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Defrosters Inspect windshield defroster system for: 1) Airflow, heat, and coverage area.		Airflow is not present at all defroster outlets.
2) Blower operation, condition, and control switches.	Any defroster blower does not work at low speed, is noisy, or vibrates. Blower switches are damaged or loose.	Any defroster blower does not work at high speed.
3) Condition of ductwork, diffusers, and fresh air control (if equipped).	Any ductwork or diffusers are loose or damaged. Fresh air control (if equipped) does not function.	Any diffuser is missing or blocked.
4) Condition of ductwork and heater box.	Heater ductwork or heater box components are missing, damaged, loose, or obstructed.	Any portion of the heating system within the passenger area creates sharp edges, projections, or other hazards to passengers or drivers.
Driver Auxiliary Fan(s) Inspect auxiliary fan(s) for: 1) Presence of fan, mounting, and condition.	The fan is not present. The fan mounting is loose. The fan won't stay in adjustment.	The fan is not OEM or CDE-approved. (i.e., plastic blade).
2) Blade condition.	The fan blade is damaged.	
3) Protective cage mounting and condition.	The protective cage is loose or damaged	The protective cage is missing.
4) Operation and switch.	The fan does not operate, and one (1) speed does not function. The fan is noisy or vibrates. The switch is loose.	

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Dome and Stepwell Lights Check dome and stepwell lights for condition and operation.	Any lens is cracked, broken, or dirty. Any dome light is out. The stepwell light is on when the door is closed.	Loose lens or fixture. The lens is broken so that the light or fixture is exposed. Dome lights do not function. The stepwell light is not functioning.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Windshield, Side and Rear Windows *Glass Cracks* Inspect the windshield and all windows for cracks and other damage.		Any cracks in the windshield in the driver's direct field of vision (area swept by wiper) greater than six (6) inches in length or any star cracks greater than two (2) inches in diameter. Any crack in the windshield or any window, greater than twelve (12) inches in length. Any laminated windshield or laminated window glass is missing, broken, or splintered which might cause injury when touched. Any window to the side or behind the driver's location that is not laminated or tempered safety glass.
Visibility/Fogging 1) Check windshield and windows for fogging, reduced visibility, or improper level of tinting.	Glass fogging around edges, but less than two (2) Inches.	The windshield or any window is fogged more than two (2) inches from the outer border. Any windshield or window fogging or clouding which results in reduced visibility of a mirror. Any reduced visibility through the windshield or any windows.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Latches and Window Operation Check latches and windows for condition and operation.	The latches are broken. Latches are difficult to operate, and any window does not move up and down freely. Windows do not stay closed.	Any loose or damaged window hardware protruding into the passenger compartment.
Emergency Door/Windows/Hatches *Emergency Door* Inspect for operation and condition of emergency doors, door latch, door hold open feature (if equipped), and door seal.	The rear door opens too far, damaging lights. The door handle, latch, or mounting hardware is loose The mounting of the guard for the inside rear door handle is loose. Hold open device (if equipped) is non-operational, bent, damaged, or loose. The side emergency door seal is damaged or does not effectively prevent water, and/or dirt from entering the bus. Cover or padding on the bar over the door torn or damaged Emergency door exit decal/label damaged.	Any emergency door latch does not operate smoothly and easily when closing or opening the door. (The latch mechanism requires more than 40 pounds of pressure to release.) The door does not open at least 90 degrees. The inside door handle is not equipped with a guard Any vandal lock system is inoperable. The rear emergency door seal is damaged or does not effectively prevent exhaust, water, and/or dirt from entering the bus. The padded bar over the door missing or damaged. The emergency door exit is not properly labeled.
Push out windows Check the condition and operation of push-out windows (if equipped).	Emergency door exit decal/label damaged.	Emergency window latch does not latch the window securely or the window does not open easily. Emergency door exit not properly labeled.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Roof Hatches Check the operation of roof hatches (if equipped).	The roof hatch does not open to the ventilation position. The roof hatch seal is damaged or dislodged.	The roof hatch does not open easily to a full "emergency open" position from the inside or the outside.
Buzzers Check the operation of buzzers for emergency doors, emergency exit windows, and roof hatches.	Buzzer gives false alarms.	The buzzer system for any emergency door, exit window, or roof hatch does not function or is not audible at the driver's location.
Labeling and Pad 1) Inspect label and opening instructions for emergency door, emergency windows, and emergency exit/ventilator (roof hatch). 2) Inspect the emergency door header pad.	Any emergency exit does not have legible operating instructions on the inside of the exit. The pad is loose or the cover is torn.	Emergency exits are not clearly labeled inside the bus as "Emergency Door" or "Emergency Exit". Pad is missing
Emergency Equipment *Fire Extinguisher* Check for the presence of a fire extinguisher and: 1) Check the Manufacturer's label		No fire extinguisher on the bus. Labeling is not legible to determine size and type.
2) Rating: check for proper U.L. (Underwriters Laboratory) rating.		The fire extinguisher is not the proper size or type.
3) Pressure: check gauge		Pressure above or below the green zone.
4) Mounting: check for accessibility and secure mounting.	The bracket mount to the panel is loose.	Fire extinguisher is not accessible to the driver or excessive damage to any parts of the extinguisher.
5) Nozzle (if applicable), check for loose, obstructed or damaged parts.		Nozzle or hose loose, missing, obstructed or excessive damage to any parts of the extinguisher.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
6) Safety Pin: check for the presence of a safety pin and tamper-proof seal.	The seal is broken or missing.	The safety pin is missing. Tamper-proof seal not of an approved type. (i.e., Material cannot be broken easily).
First Aid Kit 1) Check box and condition.	Not labeled.	Not present. The box is not moisture and dust-proof, won't seal, won't stay latched, or contents inaccessible due to the condition of the box.
2) Check for the presence of a tamper-proof seal.	Seal broken; inspect contents, replace.	Tamper-proof seal not of an approved type (i.e., material cannot be broken easily) or
3) Mounting: Check accessibility and mounting of kit. Should be placed in the driver's area and be easily accessible.	Loose mounting or bracket.	Not mounted or inaccessible.
4) Contents: If the seal is broken, check that all contents are Intact and sterile (for the content list, see Chart C- 1)	Contents are missing or incomplete.	Contents are not individually sealed or sterile. Contents are not of proper type or incomplete (except Band-Aids).
Body Fluid Cleanup Kit 1) Check kit and condition	Not labeled	Container not present, not moisture/dust proof, won't seal, or stay latched, contents inaccessible.
2) Check for the presence of a tamper-proof seal	Seal broken, inspect contents.	Tamper-proof seal not of an approved type (i.e., the material cannot be broken easily)
3) Check accessibility. Should be mounted in the driver's area and easily accessible.	Loose mounting or bracket.	Not easily accessible to driver/not secured.
4) Contents: If the seal is broken, Check that all contents are intact and sterile (see contents list Chart C-2).		Contents not the proper type, incomplete, or missing.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Webbing Cutter Check for the presence of a durable webbing cutter securely mounted in the driver's compartment and within easy reach of the driver.	No durable webbing cutter is present. The webbing cutter is not securely mounted in the driver's compartment and within easy reach of the driver.	No durable webbing cutter is present. The webbing cutter is not securely mounted in the driver's compartment and within easy reach of the driver.
Triangle Reflectors, Box Mounting and Seal 1) Check for the proper type and condition of emergency roadside reflectors.	The vehicle is not equipped with self-standing, triangular, 17" tall reflectors. Any reflectors are broken, deformed, or unusable.	The vehicle is not equipped with self-standing, triangular, 17" tall reflectors. Any reflectors are broken, deformed, or unusable.
2) Check quantity: three (3) required.	Fewer than three (3) reflectors are present.	Fewer than three (3) reflectors are present.
3) Check accessibility, mounting, and condition of box. Must be securely mounted and easily accessible to the driver or in a location plainly indicated by appropriate markings.	The storage box is broken or won't remain latched. Box not accessible or not securely mounted forward of the passenger compartment.	The storage box is broken or won't remain latched. Box not accessible or not securely mounted forward of the passenger compartment.
4) Check for the presence of a tamper-proof seal.	Seal broken; inspect contents. Tamper-proof seal not of an approved type (i.e., material cannot be broken	Seal broken or missing?

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Video System, Public Address (PA) System, 2-way Radio (if equipped)		
Video System Check for operation, mounting, and condition.	The mounting is loose.	
PA System Check for operation, mounting, and condition	The mounting is loose.	
2-way Radio Check operation, mounting, and condition. Inspect phone, radio, and antenna for mounting, location, and routing of wiring.	The mounting is loose. The driver must move out of the normal driving position to operate the radio.	Wiring or connectors are improperly insulated, installed, routed, or secured to create the potential for a short. Disconnect must be performed before the bus can operate.
Child Reminder Alarm Check the system for proper operation.	System is inoperative.	

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Seats, Cushions, Barriers, Step Well, Handrails, Flip Seats		
Frames 1) Inspect passenger seat frames for the condition of welds, tubing, and hardware		Seat frames or welds are broken or cracked. Any seat back frame is repaired using non-OEM hardware. Any seat frame hardware has been added or modified to result in projections or sharp edges. Deteriorated hardware.
2) Check for the presence of non-O.E.M. seat frames.		Are there any non-OEM seat frames installed?
3) Check for the presence and condition of passenger restraining		Restraining belts are non-functional.
Mounting Inspect the condition of passenger seat mounting and spacing.	Seat fasteners are loose or not torqued to specifications. Improper seat spacing in track seating.	The seat mounting at the floor or seat rail is loose. Seat mounting fasteners are of lower grade or different type than OEM fasteners for the specific locations.
Barriers Inspect seat back/barrier foam for specifications and condition.	The original thickness or density of any seat back foam around the frame has been significantly reduced due to wear, deterioration, or other factors.	Seat back padding is the wrong type for specific year model bus The foam envelope is split, or delaminated, or there is no padding between any portion of the seat back frame and covering. Any bus does not have a padded safety barrier in front of any passenger seat that does not have another seat in front of it.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Cuts/Upholstery Damage Inspect seat and safety barrier upholstery for condition and specifications.	Seat upholstery is cut, torn, or ripped. The seat upholstery is not repaired properly. Any upholstery has been replaced with non-OEM type material.	Seat upholstery is missing.
Bottoms Inspect seat bottoms for securement and condition.	Seat brackets or latches are loose.	Any seat bottom padding or cushion has significant deterioration or damage. Any seat bottom is not securely anchored to the seat frame. Any seat bottom has a protruding edge or the plywood Is broken.
Modesty Panels and Stanchions	Stanchion padding is missing or is loose (Special Needs buses). Stanchion padding is missing or is damaged so that metal is exposed.	
Infant/Toddler Seating Check the condition and operation of the system.		The seat does not operate or function properly according to the manufacturer's operational procedures or is past its effective usage date.
Flip-Up Seats Check the condition and operation of flip-up seats		The seat does not automatically return to an upright position when not in use. Any sharp edges, or loose or protruding hardware that could injure or snag passengers. Seat or hardware malfunction that could trap arm or leg between seat or back.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Stepwell Check specifications and condition of the stepwell	The step tread is not secure or sealed at the inside edge where It meets the next step. Stepwell tread is worn smooth less than four (4) inches in width when measured one inch (1”) or more from the edge.	The step tread is not secure or sealed elsewhere on the step. Any tripping hazards? Stepwell tread ribbing has been worn smooth for more than four (4) inches in width when measured one inch (1") or more from the edge. Sheet metal in the stepwell is rusted through, has holes or the structure has weakened, and step(s) flex when weight is applied.
Handrail(s) Check for the presence and secure mounting of grab rail(s). Check for catch points.	The mounting hardware is loose.	Handrail and/or any hardware is missing, entrance damaged, or has unauthorized modification. Does not pass the string and nut test.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Special Needs Equipment *Wheelchair and Occupant Securement Components* Inspect wheelchair and occupant securement (tie-down) system for condition, mounting, proper type, and location.	The track is filled with dirt.	Wheelchair tie-down tracks or fasteners are loose, broken, or damaged. Wheelchair or occupant securement straps are broken, frayed, or will not operate. The securement system for buses built prior to 1991 is not aisle facing track and belt system (4-way tie system). Securement systems for buses built after 1991 are not forward-facing wheelchairs and occupant securement system meeting specifications. The wheelchair or occupant securement track is mounted using lag bolts or sheet metal screws.
Occupant securements Inspect booster seats, vests, securement storage bags, oxygen bottle mounts, and other accessories.	Any items not properly secured.	
Buzzer(s) Check operation according to specifications.		

