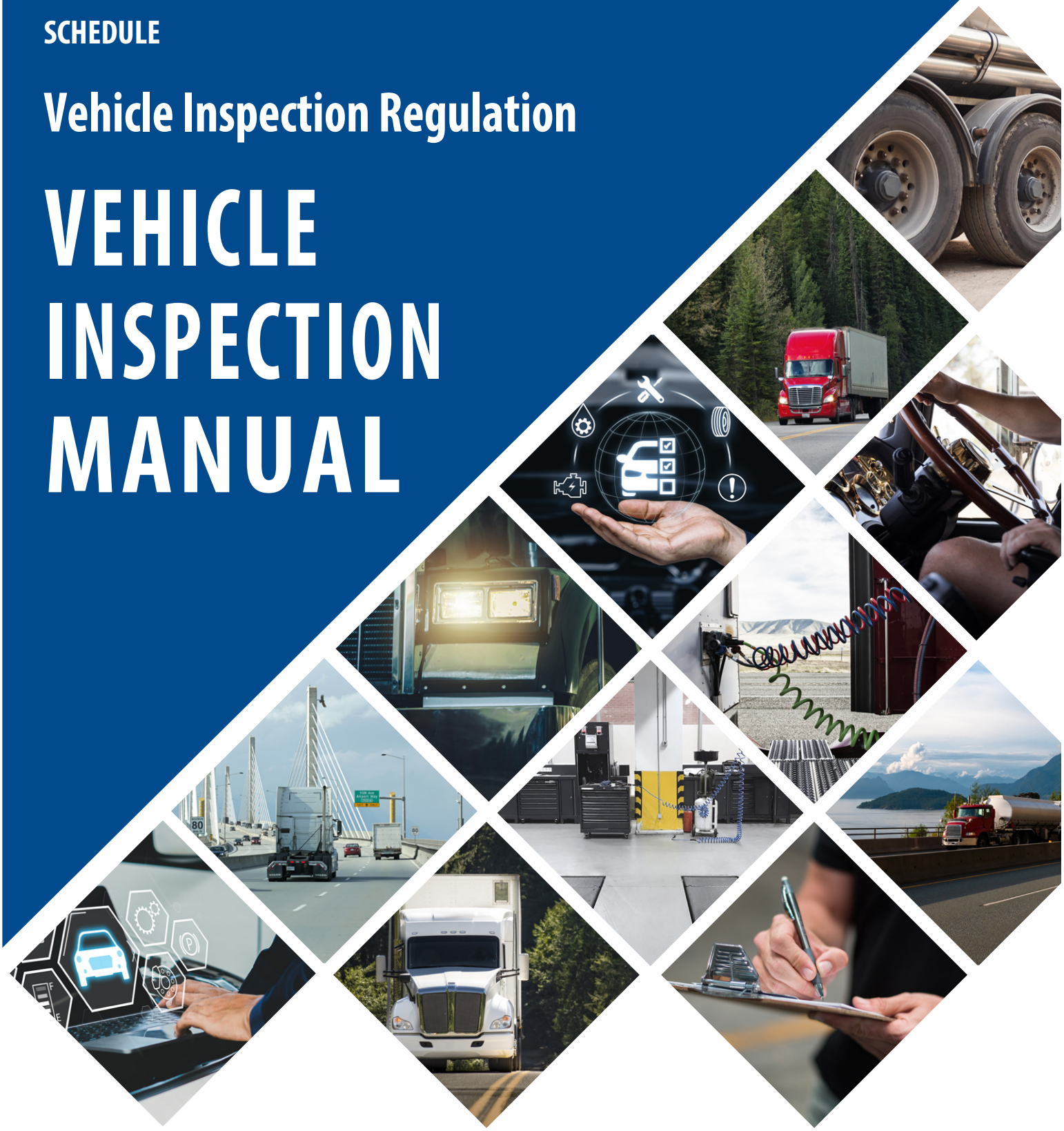
SCHEDULE

Vehicle Inspection Regulation

VEHICLE INSPECTION MANUAL



COMMERCIAL VEHICLE SAFETY & ENFORCEMENT

BRITISH COLUMBIA

Ministry of Transportation and Transit

2025

Table of Contents

Introduction

1. Definitions and Acronyms

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 header of each section of this document. The meaning of each of terms, for the purpose of conducting inspections according to this standard, is as follows:

Item	Definition
Abnormally Worn	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.
ABS	Anti-Lock Braking System
ANSI	The American National Standards Institute, and standards developed by ANSI which have been adopted in jurisdictional equipment regulations.
Applicable Requirements	The applicable requirements in British Columbia (BC) are: Motor Vehicle Act, regulations made under the Motor Vehicle Act, Motor Vehicle Safety Act (Canada), and Canadian Motor Vehicle Safety Standards (CMVSS). It is expected that the Authorized Inspector will know what the BC requirements are when they perform inspections.
Aurally Inspect	Inspect by listening.
Body Structural Integrity	Critical components designed as stress and weight/load bearing member/elements of a vehicle such as radiator support, inner fender skirts, floor pan, rocker panels, engine compartment side rails, upper reinforcements, lower body rails in the rear, inner fender wells, luggage compartment floors and the unibody are within 3 mm (less than 1/8 in.) of the critical manufacturing dimensions, alignments and tolerances. All fits and alignments are determined by the accuracy of the welded structural panels.
Bus	As defined in the MVA s. 1 - Definitions.
CGA	Canadian Gas Association
CMVSS	Motor Vehicle Safety Regulations (Canada), commonly referred to as Canadian Motor Vehicle Safety Standards (CMVSS) and their supporting Technical Standards Documents. These are Canadian manufacturing standards for vehicles which are developed and

Item	Definition
	updated by Transport Canada and which are referenced in jurisdictional equipment regulations.
CNG	Compressed Natural Gas
Collector Motor Vehicle	As defined in the Motor Vehicle Act Regulations – Division 22A.
Commercial Passenger Vehicle	A motor vehicle operated on a highway by or on behalf of a person who charges or collects compensation for the transportation of passengers in that motor vehicle.
CSA	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.
Damaged	Any unintended condition, or condition caused by means other than normal use, that is likely to impair normal function.
DOT	Department of Transportation (US)
ECE function markings	Compliance, use and/or installation markings found on European manufactured devices. Indicated by an “E” inside a circle. E code markings do not necessarily indicate CMVSS compliance.
FMVSS	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.
Fuzzing	Fibrous, hair-like particles on surface of material or substance.
GVW	“Gross Vehicle Weight” means the aggregate of the net weight of a vehicle and the weight of its load.
GVWR	As defined in the Motor Vehicle Act s. 1 - Definitions.
Hazardous Condition	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.
HID	High-intensity discharge lamp
I-CAR	Inter-Industry Conference on Auto Collision Repair
Industry Standard	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	A vehicle component or system does not operate the way it:

Item	Definition
	• ordinarily operates, • operated when the vehicle was manufactured, or • is required by law to operate.
Insecure	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.
LED	Light Emitting Diode
Left Hand Drive Vehicle	A left hand drive vehicle has the steering wheel on the left side, and is designed to be used in countries where people drive on the right-hand side of the road.
LGVW	"Licensed Gross Vehicle Weight" means the gross vehicle weight a vehicle is licensed for. This is usually shown on the vehicle's licensing and registration documents.
LNG	Liquified Natural Gas
LPG	Liquified Petroleum Gas
Loose	An item is detached, or no longer fully attached, due to failure or deterioration of one or more means of attachment.
Manufacturer	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.
MAWP	Maximum allowable working pressure (MAWP) is the maximum pressure to which a component is designed to be subjected when handling the specified fluid throughout the design temperature range.
MIG Welding	Metal Inert Gas Welding
Missing	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 by law to be on the vehicle.
Motorcycle	As defined in the Motor Vehicle Act s. 1 - Definitions.
MVA	Motor Vehicle Act of British Columbia
MVAR	Motor Vehicle Act Regulations of British Columbia
MVSA	Motor Vehicle Safety Act (Canada)
Net Weight	As defined in the Motor Vehicle Act Regulations s. 1 - Interpretation.

Item	Definition
Nitrous Oxide	A pressurized Nitrous Oxide System (NOS) that usually consists of a canister or tank and delivery lines that provide the injection of nitrous oxide gas to an internal combustion motor.
NSM	National Safety Mark The national safety mark (NSM) is the property of the Government of Canada and its use is authorized by the Minister of Transport to manufacturers of new vehicles offered for sale in Canada. For more information visit the Transport Canada website.
NVIS	The New Vehicle Information Statement is a record of a new vehicle and provides basic information on the vehicle, the manufacturer / importer, the authorized dealer who sells it, and on the initial purchaser.
OEM	"Original Equipment Manufacturer" refers to the "brand name" manufacturer of the vehicle.
OEM Standard	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.
Pressure Vessel	A tank or container designed to hold a gas or liquid at a pressure substantially different from the ambient pressure.
Reject If	A condition if present at time of inspection, or if present after repairs, results in a failed inspection.
Replicar	As defined in the Motor Vehicle Act Regulations section 7.01(5)(a).
Replikit	As defined in the Motor Vehicle Act Regulations section 7.01(5)(b).
Right Hand Drive Vehicle	A right hand drive vehicle has the steering wheel on the right side, and is designed to be used in countries where people drive on the left hand side of the road.
Rust Jacking	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	Society of Automotive Engineers
Salvage Vehicle	As defined in the Motor Vehicle Act section 17.1(1).
School Bus	Means a "yellow and black school bus", as defined in the Motor Vehicle Act Regulations section 11.01(1).

Item	Definition
Spalled	Splintered or chipped.
Three-Wheeled Vehicle	A vehicle, other than a competition vehicle, a motorcycle, a restricted-use motorcycle, an antique reproduction vehicle, a trailer or a vehicle imported temporarily for a special purpose, that: a) is designed to travel on three wheels in contact with the ground, b) has no more than four designated seating positions, and c) has a GVWR of 1,000 kg or less.
TIG Welding	Tungsten Inert Gas welding
TSD	Technical Standards Document (federal)
VIN	Vehicle Identification Number

2. 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 drop.
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.

3. Inspection Classes

To ensure clarity and ease of use, an **Inspection Class** column is provided beside each inspection item and its rejection criteria. This column identifies the applicable class or combination of classes to which the item and criteria apply.

Pursuant to Section 217(1)(b) of the Motor Vehicle Act (MVA), the Director designates facilities for the following class of inspections:

Class 1	Light Motor Vehicle with LGVW of 5500 kg or less
Class 2	Heavy Motor Vehicle with LGVW of 5501 kg or more
Class 3	Trailer and Semi-Trailer
Class 4	Bus
Class 5	School Bus

Class 6	Motorcycle

4. 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.

5. Inspection Methods

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

The items that require inspection on any particular vehicle are based on the specific components and systems that were required by regulations, (e.g.: CMVSS or the BC Motor Vehicle Act and Regulations) 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.

6. Illustrations, Text Boxes and Diagrams used in the Standard

In an effort to improve the consistency and uniformity of the inspection process a series of illustrations, text boxes and diagrams are used in this version of the standard. If there is a conflict or inconsistency between the diagram, text box or illustration and any other enactment, the other enactment prevails.

Info panel(s):
Are used throughout the Standard as a reminder, outlining Authorized Inspector's responsibilities when conducting inspections. These are displayed with the "i" symbol and appearing at the beginning of each section.

Additional Inspection Procedure(s):
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)" appearing before or after the text describing the necessary steps, or at the beginning of each subsection (if they apply to all items of that subsection).

Optional Inspection Procedure(s):
Whenever inspection of an item allows for multiple methods of inspecting, a text box with the heading "Optional Inspection Procedure(s)" will be displayed before or after the text, describing the procedure.

Note(s):
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 or after the text, or at the beginning of each subsection (if they apply to all items of that subsection).

Hazardous Condition(s):
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 British Columbia, driving a vehicle with a hazardous condition is prohibited. These are displayed with the heading "Hazardous Condition(s)" appearing before or after each subsection.

Right Hand Drive Vehicles Additional Inspection Requirements:
When inspecting Right Hand Drive Vehicles many items and methods of inspection require **extra attention** or are **in addition to** all items and methods outlined in this Vehicle Inspection Manual. These are displayed with the heading "Right Hand Drive Vehicles Additional Inspection Requirements" appearing before or after an inspection item, or at the beginning of each subsection (if they apply to all items of that subsection).

Neighbourhood Zero Emissions Vehicles (NZEV)
These are displayed with the heading "Neighbourhood Zero Emissions Vehicles (NZEV)" appearing before or after an inspection item, or at the beginning of each subsection (if they apply to all items of that subsection).

Equipment Requirements

Minimum Equipment Requirement For All Facilities	Inspection Class
Standard issue domestic/metric hand tools applicable to vehicles and systems to be inspected.	1, 2, 3, 4, 5, 6

Minimum Equipment Requirement For All Facilities	Inspection Class
Headlight aiming device maintained and calibrated to the manufacturer's specifications, or a headlight aiming screen that meets the requirements set out in Section 6 - Headlamp Aim. **Note:** Where physical space limitations prevent the use of a headlight aiming screen as specified in Section 6, a headlight aiming device, maintained and calibrated to the manufacturer's specifications, is mandatory.	1, 2, 4, 5, 6
Wheel and dual wheel assembly removal device for facilities inspecting vehicles with a licensed GVW of more than 8,200 kg.	2, 3, 4, 5
Brake drum, rotor and lining/pad measuring tools (only tools specially designed for the purpose are acceptable).	1, 2, 3, 4, 5, 6
Hoisting or lifting device(s) suitable for vehicles being inspected: a) overhead/walk-under hoist or pit b) floor jack hydraulic/pneumatic and jack stand	a) 1 b) 2, 3, 4, 5
Tire tread depth gauge (in 32nds of an inch and millimeters)	1, 2, 3, 4, 5, 6
Tire pressure gauge	1, 2, 3, 4, 5, 6
Dimensional measurement tools and devices, which may include dial indicators, Go-No-Go gauges, calipers, micrometers, measuring scales, and tapes, designed for assessing the physical dimensions and tolerances of steering, suspension and other components in accordance with manufacturer specifications.	1, 2, 3, 4, 5, 6
Torque wrench (appropriate for wheels/rims inspected)	1, 2, 3, 4, 5, 6
Gauges for fifth wheel king pin, jaws, and pintle hitch	2, 3, 4
Digital decibel meter	1, 2, 4, 5, 6
Digital voltmeter	1, 2, 4, 5 **Note:** Only if facility is pressure fuel endorsed.
Chamber Mate or device for measuring air brake chambers.	2, 3, 4, 5 **Note:** Only if facility is air brake endorsed.
Applicable CSA D250 standards for year of manufacture.	5

Vehicle Identification

1. Vehicle Identification Number (VIN)

Neighbourhood Zero Emissions Vehicles (NZEV) required equipment.

Note: A VIN is a unique code that is usually 17-characters long, used to identify motor vehicles, motorcycles, and more. While no standard format existed from 1954 to 1981, the National Highway Traffic Safety Administration standardized VINs in 1981 to include specific characters, excluding O, I, and Q to prevent confusion with numbers.

Item and method of inspection	Reject if	Inspection Class
a) for a VIN on the dashboard, firewall, frame, manufactures compliance label (usually found on the frame, driver's door or on the adjacent door post), and owner's documentation. **Note:** Some vehicles MAY not have a VIN in all of the noted locations. Diligence is required to ensure that all located VIN's are accurate and applicable to the vehicle presented for inspection.	a) any do not match	1, 2, 3, 4, 5, 6
b) the VIN on the: • door **Note:** Door may have been replaced with a used or recycled one. • door pillar • dashboard • firewall **Note:** If there is discrepancy with a VIN, other than that on the door, refer the customer to an *Autoplan* broker. • frame	b) illegible, crimped or held down by unusual rivets or bolts or there is glue around the VIN plate the VIN has been altered in some way or appears to be counterfeit the VIN is missing or damaged – checkered pattern on the sticker should be an indication that it has been peeled off another vehicle the VIN is hidden or mutilated	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
Note: Some trailers MAY not have a VIN. Diligence is required to ensure that all located VIN's are accurate and applicable to the vehicle presented for inspection. If there is discrepancy with VIN or no VIN is located, refer the customer to an *Autoplan* broker.		
c) BC Assigned VIN - BC Assigned VIN is visible and riveted to the frame, door pillar or firewall using tamper-proof rivets. i) VIN on the firewall or frame ii) verify BC Assigned VIN with ICBC VIN assignment document	i) not attached by tamper proof rivets, not installed in a visible location ii) BC Assigned VIN does not match the one on the document	1, 2, 3, 4, 5, 6

2. Manufacturer's Compliance Label

Neighbourhood Zero Emissions Vehicles (NZEV) required equipment.

Manufacturer's Compliance Label is a label applied to a vehicle by the manufacturer that states the vehicle conforms to all applicable Canadian Motor Vehicle Safety Standards (CMVSS) in effect on the date of manufacture.

Item and method of inspection	Reject if	Inspection Class
a) compliance label on a motorcycle	a) missing, altered, illegible or does not meet CMVSS requirements **Note:** Stop inspection if vehicle submitted does not clearly display CMVSS or FMVSS type motorcycle (MC, TRI, LSM or EMC) on manufacturer's compliance label (affixed to permanent part of the motorcycle as close as practicable to the intersection of the steering post and the handle bars so that it is easily visible without moving any part of the motorcycle except the steering system).	6
b) compliance label on a Neighbourhood Zero Emissions Vehicle (NZEV)	b) missing, altered, illegible or does not meet CMVSS requirements	1

Item and method of inspection	Reject if	Inspection Class
	Note: Neighbourhood Zero Emissions Vehicle (NZEV) must display a Compliance Label for a low speed vehicle in accordance with the Motor Vehicle Safety Act (Canada).	

Section 1 - Power Train

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the "Definitions and Acronyms" section.

1. Accelerator Pedal/Throttle Actuator

Additional Inspection Procedure(s): With engine running, press and release the accelerator pedal. Check engine response.

Item and method of inspection	Reject if	Inspection Class
a) pedal/actuator/throttle	a) binding, inoperative, missing, or engine fails to respond normally modified, or repaired by welding throttle slides or butterflies do not move freely does not operate per OEM Standards	1, 2, 4, 5, 6
b) anti-slip feature **Additional Inspection Procedure(s):** Inspect anti-slip feature for all pedals.	b) ineffective, abnormally worn, loose or missing	1, 2, 4, 5, 6
c) throttle position sensor and connections	c) corroded, inoperative, insecure or improperly connected	1, 2, 4, 5, 6
d) mount	d) deteriorated or weakened by corrosion, or insecure	1, 2, 4, 5, 6
e) linkage/cable	e) worn, binding, broken or insecure deficient part is used that is not equivalent to OEM standard	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	throttle cable is binding, frayed or seized	
f) springs	f) broken, corroded, deteriorated, missing, stretched or improper type	1, 2, 4, 5, 6

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):
With engine running, inspect manually and aurally.

Note: Minor leaking and resulting soot tracks are normal at joints in diesel exhaust systems.

Item and method of inspection	Reject if	Inspection Class
a) manifold/head pipe	a) broken, cracked, leaking, loose or missing	1, 2, 4, 5, 6
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 equipped with noise enhancing device	1, 2, 4, 5, 6
c) resonator	c) cracked, leaking, missing or perforated patched in any manner other than by welding	1, 2, 4, 5, 6
d) exhaust pipe	d) cracked, collapsed or pinched, missing, perforated or leaking patched in any manner other than by welding	1, 2, 4, 5, 6
e) tail pipe	e) leaking, perforated, missing, patch affixed other than by weld, collapsed, end is pinched, equipped with noise enhancing device	1, 2, 4, 5, 6
f) mounting hardware	f) broken, insecure or loose, or missing	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	deficient part is used that does not meet OEM standard	
g) heat shields	g) a required heat shield is broken, insecure, loose, missing or incorrect size/type **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. Heat shields can be mounted in places other than the door areas.	1, 2, 4, 5, 6
h) location	h) 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	1, 2, 4, 5, 6
i) turbocharger	i) leaking exhaust gases level 2 leak of engine oil	1, 2, 4, 5, 6
j) exhaust system and pipe termination **Note:** Also applies to the exhaust system of any auxiliary equipment. On a school bus, inspection must be conducted according to the applicable requirements and the applicable CSA D250 Standard.	j) 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 does not terminate within 50 mm (2 in.) of outside perimeter of the passenger compartment and expels exhaust outward (includes trunk) on a school bus, does not terminate as required by jurisdiction and applicable CSA D250 Standard	1, 2, 4, 5
k) noise emission	k) excessive **Note:** The opinion of an inspector as to whether the engine and exhaust noise emission is greater than that made by other vehicles in	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	good condition of comparable size, horsepower, piston displacement or compression ratio shall determine whether exhaust gases are expelled with excessive noise. Must be comparable to OEM and confirmed with decibel meter. equipped with any noise enhancing device confirm noise emission level with decibel meter for any vehicle with non-OEM, modified or altered exhaust system	
l) drain holes, leaks **Note:** Minor leaking and resulting soot tracks are normal at joints in diesel exhaust pipes.	l) any leakage at any point in the exhaust system other than drain holes provided by the manufacturer	1, 2, 4, 5, 6
m) exhaust cut-out	m) exhaust is equipped with cut-out	1, 2, 4, 5, 6

Hazardous Condition(s):
i. exhaust leak, other than a minor leak at a joint, within the perimeter of the cab, passenger compartment (includes trunk), 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
iv. on a bus with a gasoline fuel system, the exhaust system is leaking or discharging more than 160 mm forward of the rear most part, and discharging forward of any door or window designed to be opened (except door or window intended solely for emergency use)
v. on a bus with a diesel, pressurized, or liquefied fuel system, the exhaust system is leaking or discharging more than 400 mm forward of the rear most part, and discharging forward of any door or window designed to be opened (except door or window intended solely for emergency use)

3. Emission Control Systems and Devices

Note: Emission control devices and systems required on any particular vehicle will vary based on the vehicle's date of manufacture.

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 4, 5, 6
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	1, 2, 4, 5, 6
c) catalytic converter **Note:** Required on all light vehicles manufactured after 1987. Required on vehicles manufactured before 1987 if OEM equipped. Required on diesel engines if OEM equipped.	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 deficient part is used that does not meet OEM standard	1, 2, 4, 5, 6
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	1, 2, 4, 5
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	1, 2, 4, 5

Hazardous Condition(s):
i. any part is in a condition where it appears likely to become detached, or imminent failure appears likely

4. Drive Shaft, Drive Train Components and Differential

Additional Inspection Procedure(s): Inspect using hand pressure and suitable tools.
With parking brakes on and gear selector in neutral, place a small bar between the yoke and the U-joint and rotate shaft fore and aft.

Item and method of inspection	Reject if	Inspection Class
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, rust is present coming from cup indicating a lack of lubrication and potential failure CV joint protective boot is loose, missing, or torn lubricant is leaking from CV joint	1, 2, 4, 5, 6
b) drive shaft yoke **Note:** This includes slip yoke, shaft yoke, input yoke, output yoke, tube yoke and end yoke.	b) cracked, not in phase 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	1, 2, 4, 5, 6
c) drive shaft tube	c) crack in weld or tube twisted tube	1, 2, 4, 5, 6
d) drive line attaching hardware	d) loose, missing or stripped	1, 2, 4, 5, 6
e) centre (carrier) bearing and mount	e) cracked, damaged, loose, missing or abnormally worn insecure mounting or mount is abnormally deteriorated	1, 2, 4, 5
f) slip joint	f) radial wear at joint exceeds manufacturer specification seized not in phase	1, 2, 4, 5, 6
g) hanger bracket and hardware, and metal guard or catch (if OEM equipped)	g) cracked, loose, missing	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
Note: Required on all school buses. Required on buses over 3.8 m (150 in.) wheel base with engine mounted at front, or equipped with a multi piece shaft. Buses equipped with a multi piece driveshaft must have a guard on each section.	mounted in a manner that fails to prevent drive shaft from falling to ground on a bus, metal floor guard is missing or fails to protect occupant compartment	
h) differential/housing **Additional Inspection Procedure(s):** With vehicle raised, check differential for condition and proper functioning.	h) missing or loose fasteners, level 2 leak, not functioning as intended	1, 2, 4, 5, 6
i) chain	i) chain is adjusted to more than 40 mm (1.6 in.) play at the mid-point between sprockets or exceeds OEM specifications; master link installed in wrong direction; chain tightens and loosens as wheel is rotated	6
j) drive guard	j) broken or cracked; not OEM or equivalent	6
k) sprocket/pulley	k) moves on mounting bolts when bike is rocked in gear; bent, broken or undercut; exceeds OEM specifications	6
l) shaft drive/belt drive	l) wear exceeds OEM specification	6

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 Controls

Additional Inspection Procedure(s): Inspect clutch operation and adjustment according to manufacturer service instructions. With manual transmission, apply the parking brakes, start the engine, depress the clutch pedal to its maximum travel.

