PERIODIC COMMERCIAL MOTOR VEHICLE INSPECTIONS – *TRUCK*

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CCMTA·CCATM
CANADIAN COUNCIL OF MOTOR TRANSPORT ADMINISTRATORS
CONSEIL CANADIEN DES ADMINISTRATEURS EN TRANSPORT MOTORISÉ

NOTICE TO USERS

General requirements and policy / application issues related to NSC 11B on PMVI can be found in the general introduction of the PMVI Consolidated Standard, ISBN 978-1-927993-02-6, posted on the CCMTA web site @ http://ccmta.ca/en/home/item/national-safety-code-standard-11-update-2014.

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Introduction

Instructions for Technician-Inspector Conducting Inspections

Workplace Safety

Some of the inspection procedures described in this standard require the use of tools and equipment, and may involve safety hazards. It is assumed that the individual performing inspections according to this standard is fully familiar with all relevant workplace safety requirements and protocols.

No specific safety warnings are provided within this document. All relevant and appropriate safety precautions are the responsibility of the inspector/mechanic/technician and the workplace where the inspection is conducted.

Inspection Outcome Based on Current Vehicle Condition

A vehicle is to be inspected and determinations made about the pass or fail outcome of the inspection based on the condition of the vehicle at the time of inspection. The inspection is not intended to ensure that a vehicle remains in a safe condition for any particular period after the inspection.

Inspection Methods

The inspection of vehicle components and systems conducted to determine compliance with this standard consists mainly of visual inspection activities.

An inspection will also involve testing, removal and/or disassembly of components, measurements and other actions in certain cases. Whenever inspection of an item requires more than a visual inspection, additional inspection procedures are specifically provided for each item. These are displayed with the heading *"Additional Inspection Procedure(s):" "Optional Additional Inspection Procedure(s)" or Optional Inspection Procedure(s)",* appearing before the text describing the necessary steps.

The items that require inspection on any particular vehicle are based on the specific components and systems that were required by any applicable regulations, (e.g.: CMVSS or Provincial/Territorial legislation/regulation) applicable to the vehicle at the time it was manufactured, are ordinarily present on a vehicle; were present on a vehicle when that vehicle was manufactured, or are required for normal and safe vehicle operation. This standard is not meant to be used to identify all of the components or systems that are present on that vehicle.

Informational Notes

In many cases additional information is provided to clarify the inspection procedure or assist in consistent interpretation of the standard. These are displayed with the heading *"Note:"* appearing before the text.

Definitions

Various terms and acronyms are used throughout this standard. These terms have specific and consistent meanings as they relate to conducting periodic inspections, and identifying defective conditions. The purpose of defining these terms is to support consistent interpretation and application of the language used in this standard. The terms that are defined below are highlighted whenever they appear in each section to remind the reader that the condition is one of those that is specifically defined. This reminder also appears in the footer of each page of this document.

The meaning of each of the terms, for the purposes of conducting inspections according to this standard, is as follows:

"abnormally worn" – means unusual, excessive or exceptional wear of a vehicle component, indicative of the presence of some deterioration or defect in that component, or in a related part of a vehicle. This term is used selectively in this standard for a component or system where some wear is normal, and does not directly have any effect on vehicle safety. It is expected that the inspector knows the amount of wear, and the type of wear, that is typical (normal) based on the age and operation of a vehicle.

"ANSI" – means the American National Standards Institute, and standards developed by ANSI which have been adopted in jurisdictional equipment regulations.

"applicable requirements"– means the applicable requirements of the relevant jurisdiction, (i.e.: province or territory). This phrase is used in situations where one or more provinces, or territories, have a different standard, requirement or criteria. It is expected that the inspecting technician will know what the requirements are in the jurisdiction where they perform inspections.

"CMVSS" – means the Canadian Motor Vehicle Safety Standards (CMVSS) and their supporting Technical Standards Documents. These are Canadian manufacturing standards for vehicles which are developed and updated by Transport Canada and which are referenced in jurisdictional equipment regulations.

"CSA" – means the Canadian Standards Association, an association that develops standards that apply to vehicles, (i.e.: CSA B51, B109, B620, D250, D409, D435, D436 etc.). These standards are updated on a periodic basis and are often referenced in jurisdictional equipment regulations.

"CVSA" – means the Commercial Vehicle Safety Alliance, a voluntary organization comprised primarily of on-road enforcement officers from Canada, United States and Mexico. The CVSA administers the North American Standard Out-of-Service Criteria (OOSC) that are similar, but not identical, to the Hazardous Conditions defined in this standard. The basis for any differences in these conditions stems from the fact that the OOSC apply at a road side inspection while the Hazardous Conditions apply in a shop setting.

"damaged" – means any unintended condition, or condition caused by means other than normal use, that is likely to impair normal function.

"**FMVSS**" – means Federal Motor Vehicle Safety Standards. These are U.S. manufacturing standards for vehicles which are developed and updated by the National Highway Traffic Safety Administration of the Department of Transport.

"Hazardous Condition" – means a condition that is so dangerous or unsafe that it requires corrective action before the vehicle can return to service and be permitted to operate. A vehicle with a hazardous condition is considered too unsafe to be driven and in some jurisdictions driving a vehicle with a hazardous condition is prohibited. (*Note:* In most cases driving a vehicle with a condition that causes it to fail an inspection is a violation. Driving a vehicle with a hazardous condition is an additional and more serious offence.)

"industry standard" – means installation, modification or repair methods described in industry-accepted recommended practices published by the Society of Automotive Engineers (SAE), recommended practices published in the Technology and Maintenance Council (TMC) of the American Trucking Associations, standards developed and published by Canadian Standards Association (CSA), and other similar documents from similar organizations.

"inoperative" – means a vehicle component or system does not operate the way: it ordinarily operates; it operated when the vehicle was manufactured, or it is required to operate for normal and safe vehicle operation.

"insecure" – means that an item is beginning to become detached due to deterioration of the means of mounting. This can also mean that a method of attachment has been used that is in itself unsafe by being unable to withstand normal vehicle operation, or is not at least equivalent to the OEM standard method of attachment.

"**loose**" - means that an item is detached, or no longer fully attached, due to failure or deterioration of one or more means of attachment.

"**missing**" – means that an item is absent (such as 'removed' or 'detached') that: is ordinarily present on the vehicle; was present on the vehicle when the vehicle was manufactured, or is required for normal and safe vehicle operation.

"**manufacturer**" – means the manufacturer of the vehicle, the manufacturer of a major vehicle component or system, or manufacturer of aftermarket parts that are direct replacements for OEM parts. Examples of major components or systems include, but are not limited to: engines, transmissions, axles, brake systems, steering systems, suspension systems, etc.

"OEM" – means 'original equipment manufacturer' and refers to the 'brand name' manufacturer of the vehicle.

"OEM standard" – means the manufacturing methods, component or assembly quality, and performance level, set by the manufacturer of a vehicle, or vehicle component, to ensure a vehicle is able to safely perform at its intended level, and to ensure the vehicle complies with the relevant CMVSS (or FMVSS) requirements. It includes component quality, performance levels, repair methods, durability, safety, and the service methods outlined in the warranty and service literature provided for the use and maintenance of a vehicle. Parts supplied by OEM, and established aftermarket manufacturers of parts intended for direct replacement of OEM parts, are generally considered to meet OEM standard.

"operate as intended" – means the manner in which a vehicle component or system ordinarily operates; it operated when the vehicle was manufactured, or is required to operate for normal and safe vehicle operation.

"reject if" – means a condition if present at time of inspection, or if present after repairs, results in a failed inspection.

"**rust jacking**" – means a build up of rust that results in lifting, separation or bulging of components originally designed to remain in contact with each other, (i.e.: brake linings, suspension, frame and body components).

"SAE" – means the Society of Automotive Engineers.

Categorization of Fluid (Liquid) Leaks

Every reference to a fluid (or liquid) leak listed as a reject condition is categorized with respect to the level of severity of the leak. The level of severity is categorized as either level 1, level 2, or level 3, and each category is defined below. A vehicle with a leak that meets the defined level, or leaking more severely than this level, will cause the vehicle to fail inspection.

"level 1 leak" – means seepage of fluid that is not great enough to form drops

"level 2 leak" – means seepage of fluid that is great enough to form drops, but not great enough to cause the drops to fall during inspection

"level 3 leak" – means seepage of fluid that forms drops and those drops fall during inspection

Illustrations and Diagrams used in the Standards

In an effort to improve the consistency and uniformity of the inspection process a series of diagrams and illustrations are used in this version of the standard. When a diagram or illustration is in conflict with a legislated or regulatory requirement the latter prevails.

Measurements and Tolerances

Many of the inspection items and reject conditions involve measurements of mass or weight, pressure and distance. To achieve consistent application of each criterion that involves such a measurement, it is necessary to address the degree of precision associated with such measurements. In determining the appropriate level of precision or tolerance, it is also necessary to consider the measuring tools that will be commonly used to make each of these measurements.

The level of precision associated with any measurement is defined by the tolerance stipulated for that measurement. Tolerance is expressed as a plus or minus (+/-) value. The actual window of precision is double the value of the tolerance. For example 20 kg with a tolerance of +/- 0.5 kg, means that the precision of the measurement is to the nearest 1 kg. Similarly, 50 mm (+/- 1 mm), means a value of 49 to 51 mm. The measurement tolerance of 1 mm renders a measurement precision of within 2 mm.

Given the similarities in the measurements that appear most frequently in this standard, standard tolerances are given for most of these measurements. The standard tolerances that are listed below apply in all cases where no additional tolerance is provided. In cases where the standard tolerance does not apply, the tolerance for that criterion is provided adjacent to the measurement. Whenever a tolerance is provided adjacent to a measurement, the tolerance stipulated with the measurement is to be used in place of the standard tolerance listed below.

Measurements of distance are the most common in this standard and also have a significant variance in terms of the range of distance that is used. Four different standard tolerance values are used for distance.

Pressure

Metric ("SI" or "International System of Units") pressure value = *kilopascals (kPa)*,
Imperial (American) pressure value = *pounds per square inch or pounds/inch^2 (psi)*
Conversion Factors: *1 kPa = 0.145 psi, 6.9 kPa = 1 psi*
Standard tolerance for all pressure values: *+/- 5 kPa (0.5 psi)*

Mass (weight)

Metric (SI) mass value: *kilogram (kg)*
Imperial (American) mass value: *pound (lb.)*
Conversion Factors: *1 kg = 2.2 lb., 0.454 kg = 1 lb.*
Standard tolerance for all mass (weight) values: *+/- 0.5 kg (1 lb.)*

Distance

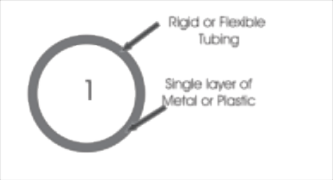
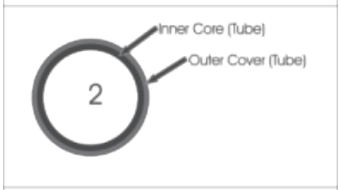
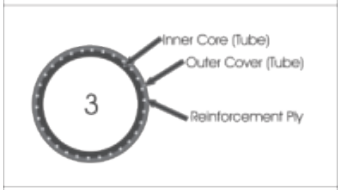
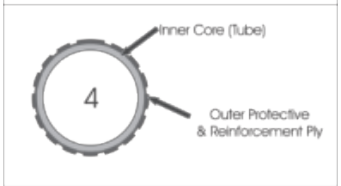
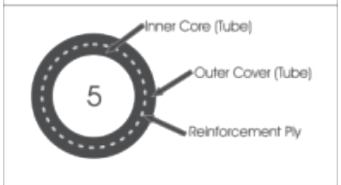
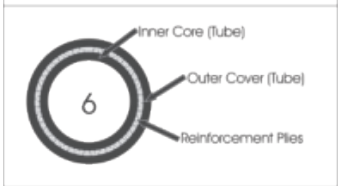
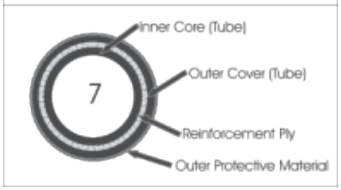
Metric (SI) distance value: *millimetre (mm)*
Imperial (American) distance value: *inch (in.)*
Conversion Factors: *1 mm = 0.039 in., 1 in. = 25.4 mm*
Standard tolerance for distance value ranges
Tolerances for distance measurements vary based on the type and precision of the criterion as follows:

1. **Large distance measurements of greater than 25 mm:** tolerance is +/- 5 mm (accuracy is to the nearest 10 mm)
2. **Short distance measurements of 1 to 25 mm, where the distance value is expressed as a whole mm:** *tolerance is +/- 0.5 mm (accuracy is to the nearest 1 mm)*
3. **Precise short distance measurements of 1.0 to 25.0 mm, where the distance value is expressed as one-tenth of a mm:** *tolerance is +/- 0.05 mm (accuracy is to the nearest 0.1 mm)*
4. **Micro distance measurements of less than 1 mm:** *tolerance is +/- 0.005 mm (accuracy is to the nearest 0.01 mm)*
5. For the purpose of these tolerances, the following equivalent values are used:

Comparable Measurement Tolerances

Tolerance in metric measurements	Tolerance in Imperial measurements
+/- 5 mm	+/- 0.125 (1/8) in.
+/- 0.5 mm	+/- 0.02 in.
+/- 0.05 mm	+/- 0.002 in.
+/- 0.005 mm	+/- 0.0005 in.

Identification of Defective Conditions of the Types of Hose, Tubing and Lines used on Vehicles

	Characteristics	Defective Condition
	Type 1 – Copper, Steel or plastic tubing used for liquid or vapour. Made of a single layer of material.	Damage is visible on the outside that is reducing the wall thickness.
	Type 2 – Plastic (usually Nylon) tubing commonly used in air brake systems. No reinforcement ply. Inner core and outer cover are usually different color.	Inner core becomes visible from the outside, as shown by color change.
	Type 3 – Plastic (usually Nylon) tubing commonly used in air brake systems. With reinforcement ply. Inner and outer core are different color. (*Note:* Type 2 and 3 may appear identical externally.)	Reinforcement ply or inner core is visible from the outside, as shown by color change.
	Type 4 – Stainless steel outer cover with inner layer of tubing.	Damage through the outer cover.
	Type 5 – Synthetic rubber hose with inner reinforcement ply.	Wear or damage exposing the reinforcement ply.
	Type 6 – Synthetic rubber hose with multiple reinforcement plies.	Wear or damage exposing the outer reinforcement ply.
	Type 7 – Flexible hose with one or more reinforcement plies that may be fabric or steel, and an outer protective layer.	Wear or damage through the outer protective layer and outer cover, exposing a reinforcement ply.

Section 1 – Power Train

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Accelerator Pedal/Throttle Actuator *Additional Inspection Procedure(s):* With engine running, press and release the accelerator pedal. Check engine response.	
a) pedal/actuator	a) binding, ***inoperative***, ***missing***, or engine fails to respond normally modified, or repaired by welding
b) anti-slip feature	b) ineffective, ***loose*** or ***missing***
c) throttle position sensor and connections	c) corroded, ***inoperative***, ***insecure*** or improperly connected
d) mount	d) deteriorated or weakened by corrosion, or ***insecure***
e) linkage/cable	e) binding, broken or ***insecure*** deficient part is used that is not equivalent to ***OEM standard*** throttle cable is binding, frayed or seized
f) springs	f) broken, corroded, deteriorated, ***missing***, stretched or improper type
	Hazardous Condition(s) **i. engine fails to return to idle** **ii. throttle position sensor is *inoperative*** **iii. pedal is *missing***
2. Exhaust System *Additional Inspection Procedure(s):* Inspect with engine running. *Note*: Minor leaking and resulting soot tracks are normal at joints in diesel exhaust systems.	
a) manifold	a) broken, cracked, leaking, ***loose*** or ***missing***
b) muffler *Note*: The ***OEM*** muffler or one that meets the ***OEM standard*** is required on every vehicle.	b) cracked, perforated or leaking bypassed, disabled, ***missing*** or removed deficient part is used that does not meet ***OEM standard*** patched in any manner other than by welding
c) resonator	c) cracked, leaking, ***missing*** or perforated patched in any manner other than by welding
d) exhaust pipe	d) cracked, collapsed or pinched, ***missing***, perforated or leaking patched in any manner other than by welding

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
e) mounting hardware	e) broken, ***insecure*** or ***loose***, or ***missing*** deficient part is used that does not meet ***OEM standard***
f) heat shields *Note:* All heat shields provided by the ***manufacturer***, installed as part of a retrofit for certain fuels, or installed for specialty applications, are considered required and must remain functional as intended.	f) a required heat shield is broken, ***insecure*** or ***loose***, or ***missing***
g) location	g) any part of the exhaust system is less than 50 mm away from a brake system component, any combustible material, or any part of the fuel system except a diesel or gasoline fuel tank, and is not protected by a heat shield any part of the exhaust system is less than 25 mm away from a diesel or gasoline fuel tank and is not protected by heat shield any exhaust component passes through an occupant compartment
h) turbocharger	h) leaking exhaust gases ***level 2 leak*** of engine oil
i) exhaust system and pipe termination *Note:* Also applies to the exhaust system of any auxiliary equipment.	i) exhaust gases are expelled into cab, passenger compartment, and/or sleeper exhaust gases are expelled within the perimeter of the cab, passenger compartment, and/or sleeper
	Hazardous Condition(s) **i. exhaust leak, other than a minor leak at a joint, within the perimeter of the cab, passenger compartment, and/or sleeper** **ii. perforation or separation of any exhaust system component** **iii. any part of the exhaust system has caused, or is likely to cause, burning or charring damage to electrical wiring, fuel system or any other combustible part**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
3. Emission Control Systems and Devices *Note:* **Requirements Vary** - The emission control devices and system required on any particular vehicle will vary based on the vehicle's date of manufacture. **Possible Roadside Violation** - In some jurisdictions a vehicle will fail an inspection if the vehicle is not equipped with either a National Emissions Mark (Canada) or U.S. Emissions Control Information Label. If the emission label is not present, advise vehicle owner that the vehicle may violate a roadside inspection requirement based on jurisdictional regulation. Further questions or issues are to be directed to the relevant jurisdictional authorities.	
a) engine malfunction indicator lamp (MIL) ("check engine lamp") *Additional Inspection Procedure(s):* Cycle the ignition off and on and check the status displayed by the lamp.	a) **lamp fails to illuminate during bulb-check, is ***missing*** or has been disabled **lamp remains on after bulb-check to indicate a malfunction **Each of the conditions above marked with a double asterisk (**) are to be recorded on the inspection report, however a vehicle is not rejected for this condition alone.**
b) exhaust gas recirculation (EGR) system *Additional Inspection Procedure(s):* Visually inspect system using ***OEM*** service information as a guide.	b) there is evidence that any part of the EGR system has been bypassed, defeated, disabled, improperly modified, removed, or is ***missing***
c) catalytic converter	c) cracked, leaking, ***missing***, or perforated patched in any manner other than by welding there is evidence that the catalytic converter has been defeated or disabled
d) diesel particulate filter (DPF) and regeneration system *Additional Inspection Procedure(s):* Visually inspect system using ***OEM*** service information as a guide.	d) there is evidence that any part of the DPF or any related regeneration system has been bypassed, defeated, disabled, improperly modified, removed, or is ***missing***
e) diesel exhaust fluid (DEF) system *Additional Inspection Procedure(s):* Visually inspect system using ***OEM*** service information as a guide.	e) storage tank is ***damaged***, ***insecure*** or ***missing*** ***level 2 leak*** of DEF at any location in the DEF system storage tank filler cap is ***missing***
	Hazardous Condition(s) **i. any part is in a condition where it appears likely to become detached, or imminent failure appears likely**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
4. Drive Shaft *Additional Inspection Procedure(s):* Inspect using hand pressure and suitable tools.	
a) u-joint/CV joint	a) rotational free-play is present horizontal or vertical movement within the u-joint can be detected by hand u-joint cap, cap fastener or fastener locking device is ***loose*** or ***missing*** u-joint bearing seal is ***damaged***, ***missing*** CV joint protective boot is ***loose***, ***missing***, or torn lubricant is leaking from CV joint
b) drive shaft yoke *Note:* This includes: slip yoke, shaft yoke, input yoke, output yoke, tube yoke and end yoke.	b) cracked mounting hardware is loose yoke can be moved by hand vertically or horizontally more than 3 mm yoke end fitting has broken, ***loose***, or ***missing*** fastener
c) drive shaft tube	c) crack in weld or tube twisted tube
d) drive line attaching hardware	d) ***loose***, ***missing*** or stripped
e) centre (carrier) bearing and mount	e) cracked, ***damaged***, ***loose***, ***missing*** or ***abnormally worn*** ***insecure*** mounting or mount is abnormally deteriorated
f) slip joint	f) radial wear at joint exceeds ***manufacturer*** specification
g) hanger bracket and hardware, and metal guard or catch	g) cracked, ***loose***, ***missing*** mounted in a manner that fails to prevent drive shaft from falling to ground

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. any part is in a condition where it appears likely to become detached, or imminent failure appears likely** **Driveline/Driveshaft** **ii. a yoke end has a visible crack** **iii. yoke mounting, or end fitting fastener hardware, is broken, *loose*, or *missing*** **Universal Joint** **iv. vertical movement between opposing yoke ends is greater than 3.0 mm** **v. bearing cap, or bearing cap bolt, is broken, *loose*, or *missing*** **Centre Bearing (Carrier Bearing)** **vi. mounting bracket, bracket bolt or hardware is broken, *loose*, or *missing*** **vii. mounting bracket has a crack longer than one-half of the original bracket width** **viii. vertical movement of the shaft in the centre bearing carrier is greater than 13 mm** **Drive Shaft Tube** **ix. twisted, or has a crack in the metal or any weld longer than 6 mm**
5. Clutch and Clutch Pedal *Additional Inspection Procedure(s):* Inspect clutch operation and adjustment according to ***manufacturer*** service instructions.	
a) operation	a) fails to operate in the manner prescribed by the ***manufacturer***
b) adjustment	b) is not adjusted according to ***manufacturer*** instructions
c) pedal and linkage	c) broken, cracked, ***loose***, ***missing*** or ***abnormally worn*** welded or repaired in a way that does not meet ***OEM standard*** deteriorated or weakened by corrosion, or ***insecure*** anti-slip feature is ineffective, ***loose*** or ***missing***
d) clutch pedal hydraulic system	d) fluid reservoir is below minimum level indicated by ***manufacturer*** or ***level 2 leak*** of fluid at any point
	Hazardous Condition(s) **i. clutch fails to disengage transmission**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
6. Engine/Transmission Mount	
a) condition/attachment	a) bent, ***loose*** or ***missing*** a bolt or insulator is ***loose*** or ***missing*** an insulator is broken, deteriorated or swollen abnormally a mount or part of a mount is replaced with a product or material that is not equivalent to ***OEM standard***
	Hazardous Condition(s) **i. imminent failure of a mount or bolt appears likely**
7. Engine Shut Down *Additional Inspection Procedure(s):* Test operation according to ***manufacturer*** service instructions.	
a) ignition switch	a) engine fails to shut down when ignition switch is turned off
b) mechanical shut down	b) engine fails to shut down when device is actuated
8. Engine Start Safety Feature *Additional Inspection Procedure(s):* Test operation to confirm engine start is prevented according to ***manufacturer*** service instructions.	
a) ignition interlock operation *Note*: This includes neutral and clutch safety switches. Effective May 30, 2005 ***CMVSS*** 102 (2) requires all vehicles (including buses) equipped with an automatic transmission to be equipped with a neutral safety switch. ***CMVSS*** 102 (7) requires trucks with a GVWR at or below 4,536 kg to be equipped with a clutch safety switch.	a) fails to prevent engine start as designed
9. Gear Position Indicator	
a) location	a) cannot be viewed by a person seated in driver position
b) operation	b) indicator fails to indicate selected gear on a vehicle equipped with an automatic transmission
c) gear shift or gear selector pattern illustration label (embossment etc.)	c) illegible or ***missing***
10. Engine or Accessory Drive Belt *Note:* This section applies only to a drive belt directly connected to the engine.	
a) condition	a) broken, frayed, ***missing*** or oil-contaminated crack exceeds ***OEM standard*** or ***industry standard***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) adjustment/tension *Additional Inspection Procedure(s):* Check the tension of drive belt(s) according to ***OEM*** service instructions, or when no particular instructions are given, as shown below. *Note:* Normal belt deflection should result in 1 mm of deflection for each 60 mm of span length, when 5 to 10 kg of force is applied to the belt.	b) belt is so loose it is likely to slip, or so tight it is likely to cause bearing damage
c) drive belt pulley	c) bent, broken, cracked or out of alignment
11. Hybrid Electric Vehicle & Electric Vehicle Power Train System *Additional Inspection Procedure(s):* Only a person who is trained on the operation and potential hazards of hybrid or electric vehicle systems can safely conduct an inspection of the items listed below. Visually inspect all accessible parts according to the vehicle ***manufacturer*** service instructions.	
Additional Inspection Procedure(s): Disassembly of system components may be required. *Note:* Consult with the ***manufacturer*** service instructions and vehicle maintenance records to confirm inspection and maintenance has been performed as recommended by the ***manufacturer***. No disassembly of the system is required to complete this inspection when records of recommended maintenance and inspection are provided. When any damage or abnormal condition is found, refer to the ***manufacturer*** service instructions to determine whether or not to reject the vehicle or identify a Hazardous Condition. When records of recommended maintenance or inspection are not provided, system components must be disassembled as necessary by a qualified person to conduct a full inspection.	
a) electrical system connections *Additional Inspection Procedure(s):* Visually inspect all accessible electrical connections using manufacturer service information as a guide.	a) connector is ***damaged*** or corroded in a way that exposes any conductor connector is ***damaged*** or ***insecure*** connector is unable to properly connect or lock into place

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) wiring *Additional Inspection Procedure(s):* Visually inspect all accessible electrical wiring using ***manufacturer*** service information as a guide.	b) corroded or ***damaged*** in a way that exposes any conductor insulation is chafing due to abrasive contact with any vehicle part
c) traction motor/generator *Additional Inspection Procedure(s):* Visually inspect the drive motor/generator using ***manufacturer*** service information as a guide.	c) ***damaged***, ***insecure*** or ***loose*** indication of burning or overheating drive component abnormally worn
d) traction battery *Additional Inspection Procedure(s):* Visually inspect the battery using ***manufacturer*** service information as a guide.	d) ***damaged***, ***insecure*** or ***loose*** indication of burning or overheating
e) battery storage area *Additional Inspection Procedure(s):* Visually inspect the battery storage area using ***manufacturer*** service information as a guide.	e) ***damaged*** or structurally weakened
f) self-diagnostic/status indicator *Additional Inspection Procedure(s):* Visually inspect the system indicator(s) using ***manufacturer*** service information as a guide.	f) there is any condition indicated by the system that is defined by the ***manufacturer*** as being unsafe
	Hazardous Condition(s) **i. any sign of shorting, arcing, or hot spot, at or near, any electrical component or wiring** **ii. traction battery is *damaged* or leaking**
12. Gasoline or Diesel Fuel System *Note:* This includes the fuel system for any auxiliary equipment or device.	
a) filler cap	a) allows spillage, improper type or ***missing***
b) tank, filler neck/tube and vent tube	b) cracked, ***insecure*** mounting or weld is broken not intended for the storage of automotive fuel improper vent repair to any non-metallic tank