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Inspect Bulkhead, Interior, and Service Door *Bulkhead* Inspect bulkhead/firewall for any cracks, unsealed openings, and sound insulation materials.	The sound deadening/insulation package is unsecured or deteriorated.	Any open hole or unsealed area in the bulkhead/firewall.
Doghouse/Engine Cover, if equipped Inspect the doghouse/engine cover for seals, soundproofing, weather stripping, and prop-rod.	Soundproofing is not present or is deteriorated. Prop-rod does not support the doghouse/engine cover safely. The latch is hard to operate or does not secure the doghouse/engine cover	Seals or weather stripping allows air/fume leaks into the driver's compartment.
Interior Wiring 1) Inspect visible wiring for mounting, condition, chafing, abrasion, corrosion, loose connectors, or improper repairs.	Wiring or connectors are unsecured, corroded, improperly routed, or interfere with driver's controls.	Any wire or connector is cut or severely chafed, or the conductor is exposed or routed against a sharp edge. Any connection is not secure.
2) Inspect fuse/electrical panel and cover/door for mounting, condition, and components.	The fuse/electrical panel and cover/door are not mounted securely or corroded but are not in danger of shorting or failing.	The fuse/electrical panel and cover/door are not mounted securely or corroded and are in danger of shorting or failing. The panel is not covered, or the cover/door will not remain closed.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Floor Inspect floor covering, aisle, and cove molding strips for condition, adhesion and/or fastening	Rubber floor covering is loose, deteriorated, or cracked. Cove molding is loose, or fasteners are missing.	Are there any unsealed holes or cracks through the underside of the bus? Aisle not equipped with 12-inch-wide ribbed rubber. Any aisle molding strip not securely fastened to the floor, any aisle or cove molding presents a sharp edge or protrusion or tripping hazard. Any damage to the rubber floor which could cause a tripping hazard.
Service Door 1) Check service door assembly for operation, adjustment, condition, mounting, and fit.	The door does not seal properly, or seals are damaged, ripped, or deteriorated.	The door jams binds or is difficult to close or open. The door assembly is damaged, or the mounting is loose. Glass has been replaced with Plexiglas, is broken, or is cracked. Door glass is fogged more than one (1) inch in from the border, or visibility through glass is poor. The door is equipped with any lock except the factory factory-approved system. Door seals are not present. The door will not open or close completely.
2) Check the door hinge and hinge screws.	Hinge screws loose.	Hinge or pin conditions interfering with the operation of the door.

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
3) Check manual service door control and rod assembly for over-center or latching device, condition, mounting, and operation.	Control, rod hardware, or mounting is loose. The door control doesn't operate freely.	Manual control will not lock over-center, or the latching mechanism is inoperative. Door control requires excessive force to operate.
4) Check air-powered service door control assembly for leaks, operation, insecure door, closed position, and emergency release.	Air-powered system leaks. The door operates too slowly or too harshly.	The air door emergency release does not function, or the control is broken. The Air door does not function properly, or at all.
5) Check manual service door control and rod assembly for over-center or latching device, condition, mounting, and operation.	Control, rod hardware, or mounting is loose. The door control doesn't operate freely.	Manual control will not lock over-center, or the latching mechanism is inoperative. Door control requires excessive force to operate.
6) Check air/electric powered service door control assembly for leaks, operation, insecure door, closed position, and emergency release.		

Section C: Interior Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Sharp Projections and Securement of Accessories Check all interior sidewall, rear, ceiling, and driver's area paneling for secure fastening, projections or sharp edges, and condition.		Interior paneling has any projections or sharp edges. Any missing panels?
Cleanliness Inspect the interior for cleanliness.	The bus is dirty. Advise district. There is graffiti or unauthorized stickers on interior panels.	The bus is dirty and unsafe to operate. Advise district.
General Condition, Interior, Loose Objects Check that all objects within the bus are secured.	Loose objects are present and are not properly secured. Any loose or missing attachment screws on any maintenance access panel.	Any carpeting or non-OEM floor mats. Any aerosol cans or other containers of flammable, hazardous, or volatile chemicals or liquids are on the bus.
Trash Cans/Brooms 1) Check that approved trash cans are properly secured (if present). 2) Check that brooms (if present) are properly secured in approved locations.	The trash can is damaged. Broom securement clips are loose.	The trash can is not properly secured. The broom is not properly secured.

CHART C-1: FIRST AID KIT

Chart 1: First Aid Kit	Unit Quantity
Adhesive Tape	1
1-inch bandage compress (e.g., Band-Aid)	2
2-inch bandage compress	1
3-inch bandage compress	1
4-inch bandage compress	1
3-inch x 3-inch plain gauze pads	1
Gauze roller bandage 2 inch wide	2
Plain absorbent gauze – ½ square yard	4
Plain absorbent gauze – 24-inch x 72-inch	3
Triangular bandages	4
Scissors, tweezers	1
Space rescue blanket	1
Non-latex disposable gloves, pair	1
CPR mask or mouth to mouth airway	1
Caution: Replace gloves on an annual basis. Be aware that people can be allergic to latex.	

CHART C-2: BODY FLUID CLEANUP KIT

Chart 2: Body Fluid Cleanup Kit	Quantity
Antiseptic towelette	1
Disinfectant towelette	1
Absorbing powder (capable of ½ gallon absorption)	1
Non-latex disposable gloves, pair	1
Disposable wiper towels	2
Disposable scoop bag with closure mechanism and scraper	1
Moisture and dustproof kit of sufficient capacity to store the required items.	1