Item and method of inspection	Reject if	Inspection Class
a) operation	a) fails to operate in the manner prescribed by the manufacturer	1, 2, 4, 5, 6
b) adjustment	b) is not adjusted according to manufacturer instructions	1, 2, 4, 5, 6
c) pedal/controls 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 cable is damaged, broken or seized	1, 2, 4, 5, 6
d) clutch pedal/controls hydraulic system	d) fluid reservoir is below minimum level indicated by manufacturer or level 2 leak of fluid at any point	1, 2, 4, 5, 6

Hazardous Condition(s):
i. clutch fails to disengage transmission

6. Engine/Transmission Mount

Item and method of inspection	Reject if	Inspection Class
a) condition/attachment	a) bent, loose, missing, welded, saturated with oil 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	1, 2, 4, 5, 6

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.

Item and method of inspection	Reject if	Inspection Class
a) ignition switch/electric solenoid	a) engine fails to shut down when ignition switch is turned off	1, 2, 4, 5, 6
b) mechanical shut down	b) engine fails to shut down when device is actuated	1, 2, 4, 5, 6

8. Engine Start Safety Feature

Additional Inspection Procedure(s): Test operation to confirm engine start is prevented according to manufacturer service instructions. Remote Start – from a vehicle control position, engage remote start.

Item and method of inspection	Reject if	Inspection Class
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 (excluding buses) with a GVWR at or below 4,536 kg to be equipped with a clutch safety switch.	a) missing or fails to prevent engine start as designed **Right Hand Drive Vehicles** additional inspection requirements (see Appendix D). **Note:** On any vehicle equipped with an **automatic transmission**, a motor used for the vehicle's propulsion must not be started by setting the ignition switch to the position used to start the motor if the transmission control is in a forward or reverse drive position. If a passenger car, multi-purpose passenger vehicle, truck or three-wheeled vehicle has a GVWR of 4,536 kg or less and is equipped with a **manual transmission**, a motor used for the vehicle's propulsion must not be started by setting the	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	ignition switch to the position used to start the motor unless the clutch pedal is depressed or the drive train is otherwise disengaged.	

9. Gear Position Indicator

Item and method of inspection	Reject if	Inspection Class
a) location	a) cannot be viewed by a person seated in driver position	1, 2, 4, 5
b) operation	b) indicator fails to indicate selected gear on a vehicle equipped with an automatic transmission, or is out of sequence	1, 2, 4, 5, 6
c) gear shift or gear selector pattern illustration label (embossment etc.)	c) illegible or missing	1, 2, 4, 5, 6

10. Engine or Accessory Drive Belt

Note: This section applies only to a drive belt directly connected to the engine.

Item and method of inspection	Reject if	Inspection Class
a) condition	a) broken, frayed, missing or oil-contaminated crack exceeds OEM standard or industry standard	1, 2, 4, 5, 6
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.	b) belt is so loose it is likely to slip, or so tight it is likely to cause bearing damage the belt tensioner does not function as intended deflection not within manufacturer's specifications, if OEM specifications not defined then between 12 mm and 20 mm (1/2 in. and 3/4 in.)	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
c) drive belt pulley	c) bent, broken, cracked or out of alignment	1, 2, 4, 5, 6

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. 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.

Item and method of inspection	Reject if	Inspection Class
a) electrical system connections	a) connector is damaged or corroded in a way that exposes any conductor connector is damaged, insecure or is unable to properly connect or lock into place	1, 2, 4, 5, 6
b) wiring	b) corroded or damaged in a way that exposes any conductor insulation is chafing due to abrasive contact with any vehicle part	1, 2, 4, 5, 6
c) traction motor/generator	c) damaged, insecure or loose indication of burning or overheating drive component abnormally worn	1, 2, 4, 5, 6
d) traction battery	d) damaged, insecure or loose indication of burning or overheating	1, 2, 4, 5, 6
e) battery storage area	e) damaged or structurally weakened	1, 2, 4, 5, 6
f) self-diagnostic/status indicator	f) there is any condition indicated by the system that is defined by the manufacturer as being unsafe	1, 2, 4, 5, 6

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 and Diesel Fuel Systems

Note: This includes the fuel system for any auxiliary equipment or device.

Item and method of inspection	Reject if	Inspection Class
a) filler cap **Note:** School bus fuel type must be labelled adjacent to fuel filler as per CSA D250.	a) allows spillage, improper type or missing	1, 2, 4, 5, 6
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 plastic fuel tank not OEM or equivalent	1, 2, 4, 5, 6
c) tank mount(s) and strap(s)	c) broken, cracked, loose or missing deficient part is used that does not meet OEM standard (i.e. chain) fastener is loose or missing	1, 2, 4, 5, 6
d) line, hose, fitting and connection **Note:** Refer to correct type of hose or tube and the related defective condition(s) as defined in Appendix B.	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 Appendix B	1, 2, 4, 5, 6
e) fuel pump	e) damaged or insecure	1, 2, 4, 5, 6
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	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
g) fuel shut-off	g) missing or inoperative	6
h) air intake	h) flame arrestor or air filter removed	1, 2, 4, 5, 6
i) location	i) see rejection criteria under Exhaust System, Item 2h	1, 2, 4, 5, 6
j) additional fuel system (nitrous oxide type or equivalent)	j) if installed or equipped or not of approved type for use on highway	1, 2, 4, 5, 6

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) battery is damaged or leaking

13. Pressurized or Liquefied Fuel Systems (LPG, CNG and LNG)

This section of the Vehicle Inspection Manual includes inspection items relevant to CNG (Compressed Natural Gas), LPG (Liquefied Petroleum Gas), and LNG (Liquefied Natural Gas) fuel systems. To provide clarity, each inspection item is accompanied by a note that indicates which fuel system(s) the item applies to. Please refer to the respective fuel system label (CNG, LPG, or LNG) in the note to ensure the correct system is being inspected according to the vehicle's configuration.

Hazardous Condition(s):
Any cause for rejection of a LPG, CNG or LNG system, except those that have an additional note, 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.

Item and method of inspection	Reject if	Inspection Class
a) regulatory authority label i) Technical Safety BC label ii) OEM “diamond-shaped” label LPG, CNG and LNG	a) missing, damaged, or information is not readable i) label is not displayed on a vehicle converted to a pressure fuel system ii) label is not displayed on a vehicle with an OEM-built pressure fuel system label does not meet the applicable CSA Code	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
b) pressure vessel and valves, location and mounting LPG, CNG and LNG	b) pressure vessel is insecure or loose, or welds are broken welding has been done anywhere on a pressure vessel except on saddle plates or bracket altered in a manner that does not meet the applicable CSA Code correct mounting bolts not used (i.e., not corrosion resistant) correct reinforcing plates are not used under mounting nuts, or are missing where required pressure vessel valve(s) and connections are not protected from damage due to stationary objects, or objects from the road pressure vessel 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 not protected by shields a heat shield is less than 25 mm away from any fuel system component	1, 2, 4, 5
b1) pressure vessel located within the body shell of the vehicle LPG, CNG and LNG	b1) stop fill valve, remote fill, or gauging line not fitted (**LPG only**) tank fittings not in a gas-tight enclosure sealed and vented to the outside of the vehicle body shell	1, 2, 4, 5
b2) roof-mounted pressure vessel CNG and LNG **Note:** This condition applies to a roof-mounted LNG container in addition to those listed above for all types of containers.	b2) vehicle was not manufactured or originally designed to have roof pressure vessels **Note:** After-market modification of a vehicle to accept roof-mounted pressure vessels is not permitted (**LNG only**).	1, 2, 4, 5
b3) supply/container marking	b3) missing	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
LNG	not affixed at the fill point of the LNG tank not indicating the appropriate fuel type (LNG) not indicating the MAWP	
c) pressure vessel ground clearance LPG, CNG and LNG **Note:** Includes any attached fitting or valve.	c) distance to ground from bottom of pressure vessel is less than minimum ground clearance set out in the applicable CSA Code 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	1, 2, 4, 5
d) pressure vessel sub-frame LPG, CNG and LNG	d) any modification has been made to pressure vessel any modification has been made to carrier or sub-frame that does not meet OEM standard	1, 2, 4, 5
e) pressure vessel information plate and data LPG, CNG and LNG **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 or label is missing or illegible, or data is not shown on plate per applicable CSA Code	1, 2, 4, 5
f) pressure vessel filler cap or dust cap LPG, CNG and LNG	f) missing or not correctly installed	1, 2, 4, 5
g) pressure vessel remote filler box LPG, CNG and LNG	g) not adequately sealed to prevent vapour migration into cab, passenger compartment (including trunk), and/or sleeper	1, 2, 4, 5
h) main shut-off valve LPG, CNG and LNG	h) valve is not readily accessible (cannot be reached)	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
i) corrosion and damage protection LPG, CNG and LNG	i) protective coating or material is damaged, or is missing from externally mounted pressure vessel or attachment piping or tubing is not made of corrosion-resistant material or is not protected from external damage 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	1, 2, 4, 5
j) fitting, hose, piping and tubing LPG, CNG and LNG	j) is insecure, or any anchor support is damaged or missing grommet is damaged or missing components in trunk area are exposed LPG 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:** Only the following types of piping and tubing are permitted for use in LPG fuel systems.	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
	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 **CNG** 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 **LNG** a fitting contains both left-hand and right-hand threads multiple NPT bushings are stacked together (nested) close nipples that do not support use of a wrench are used **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.	

Item and method of inspection	Reject if	Inspection Class
	piping installed without adequate allowance for vibration or adequate protection against damage or breakage due to strain or wear sealant used is not impervious to the action of fuel sealant is not applied to male pipe threads prior to assembly **Note:** Suitable thread sealant is required on all male pipe threads prior to assembly upon initial installation and for component repair or replacement. threading burrs or scaling are present pipe or fitting ends are not reamed	
k) fuel system leakage LPG, CNG and LNG **Additional Inspection Procedure(s):** Check for leaks using a leak detector.	k) any fuel system leak is detected	1, 2, 4, 5
l) pressure relief or hydrostatic valve or device LPG, CNG and LNG	l) incorrectly installed or missing not properly vented as per the applicable CSA Code	1, 2, 4, 5
m) automatic lock-off valve LPG, CNG and LNG	m) inoperative	1, 2, 4, 5
n) excess flow valve and cap LPG	n) missing or incorrectly installed	1, 2, 4, 5
o) vehicle chassis and under-body LPG, CNG and LNG	o) a structural member has been altered in any manner that does not substantially meet or exceed OEM strength requirements	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
p) air/fuel ratio feedback control system LPG and CNG **Additional Inspection Procedure(s):** Connect the positive lead of a digital voltmeter to the O2 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 O2 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 **Note (LPG only):** 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 label.	1, 2, 4, 5
q) pressure vessel check valve LPG	q) double check valve on the remote fill is missing, or valve is not an approved type	1, 2, 4, 5
r) pressure vessel interconnection LPG	r) individual pressure vessels are not protected by soft seat back-check valves	1, 2, 4, 5
s) vaporizer LPG	s) is not mounted securely on engine, chassis, fender apron or firewall	1, 2, 4, 5
t) pressure measurement device CNG	t) no pressure measurement device is installed gas lines to pressure measurement devices are within the passenger compartment	1, 2, 4, 5
u) pressure regulator CNG	u) regulator not securely mounted not protected from road damage, excessive heat, cargo spillage and electrical equipment not oriented in accordance with the manufacturer's instructions	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
v) methane gas detection system LNG **Additional Inspection Procedure(s):** Test the system in accordance with the manufacturer service instructions.	v) disconnected, inoperative or not functioning as OEM specified sensor is not located in engine 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	1, 2, 4, 5
w) LNG pressure vessel (all types) LNG **Note:** No LNG tank 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.	w) 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 part of the tank is welded **Note:** Only saddle plates, brackets or non- pressure components that were provided and installed by the manufacturer may be field welded.	1, 2, 4, 5
x) LNG pressure vessel on a bus or motor coach LNG **Note:** These conditions apply in addition to those listed above for all types of tanks.	x) located in or above the passenger compartment tank is installed so that gas from fueling or normal operation or from a relief valve can be introduced inside a driver, passenger or luggage compartment	1, 2, 4, 5
y) pressure vessel valve(s) LNG	y) not readily accessible not labeled as per their function	1, 2, 4, 5
z) LNG manual shut-off valve LNG	z) not installed in the outlet of the manifold not suitable for the MAWP of the tank	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
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 tank, an automatic shut-off valve meeting *section j,* can be used providing it is located downstream in the CNG portion of the fuel system. Decals and stencils are acceptable means of marking.	leakage occurs at less than 1.5 times (MAWP) not marked with "MANUAL SHUT-OFF VALVE"	
aa) automatic shut-off valve LNG **Note:** Decals and stencils are acceptable means of marking.	aa) does not shut off when the engine is stopped or ignition switch is in the off or at accessory positions not suitable for the maximum allowable pressure of the container	1, 2, 4, 5
bb) pressure relief valve LNG	bb) leaks at pressure below highest relief valve pressure setting	1, 2, 4, 5
cc) pressure gauge LNG	cc) 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	1, 2, 4, 5
dd) pressure regulator LNG	dd) not securely mounted not protected as required to prevent malfunction from low ambient air temperatures (-40 degrees)	1, 2, 4, 5
ee) supply line LNG **Note:** A damaged line must be replaced.	ee) sagging or not supported at least every 610 mm damaged or repaired in manner that does not meet the OEM standard	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
ff) gaseous fuel cut-off for dual fuel system LNG **Note:** Used in applications where a small amount of diesel fuel is injected into the cylinder of the engine during pre-ignition.	ff) no means to isolate the supply of each fuel is provided	1, 2, 4, 5
gg) bypass relief device LNG **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.	gg) 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	1, 2, 4, 5
hh) vehicle fuelling connection LNG	hh) 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	1, 2, 4, 5
ii) fuel-carrying component (excluding service valves, tubing and fittings) LNG	ii) is not labeled or stamped to show all of the following: • manufacturer's name or symbol • model designation • MAWP • design temperature range • direction of flow of fuel • capacity or electrical rating as applicable • scheduled replacement date if applicable	1, 2, 4, 5
jj) fuel system protection	jj) any system component is not protected from:	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
LNG	• any moving part in engine compartment • lift-able cab enclosure • engine cover, hinge or support device • direct side impact	

Section 2 - Suspension

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

1. Suspension and Frame Attachments

Additional Inspection Procedure(s): Raise the vehicle as necessary to access the suspension components.

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.

Item and method of inspection	Reject if	Inspection Class
a) vehicle ride height **Additional Inspection Procedure(s):** Check ride height while vehicle is parked on a flat level surface.	a) **on vehicles with a GVWR of less than 4500 kg:** suspension is sagged so that the vehicle ride height is more than 38 mm from manufacturer’s specified height track bar or any other suspension component extends down below the lowest part of the wheel rim one side of the vehicle is more than 38 mm, higher or lower than the other when measured at the tire centerline	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	the vehicle's suspension can be independently controlled from inside the vehicle (unless the controller is designed and installed by the original vehicle manufacturer at the time of manufacture) **on vehicles with a GVWR of 4500 kg or more:** 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 centerline one side of the vehicle is more than 50 mm, higher or lower than the other when measured at the tire centerline on a **bus**, step height at an entrance door is 25 mm above or below the range of step height specified by the manufacturer	
b) suspension lift / raised vehicle **Additional Inspection Procedure(s):** Height measurements must be recorded for headlights, front bumper, tire size and overall vehicle height.	b) vehicle modification or components not designed for use on highway	1, 2, 3, 4, 5, 6
c) lift block **Note:** Applies to leaf suspension.	c) if installed on front axle (other than OEM)	1, 2, 4, 5
d) frame bracket, mounting bracket and hanger **Note:** Some trailer suspension systems use a "cross tube brace", consisting of a pipe positioned between the spring hangers on either side of the vehicle. The "cross tube brace" is used to position the suspension for shipment and installation and has no bearing on the alignment or the function of the suspension.	d) broken, cracked, damaged, loose, missing, or perforated due to corrosion or deterioration welded or repaired in a way that does not meet OEM standard missing, loose, broken, cracked, worn in excess of 3 mm (1/8 in.) at the hanger bolt hole	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
e) mounting fasteners	e) broken, cracked, loose or missing	1, 2, 3, 4, 5, 6
f) mounting tower	f) misaligned or modified, corrosion holes present, any area corroded to such a depth as to show evidence of metal fatigue, section repairs other than metal and sections welded in other than by an approved method, attaching bolts are missing, loose, inferior type, bent and/or misaligned rusted through so that the strut could come detached	1, 2, 4, 5, 6
g) upper strut bearing	g) loose, binding, worn, shifted from its normal position	1, 2, 4, 5

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 and Tracking Components

Additional Inspection Procedure(s): Raise the vehicle as per manufacturer procedures to access the suspension components. Inspect using hand pressure and suitable tools.

Note: This section applies to all types of suspension.

Item and method of inspection	Reject if	Inspection Class
a) axle attachment, axle saddle	a) bent, broken, cracked, loose or missing axle has shifted from its normal position	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3, 4, 5, 6
d) stabilizer/anti-sway bar or link	d) bent, broken, cracked, loose, missing, welded, disconnected or worn beyond manufacturer specification	1, 2, 3, 4, 5, 6
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	2, 3, 4, 5

Hazardous Condition(s):
i. an axle has shifted or is able to shift from its normal position
ii. any attaching or tracking 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

3. Axle and Axle Assembly

Item and method of inspection	Reject if	Inspection Class
a) condition	a) axle is bent, damaged, loose or shifted out of normal position axle material or weld is cracked	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	repaired by welding 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 and Spring Attachment

Item and method of inspection	Reject if	Inspection Class
a) leaf spring	a) any spring leaf is broken, cracked, missing, inoperative, 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 shifted so as to be less than 13 mm (1/2 in.) from any rotating part, or contacting another vehicle part	1, 2, 3, 4, 5, 6
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) missing, broken, crack of any length visible on both sides of a spring splintered, separating, delaminating or not the same type on each side of vehicle **on inspection class 2, 3, 4 and 5 vehicles:** worn more than 3 mm in load bearing area	1, 2, 3, 4, 5, 6
c) coil spring	c) missing, inoperative, broken or shifted out of normal position spacer is used between the coils of a spring **Note:** Spacers allowed under or on top of coil spring. welded, repaired or modified in a way that does not meet the OEM standard	1, 2, 3, 4, 5, 6
d) torsion bar	d) broken, cracked, loose or missing	1, 2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	welded, repaired or modified in a way that does not meet the OEM standard	
e) shackle, pin, bushing **Additional Inspection Procedure(s):** Check the wear of the spring pins according to manufacturer service instructions.	e) 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 shackles extended in a manner that does not meet the OEM Standard	1, 2, 3, 4, 5, 6
f) U-bolt & hardware	f) broken, cracked, loose, missing, or shifted out of normal position welded or repaired in a way that does not meet OEM standard	1, 2, 3, 4, 5, 6
g) spring contact area of hanger (slipper) **Note:** Wear plates are permitted by some manufacturers in the spring contact (slipper) area of fabricated hangers.	g) repaired by welding (except installation of wear plates) spring load bearing area is worn more than 3 mm	1, 2, 3, 4, 5, 6
h) bump pad	h) loose, missing, split or abnormally worn	1, 2, 3, 4, 5
i) rubber load cushion	i) rubber block or vertical pin is broken, loose, missing or split	2, 3, 4, 5
j) centre bolts	j) missing, welded, broken, loose, misaligned	1, 2, 3, 4, 5, 6

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. any spring is broken

v. a composite spring has a crack of any length intersecting with another crack, or a crack longer than ¾ the length of the spring
vi. torsion bar is broken or cracked
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.

Item and method of inspection	Reject if	Inspection Class
a) ride height	a) height is 50 mm above or below OEM specification vehicle leans to one side or air spring pressure is unequal	1, 2, 3, 4, 5
b) air spring (air bag)	b) improperly seated, missing, patched or reinforcing ply is exposed due to damage or deterioration air leak	1, 2, 3, 4, 5
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	1, 2, 3, 4, 5
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	1, 2, 3, 4, 5
e) airline, connection and fitting	e) fitting, line, repair method, installation or modification does not meet OEM standard	1, 2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
Note: Refer to correct type of hose or tube and the related defective condition(s) as defined in Appendix B.	tubing or hose is defective as defined in Appendix B 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 center of an axle	1, 2, 3, 4, 5
g) kneeling feature on a bus **Additional Inspection Procedure(s):** Use the control to operate the kneeling feature. Confirm the system operates as intended.	g) inoperative audible or visual warning is inoperative	4, 5
h) pressure protection valve	h) air goes to suspension before brake system tank pressure reaches 450 kPa (65 psi)	2, 3, 4, 5
Hazardous Condition(s): i. an air spring (air bag) is missing, deflated or has an air leak		

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 of this Vehicle Inspection Manual.

7. Shock Absorber/Strut Assembly

Item and method of inspection	Reject if	Inspection Class
a) condition	a) damaged, detached, or missing binding strut bearing/mount prevents free rotation of the steering wheel	1, 2, 3, 4, 5, 6
b) mount & hardware	b) broken, loose or missing	1, 2, 3, 4, 5, 6
c) oil leak	c) level 2 leak of oil	1, 2, 3, 4, 5, 6
d) bushings	d) loose, missing deteriorated, rubber excessively dispersed	1, 2, 3, 4, 5, 6
e) positioning	e) shock not located at each OEM position	1, 2, 3, 4, 5, 6
f) type (hydraulic cylinder)	f) hydraulic cylinder not manufacturer certified for on-highway use	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
i. a shock absorber on coil, spring or air ride suspension is broken, detached, or missing

8. MORryde Suspension

Note: All bolts shall be torqued to manufacturer's specifications.

Item and method of inspection	Reject if	Inspection Class
a) attachment to frame	a) bolts loose, missing	1, 2, 3, 4, 5
b) attachment to axle	b) cracked, broken, loose, damaged	1, 2, 3, 4, 5
c) clearance between frame and U-bolts	c) any component does not clear frame	1, 2, 3, 4, 5
d) U-bolts	d) loose, not torqued to OEM specification	1, 2, 3, 4, 5
e) rubber banding (check with 3 in. measuring device)	e) separation of rubber in excess of 19 mm (3/4 in.) in depth from steel plate	1, 2, 3, 4, 5
f) crossmember at suspension	f) missing, broken, cracked, loose	1, 2, 3, 4, 5

Hazardous Condition(s):
i. any component allows the axle to shift from its normal position.
ii. any attaching component is missing, loose, cracked or broken.

9. Multi-Link/Independent Rear Suspension

Item and method of inspection	Reject if	Inspection Class
a) spring	a) missing, welded, improperly seated in spring saddle, sagged so as to lower the vehicle more than 38 mm (1 1/2 in.) from manufacturer's specified height	1, 2, 4, 5, 6
b) ball joints	b) exceed OEM tolerances, loose in knuckle or control arm	1, 2, 4, 5, 6
c) stabilizer bar/links	c) missing, bent, broken, loose, disconnected, welded, damaged, bushing brackets and bolts missing or loose	1, 2, 4, 5, 6
d) suspension members	d) missing, bent, disconnected, broken, loose, welded, damaged	1, 2, 4, 5, 6
e) control arm	e) bent, loose, cracked, welded, bushings loose	1, 2, 4, 5, 6
f) knuckles	f) bent, welded, distorted	1, 2, 4, 5, 6
g) pivot bolts	g) missing, bent, welded, nuts missing or loose, threads stripped	1, 2, 4, 5, 6
h) anchor bolts	h) missing, bent, welded, nuts missing or loose, threads stripped	1, 2, 4, 5, 6
i) rear axle carrier (if equipped)	i) any attaching or tracking component is missing, bent, disconnected, loose, welded or damaged	1, 2, 4, 5, 6

Hazardous Condition(s):
i. any spring is broken
ii. any attaching or tracking component is missing, loose, cracked and or/broken

10. Computer Controlled Air Suspension System

Additional Inspection Procedure(s): Control switch must be in "OFF" position if vehicle is being hoisted or raised.