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) tank mount and strap	c) broken, cracked, ***loose*** or ***missing*** deficient part is used that does not meet ***OEM standard*** fastener is ***loose*** or ***missing***
d) line, hose, fitting and connection *Note*: Refer to correct type of hose or tube and the related defective condition(s) as defined in the chart in the definition section of this standard.	d) chafing, cracked or ***insecure*** deficient product is used that does not meet ***OEM standard*** any section of a line, hose or tube is worn or ***damaged*** as shown in the chart on page 55*
e) fuel pump	e) ***damaged*** or ***insecure***
f) leakage	f) ***level 1 leak*** of gasoline anywhere in a gasoline fuel system ***level 2 leak*** of diesel fuel anywhere in a diesel fuel system
	Hazardous Condition(s) **i. *level 1 leak* of gasoline in gasoline fuel system** **ii. *level 2 leak* of diesel fuel in diesel fuel system** **iii. fuel cap is *missing*** **iv. fuel tank is *insecure* (a tank mounted with cushioning devices will have some movement)**
13. Pressurized or Liquefied Fuel System (LPG, CNG and LNG)	
Additional Inspection Procedure(s): Inspect pressurized fuel systems according to the items listed below unless additional inspection is required by the applicable requirements of the jurisdiction where the inspection is being conducted. In some jurisdictions a full inspection of a pressurized fuel system may be conducted at a different time, as part of a different inspection program, or by a person with different qualifications. *Note:* **Refer to Appendix A for detailed criteria for inspecting Liquefied Petroleum Gas (LPG or Propane), Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG).** When such an inspection is conducted, follow the applicable requirements of the relevant jurisdiction, or refer to the appropriate sections in Appendix A, as required.	**Hazardous Condition(s)** **Any cause for rejection of a LPG, CNG or LNG system, except those shown with a double asterisk, will also mean an automatic "Hazardous Condition" of that vehicle. The cause for rejection must be corrected and the vehicle "passed" before it may be operated on the highway.**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
a) regulatory authority decal	a) **decal is not displayed **an incorrect decal is affixed to vehicle **information on decal is <u>not</u> readable **Despite the note above, the conditions listed here with a double asterisk (**) are not Hazardous Conditions**
b) pressure vessel (tank or cylinder) and valve, location and mounting	b) pressure vessel (tank or cylinder) is ***<u>insecure</u>*** or ***<u>loose</u>***, or welds are broken welding has been done anywhere on a pressure vessel (tank or cylinder) except on saddle plates or bracket tank or cylinder valve and their connections are ***<u>insecure</u>*** or ***<u>loose</u>*** tank or cylinder valve and their connections are <u>not</u> protected from damage due to stationary objects, or objects from the road pressure vessel (tank or cylinder) is located above the vehicle or projects beyond vehicle side, ahead of front axle or behind rear bumper any part of exhaust system is less than 200 mm away from any part of the fuel system and is <u>not</u> protected by shields a heat shield is less than 25 mm away from any fuel system component
c) pressure vessel (tank or cylinder) ground clearance *Note:* Includes any attached fitting or valve the appropriate sections in Appendix A, as required.	c) distance to ground from bottom of pressure vessel (tank or cylinder) is less than minimum ground clearance shown below pressure vessel (tank or cylinder) located between axles wheelbase of 3225 mm <u>or less</u>: minimum ground clearance = 170 mm wheelbase <u>over</u> 3225 mm: minimum ground clearance = 220 mm pressure e vessel (tank or cylinder) located behind rear axle minimum ground clearance = 200 mm any portion of the tank or cylinder protrudes past the plane formed by the bottom of the rear most tires and the lowest most rearward part of the vehicle.
d) pressure vessel (tank or cylinder) sub-frame	d) any modification has been made to pressure vessel (tank or cylinder) carrier or sub-frame, that <u>does not</u> meet ***<u>OEM standard</u>*** or ***<u>industry standard</u>***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***<u>in this manner</u>*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
e) pressure vessel (tank or cylinder) information plate and data *Note:* Pressure vessel installed as part of an ***OEM*** vehicle gaseous fuels installation may not have an information plate affixed to it.	e) name plate is missing or illegible, or data is not shown on plate (see note below) *Note:* When information plate is illegible or missing, record it on the inspection report, however do not reject the vehicle for this condition alone.
f) pressure vessel (tank or cylinder) filler cap	f) protective filler cap not secured to filler valve or vehicle
g) pressure vessel (tank or cylinder) remote filler box	g) not adequately sealed to prevent vapour migration into vehicle interior (trunk etc.)
h) main shut-off valve	h) valve is not readily accessible (cannot be reached)
i) corrosion protection	i) protective coating or material is ***damaged***, or is missing from externally mounted pressure vessel (tank) or attachment
j) fitting, hose, piping and tubing	j) is ***insecure***, or any anchor support is ***damaged*** or ***missing*** is not protected against corrosion grommet is ***damaged*** or ***missing*** components in trunk area not protected against luggage
k) fuel system leakage	k) any fuel system leak is detected
l) pressure relief valve	l) incorrectly installed or ***missing***
m) supply lock off valve (LPG)	m) does not operate as originally intended
n) excess flow valve (LPG) and cap	n) ***missing***
o) vehicle chassis and under-body	o) a structural member has been altered in any manner that does not meet ***OEM standard*** or ***industry standard***
	Hazardous Condition(s) **Any cause for rejection of a LPG, CNG or LNG system, except those shown with a double asterisk, will also mean an automatic "Hazardous Condition" of that vehicle. The cause for rejection must be corrected and the vehicle "passed" before it may be operated on the highway.**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 2 – Suspension

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Suspension & Frame Attachments *Note*: This section applies to all types of suspension. ***Manufacturer*** welding of components is a normal part of many manufacturing processes and is distinct from welding to modify or repair a part. *Additional Inspection Procedure(s):* Raise the vehicle as necessary to access the suspension components.	
a) vehicle ride height *Additional Inspection Procedure(s):* Check ride height while vehicle is parked on a flat level surface.	a) suspension is sagged so that the vehicle ride height, on a vehicle other than a bus, is more than 50 mm from manufacturer specified height when measured at the tire centreline one side of the vehicle is more than 50 mm, higher or lower than the other when measured at the tire centreline
b) frame bracket, mounting bracket and hanger	b) broken, cracked, ***damaged***, ***loose***, ***missing***, or perforated due to corrosion or deterioration welded or repaired in a way that does not meet ***OEM standard***
c) mounting fasteners	c) broken, cracked, ***loose*** or ***missing***
	Hazardous Condition(s) **i. an axle has shifted or is able to shift from its normal position** **ii. any attaching component is broken, cracked, *loose* or *missing*** **iii. the condition of the suspension system allows a tire to contact any part of the vehicle frame or body**
2. Axle Attaching & Tracking Components *Note*: This section applies to all types of suspension. *Additional Inspection Procedure(s):* Raise the vehicle as necessary to access the suspension components. Inspect using hand pressure and suitable tools.	
a) axle attachment, axle saddle	a) bent, broken, cracked, ***loose*** or ***missing*** axle has shifted from its normal position

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) bushing (rubber or composite material)	b) ***loose*** or shifted out of place, ***missing***, worn beyond ***manufacturer*** specification wear or damage permits axle or wheel to shift out of position
c) suspension connecting component, (e.g.: arm, torque rod, radius rod, strut, track rod, control arm) *Note*: Some suspension connecting components are supplied as unfinished two-piece assemblies that require welding once the required length is established. This type of welding is not cause for rejection.	c) bent, broken, cracked, ***loose***, ***missing***, worn beyond ***manufacturer*** specifications, or perforated due to corrosion or deterioration welded or repaired in a way that does not meet ***OEM standard*** wear or damage permits axle or wheel to shift out of position
d) stabilizer/anti-sway bar or link	d) bent, broken, cracked, ***loose***, ***missing*** or worn beyond ***manufacturer*** specification welded or repaired in a way that does not meet ***OEM standard***
e) equalizer or "walking" beam	e) broken, cracked or bushing mounting holes are elongated welded or repaired in a way that does not meet ***OEM standard*** wear in suspension allows tires to contact frame axles do not align correctly on a truck or truck-tractor, "walking" beam cross tube bushing has more than 7 mm clearance
	Hazardous Condition(s) **i. an axle has shifted or is able to shift from its normal position** **ii. any attaching component is broken, cracked, *loose* or *missing*** **iii. the condition of the suspension system allows a tire to contact any part of the vehicle frame or body**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
3. Axle & Axle Assembly	
a) condition	a) axle is bent or ***damaged***
	axle material or a weld is cracked
	loose or shifted out of normal position
	welded or repaired in a way that does not meet ***OEM standard***
	Hazardous Condition(s) **i. axle has shifted or is able to shift from its normal position** **ii. axle material or a weld is cracked**
4. Spring & Spring Attachment	
a) leaf spring	a) any spring leaf is broken, cracked, ***missing***, or is shifted out of place
	any spring leaf is worn more than 3 mm in the hanger contact area or where leaves are in contact with each other
	leaf is shifted and contacting another vehicle part
b) composite spring *Note*: Some change in the appearance of a composite spring, described as "fuzzing" is normal as the spring ages. A crack of a composite spring is a separation in any axis which passes completely through the spring.	b) worn more than 3 mm in load bearing area
	broken, crack of any length visible on both sides of a spring, splintered, delaminating or not the same type on each side of vehicle
c) shackle, pin, bushing *Additional Inspection Procedure(s):* Check the wear of the spring pins according to ***manufacturer*** service instructions.	c) broken, ***loose*** or ***missing***
	shifted out of normal position
	fastener ***loose*** or ***missing***
	vertical movement of a spring or shackle against a spring pin exceeds *OEM standard* or if not available; wear exceeds limit below
	For pin size of 12.5 mm to 25 mm: wear limit is 2.0 mm
	For pin size of 25 mm to 45 mm: wear limit is 3.0 mm
d) U-bolt & hardware	d) broken, cracked, ***loose, missing***, or shifted out of normal position
	welded or repaired in a way that does not meet ***OEM standard***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
e) spring contact area of hanger (slipper) *Note*: Wear plates are permitted by some manufacturers in the spring contact (slipper) area of fabricated hangers.	e) repaired by welding (except installation of wear plates) spring load bearing area is worn more than 3 mm
f) coil spring	f) broken or shifted out of normal position spacer is used between the coils of a spring
g) torsion bar	g) broken, cracked or ***missing*** ***repaired by welding***
h) bump pad	h) ***loose, missing*** or split
i) rubber load cushion	i) rubber block or vertical pin is broken, ***loose***, ***missing*** or split
	Hazardous Condition(s) **i. any metal spring leaf is *missing*, or has leaves shifted out of place** **ii. the main leaf or more than 25% of the leaves of a metal leaf spring are cracked** **iii. spring leaf is shifted and in contact with a rotating part** **iv. a composite spring is broken, has a crack of any length intersecting with another crack, or a crack longer than ¾ the length of the spring** **v. torsion bar is broken or cracked** **vi. coil spring is broken** **vii. a rubber load cushion is *missing* or separated**
5. Air Suspension *Note*: This section applies to fixed axle and liftable axle suspension systems. *Additional Inspection Procedure(s)*: Check with air system at normal operating pressure, liftable suspension in lowered position, and with supports placed under the vehicle to protect against dropping of the vehicle in the event of air loss. Maintain appropriate air pressure in any liftable axle system.	

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
a) ride height	a) height is 50 mm above or below ***OEM*** specification vehicle leans to one side or air spring pressure is unequal
b) air spring (air bag)	b) improperly seated, ***missing***, patched or reinforcing ply is exposed due to damage or deterioration air leak
c) air spring base, mounting plate	c) broken, cracked or ***missing*** perforated by corrosion or deterioration welded or repaired in a way that does not meet ***OEM standard***
d) air system *Additional Inspection Procedure(s):* Inspect the function and operation of the air suspension system and controls in accordance with ***manufacturer*** service instructions.	d) pressure protection valve is ***inoperative*** or ***missing*** control, pressure regulator or gauge, is ***inoperative*** or ***missing***
e) air line, connection and fitting *Note*: Refer to correct type of hose or tube and the related defective condition(s) as defined in the chart in the definition section of this standard.	e) fitting, line, repair method, installation or modification does not meet ***OEM standard*** tubing or hose is defective as defined in the chart on page 5 fitting or connection is broken, cracked, flattened or leaking ***damaged*** in a way (such as: melting, flattening, deformation or kinking) that can restrict air flow
f) height control valve	f) ***inoperative*** a system originally equipped with 2 valves has a valve ***missing*** or has been converted to a single valve a system with only one valve has the valve positioned in a location other than near the centre of an axle
	Hazardous Condition(s) **i. an air spring (air bag) is *missing*, deflated or has an air leak**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
6. Self-Steer and Controlled-Steer Axle *Note*: The suspension components on a self-steer or controlled steer axle must be inspected according to items 1-4 in this section. The steering components must be inspected according to Section 4.	
7. Shock Absorber/Strut Assembly	
a) condition	a) ***damaged***, detached, or ***missing*** binding strut bearing/mount prevents free rotation of the steering wheel
b) mount & hardware	b) broken, ***loose*** or ***missing***
c) oil leak	c) ***level 2 leak*** of oil
	Hazardous Condition(s) **i. a shock absorber on air ride suspension is broken, detached, or *missing***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 3 – Brake Systems

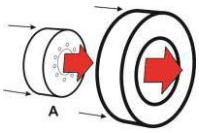
A. OPTIONS FOR INSPECTING INTERNAL BRAKE COMPONENTS OF HYDRAULIC AND AIR BRAKE SYSTEMS

1. Types of Brake Inspections

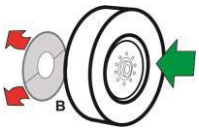
This standard supports several different types of brake inspections depending on the age of a vehicle, the type of brakes being inspected, the required cycle of inspections that applies to a vehicle, i.e.: 12 month or 6 months, and the type of inspection previously completed.

There are three types of inspection for drum brakes:

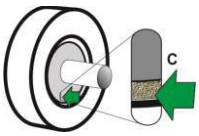
A. *Full inspection with drum removed* (this is a detailed inspection of all internal components {listed in Section 3H 12 and 3A 15 & 16} and includes measuring drums and shoe lining)



B. *Wheel-on full inspection* (this is only available for cam-type drum brakes with removable dust shields and involves an inspection of the internal components {listed in Section 3A 15 & 16} with the dust shields removed, it includes measuring drums and shoe lining)

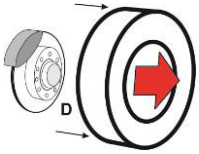


C. *Limited-inspection of drum brake* (this is an inspection through inspection holes and involves a measurement of shoe lining only)

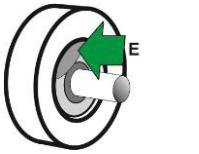


There are two types of inspection for disc brakes

D. *Full inspection with wheel(s) removed* (this is a detailed inspection of all internal components {listed in Section 3H 13 and 3A 18} and includes measuring rotor and pad friction material thickness)



E. *Limited-inspection of disc brake* (this is an inspection of visually accessible components and measurement of the friction material of one brake pad)



To determine what inspection must be conducted, refer to the following instructions.

2. Disassembly of Wheels and/or Drums for Inspection

Disassembly of brakes provides access to ensure all components are fully inspected. Full inspection with either drum or wheel removal is required when any defect is suspected or found during an inspection.

Suspecting a defect of any wheel brake must be based on some visible evidence that could indicate the presence of a problem or abnormal condition. The following conditions are those that should cause a technician-inspector to suspect a brake defect:

- abnormal wear of friction material
- signs of overheating
- evidence of negative effects of corrosion ("rust-jacking", friction material lifting due to rust build- up, shoe table deformation, friction material separating from backing material)

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

- abnormal wear of the brake drum or rotor
- abnormal appearance, glazing, discolouration or contamination of brake friction material
- damage, distortion or shifting out of place of any brake component
- abnormal noise or response upon application or release of the brakes
- the age of the brake components, or the previous measurements of wear compared to current measurements, indicate that a drum or rotor, or friction material, is likely to be worn beyond the allowable limit

Note: When any of these conditions is evident or is suspected, that brake does not qualify for a "wheel-on full inspection" or a "limited inspection". A "full inspection with drum removed" is required in the case of drum brakes and a "full inspection with wheel(s) removed" is required in the case of disc brakes.

3. **Exemptions from Brake Disassembly for Drum Brakes**

When a "full inspection with drum removed ('A')" is conducted on a truck or trailer having drum brakes, and the proper documentation is completed, the brake can qualify for a "limited inspection ('C')" for a period of 19 months. Buses with drum brakes, only qualify for a limited inspection for 7 months following a "full inspection with drum removed". A "limited inspection ('C')" can only be conducted during the respective 7 or 19 month qualifying period after completing a "full inspection with drum removed"; but only when such inspection is properly documented.

A cam-type drum brake with removable dust cover/shields also qualifies for a "*wheel-on full inspection ('B')*" at each inspection. This option is only available for cam type drum brakes; but only when the dust cover/shields are left off the vehicle or are removed to facilitate the inspection.

4. **Exemptions from Wheel Disassembly for Disc Brakes**

Disc brakes require a "full inspection with wheel(s) removed ('D')" at least every 12 months. When a "full inspection with wheel(s) removed ('D')" is conducted on a disc brake, and the proper documentation is completed, the brake can qualify for a "*limited inspection ('E')*" for a period of 7 months.

5. **Exemptions from Brake/Wheel Disassembly for New Vehicles**

Brakes are exempt from the requirement to disassemble when vehicles are new. The exemption period depends on the type of brake used and is based on the vehicle manufacture date or in-service date. Trucks and trailers using drum brakes qualify for a "*limited inspection ('C')"* for a period of 19 months. Trucks and trailers with disc brakes, and all buses qualify for a "*limited inspection ('C') or ('E')"* for a period of 7 months.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

6. **Summary of Inspection Requirements for Trucks and Trailers on 12-Month Inspection Cycle**

INSPECTION REQUIRED FOR NEW TRUCKS AND TRAILERS on 12 month inspection cycle		
	Inspection required when vehicle is	
Brake used	**12 mo. old**	**24 mo. old**
Drum with removable dust shields	C	A or B
Drum with rigid backing plate	C	A
Disc	D	D

ONGOING BRAKE INSPECTION OPTIONS for Truck & Trailer on 12 month inspection cycle			
		Inspection required[1]	
Brake used	**Type of inspection last completed (Starting Month)**	**12 mo. later**	**24 mo. later**
Drum with removable dust shields	*full inspection with drum removed (A)*	C[2]	A or B
	wheel-on full inspection (B)	B	B
Drum with rigid backing plate	*full inspection with drum removed (A)*	C[2]	A
Disc	*full inspection with wheel(s) removed (D)*	D	D

1 This is the minimum inspection that is permitted. A full inspection is always permitted.

2 A *limited inspection* is only permitted when proper documentation of a *full inspection with drum or wheel(s) removed* is provided.

Types of inspections		
Drum	*full inspection with drum removed*	'A'
Brakes	*wheel-on full inspection*	'B'
	limited-inspection of drum brake	'C'
Disc	*full inspection with wheel(s) removed*	'D'
Brakes	*limited-inspection of Disc brake*	'E'

7. **Summary of Inspection Requirements for Trucks on 6-Month Inspection Cycle**

Note: Only applicable in YK, BC, SK & MB.

INSPECTION REQUIRED FOR NEW TRUCK on 6 month inspection cycle				
	Inspection required when vehicle is			
Brake used	**6 mo. old**	**12 mo. old**	**18 mo. old**	**24 mo. old**
Drum with removable dust shields	C	C	C	A or B
Drum with rigid backing plate	C	C	C	A
Disc	E	D	E	D

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ONGOING BRAKE INSPECTION OPTIONS for Truck on 6 month inspection cycle					
		Inspection required[1]			
Brake used	**Type of inspection last completed (Starting Month)**	**6 mo. later**	**12 mo. later**	**18 mo. later**	**24 mo. later**
Drum with removable dust shields	*full inspection with drum removed (A)*	C[2]	C[2]	C[2]	A
	wheel-on full inspection (B)	B	B	B	B
Drum with rigid backing plate	*full inspection with drum removed (A)*	C[2]	C[2]	C[2]	A
Disc	*full inspection with wheel(s) removed (D)*	E[2]	D	E[2]	D

1 This is the minimum inspection that is permitted. A full inspection is always permitted.

2 A *limited inspection* is only permitted when proper documentation of a *full inspection with drum or wheel(s) removed* is provided.

8. **Summary of Inspection Requirements for Buses**

INSPECTION REQUIRED FOR NEW Bus				
	Inspection required when vehicle is			
Brake used	**6 mo. later**	**12 mo. later**	**18 mo. later**	**24 mo. later**
Drum with removable dust shields	C	A	C	A
	C	B	B	B
Drum with rigid backing plate	C	A	C	A
Disc	E	D	E	D

ONGOING BRAKE INSPECTION OPTIONS for Buses					
		Inspection required[1]			
Brake used	**Type of inspection last completed (Starting Month)**	**6 mo. later**	**12 mo. later**	**18 mo. later**	**24 mo. later**
Drum with removable dust shields	*full inspection with drum removed (A)*	C[2]	A	C[2]	A
	wheel-on full inspection (B)	B	B	B	B
Drum with rigid backing plate	*full inspection with drum removed (A)*	C[2]	A	C[2]	A
Disc	*full inspection with wheel(s) removed (D)*	E[2]	D	E[2]	D

1 This is the minimum inspection that is permitted. A full inspection is always permitted.

2 A *limited inspection* is only permitted when proper documentation of a *full inspection with drum or wheel(s) removed* is provided.

Types of inspections		
Drum	*full inspection with drum removed*	'A'
Brakes	*wheel-on full inspection*	'B'
	limited-inspection of drum brake	'C'
Disc	*full inspection with wheel(s) removed*	'D'
Brakes	*limited-inspection of Disc brake*	'E'

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

B. REQUIRED MEASUREMENT OF BRAKE COMPONENTS

Brake inspections require certain components to be measured and these measurements are required to be recorded on a record/report of the inspection. The items that must be measured for each type of brake are as follows:

1. **Drum Brake Systems**
   For drum brakes, the brake shoe lining thickness and brake drum diameter must be measured during every "*full inspection with drum removed ('A')"* and every "*wheel-on full inspection ('B')*".

   When a *"limited-inspection ('C')"* of drum brakes is conducted, the lining thickness of one brake shoe must be recorded. The measurement must be taken of the thinnest accessible portion of the thinnest brake shoe lining.

2. **Disc Brake Systems**
   For disc brakes, the rotor thickness and pad friction material thickness of the inner and outer brake pad must be measured and recorded at every inspection, unless the brake qualifies for a *'limited-inspection ('E')'*.

   When a *'limited-inspection ('E')'* of disc brakes is conducted, the thickness of the friction material of one of the pads must be recorded. Normally this will be the inner pad.

   Friction material thickness can be determined by measuring the friction material itself or by measuring the combined thickness of the friction material and pad backing plate, then deducting the thickness of the backing plate. Always record the thickness of the friction material only.

C. DOCUMENTS REQUIRED FOR QUALIFYING A PRIOR INSPECTION OF INTERNAL BRAKE COMPONENTS

Qualifying a prior inspection with respect to a wheel brake requires an original of a document containing the information listed below to be submitted to the inspecting technician and inspection facility conducting a current inspection.
A legible copy of the required document must also be submitted to the inspection facility for attachment to the inspection report. The technician-inspector and inspection facility must be satisfied with the documentation provided.

Information to be Included on the Proof of Brake Inspection Document:

The information that must be included on a document used to prove a prior inspection includes information common to all brakes and information specific to drum and disc brakes, as follows:

1. **Common Information**
   - Date of inspection
   - Odometer reading (Optional for trailers. Record either the hub-odometer or ABS ECU mileage, if either is available, including which source was used.)
   - VIN
   - Authorized technician/inspector's name and/or number and signature (in written or electronic form).
   - Inspection station name and number, or name and location of repair facility (based on jurisdictional requirements).

2. **Additional Information Required for Drum Brakes**
   - If new brake shoe lining and/or brake drums were installed, the document must show them as 'new' and be supported by documentation, such as purchase invoice, work order, etc.
   - Internal diameter of the brake drum.
   - Thickness of the brake shoe lining taken at the edge of the lining near the centre of the brake shoe. The measurement must be taken of the thinner brake shoe lining, when there is a difference in thickness.
   - The document must include a declaration stating that the brake drum was removed and a "*full inspection with drum removed ('A')"* was conducted, and that no defective component was present at the completion of the inspection.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

3. **Additional Information Required for Disc Brakes**
   - If new brake pads and/or rotor were installed, the document must show them as 'new' and be supported by documentation, such as purchase invoice, work order, etc.
   - Thickness of the rotor.
   - Thickness of the thinnest pad friction material.
   - Brake pad friction material measurements must be taken at the thinnest point of the material.
   - The document must include a declaration stating that the wheel(s) was/were removed and a "full inspection with wheel(s) removed ('D')" was conducted, and that no defective component was present at the completion of the inspection.

D. PROHIBITION ON REMOVAL OF BRAKES FROM A VEHICLE

Axles fitted with brakes by the ***manufacturer*** as original equipment must have those brakes in proper working order, and the brakes must be inspected in accordance with this standard. Brakes must not be disabled or removed from a vehicle.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 3H – Hydraulic Brakes

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Hydraulic System Components	
a) metal line and fittings *Additional Inspection Procedure(s):* Inspect lines and fittings for leaks while brakes are fully applied with heavy force on the brake pedal, (i.e.: panic stop). Operate engine if necessary to maintain power-assist. *Note:* All connections between brake system components must be proper flared type. *Note:* Surface rust and corrosion is normal on metal lines and fittings, and is not cause for rejection.	a) heavy rust, corrosion or scaling, is present on any metal line or fitting that reduces or increases the thickness, or compromises the structural integrity of the material ***level 1 leak*** of brake fluid chafing, cracked, flattened or restricting section ***insecure*** mounting causing line to shift out of its normal position repaired by welding or soldering repaired using material or method does not meet ***OEM standard***
b) flexible line/hose *Additional Inspection Procedure(s):* Inspect flexible hoses while brakes are applied with heavy force on the brake pedal, (i.e.: panic stop). Operate engine if necessary to maintain power-assist.	b) bulged or swells under pressure, flattened, twisted, restricting section or ***insecure*** mounting outer composite material is cracked or chafed exposing an inner layer as shown in hose and tube condition chart in introduction deficient product is used that does not meet ***OEM standard***
c) master cylinder	c) ***damaged*** or ***insecure*** mounting fluid is contaminated ***level 1 leak*** of brake fluid fluid level is below indicated minimum level, or if not indicated, more than 13 mm from top filler cap is ***damaged***, ***loose*** or ***missing***, vent holes are plugged, or gasket is ***missing*** or swollen
d) pressure differential switch	d) switch or electrical connection is ***damaged***, ***insecure*** or ***loose*** ***level 1 leak*** of brake fluid ***inoperative***
e) variable or proportioning system *Additional Inspection Procedure(s):* Check links for mechanical defects. Test when there is evidence of a problem. Refer to ***manufacturer*** service instructions and confirm that the valve is functioning properly.	e) link is ***damaged***, ***missing***, or seized ***inoperative*** ***level 1 leak*** of brake fluid

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
f) auxiliary or work brake (line-lock device) *Note*: Line-lock devices block brake fluid from returning to the master cylinder as a means of holding a vehicle stationary. Improperly installed they can interfere with normal service brake operation.	f) any device is installed that interferes with normal service brake operation
	Hazardous Condition(s) **i. a brake hose or line swells under pressure** **ii. *level 2 leak* in any part of the brake system** **iii. brake pedal moves downward when brakes are held applied** **iv. a brake hose is broken, crimped, restricted, or cracked exposing any inner layer** **v. master cylinder fluid level is below indicated minimum level or less than ¼ full** **vi. brake fluid is contaminated in a way that prevents normal brake operation**
2. Brake Pedal/Actuator	
a) pedal	a) broken, cracked, ***loose***, ***missing*** or ***abnormally worn*** welded or repaired in a way that does not meet ***OEM standard***
b) mount	b) cracked, deteriorated, ***insecure*** or weakened by corrosion
c) anti-slip feature	c) ineffective, ***loose*** or ***missing***
	Hazardous Condition(s) **i. pedal is *missing***
3. Vacuum Assist (Boost) System on Truck or Bus	
a) line, hose and clamp	a) broken, chafed, collapsed, cracked, leaking, ***loose*** or ***missing*** ***insecure*** mounting, incorrect type, or positioned within 50 mm of any exhaust system component and not protected by a heat shield
b) check valve	b) incorrectly installed or ***inoperative***, leaking or ***missing***
c) tank	c) ***damaged***, structurally deteriorated from corrosion, ***insecure*** or ***loose***, leaking or ***missing***
d) operation *Additional Inspection Procedure(s):* Test system operation as described below. Stage 1 – Start engine, build to full vacuum, shut engine off, make two (2) full brake applications. Stage 2 – With engine off, press brake pedal several more times to eliminate remaining vacuum. Apply a light force on brake pedal and then start engine.	d) during stage 1 - vacuum reserve is insufficient to assist two full brake applications during stage 2 - downward movement of brake pedal is not felt when engine is started

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
e) vacuum pump *Additional Inspection Procedure(s):* Confirm proper operation of the vacuum pump to ***manufacturer*** specifications. When no specification is available, check with engine running at 1200 rpm using vehicle gauge, or connect external gauge.	e) vacuum pump does not operate within ***manufacturer*** specifications, or when no specification is available, is unable to achieve and maintain 4.5 kPa of vacuum *Note*: High altitude can reduce achievable vacuum level.
	Hazardous Condition(s) **i. a brake hose or line swells under pressure** **ii. *level 2 leak* in any part of the brake system** **iii. applied pedal travel exceeds 80% of total pedal travel** **iv. power assist unit is *inoperative*** **v. a check valve is *inoperative* or *missing*** **vi. the brake pedal does not move downward when the engine is started with the brakes applied**
4. Hydraulic Assist (Boost) System on Truck or Bus	
a) engine-driven pump, reservoir and belt *Additional Inspection Procedure(s):* Check with engine stopped and with engine running. Inspect drive belt according to Section 1. Power Train, Item 10. Engine or Accessory Drive Belt.	a) ***level 2 leak*** of hydraulic boost fluid fluid level is below indicated minimum level, or if not indicated, more than 25 mm from top filler cap is ***damaged***, ***loose*** or ***missing***
b) line and hose *Additional Inspection Procedure(s):* Check with engine stopped and with engine running.	b) ***level 2 leak*** of hydraulic boost fluid broken, chafed, collapsed, cracked, ***loose*** or ***missing*** ***insecure*** mounting or incorrect type
c) operation *Additional Inspection Procedure(s):* Confirm proper operation of the hydraulic assist (boost) system according to ***manufacturer*** service instructions. When no ***manufacturer*** service instructions are available, check as described below. Test Method 1 – For a system with electrically-driven back-up pump. Operate brakes with engine running and engine stopped with ignition off. Observe system operation and status of indicator lamps. Test Method 2 – For a system with gas-accumulator back-up. Stop engine and deplete pressure reserve. Then apply a moderate force on brake pedal and start engine.	c) hydraulic assist (boost) is not available or system malfunctions system does not operate as described in ***manufacturer*** service instructions warning or indicator lamp is activated, showing a system malfunction during Test Method 1 – system does not operate as described in ***manufacturer*** service instructions or electric driven pump fails to operate as intended during Test Method 2 – on a system with gas-accumulator back-up – pedal fails to sink down and then push back up again

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. a brake hose or line swells under pressure** **ii. *level 2 leak* in any part of the brake system** **iii. applied pedal travel exceeds 80% of total pedal travel** **iv. power assist unit is *inoperative*** **v. a check valve is *inoperative* or *missing*** **vi. the brake pedal does not move downward when the engine is started with the brakes applied**
5. Air Assist (Boost) System on Truck or Bus	
a) operation *Additional Inspection Procedure(s):* Confirm proper operation of the air assist (boost) system according to ***manufacturer*** service instructions. When no ***manufacturer*** service instructions are available, check as follows: Stop engine and deplete pressure reserve. Then apply moderate force on the brake pedal and start the engine.	a) system does not operate as described in ***manufacturer*** service instructions downward movement of brake pedal is not felt when engine is started
	Hazardous Condition(s) **i. a brake hose or line swells under pressure** **ii. *level 2 leak* in any part of the brake system** **iii. applied pedal travel exceeds 80% of total pedal travel** **iv. power assist unit is *inoperative*** **v. a check valve is *inoperative* or *missing*** **vi. the brake pedal does not move downward when the engine is started with the brakes applied**
6. Air-Over-Hydraulic Brake System *Note:* An Air-Over-Hydraulic Brake System is a brake system that uses compressed air to transmit force from the driver control to a hydraulic brake fluid system that actuates the service brakes. The brake pedal is connected to an air valve that delivers air pressure to hydraulic pressure converters. *Note:* The air system of an air-over-hydraulic brake system must comply with ***CMVSS*** 121.	