End of Section

SECTION D: Under Vehicle Inspection

Section D. Under Vehicle Inspection

Note: Depending on the vehicle style, some items in this section may be inspected while performing the engine compartment inspection.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Steering System		
Steering Shaft 1) Check the steering shaft outside the vehicle for up and downplay (parallel to the shaft), side-to-side play (perpendicular to the shaft), and proper mounting and condition. Check for binding. 2) Column shaft and hardware. 3) Column U-joints or flexible coupling (as equipped). Grease zerks. 4) Coupling at gearbox.	Pot joint, (shell coupling, trunnion), if equipped, is loose, bent, broken, or damaged in any way.	Side-to-side play in the steering column or up and downplay is excessive. Column assembly mounting (including floor mounting plate) or fasteners are loose. The steering column U-joint (if equipped) is loose, damaged, or noisy after lubrication. Any column U-bolt, pinch bolt, shear pins, other column fasteners, or input shaft coupling is loose, damaged, or missing. Column U-joint (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. Splines are worn or damaged. Binding in any portion of the steering system.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
NOTE: for the following items, the Steering Gear Box and other external components are checked using the following procedure: 1) The vehicle should be on the ground (not suspended). 2) With the engine running an assistant moves the steering wheel back and forth repeatedly to load steering components. 3) Visually observe the following external steering and related suspension and frame components for looseness while the assistant works steering (also see specific procedures under each component). 4) Have the assistant carefully operate the steering to full left and right tum and check for power assist pop-off and steering stops. 5) As a follow-up to the above steering check, also perform a visual and hands-on check of each of the listed components.		
Steering Gear Box and Mounting Check mounting, condition, and tightness of the steering gearbox, and check frame, frame braces, and associated rivets or fasteners for looseness and condition.	The steering gear box is damp at or near seals showing signs of seepage, but no visible fluid is observed.	The steering gear box is loose on the frame, or fasteners or lock tabs are loose or missing. Mounting holes have visible cracks or are elongated. The steering gear box has visible leaks. Any up-down or side-to-side motion of either shaft is observed (bearing or bushing wear). There is any binding in the steering gear box.
Pitman Arm Check the pitman arm for looseness or misalignment at sector shaft splines and looseness at all joints. Check the looseness of the pinch bolt and fasteners and the condition of the pitman's arm.	Pitman arm grease fitting (if originally equipped) is loose or missing.	Any play is observed between the pitman arm and sector shaft. The pinch bolt at the sector shaft is loose or missing. Pitman arm to sector shaft timing marks is misaligned.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Check cotter pins, bolt fasteners, and grease zerks.		Pitman arm ball joint (if equipped) has more than 1/16-inch play (axial, i.e., in and out play between the ball stud and socket) or is in excess of the manufacturer's specifications. The pitman arm ball joint (if equipped) has a loose or missing nut, or the cotter pin is missing. The Pitman arm Is cracked or damaged.
Drag Link (if equipped) Check the drag link ends, shaft, and fasteners for looseness and condition.	The drag link end has more than 1/16 inch and less than 1/8 inch axial play. Any drag link end grease fitting (as equipped) is loose, missing, or will not take grease. The drag link end boot is damaged or missing. The drag link needs lubrication.	The drag link ball stud is loose in the pitman arm or upper steering arm. Any nut is loose or missing, or the cotter pin is missing. The drag link shaft is damaged or bent. The drag link end has more than 1/8-inch axial play or is in excess of the manufacturer's specifications. Adjustable (length) drag link has loose clamp or damage to the threads or has any movement or play in the shaft. Any drag link that is installed improperly.
Steering Arm Check the upper steering arm (Ackerman arm) and left and right-side lower steering arms for securement and condition.		Any steering arm has been bent, cracked, or damaged. Any steering arm attachment point is loose, or any fasteners or cotter pin is missing.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Check the condition and securement of steering stops and lock nuts.		Either the steering stop or lock is loose, damaged, or missing.
Tie Rod and Ends Check 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. The tie rod end needs lubrication. Any tie rod end grease fitting is loose, or missing, or will not take grease. Any tie rod end has more than 1/16 inch and less than 1/8-inch axial play.	Tie rod clamps, fasteners, or cotter pins are stripped, missing, or loose. Any clamp (as equipped) is mispositioned. Any tie rod or end is cracked or damaged. Any tie rod is bent, cracked, broken or threads are damaged in any way. Any tie rod end has more than 1/8-inch axial play or is in excess of the manufacturer's specifications. The tie rod end ball stud is loose in the steering arm or idler arm.
Idler Arm Check the idler arm assembly (as equipped) for looseness, damage, binding, and condition.	The Idler arm needs lubrication. The idler arm grease fitting is loose or missing or will not take grease. Idler arm up and downplay is greater than 1/8-inch total (1/16 Inch either direction) but less than 1/4 inch.	Any idler arm fasteners are loose or missing. The idler arm is cracked, or damaged, or the cotter pin is missing. Idler arm up and downplay is greater than 1/4-inch total (1/8 inch in either direction) or is in excess of manufacturer's specifications.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Alignment 1) Check for obvious or abnormal front tire wear.	Any front tire wear indicates an alignment problem.	
2) Check for visible alignment problems.	Any visible alignment problems **not** caused by faulty components.	
Front Suspension, Rear Suspension, Springs, Cross members, Shackles, Shock, Frame brackets *Wheel Bearings* Inspect front wheel bearings and related components for condition and proper adjustment of bearings. Grasp the tire and attempt to rock the wheel to check for movement. NOTE: It is important to identify the source of any play correctly. To test to see if the play is in wheel bearings, have an assistant fully apply brakes while rechecking play. If movement disappears with brakes applied, then play was in wheel bearings.	There is minor grease seepage around the dust cover. Dust cover fasteners are missing or loose.	Any noise, binding, or roughness discovered in bearings. Wheel bearing end play exceeds manufacturer's specifications (maximum of .010 inches in and out play measured at bearing hub). There is grease or oil leaking or dripping around dust covers. The dust cover is damaged or missing.
I-Beam Inspect the I-beam axle assembly.		The I-beam has been cut, modified, or damaged. There is any bluing or other evidence that the I-beam has been heated.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
King Pins Inspect King Pin assemblies for condition and play as follows: 1) Grasp the tire at the top and attempt to move the wheel assembly in and out. NOTE: Wheel bearings must be adjusted properly. Wheel bearing play may be eliminated by locking brakes before checking King Pins	One locking pin (draw key) Is loose (dual). End cap O-rings or bolts are loose or missing	The locking pin (draw key) is missing, backing out, or loose (single, both for dual). King Pin movement is in excess of the manufacturer's specification.
2) Visually inspect the thrust bearing area for uneven gaps, improper installation, wear, or damage. NOTE: Do not tighten the King Pin lock (If equipped) or grease King Pin before inspecting King Pin assembly.		Vertical (up and down) play in King Pin assembly is greater than .030", and/or thrust bearing is damaged or missing. If the side play at the outside edge of the tire is greater than 1/4 inch.
Shackles Inspect the condition of shackles, spring hangers, and pinch bolts. NOTE: Shackle types vary by manufacturer and year model (Bolted, pinned, pinch-pinned, combination, etc.).	Any spring shackle is bent.	Any front spring shackle or hanger is cracked or broken. Any front spring shackle or hanger has significant side wear at the spring eye. Any front spring shackle or hanger is worn, or the pinch bolt is stripped or missing, so that the spring pin cannot be clamped tightly. Any front spring or shackle eye bolt is loose, worn, broken, damaged or missing.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Spring Mounts Inspect spring mount bracket(s) for condition and securement.	Any slipper-type pad (insulator) that has significant wear, damage, or is missing.	Any front spring mount is broken or cracked. Any front spring mount-to-frame fastener is loose or missing. The frame cracked at any spring or shock mount.
Pins and Bushings Inspect front spring pins and bushings for wear and lubrication. Check for wear with the front axle loaded, look for off-center spring eye, rubbing shackle, or non-symmetric joint. NOTE: If any questionable condition is found, jack the front of the bus up and identify the source of play or movement	The Zerk (grease) fitting is damaged or missing. Inner sleeve or rubber bushing type spring pin assembly(ies) is worn through, or rubber bushing is excessively worn (rubber is compacted or deteriorated resulting in free play between rubber and spring eye or inner sleeve).	Total free play (up and down) of pins and bushings is beyond the manufacturer's specifications. Any pin is loose, damaged, or worn or cannot be properly clamped by pinch-type shackles. On vehicles equipped with bolts instead of pins, the bolt is loose, damaged, or worn, or the nut is not a locking type or is missing. The pin is cutting into the spring, shackle, or mount.
A-Frames and Bushings: (upper and/or lower control arms, struts) Inspect A-frames and bushings for condition and securement.	Rubber bushing(s) is split, badly deteriorated, or badly extruded from suspension joints.	Rubber bushing(s) is missing. Any A-frame, control arm, or strut assembly is bent, missing, broken, or any fasteners or U-bolt(s) are loose or missing. Any A-frame, bushing, or pivot arm has more than .050" free play at the pivot point. The mounting of assemblies is not secure.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Ball Joints Inspect ball joint(s) for condition, securement, and lubrication.	Zerk (grease) fitting is missing, damaged, loose, or won't take grease.	Any ball joint has more than 3/32-inch axial play. Any ball joint nut is loose or missing, or the cotter pin is missing. The ball joint to the A-frame mounting is cracked or loose or has been welded.
U-Bolts Inspect spring U-bolts for condition and securement.		There is rust underneath the U-bolt nuts indicating the possibility of looseness. Any U-bolt, seating plate, shock mount bracket, or nut is loose or missing, cracked, or stripped.
Shocks Inspect shocks for condition and securement.	There is wetness around the shock body due to leaking shock fluid. Any shock mounting or fastener is loose.	Any shock or mount is missing, cracked, or broken.
Springs Inspect front springs for condition, securement, and alignment.	There are any loose, missing, broken, or worn spring clips. Missing insulators between leaf springs or on ends of coil springs. Any coil or leaf spring has weakened causing the vehicle to lean excessively. Either front spring saddle (if equipped) is worn out or missing.	Any leaf spring is broken, cracked, or missing. Spring eye is worn or spread such that bushings are loose in spring eye. Any coil spring(s) is broken, insecurely mounted, non-OEM type or non-OEM blocks or spacers are installed. There is any misalignment of spring leaves or other evidence that the center pin is loose or broken.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
	The rubber bumper is missing or damaged. Ride height not adjusted properly (air suspension) or outside of manufacturer's specifications.	Either the front coil or leaf spring is worn so that the rubber frame bumper is damaged or worn due to frequent bottoming of the front suspension. Any alignment wedge is loose or damaged. On any airbag-type spring assembly, the airbag is damaged or leaking. Any problem with the ride height control valve other than adjustment.
Anti-roll bar/Sway bar (If equipped) Inspect for mounting and condition.	Rubber mounting bushings are cracked, compressed, or deteriorated to the point of allowing movement of the bar.	The Bar Is bent, broken, or missing. Any mounting hardware is broken or missing. Any rubber bushings or grommets are
Wheel Seals Check for condition and leakage.	Excessive seepage.	Either the front wheel seal is damaged or leaking.
Vehicle Frame Check frame rails, extensions, modular sections, cross-members, braces, gussets, liners, and all fasteners for damage, condition, and mounting.		Frame, frame braces, and associated rivets or fasteners are loose, damaged, or missing. Frame, extensions, liners, or modular sections are damaged, cracked, or broken. Frame braces or cross-members are damaged, cracked, or broken. Rivets or other fasteners at frame braces or cross-members are loose or missing.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
		Any axle or suspension component is loose beyond the specifications prescribed elsewhere in this manual. Any unauthorized modifications (welding, drilling, etc.)