Item and method of inspection	Reject if	Inspection Class
a) air springs	a) missing, cut, inoperative, loose, leaking, patched, spring rubber cracked to first braid, vehicle leans to one side, any air spring is deflate	1, 2, 3, 4, 5, 6
b) lines	b) missing, crushed, cracked, disabled, leaking, restricted, insecurely mounted	1, 2, 3, 4, 5, 6
c) spring mounting	c) brackets or bolts loose or missing, bolt threads stripped, spring loose in mount	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
d) compressor	d) missing, insecurely mounted, inoperative	1, 2, 3, 4, 5, 6
e) compressor relay (if OEM equipped)	e) missing, inoperative	1, 2, 3, 4, 5, 6
f) control module	f) missing, inoperative	1, 2, 3, 4, 5, 6
g) height sensors	g) missing, loose, inoperative, improperly located	1, 2, 3, 4, 5, 6
h) switch	h) missing, inoperative, disconnected	1, 2, 3, 4, 5, 6
i) warning lamp	i) inoperative during test cycle	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
i. any air spring is deflated

Section 3A - Air Brakes

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

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).

1. Air Compressor

Note: 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.

Item and method of inspection	Reject if	Inspection Class
a) operation	a) inoperative	2, 4, 5
b) belt	**Note:** Inspect drive belt according to Section 1. Power Train, Item 10 - Engine or Accessory Drive Belt of this Vehicle Inspection Manual.	2, 4, 5

Item and method of inspection	Reject if	Inspection Class
c) mounting	c) broken, cracked, loose or bolts missing	2, 4, 5
d) air filter	d) contaminated sufficiently to restrict air flow, missing	2, 4, 5
e) pulley	e) bent, broken, cracked, damaged, loose, out of alignment	2, 4, 5

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
iii. any oil leakage from air compressor that could make contact with an ignition source

2. Air Supply System

Additional Inspection Procedure(s): Test either air pressure build-up time or, air pressure build-up/loss rate, as described below.

Item and method of inspection	Reject if	Inspection Class
a) air pressure build-up time **Optional Inspection Procedure(s):** With spring brakes released and wheels chocked, reduce system pressure until pressure gauge indicator is less than 350 kPa (50 psi). Run engine at 1,200 rpm and record time required to raise air pressure from 350 to 620 kPa (50 to 90 psi) on gauge.	a) exceeds three (3) minutes	2, 4, 5
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	2, 4, 5
c) governor **Additional Inspection Procedure(s):** Determine the governor cut-in and cut-out pressure values.	c) inoperative, missing, loose or incorrect type air leak evident at governor or connecting air lines	2, 4, 5

Item and method of inspection	Reject if	Inspection Class
	the governor cut in pressure shall not be lower than that set by the vehicle manufacturer governor cut-out pressure is below or above that set by the vehicle manufacturer and in no case shall exceed 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)	2, 4, 5
e) air pressure gauge	e) gauge is inoperative or has inaccurate reading	2, 4, 5
f) pressure drop/reserve **Additional Inspection Procedure(s):** Observe air pressure gauges while making a full service brake application with engine off.	f) pressure drops more than 138 kPa (20 psi) when a full service brake application is made	2, 4, 5
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	2, 4, 5

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)

3. Air System Leakage on a Trailer

Item and method of inspection	Reject if	Inspection Class
a) air leakage **Additional Inspection Procedure(s):** Monitor the system for leaks during the inspection by listening for leaks.	a) detectable leak at any location	3
b) air loss rate **Additional Inspection Procedure(s):** **Step 1:** Fill the supply circuit to normal operating pressure. Shut off the air supply and seal the circuit while monitoring air pressure. **Step 2:** While keeping the supply circuit filled, also fill the service circuit to the same pressure. Shut off the air supply and seal the circuits while monitoring air pressure. **Step 3:** Supply air to all other air systems and/or accessory devices. Shut off the air supply and seal the circuits while monitoring air pressure.	b) trailer is attached to a towing vehicle and total leakage exceeds 28 kPa (4 psi) in one minute trailer is connected to non-vehicle air source and total leakage exceeds 20 kPa (3 psi) in one minute	3
c) relay emergency valve air loss **Additional Inspection Procedure(s):** Manually disconnect trailer emergency gladhand.	c) emergency brakes do not apply, emergency brakes do not remain fully applied for at least 15 minutes, or air bleeds back from the system	3

Hazardous Condition(s):
i. air pressure drops more than 40 kPa +/- 5 kPa (6 psi) per minute during air leakage test

4. Air Tank

Item and method of inspection	Reject if	Inspection Class
a) contamination **Additional Inspection Procedure(s):** Open the drain valve on	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	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
each tank and drain all fluid.		
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	2, 3, 4, 5
c) air tank bracket and/or strap	c) broken, cracked or missing does not meet OEM standard	2, 3, 4, 5
d) air tank drain valve	d) inoperative, leaking, loose or missing does not meet OEM standard	2, 3, 4, 5
e) moisture ejector	e) inoperative, leaking	2, 3, 4, 5

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.

Item and method of inspection	Reject if	Inspection Class
a) one-way check valve (between supply (wet) tank and service tanks) 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:	a) air pressure drops in either the primary or secondary air tank	2, 4, 5

Item and method of inspection	Reject if	Inspection Class
Step 1: Begin with air system at normal operating pressure. Open the drain valve on the supply (wet) tank.		
b) two-way check valve (between service tanks and brake system control valves) **Step 2:** Open the drain valve on either the primary or secondary service tank.	b) air pressure drops on both the primary and secondary air tanks	2, 4, 5
c) two-way check valve (between service tanks and brake system control valves) **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) air pressure drops on both the primary and secondary air tanks	2, 4, 5

Hazardous Condition(s):
i. air tank check-valve is inoperative or missing

6. Brake Pedal/Actuator

Item and method of inspection	Reject if	Inspection Class
a) pedal	a) broken, cracked, loose, missing or abnormally worn welded or repaired in a way that does not meet OEM standard	2, 4, 5
b) mount	b) deteriorated or weakened by corrosion, or insecure	2, 4, 5
c) anti-slip feature	c) ineffective, loose or missing	2, 4, 5

Hazardous Condition(s):
i. pedal is loose or missing, or an imminent failure appears likely

7. Treadle Valve and Trailer Hand Valve

Item and method of inspection	Reject if	Inspection Class
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)	2, 4, 5
b) condition	b) cracked, insecure or loose mounting, mounting bracket or mounting fastener damaged, missing or stripped	2, 4, 5

8. Brake Valves & Controls

Item and method of inspection	Reject if	Inspection Class
a) operation **Additional Inspection Procedure(s):** Test the operation of all valves and controls.	a) any valve is inoperative	2, 3, 4, 5
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	2, 3, 4, 5
c) quick release valve, relay valve **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 any repair or replacement of a brake valve retains brake functionality according to original OEM design.	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	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
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.		
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	2, 3, 4, 5

Hazardous Condition(s):
i. quick release valve or relay valve is inoperative or missing

9. Proportioning, Inversion or Modulating Valve

Additional Inspection Procedure(s): With the parking brakes released:
i. exhaust all air from Primary tank (0 psi),
ii. with secondary tank at governor cut-out pressure,
iii. perform a full pressure service brake application; the modulator valve should exhaust air pressure from the spring parking brake circuit,
iv. release the service brake application; air from the secondary circuit should return the spring parking brakes to an off position,
v. repeat until all the air from the secondary circuit is lost.

Item and method of inspection	Reject if	Inspection Class
a) type of limiting or proportioning valve	a) improper valve is used for vehicle type **Note:** i.e., a tractor converted to a straight truck or vice versa, is not properly configured for current vehicle use.	2, 4, 5
b) operation	b) inoperative or missing	2, 4, 5
c) mounting	c) broken bracket, insecure or loose	2, 4, 5

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

Item and method of inspection	Reject if	Inspection Class
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	2, 4, 5
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.	2, 4, 5

Hazardous Condition(s):
i. towing vehicle (tractor) protection system is missing or inoperative

11. Parking Brake and Emergency Application on Truck or Bus

Item and method of inspection	Reject if	Inspection Class
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	2, 4, 5
b) parking brake release	b) parking brake releases slowly, hangs or drags	2, 4, 5
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	2, 4, 5

Hazardous Condition(s):
i. parking brake is inoperative

12. Parking Brake and Emergency Application on Trailer

Item and method of inspection	Reject if	Inspection Class
a) parking brake application **Additional Inspection Procedure(s):** Actuate the parking brake control as required. Check parking brake function at each wheel.	a) brake does not apply on any wheel required to have parking brake	3
b) parking brake release	b) parking brake releases slowly, hangs or drags	3
c) emergency application **Additional Inspection Procedure(s):** Actuate emergency application of the parking brakes by exhausting the trailer supply/emergency line, using the trailer supply valve, by removing the gladhand, or by using a suitable test device.	c) parking brakes do not immediately apply automatically time required for air pressure in the chambers to fall to atmospheric pressure is more than 3 seconds	3

Item and method of inspection	Reject if	Inspection Class
	Note: For this test, atmospheric pressure is considered 21 kPa (3 psi) or less.	

Hazardous Condition(s):
i. parking brake is inoperative

13. Air System Components

Item and method of inspection	Reject if	Inspection Class
a) gladhand	a) corroded or insecure mounting, cracked, damaged installation or modification does not meet the OEM standard or industry standard if there is no OEM standard not designed for use in air brake systems seal damaged or missing	2, 3, 4, 5
b) gladhand screen	b) on a trailer, required screens are missing plugged or ruptured	2, 3, 4, 5
c) air line, connection and fitting **Additional Inspection Procedure(s):** Check for improper installations, modifications or repairs. **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.	c) fitting, line, repair method, installation or modification does not meet the OEM standard or industry standard if there is no OEM standard tubing or hose is defective as defined in Appendix B 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	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
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	2, 3, 4, 5
e) leakage **Additional Inspection Procedure(s):** Monitor system for leaks.	e) an air leak at any location	2, 3, 4, 5

Hazardous Condition(s):
i. an air line bulges under pressure
ii. air line modification or repair does not meet the OEM standard or industry standard if there is no 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

14. Brake Chamber

Item and method of inspection	Reject if	Inspection Class
a) brake chamber **Note:** Includes DD3 chamber on a bus.	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	2, 3, 4, 5
b) spring brake chamber	b) park brake-apply spring is caged by caging bolt or made inoperative by other mechanical means	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	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	2, 3, 4, 5
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	2, 4

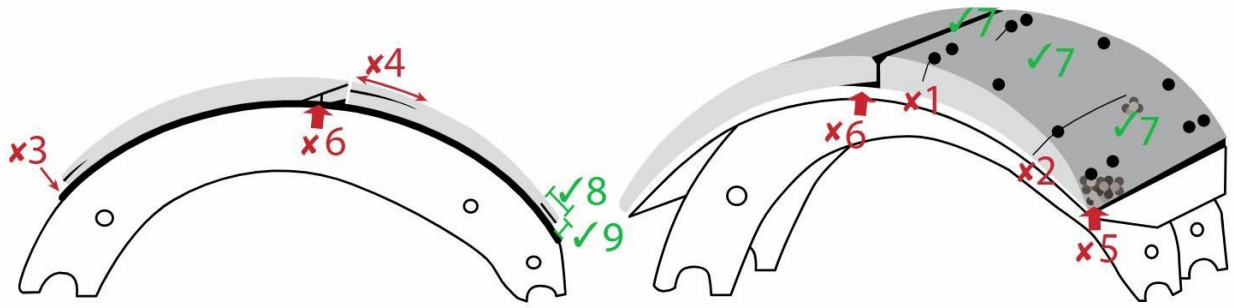
Hazardous Condition(s):
i. air leak at a chamber
ii. caging plate in a chamber is out of position or 'hung up'
iii. non-manufactured hole or crack in a chamber
iv. insecure, loose or missing chamber
v. mismatched chamber type or size on active or passive steer axle
vi. improper type or size brake chamber is used on a steer axle

15. Drum Brake System Components

Additional Inspection Procedure(s): When an inspection reveals evidence of a defect, abnormal condition, or when the camshaft rotation travel is 100 degrees or more, disassembly of wheel(s) and drum(s) is mandatory.

Item and method of inspection	Reject if	Inspection Class
a) brake operation	a) a required brake is missing a brake is inoperative	2, 3, 4, 5
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	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	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
metal, due to rust build-up. When the lining protrudes outside of the brake drum, drum removal is necessary to obtain lining thickness.	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 of this Vehicle Inspection Manual 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)	



- 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

Item and method of inspection	Reject if	Inspection Class
✅ Pass condition 9 – crack in edge of lining less than 1 mm wide		
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.	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. **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 center of the brake shoe. The measurement must be taken of the thinner brake shoe lining, when there is a difference in thickness.	2, 3, 4, 5
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 of this Vehicle Inspection Manual for wheel seal leaks)	2, 3, 4, 5
e) brake drum diameter (wear)	e) measured drum diameter:	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Brake drum diameter must be measured, and the measurement must be recorded on the inspection report. **Note:** Drum diameter measurements must be taken using a suitable tool and with the level of accuracy defined by the measurement tolerance.	• exceeds the limit indicated on the brake drum • does not meet OEM standard if the limit is not indicated on the brake drum • does not meet industry standard if the limit is not indicated on the brake drum, and no OEM standard is available • is 2.3 mm **more than** original drum diameter for nominal drum size of 350 mm (14 in.) or less, if none of the above is available • is 3 mm **more than** original drum diameter for nominal drum size greater than 350 mm (14 in.), if none of the above is available 2.3 mm = 0.09 in. 3.0 mm = 0.12 in. has one or more grooves worn so that measurement in groove exceeds wear limit: • out of round **more than** 0.25 mm on drums 280 mm (11 in.) diameter and smaller • out of round **more than** 0.63 mm on drums greater than 280 mm (11 in.) diameter 0.25 mm = 0.01 in. 0.63 mm = 0.025 in.	
f) wheel seal	f) level 2 leak of bearing lubricant	2, 3, 4, 5
g) return spring	g) missing, broken or stretched (fails to hold both rollers against cam)	2, 3, 4, 5
h) spider	h) bent, broken, loose, welded or repaired in a way that does not meet OEM standard	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	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
xii. mismatch of brake chamber size

Note: Also see section 9 item 5 of this Vehicle Inspection Manual 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

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. Push-rod measurements must be recorded on the inspection form prior to commencing camshaft rotation. See “brake adjustment” below.
Back off the slack adjuster until movement is noticed in the brake chamber push rod. The roller will now be in the bottom position of the S-cam. Brake S-cam bushings should be inspected at this time. Mark the slack adjuster in relation to the camshaft with chalk. (Adjust the brakes to lock the wheel.) Ensure the brakes properly adjusted after test. This test is not required when drums are removed from the vehicle. Dust shields must be removed.

Note: Also applies to T-Cam brake system.

Item and method of inspection	Reject if	Inspection Class
a) camshaft condition Additional Inspection Procedure(s): Check the condition and mounting of	a) camshaft is bent, twisted, repaired by welding, incorrectly installed or incorrect type movement of camshaft in bushing exceeds 2.0 mm or OEM standard	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
each brake camshaft, and check for movement in the bushings.	difference between marks is more than 120° or 1/3 of camshaft travel overcammed, inoperative, binds, sticking **Note:** In the event brake drums are suspected of being oversized, the wheels and drums must be removed and the drums measured, or the drums may be measured by an alternate type of measuring device, using another method, provided the device/method measures drum wear accurately. All measurements must be recorded on the inspection form.	
b) camshaft mounting	b) mounting bracket broken or loose	2, 3, 4, 5
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) worn, 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 (see note below) **Note:** the correct angle is an 80 - 100 degree angle (where applicable), or as close as practicable. Not all manufacturers obtain this angle. Refer to manufacturer's specifications. brake stroke indicator is missing incorrect pushrod length **Note:** Verify the pushrods are cut to proper length and meet chamber type specifications.	2, 3, 4, 5
d) brake adjuster **Note:** Self-adjusting brake adjusters are required by CMVSS 121 on	d) not equipped with self-adjuster as required adjuster is inoperative or improperly installed improper type or size brake adjuster is used	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
vehicles manufactured on and after May 31, 1996. They cannot be replaced with manual brake adjusters.	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 center of a camshaft to the center of the clevis pin is not the same on all brakes of an axle	2, 3, 4, 5
f) brake shoe roller	f) flat spots, missing, wrong size	2, 3, 4, 5
g) brake shoe anchor pin	g) missing, wear allows the lining to protrude beyond outside edge of brake drum	2, 3, 4, 5
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.	h) stroke is at or beyond the limit of the brake chamber as shown in the "Brake Stroke Limits For Clamp-Type Brake Chambers" subsection below difference between stroke measurements is greater than 6 mm on an axle **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.	2, 3, 4, 5

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
vi. camshaft travel exceeds 120 degrees
vii. camshaft is inoperative

Brake Stroke Limits For Clamp-Type Brake Chambers

Chamber Type (Size)	Stroke Limit (mm)	Stroke Limit (in.)
6	32	1 - 1/4

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

17. Brake Shoe Travel (Wedge Brakes)

Item and method of inspection	Reject if	Inspection Class
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	2, 3, 4, 5

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.

Item and method of inspection	Reject if	Inspection Class
a) brake operation	a) a required brake is missing a brake is inoperative	2, 3, 4, 5
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. Lateral run-out and parallelism only need to be checked 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 of this Vehicle Inspection Manual for wheel seal leaks) 0.3 mm = 0.01 in. disc not vented properly hot spots are present that cannot be removed by machining	2, 3, 4, 5
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 • less than the OEM standard if minimum indicated on the brake rotor is not available • less than the industry standard, if minimum indicated on the brake rotor and OEM standard are not available	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	• less than 39 mm (+/- 0.05 mm) if none of the above is available two or more grooves worn beyond 2.3 mm (3/32 in.) (0.090 in.) lateral run-out exceeds 0.25 mm (0.01 in.)	
d) caliper	d) any part is binding, broken, seized, missing, or mounted incorrectly or does not meet the OEM standard slide pin/slider or pad slider is binding, damaged, seized, insecurely mounted, or does not meet the 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	2, 3, 4, 5
e) anchor plate	e) loose or bolt is missing	2, 3, 4, 5
f) pad condition	f) broken, cracked, damaged, or abnormally worn friction material is contaminated by oil or grease (Also see section 9 item 4 of this Vehicle Inspection Manual for wheel seal leaks) rivet loose on pad, pad loose on bonded lining, pad is missing, or pad is installed incorrectly	2, 3, 4, 5
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.	g) measured friction material thickness is: • less than OEM standard or industry standard if there is no OEM standard • less than 3 mm for bonded friction material thickness, if none of the above is available • less than 5 mm for riveted friction material thickness, if none of the above is available	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
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.	difference between inboard and outboard friction material thickness is: • greater than the amount indicated in manufacturer service instruction or equivalent industry standard if manufacturer service instructions are not available • greater than 3mm if none of the above is available 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	2, 3, 4, 5

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 x. mismatched chamber size
Note: Also see section 9 item 4 of this Vehicle Inspection Manual 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 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.

Item and method of inspection	Reject if	Inspection Class
a) indicator lamp	a) inoperative or missing fails to turn on during bulb-check cycle when ignition is turned on	2, 4, 5

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Cycle the ignition off and on while monitoring the ABS indicator lamp.	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) 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 3 of this Vehicle Inspection Manual.	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	2, 4, 5
c) electronic control unit (ECU)	c) missing, insecure mounting, connectors corroded	2, 4, 5
d) relay/ABS modulating valve	d) missing, leaking, insecure mounting to ECU, abnormal corrosion	2, 4, 5
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	2, 4, 5
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	2, 4, 5
g) presence	g) missing on vehicles manufactured on or after April 1, 2000.	2, 4, 5

Hazardous Condition(s):
i. any malfunction of the ABS system that prevents normal brake operation

20. Anti-Lock Brake System (ABS) on Trailer

Note: ABS is not required by CMVSS 121 for: trailers with width greater than 2.6 m, any vehicle equipped with an axle that has a GAWR greater than 13,154 kg; GVWR greater than 54,432 kg – "heavy hauler trailer"; and any load divider dolly. Every vehicle equipped with ABS that was not mandatory for the vehicle when it was manufactured including those listed in the exceptions below must have ABS in good working order.

Item and method of inspection	Reject if	Inspection Class
a) indicator lamp (trailer-mounted) **Additional Inspection Procedure(s):** Proper operation of the ABS must be confirmed using one of the methods listed below: **Test Method #1.** Connect to towing vehicle manufactured after March 1, 2001 that has been verified to have a properly functioning ABS. **Test Method #2.** Using suitable test equipment, confirm that trailer ABS control module sends required signal to operate dash mounted ABS lamp in towing vehicle.	a) missing, not amber in colour is not marked "ABS" on the lamp itself, or not marked "ABS" within 150 mm of the lamp is not between 150 mm and 600 mm away from the left rear red side marker lamp fails to turn on during bulb-check cycle when power is supplied to auxiliary circuit (center pin, blue wire) 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	3
b) wiring **Additional Inspection Procedure(s):** Visually inspect accessible portions of the wiring. Inspect all repairs and damaged areas.	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	3
c) electronic control unit (ECU)	c) missing, insecure mounting, connectors corroded	3
d) relay/ABS modulating valve	d) missing, leaking, insecure mounting to ECU, abnormal corrosion	3

Item and method of inspection	Reject if	Inspection Class
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	3
f) PLC signal to towing vehicle **Note:** Power Line Carrier (PLC) communication is required for all trailers built on or after March 1, 2001.	f) PLC signal is not transmitted by trailer ABS **Note:** When using Test Method 1 for the indicator lamp (trailer-mounted) above, PLC communication from the trailer is verified when the dash-mounted trailer ABS lamp in the towing vehicle turns on during bulb- check, and then turns off or stays on, to show the presence of a malfunction in conjunction with the trailer-mounted indicator lamp. A malfunction may be described as a Fault, Diagnostic Fault Code, or Diagnostic Trouble Code.	3
g) presence	g) missing on vehicles manufactured on or after April 1, 2000	3

Hazardous Condition(s):
i. any malfunction of the ABS system that prevents normal brake operation

21. Stability Control System on Truck or Bus

Additional Inspection Procedure(s): Check the ECU for indication of any fault or malfunction.

Item and method of inspection	Reject if	Inspection Class
a) indicator lamp	a) fails to illuminate or lamp remains illuminated fault or malfunction is indicated	2, 4, 5

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Cycle the ignition off and on while monitoring the indicator lamp.	**Note:** Each of the conditions above are to be recorded on the inspection report, however a vehicle is not rejected for this condition alone.	
b) operation	b) any visual evidence that the system has been tampered with or defeated **Note:** The condition above is to be recorded on the inspection report, however a vehicle is not rejected for this condition alone.	2, 4, 5

22. Stability Control System (Electronic Stability Control [ESC] or Roll Stability System [RSS]) on Trailer

Additional Inspection Procedure(s): Check the ECU for indication of any fault or malfunction in conjunction with inspection of the ABS as described in item 20 above.