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

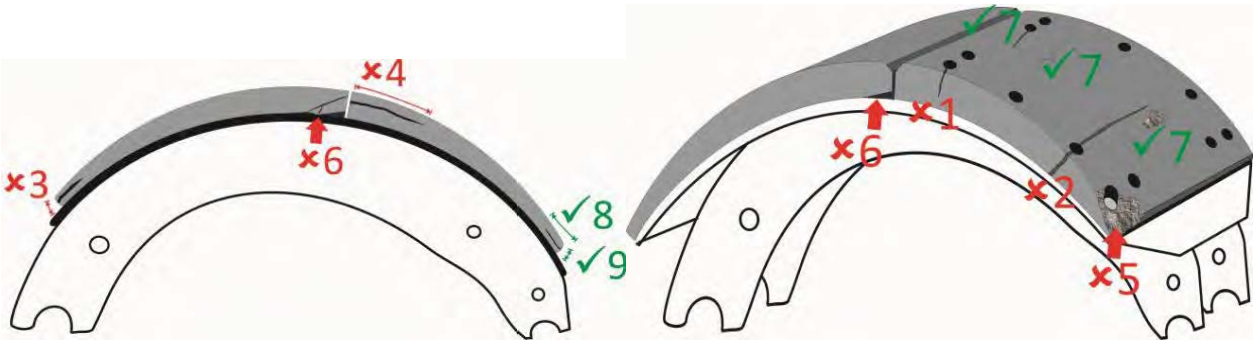
ITEM AND METHOD OF INSPECTION:	REJECT IF:
a) operation *Additional Inspection Procedure(s):* Inspect system operation according to ***manufacturer*** service instructions. When no ***manufacturer*** service instructions are available, inspect the air supply system for compliance with the items 1 – 6 in Section 3A Air Brakes. Inspect the hydraulic system components for compliance with all relevant items listed in this Section.	a) system does not operate as described in manufacturer service instructions a vehicle manufactured after 1975 does not have a dual-circuit air system and two independent air-to- hydraulic pressure converters any system defect or malfunction is detected
	Hazardous Condition(s) **i. a brake hose or line swells under pressure** **ii. *level 2 leak* in any part of the brake system** **iii. applied pedal travel exceeds 80% of total pedal travel** **iv. power assist unit is *inoperative*** **v. a check valve is *inoperative* or *missing*** **vi. the brake pedal does not move downward when the engine is started with the brakes applied**
7. Surge Brake Controller on Trailer	**NOT APPLICABLE TO TRUCKS**
8. Vacuum System on Trailer	**NOT APPLICABLE TO TRUCKS**
9. Air-Boosted Trailer Brake System	**NOT APPLICABLE TO TRUCKS**
10. Electric Brake System on Trailer	**NOT APPLICABLE TO TRUCKS**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
11. Brake System Indicator Lamps	
a) operation *Additional Inspection Procedure(s):* Confirm the location and labeling of brake indicator lamps according to ***manufacturer*** service instructions. Check operation of brake indicator lamps according to ***manufacturer*** service instructions. When no ***manufacturer*** service instructions are available, begin with engine stopped, then turn ignition on. Lamps must turn on when ignition is first turned on. Lamps may go out after 2 – 3 seconds or may stay on until the engine is started. *Note:* Some indicator lamps may stay on, after a repair or system malfunction, until vehicle speed reaches 8 – 16 km/h.	a) ***missing***, not red or amber in colour does not operate according to ***manufacturer*** service instructions indicates a brake system malfunction or defect
	Hazardous Condition(s) **i. any brake indicator is *inoperative* or fails to *operate as intended*** **ii. an active brake failure is indicated**
12. Drum Brake System Components *Additional Inspection Procedure(s):* When an inspection reveals evidence of a defect or abnormal condition, drum disassembly is mandatory. Refer to the instructions in Section 3 when an inspection reveals no evidence of a defect or abnormal condition. The instructions indicate when disassembly of wheel(s) and drum(s) is optional, and what measurements are required to be taken and recorded.	
a) brake operation	a) a required brake is ***missing*** a brake is ***inoperative***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) brake shoe lining condition (service brakes) *Note*: Cracks in the surface of the lining, surface erosion and minor spalling of the contact face of the lining are normal. Also inspect lining for damage caused by "rust-jacking". This includes lining material cracking, lifting or separating from backing metal, due to rust build- up. When the lining protrudes outside of the brake drum, drum removal is necessary to obtain lining thickness.	b) a crack extending partially through, or completely through the lining from the friction surface to the metal backing, passing from any rivet hole to the edge a crack in the edge of the lining that is wider than 1 mm or longer than 38 mm a piece of the lining is broken off exposing a rivet lining is distorted or separating from shoe, (e.g.: an object 1 mm thick can be inserted more than 10 mm between the lining and the backing metal) lining is contaminated by brake fluid, oil or grease (Also see section 9 item 5 for wheel seal leaks) lining protrudes outside of drum more than 3 mm lining or any lining fastener is ***loose*** - shim is used between lining and shoe shoe or lining is installed incorrectly (such as primary and secondary shoes reversed)



Examples of Brake Shoe Lining Pass and Reject Conditions:

Reject condition 1 – a partial crack in the lining, extending from a rivet hole to the edge

Reject condition 2 – a crack completely through the lining, extending from a rivet hole to the edge

Reject condition 3 – a crack in the edge of the lining wider than 1 mm

Reject condition 4 – a crack in the edge of the lining longer than 38 mm

Reject condition 5 – a piece of the lining is broken off exposing a rivet

Reject condition 6 – lining is distorted or separating from shoe

Pass condition 7 – minor crack or spalling of the lining material

Pass condition 8 – crack in edge of lining shorter than 38 mm

Pass condition 9 – crack in edge of lining less than 1 mm wide

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) brake shoe lining thickness *Additional Inspection Procedure(s):* Lining thickness must be measured at each inspection and the measurement must be recorded on the inspection report. *Note*: For minimum allowable thickness, lining measurements are taken at the thinnest point of the lining. For the purposes of recording lining thickness on the inspection report, lining thickness measurements are taken at the edge of the lining, near the centre of the brake shoe. The measurement must be taken of the thinner brake shoe lining, when there is a difference in thickness.	c) bonded brake shoe lining thickness is less than 2 mm at any point bolted or riveted brake shoe lining thickness is less than 3 mm at any point *2 mm = 0.08 in., 3 mm = 0.12 in.*
d) brake drum condition *Note:* Heat checks and some surface cracks on the friction surface are normal. A heat check has a width less than 0.5 mm and a depth less than 0.5 mm. A surface crack is at least 0.5 mm wide and 0.5 mm deep. Any surface crack, groove or worn area that is deeper than the drum wear limit is a structural weakness.	d) surface crack longer than 75% of the width of the friction surface surface crack within 25 mm of the open edge surface crack, groove or worn area that is a structural weakness external crack friction surface is ***abnormally worn***, or is hardened and blackened due to overheating ("martensite") friction surface is contaminated by grease or oil (Also see section 9 item 5 for wheel seal leaks)
e) brake drum diameter (wear) *Additional Inspection Procedure(s):* Brake drum diameter must be measured unless an exemption applies, and the measurement must be recorded on the inspection report. See Introduction to Section 3 for details and exceptions. *Note*: Drum diameter measurements must be taken using a suitable tool and with the level of accuracy defined by the measurement tolerance.	**e) measured drum diameter exceeds limit indicated on the brake drum, *OEM standard* or *industry standard*, or if limit is not available:** for nominal drum size of 350 mm (14 in.) or less: 2.3 mm more than original drum diameter for nominal drum size greater than 350 mm (14 in.): 3.0 mm more than original drum diameter *2.3 mm = 0.09 in.* *3.0 mm = 0.12 in.*
f) self-adjuster mechanism	f) ***abnormally worn***, incorrect thread direction, ***inoperative***, ***missing*** or seized

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
g) anchor pin and return spring	g) ***abnormally worn***, bent, broken, ***loose*** or ***missing*** spring stretched
h) backing plate	h) bent, ***damaged*** or ***loose*** shoe contact area is grooved or worn in a manner that restricts free movement of shoes
i) axle and spindle	i) cracked
j) wheel cylinder	j) ***damaged***, ***inoperative*** or seized, ***loose*** or ***insecure*** mounting ***level 2 leak*** of brake fluid dust seal is cracked, ***damaged***, deteriorated, ***missing***, or split
k) wheel seal	k) ***level 2 leak*** of bearing lubricant
	Hazardous Condition(s) **i. any part is binding, broken, *missing*, seized, or mounted incorrectly** **ii. a brake drum is in a condition where an imminent failure appears likely** **iii. *level 2 leak* of brake fluid at wheel cylinder** **iv. a brake is *inoperative*** **v. brake lining thickness is less than 2 mm** **vi. a piece of the lining is broken off exposing a rivet or bolt** **vii. a crack in the edge of the lining wider than 1 mm** **viii. a crack in the edge of the lining longer than 38 mm** **ix. broken or *missing* return spring, anchor pin, or spider** **x. brake lining or brake drum friction surface is contaminated by brake fluid, grease or oil** ***Note:* Also see section 9, item 5 for wheel seal leaks**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
13. Disc Brake System Components *Additional Inspection Procedure(s):* When an inspection reveals evidence of a defect or abnormal condition, wheel disassembly is mandatory.	
Refer to the instructions in Section 3 and ***manufacturer*** service instructions when an inspection reveals no evidence of a defect or abnormal condition. The instructions indicate when disassembly of wheel(s) is optional and what measurements are required to be taken and recorded.	
a) brake operation	a) a required brake is ***missing*** a brake is ***inoperative***
b) disc (rotor) condition *Note:* Heat checks and some surface cracks on the friction surface are normal. A heat check has a width less than 0.5 mm and a depth less than 1 mm. A surface crack is at least 0.5 mm wide and 1 mm deep. *Note*: Lateral run-out and parallelism only need to be checked only where there is evidence of a problem.	b) section is broken off or ***missing*** crack extends from the friction surface through to the cooling vent any surface crack is longer than 75% of the radial width, within the friction surface any surface crack extends to an outer edge groove or pitted area in rotor that reduces rotor thickness below minimum allowable value contact pattern of the pad on solid rotor material (i.e.: not rusted) is less than 75% of the radial width, around the entire rotor, on one side lateral run-out or out-of-parallelism exceeds 0.3 mm friction surface of the rotor is contaminated by brake fluid, grease or oil (Also see section 9 item 5 for wheel seal leaks) 0.3 mm = 0.01 in.
c) disc (rotor) thickness *Additional Inspection Procedure(s):* Disc (rotor) thickness must be measured. Measurements must be recorded on inspection report.	c) thickness at any point across the friction surface is less than the minimum indicated on the brake rotor, ***OEM standard*** or ***industry standard***, if limit is not available: less than 39.0 mm (+/- 0.05 mm)
d) caliper	d) any part is binding, broken, ***missing,*** seized, mounted incorrectly, or not equivalent to ***OEM stansard*** slide pin/slider or pad slider is binding, ***damaged***, seized, mounted incorrectly, or not equivalent to ***OEM standard*** caliper movement within the anchor plate exceeds ***manufacturer*** specification, guide is welded or repaired in a way that does not meet ***OEM standard*** ***level 2 leak*** of brake fluid pad retainer is bent, ***damaged***, ***insecure*** or ***missing*** boot or bellows is cracked or deteriorated, ***damaged***, or ***missing***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
e) anchor plate	e) ***loose*** or bolt is ***missing***
f) pad condition	f) broken, cracked, ***damaged***, or ***abnormally worn*** friction material is contaminated by brake fluid, oil or grease (Also see section 9 item 5 for wheel seal leaks) friction material ***loose*** on pad, pad is ***missing***, or pad is installed incorrectly
g) pad (friction material) thickness *Additional Inspection Procedure(s):* Pad (friction material) thickness of both inboard and outboard pad must be measured and measurement of the thinnest pad must be recorded on the inspection report. *Note*: Pad (friction material) thickness can be determined by measuring the friction material itself or by measuring the combined thickness of the friction material and pad backing plate, then deducting the thickness of the backing plate. Record the thickness of the friction material only.	g) pad (measured friction material) thickness is less than ***manufacturer*** specification, or ***industry standard***, or if limit is not available: • bonded friction material thickness is less than 3 mm • riveted friction material thickness is less than 5 mm • difference between inboard and outboard friction material thickness is greater than ***OEM standard*** or ***industry standard***, or if limit is not available: difference is greater than 3 mm *3 mm = 0.12 in., 5 mm = 0.20 in.*
h) clearance between pads and rotor (caliper adjustment)	h) does not meet ***manufacturer***'s specifications
	Hazardous Condition(s) **i. any part is binding, broken, *missing*, seized or mounted incorrectly** **ii. a rotor (disc) friction surface shows metal to metal contact with brake pad or severe rusting** **iii. a rotor (disc) has a crack that extends to the hub or through to the vented section** **iv. caliper movement within the anchor plate exceeds 3 mm** **v. any brake component is in a condition where an imminent failure appears likely** **vi. a brake is *inoperative*** **vii. brake pad friction material is worn to less than 2 mm** **viii. friction material of the pad or friction surface of the rotor is contaminated by brake fluid, grease or oil** ***Note:* Also see section 9 item 5 for wheel seal leaks.**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
14. Mechanical Parking Brake	
a) operation *Additional Inspection Procedure(s):* Refer to manufacturer service instructions for test procedure. When such instruction is not available, test as described below. With a manual transmission – Apply the parking brakes and place the transmission in the second or third lowest gear. Engage the clutch slowly without applying the throttle. Vehicle may rock and shake, but it should not roll, and engine may stall. With an automatic transmission – Apply the parking brake and place the transmission in forward gear. Raise engine speed to no more than 800 rpm. Vehicle may shift due to torqueing of the suspension, but it should not roll forward or backward. *Note:* Some vehicles with automatic transmissions use an interlock that prevents a vehicle from being placed into gear when the parking brake is applied. Inspect such a vehicle according to the test method provided by the manufacturer.	a) parking brake does not hold as required
b) indicator lamp	b) parking brake indicator lamp does not activate when control is placed in the applied position
c) control	c) binds, broken or ***missing*** ***inoperative*** or fails to lock
d) cable and/or linkage	d) broken, frayed, improperly secured, ***missing***, seized or equalizer is ***missing***
e) adjustment	e) any part of the system is improperly adjusted
f) friction material *Additional Inspection Procedure(s):* Inspecting the condition of the parking brake friction material is necessary in cases when shoes are visually accessible, or the brake is disassembled.	f) **thickness is less than specified by the *OEM*, or when not specified is less than:** • 3 mm on riveted lining • 2 mm on bonded lining *2 mm = 0.08 in., 3 mm = 0.12 in.*
	Hazardous Condition(s) **i. vehicle rolls forward or backward with little or no resistance when parking brake is applied**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
15. Spring-Applied Air-Released (SAAR) Parking Brake *Note:* A spring-applied air-released (SAAR) Parking Brake System uses a mechanical spring to apply the parking brake. Compressed air is used to compress the spring and release the parking brake. The parking brake control is similar to the valve used in an air brake system.	
a) operation *Additional Inspection Procedure(s):* Refer to manufacturer service instructions for test procedure. When such instruction is not available, test as described below. With a manual transmission – Apply the parking brakes and place the transmission in the second or third lowest gear. Engage the clutch slowly without applying the throttle. Vehicle may rock and shake, but it should not roll, and engine may stall. With an automatic transmission – Apply the parking brake and place the transmission in forward gear. Raise engine speed to no more than 800 rpm. Vehicle may shift due to torqueing of the suspension, but it should not roll forward or backward. *Note:* Some vehicles with automatic transmissions use an interlock that prevents a vehicle from being placed into gear when the parking brake is applied. Inspect such a vehicle according to the test method provided by the manufacturer. *Note:* SAAR systems include a low air pressure warning and air pressure gauge. The air system components are not subject to ***CMVSS*** 121 and must be inspected according to ***manufacturer*** service instructions.	a) parking brake does not hold as required
b) indicator lamp	b) parking brake indicator lamp does not activate when control is placed in the applied position

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) air line, connection and fitting	c) fitting, line or repair method does not meet ***OEM standard*** tubing or hose is defective as defined in the chart on page 5 fitting or connection is broken, cracked, flattened or leaking ***damaged*** in a way (such as: melting, flattening, deformation or kinking) that can restrict air flow
d) air tank	d) tank does not meet ***OEM standard*** tank is ***damaged***, ***loose***, welded other than factory weld, or corroded to the extent that structural integrity is compromised
e) leakage *Additional Inspection Procedure(s):* Monitor system for leaks.	e) air leak at any location
f) friction material *Additional Inspection Procedure(s):* Inspecting the condition of the parking brake friction material is necessary in cases when shoes are visually accessible, or the brake is disassembled.	f) **thickness is less than specified by the *OEM*, or when not specified is less than:** • 3 mm on riveted lining • 2 mm on bonded lining *2 mm = 0.08 in., 3 mm = 0.12 in.*
	Hazardous Condition(s) **i. brake is *inoperative* or fails to *operate as intended*** **ii. vehicle rolls forward or backward with little or no resistance when parking brake is applied**
16. Spring-Applied Hydraulic-Released (SAHR) Parking Brake *Note:* A spring-applied hydraulic-released (SAHR) Parking Brake System uses a mechanical spring to apply the parking brake. Pressurized hydraulic fluid is used to compress the spring and release the parking brake.	

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
a) operation • refer to manufacturer service instructions for test procedure. When such instruction is not available, test as described below. • a manual transmission – Apply the parking brakes and place the transmission in the second or third lowest gear. Engage the clutch slowly without applying the throttle. Vehicle may rock and shake, but it should not roll, and engine may stall. • an automatic transmission – Apply the parking brake and place the transmission in forward gear. Raise engine speed to no more than 800 rpm. Vehicle may shift due to torqueing of the suspension, but it should not roll forward or backward. *Note:* Some vehicles with automatic transmissions use an interlock that prevents a vehicle from being placed into gear when the parking brake is applied. Inspect such a vehicle according to the test method provided by the manufacturer.	a) parking brake does not hold as required
b) indicator lamp	b) parking brake indicator lamp does not activate when control is placed in the applied position
c) line and hose *Additional Inspection Procedure(s):* Check with engine stopped and with engine running.	c) ***level 2 leak*** of hydraulic fluid broken, chafed, collapsed, cracked, leaking, ***loose*** or ***missing*** ***insecure*** mounting or incorrect type
d) release canister	d) ***damaged***, ***inoperative***, ***insecure***, or ***loose*** ***level 2 leak*** of hydraulic fluid
e) friction material *Additional Inspection Procedure(s):* Inspecting the condition of the parking brake friction material is necessary in cases when shoes are visually accessible, or the brake is disassembled.	e) **thickness is less than specified by the *OEM*, or when not specified is less than:** • 3 mm on riveted lining • 2 mm on bonded lining *2 mm = 0.08 in., 3 mm = 0.12 in.*
	Hazardous Condition(s) **i. brake is *inoperative* or fails to *operate as intended*** **ii. vehicle rolls forward or backward with little or no resistance when parking brake is applied**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
17. Anti-Lock Brake System (ABS) on a Truck or Bus	
Note: Every truck manufactured on or after April 1, 2000 with a GVW above 4,536 kg must be equipped with ABS. Every vehicle equipped with ABS that was not mandatory for the vehicle when it was manufactured must have ABS in good working order.	
a) indicator lamp *Additional Inspection Procedure(s):* Cycle the ignition off and on while monitoring the ABS indicator lamp.	a) ***inoperative*** or ***missing*** fails to turn on during bulb-check cycle when ignition is turned on indicates the presence of an active malfunction by staying on after the bulb-check cycle any visual evidence that the system has been tampered with or defeated
b) electronic control unit (ECU)	b) ***insecure*** mounting, ***missing*** or connector corroded
c) wiring *Additional Inspection Procedure(s):* Visually inspect accessible portions of the wiring. Inspect all repairs and damaged areas.	c) ***insecure*** mounting, ***missing***, or connector corroded, conductor is exposed due to damage, improper repair or other condition of wire connection or repair does not meet ***OEM standard***
d) ABS modulating valve	d) ***missing***, ***insecure*** mounting to ECU, ***level 1 leak*** of brake fluid or abnormal corrosion
e) wheel speed sensor *Note*: Different configurations of sensors and modulators are permitted by ***CMVSS***. Be sure to confirm the ***OEM*** configuration of the ABS before rejecting a vehicle due to missing wheel speed sensors.	e) ***inoperative***, ***insecure*** mounting, ***missing***, connectors corroded
	Hazardous Condition(s) **i. any malfunction of the ABS system that prevents normal brake operation**
18. Stability Control System	
a) indicator lamp/system status *Additional Inspection Procedure(s):* Check for indication of any fault or malfunction by cycling the ignition off and on while monitoring the indicator lamp.	a) lamp fails to illuminate during bulb-check or lamp remains illuminated fault or malfunction is indicated any visual evidence that the system has been tampered with or defeated

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
19. Brake Performance *Optional Additional Inspection Procedure(s):* These test methods can be used when one of the following types of performance-based brake tester (PBBT) is available. Test equipment must be calibrated and used according to ***manufacturer*** instructions. Testing a brake with non-burnished friction material may produce inconsistent test results.	*Note*: Rated wheel weight = one-half of GAWR.
a) service brake force – using a roller-type performance-based brake tester (PBBT) *Optional Additional Inspection Procedure(s):* Determine the maximum service brake force at each wheel by slowly applying the service brake pedal and increasing the pedal force until the tester terminates the test, or brake force reaches its maximum value.	a) service brake fails to lock the wheel and the maximum service brake force is less than 40% of the rated wheel weight service brake force on one side of the axle is less than 70% of the service brake force on the other side, at the point in time just prior to first wheel lockup, or test termination, whichever occurs first
b) rolling resistance force – using a roller-type performance-based brake tester (PBBT) *Optional Additional Inspection Procedure(s):* Determine average rolling resistance force of each wheel, with the brakes fully released, for one full revolution of the wheel. Discount the initial spike at start-up of the rolls.	b) average rolling resistance force of a wheel is greater than 6% of the weight of the wheel imparted on the test device
c) required brake force or stopping distance – using a decelerometer *Optional Additional Inspection Procedure(s):* Test vehicle stopping ability in a suitable area following the instructions provided by the manufacturer/supplier of the test device.	c) deceleration is below the requirement of the relevant jurisdiction balance of brake force between left and right side fails to comply with the requirement of the relevant jurisdiction *Note*: Brake force balance (left and right) cannot be measured with all types of decelerometers.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 3A – Air Brakes

ITEM AND METHOD OF INSPECTION:	REJECT IF:
Note: **Inspect Air System at Normal Operating Pressure** - Unless noted otherwise below, all operational checks of air brake system components are conducted with the system at its normal operating pressure (between compressor cut-in and cut-out values). ***OEM*** **Vehicle Gauge Accuracy** - The gauges on a vehicle's instrument panel showing pressure in the airbrake system are required to be accurate within plus or minus 7% of the compressor cut-out pressure. **Use Accurate Test Gauge** - When there is any doubt about any test or inspection results obtained, use of a gauge accurate to +/- 2% to confirm pressure values is recommended.	
1. Air Compressor	
a) operation	a) ***inoperative***
b) belt	*Note:* Inspect drive belt according to Section 1. Power Train, Item 10. Engine or Accessory Drive Belt.
c) mounting	c) broken, cracked, ***loose*** or bolts ***missing***
d) air filter	d) contaminated sufficiently to restrict air flow, ***missing***
e) pulley	e) bent, broken, cracked, ***damaged***, ***loose***, out of alignment
	Hazardous Condition(s) **i. belt or pulley is in a condition where an imminent failure appears likely** **ii. compressor mounting or mounting bolt is broken, cracked, *insecure*, or *loose*, or compressor is shifted from its normal position**
2. Air Supply System *Additional Inspection Procedure(s):* Test either "a) air pressure build up time" or "b) air pressure build-up/loss rate" as described below.	
a) air pressure build-up time	a) exceeds two (2) minutes
Optional Inspection Procedure(s): With spring brakes released and wheels chocked, reduce system pressure to 552 kPa (80 psi) or less. Run engine at 600-800 rpm and observe the time needed for air pressure to rise from 85 to 100 psi.	

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) air pressure build-up/loss rate *Optional Inspection Procedure(s):* With air pressure at 552 kPa (80 psi) or less, spring brakes released and service brakes fully applied and released, allow the engine to run at idle speed and observe the air pressure gauge to confirm air pressure rises.	b) air compressor is unable to cause pressure to rise during test
c) governor *Additional Inspection Procedure(s):* Determine the governor cut-in and cut-out pressure values.	c) ***inoperative***, ***missing*** or ***loose*** air leak evident at governor or connecting air lines governor cut-in pressure is below 690 kPa (100 psi) governor cut-out pressure is below 828 kPa (120 psi) or above 1000 kPa (145 psi)
d) low pressure warning *Additional Inspection Procedure(s):* Test the operation of the low air pressure warning device(s). *Note*: A visible warning device is mandatory (lamp or wig-wag). An audible warning device (buzzer or alarm) is optional, but must remain functional when ***OEM*** installed.	d) visible warning is ***inoperative*** or ***missing*** visible warning is not clearly identified, lamp lens is ***missing*** audible warning is ***inoperative*** or ***missing*** warning device fails to activate or operate continuously when air pressure is lowered below 414 kPa (60 psi)
e) air pressure gauge	e) gauge is ***inoperative*** or has inaccurate reading
f) pressure drop/reserve *Additional Inspection Procedure(s):* Observe air pressure gauges while making a full service brake application.	f) pressure drops more than 138 kPa (20 psi) when a full service brake application is made
g) air leakage *Additional Inspection Procedure(s):* Monitor the system for leaks during the inspection by listening for leaks.	g) pressure drops more than 7 kPa (1 psi) per minute detectable leak at any location
	Hazardous Condition(s) **i. brake system air pressure cannot be maintained between 560 and 620 kPa (80 and 90 psi), with service brakes applied or released and engine idling, during air pressure build-up/loss rate test** **ii. air pressure drops more than 20 kPa (3 psi) per minute during air leakage test** **iii. *inoperative* or inaccurate air pressure gauge** **iv. low air pressure warning is *inoperative* or fails to operate continuously when ignition is on and air pressure is below 380 kPa (55 psi)**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
3. Air System Leakage on a Trailer	**NOT APPLICABLE TO TRUCKS**
4. Air Tank	
a) contamination *Additional Inspection Procedure(s):* Open the drain valve on each tank and drain all fluid.	a) the quantity of oil or sludge, (i.e.: oil and water mixture) expelled from an air tank exceeds manufacturer service recommendations **the quantity of water expelled from an air tank exceeds ***manufacturer*** service recommendations
	Note: **Record excessive water on the inspection report, but do not reject the vehicle for this condition alone.
b) air tank condition	b) corroded or ***damaged*** to the extent that structural integrity is compromised, leaking or ***loose*** welding other than original factory weld on air tank tank does not meet ***OEM standard***
c) air tank bracket and/or strap	c) broken, cracked or ***missing*** does not meet ***OEM standard***
d) air tank drain valve	d) ***inoperative***, leaking, ***loose*** or ***missing*** does not meet ***OEM standard***
e) moisture ejector	e) ***inoperative***, leaking
	Hazardous Condition(s) **i. air tank is *loose*, allowing movement of more than 25 mm in any direction**
5. Air Tank Check Valves *Additional Inspection Procedure(s):* Test as outlined below, the operation of air tank check valves on each vehicle using a supply (wet) tank and primary/secondary tank arrangement. Inspect a vehicle using an integral-type air dryer (and having no supply {wet} tank) according to ***manufacturer*** service instructions. *Note*: A "***CMVSS*** '121'system" is one with a dual circuit brake system generally manufactured after 1976. A vehicle with single circuit brake system is to be inspected according to ***manufacturer*** service instructions.	