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Air Ride Suspension System (if installed) Inspect Air Ride Suspension System:		
Springs Inspect airbag-type spring assembly, for condition, securement, leaking, function, and alignment. Check ride height.	There are any loose, missing, broken, or worn components. The vehicle is leaning excessively. Either rear spring saddle (if equipped) is worn out or missing. The rubber frame bumper is missing. Ride height not adjusted properly (air suspension) or outside of manufacturer's specifications.	Any leaf spring(s) is broken, cracked, or missing Any non-OEM type or non-OEM blocks or spacers are installed. There is any misalignment of spring leaves or other evidence that the center pin is loose or broken. Either spring is worn so that the rubber frame bumper is damaged or worn due to frequent bottoming of the rear suspension. Any alignment shim or wedge is loose or damaged. Any airbag type spring assembly, airbag, air lines, and/or valve are damaged or leaking. Any problem with the ride height control valve other than adjustment. Air ride pivot pins or bushings are loose.
Antiroll bar/Sway bar (if equipped) Inspect for mounting and condition.	Rubber mounting bushings are cracked, compressed, or deteriorated to the point of allowing movement of the bar.	The bar is bent, broken, or missing. Any mounting hardware is broken or missing. Any rubber bushings or grommets are missing.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
U-Bolts Inspect spring U-bolts for condition and securement.	Any U-bolt Is misaligned.	There is rust underneath the U-bolt nuts indicating the possibility of looseness. Any U-bolt is cracked, stripped, broken, or missing. Any U-bolt is not OEM size, type, and/or design. Any U-bolt seating plate, shock mount bracket, or nut, is loose, missing, cracked, or stripped.
Shocks Inspect rear shocks for condition and securement.	There is any wetness around the shock body due to the leaking shock fluid. Any shock mounting or fastener is loose.	Any shock or mount is cracked, broken, or missing.
Shackles Inspect rear suspension shackles, spring hangers, and hanger pinch bolts for condition and securement. NOTE: Shackle types vary by manufacturer and year models. Bolted, pinned, pinch-pinned, combination, etc.		Any rear spring shackle or hanger is cracked or broken. Any rear spring shackle or hanger is worn to the point, or the pinch bolt is stripped or missing so that the spring pin cannot be clamped tightly. Any rear spring shackle or hanger has significant side wear at the spring eye. Any rear spring or shackle eye bolt is loose, worn, broken, damaged or missing.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Pins and Bushings Inspect rear spring pins and bushings for wear and lubrication (same as front). For other types of pin and bushing configurations, see the manufacturer's Service Manual. NOTE: If a questionable condition is found, jack up the rear of the bus and identify the source of play or movement.	Any Zerk (grease) fitting is damaged or missing. Inner sleeve or rubber bushing type spring pin assembly(ies) is worn through, or rubber bushing is excessively worn (rubber is compacted or deteriorated, resulting in free play between rubber and spring eye or inner sleeve).	The pin is cutting into the spring, shackle, or mount. Any pin is loose, damaged, or worn, or cannot be properly clamped by pinch-type shackles. On Vehicles equipped with a bolt instead of a pin, the bolt Is loose, damaged, or worn or the nut is not a locking type or is missing. The rear spring pin bushing (metal type bushing) is worn through. Total free play (up and down) of pin and bushing exceeds 1/8 inch. On a system using two pins and bushings, combined free play exceeds 1/4 inch.
Hangers Inspect hangers for mounting and condition.	Any front spring shackle or hanger is worn, or bent, or the pinch bolt is stripped or missing so that the spring pin cannot be clamped tightly.	Any spring hanger or bracket is cracked or broken, or any mounting fastener is loose or missing,
Control Arms/Rods Inspect rear axle control, torque, stabilizer, etc. arms/rods (if equipped) for condition and mounting.	Rubber mounting bushings are cracked, compressed, or deteriorated to the point of allowing movement of the bar.	**Any part of a torque, radius, or tracking component assembly or any part used for attaching the same to the vehicle frame or axle that is cracked, loose, broken, or missing.** Any mounting hardware is broken or missing. Any rubber bushings or grommets are missing.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Seals Inspect rear wheel seals and gaskets for condition and leakage.	There is wetness or leaking of gear oil around the axle flange.	Either rear wheel seal is damaged or leaking. Any axle flange stud or nut is loose or missing.
Axle Pinion, Transmission Flange *Driveshafts* Inspect driveshafts and damper for condition.	Any vibration felt during the road test.	Any driveshaft balancing weight (if originally equipped) is missing. Any driveshaft is bent or seriously dented. Any loose, damaged, or leaking damper. There are any cracks or other damage to the driveshaft, which could cause structural failure.
Yokes Inspect driveshaft yokes for condition and lubrication.	Driveshaft splines are unlubricated. The dust cap on the yoke is loose or missing. Zerk (grease) fitting is missing or clogged.	Any yoke has significant play in splines. Any yoke is cracked or damaged.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Midshaft (Midship) Bearings Inspect midshaft (midship) bearings and rubber insulators for condition and securement.	Midshaft (midship) bearing rubber inner insulator is deteriorated, damaged, or oil-soaked. Midshaft (midship) bearing support is misaligned.	The bearing outer race is loose in the insulator, or the inner race is loose on the shaft. There is significant play in midshaft (midship) bearing. There is any missing or damaged hardware or fasteners in the midshaft (midship) bearing or support assembly.
Driveshaft Park Brake Inspect driveshaft park brake assembly for condition, mounting, securement, and adjustment of linings, drum, linkage, and all other related hardware.		The lining is worn beyond allowable limits. The lining is contaminated with grease or oil. The lining is broken, cracked, or loose. The drum is cracked or has excessive heat damage or scoring of friction surface. Any actuating or mounting hardware or fastener is damaged, loose, or missing. The Park brake is not adjusted per the manufacturer's specifications.
Differential Inspect differential assembly for condition and leakage.	The differential gasket or pinion seal is seeping.	Any external differential hardware or fasteners are loose or missing. Differential pinion yoke has end play or side play exceeding the manufacturer's specifications. The pinion/yoke end nut is loose or missing. The differential gasket or pinion seal is leaking.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Vent Inspect the condition of the axle housing vent.	The axle vent is not functional. The vent cap is clogged. The vent hose (if originally equipped) is cracked, clogged, or missing.	The vent is leaking excessively or is missing.
Axle Housing		Any portion of the axle housing is cracked or bent. Any portion of the axle housing is leaking lubricant due to cracks, porous metal, or defective weld. There is any leakage at or around axle housing ends.
U-Joints, Carrier Bearings and Guards *U-Joints* Prior to lubrication, inspect U-joints or constant velocity (CV) joints (if equipped) for condition, phasing (alignment of joints), lubrication, and presence of all hardware.	The driveshaft is out of phase. U-joints or constant velocity joints are dry of lubrication, or Zerk (grease) fitting (if equipped) is missing, clogged, or inaccessible.	There is missing hardware or fasteners in any U-joint or CV joint assembly. Any U-joint has significant cross-shaft-to-bearing cup play, or CV joint has significant play. Any U-joint or CV joint shows evidence of significant rusting of bearings. Any bearing cup Is loose in the yoke. Any mismatched or wrong type cup straps or bolts.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Guards Inspect for the presence and condition of driveshaft guards (if originally equipped).	Any driveshaft guard is bent or damaged (not rubbing).	Any driveshaft guard is missing or has loose or damaged mounting fasteners or is rubbing the shaft.
Air Tanks and Dryer *Air Dryer* 1) Check the dryer for securement and condition.	The dryer has loose or missing mounting bolts but is not in danger of falling off. The canister portion of the dryer is bent or damaged but Is not leaking	The dryer has loose or missing mounting bolts and is in danger of falling off. The canister portion of the dryer is bent or damaged and is leaking or loose.
2) Check dryer fittings, plumbing, and electrical connections on the heating element. **Note: Loops or low spots in air lines can collect water and freeze.**	The electrical connection for the heating element is loose or damaged. Air line to the dryer is improperly routed.	Any air line connection is loose or has an audible leak.
3) Check the purge valve for operation and contamination. **Note: There may be dampness and oil residue on and around the valve. A slight leak is acceptable from the valve during the charging cycle or if shut down prior to the purge cycle.**		The valve is contaminated by solid material (desiccant, cloth, rubber, metal, etc.), which would prevent it from seating. The valve continues to leak after the purge cycle.
Drain Air Reservoirs 1) With the air system fully charged, check the manual operation of the safety relief valve. 2) Partially open the manual petcock valve on the first (wet) tank. 3) Allow any moisture (water) or contamination to drain.	There is excessive moisture in the reservoir. (desiccant type air dryer equipped vehicles only).	Safety relief valve leaks or does not release pressure. There is excessive sludge or oil contamination in the reservoir.

	Section D: Under Vehicle Inspection	
Inspection Procedure:	Repair If:	Out of Service If:
Transmission *Transmission Bolts* Inspect transmission assembly and mounting fasteners for condition and securement.		The transmission is not mounted securely to the flywheel housing. There is any external indication that any torque converter bolt(s) are loose or missing.
Linkage Inspect transmission linkage for routing, condition, and securement. Note: Mechanical modulator cable should have 1/16 to 1/8 Inch clearance at full throttle.	Modulator cable or vacuum hose routed subject to excessive heat or abrasion. Any linkage hardware or fasteners loose. Dust/moisture boots on cable missing or torn. The modulator cable is exposed, or the casing is damaged. The modulator cable is out of adjustment. The modulator vacuum hose is deteriorated or loose.	Linkage is bent, damaged, binding, or severely misadjusted. Any linkage hardware or fasteners are missing or loose. Any linkage hardware or fasteners are damaged to cause a sticking or binding condition. The modulator vacuum hose is leaking or not connected. Air modulator or airline leaking.
Lines Inspect transmission lines, and associated wiring for routing, securement, and condition.	Any transmission line or wiring is unsecured or routed where it is subject to excessive heat or abrasion. Any transmission line of improper type.	Any transmission line is kinked. Any transmission line or fitting is leaking. Any transmission line or wire is worn or deteriorated to the point that failure could occur.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Filter Inspect transmission external filter assembly (if equipped) for securement and condition.	External filter mounting is insecure or has loose or missing fasteners. Filter monitor indicates the need for change. The filter canister is damaged (not leaking).	The body of the transmission filter is cracked or damaged and is leaking. Any hose, line, or connection is cracked or damaged and is leaking.
Cooler Inspect the transmission cooler.	The transmission cooler fins are bent.	Any external leak or transmission fluid in the cooling system (internal leak).
Fuel System, Fuel Tank(s) *Fuel System and Tank(s)* Inspect fuel tank assembly for leaks.		There is any fuel leakage from the tank, connections, or cap. The fuel tank has cracks or the fuel cap is missing. Any connection(s) are loose at the
Mounting Inspect the fuel tank mounting system and barrier (if equipped) for securement and condition.		Any portion of the fuel tank mounting system (including support brackets, retaining straps, and chassis frame) is missing, loose, cracked, or broken. Any fuel tank mounting fasteners are loose or missing. The barrier assembly (if originally equipped) is damaged, insecurely mounted, or missing. The fuel tank is not OEM, has been modified, or extra tank(s) have been added.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Hoses Inspect all fuel lines, hoses, and under-bus fuel system components, for routing, securement, and condition (including vents, fill, and crossover).	EVAP emissions leaks.	Any fuel line or hose is unsecured or is routed subject to excessive heat or abrasion. Any fuel line or hose is deteriorated or damaged (including cracks or any damage that may cause potential leakage) or clamps are loose or missing. Any under-bus fuel system filter, water separator, or other components are insecurely mounted, cracked, or damaged.
Wiring Inspect fuel tank sender unit wiring for securement, routing, and condition.	Any portion of sending unit wiring (including ground) or connections is unsecured or is routed subject to excessive heat or abrasion.	Any wiring or connection has damaged or missing insulation.
Electric Fuel Pump Inspect electric fuel pump wiring for securement, routing, and condition.	Any portion of fuel pump wiring (including ground) or connections is unsecured.	Any portion of fuel pump wiring (including ground) or connections is poorly routed or subject to excessive heat or abrasion. Any wiring or connection has damaged or missing insulation.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Body to Frame Clamps, Insulators, Cowl Hold-down Bolts *Body Mounts* Inspect for securement and condition of all body mounts, chassis cowl mounts, and frame pads. Body mounts include any J-bolt, U-bolt, shear bolt, or clamp-type mounts used to secure the body to the chassis frame.	Padding between frame rails and floor sills is missing or grossly misaligned. Any isolators (donuts) are split, cracked, or deteriorated so as not to be effective.	**Note: Any combination of the following conditions are found for 25% or more of the body mounts: (If less than 25% then repair)** The originally installed body mount or cowl mount is missing. The body mount has missing hardware. The body mount is cracked, damaged or stripped. The body mount is loose or misaligned. Isolators (donuts) are missing.
Floor Inspect the condition of floor structure, sills, and braces.	There are any minor cracks in floor sills or braces or in welds.	There are holes or cracks in floor sheet metal creating an opening to the passenger compartment. The entire cross-section of any floor sill or brace is broken. There is any broken weld or mounting of a floor sill or brace resulting in complete separation
Outriggers Inspect body outriggers and hardware for condition and securement.	Any installed (as required by manufacturer) outrigger is missing. Any body outrigger is cracked, has a broken weld, or has loose or missing hardware.	The outrigger is loose or hanging from the bus body.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Braces Inspect for condition and securement of all chassis and body braces.	Any bumper brace is broken, cracked, or missing. There is any cracked brace underneath the body.	Braces are loose or hanging from bus body or frame.
Skirts Inspect body skirts and gussets for securement and condition.	Any body skirt, brace, or gusset has cracked or broken sheet metal or mounting points.	Any skirt, brace, or gusset is bent, damaged or deformed to the point of being hazardous.
Engine and Transmission Mounts *Engine/Transmission Mounts* Inspect engine and transmission mounts for condition and securement.	Replace mount if any of the following conditions exist: Hard rubber surface covered with heat check cracks. Rubber cushion separated from metal plate mount center. Rubber cushion split through the center.	Any mounting fasteners are loose, missing, or broken. Any mount cracked or has missing cushion.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Brake, Fuel, Cooling and Lubricant Lines Check Fittings, Electrical Connections, Proper routing, condition		
Brake Hoses 1) Inspect flexible brake hoses for condition, securement, and routing.	Separator bracket on dual hoses loose or out of position.	Any brake flex hose or connection is leaking fluid or air pressure. Any brake flex hose is kinked, cracked, collapsed, bulging, has damaged plies or cord, or is damaged below outer covering. Any brake flex hose supporting brackets are damaged or have loose fasteners. Any brake flex hose is rubbing on or routed against other components. Any brake hose fittings are damaged or rusted to weaken the crimp.
2) Inspect air and hydraulic brake lines for routing, securement, andcondition.	Brake line bracket(s) or securement system is loose or missing and line is not in contact with any other component.	Any brake line is bent, crimped, or damaged restricting or leaking air pressure or hydraulic fluid. Any brake line or connection is leaking air pressure or hydraulic fluid. Any brake line is rubbing on other components or is abraded. Any brake line is not OEM material or DOT approved size or type.
3) Inspect Heater hoses	Heater hoses are cracked, swollen or badly chafed.	Heater hoses are cracked, swollen or badly chafed.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
4) Inspect electrical wiring	Rubbing, chafing, damaged, unsecured	Any wire is worn or deteriorated to the point that failure could occur.
5) Inspect hydraulic cooler lines, oil lines, and fittings	Lines or fittings are cracked, chafed, leaking	Lines or fittings are cracked, chafed, leaking
Optional Equipment: Auto- Chains, Sanders, Coolant Heaters Inspect for adjustments, leaks and operation	Adjust as needed. Any equipment is inoperative.	Any leaks. Exhaust leak, fuel leak, or coolant leak from coolant heater.
Exhaust Systems *Exhaust Leaks* With the engine running and at operating temperature, inspect the exhaust system for leaks, condition, and securement.	Any physical damage to the exhaust system that is adding restriction or back pressure but no leak.	Any leakage which is audible or can be felt around any portion of the exhaust system including manifold(s), pipe sections, or any junction. Any leakage in the DEF or DPF systems.
Mounting Inspect the mounting of the exhaust system.	Any exhaust system hanger that is not securely mounted. Any originally installed exhaust hanger, that is missing, broken, or detached from the exhaust system or frame mounting point. Any exhaust pipe or clamp is loose.	Any clamp is missing.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Mufflers Inspect for the presence and condition of the muffler.	Significant physical damage to the muffler.	The muffler is leaking. The muffler is missing.
Tailpipe Inspect the condition of the tailpipe The tailpipe shall be flush with but not extend more than one inch beyond the perimeter of the body for side exit or the bumper for rear exit Inspect the condition of the diffuser if equipped.	Any physical damage to the tailpipe that is adding restriction or back pressure but leak. The tailpipe extends more than 1 beyond the bumper. Diffuser damaged	The tailpipe is leaking. The tailpipe does not extend at least to the edge of the rear bumper or rearmost OEM mounting position. Exhaust discharges under occupant compartment. The tailpipe exits the right side of the bus body, beneath any fuel filler location, or beneath any emergency door or lift door Diffuser missing
Catalytic Converter - if applicable Inspect for the presence and condition of the converter.	Any physical damage to the converter that is adding restriction or back pressure but no leak.	The converter is leaking. The converter is missing.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Clutch *Clutch Operation* Check pedal, linkage, clutch, and throw-out bearing for wear, slippage, and abnormal noises in the engaged and released positions.	Loose nuts and bolts. Noisy throw-out bearing. Clutch out of adjustment.	Cannot adjust clutch to specs. Excessively noisy throw out bearing. Clutch slipping, grabbing, or has excessive chatter when engaging clutch. Binding or sticking clutch linkage or return spring. Hard to shift transmission.
Pedal Wear Visually check clutch pedal pad for wear.	Worn pedal cover pad.	Missing pedal cover pad.
Clutch Master and Slave Cylinders 1) Check for hydraulic leaks and operation (if equipped).		Leaking master or slave cylinder or line and/or inoperable.
2) Clutch Adjustment Check "free play" travel of clutch pedal. This is the first easy movement of clutch pedal and should be no more than 1-1/2 and no less than 3/4-inch travel.	Free play is out of adjustment.	Clutch slips, grabs, or chatters after adjusting "free play" travel. No adjustments can be made (if it is an adjustable clutch).