Item and method of inspection	Reject if	Inspection Class
a) operation	a) there is evidence that the system has been tampered with or defeated the system has an active fault (light or indicator) **Note:** Each of the conditions above are to be recorded on the inspection report, however a vehicle is not rejected for this condition alone.	3

Section 3H - Hydraulic Brakes

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

1. Hydraulic System Components

Item and method of inspection	Reject if	Inspection Class
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. Surface rust and corrosion is normal on metal lines and fittings, and is not cause for rejection.	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	1, 2, 3, 4, 5, 6
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 Appendix B deficient product is used that does not meet OEM standard level 1 leak of brake fluid	1, 2, 3, 4, 5, 6
c) master cylinder **Additional Inspection Procedure(s):** If master cylinder fluid level is below indicated minimum level, further inspection of braking system is required.	c) damaged or insecure mounting fluid is contaminated level 1 leak of brake fluid fluid level is below indicated minimum level filler cap is damaged, loose or missing, vent holes are plugged, or gasket is missing or swollen	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
d) pressure differential switch (if equipped)	d) switch or electrical connection is damaged, insecure or loose level 1 leak of brake fluid inoperative	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6
g) service brake function	g) brake does not apply or release as intended service brake pedal travel exceeds 80% of the manufacturer's specified available pedal travel or the available pedal travel	1, 2, 4, 5, 6
h) proportioning valve **Additional Inspection Procedure(s):** Determine if rear wheel brakes are working on vehicles equipped. Lift the vehicle so that all wheels are clear of the ground and place lifting device under rear axle rather than under the body because the valve on the body on some vehicles is connected to axle by a link which causes valves to shut off pressure to the rear brakes when the vehicle body lifts away from rear axle. Test function by applying just sufficient pressure to brake pedal to just lock both front wheels against hand rotation, the rear wheels should also be locked.	h) rear wheels fail to lock	1, 2, 4, 5

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
vii. service brakes do not apply or release as intended
viii. breakaway brakes inoperative or missing

2. Brake Pedal/Actuator

Item and method of inspection	Reject if	Inspection Class
a) pedal	a) broken, cracked, loose, missing or abnormally worn welded or repaired in a way that does not meet OEM standard	1, 2, 4, 5
b) mount	b) cracked, deteriorated, insecure or weakened by corrosion	1, 2, 4, 5
c) anti-slip feature	c) ineffective, loose or missing	1, 2, 4, 5, 6
d) hand and foot levers	d) less than 1/3 travel remains as reserve with brakes normally applied, or do not return when released, or not to OEM standards	6
e) accessibility	e) foot brake pedal is not accessible for adequate leverage, or does not have a foot rest for use during braking	6
f) hydraulic brake leakage and pedal reserve test **Additional Inspection Procedure(s):** With engine running if power brakes, and without pumping or repeated brake pedal application, apply a moderate foot force to pedal and maintain for one minute. With ABS braking system, test as per manufactures instructions.	f) pedal moves slowly in applied direction, any fluid leakage is observed in system pedal travel from its free height to its depressed height is more than 65% of possible total travel or does not meet OEM specifications excessive pedal free play service brake pedal requires pumping to maintain pedal reserve **Note:** Vehicles equipped with an electrically driven hydraulic pump that functions in the event of a power steering	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	failure can be checked by applying moderate pressure on the brake pedal and turning the ignition switch to the "ON" position.	

Hazardous Condition(s):
i. pedal is missing
ii. any fluid leakage is observed in the system
iii. service brake pedal requires pumping to maintain pedal reserve
iv. pedal free play exceeds 80% of total brake pedal travel

3. Mechanical Components

Item and method of inspection	Reject if	Inspection Class
a) brake cam operating lever	a) angle between cam operating lever and actuating cable or rod exceeds 110 degrees in fully applied position; lever repositioned on shaft to compensate for wear; maximum wear indicator exceeded	6
b) cable and adjusters	b) cable frayed with one broken strand; cable or cables routed so as to be restricted by other components; no means for locking brake adjusters	6
c) clevis, pins, rods, couplings	c) any clevis pin, cotter pin, spring, rod clevis or coupling is missing, excessively worn, broken or defective	6
d) sidecar brake (if equipped)	d) not activated by rear brake application, vehicle does not meet regulatory stopping distance	6

Hazardous Condition(s):
i. brake components cannot be adjusted to provide braking
ii. cotter pins or locking devices missing from the bolts securing either end of the brake torque link (disc or drum, rear; drum, front).

4. Vacuum Assist (Boost) System

Item and method of inspection	Reject if	Inspection Class
a) line, hose and clamp	a) broken, chafed, collapsed, cracked, leaking, loose or missing insecure mounting, incorrect type, or does not meet the location requirements outlined in Section 1 - Power Train, Item 2h of this Vehicle Inspection Manual	1, 2, 4, 5
b) check valve	b) incorrectly installed or inoperative, leaking or missing	1, 2, 4, 5
c) tank	c) damaged, structurally deteriorated from corrosion, insecure or loose, leaking or missing	2, 4, 5
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	1, 2, 4, 5
e) warning device	e) not equipped with an audible or visual signal in the event of failure of air pressure or braking effectiveness	1, 2, 4, 5
f) 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.	f) 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.	1, 2, 4, 5
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. Hydraulic Assist (Boost) System

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 4, 5
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	1, 2, 4, 5
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 is inoperative during test method 2 - on a system with gas- accumulator back-up - pedal fails to sink down and then push back up again	1, 2, 4, 5

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 Assist (Boost) System on Truck or Bus

Item and method of inspection	Reject if	Inspection Class
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	2, 4, 5

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. 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. The air system of an air-over-hydraulic brake system must comply with CMVSS 121.

Item and method of inspection	Reject if	Inspection Class
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 of this Vehicle Inspection Manual. 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	2, 3, 4, 5

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

8. Surge Brake Controller on Trailer

Item and method of inspection	Reject if	Inspection Class
a) controller operation **Additional Inspection Procedure(s):** Check the operation of the surge brake controller according to the manufacturer service instructions. Actuate the controller using suitable means and confirm brake operation at each wheel. Test operation of any backing mechanism.	a) controller is damaged or defective controller is seized, or fails to operate brakes when actuated manually backing/towing function is inoperative	3
b) brake fluid reservoir	b) insecure mounting or loose level 1 leak of brake fluid brake fluid level is below 'fill' or 'min.' mark or less than 75% of capacity when reservoir is not marked reservoir filler cap damaged, loose or missing	3

Item and method of inspection	Reject if	Inspection Class
c) break-away device **Additional Inspection Procedure(s):** When a break-away device is present, it must be inspected according to the manufacturer service instructions and it must be functional.	c) missing, damaged, inoperative, improperly installed	3

Hazardous Condition(s):
i. brakes are inoperative
ii. required break-away device is improperly installed, inoperative or missing

9. Vacuum System on Trailer

Additional Inspection Procedure(s): When inspecting a trailer that uses vacuum to actuate or boost braking, inspect the system according to the manufacturer service instructions.

Item and method of inspection	Reject if	Inspection Class
a) condition and operation	a) damaged or inoperative	3

Hazardous Condition(s):
i. brakes are inoperative

10. Air-Boosted Trailer Brake System

Additional Inspection Procedure(s): When inspecting a trailer that uses an air-boosted brake system, inspect the system according to the manufacturer service instructions.

Item and method of inspection	Reject if	Inspection Class
a) condition and operation	a) damaged or inoperative	3

Hazardous Condition(s):
i. brakes are inoperative

11. Electric Brake System on Trailer

Additional Inspection Procedure(s): Wheels and drums must be disassembled on all electric brake systems.

Note: Inspect the wheel-end (drum or disc) brake system components on a trailer with electric brakes, according to the relevant requirements for drum or disc brake system as outlined in subsections 12 and 13 of this section.

Item and method of inspection	Reject if	Inspection Class
a) wheel magnet and actuator **Additional Inspection Procedure(s):** When the manufacturer of the brake system provides a test procedure for confirming the operation of the electromagnet used to actuate the brake, the test procedure must be conducted as part of the inspection.	a) any part is broken, damaged, loose, or missing magnet is inoperative or seized	3
b) wiring	b) shorted, insulation is cracked or peeled improperly spliced or connected not secured at least every 1800 mm	3
c) break-away device **Additional Inspection Procedure(s):** When a break-away device is present, it must be inspected according to the manufacturer service instructions and it must be functional.	c) see Item 8c in this section	3
d) battery and controller **Additional Inspection Procedure(s):** Test the battery and controller according to the manufacturer service instructions.	d) damaged or inoperative	3

Hazardous Condition(s):
i. brakes are inoperative
ii. required break-away device is inoperative or missing

12. Brake System Indicator Lamps

Item and method of inspection	Reject if	Inspection Class
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.	a) missing, not either red or amber in colour does not operate according to manufacturer service instructions indicates a brake system malfunction or defect **Note:** Some indicator lamps may stay on, after a repair or system malfunction, until vehicle speed reaches 8 – 16 km/h.	1, 2, 4, 5

Hazardous Condition(s):
i. any brake indicator is inoperative
ii. an active brake failure is indicated

13. Drum Brake System Components

Additional Inspection Procedure(s): When an inspection reveals evidence of a defect or abnormal condition, drum disassembly is mandatory.

Note: Wheel removal does not apply to new vehicles where NVIS is supplied by Canadian or US manufacturer.

13.1 Vehicles with a GVWR of 4536kg or less

Note: Bearing re-pack not part of the inspection. Pull all wheels and brake drums. Inspect linings and drums. Re-install wheel and drum assembly. Install new cotter pin. Record measurements on inspection forms.

Item and method of inspection	Reject if	Inspection Class
a) brake operation	a) a required brake is missing a brake is inoperative	1, 2, 3, 4, 5, 6
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.	b) broken, cracked, abnormally worn, spalled, contaminated lining is distorted or separating from shoe shoe or lining is installed incorrectly (such as primary and secondary shoes reversed)	1, 2, 3, 4, 5, 6
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. 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) lining: **Bonded Lining** worn to 1 mm or less at the thinnest point **Riveted Lining** worn to 1.6 mm or less above rivet head, or to minimum as indicated by component manufacturer over 1.6 mm	1, 2, 3, 4, 5, 6
d) brake drum condition	d) cracks extend to the open edge of the drum any external cracks are present surface crack, groove or worn area that is a structural weakness **Note:** Any surface crack, groove or worn area that is deeper than the drum wear limit is a structural weakness.	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	hot spots are present in more than one location that cannot be removed by machining within drum limits discolouration of metal in drum resulting in heat cracks that cannot be machined out within drum limits friction surface is uneven, chunk broken out of drum 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 4 of this Vehicle Inspection Manual for wheel seal leaks)	
e) brake drum diameter (wear) **Additional Inspection Procedure(s):** Brake drum diameter must be measured, and the measurement must be recorded on the inspection report. Measure inside diameter of drum at two locations at centre of drum face and approximately 90 degrees apart. **Note:** Drum diameter measurements must be taken using a suitable tool.	e) drum has more than one groove worn so that measurement in groove exceeds wear limits: • out of round more than 0.25 mm on drums 280 mm (11 in.) diameter and smaller • out of round more than 0.63 mm on drums greater than 280 mm (11 in.) diameter measured drum diameter: • exceeds the limit indicated on the brake drum • does not meet OEM standard if the limit is not indicated on the brake drum • does not meet industry standard if the limit is not indicated on the brake drum, and no OEM standard is available • if none of the above is available: o for nominal drum size of 350 mm (14 in.) or less: 2.3 mm more than original drum diameter o for nominal drum size greater than 350 mm (14 in.): 3 mm more than original drum diameter	1, 2, 3, 4, 5, 6

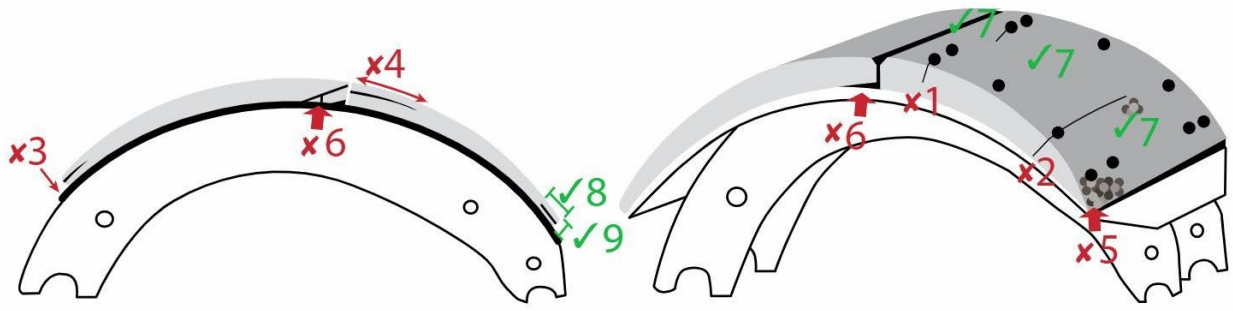
Item and method of inspection	Reject if	Inspection Class
	2.3 mm = 0.09 in. 3 mm = 0.12 in.	
f) self-adjuster mechanism	f) abnormally worn, incorrect thread direction, inoperative, missing or seized cable and linkage missing, loose, broken, inoperative cable frayed	1, 2, 3, 4, 5, 6
g) anchor pin and return spring	g) abnormally worn, bent, broken, loose or missing spring stretched, bent or no spring tension	1, 2, 3, 4, 5, 6
h) backing plate	h) bent, damaged or loose shoe contact area is grooved or worn in a manner that restricts free movement of shoes	1, 2, 3, 4, 5, 6
i) wheel cylinder	i) damaged, inoperative or seized, loose or insecure mounting level 2 leak of brake fluid dust seal is cracked, damaged, deteriorated, missing, or split	1, 2, 3, 4, 5, 6
j) wheel seal	j) level 2 leak of bearing lubricant	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
i. brake drum in a condition which could indicate failure is imminent
ii. inoperative brake
iii. metal to metal
iv. contaminated lining
v. lining loose to point of separation

13.2 Vehicles with a GVWR of more than 4536kg

Item and method of inspection	Reject if	Inspection Class
a) brake operation	a) a required brake is missing a brake is inoperative	1, 2, 3, 4, 5
b) brake shoe lining condition (service brakes):	b) a crack extending partially through, or completely through the lining from the	1, 2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
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.	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 4 of this Vehicle Inspection Manual 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)	



- 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

Item and method of inspection	Reject if	Inspection Class
Pass condition 9 – crack in edge of lining less than 1 mm wide		
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. 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.	1, 2, 3, 4, 5
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 4 of this Vehicle Inspection Manual for wheel seal leaks)	1, 2, 3, 4, 5
e) brake drum diameter (wear) **Additional Inspection Procedure(s):** Brake drum diameter must be measured, and the measurement must be recorded on the inspection report.	e) measured drum diameter: • exceeds the limit indicated on the brake drum • does not meet OEM standard if the limit is not indicated on the brake drum • does not meet industry standard if the limit is not indicated on the	1, 2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
Note: Drum diameter measurements must be taken using a suitable tool and with the level of accuracy defined by the measurement tolerance.	brake drum, and no OEM standard is available • is 2.3 mm **more than** original drum diameter for nominal drum size of 350 mm (14 in.) or less, if none of the above is available • is 3 mm **more than** original drum diameter for nominal drum size greater than 350 mm (14 in.), if none of the above is available 2.3 mm = 0.09 in. 3 mm = 0.12 in.	
f) self-adjuster mechanism	f) abnormally worn, incorrect thread direction, inoperative, missing or seized	1, 2, 3, 4, 5
g) anchor pin and return spring	g) abnormally worn, bent, broken, loose or missing spring stretched	1, 2, 3, 4, 5
h) backing plate	h) bent, damaged or loose shoe contact area is grooved or worn in a manner that restricts free movement of shoes	1, 2, 3, 4, 5
i) axle and spindle	i) cracked	1, 2, 3, 4, 5
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	1, 2, 3, 4, 5
k) wheel seal	k) level 2 leak of bearing lubricant	1, 2, 3, 4, 5

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 4 of this Vehicle Inspection Manual for wheel seal leaks

14. Disc Brake System Components

Additional Inspection Procedure(s): Pull all wheels. Using a micrometer or dial indicator, inspect and record measurements.

Note: Wheel removal does not apply to new vehicles where NVIS is supplied by Canadian or US manufacturer.

14.1. Vehicles with a GVWR of 4536kg or less

Item and method of inspection	Reject if	Inspection Class
a) brake operation	a) a required brake is missing a brake is inoperative	1, 2, 3, 4, 5, 6
b) disc (rotor) condition	b) broken, pitted or damaged any surface crack extends to an outer edge 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 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 hot spots are present that cannot be removed by machining disc not vented properly friction surface of the rotor is contaminated by brake fluid, grease or oil (also see section 9 item 4	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	of this Vehicle Inspection Manual for wheel seal leaks)	
c) disc (rotor) thickness **Additional Inspection Procedure(s):** Disc (rotor) thickness must be measured. Measurements must be recorded on inspection report.	c) one groove worn beyond 2.3 mm (3/32 in.) lateral run-out exceeds 0.125 mm on disc 380 mm (15 in.) diameter or less lateral run-out exceeds 0.25 mm on discs greater than 380 mm (15 in.) diameter thickness at any point across the friction surface is: • less than the minimum indicated on the brake rotor • less than the OEM standard if minimum indicated on the brake rotor is not available • less than the industry standard, if minimum indicated on the brake rotor and OEM standard are not available **Note:** Original thickness may not be decreased by any combination of wear and machining below manufacturer's minimum thickness.	1, 2, 3, 4, 5, 6
d) caliper	d) any part is binding, loose, broken, missing, seized, mounted incorrectly or does not meet the 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 any leak of brake fluid pad retainer is bent, damaged, insecure or missing boot or bellows is cracked or deteriorated, damaged, or missing bleeder inoperative caliper assembly worn beyond OEM specifications	1, 2, 3, 4, 5, 6
e) anchor plate	e) loose or bolt is missing	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
f) pad condition	f) broken, cracked, damaged, spalled, or abnormally worn friction material is contaminated by brake fluid, oil or grease (also see section 9 item 4 of this Vehicle Inspection Manual for wheel seal leaks) friction material loose on pad, pad is missing, or pad is installed incorrectly rivets loose	1, 2, 3, 4, 5, 6
g) pad (friction material) thickness	g) measured pad (friction material) thickness is: • less than OEM standard or industry standard if there is no OEM standard • worn to 1.6 mm (1/16 in.) or less at the thinnest point on bonded pads, if none of the above is available • worn to 1.6 mm (1/16 in.) or less at the thinnest point on riveted pads, if none of the above is available	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
i. any disc is cracked to the hub or failure appears imminent
ii. inoperative brake
iii. metal to metal

14.2. Vehicles with a GVWR of more than 4536kg

Item and method of inspection	Reject if	Inspection Class
a) brake operation	a) a required brake is missing a brake is inoperative	2, 3, 4, 5
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. Lateral run-out and parallelism	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	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
only need to be checked where there is evidence of a problem.	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 4 of this Vehicle Inspection Manual for wheel seal leaks) 0.3 mm = 0.01 in. disc not vented properly hot spots are present that cannot be removed by machining	
c) disc (rotor) thickness **Additional Inspection Procedure(s):** Disc (rotor) thickness must be measured. Measurements must be recorded on the inspection report.	c) thickness at any point across the friction surface is: • less than the minimum indicated on the brake rotor • less than the OEM standard if minimum indicated on the brake rotor is not available • less than the industry standard, if minimum indicated on the brake rotor and OEM standard are not available • less than 39 mm (+/- 0.05 mm) if none of the above is available two or more grooves worn beyond 2.3 mm (3/32 in.) (0.090 in.) lateral run out exceeds 0.128 mm (0.005 in.) on discs equal to or **less** than 380 mm (15 in.) in diameter lateral run out exceeds 0.25 mm (0.01 in.) on discs **greater** than 380 mm (15 in.) in diameter	2, 3, 4, 5
d) caliper	d) any part is binding, broken, missing, seized or mounted incorrectly or does not meet the OEM standard slide pin/slider or pad slider is binding, damaged, seized, mounted incorrectly, or does not meet the 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	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	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	2, 3, 4, 5
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 4 of this Vehicle Inspection Manual for wheel seal leaks) friction material loose on pad, pad is missing, or pad is installed incorrectly	2, 3, 4, 5
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) measured friction material thickness is: • less than OEM standard or industry standard if there is no OEM standard • less than 3 mm for bonded friction material thickness, if none of the above is available • less than 5 mm for riveted friction material thickness, if none of the above is available difference between inboard and outboard friction material thickness is: • greater than the amount indicated in manufacturer service instruction or equivalent industry standard if manufacturer service instructions are not available • greater than 3mm if none of the above is available 3 mm = 0.12 (1/8) in., 5 mm = 0.20 (3/16) in.	2, 3, 4, 5
h) clearance between pads and rotor (caliper adjustment)	h) does not meet manufacturer's specifications	2, 3, 4, 5

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. any brake component is in a condition where an imminent failure appears likely
v. friction material of the pad or friction surface of the rotor is contaminated by brake fluid, grease or oil
vi. any brake is inoperative
vii. any brake pad is worn to 1.6 mm (1/16 in.) or less above rivet or shoe (worn to minimum as indicated by component manufacturer over 1.6 mm)
viii. worn to 3.2 mm (1/8 in.) or less at the thinnest point on riveted linings
ix. any level 2 fluid leak
Note: Also see section 9 item 4 of this Vehicle Inspection Manual for wheel seal leaks.

15. Parking Brake

Neighbourhood Zero Emissions Vehicles (NZEV) required equipment.

Item and method of inspection	Reject if	Inspection Class
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 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.	a) parking brake does not hold in forward and backward gear. **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:** Micro-lock system is not considered to be an acceptable parking brake.	1, 2, 4, 5
b) control	b) binds, broken or missing inoperative or fails to lock	1, 2, 4, 5
c) cable and/or linkage	c) broken, frayed, improperly secured, missing, seized or equalizer is missing	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
d) adjustment	d) any part of the system is improperly adjusted	1, 2, 4, 5
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. worn to minimum as indicated by component manufacturer over 1.6 mm contaminated	1, 2, 4, 5

Hazardous Condition(s):
i. brake is inoperative
ii. vehicle rolls forward or backward with little or no resistance with parking brake applied

16. 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.

Item and method of inspection	Reject if	Inspection Class
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	a) parking brake does not hold as required **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. 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.	2, 4, 5

Item and method of inspection	Reject if	Inspection Class
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.		
b) airline, connection and fitting	b) fitting, line or repair method does not meet OEM standard tubing or hose is defective as defined in Appendix B 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	2, 4, 5
c) air tank	c) 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	2, 4, 5
d) leakage **Additional Inspection Procedure(s):** Monitor system for leaks.	d) air leak at any location	2, 4, 5
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) measured friction material thickness is: • less than OEM standard or industry standard if there is no OEM standard • less than 3 mm for riveted friction material thickness, if none of the above is available • less than 2 mm for bonded friction material thickness, if none of the above is available 2 mm = 0.08 in. 3 mm = 0.12 in.	2, 4, 5

Item and method of inspection	Reject if	Inspection Class
	worn to minimum as indicated by component manufacturer over 1.6 mm contaminated	

Hazardous Condition(s):
i. brake is inoperative
ii. vehicle rolls forward or backward with little or no resistance when parking brake is applied

17. 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.

Item and method of inspection	Reject if	Inspection Class
a) operation Additional Inspection Procedure(s): 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.	a) parking brake does not hold as required **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.	2, 4, 5
b) line and hose	b) level 2 leak of hydraulic fluid broken, chafed, collapsed, cracked, leaking, loose or missing	2, 4, 5

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Check with engine stopped and with engine running.	insecure mounting or incorrect type	
c) release canister	c) damaged, inoperative, insecure, or loose level 2 leak of hydraulic fluid	2, 4, 5
d) 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.	d) measured friction material thickness is: • less than OEM standard or industry standard if there is no OEM standard • less than 3 mm for riveted friction material thickness, if none of the above is available • less than 2 mm for bonded friction material thickness, if none of the above is available 2 mm = 0.08 in. 3 mm = 0.12 in. worn to minimum as indicated by component manufacturer over 1.6 mm contaminated	2, 4, 5

Hazardous Condition(s):
i. brake is inoperative
ii. vehicle rolls forward or backward with little or no resistance when parking brake is applied

18. Anti-Lock Brake System (ABS)

Note: Every truck or bus manufactured on or after April 1, 2000, with a GVWR above 4,536 kg must be equipped with ABS. Every passenger car, every three-wheeled vehicle and every multi-purpose passenger vehicle, truck and bus with a GVWR of 3 500 kg or less manufactured on or after September 1, 2011, must be equipped with ABS. Motorcycles equipped with ABS should be inspected according to the manufacturer's recommended procedure. Every vehicle equipped with ABS that was not mandatory for the vehicle when it was manufactured must have ABS in good working order.