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
Additional Inspection Procedure(s): For a vehicle with a "CMVSS '121'system". This inspection is to ensure proper function of the check valves which isolate the circuits and provide service and emergency braking in the case of a failure in one of the circuits. Inspect for proper operation as follows: **Step 1 –** Begin with air system at normal operating pressure. Open the drain valve on the supply (wet) tank.	
a) one-way check valve (between supply (wet) tank and service tanks)	a) air pressure drops in either the primary or secondary air tank
Step 2 - Open the drain valve on either the primary or secondary service tank.	
b) two-way check valve (between service tanks and brake system control valves)	b) air pressure drops on both the primary and secondary air tanks
Step 3 - Close all drain valves and increase air system to normal operating pressure. Open the drain valve on the remaining service tank (primary or secondary) that was not drained in Step 2.	
c) two-way check valve (between service tanks and brake system control valves)	c) air pressure drops on both the primary and secondary air tanks
	Hazardous Condition(s) **i. air tank check-valve is *inoperative* or *missing***
6. Brake Pedal/Actuator	
a) pedal	a) broken, cracked, ***loose***, ***missing*** or ***abnormally worn*** welded or repaired in a way that does not meet ***OEM standard***
b) mount	b) deteriorated or weakened by corrosion, or ***insecure***
c) anti-slip feature	c) ineffective, ***loose*** or ***missing***
	Hazardous Condition(s) **ii. pedal is *loose* or *missing*, or an imminent failure appears likely**
7. Treadle Valve and Trailer Hand Valve	
a) operation *Additional Inspection Procedure(s):* Test the operation of the treadle valve and trailer hand valve by fully applying and then releasing the service brakes.	a) ***inoperative*** pivot or plunger is binding or seized (fails to fully release brakes)

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) condition	b) cracked, ***insecure*** or ***loose*** mounting, mounting bracket or mounting fastener ***damaged***, ***missing*** or stripped
8. Brake Valves & Controls	
a) operation *Additional Inspection Procedure(s):* Test the operation of all valves and controls.	a) any valve is ***inoperative***
b) condition *Additional Inspection Procedure(s):* Check the condition and security of all air brake system components.	b) broken, ***damaged***, repaired in a way that does not meet ***OEM standard*** ***loose***, ***insecure*** mounting, mounting bracket or mounting fastener ***damaged***, stripped or ***missing***
c) quick release valve, relay valve *Note:* It is important that any repair or replacement of a brake valve retains brake functionality according to original ***OEM*** design. *Additional Inspection Procedure(s):* Apply and release the service brakes and check system operation. Check for signs of improper installation or replacement of the wrong type of valve. *Note:* It is important that the inspector be familiar with the design and operating requirements of the vehicle being inspected. This is a visual inspection only.	c) ***inoperative***, air is not released quickly through exhaust port when brakes are released air leaks from valve back into the system an improper valve is visually identified
d) air system or accessory device, (e.g.: suspension, tire inflation system, pintle hook damper, tail gate, landing gear, tarp system, etc.) *Note:* The pressure protection valve must be installed so that it prevents a failure in such a system or accessory from depleting all of the pressure from the brake system.	d) any system or accessory device that draws air from the air brake system is not equipped with a functioning pressure protection valve
	Hazardous Condition(s) **i. quick release valve or relay valve is *inoperative* or *missing***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
9. Proportioning, Inversion or Modulating Valve	
a) type of limiting or proportioning valve	a) improper valve is used for vehicle type *Note*: For example: a tractor converted to a straight truck or vice versa, is not properly configured for current vehicle use.
b) operation	b) ***inoperative*** or ***missing***
c) mounting	c) broken bracket, ***insecure*** or ***loose***
	Hazardous Condition(s) **i. improper valve is used for vehicle type, (e.g.: bobtail system is used on a straight truck** **ii. required valve is *inoperative* or *missing***
10. Towing Vehicle (Tractor) Protection System	
a) towing vehicle (tractor) protection valve operation *Additional Inspection Procedure(s):* Ensure that the trailer supply valve is closed (pulled out). Place the trailer service line where it can be observed. Make a service brake application and inspect for air exhausting out of the trailer service line.	a) air flows out of the trailer service line during the test
b) trailer supply valve operation *Additional Inspection Procedure(s):* **Stage 1** - Connect trailer supply line to suitable closure, open (push in) the trailer supply valve and make a service brake application. Air will exhaust rapidly out of the trailer service line and air pressure will drop. Monitor the air pressure gauges and note the pressure when the trailer supply valve automatically closes. **Stage 2** - Increase air system to normal operating pressure, open (push in) the trailer supply valve and allow air to vent quickly from trailer supply line by removing it from the closure. Monitor the air pressure gauges and note the pressure when the trailer supply valve automatically closes.	b) both air pressure gauges are not between 140 and 300 kPa (20 and 45 psi) when the trailer supply valve closes during Stage 1 *Note*: In a case where the trailer supply valve closes with pressure above 300 kPa (45 psi), record it on the inspection report, but do not reject the vehicle for this condition alone. the trailer supply valve fails to close automatically during Stage 2 *Note:* Most valves will close with only a small drop in pressure during Stage 2. Others may allow pressure to drop to around 414 kPa (60 psi) before closing. Check ***manufacturer*** specifications if pressure drops below 414 kPa 60 psi.
	Hazardous Condition(s) **i. towing vehicle (tractor) protection system is *missing* or fails to *operate as intended***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
11. Parking Brake and Emergency Application on Truck or Bus	
a) parking brake application *Additional Inspection Procedure(s):* Actuate the parking brake control as necessary. Check parking brake function at each wheel.	a) brake does not apply on any wheel required to have parking brake
b) parking brake release	b) parking brake releases slowly, hangs or drags
c) manual application *Additional Inspection Procedure(s):* Apply the parking (spring) brakes by closing the parking (spring) brake control valve.	c) parking (spring) brakes do not immediately apply automatically
	Hazardous Condition(s) **i. parking brake does not *operate as intended***
12. Parking Brake and Emergency Application on Trailer	**NOT APPLICABLE TO TRUCKS**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

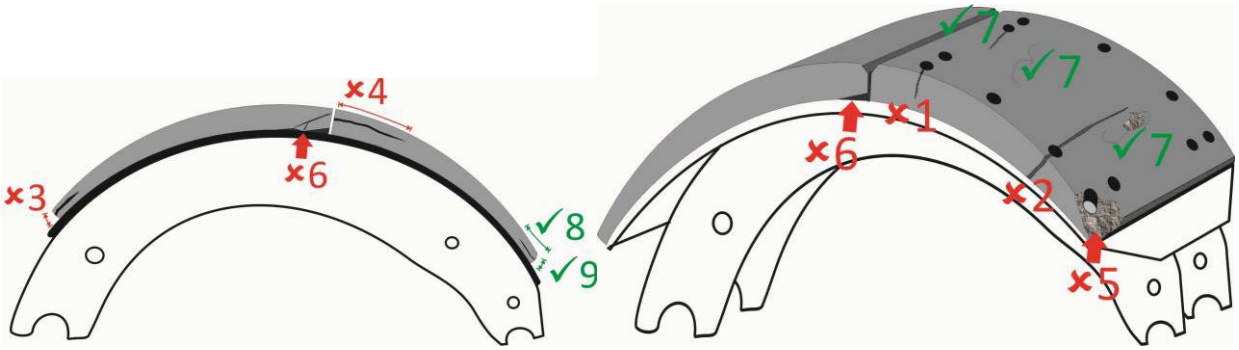
ITEM AND METHOD OF INSPECTION:	REJECT IF:
13. Air System Components	
a) gladhand	a) corroded or ***insecure*** mounting, cracked or ***damaged*** seal ***damaged*** or ***missing***
b) gladhand screen	b) plugged or ruptured
c) air line, connection and fitting *Note:* Improper installation, repairs and modifications can negatively affect brake operation, and particularly brake timing. Improper use of fittings, additional elbows, and replacing an air line with one that is too small, are examples of improper procedures. *Additional Inspection Procedure(s):* Check for improper installations, modifications or repairs.	c) fitting, line, repair method, installation or modification does not meet ***industry standard*** or ***OEM standard*** tubing or hose is defective as defined in the chart on page 5 fitting or connection is broken, cracked, flattened or leaking ***damaged*** in a way (such as: melting, flattening, deformation or kinking) that can restrict air flow
d) air system or accessory device, (e.g. suspension, tire inflation system, pintle hook damper, tail gate, landing gear, tarp system) *Additional Inspection Procedure(s):* Visually inspect for presence of correct type of valve.	d) any system or accessory device that draws air from the air brake system is not equipped with a functioning pressure protection valve
e) leakage *Additional Inspection Procedure(s):* Monitor system for leaks.	e) an air leak at any location
	Hazardous Condition(s) **i. an air line bulges under pressure** **ii. air line modification or repair does not meet *industry standard* or *OEM standard*** **iii. air line has damage extending through the outer reinforcement ply** **iv. an inner layer of an air line is exposed due to abrasion or rubbing** **v. air leak at other than a proper connection** **vi. air line is *damaged* by heat, broken, or crimped in such a manner as to restrict airflow**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
14. Brake Chamber	
a) brake chamber	a) improper type or size brake chamber is used corroded, cracked, ***damaged***, ***insecure*** mounting, ***loose***, ***missing***, or leaking drain hole is not directed downward or is plugged mixed long-stroke and standard stroke chambers on an axle mismatched chamber size on an axle piston return spring is broken or binding
b) spring brake chamber	b) park brake-apply spring is caged by caging bolt or made ***inoperative*** by other mechanical means chamber caging plate is misaligned or hung up preventing installation of caging bolt park brake-apply spring is broken
c) chamber mounting bracket	c) broken, cracked, deformed, ***loose*** or ***missing***
d) type DD3 chamber *Additional Inspection Procedure(s):* Apply the parking brake and deplete system pressure starting with the supply (wet) tank.	d) brake fails to remain fully applied at any wheel with Type DD3 chamber
	Hazardous Condition(s) **i. air leak at a chamber** **ii. caging plate in a chamber is out of position or 'hung up'** **iii. non-manufactured hole or crack in a chamber** **iv. *insecure*, *loose* or *missing* chamber** **v. mismatched chamber type or size on active or passive steer axle** **vi. improper type or size brake chamber is used on a steer axle**
15. Drum Brake System Components *Additional Inspection Procedure(s):* When an inspection reveals evidence of a defect or abnormal condition, disassembly of wheel(s) and drum(s) is mandatory. Refer to the instructions in Section 3 when an inspection reveals no evidence of a defect or abnormal condition. The instructions indicate when disassembly of wheel(s) and drum(s) is optional, and what measurements are required to be taken and recorded.	

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
a) brake operation	a) a required brake is ***missing*** a brake is ***inoperative***
b) brake shoe lining condition (service brakes) *Note*: Cracks in the surface of the lining, surface erosion and minor spalling of the contact face of the lining are normal. Also inspect lining for damage caused by "rust-jacking". This includes lining material cracking, lifting or separating from backing metal, due to rust build- up. When the lining protrudes outside of the brake drum, drum removal is necessary to obtain lining thickness.	b) a crack extending partially through, or completely through the lining from the friction surface to the metal backing, passing from any rivet hole to the edge a crack in the edge of the lining that is wider than 1 mm or longer than 38 mm a piece of the lining is broken off exposing a rivet or bolt lining is distorted or separating from shoe, (e.g.: an object 1 mm thick can be inserted more than 10 mm between the lining and the backing metal) lining is contaminated by oil or grease (Also see section 9 item 5 for wheel seal leaks) lining protrudes outside of drum more than 3 mm lining or any lining fastener is ***loose*** shim is used between lining and shoe shoe or lining is installed incorrectly (such as primary and secondary shoes reversed)



Examples of Brake Shoe Lining Pass and Reject Conditions:

Reject condition 1 – a partial crack in the lining, extending from a rivet hole to the edge

Reject condition 2 – a crack completely through the lining, extending from a rivet hole to the edge

Reject condition 3 – a crack in the edge of the lining wider than 1 mm

Reject condition 4 – a crack in the edge of the lining longer than 38 mm

Reject condition 5 – a piece of the lining is broken off exposing a rivet

Reject condition 6 – lining is distorted or separating from shoe

Pass condition 7 – minor crack or spalling of the lining material

Pass condition 8 – crack in edge of lining shorter than 38 mm

Pass condition 9 – crack in edge of lining less than 1 mm wide

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) brake shoe lining thickness *Additional Inspection Procedure(s):* Lining thickness must be measured at each inspection and the measurement must be recorded on the inspection report. *Note*: For minimum allowable thickness, lining measurements are taken at the thinnest point of the lining. For the purposes of recording lining thickness on the inspection report, lining thickness measurements are taken at the edge of the lining, near the centre of the brake shoe. The measurement must be taken of the thinner brake shoe lining, when there is a difference in thickness.	c) bonded or riveted continuous strip brake shoe lining thickness is less than 5 mm at any point bolted or riveted block type brake shoe lining thickness is less than 8 mm at any point 8 mm = 0.3 (5/16) in., 5 mm = 0.2 (3/16) in.
d) brake drum condition *Note:* Heat checks and some surface cracks on the friction surface are normal. A heat check has a width less than 0.5 mm and a depth less than 0.5 mm. A surface crack is at least 0.5 mm wide and 0.5 mm deep. Any surface crack, groove or worn area that is deeper than the drum wear limit is a structural weakness.	d) surface crack longer than 75% of the width of the friction surface surface crack within 25 mm of the open edge surface crack, groove or worn area that is a structural weakness external crack friction surface is ***abnormally worn***, or is hardened and blackened due to overheating ("martensite") friction surface is contaminated by grease or oil (Also see section 9 item 5 for wheel seal leaks)
e) brake drum diameter (wear) *Additional Inspection Procedure(s):* Brake drum diameter must be measured at most inspections and the measurement must be recorded on the inspection report. See Introduction to Section 3A for details and exceptions. *Note*: Drum diameter measurements must be taken using a suitable tool and with the level of accuracy defined by the measurement tolerance.	e) **measured drum diameter exceeds limit indicated on the brake drum, *OEM standard* or *industry* standard, or if limit is not available:** • for nominal drum size of 350 mm (14 in) or less: 2.3 mm more than original drum diameter • for nominal drum size greater than 350 mm (14 in): 3.0 mm more than original drum diameter 2.3 mm = 0.09 in., 3 mm = 0.12 in.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
f) wheel seal	f) ***level 2 leak*** of bearing lubricant
g) return spring	g) ***missing***, broken or stretched (fails to hold both rollers against cam)
h) spider	h) bent, broken, ***loose***, welded or repaired in a way that does not meet ***OEM standard*** mounting bolt ***missing***
	Hazardous Condition(s) **i. any part is binding, broken, *missing*, seized, or mounted incorrectly** **ii. a brake drum is in a condition where an imminent failure appears likely** **iii. a brake is *inoperative*** **iv. bonded or riveted continuous strip brake shoe lining thickness is less than 5 mm at centre of shoe** **v. bolted or riveted block type brake shoe lining thickness is less than 7 mm, at centre of shoe** **vi. brake shoe lining is less than 1 mm at any point** **vii. a piece of the lining is broken off exposing a rivet or bolt** **viii. a crack in the edge of the lining wider than 1 mm** **ix. a crack in the edge of the lining longer than 38 mm** **x. broken or missing return spring, anchor pin, or spider** **xi. brake lining or drum friction surface is contaminated by grease or oil** ***Note:* Also see section 9 item 5 for wheel seal leaks** 5 mm = 0.2 (3/16) in., 7 mm = 0.25 in. (1/4) in.
16. S-Cam Drum Brake System *Note*: Also applies to T-Cam brake system.	
a) camshaft condition *Additional Inspection Procedure(s):* Check the condition and mounting of each brake camshaft, and check for movement in the bushings.	a) camshaft is bent, twisted, repaired by welding, incorrectly installed or incorrect type movement of camshaft in bushing exceeds 2.0 mm

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) camshaft mounting	b) mounting bracket broken or ***loose***
c) pushrod, clevis yoke, clevis pin and locking device *Note*: Brake pushrod stroke indicators are required by CMVSS 121 on vehicles manufactured on and after May 31, 1996. These indicators normally consist of markings on the brake chamber pushrod, but can also be mounted on, or adjacent to, the brake linkage. They must be capable of showing an over- stroke condition.	c) bent, binding, broken, cracked, ***missing***, welded or repaired in a way that does not meet ***OEM standard*** clevis yoke lock nut is ***loose*** linkage is misaligned to slack adjuster or brake chamber does not form correct angle with slack adjuster when brakes are applied brake stroke indicator is ***missing***
d) brake adjuster *Note*: Self-adjusting brake adjusters are required by ***CMVSS*** 121 on vehicles manufactured on and after May 31, 1996. They cannot be replaced with manual brake adjusters.	d) not equipped with self-adjuster as required adjuster is ***inoperative*** or improperly installed improper type or size brake adjuster is used any part is bent, broken or ***abnormally worn*** the self-locking sleeve on a manual slack adjuster is seized or fails to lock
e) slack adjuster effective length	e) the distance from the centre of a camshaft to the centre of the clevis pin is not the same on all brakes of an axle
f) brake shoe roller	f) flat spots, ***missing***, wrong size
g) brake shoe anchor pin	g) ***missing***, wear allows the lining to protrude beyond outside edge of brake drum
h) brake stroke *Additional Inspection Procedure(s):* Measure and record the applied push rod stroke of each brake with 620 to 690 kPa (90 to 100 psi) in the air tanks, the spring brakes released, the engine shut off and service brakes fully applied. *Note*: The stroke measurements of all brakes are to be recorded on the inspection report. When the stroke of a self-adjusting brake adjuster is found to be at or beyond the stroke limit, the brake requires repairs. A manual adjustment will not correct the problem.	h) stroke is at or beyond the limit of the brake chamber as shown in the chart below difference between stroke measurements is greater than 6 mm on an axle

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. camshaft is incorrectly installed, incorrect type, or mounting is *insecure*** **ii. improper type or size camshaft roller is used** **iii. improper type or size brake adjuster is used on a steer axle** **iv. broken or missing cam roller, camshaft, pushrod, yoke, clevis pin, clevis pin retainer, (e.g., cotter pin),** **v. stroke of any brake is beyond the limit of the brake chamber as shown in the chart below**

Brake Stroke Limits for Clamp-Type Brake Chambers

Note:
Measurement tolerance is +/- 1 mm

Chamber Type (Size)	Stroke Limit (mm)	Stroke Limit (in.) +/- 1/32 in.
6	32 mm	1- 1/4 in.
9	35 mm	1 -3/8 in.
12	35 mm	1 -3/8 in.
12 LS	44 mm	1 -3/4 in.
16	44 mm	1- 3/4 in.
16 LS	51 mm	2 in.
20	44 mm	1-3/4 in.
20 LS	51 mm	2 in.
24	44 mm	1-3/4 in.
24 LS	51 mm	2 in.
30	51 mm	2 in.
30 LS	64 mm	2-1/2 in.
30 DD3	57 mm	2-1/4 in.
36	57 mm	2-1/4 in.

17. Brake Shoe Travel (Wedge Brakes)	
a) brake shoe movement *Additional Inspection Procedure(s):* Inspect wedge brakes according to item 15 above and then check brake operation and measure shoe movement. Brake shoe movement must be measured and measurements must be recorded on the inspection report.	a) brakes fail to operate, shoes do not move or shoe movement exceeds 2 mm

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. shoe movement is greater than 2 mm** **ii. any wedge brake is *inoperative***
18. Disc Brake System Components *Additional Inspection Procedure(s):* When an inspection reveals evidence of a defect or abnormal condition, wheel disassembly is mandatory. Refer to the instructions in Section 3 and ***manufacturer*** service instructions when an inspection reveals no evidence of a defect or abnormal condition. The instructions indicate when disassembly of wheel(s) is optional and what measurements are required to be taken and recorded.	
a) brake operation	a) a required brake is ***missing*** a brake is ***inoperative***
b) disc (rotor) condition *Note:* Heat checks and some surface cracks on the friction surface are normal. A heat check has a width less than 0.5 mm and a depth less than 1 mm. A surface cracks is at least 0.5 mm wide and 1 mm deep. *Note*: Lateral run-out and parallelism only need to be checked only where there is evidence of a problem.	b) section is broken off or missing crack extends from the friction surface through to the cooling vent any surface crack is longer than 75% of the radial width, within the friction surface any surface crack extends to an outer edge groove or pitted area in rotor that reduces rotor thickness below minimum allowable value contact pattern of the pad on solid rotor material, (i.e.: not rusted) is less than 75% of the radial width, around the entire rotor, on one side lateral run-out or out-of-parallelism exceeds 0.3 mm friction surface of the rotor is contaminated by grease or oil (Also see section 9 item 5 for wheel seal leaks) 0.3 mm = 0.01 in.
c) disc (rotor) thickness *Additional Inspection Procedure(s):* Disc (rotor) thickness must be measured. Measurements must be recorded on inspection report.	c) thickness at any point across the friction surface is less than the minimum indicated on the brake rotor, or ***manufacturer*** specification, or equivalent industry standard, if limit is not available: less than 39.0 mm (+/- 0.05 mm)

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
d) caliper	d) any part is binding, broken, missing, seized, mounted incorrectly, or not equivalent to ***OEM standard*** slide pin/slider or pad slider is binding, ***damaged***, seized, mounted insecurely, or not equivalent to ***OEM standard*** caliper movement within the anchor plate exceeds ***manufacturer*** specification, guide is welded or repaired in a way that does not meet ***OEM standard*** pad retainer is bent, ***damaged***, ***insecure*** or ***missing*** boot or bellows is cracked or deteriorated, ***damaged***, or ***missing***
e) anchor plate	e) ***loose*** or bolt is ***missing***
f) pad condition	f) broken, cracked, ***damaged***, or ***abnormally worn*** friction material is contaminated by oil or grease (Also see section 9 item 5 for wheel seal leaks) rivet ***loose*** on pad, pad ***loose*** on bonded lining, pad is ***missing***, or pad is installed incorrectly
g) pad (friction material) thickness *Additional Inspection Procedure(s):* Pad (friction material) thickness of both inboard and outboard pad must be measured and measurement of the thinnest pad must be recorded on the inspection report. *Note*: Pad (friction material) thickness can be determined by measuring the friction material itself or by measuring the combined thickness of the friction material and pad backing plate, then deducting the thickness of the backing plate. Always record the thickness of the friction material only.	g) **measured friction material thickness is less than *OEM standard* or *industry standard*, or if limit is not available:** bonded friction material thickness is less than 3 mm riveted friction material thickness is less than 5 mm difference between inboard and outboard friction material thickness is greater than amount indicated in ***manufacturer*** service instruction or equivalent industry standard, or if limit is not available: difference is greater than 3 mm 3 mm = 0.12 (1/8) in., 5 mm = 0.20 (3/16) in.
h) clearance between pads and rotor (caliper adjustment)	h) does not meet ***manufacturer*** specifications

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. any part is binding, broken, *missing*, seized, or mounted incorrectly** **ii. a rotor (disc) friction surface shows metal to metal contact with brake pad or severe rusting** **iii. a rotor (disc) has a crack that extends to the hub or through to the vented section** **iv. caliper movement within the anchor plate exceeds 3 mm** **v. any brake component is in a condition where an imminent failure appears likely** **vi. a brake is *inoperative*** **vii. brake pad friction material worn to less than 2 mm or a portion of the friction material is *missing*** **viii. *loose* or *missing* brake chamber or caliper mounting bolt** **ix. friction material of the pad or friction surface of the rotor is contaminated by grease or oil** ***Note:* Also see section 9 item 5 for wheel seal leaks** 2 mm = 0.08 in., 3 mm = 0.12 (1/8) in.
19. Anti-Lock Brake System (ABS) on Truck and Bus *Note*: Every truck and truck-tractor with air brakes manufactured on or after April 1, 2000 must be equipped with ABS. Every towing vehicle with air brakes manufactured on or after March 1, 2001 must be capable of PLC communication with any towed trailer. Every vehicle equipped with ABS that was not mandatory for the vehicle when it was manufactured must have ABS in good working order.	
a) indicator lamp *Additional Inspection Procedure(s):* Cycle the ignition off and on while monitoring the ABS indicator lamp.	a) ***inoperative*** or ***missing*** fails to turn on during bulb-check cycle when ignition is turned on indicates the presence of an active malfunction by staying on after the bulb-check cycle any visual evidence that the system has been tampered with or defeated

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) wiring *Additional Inspection Procedure(s):* Visually inspect accessible portions of the wiring. Inspect all repairs and damaged areas. *Note:* Also see requirement for towing vehicle to supply constant power to trailer for trailer ABS. See Section 7 item 4.	b) ***insecure*** mounting, ***missing***, or connector corroded • conductor is exposed due to damage, improper repair or other condition of wire • connection or repair does not meet ***OEM standard***
c) electronic control unit (ECU)	c) ***missing***, ***insecure*** mounting, connectors corroded
d) relay/ABS modulating valve	d) ***missing***, leaking, ***insecure*** mounting to ECU, abnormal corrosion
e) wheel speed sensor *Note*: Different configurations of sensors and modulators are permitted by ***CMVSS***. Be sure to confirm the ***OEM*** configuration of the ABS before rejecting a vehicle due to missing wheel speed sensors.	e) ***missing***, ***insecure*** mounting, ***inoperative***, connectors corroded
f) PLC communication *Additional Inspection Procedure(s):* Connect the vehicle to a suitable test device or a trailer that has an active ABS malfunction to confirm PLC communication.	f) PLC signal from trailer or test device fails to activate the trailer ABS indicator lamp on instrument panel
	Hazardous Condition(s) **i. any malfunction of the ABS system that prevents normal brake operation**
20. Anti-Lock Brake System (ABS) on Trailer	**NOT APPLICABLE TO TRUCKS**
21. Stability Control System on Truck or Bus *Additional Inspection Procedure(s):* Check the ECU for indication of any fault or malfunction.	
a) indicator lamp	a) **fails to illuminate or lamp remains illuminated **fault or malfunction is indicated
Additional Inspection Procedure(s): Cycle the ignition off and on while monitoring the indicator lamp.	*Note*: Each of the conditions above marked with a double asterisk (**) are to be recorded on the inspection report, however a vehicle is not rejected for this condition alone.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) operation	b) any visual evidence that the system has been tampered with or defeated (see note below) *Note*: The condition above is to be recorded on the inspection report, however a vehicle is not rejected for this condition alone.
22. Stability Control System (Electronic Stability Control [ESC] or Roll Stability System [RSS]) on Trailer	**NOT APPLICABLE TO TRUCKS**
23. Brake Performance *Optional Additional Inspection Procedure(s):* These test methods can be used when one of the following types of performance-based brake tester (PBBT) is available. Test equipment must be calibrated and used according to ***manufacturer*** instructions. Testing a brake with non-burnished friction material may produce inconsistent test results.	*Note*: Rated wheel weight = one-half of GAWR.
a) service brake force – using a roller-type performance-based brake tester (PBBT) *Optional Additional Inspection Procedure(s):* Determine the maximum service brake force at each wheel by slowly applying the service brake pedal and increasing the pedal force until the tester terminates the test, or brake force reaches its maximum value.	a) service brake fails to lock the wheel and the maximum service brake force is less than 40% of the rated wheel weight service brake force on one side of the axle is less than 70% of the service brake force on the other side, at the point in time just prior to first wheel lockup, or test termination, whichever occurs first
b) parking brake output force – using a roller type brake tester *Optional Additional Inspection Procedure(s):* For wheels equipped with spring-brake type chambers used for parking. Determine the maximum parking force at each wheel by fully applying the parking brake control until the tester terminates the test, or parking brake force reaches it maximum value.	b) parking brake fails to lock the wheel and the maximum parking brake force is less than 20% of rated wheel weight parking brake force on one side of the axle is less than 50% of the force on the other side, at the point in time just prior to first wheel lockup, or test termination, whichever occurs first

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

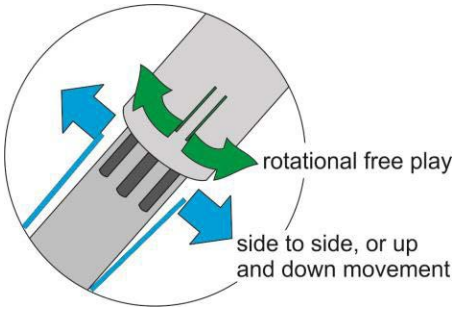
ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) rolling resistance force – using a roller-type performance-based brake tester (PBBT) *Optional Additional Inspection Procedure(s):* Determine average rolling resistance force of each wheel, with the brakes fully released, for one full revolution of the wheel. Discount the initial spike at start-up of the rolls.	c) average rolling resistance force of a wheel is greater than 6% of the weight of the wheel imparted on the test device
d) required brake force or stopping distance – using a decelerometer *Optional Additional Inspection Procedure(s):* Test vehicle stopping ability in a suitable area following the instructions provided by the manufacturer/supplier of the test device.	d) deceleration is below the requirement of the relevant jurisdiction balance of brake force between left and right side fails to comply with the requirement of the relevant jurisdiction *Note*: Brake force balance (left and right) cannot be measured with all types of decelerometers.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 4 – Steering