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Driveline Retarder (Secondary Braking Systems, e.g., Exhaust Brake, Transmission Brake) Check for condition and operation.	Any leaks, missing or broken or inoperative components.	Any component damaged that could result in a vehicle breakdown.
Air Brake Chambers *Brake Hoses* 1) Inspect flexible brake hoses for condition, securement, and routing. **Note: Replacement fittings must be DOT-approved fittings.**	Separator bracket on dual hoses loose or out of position.	Any brake flex hose or connection is leaking fluid or air pressure. Any brake flex hose is kinked, cracked, collapsed, bulging, has damaged plies or cord, or is damaged below the outer covering. Any brake flex hose supporting brackets are damaged or have loose fasteners. Any brake flex hose is rubbing on or routed against other components. Any brake hose fittings are damaged or rusted to weaken the crimp.
2) Inspect air brake lines for routing, securement, and condition.	The brake line bracket(s) or securement system is loose or missing and the line is not in contact with any other component.	Any brake line is bent, crimped, or damaged, restricting or leaking air pressure or hydraulic fluid. Any brake line or connection is leaking air pressure or hydraulic fluid. Any brake line is rubbing on other components or is abraded. Any brake line is not OEM or DOT-compliant material, size, or type.

Section D: Under Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Brake Chambers Inspect brake chamber assembly(ies) securement, condition, and proper size. 1) Check for caging bolt dustcover/cap. 2) Check that brake chambers match left and right. 3) Check the operation of the spring brake (parking brake).	Any missing or damaged spring brake caging bolts. The brake chamber dust cover is missing.	Any brake chamber mounting bracket is cracked, bent, or broken. Any brake chamber or mounting fastener is damaged or loose. Any brake chamber is not the original size, or the size of chambers is not matched left and right (both sides same size). Any leak Is detected in the chamber. Any wear to chamber or rod (where rod exits chamber). Any spring brake chamber is bent, damaged, or corroded and may lose containment of the spring. The spring brake won't apply or release.

CHART D-1: TIGHTENING STEERING COLUMN JOINT BOLTS

Figure 1 Typical Column with Yoke or U Joint

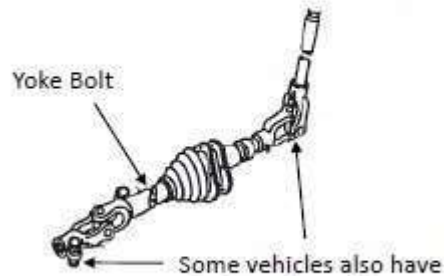


Figure 2 Typical Flexible Type Steering Coupling

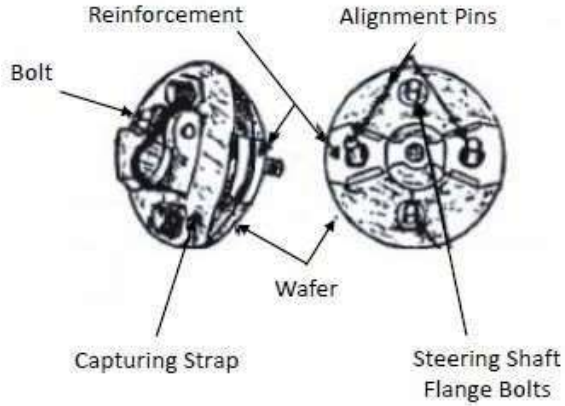
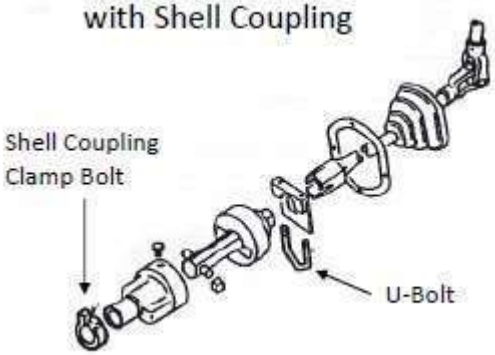


Figure 3 Typical Column with Shell Coupling



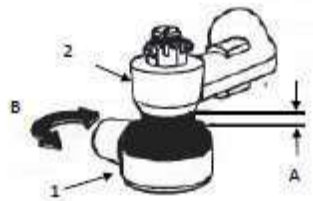
TIGHTENING STEERING COLUMN JOINT BOLTS

WARNING: FAILURE TO MAINTAIN STEERING SYSTEM IN PROPER CONDITION MAY CAUSE REDUCED STEERING ABILITY RESULTING IN PERSONAL INJURY AND PROPERTY DAMAGE.

As good maintenance practice, it is recommended that steering column joint bolts be checked for tightness every 80,000 km (50,000 miles) or annually, whichever occurs first. Torque to manufacturer's specifications.

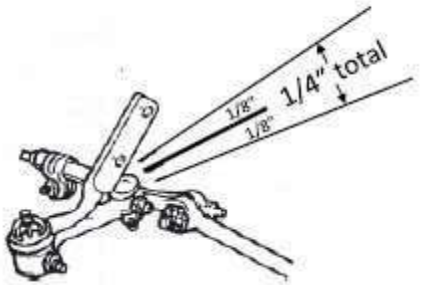
CHART D-2: STEERING JOINTS

Figure 4 Checking the Rod and Drag Link End Movement



A Movement in the axial direction must be less than 1/16 inch
B Tie Rod/drag link free to rotate within steering arm socket
1 Tie Rod/drag link end
2 Steering Arm

Figure 5 Checking Idler Movement



End of Section

SECTION E: Around Vehicle Inspection

Section E. Around Vehicle

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Body Condition, Bumpers, Tow Hooks, Numbering, Lettering		
Body Damage Check the body exterior for accident damage, scratches, dents, etc.	The body has small dents, scratches, etc. The body has small rust spots or water leaks. The rubber fender extension is missing, loose, or torn Mud flaps loose, torn or missing	Any body part damaged or dislocated creating a protrusion or sharp edge. Body panels, rivets, or other components are loose, damaged, or corroded to the point where joint strength or body structural integrity is compromised. Body panels/parts missing.
Bumpers Check bumpers for mounting, condition, color, body seal, and end caps (rear bumper).	Bumper end caps missing. The bumper is equipped with unauthorized stickers or decals. The bumper was not adjusted properly. (i.e., interferes with hood opening) The bumper is not black (bus).	The bumper is bent away from the body or has protruding metal. The bumper mounting system has cracked, broken, or bent brackets, braces, welds,or missing or loose fasteners. The bumper is cracked, torn, or broken. The bumper is not an OEM or approved type.

Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Tow Hooks Inspect for condition.	Loose	Damaged or missing.
Reflective Markings (if equipped) Check reflective markings for coloration, reflectivity, condition, and presence around any emergency exit (door, window, or roof hatch) along both sides at the floor line and around the rear perimeter of the bus.	Reflective markings are faded, discolored, damaged, or peeling. Side reflective markings are faded, discolored, damaged, or peeling.	Any required reflective markings missing. Any emergency exit, roof hatch, or rear perimeter reflective markings missing, faded, or discolored.
Lettering Check all lettering for required type, size, location, and color. Only signs and lettering specifically permitted by state law or regulation and any marking necessary for safety and identification shall appear on the outside of the bus.	Fuel-type lettering is not present. Any handicapped symbol (if required) is not reflective white on a blue background, minimum six inches by six inches (6"x6"). Any damaged lettering that is difficult to read.	Bus not equipped with the following required lettering in readable condition: 1) Eight-inch (8") "SCHOOL BUS" front and rear. 2) Five-inch (5") minimum school district or service provider name on the left and right sides of the body. 3) Handicapped symbol on all sides. 4) Minimum two-inch (2") lettering "Emergency Door" at the top or above the door.
Paint Check the paint on the body and trim for required coloration and condition.	The paint is severely faded, discolored, rusted, or damaged. Trim, rub rails, bumpers, warning light hoods or background are not black (buses).	5) Emergency door(s) (all years) and emergency window(s) or hatch(es) labeled "Emergency Exit" or "Emergency Door" on the inside and outside. 6) Any required lettering (except handicapped symbol) not black.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Cleanliness Check the exterior of the bus for cleanliness.	The exterior is dirty.	The vehicle is dirty to the point visibility through any window or light lens is significantly reduced.
Exit Doors *Main door* Inspect door for condition, operation, mounting, and seal	Hinge, door, latch, and/or seal loose, damaged, or difficult to open, but still functional. Lettering (outside) missing	Hinge, door, and/or latch damaged and do not function or are missing.
Emergency Exit Door 1) Inspect the door for condition, operation, mounting, and seal 2) Check the emergency door for operations from the exterior of the bus.	Emergency doors are equipped with a link or strap that prevents the door from opening too far and causing damage. The link or strap should be working, not damaged, or tight, and should not interfere with door operation. Hold open device (if equipped) is non-operational, bent, damaged, or loose. The side emergency door seal is damaged or does not effectively prevent water and/or dirt from entering the bus.	Emergency door(s) difficult to fully open (at least 90 degrees) from outside of the bus. Emergency door(s) latch mechanism requires more than 40 pounds of force to release. Emergency door(s) exterior handle is not OEM style and mounting. The rear emergency door seal is damaged or does not effectively prevent exhaust, water, and/or dirt from entering the bus.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Component Doors, Hinges and Latches *Compartment* 1) Inspect panel(s) and components for mounting, routing, and placement. Inspect visible wiring for mounting, condition, chafing/abrasion, corrosion, loose connectors, or improper repairs.	Wiring or connectors are unsecured, corroded, or improperly routed. Any panel or component is not properly mounted or loose but not in danger of shorting or failing.	Any wire or connector cut or severely chafed, or conductor exposed or routed against a sharp edge and in danger of shorting or failing. Any connection of any connector is not secure and is in danger of shorting or failing. Any panel or component not properly mounted or loose and in danger of shorting or failing. Any component or circuit not protected by a fuse, circuit breaker, or fusible link.
2) Inspect compartment light(s) for condition and operation.	Light does not function, or the lens is missing or damaged.	Damage or condition that could result in a short.
Door Inspect door for condition, operation, mounting, and seal	Hinge, door, latch, and/or seal loose or damaged but still functional. The lettering (outside) or wiring diagram (inside) missing	The hinge, door, and/or latch are damaged and do not function or are missing.
Engine Hood 1) Check the engine hood for operation, condition, and safety latch. 2) Check the operation of the starter interlock switch if applicable (rear engine).	The hood or hood latch is misaligned, out of adjustment, loose, or damaged. Fiberglass hoods, fender extensions, and/or cowls show signs of unusual wear. Any hood socket, rubber cone, wedge, or hinge is missing, loose, or damaged.	The hood cannot be opened as designed. A hood latch does not secure the hood. Hood support cables are loose, broken, or missing (tilt hood).

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
	Any rubber/plastic hood bumper or gasket is missing, loose, or damaged. Any hood hold open feature (rod, strut, self-locking support, etc.) is missing, loose, or damaged.	The interlock switch does not function as designed or has been bypassed.
Windshield Folding Steps and Grab Handles Check the condition and mounting of windshield folding steps and grab handles.	Any windshield step or grab handle is loose or missing. Folding steps do not operate properly.	Any windshield step or grab handle is broken.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Exterior Lights, Mirrors, Reflectors **All required lighting devices and reflectors shall be operable to pass annual inspection.** *Headlights* 1) Check all headlights for brightness, operation, condition of sealed beams, type, and visible misalignment. 2) Check Daytime Running Lights (if equipped) for proper operation.	Left and right sealed beams are of different types (halogen vs. conventional). Trim rings are not present. Upon visible inspection, there is an obvious misalignment of headlights due to adjustment. Daytime Running Lights fail to function properly. Visible condensation inside the sealed beam headlight assembly.	Either sealed beam does not light on low and high. Any sealed beam lens fogged, cracked, or light is dim. Lights go out after being on for a short time, or the operation is intermittent. Upon visible inspection, there is any obvious misalignment of headlights due to loose, damaged, or missing adjustment or mounting hardware.
3) Check high beam indicator operation	The high beam indicator doesn't light.	
4) Check dimmer switch	Dimmer switch sticks are difficult to operate.	The dimmer switch doesn't function.
5) Check the headlight switch.	The headlight switch is damaged, not securely mounted, or the knob is missing.	The headlight switch does not function
6) Dash light brightness control.	Inoperative and dash lights illuminate.	Inoperative and dash lights do not illuminate.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Exterior Lights, Mirrors, Reflectors *Turn Signals* Check turn signals and lenses for operation, condition, and specifications.	Any front, rear, or side-mounted turn signal lens is cracked, and white light is visible. Turn signal indicators do not properly indicate right and left signals. The turn signal switch does not cancel or return to the neutral position.	Any front, rear, or side-mounted turn signal does not flash or is dim. The turn signal does not flash between 60 and 120 times per minute. The turn signal switch does not initiate turn signals or will not maintain a set position. Any front-mounted turn signal lens is not amber. Any turn signal lens has darkened, faded, or is dirty significantly affecting the visibility or color of the light. Any front, rear, or side-mounted turn signal lens is damaged, and white light is visible.
Hazard lights Check four-way hazard lights and lenses for operation and condition.	Any lens is cracked or dirty. Either indicator fails to function properly.	Any four-way hazard light fails to function. Hazard lights do not flash between 60 and 120 times per minute. The switch does not function or (pre-1995) will not maintain a set position when the steering wheel is turned. The switch is damaged, not securely mounted, or knob/button is missing.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Stepwell Lights Check for operation of stepwell lights (interior and exterior).	Either stepwell light fails to operate.	
Exterior Lights, Mirrors, Reflectors *Brake Lights* Check brake lights and lens(es) for operation, condition, and specifications.	Any brake light lens cracked and white light visible. High-mount brake light fails to function (if equipped).	After the brake pedal is released, the brake light switch sticks or lights stay on. Any brake light lens is damaged and white light is visible. Any brake light lens not red or not proper type meeting SAE specification or lens has darkened, faded, or is dirty, significantly affecting the visibility or color of the light.
Tail Lights Check taillight(s) and lens(es) for operation, condition, and specifications.	Any taillight lens cracked and white light is visible.	Any taillight lens is damaged, and white light is visible. Any taillight lens is not red or is not proper type meeting SAE specifications. Any taillight lens has darkened, faded, or is dirty, significantly affecting the visibility or color of the light.
Backup Lights Check backup lights and lens(es) for proper operation and condition.	One of the installed backup lights (2-light system) fails to function. Any backup lens is cracked.	All the installed backup lights fail to function. Backup light(s) stays on all the time or stays on in any gear position other than reverse.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Backup Alarm 1) Check for the presence of backup alarm. 2) Check the operation of the alarm by placing the transmission in reverse (automatic transmission – engine running) and listening for alarm sound.	The alarm mounting loose. The backup alarm does not sound (if equipped).	
Park Lights Check park lights and lens(es) for proper operation and condition.	Park light(s) fail to function. Any park light lens is cracked or damaged.	
Clearance and Marker lights Check light(s) and lens(es) for operation, condition, and location.	When viewed from the front, rear, or side more than one light is not working. Any clearance lens is not amber if in front of the rear wheels or red if at or behind the rear wheels. Any clearance light lens has darkened, faded, or is dirty, significantly affecting the visibility or color of the light. Any clearance light switch is hard to operate, sticks, or knob is missing. Any clearance light lens is damaged or white light is visible.	When viewed from the front, rear, or side: none of the lights are working when viewed from that direction.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
License Plate Light(s) 1) Check license plate and light(s) and lens(es) for condition and operation.	License plate light(s) inoperative. The license plate is loose, not legible or missing.	
Strobe Light Check roof-mounted white flashing strobe light for operation, location, condition, and protective guard.	The protective guard is loose. (if equipped) The strobe light is missing or does not function. (if equipped)	
Reflectors Check reflectors for condition and location.	Any OEM-installed reflector on either side, front, or rear of the bus is missing, loose, damaged, cracked, or faded.	
Student Warning Lights Check student warning lights for operation and condition (see Chart).	Either the student warning light or pilot light fails to function. Any student warning light hood is damaged but does not obstruct the visibility of the light. Any student warning light hood is missing.	Any amber or red light does not function. Amber/red lights (front and rear) do not alternately flash (side to side). Any student warning light is not red (outer) or amber (inner) or is not the proper type. Any student warning light lens is damaged, and white light is visible or is not the proper type. Any student warning light lens has darkened, faded, is misaligned, or dirty, affecting the color of the light or reducing the visibility to less than 500 feet in bright sunlight.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
		Student warning lights do not function according to all conditions in the Chart. Any student warning light hood is damaged so that it obstructs the visibility of the light.
Mirrors Check all exterior mirrors, mounting, and brackets for tightness and condition.	Mirror brackets bent or broken or mounting insecure and the mirror will remain properly adjusted. Damage to the reflective material of the mirror's surface.	Mirror brackets are bent or broken or mounting insecure and the mirror will not stay in an adjusted position or cannot be adjusted. Cross-view mirrors do not extend beyond the leading edge of the vehicle.
Batteries and Tie-downs *Batteries* Check for condition and type.	Batteries are the wrong type for the vehicle, or multi-battery sets are not matched. Battery top or sides are corroded, greasy, dirty, or wet with electrolyte. Electrolyte is low (if applicable).	Battery cracked or damaged. The battery will not start the vehicle.
Tie-down Check for tightness, condition, and type of battery hold-down.	Tie-down assembly or tray is corroded or damaged, but the battery is secure.	Tie-down assembly or tray loose, corroded, or damaged causing insecure mounting of battery. Tie-down is a flexible strap or other non-rigid design. Tie-down/Batteries are mounted and could short out against tie-down and/or a body/chassis component.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Battery Terminals Check terminals for type, cleanliness, tightness, and condition.	Terminals are dirty, corroded or loose and/or have missing parts.	
Battery Cables Check cable assemblies for routing, securement, condition, and size.	The cable is corroded. Negative cable or insulation cracked or damaged. The negative cable is misrouted, or unsecured, or the grommet is missing to allow it to abrade on any metal or sharp edge. The cable appears to be of excessive length. The flat braided engine ground cable is frayed and corroded.	Positive cable insulation is cracked or damaged. Positive cable is misrouted, or unsecured, or the grommet is missing to allow it to abrade on any metal or sharp edge. The cable is routed against the exhaust or any other extremely hot surface. The cable is smaller than the original equipment size. Flat braided engine ground cable ends are not secure.
Battery Tray Check the battery tray for operation, condition, and securement.	Battery slide tray is corroded or dirty, or hard to slide in and out.	Battery slide tray securement device or tray stop is missing or nonfunctional. The battery tray does not slide in and out. Battery slide tray or box is damaged or deteriorated reducing the security of battery(ies). The battery box door does not open or will not stay latched.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Stop Arm, Student Crossing Arm, Child Safety Alarm *Stop Arm* Check the stop arm for specifications, operation, and condition (see Chart).	The wiring-ground strap is loose or not properly routed and secured. Any lens is cracked, and no white light is visible. The ground strap is broken. Hinge or bushing(s) is worn or needs lubrication. Stop arm assembly or blade mounting is loose. Retraction is slow. Any stop arm (paint or decal) is significantly faded or discolored.	Wiring: insulation missing exposing copper or wire(s) is broken. Any lens is cracked, damaged, broken, or missing, and white light is visible. Any stop arm light does not flash or does not flash between 60 and 120 times per minute. Any light does not function. Lights do not flash alternately. The stop arm does not extend to approximately 90° (degrees) or retract. Any stop arm has an air or vacuum leak. Stop arm not of proper type and specifications: 1) Octagonal, red w/ white border (all). 2) Flashing red lights (all). 3) High intensity reflectivity.