Item and method of inspection	Reject if	Inspection Class
a) indicator lamp	a) inoperative or missing	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Cycle the ignition off and on while monitoring the ABS indicator lamp.	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	1, 2, 4, 5, 6
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	1, 2, 4, 5, 6
d) ABS modulating valve	d) missing, insecure mounting to ECU, level 1 leak of brake fluid or abnormal corrosion	1, 2, 4, 5, 6
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	1, 2, 4, 5, 6
Hazardous Condition(s): i. any malfunction of the ABS system that prevents normal brake operation		

19. Stability Control System

Item and method of inspection	Reject if	Inspection Class
a) indicator lamp/system status **Additional Inspection Procedure(s):**	a) lamp fails to illuminate during bulb-check or lamp remains illuminated fault or malfunction is indicated	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
Check for indication of any fault or malfunction by cycling the ignition off and on while monitoring the indicator lamp.	any visual evidence that the system has been tampered with or defeated	

Section 4 - Steering

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the "Definitions and Acronyms" section.

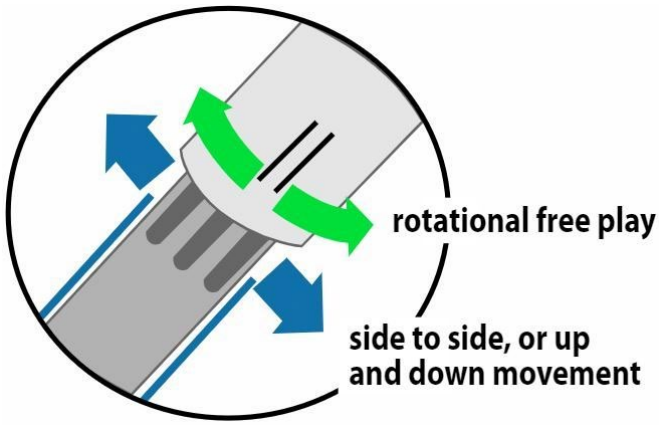
Right Hand Drive Vehicles additional inspection requirements (see Appendix D).

1. Steering Control and Linkage

Additional Inspection Procedure(s): Check the steering components listed below using tools and methods according to manufacturer service instructions.

Item and method of inspection	Reject if	Inspection Class
a) steering box or rack and pinion unit **Additional Inspection Procedure(s):** With vehicle on a level floor and with engine shut down, rock the steering wheel left and then right and observe movement in steering components. If movement is observed, grasp the tie rod and attempt to move it in the direction of the ball stud.	a) loose or insecure mounting, mounting bolt loose, missing, threads stripped any movement in mounting bushings housing broken, cracked, or level 2 leak of oil or fluid	1, 2, 3, 4, 5, 6
b) bellow, clamp and boot	b) leaking, insecure, missing, split or torn bulging, swollen or discoloured due to oil leak from internal end seal clamp missing, bent, welded or insecurely mounted	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
c) tie rod	c) bent, broken, cracked or welded, or repaired in a way that does not meet OEM standard	1, 2, 3, 4, 5, 6
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, injected or repaired in a way that does not meet OEM standard part is used that does not meet OEM standard part is used that is not designed for use in automotive steering systems	1, 2, 3, 4, 5, 6
e) pitman arm	e) bent, damaged, insecure or loose on spline repaired by welding	1, 2, 3, 4, 5
f) idler arm	f) worn, damaged, insecure or loose repaired by welding	1, 2, 3, 4, 5
g) ball-joint in upper or lower control arm **Additional Inspection Procedure(s):** For ball joints check as per original equipment manufacturer's methods. Check with dial indicator vertical and horizontal movement as required. Cracked seals are not reason for rejection. Inspect with ball joints loaded.	g) loose in knuckle or control arm wear exceeds limit shown by wear indicator **Note:** If equipped with wear indicator and the collar of the grease fitting is flush with or below the bottom of the ball joint housing, the ball joint is worn and the item must be rejected. does not meet OEM standard if wear indicator is not available does not meet industry standard if wear indicator and OEM standard are not available insecure or loose improper or loose retainer injected with repair material	1, 2, 3, 4, 5, 6
h) cotter pin or similar retaining device	h) missing, or deficient part is used that does not meet OEM standard	1, 2, 3, 4, 5, 6
i) steering dampener	i) inoperative or missing level 2 leak of dampener fluid	1, 2, 3, 4, 5, 6
j) steering column	j) insecure mounting or loose	1, 2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	mounting fastener loose or missing	
k) 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. **Note:** Mounting solid rather than repairing is permitted.	k) movement exceeds manufacturer specification, or when specification is not available, is greater than 6 mm	1, 2, 3, 4, 5
l) steering shaft universal joint and yoke	l) binding, loose, seized, welded or repaired in a way that does not meet OEM standard horizontal or vertical movement within the universal joint can be detected by hand clamp bolt loose or missing, or spline loose or stripped	1, 2, 3, 4, 5, 6
m) 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.	m) rotational free play between splines exceeds 1 mm total side to side, or up and down movement exceeds 6 mm  	1, 2, 3, 4, 5
n) adjusting sleeve	n) 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	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
o) remote (right hand) steering control	**Note:** Inspect as described in Section 5 - Instruments and Auxiliary Equipment of this Vehicle Inspection Manual	1, 2, 4, 5

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
ii. any positioning parts allow movement from normal position
Steering Box or Rack & Pinion Unit
iii. 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
iv. 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
v. 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
vi. 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
vii. any nut is loose or missing
viii. loose clamp, clamp bolt or nut on tie rod, drag link, pitman arm, or steering arm
ix. any looseness in any threaded joint
Steering Column and Related Parts
x. adjusting sleeve is loose or insecure
xi. loose or insecure mounting, mounting bolt loose or missing
xii. column fails to lock into position
xiii. a universal joint has been repaired in way, (e.g.: welded) that does not meet OEM standard
xiv. 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.

Item and method of inspection	Reject if	Inspection Class
a) fluid	a) below indicated minimum level or fluid is contaminated	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
b) belt	**Note:** Inspect drive belt according to Section 1. Power Train, Item 10. Engine or Accessory Drive Belt of this Vehicle Inspection Manual.	1, 2, 4, 5, 6
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	1, 2, 4, 5, 6
d) pump	d) inoperative, insecure mounting, or loose level 2 leak of power steering fluid	1, 2, 4, 5, 6
e) cylinder or box	e) inoperative, insecure mounting, loose, or missing level 2 leak of power steering fluid	1, 2, 4, 5, 6
f) mounting bracket	f) broken, cracked or loose bolt loose or missing	1, 2, 4, 5, 6
g) assist **Additional Inspection Procedure(s):** If equipped with hydraulic assisted brake booster apply brakes and turn steering wheel with engine running and check assist.	g) inoperative (i.e.: power-assist provided is noticeably reduced requiring more than normal steering effort to turn the wheels left or right)	1, 2, 4, 5, 6
h) hose location	h) within 25 mm (1 in.) of exhaust system	1, 2, 4, 5

Hazardous Condition(s):
i. power steering is inoperative
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.

Item and method of inspection	Reject if	Inspection Class
a) steering wheel	a) broken, damaged, loose on spline or modified does not meet OEM specifications **Note:** Steering wheels shall be of substantially the same size, shape and strength as the steering wheel supplied by the manufacturer of the motor vehicle. (Section 19 of the Schedule to Division 7 of the MVAR)	1, 2, 4, 5
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 center to full left does not equal the number of rotations from center to full right, +/- ½ turn	1, 2, 4, 5

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.
	c1) **inspection class 1:**
	a total movement greater than shown in the following table is encountered at the steering wheel rim before the front wheels indicate movement.
	• **Power** - 50 mm (2 in.)
	• **Manual** - 75 mm (3 in.)
	• **Rack & Pinion** - 12 mm (1/2 in.)
	c2) **inspection classes 2, 4, 5:**
	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 m
		1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
d) tire clearance	d) space between tire and frame, fender or other vehicle part is less than 25 mm at any point in turn	1, 2, 4, 5
e) steering stop	e) improperly adjusted, bent or missing	1, 2, 4, 5

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

iii. steering column and wheel

- any bolts are loose or missing or any positioning parts allow movement from normal position.
- any universal joints are welded.
- steering wheel not secure.

iv. Ball and sockets

- any linkage shows looseness in alignment with the shank or neck of the ball in excess of 3.2 mm (1/8 in.).
- nuts loose on tie rod ends, adjusting sleeve, pitman arm, drag link or steering arm.

4. Kingpin

Additional Inspection Procedure(s): Raise the axle to unload the kingpin (if equipped, apply brakes to eliminate wheel bearing looseness). Turn the wheels through a full right and left turn.

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 4, 5
b) vertical movement	b) not within manufacturer specification or when manufacturer	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
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.	specification is not available, greater than 2.5 mm	
c) condition	c) seized, binding or jamming is detected while turning wheel	1, 2, 4, 5

Hazardous Condition(s):
i. binding or jamming caused by the kingpin or thrust bearings

5. Self-Steer and Controlled-Steer Axle

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.

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 of this Vehicle Inspection Manual. The steering components must be inspected according to items 1 and 4 above.

Item and method of inspection	Reject if	Inspection Class
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	2, 3, 4, 5
b) clearance	b) there is less than 25 mm between the tire and frame, fender or other vehicle part	2, 3, 4, 5
c) steering stop	c) missing or not adjusted properly	2, 3, 4, 5
d) air pressure regulator	d) inoperative or missing	2, 3, 4, 5
e) pressure gauge	e) inaccurate, inoperative or missing	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	not equipped with legible instruction indicating the minimum centering force pressure requirement	
f) operating instruction label	f) not equipped with legible instruction indicating safe operation (such as: stating the speed at which the axle locks)	2, 3, 4, 5

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. inoperative or missing steering lock on a C-dolly
iii. steering locks in any position except centered
Note: Also see Hazardous Conditions for items 1 to 4 in this section above

6. Motorcycle Handlebar

Item and method of inspection	Reject if	Inspection Class
a) tubing	a) not made of 0.060 steel tube or equivalent strength cracked, deformed, improperly aligned or flex excessively repaired by welding	6
b) height	b) maximum height to which the handlebars extend higher than the top of the driver's shoulders when the driver's seat is occupied	6
c) steering head	c) steering head bearing shows any perceptible movement or is outside manufacturer's specification, or shows roughness of motion or is over-tightened to such an extent that the steering is affected	6
d) security	d) handlebars are loose, damaged or in any other way unsafe	6

Hazardous Condition(s):
i) handlebar(s) broken, or part or component(s) missing

7. Wheel Alignment

Additional Inspection Procedure(s):
A wheel alignment must be performed if there is visible evidence of misalignment.

For more information regarding steering alignment angles see Appendix C.

7.1. Front Wheels

Item and method of inspection	Reject if	Inspection Class
a) caster	a) not within OEM specifications	1, 2, 3, 4, 5, 6
b) camber	b) not within OEM specifications	1, 2, 3, 4, 5, 6
c) toe	c) not within OEM specifications	1, 2, 3, 4, 5, 6
d) Steering Axis Inclination (SAI)	d) not within OEM specifications or the difference between right and left exceeds 0.5°	1, 2, 3, 4, 5, 6
e) included angle	e) not within OEM specifications or the difference between right and left exceeds 0.5°	1, 2, 3, 4, 5, 6
f) total toe	f) not within OEM specifications	1, 2, 3, 4, 5, 6
g) set back	g) not within OEM specifications or the difference between right and left exceeds 0.5°	1, 2, 3, 4, 5, 6
h) turning angle	h) not within OEM specifications or the difference between right and left exceeds 5°	1, 2, 3, 4, 5, 6
i) condition	i) the longitudinal wheel alignment of a two-wheel motorcycle does not pass within 12.5 mm of the front wheel centre line when measured at a point directly below the front axle	6
j) wheelbase	j) less than 1016 mm	6

7.2. Rear Wheels

Item and method of inspection	Reject if	Inspection Class
a) camber	a) not within OEM specifications	1, 2, 3, 4, 5
b) toe	b) not within OEM specifications	1, 2, 3, 4, 5
c) total toe	c) not within OEM specifications	1, 2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
d) set back	d) not within OEM specifications or the difference between right and left exceeds 0.5°	1, 2, 3, 4, 5
e) thrust angle	e) not within OEM specifications or the difference between right and left exceeds 0.5°	1, 2, 3, 4, 5

Section 5 - Instruments and Auxiliary Equipment

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the "Definitions and Acronyms" section.

1. Fire Extinguisher

Note: Only the vehicle types specifically listed in the table below are subject to the fire extinguisher requirement. Please refer to both the class of the vehicle in the rejection criteria table and the list of vehicle types above to determine if a fire extinguisher is needed.

Fire extinguisher requirements in British Columbia	
Vehicle Type	Fire Extinguisher Type
School Bus	Meets the applicable D250 standard
Commercial passenger vehicle that has a seating capacity of more than 10 including the driver	Has a UL Rating of at least **2-A:10 B:C**, or 2 or more that collectively have the same rating
Accessible Taxi	Has a UL Rating of at least **3-A:40 B:C**, or two or more that collectively have the same rating
Vehicles carrying explosives	Has two fire extinguishers that have a rating of at least **4-A:40 B:C**

Item and method of inspection	Reject if	Inspection Class
a) presence and type	a) missing or incorrect type of fire extinguisher not in a quick-release holder within reach of driver not F.M., U.L. or U.L.C. approved and labelled	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
	on a school bus, does not meet requirements of applicable CSA D250 Standard	
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 inspection record (tag) missing or expired	1, 2, 4, 5

2. Hazard Warning Kit

Item and method of inspection	Reject if	Inspection Class
a) presence and type	a) missing on a bus, motor home, vehicle wider than 2.3 m (90 in), accessible taxi and school bus incorrect type less than two on a vehicle wider than 2.3 m, bus and motor home less than three on a school bus and a accessible taxi where triangle reflectors are required; they are broken, damaged and inoperative, missing or insecure mounting	1, 2, 4, 5

3. First Aid Kit

Item and method of inspection	Reject if	Inspection Class
a) presence and location	a) missing on a commercial passenger vehicle that has a seating capacity of more than 10 including the driver, school bus and accessible taxi on a school bus, does not meet applicable requirements and applicable CSA D250 Standard	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
b) contents **Note:** Check only if first aid seal is broken.	on a commercial passenger vehicle that has a seating capacity of more than 10 including the driver, does not meet the WorkSafe BC requirements on a school bus, does not meet applicable requirements and applicable CSA D250 Standard on a accessible taxi, does not meet the First Aid Kit Contents set out in CSA D409 Standard	1, 2, 4, 5

4. Horn

Additional Inspection Procedure(s):
Inspect manually and aurally.

Item and method of inspection	Reject if	Inspection Class
a) presence and operation	a) at least one operating horn not present in the vehicle inoperative or not clearly audible at a distance of 60m sound emitted is: • unreasonably loud or harsh (i.e. train horn) • a whistle • a musical tune	1, 2, 4, 5, 6
b) control	b) **electric horn:** not identified and readily accessible to the driver not a pressure-type switch or equivalent **air horn:** not located in an OEM location and readily accessible to the driver not activated by a pull chain, pressure type switch or equivalent	1, 2, 4, 5, 6

5. Required Instruments and Gauges

Note: If the Tire Pressure Monitoring System indicator (if OEM equipped) fails to operate or remains illuminated, pass with caution and advise owner.

Item and method of inspection	Reject if	Inspection Class
a) required gauges and/or indicators **Additional Inspection Procedure(s):** Inspect indicator lamp operation (bulb check) when ignition is on and engine stopped. **Note:** Inspect according to OEM vehicle design.	a) engine temperature gauge or indicator is inoperative oil pressure gauge or indicator is inoperative ammeter, voltmeter or charge indicator is inoperative vacuum gauge (if OEM equipped) is inoperative air pressure gauge (if OEM equipped) is inoperative on a school bus, does not meet the applicable D250 Standard requirements	2, 4, 5

6. Instruments, Gauges and Equipment on Commercial Passenger Vehicles

Item and method of inspection	Reject if	Inspection Class
a) ammeter/voltmeter or warning lamp	a) inoperative	1
b) fuel gauge	b) inoperative	1, 2
c) auxiliary equipment security **Note:** If equipped, inspect security of auxiliary equipment such as axe, chains, tools, shovels, spare tire, etc.	c) not attached securely	1, 2, 4
d) taxi signs (“Fasten Seat Belt” notice)	d) not displayed	1, 2, 4
e) taxi roof lamp **Note:** A taxi is not required to be fitted with a taxi sign.	e) does not illuminate not capable of displaying only white light cover is broken or damaged	1, 2, 4
f) driver and passenger compartment: 1. seat upholstery 2. seat spacing 3. cleanliness	f) 1. not fully upholstered, damaged, ripped, torn, exposed springs 2. distance between forward facing seats measured on a horizontal line at the top of the	1, 2, 4

Item and method of inspection	Reject if	Inspection Class
	seat cushion from the back of the front seat to the undepressed face of the seat behind shall not be less than 66 cm (26 in.) 3. not clean and sanitary	
g) emergency rear hatch inside release **Note:** Accessible taxi only.	g) missing, broken, inoperative	1, 2, 4

7. Speedometer and Odometer

Note: Current odometer reading for all vehicles must be recorded on the inspection report.

Item and method of inspection	Reject if	Inspection Class
a) operation **Additional Inspection Procedure(s):** Operate the vehicle. **Note:** OEM speedometer and odometer must be operative.	a) missing or inoperative not clearly visible from the primary driving position	1, 2, 4, 5

8. Windshield Wiper/Washer

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 4, 5
b) wiper blade	b) hardened, missing or torn swept area is less than OEM wiper blades fails to contact windshield properly	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
c) wiper arm	c) bent, broken or missing	1, 2, 4, 5
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 missing on vehicles manufactured on or after January 1, 1971	1, 2, 4, 5
e) windshield wiper and washer switch	e) missing, broken, inoperative	1, 2, 4, 5

Hazardous Condition(s):
i. wiper on the driver's side is inoperative, missing, or has damage that renders it ineffective

9. Heater & Windshield Defroster

Item and method of inspection	Reject if	Inspection Class
a) fan operation **Additional Inspection Procedure(s):** Test the operation of the heaters (cabin and interior) and defroster, and control in all operating modes and positions.	a) inoperative at any setting insufficient air flow or fails to deliver heated air	1, 2, 4, 5
b) heater core	b) level 2 leak of coolant	1, 2, 4, 5
c) controls	c) inoperative, fail to direct air flow as per control indicator position	1, 2, 4, 5

10. Fuel-burning Auxiliary Heater

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 4, 5

11. Chain / “Headache” Rack

Item and method of inspection	Reject if	Inspection Class
a) condition	a) insecure or loose, mounting fastener loose or missing broken or weld cracked	1, 2, 4, 5

12. 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, snowplow, dump box, front-mount hydraulic pump, roll-on roll-off, packer, etc.

Item and method of inspection	Reject if	Inspection Class
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 any indicator lamp for the auxiliary controls and devices is inoperative or missing level 2 leak of oil or other operating fluid	2, 3, 4, 5

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

13. 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.

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 4, 5
b) auxiliary brake control	b) any service or parking brake control is inoperative two-way check valve is leaking or inoperative	1, 2, 4, 5
c) auxiliary lamp control	c) any lamp control at the auxiliary control position is inoperative, or interferes with any other normal lamp operation	1, 2, 4, 5
d) auxiliary throttle control	d) throttle control is inoperative	1, 2, 4, 5
e) auxiliary clutch control (vehicles equipped with manual transmission)	e) clutch control is inoperative	1, 2, 4, 5

14. On-board Auxiliary Equipment on a Bus

Note: i.e.: axe, spare tire, shovel, tools, tire chains.

Item and method of inspection	Reject if	Inspection Class
a) presence and type	a) incorrect or missing equipment	4, 5
b) securement	b) insecure or loose on a school bus, does not meet requirements of applicable CSA D250 Standard	4, 5
c) tool storage	c) not carried in a compartment separate from the passenger compartment	4, 5

15. Accessibility Features and Equipment on a Bus

Note: Accessibility features are items that are provided on "accessible vehicles" specifically designed for entry, accommodation and exiting of persons with various physical conditions that may limit their mobility. Many of these features are designed to provide access to the vehicle by means of a mobility assistive device (such as a cane, walker, wheelchair or scooter). The items listed in this section apply only to those features on this type of accessible vehicle.

Item and method of inspection	Reject if	Inspection Class
a) door on entrance for person with mobility assistive device **Additional Inspection Procedure(s):** Test the operation of all accessible doors. Check that the door is held in the open position by a detent or latch. Test the operation of a power door and check the closing safety feature.	a) door fails to hold in open position power door fails to stop closing and/or reverse when stopped by an object	4, 5
b) entrance for person with mobility assistive device (with no ramp or lift)	b) contrasting colour stripe on step or floor edge is worn off or not readily visible has no light above or beside each entrance door illuminating the steps and actuating automatically when the door opens	4, 5
c) entrance/exit handle and grab bar	c) has no grab bar or handle accessible from ground level at the side of each entrance that remains inside vehicle when the door is closed has no grab bar or handle at any seat intended for accessible passenger handle or grab bar, located away from seat or door, is smaller than 20 mm, or larger than 50 mm when unpadded, or larger than 75 mm when padded	4, 5
d) seat belt in location designated as an accessible seating position	d) any seat does not have a fully functioning Type 1 (lap) or Type 2 (3-point) seat belt	4, 5
e) ramp condition	e) not fully covered in anti-skid material	4, 5

Item and method of inspection	Reject if	Inspection Class
	anti-skid material is not fully secured to ramp surface not fitted with a raised guard (edge) on each side in a contrasting colour, or colour is worn off	
f) powered ramp or lift operation **Additional Inspection Procedure(s):** Operate device into the fully deployed and stowed positions to confirm it operates as intended by the manufacturer.	f) inoperative any moving part of the power mechanism is not protected by a guard device fails to operate smoothly	4, 5
g) interlock and over-ride of power ramp or lift device **Additional Inspection Procedure(s):** Operate device to confirm it operates as intended by the manufacturer. Attempt to operate the vehicle to confirm operation is prohibited as intended.	g) missing or inoperative	4, 5
h) mobility assistive device securement system	h) missing or inoperative	4, 5
i) occupant restraint for person in mobility assistive device	i) missing or inoperative	4, 5

Hazardous Condition(s):
i. fails to fully retract or store as intended by the manufacturer

16. Driver Training School Vehicles

Item and method of inspection	Reject if	Inspection Class
a) “student driver” sign	a) sign is illegible, not printed in upper case letters or the lettering and background are not in contrasting shades **for class 1 vehicles:** letters are less than 50 mm high **for class 2, 3, and 4 vehicles:** letters are less than 75 mm high	1, 2, 3, 4

Item and method of inspection	Reject if	Inspection Class
b) dual brake pedals	b) missing or inoperative	1, 2 **Note:** For class 2 this applies to vehicles with a GVWR of 4536kg or less only.
c) dual clutch pedals for manual transmission vehicles	c) missing or inoperative	1, 2 **Note:** For class 2 this applies to vehicles with a GVWR of 4536kg or less only.
d) second rear view mirror for instructor	d) not separate from mirrors that the vehicle was originally equipped with when manufactured see rejection criteria in Section 8, Item 17 - Rear-View Mirror	1, 2

17. Dump Box Warning Device

Note: A vehicle equipped with both audible and visual Dump Box Warning Devices, may pass inspection if one of the two devices is operative.

Item and method of inspection	Reject if	Inspection Class
a) presence	a) missing on a commercial vehicle equipped with a dump box that is capable of rising to a height in excess of 4.15 m (13.6 ft.) **Note:** Height is determined by measuring the latitudinal distance from the highest point of the commercial vehicle's dump box when the dump box is fully raised, to the road surface directly below that point.	2
b) operation	b) inoperative **For a visual warning device:** not displayed within driver's field of vision not clearly visible or is covered in any manner **For an audible warning device:**	2

Item and method of inspection	Reject if	Inspection Class
	does not emit a sound sufficiently high to be easily audible by the driver of the vehicle	
c) mounting	c) broken, cracked, damaged, loose, missing not securely mounted in a fixed position	2

Hazardous Condition(s):
i. dump box warning device is inoperative or missing

Section 6 - Lamps

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the "Definitions and Acronyms" section.