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Steering Control and Linkage *Additional Inspection Procedure(s):* Check the steering components listed below using tools and methods according to ***manufacturer*** service instructions.	
a) steering box or rack and pinion unit	a) ***loose*** or ***insecure*** mounting, mounting bolt ***loose*** or ***missing*** housing broken, cracked, or ***level 2 leak*** of oil or fluid
b) bellow, clamp and boot	b) ***insecure***, ***missing***, split or torn clamp ***missing***
c) tie rod	c) bent, broken, cracked or welded, or repaired in a way that does not meet ***OEM standard***
d) tie rod end, drag link and ball and socket joint	d) bent, ***insecure***, ***loose*** or worn threads stripped or repaired a ball and socket joint is worn beyond ***manufacturer*** specifications ***damaged***, welded or repaired in a way that does not meet ***OEM standard*** part is used that does not meet ***OEM standard***
e) pitman arm	e) bent, ***damaged***, ***insecure*** or ***loose*** on spline ***repaired by welding***
f) ball-joint in upper or lower control arm	f) ***loose*** in knuckle or control arm wear exceeds limit shown by wear-indicator, ***OEM standard*** limit or ***industry standard*** limit, or is injected with repair material ***insecure*** or ***loose*** improper or ***loose*** retainer
g) cotter pin or similar retaining device	g) ***missing***, or deficient part is used that does not meet ***OEM standard***
h) steering dampener	h) ***inoperative*** or ***missing*** ***level 2 leak*** of dampener fluid

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
i) steering column	i) ***insecure*** mounting or ***loose*** mounting fastener ***loose*** or ***missing***
j) telescopic/tilt steering *Additional Inspection Procedure(s):* Check the operation of locking device(s). With unit locked, grasp the steering column and attempt to move it horizontally and vertically on its mounts.	j) movement exceeds ***manufacturer*** specification, or when specification is not available, is greater than 6 mm
k) steering shaft universal joint and yoke	k) binding, ***loose***, seized, welded or repaired in a way that does not meet ***OEM standard*** clamp bolt ***loose*** or ***missing***, or spline ***loose*** or stripped
l) steering column slip joint *Additional Inspection Procedure(s):* Grasp the sections of the slip joint and check rotational free play by twisting in opposite directions. Then check the total side to side, or up and down movement of the slip joint perpendicular to the line of rotation.	l) rotational free play between splines exceeds 1.0 mm total side to side, or up and down movement exceeds 6 mm 
m) adjusting sleeve	m) bent, ***loose*** or welded or repaired in a way that does not meet ***OEM standard*** tightening bolt is in a position that interferes with normal steering
n) remote (right hand) steering control	*Note*: Inspect as described in Section 5 - Instruments and Auxiliary Equipment

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. any crack, modification or other condition that interferes with free movement of any steering component, or repair that does not meet *OEM standard*** **Steering Box or Rack & Pinion Unit** **ii. cracked, *loose* or *insecure* mounting, mounting bolt *loose* or *missing* or has been repaired in way, (e.g.: welded) that does not meet *OEM standard*** **Steering Linkage** **iii. any ball and socket joint has looseness in line with the shank or neck of the ball greater than *manufacturer* specification, or when specification is not available, greater than 3.0 mm** **iv. the socket of a ball and socket joint is injected with any repair material, or a ball and socket joint has been repaired in way, (e.g.: welded) that does not meet *OEM standard*** **v. pitman arm is *loose* on steering gear output shaft spline or has been repaired in way, (e.g.: welded) that does not meet *OEM standard*** **vi. any nut is *loose* or *missing*** **vii. *loose* clamp, clamp bolt or nut on tie rod, drag link, pitman arm, or steering arm** **viii. any looseness in any threaded joint** **Steering Column and Related Parts** **ix. adjusting sleeve is *loose* or *insecure*** **x. *loose* or *insecure* mounting, mounting bolt *loose* or *missing*** **xi. column fails to lock into position** **xii. a universal joint has been repaired in way, (e.g.: welded) that does not meet *OEM standard*** **xiii. any looseness of the yoke-coupling at the steering gear input shaft**
2. Power Steering System (Hydraulic and Electric) *Additional Inspection Procedure(s):* Inspect the power steering components with the engine stopped. Then with engine running, turn wheels fully to the left and right and check system operation.	
a) fluid	a) below indicated minimum level or fluid is contaminated

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) belt	*Note:* Inspect drive belt according to Section 1. Power Train, Item 10. Engine or Accessory Drive Belt.
c) hose	c) cracked, worn by or is in contact with moving parts distance to exhaust system component is less than 25 mm ***level 2 leak*** of power steering fluid
d) pump	d) ***inoperative***, ***insecure*** mounting, or ***loose*** ***level 2 leak*** of power steering fluid
e) cylinder	e) ***inoperative***, ***insecure*** mounting, or ***loose*** ***level 2 leak*** of power steering fluid
f) mounting bracket	f) broken, cracked or ***loose*** bolt ***loose*** or ***missing***
g) assist	g) does not ***operate as intended*** (i.e.: power-assist provided is noticeably reduced requiring more than normal steering effort to turn the wheels left or right)
	Hazardous Condition(s) **i. power steering does not *operate as intended*** **ii. any steering component is in a condition where imminent failure appears likely** **iii. *level 3 leak* of power steering fluid** **iv. auxiliary power assist cylinder is *loose***
3. Steering Operation (Active Steer Axle) *Note:* An active steer axle is one that is directly controlled by the steering wheel. Check steering operation after inspecting steering control and linkage, and checking power steering as described above.	
a) steering wheel	a) broken, ***damaged***, ***loose*** on spline or modified diameter is not ***OEM*** or equivalent
b) rotation and travel *Additional Inspection Procedure(s):* Turn wheels fully to the left and right and check system operation.	b) binds or jams during rotation number of rotations from centre to full left does not equal the number of rotations from centre to full right, +/- ½ turn

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) steering lash or free-play *Additional Inspection Procedure(s):* Check vehicle having power steering with engine running. Measure lash or free-play beginning with wheels in straight-ahead position. Then turn steering wheel just until turning motion can be observed at the front wheels. Mark rim of steering wheel and turn the steering wheel in the opposite direction until motion can just be observed. Measure the distance of steering wheel rotation that does not cause turning of the wheels.	c) steering lash or free-play is greater than the distance shown below **Maximum permissible lash (free play) for power steering system** steering wheel diameter of 500 mm & less: 75 mm steering wheel diameter over 500 mm: 87 mm **Maximum permissible lash (free play) for manual steering system** steering wheel diameter of 500 mm & less: 87 mm steering wheel diameter over 500 mm: 100 mm
d) tire clearance	d) space between tire and frame, fender or other vehicle part is less than 25 mm at any point in turn
e) steering stop	e) improperly adjusted or ***missing***
	Hazardous Condition(s) **i. steering binds or jams during rotation** **ii. steering lash or free-play is greater than the distance shown below:** **power steering system** **steering wheel diameter of 500 mm & less:** 87 mm **steering wheel diameter over 500 mm:** 100 mm **manual steering system** **steering wheel diameter of 500 mm & less:** 140 mm **steering wheel diameter over 500 mm:** 196 mm
4. Kingpin *Additional Inspection Procedure(s):* Raise the axle to unload the kingpin. Turn the wheels through a full right and left turn.	
a) lateral movement *Additional Inspection Procedure(s):* Rock the wheel in and out, by hand or using a bar, to check for kingpin movement. Measure lateral movement at the outer edge of the tire. Use a dial gauge if necessary.	a) **not within *manufacturer* specification or when *manufacturer* specification is not available:** • for wheels under 20 in.: lateral movement is more than 3 mm • for wheels 20 in. or larger: lateral movement is more than 5 mm

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) vertical movement *Additional Inspection Procedure(s):* Place a bar under the tire and check for vertical movement between spindle support and axle. Use a dial gauge if necessary.	b) not within ***manufacturer*** specification or when ***manufacturer*** specification is not available, greater than 2.5 mm
c) condition	c) binding or jamming is detected while turning wheel
	Hazardous Condition(s) **i. binding or jamming caused by the kingpin or thrust bearings**
5. Self-Steer and Controlled-Steer Axle *Note*: These are passive steer axles. A passive steer axle responds only to lateral force to turn wheels. The suspension components on a self-steer or controlled steer axle must be inspected according to Section 2, items 1-4. The steering components must be inspected according to items 1 & 4 above. *Additional inspection procedure(s):* Additional items may require inspection than those listed below. Refer to ***manufacturer*** service instructions related to the particular axle - for items in addition to those listed below - that are required to be inspected as part of a periodic safety inspection.	
a) operation *Additional Inspection Procedure(s):* Raise the vehicle and turn the wheels through a full right and left turn.	a) binding or jamming is detected while turning wheels
b) clearance	b) there is less than 25 mm between the tire and frame, fender or other vehicle part
c) steering stop	c) ***missing*** or not adjusted properly
d) air pressure regulator	d) ***inoperative*** or ***missing***
e) pressure gauge	e) inaccurate, ***inoperative*** or ***missing*** not equipped with legible instruction indicating the minimum centering force pressure requirement

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
f) operating instruction label	f) not equipped with legible instruction indicating safe operation (such as: stating the speed at which the axle locks)
	Hazardous Condition(s) **i. cracked, *loose* or *insecure* mounting, mounting bolt *missing* or *loose*, or has been repaired in way that does not meet *OEM standard*** **ii. steering locks in any position except centred** ***Note:*** **Also see Hazardous Conditions for items 1 to 4 in this section above**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 5 - Instruments & Auxiliary Equipment

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Fire Extinguisher	
a) presence and type *Note:* Fire extinguisher requirements vary by jurisdiction. Inspection must be conducted according to the ***applicable requirements***.	a) ***missing*** or incorrect type not in a quick-release holder within reach of driver not F.M., U.L. or U.L.C. approved and labelled ***missing*** on a vehicle required to meet ***CSA*** B620, D409, D435 or D436 standards
b) condition *Additional Inspection Procedure(s):* Check mounting security. Remove unit from holder and shake contents.	b) ***insecure*** or ***loose*** seal is broken or gauge shows less than minimum charge no movement of chemical is detected when unit is shaken nozzle or hose is clogged, defective or ***missing*** safety pin is ***missing***
2. Hazard Warning Kit *Note:* Hazard warning kit requirements vary by jurisdiction. Inspection must be conducted according to the ***applicable requirement***s.	
a) presence and type	a) ***missing*** on a vehicle wider than 2.05 m incorrect type where triangle reflectors are required; they are broken, ***damaged*** and ***inoperative***, ***missing*** or ***insecure*** mounting
3.Horn *Additional Inspection Procedure(s):* Test horn operation. *Note:* Every vehicle must have at least one operating horn.	
a) operation	a) ***inoperative*** or not clearly audible
b) control	b) not identified and readily accessible to the driver does not function as intended not a pressure-type switch

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
4. Instruments and Gauges on a Bus	**NOT APPLICABLE TO TRUCKS**
5. Speedometer	
a) operation	a) ***inoperative*** or ***missing*** not clearly visible from the primary driving position
6. Odometer	
a) operation *Note:* ***OEM*** odometer must be operative. A functional test is not required.	a) ***inoperative*** or ***missing***
7. Windshield Wiper/Washer	
a) operation *Additional Inspection Procedure(s):* Confirm that the windshield wipers and control operate in all modes and positions.	a) fail to operate properly in any speed or position fail to park
b) wiper blade	b) hardened, ***missing*** or torn swept area is less than ***OEM*** wiper blades fails to contact windshield properly
c) wiper arm	c) bent, broken or ***missing***
d) windshield washer *Additional Inspection Procedure(s):* Test the operation of the windshield washer and control.	d) ***inoperative*** or ***missing*** fails to direct sufficient washer fluid at correct position on windshield
	Hazardous Condition(s) **i. wiper on the driver's side is *inoperative*, *missing*, or has damage that renders it ineffective**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
8. Heater & Windshield Defroster	
a) operation *Additional Inspection Procedure(s):* Test the operation of the heater/defroster and control in all operating modes and positions.	a) ***inoperative*** at any setting low air flow or fails to deliver heated air
b) heater core	b) ***level 2 leak*** of coolant
9. Fuel-burning Auxiliary Heater	
a) condition *Additional Inspection Procedure(s):* Inspect the exhaust system and fuel system, according to the appropriate type of fuel used, as described in Section 1.	a) ***insecure*** or ***loose***
10. Chain/ "Headache" Rack	
a) condition	a) ***insecure*** or ***loose***, mounting fastener ***loose*** or ***missing*** broken or weld cracked
11. Auxiliary Controls and Devices	
Note: This includes equipment that is primarily inside a vehicle and includes controls for devices such as: PTO, wet lines, tarp systems, vehicle-mounted lifting and transporting devices, snow plow, dump box, front- mount hydraulic pump, roll-on roll-off, packer, etc.	
a) condition *Additional Inspection Procedure(s):* Check security of controls and devices visually, manually and using suitable tools as necessary. No functional test is to be conducted.	a) device is in such an unsafe condition that could be a risk to the driver or a passenger device is ***insecure*** or ***loose***, or in danger of shifting in a way that could impede normal operation of the vehicle ***level 2 leak*** of oil or other operating fluid
	Hazardous Condition(s) **i. control or device is in such an unsafe condition that is an imminent risk to the driver or a passenger** **ii. control or device is *insecure* or *loose*, or in imminent danger of shifting in a way that impedes normal operation of the vehicle**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
12. Auxiliary Drive Controls *Additional Inspection Procedure(s):* Inspect according to ***manufacturer*** service and safety instructions. When such instruction is not available, inspect and test auxiliary drive control devices according to the relevant steering, brake and power train items, and the relevant additional items below.	
a) auxiliary steering station *Note:* An auxiliary steering station normally uses a "tee type" gear box at the primary steering station and a "90-degree type" gear box at the secondary steering station(s).	a) gear box is ***insecure*** or ***loose*** connecting shaft or u-joint is ***loose***, or u-joint is out of phase lash (free play) is greater at the auxiliary station than at the main steering wheel
b) auxiliary brake control	b) any service or parking brake control fails to ***operate as intended*** two-way check valve is leaking or ***inoperative***
c) auxiliary lamp control	c) any lamp control at the auxiliary control position fails to ***operate as intended***, or interferes with any other normal lamp operation
d) auxiliary throttle control	d) throttle control fails to ***operate as intended***
13. On-board Auxiliary Equipment on a Bus	**NOT APPLICABLE TO TRUCKS**
14. First Aid Kit on a Bus	**NOT APPLICABLE TO TRUCKS**
15. Accessibility Features and Equipment on a Bus	**NOT APPLICABLE TO TRUCKS**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 6 – Lamps

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Required Lamps	
a) operation of all required lamps *Note*: See (page 85 to 87) for details on CMVSS 108 requirements for lamps, lamp location and colour. *Additional Inspection Procedure(s):* Test the operation of all required lamps, lamp switches and controls, and lamp indicators.	a) fails to illuminate fully and correctly in response to the switch or control fails to turn off in response to the switch or control broken, cracked, ***insecure*** mounting or ***missing***, lens is clouded or reduces transmission of light is not clearly visible or is covered in any manner does not meet ***CMVSS***, DOT or SAE standards 25% or more of LEDs of any one lamp assembly are ***inoperative***
b) headlamp *Note*: This applies to truck and bus only. "HID" = high-intensity discharge lamp	b) broken, cracked, ***inoperative*** or ***missing*** moisture is present inside the lamp assembly headlamp beam pattern is not directed toward right hand side of roadway *Note:* A crack is acceptable in a lamp assembly with a replaceable bulb if no moisture is present inside the lamp assembly. a non-functional diode in LED headlamp HID bulb is installed in an incandescent headlamp housing HID assembly does not display either HG, DC, DR or DCR codes headlamp switch, or beam (high and low) selector, is broken, ***inoperative***, ***missing***, does not meet ***OEM standard*** high beam indicator lamp on instrument panel is ***inoperative*** vehicle modification or installation of lamp causes headlamp to be higher or lower than permitted by ***CMVSS*** 108 (see page 85 to 87) **the headlamps fail to meet any of the following requirements:** • two or four facing front as far apart as practical • white (correlated color temperature (CCT) rating of 2854K-5000K) • illuminate correctly when operated by headlamp control on high and low beam

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) tail lamp	c) broken, cracked, ***inoperative*** or ***missing*** vehicle modification or installation of lamp causes tail lamp to be higher or lower than permitted by ***CMVSS*** 108 **the tail lamps fail to meet any of the following requirements:** • minimum of two lamps facing the rear, located at rear of vehicle and as far apart as practical, red in colour • illuminate correctly when operated by headlamp control
d) stop (brake) lamp	d) broken, cracked, ***inoperative*** or ***missing*** **the stop lamps fail to meet any of the following requirements:** • minimum of two lamps facing the rear, located at rear of vehicle and as far apart as practical, red in colour • illuminate correctly when service brakes are applied
e) centre high mount stop lamp *Note:* Required on every truck with a width under 2.05 m, and GVWR of 4,536 kg and less, built after January 10, 1997.	e) broken, cracked, ***inoperative*** or ***missing*** **the centre high mount stop lamp fails to meet any of the following requirements:** • facing rear of vehicle • red in colour, illuminates correctly when service brakes are applied
f) turn signal lamp	f) broken, cracked, ***inoperative*** or ***missing*** control is broken, ***inoperative*** or ***missing*** control fails to hold selected position on a vehicle less than 2.05 m wide, control fails to cancel automatically when steering returns to centre turn signal indicator lamp on instrument panel is ***inoperative*** **the turn signal lamps fail to meet any of the following requirements:** • minimum of two facing the front, as far apart as practical, amber in colour • minimum of two facing the rear, as far apart as practical, amber or red in colour • illuminate correctly when operated by turn signal control

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
g) hazard warning lamp *Note:* Can operate same lamps as turn signals.	g) broken, cracked, ***inoperative*** or ***missing*** control is broken, ***inoperative*** or ***missing*** hazard warning indicator lamp on instrument panel is ***inoperative*** **the hazard warning lamps fail to meet any of the following requirements:** • minimum of two facing the front, as far apart as practical, amber in colour • minimum of two facing the rear, as far apart as practical, amber or red in colour • illuminate correctly and flash simultaneously when operated by hazard warning control
h) side marker lamp *Note:* A single lamp may serve as both a side marker and a clearance lamp, provided it is clearly visible from both the side and the rear. Vehicles 9.1 m or more in length require amber intermediate lamps. Intermediate side marker lamps are not required on vehicles less than 9.1 m in length.	h) broken, cracked, ***inoperative*** or ***missing*** amber intermediate side marker lamps are ***inoperative*** or ***missing*** on a vehicle over 9.1 m in length **the side marker lamps fail to meet any of the following requirements:** • minimum of four in total, two at the rear and two at the front, facing the side, • located as close to corners as practical • front are amber in colour • rear are red in colour
i) clearance lamp *Note:* Clearance lamps are required at the front and rear on all vehicles 2.05 m or more in width. Rear clearance lamps are not required on truck-tractors.	i) broken, cracked, ***inoperative*** or ***missing*** **the clearance lamps fail to meet any of the following requirements:** • minimum of four in total, located as far apart as practical at the widest point of the vehicle • two facing the front, as high as practical, amber in colour • two facing the rear, red in colour
j) identification lamp *Note:* Identification lamps are required at the front and rear on all vehicles 2.05 m or more in width, except as noted below. Rear identification lamps are not required on truck- tractors.	j) broken, cracked, ***inoperative*** or ***missing*** **the identification lamps fail to meet any of the following requirements:** • minimum of six in total • three facing the front, amber in colour • three facing the rear, red in colour

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
k) back up lamp *Note:* Back up lamps are required on all trucks, truck-tractors and buses manufactured after January 1, 1971.	k) broken, cracked, ***inoperative*** or ***missing*** not white in colour or not located at rear fail to illuminate with engine running and transmission in reverse gear
l) licence plate lamp *Note:* A licence lamp may not be required in cases where no licence plate is required to be displayed.	l) broken, cracked, ***inoperative*** or ***missing*** not white, fails to illuminate licence plate
m) daytime running lamp *Note:* Required on all trucks manufactured after December 1, 1989.	m) broken, cracked, ***inoperative*** or ***missing*** **the daytime running lamps fail to meet any of the following requirements:** • located on front of vehicle • white or yellow in colour • operate continually when engine is operating and master lighting switch is not in the "ON" position
n) fog lamp *Note:* These are not required lamps, unless specifically required by a particular jurisdiction. Fog lamps must comply with these requirements if the lamps are operational.	**n) the fog lamps fail to meet any of the following requirements:** • lens designation is "F" • located on front and/or rear of vehicle • white or amber in colour on front, red in colour on rear • illuminate correctly and only when headlamp control is switched to low beam
o) high beam driving lamp *Note:* These are not required lamps, unless specifically required by a particular jurisdiction. Driving lamps must comply with these requirements if the lamps are operational.	**o) the high beam driving lamps fail to meet any of the following requirements:** • lens designation "Y" • located on front of vehicle • white in colour • illuminate correctly and only when headlamp control is switched to high beam

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
p) low beam driving lamp *Note:* These are not required lamps, unless specifically required by a particular jurisdiction. Driving lamps must comply with these requirements if the lamps are operational.	p) **the low beam driving lamps fail to meet any of the following requirements:** • lens designation "Y" • located on front of vehicle • white in colour • illuminate correctly and only when headlamp control is switched to low beam
q) special equipment lamp *Note:* Some jurisdictions require or prohibit certain lamps in certain operations. Inspector must be familiar with the ***applicable requirements***.	q) a lamp required for vocational or specialized operation is ***inoperative*** or ***missing*** a lamp that is prohibited by the ***applicable requirements*** installed a lamp that is required to be covered when not in use, has no cover
	Hazardous Condition(s) **i. not at least one head lamp is operative on a power unit** **ii. not at least one tail lamp is operative on the rear visible from 150 m** **iii. not at least one stop lamp is operative on the vehicle visible from 150 m** **iv. not at least one turn signal lamp is operative on each side at the rear, visible from 150 m** **v. not at least one turn signal lamp is operative on each side at the front, visible from 150 m** **vi. any required lamp is *inoperative* or obstructed during times when the lamp is required**
2. Reflex Reflector *Note:* A lamp's lens may also function as a reflex reflector.	
a) required reflectors *Note:* See (page 85 to 87) for details on ***CMVSS*** 108 requirements for reflex reflector location and colour.	a) any required reflex reflector, or part of a reflex reflector, is broken, ***missing***, obscured or not clearly visible not labelled to show compliance with ***CMVSS***, DOT or SAE standards
b) rear reflector	b) **rear reflectors fail to meet any of the following requirements:** minimum of two, located as far apart as practical, red in colour, between 380 and 1530 mm from centre of reflector to the ground

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) front and rear side, and intermediate reflex reflector *Note:* Amber intermediate reflectors are required on all vehicles over 9.1 m in length.	c) amber intermediate reflex reflector is ***missing*** on a vehicle over 9.1 m in length **front and rear reflex reflectors fail to meet any of the following requirements:** • minimum of four in total, located as far apart as practical, between 380 and 1530 mm from centre of reflector to the ground • two at the front, amber in colour • two at the rear, red in colour
3. Retro-Reflective Marking *Note:* Required on all truck-tractors manufactured after November 19, 2001. See pages 85 to 87 for details on ***CMVSS*** 108 requirements for retro-reflective markings.	
a) presence	a) any required section is ***missing***
b) type/markings	b) consist of anything other than alternating red and white retro-reflective sheeting that is marked DOT- C2 (50 mm wide), DOT-C3 (75 mm wide) or DOT-C4 (100 mm wide)
c) condition	c) peeling off or reflective properties are compromised on an area exceeding 77 cm^2 (12 in.2) of the entire surface of the required reflective material *Note:* On 50 mm wide material, this means a total length of 15 cm having some loss of reflective property.
d) location and type	d) retro-reflective markings fail to meet the requirements of ***CMVSS*** 108 as shown on pages 85 to 87.
e) location of retro-reflective material voluntarily applied to straight truck *Note:* Having the retro-reflective material too close to a lamp makes it more difficult to see the lamp.	e) red coloured retro-reflective marking is located closer than 75 mm to the edge of the lens of any amber lamp white coloured retro-reflective marking is located closer than 75 mm to the edge of the lens of any lamp

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. more than 50% of retro-reflective material of any required section is compromised or *missing***
4. Instrument Panel Lamp	
a) operation *Note:* Inspect according to ***OEM*** vehicle design. Minor loss of illumination of some parts of the instrument panel is not cause for rejecting a vehicle. Illumination is required on the speedometer, and the vehicle operating status gauges required by this standard, and originally illuminated by the ***OEM***.	a) ***inoperative*** or no illumination is provided on required instrument or gauge
5. Headlamp Aim	
a) aim *Additional Inspection Procedure(s):* Check headlamp aim using an aiming screen or using equipment specifically designed for such use, following the equipment ***manufacturer*** instructions. *Note*: Headlamp aim must be checked when vehicle is unloaded.	a) not within ***manufacturer*** specification, or when specification is not available, when positioned 7.6 m from aiming screen does not comply with the requirements below **for low beam lens marked as type 2:** • left edge of beam must be within 100 mm left or right of straight ahead • top edge of beam must not be above, and no more than 100 mm below the horizontal line **for high beam lens marked as type 1 and any unmarked lens:** • centre of beam must not be above, and no more than 100 mm below the horizontal line • centre of beam must be no more than 100 mm left or right of straight ahead
b) headlamp aim adjusters	b) broken, ***inoperative***, ***insecure*** mounting or ***missing***

Visual Screen Method of Headlamp Aiming–Setting Up an Aiming Screen

A. Aiming Area Required

It is desirable to have a specific aiming area in a darkened location. This should be sufficient for the vehicle plus an additional 7.6 m measured from face of lamps to the front of the visual screen.

The floor on which the motor vehicle rests must be flat and level with the bottom of the screen.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
B. Aiming Screen If a regular commercial aiming screen is not available, the screen may consist of a vertical wall having a clear uninterrupted area approximately 1.8 m high and 3.6 m wide. The surface should be finished with washable non-gloss white paint. Adjustable black tapes should be provided for use as guidelines. After the aiming screen has been set up in its permanent location, it is necessary to paint a reference line on the floor directly under the lens of the lamps to indicate the proper location of the headlamps when they are being aimed. This reference line should be parallel to the aiming screen and exactly 7.6 m from it.	
	Hazardous Condition(s) **i. aiming of headlamp is so severely out of alignment that it is likely to impair the vision of the driver or other motorists**
6. Interior Lamps on a Bus	**NOT APPLICABLE TO TRUCKS**
7. School Bus Additional Lamps	**NOT APPLICABLE TO TRUCKS**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

IMPORTANT NOTE: Every lamp, reflex reflector, and conspicuity treatment must be permanently attached in the location specified below and must comply with all applicable requirements prescribed for it by FMVSS/CMVSS 108. The face of any device on the front/rear and sides should be, respectively perpendicular and parallel to the vehicle's centerline, unless it is photometrically certified at installation angle. No part of the vehicle shall prevent any device from meeting its prescribed requirements unless an auxiliary device meeting all prescribed requirements is installed.

IN CANADA: Manufacturers and importers of vehicles must have the proper certification test records demonstrating compliance of lighting components with all prescribed requirements.