	Section E: Around Vehicle Inspection	
Inspection Procedure:	Repair If:	Out of Service If:
Student Crossing Arm (if equipped) Check front bumper mounted student crossing arm for operation, condition, and mounting.	Hinge or bushing(s) is worn or needs lubrication. Arm assembly or blade mounting is loose. Loop-rod/arm is distorted, or U-bolts are loose. The blade is not an approved type.	The arm does not extend to approximately 90° (degrees) and retracts. Any arm has an air or vacuum leak. The arm does not operate according to all the conditions in Chart 1. Loop-rod/arm is missing or broken.
Child Safety Alarm (if equipped) Check the operation of the child safety alarm.	Does not activate automatically when the stop arm/crossing gate begins retraction. Does not deactivate automatically after a brief time period. Does not operate as described in the chart.	

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Wheelchair Lift, Door and Securement System *Operate Lift Through Complete Cycle* Inspect proper operation, condition, safety features, manual backup system, fluid leaks, mounting, barrier operation, warning light, buzzer operation, and overall mechanical condition. Check that the vehicle does not go into gear with the lift deployed. As of July 2005, FMVSS 403 requires the following additional safety features and design elements on passenger-and-wheelchair lifts: • Handrails • Threshold warning signal • Retaining barriers • Interlocks ("to prevent accidental movement of a lift and the vehicle on which a lift is installed") • Minimum platform dimensions • Maximum size limits for platform protrusions and gaps between the platform and the vehicle floor or ground FMVSS 404 requires vehicles to use FMVSS 403-compliant lifts that are installed according to manufacturer instructions, and that commercial vehicles use lifts with certain size and	The dome light inside the lift area is inoperative. The lift door or latch does not smoothly operate. Evidence of fluid leaks. Light at the exterior of the lift is operative (if equipped). Lift control cable or wiring is damaged or routed improperly.	The lift platform end barrier or handrail (if equipped) does not raise and lower reliably to the proper position. The barrier does not lock into position or is damaged. Lift does not fold, unfold, raise, and lower properly, or jerks and binds. The lift is not mounted securely to the vehicle. There is excessive side play in the lift mechanism when the platform is partially or fully extended. Door switch (to prevent lift operation when the lift door is closed), or other safety override features do not function. Any part of the lift mechanism or hardware is damaged, missing, or not secure including cams, clips, pins, rollers, and platform fasteners. The manual backup system does not function properly. Lift cylinders, hoses, pumps, etc. leak.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Lift Buzzer Operation according to specifications.		The lift door warning buzzer or light does not operate according to specifications.
Wheelchair Lift, Door, and Securement System Symbols	Missing or damaged.	
Slack Adjusters and Pushrods *Slack Adjusters* Inspect slack adjusters and S-cam assemblies for wear, condition, operation, and securement.		The slack adjuster is not mounted properly, or the anchor bracket is loose or damaged (Haldex). Any portion of the slack adjuster or S-cam is missing, broken, cracked, or badly worn. S-cam shaft and/or S-cam bushing total wear (up and down) is greater than .030 inches. Manual adjusters have a problem with the locking mechanism on the adjusting bolt. The s-cam snap ring is broken or missing. Any slack adjuster is not adjusted or operating properly.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Pushrods Inspect pushrod assembly(ies) for condition, securement, and alignment. Check and record brake chamber pushrod travel at all four-wheel positions	Auto slack does not self-adjust.	Any portion of the pushrod assembly (locknut, pushrod, clevis, and pin, or cotter pin) is loose, missing, or damaged. Pushrod is rubbing against the body of the chamber, or the chamber is misaligned. The pushrod on the left and right sides are not mounted in identical (same) slack adjuster location holes (same effective slack adjuster length). The Pushrod length is not the same on each side. Any damage or condition which prevents proper adjustment of S-cam. Adjusted stroke (pushrod travel) of any slack adjuster is at or beyond stroke limits in the chart.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Tires Check for condition, wear, damage, inflation, tread depth, matching	Note any tire wear. Weather checked.	Damage that would result in failure. Has a cut where the ply or belt material is exposed. The tires not matching. Has body ply or belt material exposed through the tread or sidewall. Has any tread or sidewall separation. A tube-type radial tire without radial tube stem markings. These markings include a red band around the tube stem, the word “radial” embossed in metal stems, or the word “radial” molded in rubber stems. Boot, blowout patch, or other ply repair.
Tire Inflation Check for inflation PSI as observed. (If replacing the OEM tires, check the vehicle placard, owner's manual or tire guide for recommended air pressure.)	Adjust if under or over-inflated.	More than 10 Psi low. Obvious leak. Flat.
Tire Tread Depth Check that tread depth meets the minimum requirement.	Tread depth will not remain in compliance until the next service.	Steer tires measure less than 4/32nds. Drive tires measure less than 2/32nds.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Wheels Check the size, width, type, valve stems, studs, and lug nuts.	Any wheel component damaged.	Any wheel component damaged. Cracked or broken or has elongated bolt holes. Any loose, missing, broken, cracked, stripped, or otherwise ineffective fasteners. Any welded repair.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Linings Drums, and Brake Components *Check Linings, Drums, and Brake Components* Inspect linings and foundation brake hardware for contamination, wear, damage, and securement.		Loose, missing, or broken mechanical components including shoes, linings, pads, springs, anchor pins, spiders, cam rollers, pushrods, and air chamber mounting bolts. Brakes worn beyond allowable limits. Cracked. Loose or missing liners. Oil or grease contamination. Audible air leaks at the brake
Brake Rotors Inspect brake rotor(s) for mounting, thickness, and condition.	Glazed or out of round.	Rotor mounting is not secure. The rotor has cracks (other than heat checks) or other mechanical defects. Friction surface contaminated with oil, grease, or brake fluid. Any rotor friction surface significantly grooved or damaged.
Drums Inspect the brake drum(s) for condition.	Glazed or out of round.	Any crack (other than heat checks) in any drum. Any grease, oil, or brake fluid on the inside of a drum. The drum is not secure to the hub, or the fasteners are loose.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Wheel Cylinders or Calipers Inspect wheel cylinder(s) or caliper(s) for leaks, mounting, and condition.	Any caliper dust boot is damaged or missing.	Any wheel cylinder or caliper is not securely mounted or has loose or missing fasteners. Any wheel cylinder or caliper is leaking. There is uneven lining or pad wear, rotor or drum damage, evidence of dragging, or other evidence that any wheel cylinder or caliper may be sticking.
Wheel Seals **Check front and rear wheel seals for leakage.**	Seepage	Leaking
Hydraulic Brakes *Hydraulic Wheel Cylinders or Calipers* Inspect wheel cylinder(s) or caliper(s) for leaks, mounting, and condition.	Any caliper or wheel cylinder dust boot is damaged or missing.	Any wheel cylinder or caliper is not securely mounted or has loose or missing fasteners. Any wheel cylinder or caliper is leaking. There is uneven lining or pad wear, rotor or drum damage, evidence of dragging, or other evidence that any wheel cylinder or caliper may be sticking.
Brake Lines Inspect hydraulic brake lines for routing, securement, and condition.	The brake line bracket(s) or securement system is loose or missing and the line is not in contact with any other component.	Any brake line is bent, crimped, or damaged restricting or leaking hydraulic fluid. Any brake line or connection is leaking hydraulic fluid.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
		Any brake line is rubbing on other components or is abraded. Any brake line is not OEM material, size, or type.
Hydrovac Booster (vacuum type) Inspect booster system for securement and condition.		Any visible hydraulic brake fluid leakage. Any audible vacuum leakage. Any brake line or vacuum hose is routed subject to excessive heat or abrasion. Any brake line or hose deteriorated or damaged that failure may occur (cord frayed, wall thickness thin, rubber contaminated with oil, crimped, blistered, cracked, rusted, corroded) Any brake line or hose connection is loose. Any booster not mounted securely, cracked, or damaged. Any vent port not properly plumbed or is obstructed, or the filter is clogged.
Hydraulic Booster Inspect the booster system for securement and condition. Check for fluid leaks.		Any visible fluid leaks. Any booster not mounted securely, cracked, or damaged. If any brake line deteriorates or is damaged that failure may occur.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Reservoir Mounting Inspect reservoirs (vacuum tanks) for securement and condition.		Any reservoir mounting strap or fastener is cracked, loose, or missing. Any leaking, damaged, or cracked tank.
Brake Adjustment For hydraulic drum brakes, check the condition.		Any damage or condition, which prevents proper adjustment of hydraulic drum brakes.
Brake Shoe/Pad Lining Measure shoes or pads per manufacture procedure/industry standard and document		Below manufacturer specification
Brake Drum/Rotor Reading Check for condition and integrity. Document manufacturer specifications, measurements at previous annual, and current measurements.		
Air Disc Brake Pad to Rotor Clearance Measure and document pad-to-rotor clearance	Clearance does not meet the manufacturer's specifications.	Clearance does not meet the manufacturer's specifications.
Post Inspection Road Test Record any abnormalities during the road test:		
Ignition/Starting	Rough or low idle.	The engine will not start or is difficult to start.

Section E: Around Vehicle Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Check for starting, proper idle, stalling.		Engine stalls. The starter drags, is noisy, or does not engage properly. Teeth missing from Bendix or flywheel.
Engine operation Check for missing or hesitation, performance when accelerating, and excessive smoke. Check the engine for any unusual noises, knocks, or rattles.	Engine smoking is abnormal. The noise source was determined not to be harmful to the engine.	The engine is misfiring, skipping, or there is excessive hesitation upon acceleration. The source of noise could result in engine failure.
Oil Pressure Indication		Oil pressure is not normal Oil pressure malfunction light illuminated.
Check Governor Performance and Shutdown of the Engine.		The engine will not shut down. The governor does not limit engine rpm.
Clutch		Any unusual noise or vibration is observed.
Transmission		Any unusual noise or vibration is observed.
Steering		Any unusual noise or vibration is observed.
Brakes		Any unusual noise or vibration is observed.
Heaters Inspect heater system for: 1) Heating performance and water control valve (interior).	Not producing adequate heat. The water control valve is hard to operate.	Leaking

CHART E-1: SERVICE DOOR, STOP ARM, AMBER AND RED WARNING LIGHTS

CHART E-1. SERVICE DOOR, STOP ARM, AMBER AND RED WARNING LIGHTS							
CONTROL SWITCH, and SERVICE DOOR IN THE FOLLOWING POSITIONS:			**CONDITION OF STOP ARM(S), STOP ARM LIGHTS, AMBER WARNING LIGHTS AND RED WARNING LIGHTS MUST BE:**				
ITEM	**MOMENTARY SWITCH POSITION (ON or OFF)**	**SERVICE DOOR POSITION**	**STOP ARM, STOP ARM LIGHTS**	**AMBER WARNING and PILOT LIGHTS**	**RED WARNING and PILOT LIGHTS**	**CROSSING CONTROL ARM**	**CHILD SAFETY ALARM (IF EQUIPPED)**
1	OFF	CLOSED	RETRACTED, OFF	OFF	OFF	RETRACTED	OFF
2	OFF	OPEN	RETRACTED, OFF	OFF	OFF	RETRACTED	OFF
3	ON	CLOSED	RETRACTED, OFF	ON	OFF	RETRACTED	OFF
3.1	OFF	OPEN	EXTENDED, ON	OFF	ON	EXTENDED	OFF
3.2	OFF	CLOSED	RETRACTED, OFF	OFF	ON	RETRACTED	ON
3.3	OFF	CLOSED	RETRACTED, OFF	OFF	OFF	RETRACTED	OFF
4	FAIL-SAFE ON	EITHER	EXTENDED, ON	OFF	ON	EXTENDED	OFF
Items 3 through 3.3 are to occur in sequence once the system momentary switch is activated. By opening and closing the door control, the rest of sequence 3.3 will automatically occur after a brief time delay.							