Right Hand Drive Vehicles additional inspection requirements - see Appendix D.

1. Lamps

All lamps, lenses and bulbs must meet CMVSS/FMVSS standards. For the purpose of this section FMVSS standards are considered equivalent to CMVSS unless otherwise stated.

Additional Inspection Procedure(s):
All lamps mentioned except hazard lamps are to be inspected with head lamps and all other auxiliary lamps on and with brakes applied.

1.0. General

Item and method of inspection	Reject if	Inspection Class
a) operation, condition and labeling of all lamps	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, inoperative, insecure mounting or missing lens is clouded or reduces transmission of light, is not clearly visible or is covered in any manner	1, 2, 3, 4, 5, 6

	moisture is present inside the lamp assembly any LED in headlamp assembly required for frontal illumination is inoperative 25% or more of LEDs of any one lamp assembly not required for frontal illumination are inoperative proper filament not lit does not meet CMVSS standards not clearly labelled with CMVSS or compliant ECE function markings **Note:** See Appendix A for details on CMVSS requirements and compliant ECE function markings.	

1.1. Required Lamps

Additional Inspection Procedure(s):
Test the operation of all required lamps, lamp switches and controls, and lamp indicators.

Item and method of inspection	Reject if	Inspection Class
a) headlamp **Neighbourhood Zero Emissions Vehicles (NZEV)** required equipment.	a) headlamp beam pattern is not directed toward right hand side of roadway headlamp aim adjusters missing, broken, inoperative, mounted insecurely, do not meet OEM standard HID or LED bulb is installed in an incandescent headlamp housing headlamp switch, or beam (high and low) selector, is broken, inoperative, missing, does not meet OEM standard height is not between 56 cm and 137 cm (22 and 54 in.) above road surface when measured at centre of lamp not two or four facing front as far apart as practicable not capable of displaying white light low-beam devices are not most outboard light source (or uppermost, if arranged vertically) in four-lamp configuration	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
b) tail lamp **Neighbourhood Zero Emissions Vehicles (NZEV)** required equipment.	b) not equipped with a minimum of two lamps (see note below) facing the rear, located at rear of vehicle and as far apart as practicable **Note:** A motorcycle may be equipped with only one tail lamp; and, a vehicle manufactured before January 1, 1959 may be equipped with only one tail lamp (MVAR 4.15). not capable of displaying only red light height is not between 38 cm to 183 cm (15 to 72 in) above the road surface when measured at centre of lamp	1, 2, 3, 4, 5, 6
c) stop (brake) lamp **Neighbourhood Zero Emissions Vehicles (NZEV)** required equipment.	c) not minimum of two lamps (see note below) facing the rear, located at rear of vehicle and as far apart as practicable **Note:** A motorcycle may be equipped with only one tail lamp; and a vehicle manufactured before January 1, 1959 may be equipped with only one tail lamp (MVAR 4.17). not capable of displaying only red light does not illuminate correctly when service brakes are applied height is not between 38 cm and 183 cm	1, 2, 3, 4, 5, 6
d) centre high-mount stop lamp **Note:** Required on all passenger cars (manufactured on or after January 1, 1987), and on MPVs, trucks, and buses, less than 2032 mm in overall width and with a GVWR of 4536 kg (10,000 lbs) or less, manufactured on or after January 10, 1997. Not required on trailers.	d) not facing rear of vehicle not capable of displaying only red light does not illuminate correctly when service brakes are applied	1, 2, 4, 5
e) turn-signal lamp	e) on a vehicle less than 2.05 m wide, control fails to cancel automatically when steering returns to centre	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
Neighbourhood Zero Emissions Vehicles (NZEV) required equipment. **Note:** Not required on front of trailers. **Note:** Height requirements do not apply to highway construction vehicles, maintenance vehicles, tow cars or vehicles being towed by a tow car.	not minimum of two facing the **front**, as far apart as practicable and capable of displaying flashes of white or amber light visible to the front not minimum of two facing the **rear**, as far apart as practicable, and capable of displaying flashes of red or amber light visible to the rear does not flash between 50 and 130 times per minute height is not between 38 cm and 183 cm **Additional Inspection Procedure(s):** Test the operation of hazard warning control. Reject if turn-signal lamps do not illuminate correctly and flash simultaneously when operated by hazard warning control.	
f) hazard warning lamp **Note:** Can operate same lamps as turn-signals.	f) 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 practicable, amber in colour • minimum of two facing the rear, as far apart as practicable, amber or red in colour • illuminate correctly and flash simultaneously when operated by hazard warning control	1, 2, 3, 4, 5, 6
g) 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	g) amber intermediate side-marker lamps are inoperative or missing on a vehicle over 9.1 m in length not minimum of four in total, two at the rear and two at the front, facing the side	1, 2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
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.	not located as close to corners as practicable front are not amber in colour rear are not red in colour height is less than 38 cm (15 in) above road surface when measured at centre of lamp	
h) 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.	h) not minimum of four in total, located as far apart as practicable at the widest point of the vehicle not two facing the front, as high as practicable, amber in colour not two facing the rear, red in colour	2, 3, 4, 5
i) 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. Front identification lamps are not required on trailers.	i) less than six in total (three facing the front, amber in colour, and three facing the rear, red in colour)	2, 3, 4, 5
j) back-up lamp **Note:** Back up lamps are required on all trucks, truck-tractors and buses manufactured after January 1, 1971.	j) not white in colour or not located at rear fail to illuminate with engine running and transmission in reverse gear	1, 2, 4, 5
k) licence plate lamp	k) not capable of displaying only white light fails to illuminate licence plate so that the numbers on are legible from a distance of 15 m to the rear of the vehicle projects white light to the rear of the vehicle does not illuminate whenever the headlamps or parking lamps are illuminated	1, 2, 3, 4, 5
l) daytime-running lamp (DRL) **Note:** Required on all passenger cars, MPVs, trucks, buses and three-wheeled	l) not located on front of vehicle not white or yellow in colour not mounted at a height of not less than 30 cm and not more than 2.11 m	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
vehicles manufactured after December 1, 1989.	DRL Switching: does not activate when the vehicle is set in motion does not remain activated until the vehicle's engine is turned off does not deactivate while the lower beam headlamps are turned on does not deactivate when the front fog lamps are activated (for vehicles manufactured after September 1, 2020) if they also serve as front turn-signal lamps, do not deactivate when turn-signal is activated does not deactivate when the hazard warning signal is activated **Note:** Subject to criteria above, daytime-running lamps may only be deactivated: • when the parking brake is applied or when the transmission is in park or neutral and the vehicle is stationary • while the headlamps are being flashed for signaling purposes • manually, but must reactivate automatically: o after the vehicle travels more than 100 meters o when the speed of the vehicle exceeds 10 km/h	
m) motorcycle running lamps	m) the following lamps on a motorcycle do not activate when set in motion under its own power and remains activated until the main electrical system is turned off or until it is put in the "accessory" mode of operation: • every tail lamp • every licence plate lamp • every headlamp	6

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

1.2. Non-Required Lamps

Note: All non-required and non-opaque covered frontal lighting devices must meet applicable compliance standards for highway use.

Item and method of inspection	Reject if	Inspection Class
a) fog lamp (if equipped)	a) not located on front and/or rear of vehicle not white or amber in colour on front, red in colour on rear does not illuminate only when headlamp control is switched to low beam	1, 2, 4, 5, 6
b) auxiliary high beam driving lamp (if equipped)	b) not maximum of two, located on front of vehicle not capable of displaying only white light does not illuminate only when headlamp control is switched to high beam not mounted at a height between 40 cm and 1.06 m from centre of reflector to the ground	1, 2, 4, 5, 6
c) auxiliary low beam driving lamp (if equipped)	c) not located on front of vehicle not capable of displaying only white light not mounted at a height between 40 cm and 1.06 m from centre of reflector to the ground	1, 2, 4, 5, 6
d) off-road lamps (if equipped)	d) not concealed with opaque covers	1, 2, 3, 4, 5, 6

3. Reflex Reflector

Neighbourhood Zero Emissions Vehicles (NZEV) required equipment.

Note: A lamp's lens may also function as a reflex reflector. Replicar and replikit vehicles require clearance reflectors if the vehicle resembles a model year for which clearance lamps were required.

Item and method of inspection	Reject if	Inspection Class
a) required reflectors **Note:** See Appendix A 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, damaged, obscured or not clearly visible, insecure not labelled to show compliance with CMVSS, DOT or SAE standards	1, 2, 3, 4, 5
b) rear reflector	b) not minimum of two, located as far apart as practicable not red in colour, between 380 and 1530 mm from centre of reflector to the ground Neighbourhood Zero Emissions Vehicles (NZEV): • not one red on each side as far to the rear to the rear as practicable • not one red on the rear	1, 2, 3, 4, 5
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 not minimum of four in total, located as far apart as practicable, between 380 and 1530 mm from centre of reflector to the ground not two at the front, amber in colour not two at the rear, red in colour	1, 2, 3, 4, 5

4. Retro-Reflective Marking

Note: See Appendix A for details on CMVSS 108 requirements for retro-reflective markings.

Item and method of inspection	Reject if	Inspection Class
a) presence	a) any required section is missing retro-reflective marking is missing on: • all truck-tractors manufactured after November 19, 2001 • all trailers manufactured after January 10, 1997	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	• all trailers with a width of 2.05 m or more, and GVWR of 4,536 kg or more, regardless of manufacture date	
b) type/markings	b) consist of anything other than alternating red and white retro-reflective sheeting that is marked DOT-C, DOT-C2 (50 mm wide), DOT-C3 (75 mm wide) or DOT-C4 (100 mm wide) **Note:** Optional in Canada - Rear lower body and side conspicuity treatment may also be solid white, solid yellow, or white and yellow. for the purpose of school buses, consists of anything other than conspicuity markings as specified in the applicable CSA D250 standard	2, 3, 4, 5
c) condition	c) peeling off or reflective properties are compromised on an area exceeding 77 cm2 (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.	2, 3, 4, 5
d) location and type	d) retro-reflective markings fail to meet the requirements of CMVSS 108 as shown in Appendix A	2, 3, 4, 5
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	2, 3, 4, 5

Hazardous Condition(s):
i. more than 50% of retro-reflective material of any required section is compromised or missing

5. Instrument Panel Lamps

Item and method of inspection	Reject if	Inspection Class
a) operation **Note:** Minor loss of illumination of some parts of the instrument panel is not cause for rejecting a vehicle.	a) any of the following indicators are missing or inoperative: • brake warning indicator • high beam indicator • turn signal indicator • anti-lock brake (ABS) indicator • air bag indicator **Additional Inspection Procedure(s):** SRS diagnostic test results must be recorded. • seat belt warning indicator • check engine indicator light • shift pattern on automatic transmission • neutral indicator on a motorcycle • hazard warning lamp	1, 2, 4, 5, 6

6. Headlamp Aim

Additional Inspection Procedure(s):
Check headlamp aim using equipment specifically designed for such use, or an aiming screen, following the equipment manufacturer instructions. Ensure that the equipment is calibrated according to the manufacturer's instructions.

Aiming Screen Method

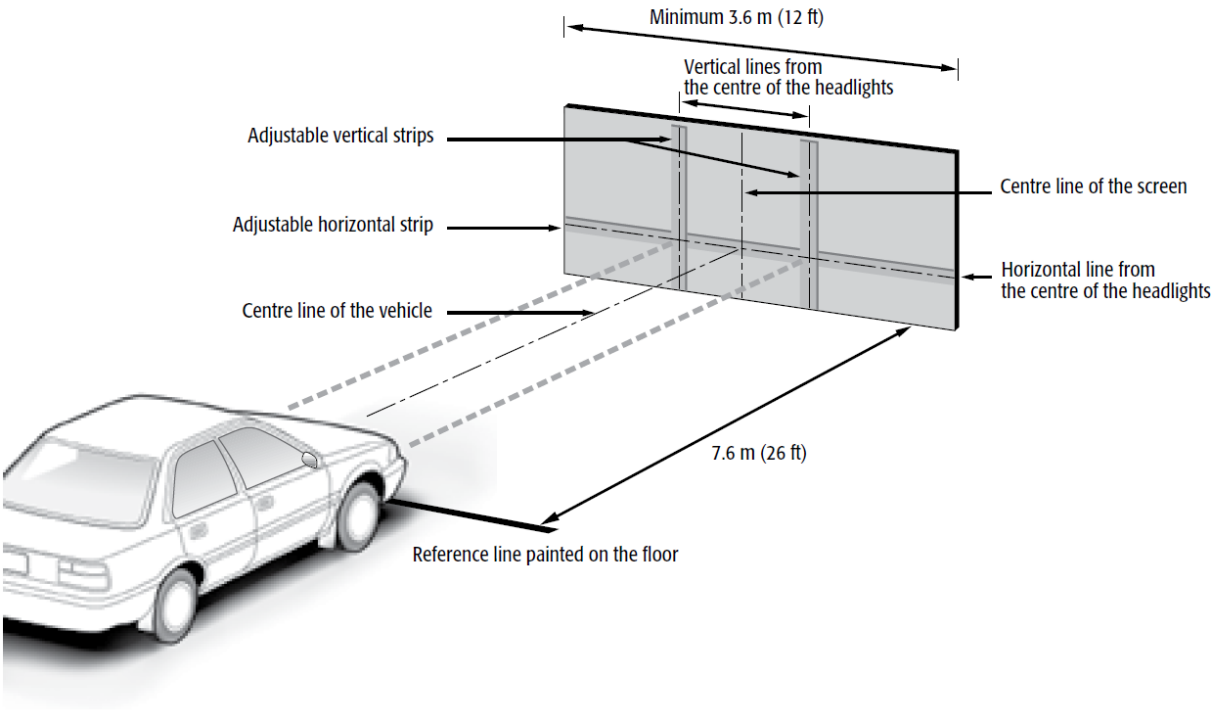
A. Aiming Area Required
It is required to have a specific aiming area in a darkened location. This should be sufficient for the vehicle plus an additional 7.6 m measured from face of lamps to the front of the visual screen.
The floor on which the motor vehicle rests must be flat and level with the bottom of the screen.

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 non-gloss white finish. Adjustable black strips should be used as guidelines.

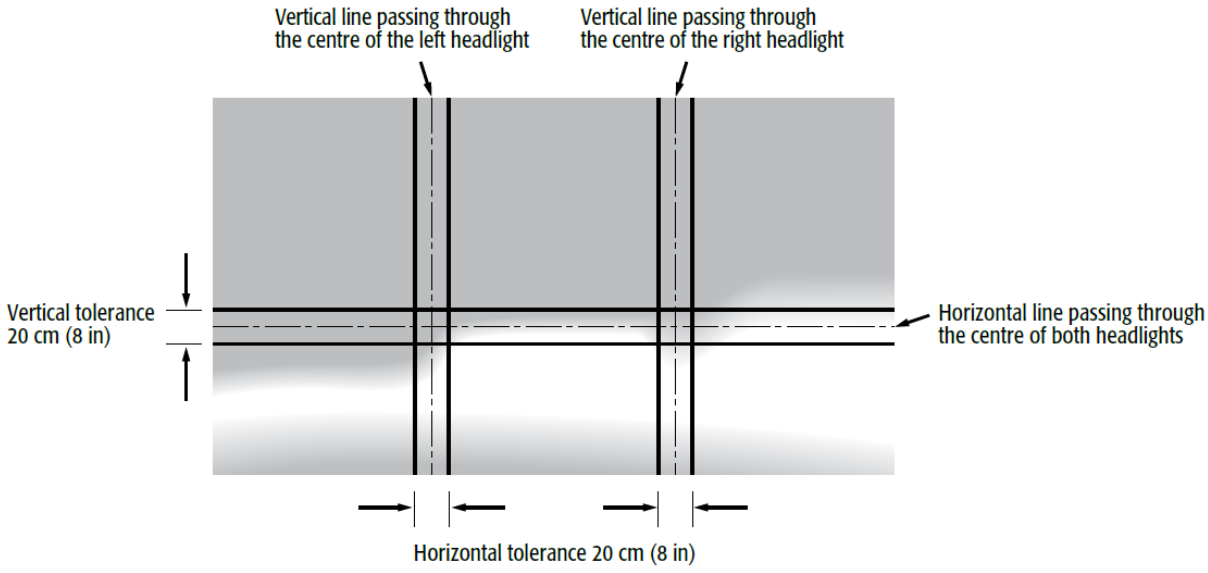
After the aiming screen has been set up in its permanent location, it is necessary to have a reference line on the floor directly under the lens of the lamps to indicate the proper location of the headlamps when they are being aimed. This reference line should be parallel to the aiming screen and exactly 7.6 m from it.

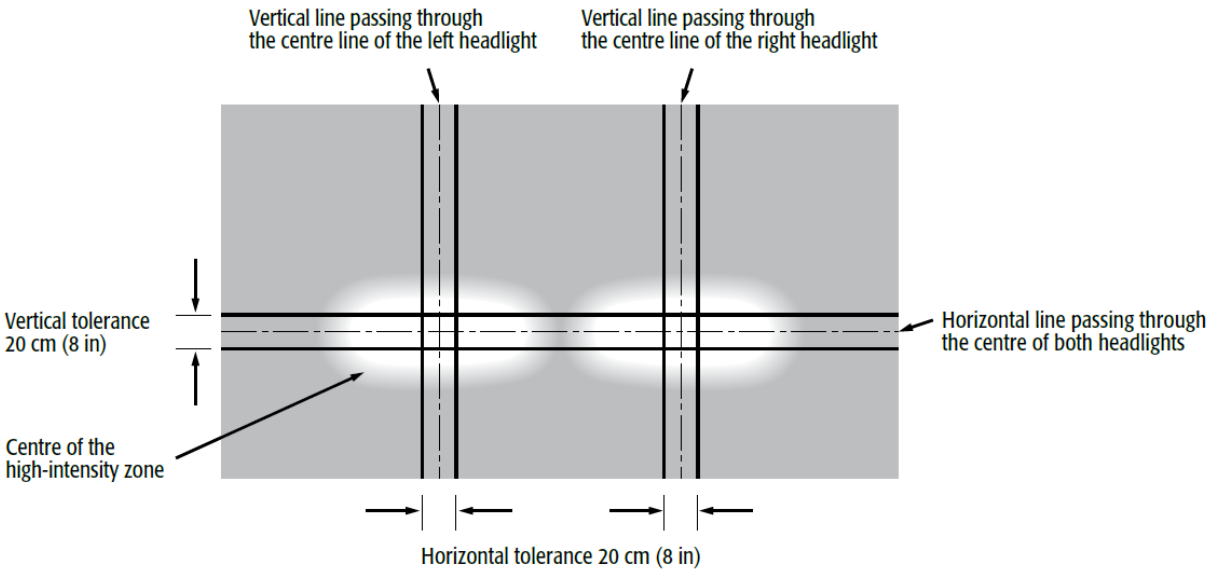
Inspect headlight alignment using a screen as indicated below:

1. Place the vehicle so that it is facing the screen and the headlights are directly above the reference line on the floor.
2. Align the centre of the vehicle with the line down the centre of the screen:
    a. Mark the centre of the windshield and rear window. It is not necessary to mark the windshield if the vehicle has a hood ornament.
    b. Look through the centre of the rear window and adjust the position of the vehicle so that these two points are aligned with the centre line on the screen.
    c. Measure the distance from the ground to the centre of the headlight lenses and transpose this measurement onto the screen so as to obtain the horizontal line from the centre of the headlights.
    d. Measure the distance between the centre of headlight lenses and transpose half of this distance onto the screen on each side of the centre line so as to obtain the vertical lines from the centre of the headlights.



Note: If the vehicle is equipped with adaptive headlights, the angle of the steering wheel must be neutral.

Item and method of inspection	Reject if	Inspection Class
a) low beam **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: **horizontal alignment** the left extremity of the high-intensity zone is more than 10 cm (4 in) on the left or right of the vertical line passing through the centre of the headlight. **vertical alignment** the centre of the high-intensity zone is more than 10 cm (4 in) above or below the horizontal line passing through the centre of both headlights.	1, 2, 4, 5
With the vehicle correctly positioned, switch the headlights on to the **low beam** position and check the centre of the high-intensity zone on the screen.  		
b) high beam **Note:** Headlamp aim must be checked when vehicle is unloaded.	b) 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: **horizontal alignment** the centre of the high-intensity zone is more than 10 cm (4 in) on the left or right of the vertical line passing through the centre of both headlights.	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
	vertical alignment the centre of the high-intensity zone is more than 10 cm (4 in) above or below the horizontal line passing through the centre of both headlights.	
With the vehicle correctly positioned, switch the headlights on to the high beam position and check the centre of the high-intensity zone on the screen.  		
c) headlamp aim adjusters	b) broken, inoperative, insecure mounting or missing	1, 2, 4, 5

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

7. Interior Lamps on a Bus

Note: Inspection must be conducted according to the requirements of the BC MVAR and applicable CSA D250, D409, D435 & D436 Standard. Inspector must be familiar with the applicable requirements.

Additional Inspection Procedure(s): Activate interior lamps, then operate each entrance door. Emergency exit doors are excluded.

Item and method of inspection	Reject if	Inspection Class
a) step well lamp	a) not white in colour, inoperative or missing fails to illuminate step well area stays on when door is closed	4, 5
b) aisle and overhead lamps **Note:** Required on commercial passenger vehicles.	b) missing more than 10% of the lamps on any lamp circuit are inoperative	4, 5
c) accessible vehicle lighting	c) lamp installed for accessibility device (such as a ramp or lift) is inoperative or missing	4, 5

8. School Bus Additional Lamps

Item and method of inspection	Reject if	Inspection Class
a) alternating warning lamps **Additional Inspection Procedure(s):** Activate warning system in pre-stop phase (stop arm not deployed) and then with warning system in full stop phase (stop arm deployed).	a) not equipped, or do not operate as required by the applicable CSA D250 Standard 25% or more of LEDs of any lamp assembly are inoperative alternating warning lamp indicator on instrument panel or switch is inoperative or missing	5
b) strobe lamp (if equipped)	b) does not operate as required by the applicable CSA D250 Standard	5
c) service door exterior lamp **Additional Inspection Procedure(s):** Open and close service door as required to test operation of exit lamp.	c) not equipped, or does not operate as required by the applicable CSA D250 Standard	5

Hazardous Condition(s):
i. on a school bus, alternating overhead warning lamps are inoperative or obstructed

9. School Bus Reflective Tape

Note: School buses manufactured on or after March 31, 1998, must be fitted with conspicuity markings as per CSA D250.

Item and method of inspection	Reject if	Inspection Class
a) rear	a) not two horizontal strips from left to right corners: one strip above the rear window and door, the other strip above the rear bumper. not two vertical strips, one at the left corner and one at the right corner, connecting the horizontal strips.	5
b) sides	b) not two horizontal strips extending the length of the bus body: one strip above the windows, and the other between the floor line and belt line not two vertical strips, one at the left corner and one at the right corner, connecting the horizontal strips the longitudinal length of the material does not cover and is not visible on a minimum of 90% of the bus passenger compartment	5

Section 7 - Electrical System

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

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.