BASIC EQUIPMENT REQUIRED ON ALL TRUCKS, BUSES & MPVs

DESCRIPTION				MANDATORY REQUIREMENTS			
Area	Equipment	SAE Lens Coding	Functional Purpose	Quantity	Color	Location	Height mm(in.) from the ground
1	Headlamps - Lower Beam US requires "DOT" lettering on lens US&Canada - light source code required on lens	(H, HR)	Forward road illumination	Minimum 2	White	On the front - symmetrical as far apart as practicable If 4 lamp system - outboard or above upper beams	560-1370 (22-54)
	Headlamps - Upper Beam US requires "DOT" lettering on lens US&Canada - light source code required on lens	(H, HR)	Forward road illumination	Minimum 2	White	On the front - symmetrical If 4 lamp system - inboard or below lower beams	560-1370 (22-54)
	Parking Lamps Vehicles less than 2032mm wide	(P)	Indicate parked vehicle	Minimum 2	White or amber	On the front - symmetrical as far apart as practicable	380-1830 (15-72)
	Daytime Running Lamps (DRL) Canada - required / US - option US requires "DRL" lettering on lens if not headlamp	(Y2)	Indicate in use vehicle	Minimum 2	White or amber	On the front - symmetrical as far apart as practicable	380 (15) min. Max. depends on type of DRL
	Front Turn Signal/ Hazard Warning Lamps	(I)	Indicate direction of turn/ identify disabled vehicle	Minimum 2	Amber	On the front- symmetrical as far apart as practicable	380-2110 (15-83)
2	Front Clearance Lamps Vehicles 2032mm wide or wider *photometrically certified at installation angle	(P2, PC* or P3, PC2*)	Show vehicle's width	Minimum 2	Amber	At widest point - symmetrical on the front or near the front facing forward	As high as practicable
3	Front Identification Lamps (ID) Vehicles 2032mm wide or wider	(P2 or P3)	Indicate presence of a wide vehicle	Exactly 3	Amber	On the front - center horizontally spaced 150 mm (6 in.) to 300 mm (12 in.) apart	As high as practicable or on top of the cab
4a	Front Side Marker Lamps *photometrically certified at installation angle	(P2, PC* P3, PC2*)	Front and rear side marker lamps / side reflex reflectors indicate vehicle's presence and length	Minimum 2	Amber	Each side at front as far forward as practicable	380 (15) minimum
4b	Front Side Reflex Reflectors	(A)		Minimum 2	Amber	Each side at front as far forward as practicable facing sideward	380-1530 (15-60)
5a	Rear Side Marker Lamps ** *photometrically certified at installation angle	(P2, PC* or P3, PC2*)		Minimum 2	Red	Each side at rear as far back as practicable	380 (15) minimum
5b	Rear Side Reflex Reflectors ** **not required on Truck Tractors	(A)		Minimum 2	Red	Each side at rear as far back as practicable facing sideward	380-1530 (15-60)
6	Rear Clearance Lamps Vehicles 2032mm wide or wider Not required on Truck Tractors *photometrically certified at installation angle	(P2, PC* or P3, PC2*)	Show vehicle's width MAY NOT be combined with tail lamps	Minimum 2	Red	At widest point - symmetrical on the rear or near the rear facing rearward	As high as practicable may be lower only if rear ID lamps are at the top
7	Rear Identification (ID) Lamps Vehicles 2032mm wide or wider Not required on Truck Tractors	(P2 or P3)	Indicate presence of a wide vehicle	Exactly 3	Red	On the rear - center horizontally spaced 150mm (6 in.) to 300mm (12 in.) apart facing rearward	At the top may be lower if door header narrower than 25mm
8	Tail Lamps	(T)	Indicate vehicle's presence and width	Minimum 2	Red	On the rear - symmetrical as far apart as practicable	380-1830 (15-72)
	Stop Lamps	(S)	Indicate braking	Minimum 2	Red	On the rear - symmetrical as far apart as practicable	380-1830 (15-72)
	Rear Turn Signal/ Hazard Warning Lamps	(I)	Indicate direction of turn/ identify disabled vehicle	Minimum 2	Red or amber	On the rear - symmetrical as far apart as practicable	380-2110 (15-83)
	Rear Reflex Reflectors	(A)	Show vehicle's presence and width	Minimum 2	Red	On the rear - symmetrical as far apart as practicable	380-1530 (15-60)
9	Backup Lamp	(R)	Illuminates ground behind the vehicle and alert road users	Minimum 1	White	Rear	No requirement
10	License Plate Lamp(s)	(L)	Illuminates license plate	Minimum 1	White	On the rear - above or at the sides of license plate	No requirement
11	Center High Mounted Stop Lamp Vehicles less than 2032mm wide and 4536kg	(U3)	Indicates braking	1	Red	On the rear - centerline of the vehicle	860 (34) minimum

ADDITIONAL EQUIPMENT FOR SPECIFIC VEHICLES

VEHICLES 9.1m (30 ft.) LONG OR LONGER

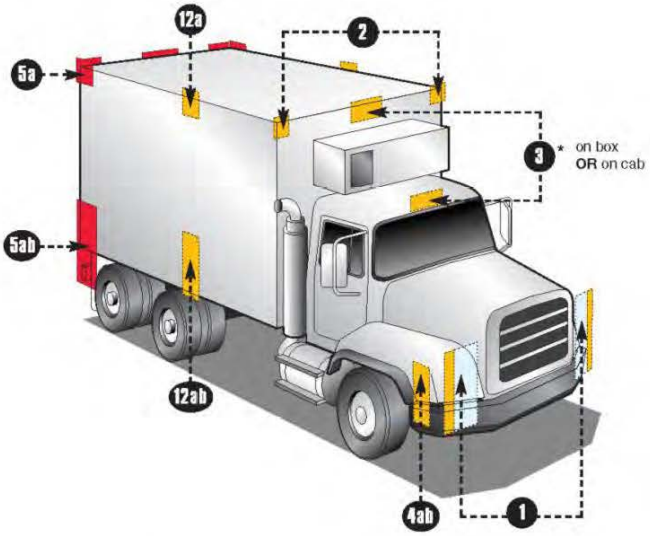
DESCRIPTION				MANDATORY REQUIREMENTS			
Area	Equipment	SAE Lens Coding	Functional Purpose	Quantity	Color	Location	Height mm(in.) from the ground
12a	Intermediate Side Marker Lamps	(P2 or P3)	Indicate presence of a long vehicle	Minimum 2	Amber	Each side near center	380 (15) minimum
12b	Intermediate Side Reflex Reflectors	(A)	Indicate presence of a long vehicle	Minimum 2	Amber	Each side near center facing sideward	380-1530 (15-60)

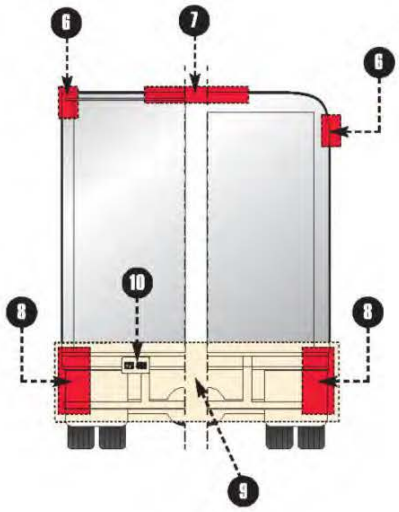
Truck Tractors

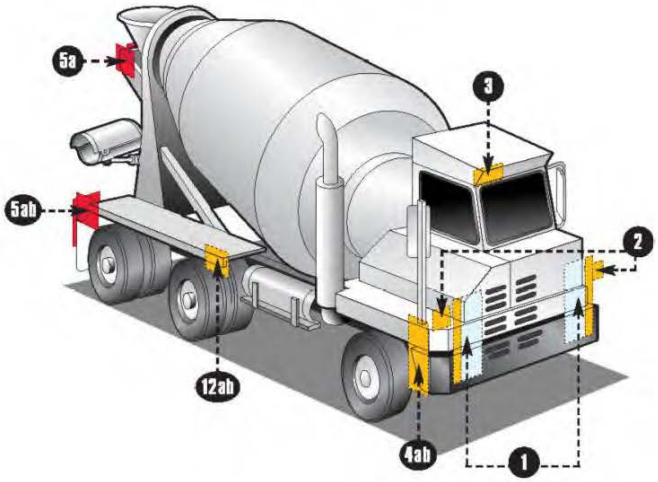
DESCRIPTION		MANDATORY REQUIREMENTS					
Area	Conspicuity Treatment	DOT Coding	Quantity	Color	Location	Height	Options
13	Rear Upper Body Markings	DOT-C DOT-C2 DOT-C3 DOT-C4	Exactly 2 pairs of 300mm long strips	White	Rear upper corners of cab facing rearward	As high as practicable excluding fairings	
14	Rear Marking		Exactly 2 sections of min. 600mm each	Red/ White	Rear - facing rearward - on fenders, on mud flap brackets, or within 300mm below the top of mud flaps	As horizontal as practicable and not higher than 1525mm from the ground	If mud flaps not used - on the cab or frame mounted brackets

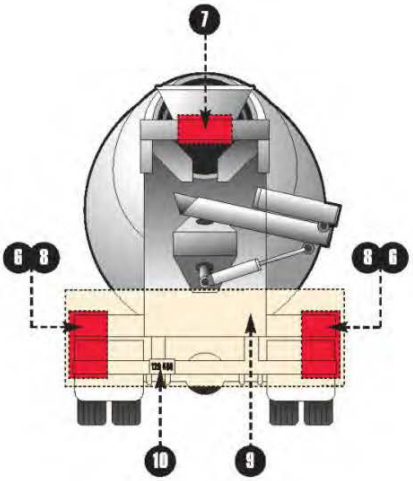
NOTE: The edge of red conspicuity tape shall not be closer than 75 mm to the edge of any amber lamp and the edge of white conspicuity tape shall not be closer than 75 mm to the edge of any lamp

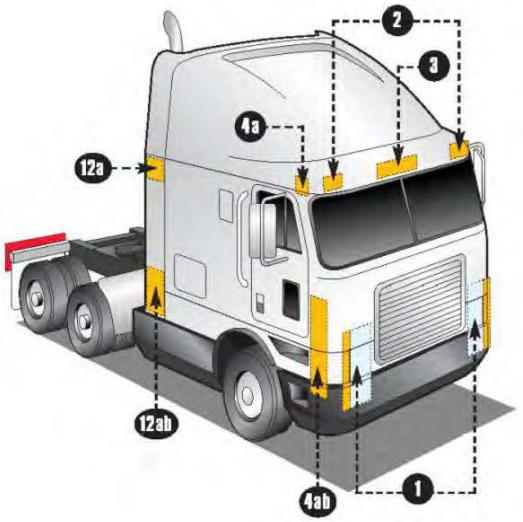
Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

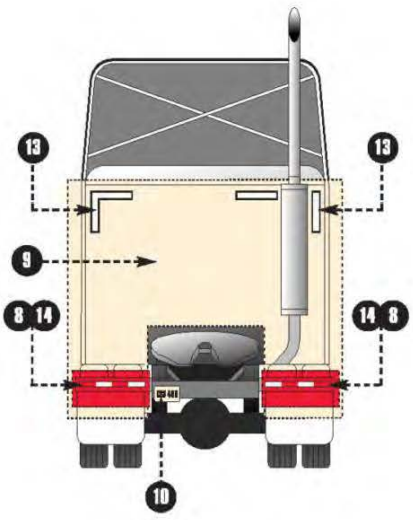




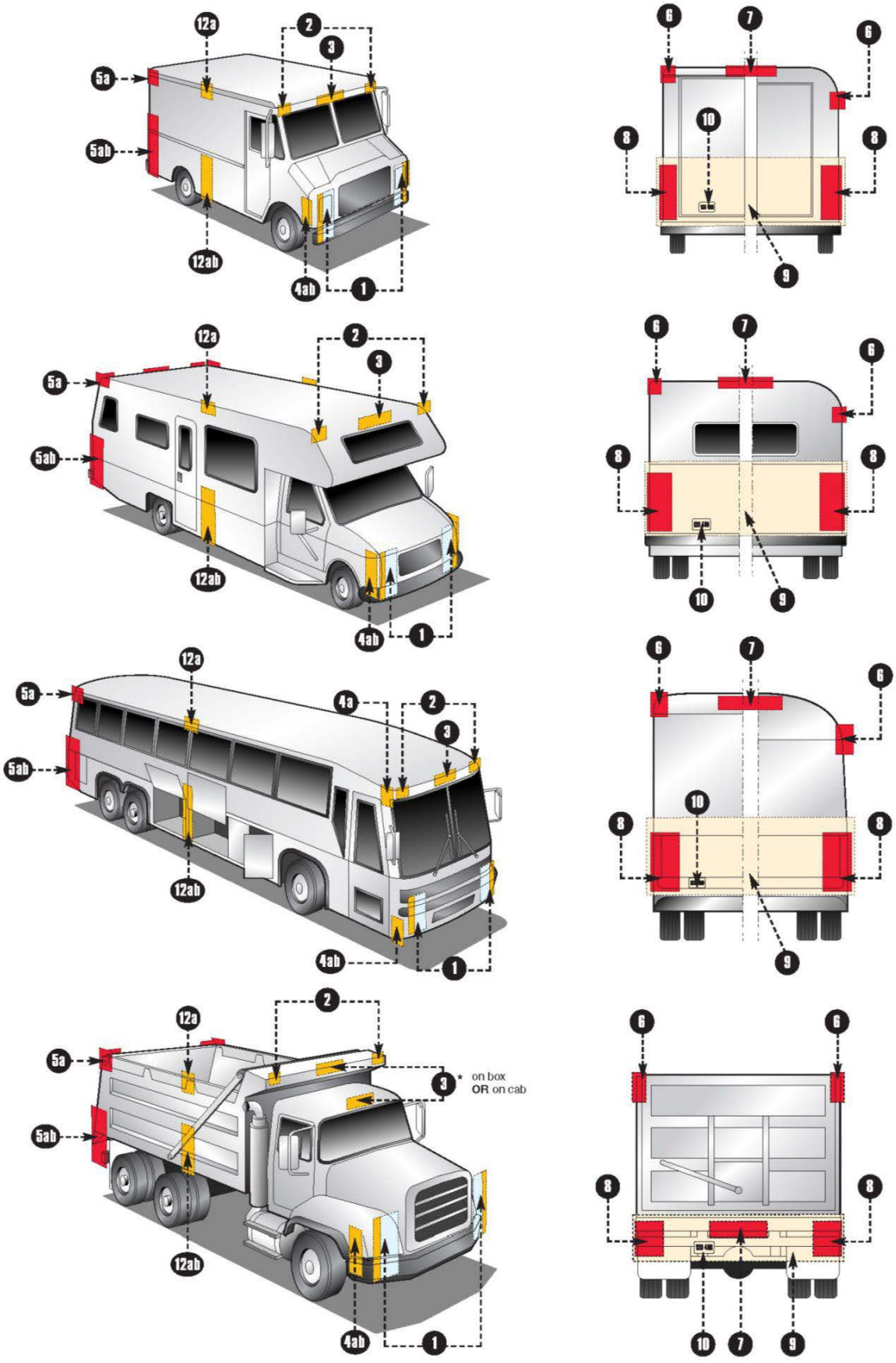








Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.



Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 7 – Electrical System

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Wiring *Additional Inspection Procedure(s):* Inspect wiring, harnesses and connections that are accessible and visible. Pay particular attention to battery, starter and charging system circuits.	
a) security	a) ***loose*** or improperly supported, and able to contact moving parts chafed section resulting from contact with vehicle parts not secured at least every 1800 mm
b) insulation	b) conductor is exposed, other than at a proper connector
c) condition	c) cut, shorted or deteriorated connection is ***loose***, abnormally corroded, burnt
d) circuit loading *Note:* Circuit protection requirements are based on ***manufacturer*** design and specifications. Circuit testing is not required. Inspection is visual and based on knowledge of the normal design and specifications.	d) circuit load protection is ***missing*** or bypassed circuit is overloaded beyond normal circuit capacity circuit protection device (fuse, circuit breaker or fusible link) exceeds circuit capacity circuit is improperly grounded
	Hazardous Conditions **i. any electrical component or wiring shows signs of shorting, arcing, or a hot spot**
2. Battery	
a) posts and connections	a) corrosion or deterioration is present that prevents proper electrical contact, ***loose*** or burnt
b) mount	b) cracked or ***missing***, perforated or weakened due to corrosion
c) cover and hold down	c) ***insecure***, ***missing***, does not meet ***OEM standard*** battery is not secured in place
d) condition	d) ***level 2 leak*** of battery fluid
	Hazardous Conditions **i. any electrical component or wiring shows signs of shorting, arcing, or a hot spot**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
3. Trailer Cord (output to towed vehicle)	
a) insulation	a) cut, cracked, deteriorated or melted through to wire conductor
b) connection *Note*: A trailer cord must be repaired only by using ***industry standard*** methods.	b) cracked, ends split, improper repair or connection
c) constant ABS power on auxiliary circuit *Note:* Also refer to Section 3A, Item 18 f) PLC communication). Every vehicle equipped for towing another vehicle with air brakes, manufactured after April 1, 2000, must supply constant power to the trailer auxiliary circuit (center pin, blue wire) while the ignition is in the "on" position. *Additional Inspection Procedures(s):* Confirm that voltage is present at the auxiliary pin in the trailer cord when the ignition is 'on' by one of the following methods: Option 1 – Test with a voltmeter. Option 2 – Connect to a test device.	c) power is not continuously supplied to the auxiliary circuit when ignition is "on" a switch is installed that can interrupt power to the auxiliary circuit voltage is below required minimum when circuit is loaded to ***industry standard*** value
4. Alternator Output on a School Bus	**NOT APPLICABLE TO TRUCKS**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 8 – Body

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Hood or Engine Enclosure *Additional Inspection Procedure(s):* Test the operation of the hood or engine enclosure doors, attachment, latches and safety devices.	
a) condition	a) ***damaged***, ***insecure***, or deteriorated in a manner that it is likely to become detached or ***missing***
b) latch (primary or secondary)	b) broken, ***inoperative***, ***insecure*** mounting, ***missing*** or seized effectiveness is compromised due to deteriorated condition, (e.g.: rubber or similar type of latch) fails to open or close normally welded or repaired in a way that does not meet ***OEM standard***
c) safety cable, assist spring, support/dampener	c) broken, insecurely attached or ***missing***
d) hinge and support spring	d) hinge or hinge part is broken, cracked, ***missing***, seized or ***abnormally worn***
	Hazardous Condition(s) **i. both primary and secondary latch are *inoperative***
2. Tilt Cab *Additional Inspection Procedure(s):* Test the operation of the tilt cab operation, its attachment, latches and safety devices.	
a) latch (primary or secondary)	a) broken, ***insecure*** mounting, ***missing*** or seized fails to open or close normally welded or repaired in a way that does not meet ***OEM standard***
b) hinge	b) hinge or hinge part is broken, cracked, ***missing***, seized or ***abnormally worn*** parts do not align correctly

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. latch fails to secure the cab (latch is incapable of holding cab from moving forward)**
3. Air-Suspended Cab *Additional Inspection Procedure(s):* Check the cab with air system at normal operating pressure.	
a) air bag	a) leaking, cracked to reinforcing layer, ***damaged*** or patched not properly inflating or cab tilts to one side
b) air line, connection and fitting	b) fitting, line or repair method does not meet ***OEM*** or ***industry standard***, tubing or hose is defective as defined in the chart on page 5 fitting or connection is broken, cracked, flattened or leaking ***damaged*** in a way (such as: melting, flattening, deformation or kinking) that can restrict air flow
c) mount, rod and attachment	c) bent, broken, ***loose*** or welded or repaired in a way that does not meet ***OEM standard***
d) pressure protection valve	d) ***missing*** or improper type
e) height control valve	e) ***inoperative*** (as indicated by cab height being above or below its normal position) equipped with a single valve which is not in ***OEM*** location, or not near centre of cab
f) shock absorber	f) broken, ***damaged***, disconnected, ***loose*** or ***missing*** ***level 2 leak*** of oil
	Hazardous Condition(s) **i. any component is so *insecure* or *loose* that it is an imminent hazard or it could become detached from vehicle**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
4. Cab and Passenger-Vehicle Body	
a) condition	a) any section is in a condition that could be hazardous to driver, passenger, pedestrian or cyclist due to being: loose, protruding, torn or having an exposed sharp edge corroded or torn in a manner that reduces structural integrity of a panel or floor, or allows exhaust gases to enter the occupant compartment modified in a manner that may reduce structural integrity (unless the condition or the repair is approved by the ***OEM***, ***manufacturer*** or an engineer) body component integrity is reduced due to a ***loose*** body component, broken weld, missing fastener or failed adhesive hole is present in panel or floor body panel or floor is welded or repaired in a way that does not meet ***OEM standard***
b) body mount/support	b) allows abnormal amount of movement broken, cracked, ***loose*** or ***missing*** parts improper mount used support cracked, broken or bulging welded or repaired in a way that does not meet ***OEM standard***
c) body moulding or trim	c) is in a condition that could be hazardous to driver, passenger, pedestrian, or cyclist due to being: loose, protruding, torn or having an exposed sharp edge
d) fender	d) ***missing***, section torn away, ***missing*** or corroded so that road spray is not controlled corroded or ***damaged*** in a manner that ***OEM*** type lamps cannot be properly secured not the full width of the tire(s)
	Hazardous Condition(s) **i. any component is so *insecure* or *loose* that it is an imminent hazard or it could become detached from vehicle** **ii. any section has exposed sharp edge, is torn or protrudes out in a manner that is hazardous to driver, passenger, pedestrian or cyclist** **iii. any body part or attachment is broken, cracked perforated, or sagging, in a manner that permits the body to contact any moving part**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
5. Cargo Body *Additional Inspection Procedure(s):* Where any sheet metal, structural item or fastener is suspected of being ***loose*** or perforated, determine the integrity of the suspect item or area by lightly tapping it with a hammer. *Note*: Minor surface rust and corrosion is normal.	
a) sheet metal	a) any section has exposed sharp edge, is torn or protrudes out in a manner that could be hazardous to driver, passenger, pedestrian or cyclist panel is ***insecure***, ***loose*** or corroded through rivet is ***loose***, ***missing*** welded or repaired in a way that does not meet ***OEM standard***
b) floor & deck	b) has any condition that allows a person or cargo to fall through has a hole larger than 200 mm across the longest dimension welded or repaired in a way that does not meet ***OEM standard***
c) frame & sub-frame	c) bulge caused by corrosion resulting in distortion of 10 mm or more (unless the condition or the repair is approved by the ***OEM***, ***manufacturer*** or an engineer) stress crack at side rail or rub-rail rivet is ***loose***, ***missing***, dimpled by corrosion bent, broken, cracked or ***insecure*** welded or repaired in a way that does not meet ***OEM standard***
d) cross-member	d) bent, broken, collapsed, cracked or ***missing*** perforated or weakened by corrosion

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
e) inner or outer side rail and body-long sills	e) bulge caused by corrosion resulting in distortion of 10 mm or more (unless the condition or the repair is approved by the ***OEM***, ***manufacturer*** or an engineer) rivet is ***loose***, ***missing*** bent, broken, cracked or ***insecure*** welded or repaired in a way that does not meet ***OEM standard***
f) stake pocket/tiedown, cargo securing point or cargo securing device	f) broken, cracked or ***insecure*** elongated or distorted *Note*: When a cargo securing point or device is in any of the conditions described above, record the condition on the inspection report, do not reject the vehicle for this condition alone.
g) tailgate, hopper, or end-dump door	g) broken, cracked or ***missing*** hinge is broken, cracked or ***missing***, or pin lock is ***missing*** ***insecure***, or will not close and latch properly any gap exists that would allow leakage, loss or spillage of cargo welded or repaired in a way that does not meet ***manufacturer*** standard
h) body to frame attachment *Note:* Includes body to frame attachment device such as 'U- bolt', pivot hinge, cheek plate mount, flex-mount hardware, body clamp and 'J-Bar'.	h) bent, broken, cracked, ***loose*** or ***missing*** spring is broken spacer or insulator is abnormally worn, crushed, dislodged or missing
i) body rail and structural member	i) upper or lower cargo body rail is bent, buckled, has a crack longer than 25 mm, or has a fastener ***loose*** or ***missing*** floor cross member is bent, ***loose*** or sagging roof support is bent, ***loose*** or sagging
j) body panel	j) any section has exposed sharp edge, is torn or protrudes out in a manner that could be hazardous to driver, passenger, pedestrian or cyclist panel or panel fastener is ***insecure***, ***loose***, ***missing***, or corroded through rivet is ***loose*** repaired in a way that does not meet ***OEM standard*** any gap exists that would allow leakage, loss or spillage of cargo

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. any component is so *insecure* or *loose* that it is an imminent hazard or it could become detached from vehicle** **ii. any section has exposed sharp edge, is torn or protrudes out in a manner that is hazardous to driver, passenger, pedestrian or cyclist** **iii. any body part or attachment is broken, cracked perforated, or sagging, in a manner that permits the body to contact any moving part, or imminent collapse appears likely** **iv. any gap exists allowing leakage, loss or spillage of cargo** **v. a cargo body upper or lower rail is buckled, bowed, cracked through, sagging or has two or more adjacent *loose* or missing fasteners** **vi. two or more adjacent floor cross members are bent, *loose* or sagging** **vii. two or more adjacent roof supports are bent, *loose* or sagging**
6. Frame, Rails & Mounts	
a) condition *Note*: Some rust and corrosion on the outer surface of exposed metal parts is normal. When a high amount of rust or corrosion is present and visibly reduces the thickness of the material, structural deterioration is possible.	a) welded, modified or repaired in a way that does not meet ***OEM standard*** bent, broken or cracked perforated or separated due to corrosion between mount and frame member rusted or corroded to a depth sufficient to become weakened bulge caused by corrosion resulting in distortion of 10 mm or more (unless the condition or the repair is approved by the ***OEM***, ***manufacturer*** or an engineer) any condition of the frame assembly allows a frame component, or a part of the body or power train, to be more than 25 mm out of its normal position, or to contact a moving part

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) frame fastener	b) ineffective, ***loose*** or ***missing***
c) cross-member	c) bent, broken, cracked, ***loose*** or ***missing*** cut, notched, rusted or corroded to a depth sufficient to cause weakness repaired using material or method, that does not meet ***OEM standard*** or ***industry standard*** any condition of a cross member allows a frame component, or a part of the body or power train, to be more than 25 mm out of its normal position, or to contact a moving part
d) sub-frame assembly *Note:* This only applies to a structural frame assembly that is not part of the main frame assembly, and carries a load or provides strength to the vehicle structure, i.e.: engine cradle, or suspension sub-frame.	d) bent, broken, cracked, ***loose*** or ***missing*** cut, notched, rusted or corroded to a depth sufficient to cause weakness repaired using material or method that does not meet OEM standard or industry standard any condition of the sub-frame assembly allows a frame component, or a part of the body or power train, to be more than 25 mm out of its normal position, or to contact a moving part
	Hazardous Condition(s) **i. any frame side-rail or cross-member is cracked as follows:** • **longer than 38 mm** • **longer than 25 mm in the bottom flange** • **from the web extending around the radius and into the bottom flange** **ii. any condition of the frame allows a frame component, or a part of the body or power train, to be more than 38 mm out of its normal position, or to contact a moving part** **iii. imminent failure appears likely due to a frame member that is *damaged* or deteriorated, or has been repaired using material or method, that does not meet *OEM standard* or *industry standard*** **Hazardous Condition(s)**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
7. Unitized Body Elements	
a) load carrying panel, bulkhead, structural element and mounts *Note*: Some rust and corrosion on the outer surface of exposed metal parts is normal. When a high amount of rust or corrosion is present and visibly reduces the thickness of the material, structural deterioration is possible.	a) bent, broken, cracked, ***loose*** or ***missing*** cut or notched more than 25 mm, or rusted or corroded to a depth sufficient to cause weakness welded or repaired in a way that does not meet ***OEM standard*** any rivet is ***loose*** or ***missing*** any condition of the unitized body allows a part of the body or power train, to be more than 25 mm out of its normal position, or to contact a moving part
	Hazardous Condition(s) **i. any component is so *insecure* or *loose* that it could become detached from the vehicle** **ii. structural body component has a crack, cut or notch longer than 38 mm** **iii. any condition of a unitized body component allows a part of the body or power train to be more than 38 mm out of its normal position, or to contact a moving part** **iv. imminent failure appears likely due to a body component that is *damaged* or deteriorated, or has been repaired using material or method, that does not meet *OEM standard* or *industry standard***
8. Cab or Cargo Door	
a) condition and operation *Additional Inspection Procedure(s):* Test the operation of each door. *Note*: This includes a partition door between the occupant and cargo area.	a) binds or fails to lock securely ***insecure*** mounting to hinge, ***insecure*** hinge or severely corroded in hinge area panel is corroded through welded or repaired in a way that does not meet OEM standard door fails to operate or latch on both primary and secondary latches gap exists that may allow exhaust gases to enter cab, passenger compartment, and/or sleeper seal is out of position, ***damaged*** or ***missing***, and is able to allow exhaust gases to enter cab, passenger compartment, and/or sleeper any gap exists that would allow leakage, loss or spillage of cargo

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) door openers and handles	b) broken, ***inoperative*** or ***missing*** catch or latch is broken, ***loose*** or ***missing***
	Hazardous Condition(s) **i. cab door fails to latch on both primary and secondary latches** **ii. cargo door fails to latch** **iii. gap exists and exhaust gases are entering cab, passenger compartment or sleeper** **iv. any gap exists allowing leakage, loss or spillage of cargo**
9. Cargo Tank or Vessel *Note*: Code (e.g.: dangerous goods ***CSA*** B620, edible product, dry bulk) cargo tanks are frequently subject to additional inspection requirements. Inspections conducted in accordance with this standard address only a limited portion of the compliance requirements. This inspection does not include any procedure that requires operation of any valve, hatch or product handling item. Technician-inspector must take precautions to avoid exposure to any cargo or residual material.	
a) condition	a) welded or repaired in a way that does not meet ***OEM standard*** ***loose*** on mounts ***level 2 leak*** of any liquid transported by the tank or vessel crack or broken weld in tank, frame or support movement, bulge or weakness caused by corrosion between tank and frame
b) valve	b) cap ***loose*** or ***missing*** ***level 2 leak*** of any liquid transported by the tank or vessel
c) hose	c) ***loose*** or improperly secured
d) hatch	d) ***insecure***, ***loose*** or ***missing*** latch ***inoperative*** hinge, broken or ***inoperative***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