CHART E-2: MEASURING PUSH ROD TRAVEL

Brake chamber push rod travel shall not exceed those specifications relating to the maximum stroke at which brakes should be readjusted. Performance of the brake push rod travel inspection should be done with the brake application air pressure in the range of 80-90 pounds per square inch {psi), when measuring total stroke to determine proper brake adjustment.

CAUTION: Chock wheels before commencing this Inspection as vehicle emergency brake(s) must be released.

1) With brakes off mark the push rod at the chamber. 2) Apply brakes and measure the distance of the mark from the chamber.

Note: When brakes are properly adjusted and fully applied, the slack adjuster should be at an angle of 90° or greater, measured from the centerline of the adjuster to the push rod.

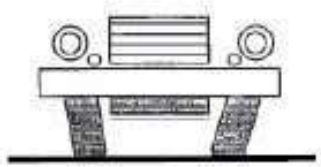
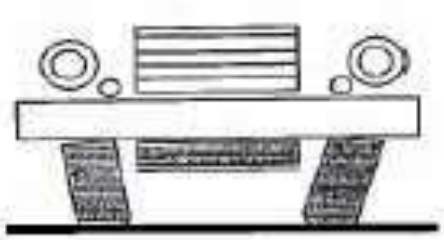
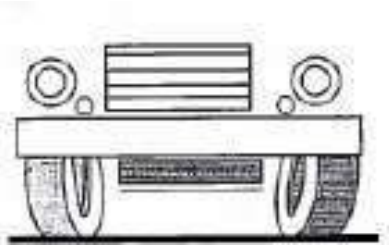
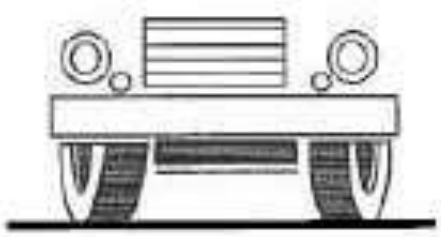
"Long Stroke" Clamp-Type Brake Chamber Data					**"Standard Stroke" Clamp-Type Brake Chamber Data**			
Type	**Outside Diameter**	**Brake Adjustment Limits (inches)**			**Type**	**Outside Diameter**	**Brake Adjustment Limits (inches)**	
16	6-3/8	2.0	Should be as short as possible without lining-to-drum contact		6	4-1/2	1-1/4	Should be as short as possible without lining-to- drum contact
20	6-25/32	2.0			9	5-1/4	1-3/8	
24	7-7/32	2.0			12	5-4/16	1-3/8	
24*	7-7/32	2.5			16	6-3/8	1-3/4	
30	8-3/32	2.5			20	6-25/32	1-3/4	
					24	7-7/32	1-3/4	
					30	**8-3/32**	**2**	
					36	**9**	**2-1/4**	

*** For 3" maximum stroke type 24 chambers**

CHART E-3: AIR BRAKE ADJUSTMENT CHART

AIR BRAKE ADJUSTMENT CHART	
Chamber Type	**Maximum Legal Stroke**
12	1 3/8 inches
16	1 ¾ inches
24	1 ¾ inches
30	2 inches

CHART E-4: TIRE WEAR

Uneven Tire Wear	**Misalignment Wear**	**Side wear**
The following conditions may cause spotty or uneven wear: • Unequal caster or camber • Bent suspension parts • Wheels out of balance • Out of round brake drums • Brakes drag • Other mechanical conditions Locate the mechanical condition that causes uneven wear. Correct the condition.	Too much toe-in or toe-out on the front axle tires causes misalignment wear. The tires revolve with a side motion, which scrapes off the tread rubber. The scraping action against the face of the tire causes a small feather edge of rubber to appear on one side of the tread. This feathering is an Indication of misalignment. If misalignment is severe, rubber will be scraped off both tires. If misalignment is slight, only one tire will be affected. In order to correct misalignment, adjust toe-in or verify that entire front-end alignment settings are correct. Refer to Front Toe Adjustment In Front Wheel Alignment.	Side wear may be caused by the following: • Incorrect wheel camber • Under inflation • High cambered roads • Excessive cornering speed Incorrect wheel camber and under-inflation are the most common causes of side wear. 
		

End of Section

SECTION F: Trailer Inspection

Section T: Trailer Inspection

Section T: Trailer Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Pre-inspection Road Test Check for proper tracking. Check for brake pull. Check that wheels are true.	Wheel wobble.	Any brake pull or tracking issues.
Trailer Damage Check the body exterior for accident damage, scratches, dents, etc.	The trailer has small dents, scratches, etc. The trailer has small rust spots or water leaks. Mud flaps loose, torn, or missing (if equipped).	Any body part damaged or dislocated creating a protrusion or sharp edge. Trailer body panels, rivets, or other components are loose, damaged, or corroded to the point where joint strength or body structural integrity is compromised. Trailer body panels/parts missing.
Lights Check all lights, lenses, and reflectors:	Less than full illumination.	
Brake Lights	Light dim or intermittent.	Light inoperative.
Taillights	Light dim or intermittent.	Light inoperative.
Turn Signals	Light dim or intermittent.	Light inoperative.
Clearance Lights	Light dim or intermittent.	Light inoperative.
License Plate Lights	Light dim or intermittent.	Light inoperative.
Interior Dome Lights	Light dim or intermittent.	Light inoperative.

Section T: Trailer Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Optional lighting	Light inoperative.	
Lenses	Lens cracked.	Lens broken.
Reflectors		Reflector broken or missing.
Reflective tape	Damaged	Missing
License Plate, Registration, CDE Inspection Paperwork, Insurance Documents Check for current and valid license plates and paperwork for specific trailers.		Missing or expired paperwork.
Hitch Coupler Check hitch coupler components for condition and operation:		
Ball latch system	Damaged	Broken or inoperative.
Safety Chains and connections	Damaged	Broken or inoperative.
Safety Pins	Damaged	Broken or inoperative.
Electrical plug and cable	Damaged	Broken or inoperative.
Trailer Jack System Check for operation, condition, mounting or damage.	Damaged	Broken or inoperative.

Section T: Trailer Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Check for operation, condition, mounting or damage.	Damaged	Broken or inoperative.
Break-Away Braking System Check break-away braking system components for condition and operation.		Broken, inoperative, or missing breakaway braking device.
Indicator Light	Light inoperative.	Damage or defect.
Battery Condition	Needs charge; dirty, loose, or corroded terminals; wet cells that need to be topped off; or not properly secured.	The battery tests bad.
Switch Cable	Frayed.	Broken.
Electric Braking System Check electric braking system components for condition and operation.	Frayed, unsecured, or weathered wires; loose or corroded connections; junction box condition. The surface of magnets is not grooved or worn beyond the manufacturer's specifications. Magnets are unsecured	Broken wires or inoperative magnets. Absence of braking action on any wheel required to have brakes.
Hydraulic Braking System Check hydraulic braking system components for condition and operation.	Brake lines are bent or rubbing. The wheel cylinder or caliper dust cover is torn.	Absence of braking action on any wheel required to have brakes. Brake lines are leaking, broken, or restricted. The wheel cylinder or caliper is leaking or unsecured.

Section T: Trailer Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Brake Shoe/Pad Lining Check condition and document measurements. (Measure from the shoe table.) Inspect linings and foundation brake hardware for contamination, wear, damage, and securement.		Lining at or below the manufacturer's minimum specification. Lining or rivets loose. Lining contaminated, cracked, or has adverse wear. Oil or grease contamination. Loose, missing, or broken mechanical components including shoes, linings, pads, springs, or anchor pins.
Brake Drum/Rotor Check condition and document measurements.	Excessive run-out	Measurement at or below the manufacturer's minimum Specification. The drum or rotor cracked.

Section T: Trailer Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Tires Inspect load range, tread depth, valve stems, condition, wear, and damage. All tires inflation pressure: _____psi Spare tire inflation pressure: _____psi	Tread depth is nearly minimum. Missing valve caps. Weather checked.	Tread depth below minimum. Damage to tires or valve stems, or damage that would result in failure. Has body ply or belt material exposed through the tread or sidewall. Has any tread or sidewall separation. Has a cut where the ply or belt material is exposed. A tube-type radial tire without radial tube stem markings. These markings include a red band around the tube stem, the word "radial" embossed in metal stems, or the word "radial" molded in rubber stems.
Wheel Hubs and Bearings Check wheel hub and bearings system components for condition and operation.	Weeping seal or weeping bearing cap. Damaged studs and wheel mounting nuts. Loose lug nuts.	Loose bearing or hub. Stripped studs and mounting nuts.
Wheels Check wheel components for condition and operation.	The paint is cracked or flaking.	Damaged, cracked, bent, or dented.

Section T: Trailer Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Frame / Axle / Suspension Check frame/axle/suspension components for condition and operation	Excessive rust.	Cracked, bent, broken frame, leaf springs, torsion bars, or axle. Worn, bent, or cracked leaf spring bushings and hardware. Worn, bent, or cracked U-bolts and hardware.
Ramps and Doors Check ramp and door components for condition and operation.	Bent ramps.	Damage, inoperative, or defect. Broken welds or cracked frame on ramp. Broken hinges. The door or ramp won't secure.
Floor, Decking, Side Panels, Walls, Roof Check the floor, decking, side panels, wall roof components for condition and operation.	Damaged flooring. Leaking roof. Loose cargo holds.	Holes in flooring. Broken cargo holds.

Section T: Trailer Inspection		
Inspection Procedure:	Repair If:	Out of Service If:
Post Inspection Road Test Check all components for proper operation during the road test. Check for proper tracking. Check for brake pull. Check that the wheels are true.	Wheel wobble.	Any brake pull or tracking issues.
Tow Vehicle Hitch, ball, safety chain, weight load compatible with trailer.		Towing equipment does not meet towing requirements. Any damage to the hitch, ball, or safety chain. Missing hitch pin securements.
1) Electrical connections	Frayed, unsecured, or weathered wires; loose or corroded connections.	Electrical connections are inoperable.
2) Brake connection (if equipped) 3) Check controller operation (if equipped).	Frayed, unsecured, or weathered wires; loose or corroded connections.	Electrical connections are inoperable.
4) Pulling capacity of the towing vehicle compatible with the weight of the trailer.		The towing vehicle does not meet towing requirements.

End of Section