Item and method of inspection	Reject if	Inspection Class
a1) security	a) loose or improperly supported, and able to contact moving parts chafed section resulting from contact with vehicle parts	1, 2, 3, 4, 5, 6
a2) security	not secured at least every 1800 mm	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
b) insulation	b) conductor is exposed, other than at a proper connector	1, 2, 3, 4, 5, 6
c) condition	c) cut, shorted or deteriorated connection is loose, abnormally corroded, burnt	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6
e) vapour proofing	e) not present on petroleum hauling trailers	3

Hazardous Condition(s):
i. any electrical component or wiring shows signs of shorting, arcing, or a hot spot
In the engine compartments of a bus:
ii. electrical cable insulation is burnt, chafed, damaged, or frayed, exposing the conductor
iii. protective grommet insulating an electrical cable through metal is damaged or missing
iv. electrical component is broken or mounting is insecure
v. electrical cable is unsupported, or a clamp is missing, causing chafing or fraying
vi. lubricating oil is leaking from an electrical component such as the alternator or auxiliary heater

2. Battery

Item and method of inspection	Reject if	Inspection Class
a) posts and connections	a) loose or burnt corrosion or deterioration is present that prevents proper electrical contact	1, 2, 3, 4, 5, 6
b) mount/tray	b) cracked or missing, perforated or weakened due to corrosion	1, 2, 3, 4, 5, 6
c) cover and hold down	c) insecure, missing, does not meet OEM standard battery is not secured in place	1, 2, 3, 4, 5, 6
d) condition	d) level 2 leak of battery fluid	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
e) vent tube	e) flattened or blocked	6

Hazardous Condition(s):
i. any electrical component or wiring shows signs of shorting, arcing, or a hot spot
In the battery compartments of a bus:
ii. electrical cable insulation is burnt, chafed, damaged, or frayed, exposing the conductor
iii. protective grommet insulating an electrical cable through metal is damaged or missing
iv. electrical component is broken or mounting is insecure
v. electrical cable is unsupported, or a clamp is missing, causing chafing or fraying

3. Switches

Item and method of inspection	Reject if	Inspection Class
a) headlamp switch	missing, damaged, inoperative	1, 2, 4, 5, 6
b) dimmer switch	missing, damaged, inoperative	1, 2, 4, 5, 6
c) heater and defrost switch	missing, damaged, inoperative	1, 2, 4, 5
d) windshield wiper and washer switch	missing, damaged, inoperative	1, 2, 4, 5
e) turn indicator switch	missing, damaged, inoperative **Note:** On vehicles manufactured on and after January 1, 1974, the turn signal operating unit installed on passenger cars, multipurpose passenger vehicles, trucks, and buses less than 2032 mm in overall width, must be self-canceling by steering wheel rotation and capable of cancellation by a manually operated control.	1, 2, 4, 5, 6
f) hazard warning switch (if OEM equipped)	missing, damaged, inoperative	1, 2, 4, 5, 6
g) ignition switch	missing, damaged, inoperative	1, 2, 4, 5, 6
h) labelling	missing, not labelled as per CMVSS requirements	1, 2, 4, 5, 6

4. Trailer Cord (output to towed vehicle)

Item and method of inspection	Reject if	Inspection Class
a) insulation	a) cut, cracked, deteriorated or melted through to wire conductor	2, 3, 4
b) connection **Note:** A trailer cord must be repaired only by using industry standard methods.	b) cracked, ends split, improper repair or connection	2, 3, 4
c) constant ABS power on auxiliary circuit **Note:** Also refer to Section 3A, Item 19 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	2, 3, 4

5. Alternator Output on a School Bus

Note: Applies to school bus only. Inspection must be conducted according to the requirements of the applicable CSA D250 Standard.

Item and method of inspection	Reject if	Inspection Class
a) output rate	a) during test method 1, fails to produce 70 amps at idle or fails to produce 130 amps at 1500 rpm	5

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Test alternator output using test method 1 or test method 2. **Test method 1:** Test alternator using a load test device. **Test Method 2:** Test the output of the charging system with all lamps, heaters, defrosters, and other electrical accessories on at highest settings, with engine operating at 1500 rpm.	during test method 2, voltage drops below 12.4 volts, or charge indicator shows a discharge condition charge indicator is inoperative	

Section 8 - Frame and Body

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

1. Hood or Engine Enclosure

Additional Inspection Procedure(s): Test the operation of the hood or engine enclosure doors, attachment, latches and safety devices.

Item and method of inspection	Reject if	Inspection Class
a) condition	a) damaged, insecure, or deteriorated in a manner that it is likely to become detached or missing	1, 2, 4, 5
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	1, 2, 4, 5
c) safety cable, assist spring, support/dampener	c) broken, insecurely attached or missing	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
d) hinge and support spring	d) hinge or hinge part is broken, cracked, missing, seized or abnormally worn	1, 2, 4, 5
e) safety retainer pins	e) missing, broken, inoperative, inferior substitute	1, 2, 4, 5
f) hood reinforcement **Additional Inspection Procedure(s):** When rejection criteria is marked with [🔧] symbol, and the vehicle is rejected based on that criteria, it must be referred for a structural integrity assessment.	f) reinforced other than by a method approved by: • OEM standard • I-CAR or equivalent process and standard, if no OEM standard is available [🔧] any modifications or damage to crush zones	1, 2, 4, 5

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.

Item and method of inspection	Reject if	Inspection Class
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	2
b) hinge	b) hinge or hinge part is broken, cracked, missing, seized or abnormally worn parts do not align correctly	2

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.

Item and method of inspection	Reject if	Inspection Class
a) air bag	a) leaking, cracked to reinforcing layer, damaged or patched not properly inflating or cab tilts to one side	2
b) air line, connection and fitting	b) fitting, line or repair method does not meet the OEM standard or industry standard if there is no OEM standard tubing or hose is defective as defined in Appendix B 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	2
c) mount, rod and attachment	c) bent, broken, loose or welded or repaired in a way that does not meet OEM standard	2
d) pressure protection valve	d) missing or improper type	2
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	2
f) shock absorber	f) broken, damaged, disconnected, loose or missing level 2 leak of oil	2

Hazardous Condition(s):
i. any component is so insecure or loose that it is an imminent hazard or it could become detached from vehicle

4. Vehicle Body

4.1. Body-On-Frame

Additional Inspection Procedure(s):
When rejection criteria is marked with [🔧] symbol, and the vehicle meets the criteria, it must be referred for a structural integrity assessment.

Item and method of inspection	Reject if	Inspection Class
a) condition	a) any section or panel 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, torn or cut 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	1, 2, 3, 4, 5
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	1, 2, 3, 4, 5
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	1, 2, 3, 4, 5, 6
d) fender, quarter panel and mudflap **Note:** For exemptions, see Item 20 in this section.	d) missing, damaged 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) fitted so that it could cause interference with steering mechanism or cause rubbing of tires when suspension bottomed and steering moved stop to stop (includes rear wheels)	1, 2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
e) body lift Additional Inspection Procedure(s): Height measurements must be recorded for headlights, front bumper, tire size and overall vehicle height.	e) vehicle modification or components not safe for use on highway	1, 2, 4

4.2. Unibody

Note: Repairs to perforated metal floor pans require patches and repairs to be MIG or TIG welded with the same gauge metal as the pan.

Additional Inspection Procedure(s):
When rejection criteria is marked with [🔧] symbol, and the vehicle meets the criteria, it must be referred for a structural integrity assessment.

Item and method of inspection	Reject if	Inspection Class
a) floor pan	a) [🔧] modified or repaired in a manner that may reduce structural integrity (unless the condition or the repair is approved by the OEM, manufacturer or an engineer) [🔧] rusted through to cause a hazard or allow exhaust gases to enter occupant compartment	1, 2, 4, 5
b) strut towers and spring shackle supports	b) [🔧] modified or repaired in a manner that may reduce structural integrity (unless the condition or the repair is approved by the OEM, manufacturer or an engineer) [🔧] cracked, broken, rusted through to such a depth as to weaken supports	1, 2, 4, 5
c) body panels	c) [🔧] modified or repaired in a manner that may reduce structural integrity (unless the condition or the repair is approved by the OEM, manufacturer or an engineer)	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
d) high strength, front and rear structural side members	d) [🔧] oxy-acetylene welded, braised, cracked, broken, rusted through to such a depth as to weaken member [🔧] modified or repaired in a manner that may reduce structural integrity (unless the condition or the repair is approved by the OEM, manufacturer or an engineer)	1, 2, 4, 5
e) welding	e) [🔧] components welded when originally bolted or riveted [🔧] components bolted or riveted when originally welded	1, 2, 4, 5
f) unibody sheet metal	f) [🔧] separated, flaking in structural areas, structural shapes distorted, indications of metal heating, hammer caused indentation	1, 2, 4, 5
g) 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.	g) bent, broken, cracked, loose or missing welded or repaired in a way that does not meet OEM standard any rivet is loose or missing any condition of the unibody allows a part of the body or power train, out of its normal position, or to contact a moving part	1, 2, 3, 4, 5

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
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 the OEM standard or industry standard if there is no OEM standard
v. structural body component has a crack, cut or notch longer than 38 mm
vi. 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

5. Cargo Body

Note: Minor surface rust and corrosion is normal.

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.

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3
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	1, 2, 3
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	1, 2, 3
d) cross-member	d) bent, broken, collapsed, cracked or missing perforated or weakened by corrosion	1, 2, 3

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3
f) stake pocket/tiedown, cargo securing point or cargo securing device (including portable anchors)	f) broken, cracked or insecure elongated or distorted	1, 2, 3
g) tailgate, hopper, or end-dump door	g) broken, or cracked 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	1, 2, 3
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	1, 2, 3
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	1, 2, 3
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	1, 2, 3

Item and method of inspection	Reject if	Inspection Class
	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	
k) bunk and stake equipment	k) bunks are broken, cracked, mounted insecurely or bolts are loose; bunk lash exceeds 5 mm or OEM standard bunk posts, stakes and extensions are broken, cracked, insecure, or bolts are loose; angle exceeds 90 degrees cup and saucer cracked, broken, worn beyond OEM standard stake cables are less than 21 mm (7/8 in.) in diameter, worn, frayed, pinched, anchor insecure, stake trip lever retainer missing, trip stake return spring missing or broken bolster is loose or cracked, bolts are loose or missing bunk air lock has an air leak or not functioning as per OEM standard	1, 2, 3

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

5.1. Body Type - Low Boy

Item and method of inspection	Reject if	Inspection Class
a) tie downs	a) missing, broken, cracked, worn beyond load security specifications	3
b) loading ramp (if equipped)	b) hinges broken, insecurely mounted	3
c) equipment rails or pads (floor not required)	c) loose, insecure	3
d) side rails (if equipped)	d) loose, cracked, broken, corroded through, insecure, improper or inadequate repair	3
e) cross-member	e) bent, broken, collapsed, cracked or missing perforated or weakened by corrosion	3
f) detachable neck	f) worn, cracked, insecure, loose or it could become detached locking components worn beyond OEM standard	3

Hazardous Condition(s):
i. any component is so insecure or loose that it is an imminent hazard, or it could become detached from vehicle

5.2. Body Type - Timber/Log/Pole

Additional Inspection Procedure(s): Where bunk/scale pad bolts are present, all bolts must be torqued to OEM standard. Use of a torque multiplier may be required.

Item and method of inspection	Reject if	Inspection Class
a) bunks/bunk lash	a) broken, cracked, mounted insecurely, loose bolts, bunk lash exceeds 5 mm (3/16 in.) or OEM standard repaired in a manner that does not meet the OEM standard	2, 3
b) bunk posts, stakes and extensions	b) broken, cracked, insecure, loose bolts, angle exceeds 90 degrees hinge bushings/pins abnormally worn repaired in a manner that does not meet the OEM standard	2, 3

Item and method of inspection	Reject if	Inspection Class
c) cup and saucer	c) cracked, broken, abnormally worn, does not meet OEM standards	2, 3
d) stake cables	d) less than 21 mm (7/8 in.), worn, frayed, pinched, corroded through, anchor insecure, stake trip lever retainer missing, trip stake return spring missing or broken	2, 3
e) bolster	e) loose, cracked, bolts loose, missing	2, 3
f) reach (entire length of reach must be inspected)	f) cracked, worn more than 20%, bent, repairs do not meet OEM standard	2, 3
g) compensator	g) live (stops missing), cracked, welded, worn more than 20% bushings abnormally worn fasteners loose or missing	2, 3
h) adjustable reach (trailers manufactured after January 1, 1993) **Additional Inspection Procedure(s):** All sections of reach must be fully extended for inspection.	h) repaired by welding bolts or positive means other than a friction clamp to prevent movement are missing	2, 3

Hazardous Condition(s):
i. any component is so insecure or loose that it is an imminent hazard, or it could become detached from vehicle

5.3. Body Type - Cattle Liner

Item and method of inspection	Reject if	Inspection Class
a) sides	a) cracked, corroded through, severely corroded as to weaken the member (check by tapping with hammer) rivets at drop center front and back are missing, loose, working	2, 3
b) floor	b) cracked, corroded through, severely corroded as to weaken the member (check by tapping with hammer)	2, 3

Item and method of inspection	Reject if	Inspection Class
Note: Particular attention should be given at drop center area.	rivets at drop center front and back are missing, loose, working	
c) side supports **Additional Inspection Procedure(s):** Visually inspect the supports from inside and outside of the body.	c) missing, broken, cracked, corroded through, corroded so as to weaken the support	2, 3
d) side rails	d) bulges indicating corrosion evident, stress cracks at rails rivets dimpled, rivets missing (check by tapping rivets with hammer)	2, 3

Hazardous Condition(s):
i. any component is so insecure or loose that it is an imminent hazard, or it could become detached from vehicle

6. Frame, Rails & Mounts

Additional Inspection Procedure(s):
When rejection criteria is marked with [🔧] symbol, and the vehicle meets the criteria, it must be referred for a structural integrity assessment.

Item and method of inspection	Reject if	Inspection Class
a) condition **Additional Inspection Procedure(s):** With the vehicle raised (if applicable) tap with ball peen hammer. **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 welded and heated areas missing corrosion resistant coating [🔧] bent, broken, cracked or kinked [🔧] perforated or separated due to corrosion between mount and frame member or, between front and rear suspension mounts and rear frame to body mounts rusted, worn or corroded to a depth sufficient to become weakened	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	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, out of its normal position, or to contact a moving part, or affects the ability to maintain the wheel alignment within the manufacturer's specified range body mounts split, broken, missing, missing bolts motorcycle frame flexes, is cracked or welded or has fatigue points to the extent that structural damage is indicated unable to certify motorcycle frame is suitable for highway use	
b) frame fastener	b) ineffective, loose or missing	1, 2, 3, 4, 5, 6
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 the OEM standard or industry standard if there is no OEM standard any condition of a cross member allows a frame component, or a part of the body or power train, out of its normal position, or to contact a moving part	1, 2, 3, 4, 5
d) sub-frame assembly **Note:** This only applies to a structural frame assembly that is not part of the main frame or unibody 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 the OEM standard or industry standard if there is no OEM standard any condition of the sub-frame assembly allows a frame component, or a part of the body or power train, out of its normal position, or to contact a moving part, or	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	affects the ability to maintain the wheel alignment within the manufacturer's specified range	
e) motorcycle footrest	e) no footrests for the operator, or for the passenger if equipped with room for a passenger on seat	6

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 the OEM standard or industry standard if there is no OEM standard
iv. motorcycle frame broken or twisted out of alignment

7. Doors

7.1. Cab and Passenger-Vehicle Doors

Item and method of inspection	Reject if	Inspection Class
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) missing, binds or fails to lock securely insecure mounting to hinge, insecure hinge or severely corroded in hinge area hinges are cracked, missing, loose or inoperative 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	1, 2

Item and method of inspection	Reject if	Inspection Class
	any gap exists that would allow leakage, loss or spillage of cargo	
b) door openers and handles	b) broken, inoperative or missing on modified collector vehicles only - inner door release mechanism not readily available or identified **Note:** If outer door handles are removed (shaved), inner door release mechanism must be readily available and identified.	1, 2
c) location	no exit on one side OEM exits are inoperative	1, 2
d) intrusion beam	d) missing, loose, broken, bent, kinked, repaired other than by an approved standard and process	1, 2
e) door panel	e) repaired in a manner that compromises structural integrity, repaired other than by an approved standard and process	1, 2
f) trunk door	f) will not open, close and latch seal cracked, broken or missing interior trunk release missing or inoperative **Note:** Every passenger car and three-wheeled vehicle manufactured after September 1, 2010, must be equipped with an interior trunk release (CMVSS 401).	1, 2

7.2. Cargo Doors

Item and method of inspection	Reject if	Inspection Class
a) condition and operation **Additional Inspection Procedure(s):** Test the operation of each door.	a) missing, 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	1, 2, 3

Item and method of inspection	Reject if	Inspection Class
	door fails to operate or latch on both primary and secondary latches 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	
b) door openers and handles	b) broken, inoperative or missing	1, 2, 3

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

8. Cargo Tank or Vessel

Note: Dangerous goods, edible products, dry bulk cargo tanks are frequently subject to additional inspection requirements (see Code CSA B620). 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. Authorized Inspectors must take precautions to avoid exposure to any cargo or residual material. If cargo tank test/inspection is expired, and the vehicle is no longer used to transport dangerous goods, the CSA B620 standard may not apply (i.e., internal valve no longer required). Note on the inspection report that the cargo tank inspection has expired.

Item and method of inspection	Reject if	Inspection Class
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	2, 3
b) valve	b) cap loose or missing level 2 leak of any liquid transported by the tank or vessel	2, 3
c) hose	c) loose or improperly secured	2, 3

Item and method of inspection	Reject if	Inspection Class
d) hatch	d) insecure, loose or missing latch inoperative hinge, broken or inoperative	2, 3

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

9. 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, snowplow, 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.

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3, 4, 5

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

10. Refrigeration/Heater Unit System (Reefer or Auxiliary Power Unit [APU])

Item and method of inspection	Reject if	Inspection Class
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. Inspect the exhaust system and fuel system, according to the appropriate type of fuel used, as described in Section 1 – Power Train.	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	1, 2, 3, 4, 5

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. Bumpers

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 4, 5
b) design	b) replacement part does not meet OEM standard, or does not provide the same protection as the bumper originally installed by the manufacturer solid portion does not extend from one frame rail to the other (except for a unitized body design)	1, 2, 4, 5
c) shock absorber and/or impact absorber (as OEM)	c) collapsed, welded to rail, solid or not collapsible	1, 2, 4
d) height	d) **on vehicles with a GVWR of 4536kg or less:** centre of bumpers not between 180 and 560 mm (7 and 22 in.) from the ground for **modified collector vehicles only** centre of bumpers not between 400 and 560 mm (16 and 22 in.) from the ground for **all other passenger cars** lowest part of truck bumpers higher than 750 mm (29.5 in.) from the ground as measured to OEM bumper location (frame rails) **for trucks** **Note:** Rear bumper required on trucks if OEM equipped. **on vehicles with a GVWR of more than 4536kg:** lowest part of front bumper is higher than 750 mm (29.5 in) from the ground **Note:** Applies only to the front bumper on a truck or truck-tractor. Applies to the front and rear bumper on a bus.	1, 2, 4, 5

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

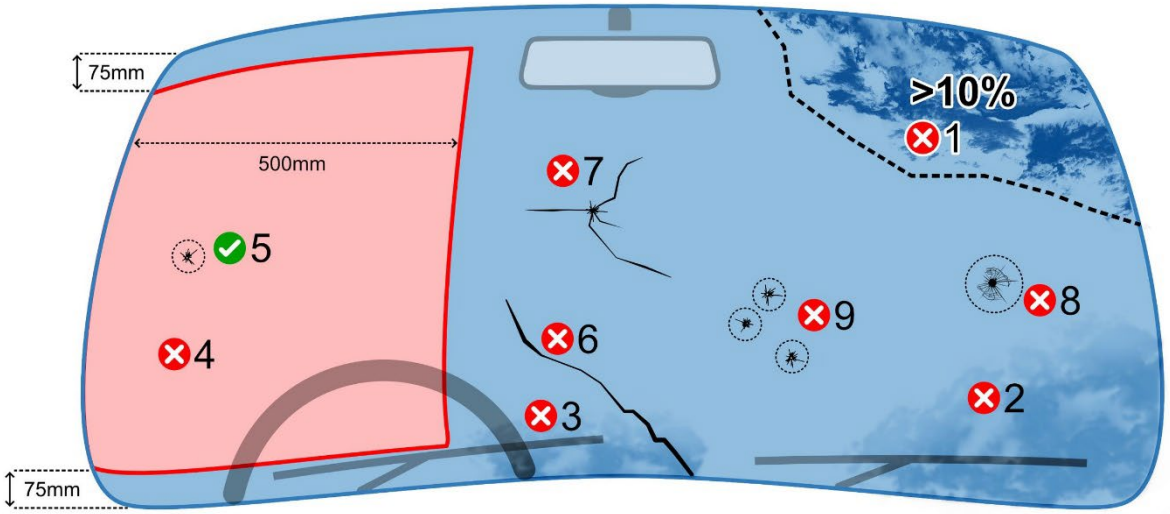
12. Windshield

Neighbourhood Zero Emissions Vehicles (NZEV) required equipment.

Note: Driver's vision is materially impaired if it meets the definition set out in section 29 of the Schedule to Division 7 of the MVAR.

Item and method of inspection	Reject if	Inspection Class
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 unduly obstructs driver's vision **Note:** Windshield wipers must meet the criteria set in Section 5 of this Vehicle Inspection Manual.	1, 2, 4, 5, 6
b) condition	b) any portion of windshield glass or the complete windshield glass area is missing clouded, damaged or deteriorated in such a way that driver's normal vision is materially impaired cracked, broken or clouded forward of a line parallel with the driver's shoulder vision is obscured or limited due to surface condition more than 10% of total glass area is discoloured due to age or other deterioration (see #1 in the graphic below) more than 75 mm clouding around the edge (see #2 in the graphic below) any clouding on the driver's side (see #3 in the graphic below) broken glass showing sharp edge **Left Hand Drive vehicles only:** a defect in the area extending from the left side of the driver's side 500 mm toward the centre and extending over 75 mm down from the top or over 75 mm	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	up from the bottom (see #4 in the graphic below), excepting small stone injuries of 6 mm or less (see #5 in the graphic below) Right Hand Drive vehicles only: a defect in the area extending from the right side of the driver's side 500 mm toward the centre and extending over 75 mm down from the top or over 75 mm up from the bottom, excepting small stone injuries of 6 mm or less	
c) crack	c) a crack extends through both layers of glass a crack over 300 mm (12 in.) long in any part (see #6 in the graphic below) more than 2 cracks over 150 mm long in any one piece of glass (see #7 in the graphic below)	1, 2, 4, 5, 6
d) chip	d) stone or shot injuries more than 40 mm in diameter (see #8 in the graphic below) two or more stone or shot injuries over 20 mm in diameter in any one piece of glass (see #9 in the graphic below)	1, 2, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
 *The image provided is a supplementary visual reference only. It is not standalone reject criteria and requires reference to the comprehensive reject criteria outlined above.*		
e) tinting (MVAR 7.05(8))	e) any after-market tint is applied unless the material is affixed to or placed on the windshield but not more than 75 mm below the top of the windshield tint or sunscreen other than that allowed by ANSI/SAE Z26.1 standards any tint that is reflective type driver's normal vision is materially impaired	1, 2, 4, 5, 6
f) material type **Note:** Applies to all vehicles manufactured on and after January 1, 1971.	f) not marked as type AS-1, AS-10, AS-11C or AS-14 on all vehicles except motorcycles on a motorcycle not marked as type AS-1, AS-6, AS-10, AS-11A or AS-11C	1, 2, 4, 5, 6
g) adhesive sealant	g) not automotive urethane type or is any type other than specified by the manufacturer	1, 2, 4, 5, 6

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

13. Side Windows

Note: Driver's vision is materially impaired if it meets the definition set out in section 29 of the Schedule to Division 7 of the MVAR.