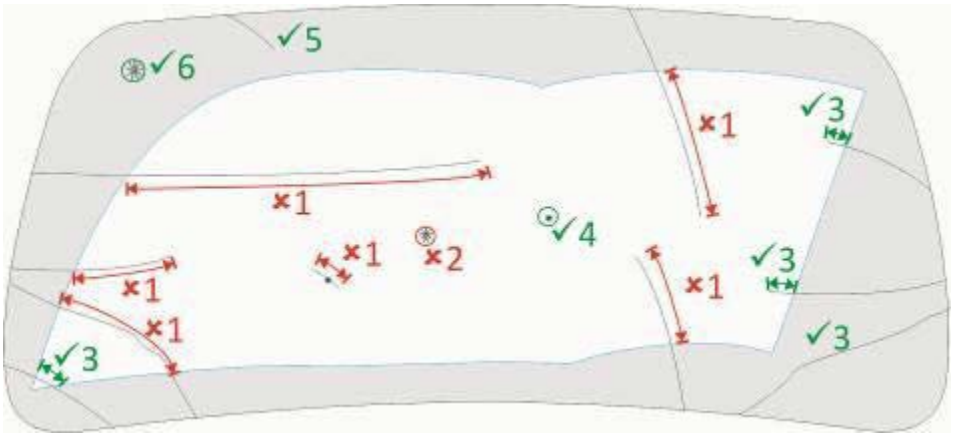
ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. any component is so *insecure* or *loose* that it could become detached from vehicle** **ii. required internal valve is *missing*** **iii. internal valve remains open when it is required to be closed** **iv. access/fill/inspection opening cover is improperly secured or *missing*** **v. required venting device, emergency device, or discharge valve, is *missing***
10. Body, Device or Equipment Attached or Mounted to the Vehicle	
Note: This section applies primarily to external devices or equipment attached to a vehicle. Examples include a crane, cargo lifting and transporting machine, load covering equipment, cargo dispensing equipment, APU, refrigeration-heater (reefer) unit, generator, ready-mix unit, sander body, feed & grain body, snow plow, service/ utility body, vacuum tank, flatbed, roll- on/roll-off, lugger, ISO container chassis, etc. The criteria in this section only apply to a mounted body, device or equipment to the extent that the condition could affect the safe operation of the vehicle on the highway. The functionality of the mounted equipment does not need to be tested or inspected.	
a) security and condition *Additional Inspection Procedure(s):* Check security of attached body, device or equipment visually, manually and using suitable tools as necessary. No functional test is to be conducted.	a) equipment or device is in such an unsafe condition that is a risk to other motorists, the driver, a passenger, pedestrian or cyclist equipment or device is ***insecure*** or ***loose***, or in danger of shifting in a way that could impede normal operation of the vehicle any section has an exposed sharp edge, is torn or protrudes out in a manner that could be hazardous to the driver, a passenger, pedestrian or cyclist ***level 3 leak*** of any oil, hydraulic fluid or liquid product

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. any article, component or device is so *insecure* or *loose* that it could become detached from vehicle** **ii. equipment or device is in such an unsafe condition that is a risk to other motorists, the driver, a passenger, pedestrian or cyclist** **iii. any section has an exposed sharp edge, is torn or protrudes out in a manner that could be hazardous to the driver, a passenger, pedestrian or cyclist**
11. Refrigeration/Heater Unit Fuel System (Reefer or Auxiliary Power Unit [APU])	
Note: Inspect the condition and security according to item 10 above. Inspect the exhaust system and fuel system, according to the appropriate type of fuel used, as described in Section 1 – Power Train.	
12. Bumper *Note*: Applies only to the front bumper on a truck or truck-tractor.	
a) condition	a) broken, ***loose*** or ***missing*** any section has exposed sharp edge, is torn or protrudes in a manner that could be hazardous to the driver, a passenger, pedestrian or cyclist
b) design	b) replacement part does not meet ***OEM standard***, or is weaker than ***OEM*** design solid portion does not extend from one frame rail to the other (except for a unitized body design)
	Hazardous Condition(s) **i. imminent failure appears likely** **ii. any section has exposed sharp edge, is torn or protrudes in a manner that could be hazardous to the driver, a passenger, pedestrian or cyclist**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
13. Windshield	
a) obstruction *Note*: Forward/rearward facing camera safety devices may be mounted up to 50 mm from the outer edge of the area swept by ***OEM*** wipers.	a) decal or device obscures vision in the area swept by ***OEM*** windshield wipers clouded, ***damaged*** or deteriorated in such a way that driver's normal vision is materially impaired in the area swept by ***OEM*** windshield wipers
b) crack *Note*: See image below for examples of pass and fail windshield crack conditions.	b) a crack extends through both layers of glass a crack of any length extends more than 50 mm within the area swept by ***OEM*** windshield wipers



Examples of Windshield Pass and Reject Conditions:

Reject condition 1 - Crack through one layer that extends more than 50 mm into the area swept by wipers

Reject condition 2 - Star chip larger than 13 mm in diameter in area swept by wipers

Pass condition 3 - Crack extends less than 50 mm into the area swept by wipers

Pass condition 4 - Star chip smaller than 13 mm in diameter in area swept by wipers

Pass condition 5 - Crack through one layer that is more than 50 mm long, but outside the area swept by wipers

Pass condition 6 - Star chip larger than 13 mm in diameter, but outside the area swept by wipers

c) chip	c) a chip that is larger than 13 mm in diameter within the area swept by ***OEM*** windshield wipers
d) discolouration	d) more than 10% of total glass area is discoloured due to age or other deterioration

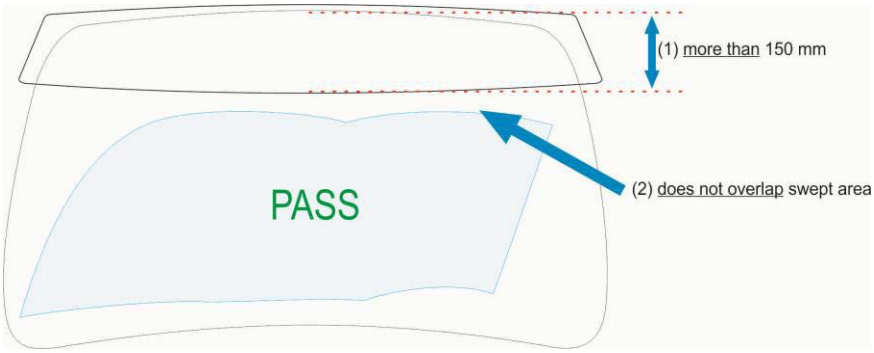
Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
e) tinting *Note:* OEM tinting does not block more than 30% of light. This is rated and expressed as minimum 70% light transmittance. "AS" = American National Safety Standard and (***ANSI***/SAE Z26.1)	e) any after-market tint is applied driver's normal vision is materially impaired tint or sunscreen other than that allowed by ***ANSI***/SAE Z26.1 standards tinting extends more than 75 mm from top of windshield, or beyond AS line
f) material type	f) is not marked as type AS-1 or AS-10
g) condition	g) ***missing*** vision is obscured or limited due to surface condition
	Hazardous Condition(s) **i. windshield is missing** **ii. windshield is *damaged* or deteriorated in such a way that driver's normal vision is materially impaired in the area swept by *OEM* windshield wipers**
14. Side Windows	
a) operation *Additional Inspection Procedure(s):* Test the operation of the driver's (left) side window.	a) fails to open or close normally
b) condition *Note:* Applies to any window forward of the driver's seat back.	b) clouded, ***damaged*** or deteriorated in such a way that normal driver vision is materially impaired window has an exposed sharp edge, is broken or part of window is missing window originally fitted with metal banding has any ***damaged*** or missing banding
c) material type *Note:* Applies to every side window.	c) is not marked as type AS-1, AS-2, AS-10 or AS-11
d) tinting (where tinting is prohibited by the jurisdiction) *Note:* Applies to any window forward of the driver's seat back.	d) any after-market tint is applied
e) tinting (where tinting is permitted by the jurisdiction) *Optional Additional Inspection Procedure(s)* Where aftermarket tinting is applied to any side window forward of the driver's seat back, test the light transmittance using a suitable test device.	e) light transmittance value is less than 70% (more than 30% of light is blocked)

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
15. Rear Window	
a) condition	a) broken or exposed sharp edge
b) material type *Note:* Rigid material may be used in place of glass or rigid plastic, when the vehicle is equipped with an outside rear-view mirror on each side.	b) is not marked as glass type AS-1, AS-2, AS-10 or AS- 11, or rigid plastic AS-4 or AS-5
16. Interior Sun Visor	
a) location	a) ***missing*** on driver's side
b) attaching parts	b) bent, broken, ***loose*** or ***missing***
c) adjustment	c) cannot be maintained in a set position
d) modified or non-***OEM*** sun visor on a school bus	d) does not meet ***applicable standard***
17. Exterior Windshield Sun Visor	
a) obstructed view	a) any part of an exterior visor, at any point: 1. extends more than 150 mm below the upper edge of the windshield; and 2. overlaps the portion of the windshield swept by the ***OEM*** wiper arm and wiper blade

Fig 1.



Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:

Fig 2.

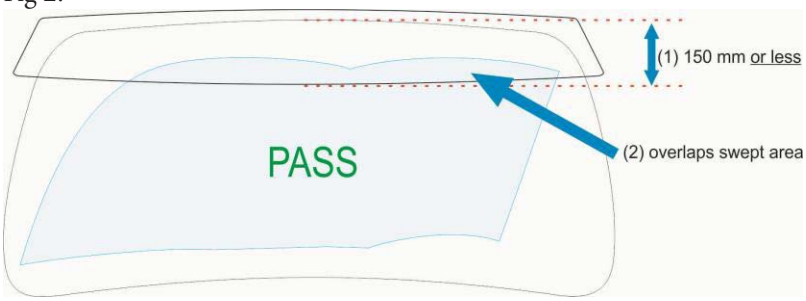


Fig 3.

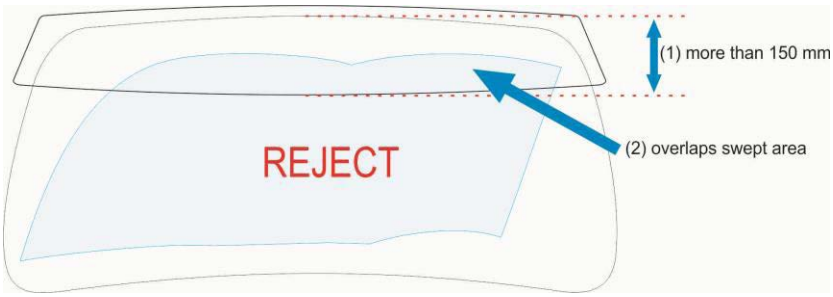
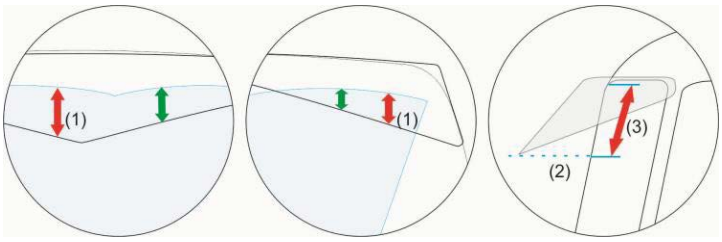


Fig 4.



Sun Visor Measurement Location and Method:

1. Identify the location where the sun visor vertically overlaps furthest over the swept area of the wiper.
2. Extend a level line to the surface of the windshield from the location identified in step (1).
3. Measure upwards along the surface of the windshield. Reject if measurement is greater than 150 mm.

Note:
"Swept area" means the portion of the windshield swept by an ***OEM*** wiper blade attached to an ***OEM*** wiper arm.

	Hazardous Condition(s) **i. any part of an exterior visor, at any point:** • **extends more than 150 mm below the upper edge of the windshield; and** • **overlaps the portion of the windshield swept by the *OEM* wiper arm and wiper blade**

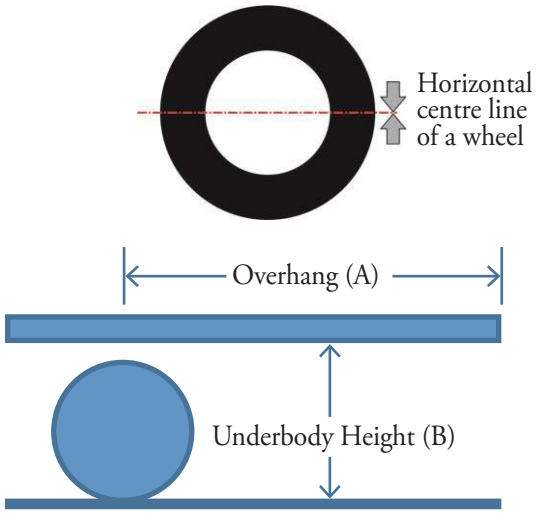
Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
18. Rear-view Mirror	
a) location *Note:* Every vehicle requires an external rear-view mirror on the left side. When a vehicle does not have an interior rear-view mirror that provides an unobstructed view through a rear window, an external mirror is also required on the right side.	a) required rear-view mirror is ***missing***
b) view	b) view to the rear is obstructed on a required mirror
c) mount	c) broken, ***insecure*** or ***loose*** fails to hold mirror in correct position
d) glass condition	d) cracked vision is obscured due to condition of glass or reflective surface, over 5% of total surface area of mirror
e) surface area of external mirror *Note:* ***OEM*** mirrors are required to meet these same area requirements as per ***CMVSS*** 111. When a convex mirror is installed onto a rear-view mirror, its area is included.	**e) when non-*OEM* mirror is used, surface area of mirror is less than:** for a vehicle with GVWR of 4536 kg or less: 125 cm^2 for a vehicle with GVWR of more than 4536 kg: 325 cm^2
	Hazardous Condition(s) **i. an external rear view mirror is *missing*, obscured, *insecure* or adjustment is seized**
19. Seat	
a) condition *Additional Inspection Procedure(s):* Test the operation of the driver seat position controls.	a) ***loose*** or ***insecure*** mounting frame broken covering material torn and exposing a metal component or spring driver seat cannot be adjusted forward or backward driver seat back recline mechanism fails to adjust - driver seat pedestal removed or seat assembly does not meet ***OEM standard***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) seat position lock *Additional Inspection Procedure(s):* Test the operation of the driver seat position locking function.	b) driver seat adjustment fails to lock into position
	Hazardous Condition(s) **i. driver's seat *loose*, insecure or fails to lock into position**
20. Seat Belt/Occupant Restraint *Additional Inspection Procedure(s):* Confirm the operation of each seat belt latch and retractor.	
a) type and condition	a) ***missing*** or not equipped at each seating position as originally required to meet applicable ***CMVSS*** webbing material is broken, cut frayed or torn air ride, hydraulic or spring seat does not have lap belts attached to the seat, or is not equipped with a secondary belt from the seat to the floor
b) anchor	b) broken, ***insecure*** mounting or ***missing***
c) retractor	c) broken, ***insecure*** mounting or ***missing*** fails to allow belt to extend to its maximum length or fails to retract properly
d) belt release and buckle *Additional Inspection Procedure(s):* Buckle each seatbelt assembly and extend the belt to test the belt retractor.	d) broken, ***insecure*** mounting or ***missing*** any part is not properly attached to the belt material latch fails to lock in position or fails to release easily when belt is under tension
e) supplemental restraint system (SRS) *Additional Inspection Procedure(s):* Cycle the ignition off and on and check the status of the SRS indicator lamps.	e) an air bag is disconnected, ***inoperative***, ***missing*** or not re-installed to ***OEM*** service instructions the air bag indicator (SRS) lamp indicates a malfunction or fails to operate according to ***OEM*** service instructions air bag has been deactivated permanently without a provision to turn off and on by a key lock, or does not have an illuminated message to indicate when the air bag has been switched off
f) pre-tensioner and load limiter	f) pre-tensioner has been activated and system not repaired or replaced to meet ***OEM standard*** load limiter has been activated and system not repaired or replaced to meet ***OEM standard***
	Hazardous Condition(s) **i. a required seat belt is *inoperative* or *missing***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
21. Fender/Mud Flap	
Note: A mud flap is required behind every wheel or axle group, where the full width of the tire is not enclosed by a body element, such as a fender, down at least as far as the wheel's horizontal centre line. Unless exempt as noted below, the mud flap must meet the following dimensions. Mud flap width - at least as wide as the tires. Bottom of mud flap - no more than 210 mm from the ground. Top of mud flap - must extend upward at least as high as the top of the tire(s), or up to a body element that extends below the top of the tire. Mud flap exemptions: A mud flap is not required where the body overhang is more than three times the underbody height. *Overhang* = (A) the distance from the vertical centre line of the tire to the end of the body *Underbody height* = (B) the distance from the bottom of the body overhang to the ground Mud flap location and dimensions may vary on a vocational vehicle, where the mud flap will interfere with vehicle operation, and on a vehicle with movable suspension, where there is inadequate room for a full size mud flap.	
a) condition and location	a) fender or mud flap is broken, has ***insecure*** mounting, is ***loose*** or ***missing*** fender or mud flap has a tear or wear hole exists that is larger than 100 mm across the longest dimension, or the aggregated longest dimensions of multiple holes in a single mud flap equal more than 100 mm the distance from the bottom of the mud flap to the ground exceeds 210 mm the mud flap does not cover the full tread width of the tire(s) the top of the mud flap does not reach up to the top of the tires or a body element

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. required mud flap is missing**
22. Landing Gear on Trailer	**NOT APPLICABLE TO TRUCKS**
23. Sliding Axle Assembly (Sliding Bogie) on Trailer	**NOT APPLICABLE TO TRUCKS**
24. Aerodynamic Device and Attachment	
a) condition and security	a) ***insecure*** or ***loose*** any section has exposed sharp edge, is torn or protrudes out in a manner that could be hazardous to driver, passenger, pedestrian or cyclist
	Hazardous Condition(s) **i. aerodynamic device is so *insecure* or *loose* it is likely to become detached from the vehicle** **ii. any section has exposed sharp edge, is torn or protrudes out in a manner that could be hazardous to driver, passenger, pedestrian or cyclist**
25. Rear Impact Guard (RIG) on Trailer	**NOT APPLICABLE TO TRUCKS**
26. Floor Pan/Baggage Floor/Step Well on a Bus	**NOT APPLICABLE TO TRUCKS**
27. Interior Body and Fixtures on a Bus	**NOT APPLICABLE TO TRUCKS**
28. Service and Exit Door on a Bus	**NOT APPLICABLE TO TRUCKS**
29. Emergency Exit (Door, Window and Roof Hatch) on a Bus	**NOT APPLICABLE TO TRUCKS**
30. Passenger Compartment Window on a Bus (Except Emergency Exit Window)	**NOT APPLICABLE TO TRUCKS**
31. School Bus Exterior Mirror (Except Standard Left and Right Side Mirror)	**NOT APPLICABLE TO TRUCKS**
32. Passenger Seat on a Bus	**NOT APPLICABLE TO TRUCKS**
33. School Bus Body Exterior	**NOT APPLICABLE TO TRUCKS**
34. Auxiliary Compartment on a Bus	**NOT APPLICABLE TO TRUCKS**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 9 – Tires and Wheels

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Tire Tread Depth *Additional Inspection Procedure(s):* Inspect the tire tread to locate the area where the tread depth is lowest. Measure the tread depth at a major tread groove using a suitable tread depth gauge. Do not measure tread depth on a wear bar. Tread depth measurements are to be recorded on an inspection report. The tread depth that is recorded must reflect the lowest tread depth measurement used to determine pass/fail condition. *Note*: When any tire is replaced after a failed-inspection, the tread depth of both the original ('before') and replacement ('after') tire(s) are to be recorded. A "major tread groove" is one of several of the deepest moulded grooves around a tire through the full thickness of tread rubber that include wear bars.	
a) front tire	a) tread depth is less than 3 mm
b) rear tire *Note:* Some jurisdictions require tread depth on certain vehicles to be at least 3 mm on all tires. Inspect according to ***applicable requirements***.	b) tread depth is less than 2 mm
	Hazardous Condition(s) **i. tread depth is less than 2 mm on a front tire** **ii. tread depth is less than 1 mm on a rear tire**
2. Tire Tread Condition	
a) retread (re-capped or rebuilt tire) installation *Note*: An active steering axle is one that is directly controlled by the steering wheel. A passive steering axle responds to lateral force to turn wheels.	a) retreaded tire is installed on an active steering axle
b) retread condition	b) retread material is ***loose***, ***missing***, or separated at the interface where the retread is bonded to the tire casing

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) tread condition	c) crack or cut, that is greater than 25 mm long, that extends deeper than a major tread groove crack or cut, extends into body cord, or any body cord is exposed any piece of original tire tread is ***missing*** and the longest dimension across the missing section is greater than 25 mm
d) regrooving	d) regrooving has been performed on a tire not marked "Regroovable"
	Hazardous Condition(s) **i. any part of a belt, breaker strip or casing ply is visible in the tread area** **ii. visible bump or bulge in the tread area indicating tread separation** **iii. retread material is *loose*, *missing*, or separated at the interface where the retread is bonded to the tire casing and the longest dimension across the section is greater than 50% of the tread width** **iv. any piece of tire tread is *missing* and the longest dimension across the missing section is greater than 50 mm** **v. tire contacts any part of the vehicle**
3. Tire Sidewall and Manufacturer Markings	
a) matching and application *Note*: Nominal tire size is based on the size designation and marking provided by the tire ***manufacturer***. Tire diameter is determined by measuring the tire.	a) nominal tire size difference on an axle is greater than 25 mm dual-mounted tire diameters differ by more than 13 mm wheel/rim size does not match tire size required tire is ***missing*** radial tire is mixed with non-radial on an axle any tire is labelled "Not for Highway Use" or in any way that indicates the tire is not intended for on-road use

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) condition *Note*: A bulge of up to 9 mm in height, due to a sidewall repair, is acceptable. This bulge may sometimes be identified by a blue triangular label in the immediate vicinity.	b) ply separation is evident or body cords are exposed tire has a bump or bulge caused by tread or sidewall separation casing is broken or distorted presence of plug-type repair, or rubber coated or cured rubber plug is used in the sidewall UV degradation damage more than 3 mm deep
	Hazardous Condition(s) **i. sidewall is cut or *damaged* exposing the cord** **ii. bias and radial tires are used on the same axle** **iii. visible bump or bulge in the sidewall area greater than 9 mm in height** **iv. dual tires make contact or any tire makes contact with any vehicle component** **v. rubber coated or cured rubber plugs are used in the sidewall** **vi. tire contact with any part of the vehicle** **vii. any tire is labelled «Not for Highway Use» or in any way that indicates the tire is not intended for on-road use**
4. Tire Inflation Pressure *Additional Inspection Procedure(s):* Measure tire inflation pressure using a suitable gauge. Record pressure values on the inspection report. *Note:* If a tire fails inspection due to over/under inflation condition, it is acceptable to remove/add air prior to completing the inspection. When inflation pressure is corrected, record found ('before') and adjusted ('after') pressure values on the inspection report.	
a) inflation pressure *Note*: Recommended tire inflation pressure is based on data provided by the vehicle ***manufacturer***, or tire ***manufacturer*** relevant to tire application and load.	a) more than 10% above or below recommended pressure difference between dual-mounted tires is more than 10% leaking or inflation cannot be maintained within recommended pressure

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) valve stem	b) cracked, ***damaged*** or inaccessible preventing gauging of pressure or re-inflation, or leaking valve stem cap is ***damaged*** or ***missing***
c) tire inflation system	c) is in a condition that any part of it could be hazardous to a person, or is in danger of falling off leaking air
	Hazardous Condition(s) **i. any tire is inflated to 50% or less of the maximum inflation pressure marked on the sidewall** **ii. tire is leaking** **iii. tire inflation system is in a condition that any part of it is hazardous to a person, or is in danger of falling off**
5. Wheel Hub	
a) condition *Note*: Bearing fit in the hub is checked only when disassembled.	a) repaired by welding bent, broken, cracked, ***damaged*** or distorted bearing cup is loose in hub bore
b) bolt/stud hole	b) any bolt/stud hole is enlarged or ***damaged*** in a way that prevents proper fitting and retention of studs
c) wheel seal	c) ***level 2 leak*** of bearing lubricant from oil lubricated hub seal is allowing grease to be lost from hub seal is out of position
d) lubricant (oil lubricated) *Note*: Some hub/wheel-end assemblies use pre-set, unitized or extended service bearings, with sealed hubs. When contaminated lubricant is suspected, refer to the service literature provided by the ***manufacturer***. Confirm that a proper diagnosis is carried out before rejecting the vehicle, opening or disassembling this type of hub/wheel-end assembly.	d) lubricant level is below indicated minimum lubricant is contaminated with moisture or metal fragments ***level 2 leak*** of bearing lubricant from hub or hub cap
e) lubricant (grease lubricated)	e) grease is leaking from hub hub cap is cracked, ***loose*** or ***missing***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) **i. any condition that exposes the internal components** **ii. any evidence of overheating of the hub or lubricant** **iii. lubricant not visible or measurable in hub** **iv. wheel seal is leaking and contaminating the tire or the brake friction material or surface**
6. Wheel Bearing *Additional Inspection Procedure(s):* Check wheel bearing with axle raised sufficiently to rotate the wheel and hub assembly. Rotate the wheel by hand through several full revolutions to check for bearing roughness or binding. Check wheel bearing end-play/adjustment by pushing wheel assembly or hub inward and outward parallel to axle centreline. *Note:* Checking in this manner may reveal movement in the hub and bearing that is additional to the bearing axial end play, e.g. a radial play between the bearings and spindle components may also be felt. Confirm bearing axial end-play/adjustment on a non-sealed type hub with dial gauge if necessary. For pre-set, unitized or extended service bearings see additional note. *Note*: Some hub/wheel-end assemblies use pre-set, unitized or extended service bearings, with sealed hubs. When there is evidence of bearing damage, excessive wear, or excessive bearing end play, refer to the service literature provided by the ***manufacturer***. Confirm that a proper diagnosis is carried out before rejecting the vehicle, opening or disassembling this type of hub/wheel-end assembly.	
a) axial end play/adjustment	a) does not meet ***OEM standard*** or ***industry standard***, or when specification is not provided, is less than 0.02 mm, or more than 0.13 mm 0.02 mm = 0.001 in., 0.13 mm = 0.005 in.
b) condition	b) binding or roughness is detected while rotating the bearing

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) locking device *<u>Optional</u> Inspection Procedure(s):* Must be inspected when the locking device is visually accessible at the time of inspection.	c) bearing adjustment locking device is ***<u>missing</u>***, <u>not</u> engaged or non-functional
d) damage *<u>Optional</u> Inspection Procedure(s):* Must be inspected when the bearing is disassembled at the time of inspection.	d) race or roller is ***<u>damaged</u>*** or shows evidence of overheating
e) spindle or axle stub *<u>Optional</u> Inspection Procedure(s):* Must be inspected when the bearing is disassembled at the time of inspection. *Note*: Spindle or axle stub cracks or damage may involve non-destructive test/inspection to detect.	e) bearing fit onto spindle or axle stub does <u>not</u> meet OEM standard or industry standard spindle or axle stub is cracked, or ***<u>damaged</u>*** in a way that does <u>not</u> meet ***<u>OEM standard</u>*** or ***<u>industry standard</u>*** bearing condition or fit of the bearing onto the spindle prevents proper end play or adjustment from being maintained
	<u>Hazardous Condition(s)</u> **i. axial end play is so excessive that imminent failure seems likely** **ii. any evidence of overheating** **iii. lubricant not visible or measurable in hub** **iv. binding or roughness is detected while rotating the bearing**
<u>7. Wheel/Rim (Applies to all wheel types</u>)	
a) condition	a) wheel/rim is bent, broken, cracked, ***<u>damaged</u>*** or distorted wheel/rim has been welded or repaired in a way that does <u>not</u> meet ***<u>OEM standard</u>*** wheel/rim is ***<u>damaged</u>*** or discoloured as a result of heating
b) matching	b) wheel/rim size does <u>not</u> match tire size
	<u>Hazardous Condition(s)</u> **i. wheel/rim, or any weld, is broken or cracked** **ii. any welded repair on an aluminum wheel** **iii. wheel/rim has been welded or repaired in a way that does <u>not</u> meet *<u>OEM standard</u>***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***<u>in this manner</u>*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
8. Multi-Piece Wheel/Rim	
a) condition	a) a component is bent, cracked, ***damaged***, distorted, improperly assembled or shifted out of position, severely corroded or pitted ***damaged*** due to heating any component has been ***repaired by welding***
b) lock ring	b) there is less than 3 mm clearance between butt ends of the lock ring
c) matching	c) mismatched wheel/rim component
	Hazardous Condition(s) **i. a lock ring is bent, broken, cracked, sprung, mismatched or improperly seated** **ii. wheel/rim, or any weld, is broken or cracked** **iii. wheel/rim has been welded or repaired in a way that does not meet *OEM standard***
9. Spoke Wheel/Demountable Rim System	
a) condition *Additional Inspection Procedure(s):* Elevate the axle so that the tire(s) are clear of the floor and rotate the wheel(s) to check alignment.	a) there is damage in the 28° mounting area resulting from rim slippage, wear, corrosion or pitting there is evidence of rim slippage or incorrect positioning of rim on spokes lateral run-out exceeds 6 mm at sidewall of tire
b) rim clamp	b) any rim clamp is broken, cracked, ***missing***, repaired by welding, mismatched, twisted or worn out in the 28° mounting area any heelless clamp is bottomed or gap between clamp and spoke is more than 10 mm gap between clamp and spoke of a heel type clamp is more than 6 mm
c) spacer band	c) any spacer is collapsed, cracked, distorted, ***missing***, the incorrect size or type, welded or repaired in a way that does not meet ***OEM standard***
	Hazardous Condition(s) **i. wheel/rim, or any weld, is broken or cracked** **ii. any welded repair on an aluminum wheel** **iii. wheel/rim has been welded or repaired in a way that does not meet *OEM standard***

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
10. Disc Wheel System	
a) installation	a) incompatible wheel or component is used on a wheel system wheel is incorrectly installed
b) condition	b) there is evidence of a ***loose*** or ineffective fastener there is evidence of damage or deterioration, foreign material, excessive or uncured paint on a hub, drum or wheel mounting face bolt/stud hole is elongated
	Hazardous Condition(s) **i. bolt/stud hole is elongated** **ii. wheel/rim, or any weld, is broken or cracked** **iii. any welded repair on an aluminum wheel** **iv. wheel/rim has been welded or repaired in a way that does not meet *OEM standard***
11. Wheel Fasteners (Nuts, Bolts and Studs)	
a) installation	a) incorrect fastener type, thread direction or style is installed any nut is not fully engaged with the stud or bolt
b) condition	b) any fastener is bent, broken, ***damaged*** or ***missing***
c) fastener security *Additional Inspection Procedure(s):* Using a torque wrench set to the torque value specified by ***OEM*** or ***industry standard***, attempt to rotate each wheel nut to the set value. *Note:* A fastener that requires less than 1/6-turn to reach the specified torque value should be considered slightly loose. A fastener that requires more than 1/6- turn to reach the specified torque value should be considered very loose. Wheels should be disassembled for a full inspection when: • any fastener is very loose • two adjacent wheel fasteners are slightly loose • three wheel fasteners on a single wheel are slightly loose	c) any fastener rotates before the torque value specified by ***OEM standard*** or ***industry standard*** is applied
	Hazardous Condition(s) **i. wheel is *loose*** **ii. any wheel nut or stud is broken, cracked, *loose*, *missing*, or threads are stripped**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Section 10 – Coupling Devices

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Hitch Assembly, Structure and Attaching Components *Note:* This applies to all types of hitching systems and coupling devices. Some rust and corrosion on the outer surface of exposed metal parts is normal. When an excessive amount of rust or corrosion is present and has visibly reduced the thickness of the material, structural deterioration is possible. *Additional Inspection Procedure(s):* Inspect using suitable tools.	
a) hitch assembly, receiver, drawbar or draw beam, slider, supporting structure and attachment to vehicle chassis	a) part is bent, broken or cracked weld is broken or cracked welded or repaired in a way that does not meet ***OEM standard*** fastener is ineffective, ***loose*** or ***missing*** any part of hitch assembly is worn beyond ***manufacturer*** specifications, abnormally deteriorated or perforated by corrosion hinged drawbar bushing is worn beyond ***manufacturer*** specifications air leak, or ***level 2 leak*** from hydraulic components on any slider system any slider system has a ***missing*** or ineffective stop
	Hazardous Condition(s) (when in use) **i. any crack, break or damage in the stress or loading area of the coupling device or structure** **ii. any component is *damaged* or worn to the degree that it is no longer effective** **iii. welded or repaired in a way that does not meet *OEM standard* and an imminent failure appears likely** **iv. air leak, or *level 2 leak* from hydraulic components on any slider system** **v. any slider system has a *missing* or ineffective stop**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
2. Secondary Attachment (Safety Chain or Cable)	
a) condition	a) bent, broken, cracked, ***missing***, ***abnormally worn***, or worn beyond ***manufacturer*** specifications any part is ineffective, ***insecure***, ***loose***, or ***missing*** improper length
	Hazardous Condition(s) (when in use) **i. any component is broken, cracked, or *missing*** **ii. bent, *damaged*, improperly repaired, *loose*, or worn to the degree that it is no longer effective** **iii. improper type or inadequate capacity**
3. Pintle Hook, Pin Hitch, or Coupler Hitch	
a) condition and operation *Additional Inspection Procedure(s):* Test the operation of the pintle hook and latch.	a) cracked, or fails to close or latch normally
b) mounting	b) fastener or any structural part is cracked, ineffective, ***loose*** or ***missing*** a fastener is less than SAE grade 8 or ISO class 10.9
c) cast or forged part	c) cracked, or has been repaired by welding material is worn more than 5 mm from original dimension
d) air chamber cushion (no-slack or snubber) *Additional Inspection Procedure(s):* Apply air pressure to air chamber and inspect according to hitch ***manufacturer*** service instructions and specifications.	d) ***damaged*** or leaking air chamber leak at air line or fitting pressure protection valve is not installed in air supply to prevent depletion of air from the brake system
	Hazardous Condition(s) (when in use) **i. any component is broken, cracked, or *missing*** **ii. bent, *damaged*, improperly repaired, *loose*, or worn to the degree that it is no longer effective** **iii. improper type or inadequate capacity** **iv. missing or ineffective fastener** **v. insecure latch**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
4. Ball Type Hitch	
a) ball, neck and stem	a) bent, cracked or ***loose*** ball is worn more than 3.0 mm from original dimension welded, or repaired in a way that does not meet ***OEM standard*** 3.0 mm = 0.12 in.
b) ball deck area	b) part is bent, broken or cracked weld is broken or cracked welded or repaired in a way that does not meet ***OEM standard***
c) ball coupler	c) bent, cracked or ***loose*** abnormally deteriorated or perforated by corrosion
d) latch *Additional Inspection Procedure(s):* Test the operation of the latch.	d) bent, broken or cracked ***inoperative*** or fails to adjust properly weld is broken or cracked
	Hazardous Condition(s) (when in use) **i. wear on ball exceeds 3.0 mm** **ii. any component is broken, cracked, or *missing*** **iii. bent, *damaged*, improperly repaired, *loose*, or worn to the degree that it is no longer effective** **iv. improper type or inadequate capacity** **v. missing or ineffective fastener** **vi. insecure latch**
5. Roll-Coupling Hitch	
a) condition	a) part is bent, broken or cracked weld is broken or cracked welded or repaired in a way that does not meet ***OEM standard*** fastener is ineffective, ***loose*** or ***missing*** any fastener is smaller than specified by the ***manufacturer*** or less than SAE grade 8 or ISO class 10.9 any load bearing structural part of the hitch assembly is deteriorated or perforated by corrosion

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
b) operation *Additional Inspection Procedure(s):* Test the operation of the coupling and controls according to the ***manufacturer*** service instructions.	b) fails to operate in the intended manner
	Hazardous Condition(s) (when in use) **i. fails to operate in the intended manner** **ii. any component is broken, cracked, or *missing*** **iii. bent, *damaged*, improperly repaired, or *loose*** **iv. improper type or inadequate capacity** **v. missing or ineffective fastener**
6. Automated Coupling Device	
a) condition *Additional Inspection Procedure(s):* Test the operation of the coupler according to the ***manufacturer*** service instructions.	a) ***inoperative*** • welded or repaired in a way that does not meet manufacturer standard
	Hazardous Condition(s) (when in use) **i. fails to operate in the intended manner** **ii. any component is broken, cracked, or *missing*** **iii. bent, *damaged*, improperly repaired, *loose*, or worn to the degree that it is no longer effective** **iv. improper type or inadequate capacity** **v. *missing* or ineffective fastener**
7. Fifth Wheel Coupler	
a) upper coupler (pick up plate) on trailer	a) **NOT APPLICABLE TO TRUCKS**
b) kingpin on trailer (or on towing vehicle) *Additional Inspection Procedure(s):* Check the wear and condition of the kingpin using a gauge specifically intended for that purpose or an equivalent measuring device. *Note:* In some jurisdictions remanufacturing of kingpins is permitted when the remanufacturing is done using a process certified by a professional engineer. In such a case the kingpin must be permanently marked to identify the remanufacturer and marked to indicate the date the process was completed.	b) bent, broken, cracked, deformed or ***loose*** worn more than 3.0 mm repaired by welding length is incorrect to properly fit into fifth wheel jaws *Note:* A fifth wheel intended for use with a material installed on the lower coupler, instead of applying grease, requires a longer king pin length. A king pin intended for use with a material installed on the lower coupler, instead of applying grease, does not properly couple with a standard fifth wheel.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) lower coupler (fifth wheel) top plate	c) any part is broken, cracked, ***damaged***, distorted, ***missing*** or welded, or repaired in a way that does not meet ***manufacturer*** standard surface is worn beyond ***manufacturer*** specified limit wear in pivot pin is beyond ***manufacturer*** specified limit lubricant is abnormally contaminated, (e.g. sand, gravel) not properly lubricated (unless equipped with ***manufacturer-supplied*** no-lube top plate coupling surface)
d) latching mechanism *Additional Inspection Procedure(s):* Test the operation of the latch, and wear in the fifth wheel assembly, using a test device specifically designed for that purpose or a suitable equivalent.	d) broken, cracked or ***inoperative*** stiffness or seizing of the latch mechanism is felt free-play, slack or wear is beyond manufacturer specified limit improperly adjusted modified or improperly repaired release handle is bent, modified or has anything attached to it
e) lower coupler pivot ('fifth wheel saddle') *Additional Inspection Procedure(s):* Check for wear in the fifth wheel pivot area according to ***manufacturer*** service instructions.	e) wear exceeds ***manufacturer*** specification
f) slider assembly and locking mechanism	f) any part is bent, broken, cracked, ***damaged*** or ***inoperative*** fore/aft movement of fifth wheel in slider exceeds ***manufacturer*** specification fails to lock securely slider stop is ***missing*** or ***insecure***
g) air-operated control or feature	g) does not ***operate as intended*** by the ***manufacturer***
h) upper and lower coupler attachment to frame	h) any part is broken, cracked, ***damaged***, distorted, ***missing***, or welded or repaired in a way that does not meet ***manufacturer*** standard any fastener is cracked, ineffective, ***loose*** or ***missing*** fasteners used to attach coupler assembly to frame do not meet the minimum requirements shown in the table below:

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:

Minimum Number of Bolts per Side Based on Type & Size* of Bolt

Maximum trailer GVWR	ASTM A325 Type 1,2 & 3 (metric 5.8)		SAE J429 Grade 5 (metric 8.8)		SAE J429 Grade 8 (metric 10.9)	
	1/2" (12mm)	5/8" (16mm) or larger	1/2" (12mm)	5/8" (16mm) or larger	1/2" (12mm)	5/8" (16mm) or larger
67,999 lb (30,845 kg) or less	6	4	6	4	5	4
68,000 - 84,999 lbs (30,846 - 38,556 kg)	8	5	8	5	7	5
85,000 - 105,000 lbs (38,557 - 47,628 kg)	10	6	10	6	8	5

*Bolt size refers to the outside diameter of the thread.

- 1/2 inch bolts have 3/4 inch heads and nuts
- 5/8 inch bolts have 15/16 inch heads and nuts
- 12 mm bolts have 19 mm heads and nuts
- 16 mm bolts have 24 mm inch heads and nuts

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
	Hazardous Condition(s) (when in use) **i. adjustable fifth wheel has 25% or more of the locking pins *missing*** **ii. any observable movement between the fifth wheel, or upper coupler, mounting components and/or the frame** **iii. more than 9 mm fore/aft movement of the fifth wheel in its sliding track** **iv. any sliding fifth wheel locking mechanism does not remain in the locked position** **v. any crack, break or damage in the stress or loading area of the coupling device** **vi. slider stop is *insecure* or *missing*** **vii. more than 25 percent of latching fasteners on either side of slider are ineffective** **viii. pivot bracket pin *missing* or not secured** **ix. any parent metal cracked** **x. any repair weld cracking, well defined (especially open) cracks in stress or load-bearing areas, cracks through 20% or more original welds or parent metal** **xi. operating handle not in closed or locked position** **xii. more than 20 percent of mounting fasteners on either side *missing* or ineffective** **xiii. locking mechanism parts broken, *missing*, or deformed to the extent that the kingpin is not securely held** **xiv. kingpin is bent, broken, cracked, deformed or *loose*** **xv. any trailer with a bolted upper coupler, which has fewer effective bolts than shown in table above**
8. Oscillating Fifth Wheel Coupler *Note:* Inspect fifth wheel coupler parts as described above in item 6, and inspect additional oscillating items as listed below. Inspect all frame and structural elements as described above in item 1.	
a) oscillating components and structure *Additional Inspection Procedure(s):* Check for wear and defects according to ***manufacturer*** service instructions.	a) cracked, ***damaged***, defective or ***inoperative*** wear exceeds ***manufacturer*** specification
	Hazardous Condition(s) (when in use) refer to hazardous conditions in item # 7 above.
9. Ball-Bearing Type Turntable on Trailer	**NOT APPLICABLE TO TRUCKS**

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

Appendix A

ITEM AND METHOD OF INSPECTION:	REJECT IF:
1. Liquefied Petroleum Gas (LPG or Propane) Fuel System	
Note: For additional compliance information, please see Canadian Gas Association Code.	**Hazardous Condition** **Any cause for rejection of a Liquefied Petroleum Gas (LPG or Propane) system will also mean an automatic "Hazardous Condition" for that vehicle. The cause for rejection must be corrected and the vehicle "passed" before it may be operated on the highway.**
a) regulatory authority decal	a) decal is not displayed an incorrect decal is affixed to vehicle information on decal is not readable
b) pressure vessel (tank) location and mounting	b) pressure vessel (tank) is ***insecure*** or ***loose,*** or welds are broken welding has been done anywhere on a pressure vessel (tank) except on saddle plates or brackets correct mounting bolts not used correct reinforcing plates are not used under mounting nuts pressure vessel (tank) is located above the vehicle or projects beyond vehicle side, ahead of front axle or behind rear bumper any part of exhaust system is closer than 200 mm to any part of the fuel system and is not protected by shields a heat shield is closer than 25 mm from a fuel system component
c) pressure vessel (tank) ground clearance *Note:* Includes any attached fitting.	c) distance to ground from bottom of pressure vessel (tank) is less than minimum ground clearance shown below **pressure vessel (tank) located between axles** wheelbase of 3220 mm or less: minimum ground clearance = 180 mm wheelbase over 3220 mm: minimum ground clearance = 230 mm **pressure vessel (tank) located behind rear axle** minimum ground clearance = 200 mm Any portion of the tank protrudes past the plane formed by the bottom of the rear most tires and the lowest most rearward part of the vehicle.

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
d) pressure vessel (tank) information plate and data	d) name plate is ***missing***, or illegible, or data is not shown on plate
e) pressure vessel (tank) located within the body shell of the vehicle	e) stop fill valve, remote fill, or gauging line not fitted
f) pressure vessel (tank) filler cap	f) protective filler cap not secured to filler valve or vehicle
g) pressure vessel (tank) check valve	g) double check valve on the remote fill is ***missing***, or valve is not an approved type
h) pressure vessel (tank) interconnection	h) individual pressure vessels (tanks) are not protected by soft seat back-check valves
i) pressure vessel (tank) remote filler box	i) not adequately sealed to prevent vapour migration into vehicle interior (trunk etc.)
j) main shut-off valve	j) valve is not readily accessible (cannot be reached)
k) damage protection	k) tank valves and their connections are not mounted securely tank valves and their connections are not protected from damage due to stationary objects, or objects from the road
l) corrosion protection	l) protective coating or material is ***damaged***, or is ***missing*** from externally mounted pressure vessel (tank) or attachment
m) fitting, hose, piping and tubing *Note:* Only the following types of piping and tubing are permitted for use in LPG fuel systems. Piping – must be black or galvanized steel w/ steel fittings (schedule 40 vapour and schedule 80 liquid) Tubing – must meet SAE J527, may be steel or copper with steel or brass fittings Minimum tubing wall thickness: ¼ in. tubing = 0.71 mm ½ in. tubing = 0.76 mm	m) improper tubing or piping is used hose assembly is not CGA approved and labelled supply line is not secure, or any anchor or support is damaged or missing any joint is not flared or compression type specifically designed for LPG use a bushing other than steel or brass is used piping and tubing is not protected against corrosion tubing or hose in trunk area is not protected against luggage piping between fuel pump and gasoline solenoid valve is non-metallic material

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
n) system leakage *Additional Inspection Procedure(s):* Check for leaks using a leak detector.	n) any system leak is detected
o) hydrostatic relief valve	o) incorrectly installed or ***missing*** outlet is not piped downward to outside of any enclosed space pipeaway is not secured to valve, or if installed after May 1, 1985, is aluminum or non-metallic material, or is a range connector type
p) propane supply lock off valve	p) does not operate as originally intended
q) excess flow valve	q) incorrectly installed or ***missing***
r) vaporizer	r) is not mounted securely on engine, chassis, fender apron or firewall
s) vehicle chassis and under-body	s) a structural member has been altered during installation of the system in any manner that does not meet ***industry standard*** or ***OEM standard***
t) pressure vessel sub-frame	t) any modification has been made to pressure vessel (tank) carrier, or sub-frame, in a manner not approved by pressure vessel ***manufacturer***
u) air/fuel ratio feedback control system *Note:* Applies to a vehicle originally equipped with air/fuel ratio control, converted to operate on LPG on or after October 1993, as indicated on the regulatory authority decal. *Additional Inspection Procedure(s):* Connect the positive lead of a digital voltmeter to the O_2 sensor signal wire. Connect the meter negative lead to battery ground. Start the engine and run at 2,500 RPM allowing 30 seconds to warm up the O_2 sensor, voltage should vary rapidly between 0.3 and 0.7 volts. Each time the voltage reading crosses 0.45 volts is defined as one cross-count. On dual fuel applications this test must be performed when operating on both fuels.	u) The number of cross-counts observed during a ten-second period is less than 6

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
2. Compressed Natural Gas (CNG) Fuel System	
Note: For additional compliance information, see Canadian Gas Association Code.	**Hazardous Condition** **Any cause for rejection of a Compressed Natural Gas system will also mean an automatic "Hazardous Condition" for that vehicle. The cause for rejection must be corrected and the vehicle "passed" before it may be operated on the highway.**
a) regulatory authority decal	a) decal is not displayed an incorrect decal is affixed to vehicle information on decal is not readable
b) pressure vessel (tank) location and mounting	b) pressure vessel (tank) is ***insecure*** or ***loose,*** or welds are broken welding has been done anywhere on a pressure vessel except on saddle plates or brackets correct mounting bolts not used (10 mm (3/8 in.) for over 100L tank capacity) correct reinforcing plates are not used under mounting nuts pressure vessel (tank) is located above the vehicle or projects beyond vehicle side, ahead of front axle or behind rear bumper any part of exhaust system is closer than 200 mm from any part of the fuel system and is not protected by shields a heat shield is closer than 25 mm from a fuel tank
c) pressure vessel (tank) ground clearance *Note:* Includes any attached fitting.	c) distance to ground from bottom of pressure vessel (tank) is less than minimum ground clearance shown below **pressure vessel (tank) located between axles** wheelbase of 3220 mm or less: minimum ground clearance = 180 mm wheelbase over 3220 mm: minimum ground clearance = 230 mm **pressure vessel (tank) located behind rear axle** distance from rear axle to pressure vessel (tank) is 1140 mm or less: minimum ground clearance = 200 mm distance from rear axle to pressure vessel (tank) is more than 1140 mm: minimum ground clearance = 0.18 x distance

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
d) pressure vessel (tank) information plate and data	d) name plate is ***missing***, or illegible, or data is not shown on plate
e) pressure vessel (tank) located within the body shell of the vehicle	e) tank fittings not in a gas-tight enclosure vented to the outside of the vehicle body shell
f) relieving device	f) pressure vessel does not have a burst disc installed burst disc is incorrectly installed, or not the correct value burst disc is not vented outside the body shell
g) damage protection	g) piping or tubing is not of corrosion resistant material piping or tubing is not protected from exterior corrosion line is not positioned for reasonable protection or not shielded grommet is ***missing*** or ***damaged***
h) corrosion protection	h) piping or tubing is not made of corrosion-resistant material or is not protected from exterior location
i) pressure gauge	i) no gauge is installed lines to gauge are within the passenger compartment
j) fitting, hose, piping and tubing Only the following types of piping and tubing are permitted for use in LPG fuel systems. Piping – must be black or galvanized steel w/ steel fittings (schedule 40 vapour and schedule 80 liquid) Tubing – must meet SAE J527, may be steel or copper with steel or brass fittings Minimum tubing wall thickness: ¼ in. tubing = 0.71 mm ½ in. tubing = 0.76 mm	j) piping upstream of a first-stage regulator is not rated at 4 times working pressure, or piping downstream of first-stage regulator not rated at 5 times the working pressure piping, tubing and hose fail to make adequate allowance for vibration; is not protected against damage or breakage due to strain or wear a fitting not an approved type a joint is inaccessible improper hose, tubing or piping is used
k) system leakage *Additional Inspection Procedure(s):* Check for leaks using a leak detector.	k) any system leak is detected
l) pressure regulator	l) regulator not securely mounted not protected as required
m) gasoline lock-off	m) where located downstream of the engine fuel pump, connection of gasoline fuel line to the inlet side of lock-off valve, or any other upstream connections, not made with flare-type fittings or other approved fittings slip-on clamped type hose connection is used

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
n) vehicle chassis and under-body	n) a structural member has been altered during installation of the system in any manner that does not substantially meet or exceed ***OEM*** strength requirements
o) pressure vessel sub-frame	o) any modification has been made to pressure vessel (tank) carrier, or sub-frame, in a manner not approved by pressure vessel ***manufacturer***
p) air/fuel ratio feedback control system *Additional Inspection Procedure(s):* Connect the positive lead of a digital voltmeter to the O_2 sensor signal wire. Connect the meter negative lead to battery ground. Start the engine and run at 2,500 RPM allowing 30 seconds to warm up the O_2 sensor, voltage should vary rapidly between 0.3 and 0.7 volts. Each time the voltage reading crosses 0.45 volts is defined as one cross-count. On dual fuel applications this test must be performed when operating on both fuels.	p) the number of cross-counts observed during a ten-second period is less than 6
3. Liquefied Natural Gas (LNG) Fuel System	
Note: For additional compliance information, see Society of Automotive Engineers (SAE) Standard J2343 titled "Recommended Practice for LNG Medium and Heavy Duty Powered Vehicles", and the National Fire Protection Association (NFPA) Standard 52 "Vehicular Gaseous Fuel Systems Code"	**Hazardous Condition** **Any cause for rejection of a Liquefied Natural Gas (LNG) system will also mean an automatic "Hazardous Condition" for that vehicle. The cause for rejection must be corrected and the vehicle "passed" before it may be operated on the highway.**
a) regulatory authority decal	a) decal is not visible or information on decal is not readable incorrect decal is affixed to the vehicle or fuel is not correctly identified
b) supply/container marking *Note:* As required by National Fire Protection Association (NFPA) 52.	b) ***missing***, not visible directly or by use of mirror no indication of set-to-discharge pressure no indication of working pressure of fuel supply remote filling inlets not visibly marked with the lowest working pressure of any fuel supply container in system

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
c) methane gas detection system *Additional Inspection Procedure(s):* Test the system in accordance with the ***manufacturer*** service instructions.	c) disconnected, ***inoperative*** or ***missing*** sensor is not located in engine, driver, and passenger compartment alarm is not visual and audible to the driver before entering the drivers compartment and while seated in the normal driving position system does not function continuously at all times
d) LNG container (all types) *Note:* No LNG container shall be repaired unless authorized by a certified inspector. The replacement of valves, fittings and accessories with compliant parts intended for the same purpose is not considered a repair.	d) not oriented and mounted as specified by the ***manufacturer*** not located in a protected location as designed by the vehicle ***manufacturer*** or as determined by a qualified professional engineer any portion of the container or container valves in communication with the liquid or vapour are not located behind the rear frame cross member any part of the container is welded *Note:* Only saddle plates, brackets or non-pressure components that were provided and installed by the ***manufacturer*** may be field welded.
e) roof-mounted LNG container *Note:* This condition applies to a roof-mounted LNG container in addition to those listed above for all types of containers.	e) vehicle was not manufactured or originally designed to have roof mounted containers *Note:* After-market modification of a vehicle to accept roof-mounted containers is not permitted.
f) LNG container on a bus or motor coach *Note:* These conditions apply in addition to those listed above for all types of containers.	f) located in or above the passenger compartment container is installed so that gas from fuelling or gauging operation or from a relief valve can be released inside a driver, passenger or luggage compartment
g) service valve emergency access port	g) not located on vehicle sidewall not hinged and latched is locked

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
h) vent line and outlet *Note:* All safety devices that may discharge to atmosphere must be vented to the outside of the vehicle.	h) any safety device does not vent to the outside of the vehicle vent line is made of aluminum or copper discharge line port size is not equal or greater than the main automatic or manual shut off valve line installed inside a compartment does not extend to the outside not located as far as practicable from the engine exhaust outlet does not direct escaping gas upward within 45 degrees escaping gas impinges fuel supply directed into wheel well directed at engine air intake inlets direction of escaping gas may cause a hazard to other road users not at least 1.5 times the maximum allowable working pressure (MAWP) of the container they are connected to. (When discharged into a manifold or line of increased diameter, the pressure requirement of that manifold or line must be calculated by a professional engineer to determine compliance.) fuel exiting the vaporizer has not been completely converted to a gaseous state at a temperature suitable for introduction to the remainder of the fuel system as Compressed Natural Gas (CNG) any vent line from the LNG fuel system is combined with CNG vent line
i) manual shut-off valve *Note:* Valves, valve packing, gaskets and seats must be specifically designed for LNG service. If a manual shut-off valve cannot be readily installed due to the compact design of the LNG fuel container, an automatic shut-off valve meeting section j) automatic shut-off valve can be used providing it is located downstream in the CNG portion of the fuel system. *Note:* Decals and stencils are acceptable means of marking.	i) not installed in the outlet of the manifold not suitable for the maximum allowable pressure of the container leakage occurs at less than 1.5 times (MAWP) not marked with “MANUAL SHUT-OFF VALVE” not clearly marked with working pressure

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
j) automatic shut-off valve *Note:* Decals and stencils are acceptable means of marking.	j) not installed in the outlet of the manifold does not shut off when the engine is stopped or ignition switch is in the off or at accessory positions low engine oil pressure is not sensed does not shut off when engine vacuum is not present not suitable for the maximum allowable pressure of the container leakage occurs at less than 1.5 times (MAWP) not marked with "AUTOMATIC SHUT-OFF VALVE" not clearly marked with working pressure
k) pressure relief valve *Note:* Any device used for leak testing of a LNG fuel system must have an accuracy of +/- 2% of the MAWP of the system.	k) leaks at pressure below highest relief valve pressure setting
l) automatic fuel supply shut-off valve	l) not adjacent to the manual shut-off valve not protected as required not activated by the absence of engine rotation or oil pressure
m) pressure gauge	m) is not readily visible by the driver when the engine enclosure is removed or when standing on either side of the vehicle is not located outside driver or passenger compartment is not equipped with a limiting orifice is not equipped with a shatter-proof dial lens is not equipped with a body relief
n) pressure regulator	n) not securely mounted not protected as required to prevent malfunction from low ambient air temperatures (- 40 degrees)
o) supply line *Note:* A damaged line must be replaced.	o) sagging or not supported at least every 610 mm ***damaged*** or repaired
p) pipe, tubing, hose and fitting *Note:* All materials and assemblies must be designed for the widest pressure and temperature ranges to which they may be subjected with a pressure safety factor of at least four.	p) aluminum or copper is used between the container and first-stage regulator pressure safety factor of material is not at least four

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
q) piping installation	q) installed without adequate allowance for vibration installed without adequate protection against damage or breakage due to strain or wear
r) pipe thread sealant *Note:* Suitable thread sealant is required on all male pipe threads prior to assembly upon initial installation and for component repair or replacement.	r) sealant used is not impervious to the action of fuel sealant is not applied to male pipe threads prior to assembly
s) pipe and thread condition	s) threading burrs or scaling are present pipe or fitting ends are not reamed
t) gaseous fuel cut-off for dual fuel system *Note:* Used in applications where a small amount of diesel fuel is injected into the cylinder of the engine during pre 'ignition'.	t) no means is provided to prevent the flow of gaseous fuel to the carburetor or injector fuel rail when diesel fuel is used in pre 'ignition' when ignition switch is in the off or accessory position, or from the carburetor when engine vacuum is not present
u) bypass relief device *Note:* A standalone bypass relief device is required when a vehicle is not equipped with a fuel pump containing a bypass relief device by the ***OEM*** or ***manufacturer***.	u) does not function in accordance with ***OEM*** design is not located between the fuel pump and automatic shut off valve in the liquid fuel line to carburetor is not located between the fuel pump and automatic shut off valve in injector fuel rail on a vehicle with dual fuel system
v) vehicle fuelling connection	v) does not have an approved fuelling connection for each pressure-based fuel system is not protected from moving parts, lift-able cab enclosure, engine cover, hinge or direct side impact
w) fuel-carrying component (excluding service valves, tubing and fittings)	w) **is not labeled or stamped to show all of the following:** • ***manufacturer's*** name or symbol • model designation • maximum allowable working pressure • design temperature range • direction of flow of fuel • capacity or electrical rating as applicable • scheduled replacement date if applicable

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***in this manner*** are defined conditions. The definitions can be found in the introduction section.

ITEM AND METHOD OF INSPECTION:	REJECT IF:
x) road clearance	x) lowest part of any component in the system, including protective guards, is below the lowest edge of the wheel rim
y) fuel system protection	**y) any system component is <u>not</u> protected from:** • any moving part in engine compartment • lift-able cab enclosure • engine cover, hinge or support device • direct side impact

Note: All inspection procedures are visual unless additional inspection procedures are indicated.
Conditions shown ***<u>in this manner</u>*** are defined conditions. The definitions can be found in the introduction section.