Item and method of inspection	Reject if	Inspection Class
a) operation **Additional Inspection Procedure(s):** Test the operation of the driver's (left) side window.	a) fails to open or close normally	1, 2, 4, 5
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 obstructed by any sticker, sign, poster or other thing or material placed over the window 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 a crack over 300mm long in any part more than 2 cracks over 150 mm long in any one piece of glass stone or shot injuries more than 40 mm in diameter two or more stone or shot injuries over 20 mm in diameter in any one piece of glass	1, 2, 4, 5
c) material type **Note:** Applies to every side window.	c) is not marked as type AS-1, AS-2, AS-3, AS-10 or AS-11 **Note:** AS-3 is only acceptable for side windows to the rear of the driver location. **Right Hand Drive Vehicles** additional inspection requirements (see Appendix D).	1, 2, 4, 5
d) tinting (MVAR 7.05(8))	d) any after-market tint (by film or any material or coating) is applied to any side window that is forward of the driver's seat back	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
Note: Applies to any window forward of the driver's seat back.	tint or sunscreen other than that allowed by ANSI/SAE Z26.1 standards any tint that is reflective type driver's normal vision is materially impaired	

14. Rear Window

Item and method of inspection	Reject if	Inspection Class
a) condition	a) broken or clouded to such an extent that the driver is unable to see clearly 60 m to the rear window has an exposed sharp edge, is broken or part of window is missing a crack over 300mm long in any part more than 2 cracks over 150 mm long in any one piece of glass stone or shot injuries more than 40 mm in diameter two or more stone or shot injuries over 20 mm in diameter in any one piece of glass	1, 2, 4, 5
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	1, 2, 4, 5
c) tinting (MVAR 7.05(8))	any after-market tint is applied to the rear window if the motor vehicle is not equipped with outside rear view mirrors on the left and right side of the motor vehicle tint or sunscreen other than that allowed by ANSI/SAE Z26.1 standards any tint that is reflective type driver's normal vision is materially impaired	1, 2, 4, 5

15. Interior Sun Visor

Item and method of inspection	Reject if	Inspection Class
a) location	a) missing on driver's side	1, 2, 4, 5
b) attaching parts	b) bent, broken, loose or missing	1, 2, 4, 5
c) adjustment	c) cannot be maintained in a set position	1, 2, 4, 5
d) type	d) does not meet OEM or applicable standard	1, 2, 4, 5

16. Exterior Windshield Sun Visor

Item and method of inspection	Reject if	Inspection Class
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	2, 4, 5

Figure 1

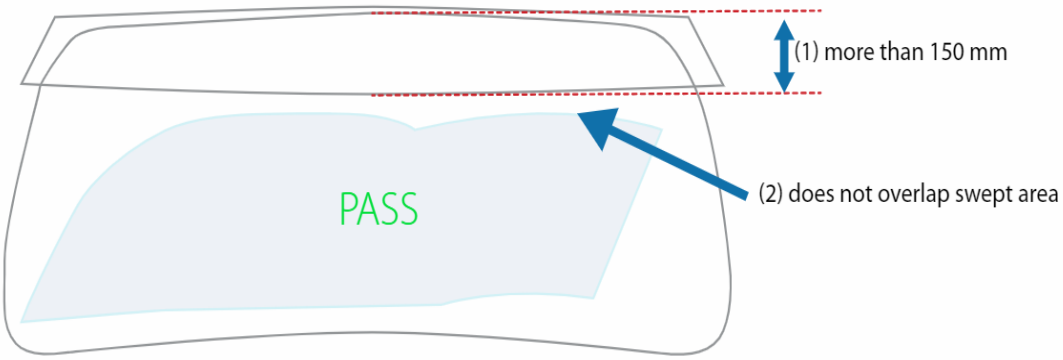


Figure 2

Item and method of inspection	Reject if	Inspection Class

Figure 3

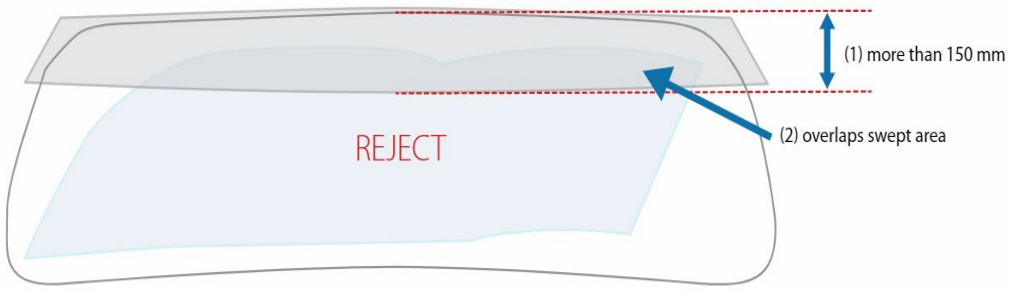
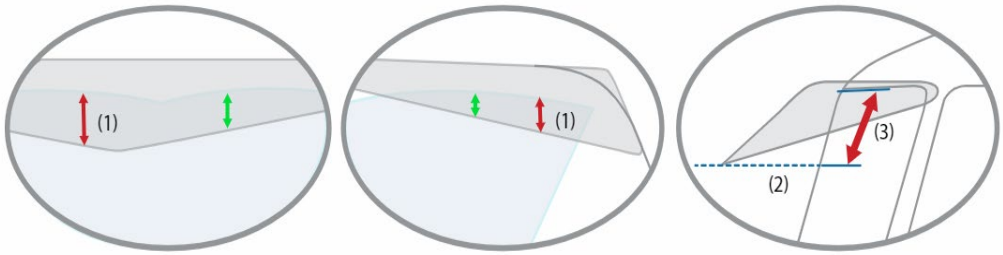


Figure 4



Additional Inspection Procedure(s): 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

17. Rear-view Mirror

Right Hand Drive Vehicles additional inspection requirements (see Appendix D).

Neighbourhood Zero Emissions Vehicles (NZEV) required equipment.

Item and method of inspection	Reject if	Inspection Class
a) location	a) required rear-view mirror is missing **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. Motorcycles require one mirror on each side. For additional requirements for driving school vehicles see Section 5 - Instruments and Auxiliary Equipment - Subsection 16 of this Vehicle Inspection Manual.	1, 2, 4, 5, 6
b) view	b) view to the rear is obstructed to such an extent that the driver is unable to see clearly 60 m to the rear	1, 2, 4, 5, 6
c) mount	c) broken, insecure or loose fails to hold mirror in correct position	1, 2, 4, 5, 6
d) glass condition	d) clouded, damaged or deteriorated in such a way that normal driver vision is materially impaired **Note:** Driver's vision is materially impaired if it meets the definition set out in section 29 of the Schedule to Division 7 of the MVAR.	1, 2, 4, 5, 6
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 the mirror is: • less than 125 cm² for a vehicle with GVWR of 4536 kg or less (other than a school bus) • less than 325 cm² for a vehicle with GVWR of more than 4536 kg and all school buses • less than 64.5 cm² for a motorcycle	1, 2, 4, 5, 6
f) adjustment	f) required rear-view mirror not adjustable, or does not hold position	1, 2, 4, 5, 6

Hazardous Condition(s):
i. an external rear view mirror is missing, obscured, insecure or adjustment is seized

18. Seat

Note: This item does not apply to passenger seats on a bus. (See item 31 below for bus passenger seat requirements.)

Item and method of inspection	Reject if	Inspection Class
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 covering material torn more than 75 mm (3 in.) in length or 6,400 mm2 (9 in2) in area or 6.5 mm (1/4 in.) deep driver seat cannot be adjusted forward or backward driver seat on a school bus does not meet CSA D250 Standard for the year of manufacture passenger seat cannot be adjusted forward or backward (if OEM equipped) seat back recline mechanism fails to adjust seat pedestal removed seat assembly does not meet CMVSS	1, 2, 4, 5
b) seat position lock **Additional Inspection Procedure(s):** Test the operation of the driver seat position locking function.	b) seat adjustment fails to lock into position	1, 2, 4, 5
c) head restraints (headrest) if OEM equipped	c) missing, broken, inoperative not CMVSS compliant	1, 2, 4, 5
d) location	d) not in CMVSS compliant location	1, 2, 4, 5
e) motorcycle seat	e) not securely attached to vehicle; or seat locking device (where fitted) not functioning properly, missing minimum seat height lower than 650 mm when vehicle is unladen	6

Hazardous Condition(s):

i. driver's seat loose, insecure or fails to lock into position

19. Seat Belt/Occupant Restraint

Neighbourhood Zero Emissions Vehicles (NZEV) required equipment.

Right Hand Drive Vehicles additional inspection requirements (see Appendix D).

Note: Seat belts and occupant restraint system must comply with CMVSS 208, 209 and 210 for year of manufacture. Seat Belts and Occupant Restraints are not required where a designated seating position has been removed.

Additional Inspection Procedure(s): Confirm the operation of each seat belt latch and retractor. If seat belt is down behind the seat cushion, pull it out and place it on the cushion.

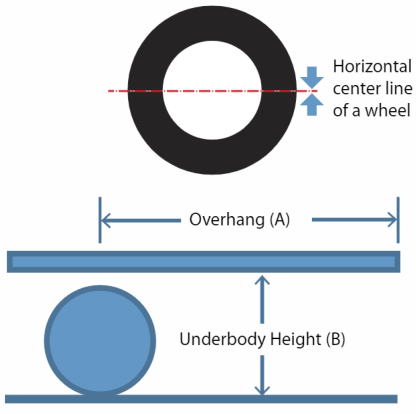
Item and method of inspection	Reject if	Inspection Class
a) type and condition	a) missing, insecurely mounted, or not equipped at each seating position as originally required to meet applicable CMVSS standards webbing material is broken, cut, frayed or torn air ride, hydraulic or spring seat does not have lap belts attached to the seat, or is not equipped with a secondary belt from the seat to the floor	1, 2, 4, 5
b) anchor	b) broken, insecure mounting or missing not located in an OEM position	1, 2, 4, 5
c) retractor	c) broken, insecure mounting or missing fails to allow belt to extend to its maximum length or fails to retract properly belt retractor does not remove belt slack in all positions	1, 2, 4, 5
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	1, 2, 4, 5

Item and method of inspection	Reject if	Inspection Class
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 air bag cover damaged	1, 2, 4, 5
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	1, 2, 4, 5
g) onboard diagnostic	g) fails onboard diagnostic test	1, 2, 4, 5
h) seatbelt indicator light	h) see criteria in Section 6, Item 5 of this Vehicle Inspection Manual	1, 2, 4, 5

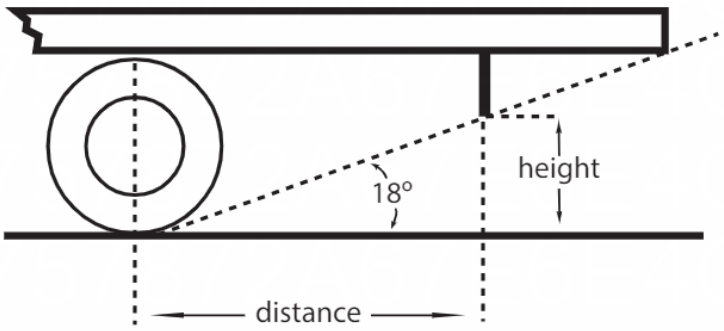
Hazardous Condition(s):
i. a required seat belt is inoperative or missing

20. Fender/Mudflap

Note: A mudflap 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, except as noted below.

Exceptions	
A mudflap 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	

Exceptions
On a vocational vehicle, if there is inadequate room for a full-size mud flap, or if a mud flap will interfere with the vehicle mechanical operation, then the presence, location and dimensions of mud flaps may vary from the standards. Authorized inspectors must ensure where a vocational vehicle does not meet the mud flap standards, that the spray and splash of water and mud to the rear of the vehicle is minimized. Vocational vehicle: means a truck chassis with permanently mounted equipment or body features intended to perform or support a specific job or group of related jobs and includes dump trucks, garbage trucks, concrete mixers, snowplows, and hydrovacs but does not include trucks solely intended to tow other vehicles such as a truck tractor or only intended to carry or transport goods such as van body or flat deck type trucks.
Mudflaps are not required on the following vehicles: • A collector motor vehicle that meets the criteria in MVAR section 7.01(4)(a)(i) • A motor vehicle that meets the criteria in MVAR section 7.01(4)(a)(ii) • A replicar or replikit that meets the criteria in MVAR section 7.01(4)(a)(iii)
Additional Inspection Procedure(s): If a vehicle described above that does not require mudflaps, is presented for inspection and meets all other applicable inspection criteria under section 8 of this Vehicle Inspection Manual, the inspection result on the report under "Section 8 - Frame and Body" MUST be marked as "Pass with caution" and include a comment indicating the exception that applied.

Item and method of inspection	Reject if	Inspection Class
a) condition and location	a1) distance from ground to bottom of mudflap exceeds 1/3 of horizontal distance from mudflap to centre of wheel  (vehicle unloaded) where the 1/3 rule cannot be applied due to vehicle configuration, the bottom of mudflap is more than 14 in. from ground, measured when vehicle is not loaded	1
	a2) fender or mudflap is broken, has insecure mounting, is loose or missing fender or mudflap has a tear or wear hole exists that is larger than 100 mm across the longest dimension, or the aggregated	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
	longest dimensions of multiple holes in a single mudflap equal more than 100 mm the distance from the bottom of the mudflap to the ground exceeds 210 mm (8.25 in.) the mudflap does not cover the full tread width of the tire(s) the top of the mudflap does not reach up to the top of the tires or a body element	
	a3) any fender, fender extension or mudguard is missing, cracked or torn, or fairing cracked or torn	6

Hazardous Condition(s):
i. required mudflap is missing

21. Landing Gear on Trailer

Item and method of inspection	Reject if	Inspection Class
a) operation Additional Inspection Procedure(s): Test the operation of the landing gear in all speed settings.	a) binding, inoperative or seized	3
b) condition	b) landing gear or brace is bent, broken or cracked insecure mounting pad broken, insecure or loose, or missing	3
c) crank handle	c) cannot be stowed or secured so that it remains within the outer dimensions of the vehicle	3

Hazardous Condition(s):
i. any part of the landing gear is insecure or loose or so as to become detached from vehicle

22. Sliding Axle Assembly (Sliding Bogie) on Trailer

Item and method of inspection	Reject if	Inspection Class
a) frame and sub-frame rail	a) welded or repaired in a way that does not meet OEM standard bent, broken or cracked any attaching weld is broken or cracked perforated or separated due to corrosion between mount and frame member rusted or corroded to a depth sufficient to become weakened	3
b) slider-guide/hold-down bracket & locking device	b) cracked or missing inoperative or fails to lock securely any lock pin is broken, cracked, disengaged or missing locking device (pin) is worn causing 25% or greater reduction in diameter locking-pin hole measures more than 25 mm larger than its original size	3
c) stop	c) bent, cracked, loose or missing	3

Hazardous Condition(s):

i. more than one-fourth of the slider locking pins or locking pin holes that are in use have any one of the following conditions:

- locking pin is missing or not engaged
- locking-pin hole measures more than 25 mm larger than its original size
- the material from the hole in use to an adjacent hole, or the material from the hole in use to the edge of the rail, is torn or split

ii. more than one-fourth of the slider-guide/hold-down brackets are missing or disengaged

iii. the sliding suspension attachment member (undercarriage body rail) on either side has a crack of any length in more than 50 percent of its attachment welds

iv. a sliding suspension member's (undercarriage body rail) attachment welds are cracked completely through along a 1.2 m continuous length of the body rail

v. a sliding suspension attachment member (undercarriage body rail) is cracked completely through along a 1.2 m continuous length

23. Aerodynamic Device and Attachment

Item and method of inspection	Reject if	Inspection Class
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	2, 3, 4, 5

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

24. Rear Impact Guard (RIG) on Trailer

Note: Every trailer with a GVWR of 4,536 kg or greater manufactured on or after September 23, 2007, except as noted below, must be fitted with a rear impact guard (RIG) that meets the requirements of CMVSS 223. Trailers not required by CMVSS to have RIG include:

- pole trailer
- pulpwood trailer
- wheels-back trailer
- trailer designed to be used as temporary living quarters
- low chassis trailer
- trailer designed to interact with, or having work performing equipment located in or moving through the area that would be occupied by a RIG

Item and method of inspection	Reject if	Inspection Class
a) dimensions **Note:** All RIG dimensions are based on the trailer being in an unloaded condition, suspension at normal ride height and tires properly inflated.	a) RIG does not conform to dimensions shown in figure 1 below (based on industry standard - TMC RP 732)	3
b) condition **Note:** Multiple bends are permitted. When there is visible damage to the RIG, also carefully inspect the trailer	b) broken, loose or missing has cracked welds in the horizontal or vertical member or in the supporting structure or any attachment to vehicle structure	3

Item and method of inspection	Reject if	Inspection Class
frame and floor for structural damage.	the horizontal member is bent inward, downward, upward or outward, beyond 75 mm (see figure 2 below) the vertical supports and/or supporting structure are weakened, bent or distorted (see figure 3 below)	

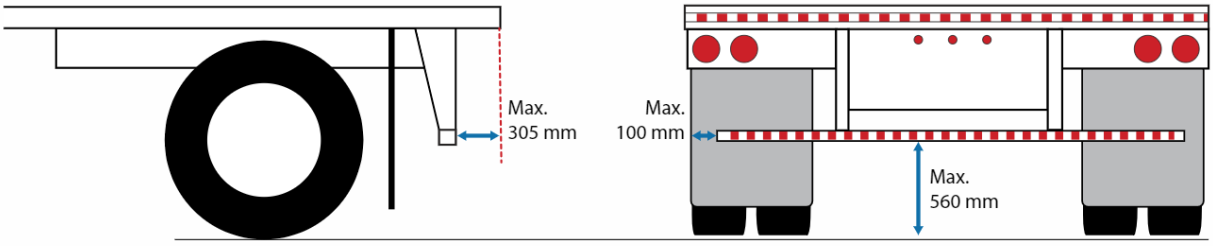


FIGURE 1 - REAR IMPACT GUARD DIMENSIONS

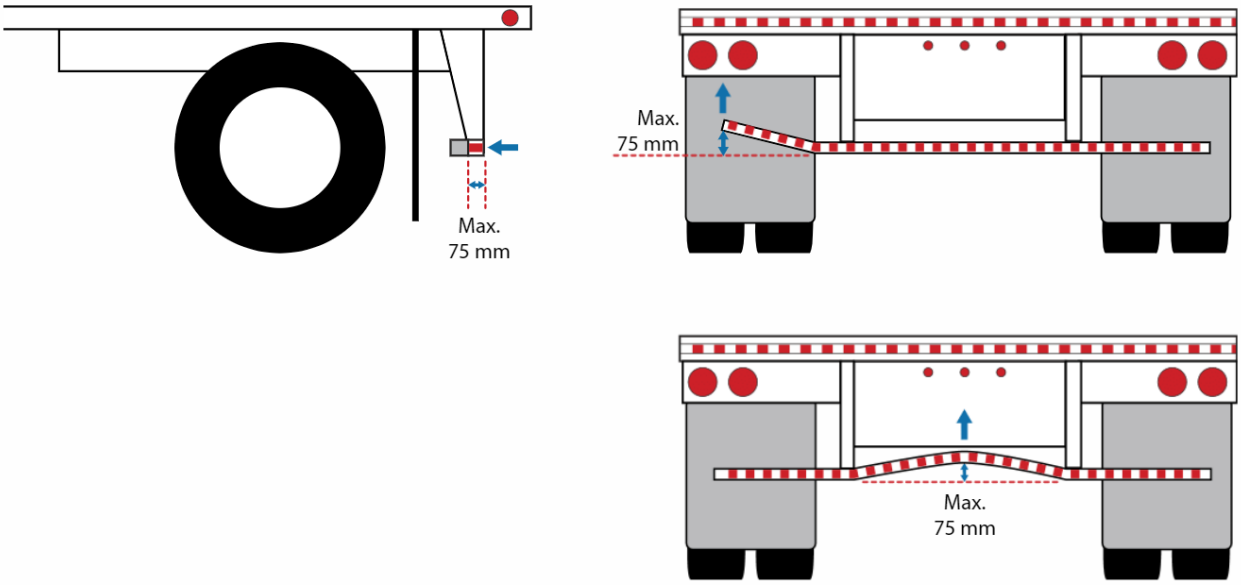


FIGURE 2 - LIMITS OF DAMAGE TO HORIZONTAL RIG MEMBER

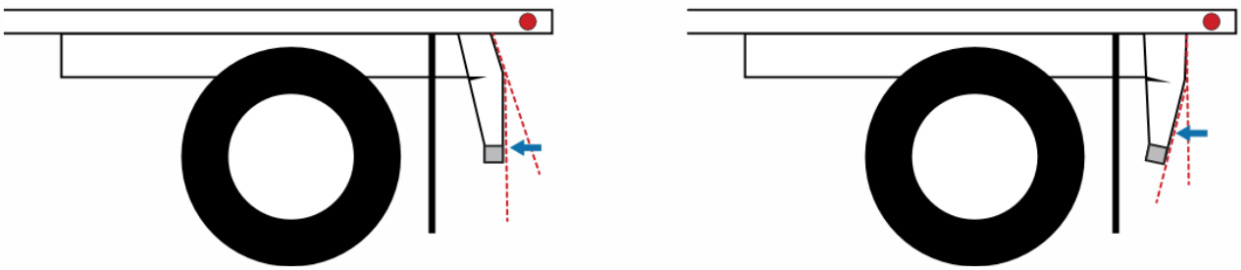


FIGURE 3 - EXAMPLE OF DAMAGED VERTICAL RIG MEMBER

Hazardous Condition(s):

i. any part of the RIG is so insecure or loose it is likely to become detached from the vehicle

25. Floor Pan/Baggage Floor/Step Well on a Bus

Item and method of inspection	Reject if	Inspection Class
a) floor condition	a) bent or deformed in a way that causes unevenness in any aisle, improper attachment of any seat or interferes with any system or control cracked, split or has any non-manufactured hole that is not properly patched rusted or corroded sufficiently to result in structural weakness allows exhaust gases to enter occupant compartment any rivet is loose or missing	4, 5
b) floor covering **Note:** Slip resistant covering is required on the passenger compartment floors and aisles of all buses. Floor covering is not required in baggage areas.	b) cracked, torn or worn through, or not sealed at seams loose or curled and posing a tripping hazard missing or improper type not a smooth surface material under the seats on a school bus, not a ribbed surface material in the aisle, or required ribbed surface of floor covering is worn smooth	4, 5
c) step well condition **Note:** Slip resistant covering is required on all step tread surfaces.	c) bent or deformed in a way that causes unevenness on any step surface cracked, split or has any non-manufactured hole that is not properly patched rusted or corroded sufficiently to result in structural weakness nose of tread does not have band of contrasting colour (only applicable where a contrasting colour was originally equipped by OEM)	4, 5

26. Interior Body and Fixtures on a Bus

Item and method of inspection	Reject if	Inspection Class
a) stanchion and guard rail	a) OEM equipped stanchion is missing loose, support or fastener missing energy absorbing material is missing and exposing any area of metal with the longest dimension greater than 25 mm energy-absorbing material deeper than 6 mm, is missing on any one element, on one or more sections that equal more than 100 mm, when the longest dimension of all such areas are added together	4, 5
b) grab handle	b) OEM equipped grab handle is missing broken or loose on a school bus, drawstring block or security block (that prevents draw strings from being caught) is missing	4, 5
c) retainer barrier on a school bus **Note:** A school bus must be equipped with a seat or retainer barrier forward of each passenger seat. A seat acts as a retainer barrier to the seat immediately behind it.	c) missing, not located forward of any seat any part is not padded on the rear face on the upper 300 mm	4, 5
d) metal condition	d) any metal is torn in a way that could be hazardous to a person	4, 5

27. Service and Exit Door on a Bus

Item and method of inspection	Reject if	Inspection Class
a) condition and operation **Additional Inspection Procedure(s):** Test the operation of each door.	a) binds or fails to lock securely insecure mounting, or severely corroded in hinge area panel is corroded through welded or repaired in a way that does not meet OEM standard	4, 5

Item and method of inspection	Reject if	Inspection Class
	door fails to operate or fails to latch on both primary and secondary latches gap exists that allows exhaust gases to enter occupant compartment	
b) door openers and handles	b) broken, inoperative or missing catch or latch is broken, loose or missing	4, 5
c) remote door operator	c) inoperative, missing or not equipped binds, jams or malfunctions manual override device on power operated door is inoperative or missing control is not accessible from seated driving position	4, 5
d) door edge material	d) material is loose or torn strip seal along the bottom edge of the door is missing or torn missing or improper type of material	4, 5
e) window of school bus door **Note:** Applies to school bus only.	e) has fog or visible moisture between panes fails to meet any of the following requirements: • OEM type and size • double paned or equipped with a means of keeping glass clear of frost • marked as type AS-1, AS-2, AS-10 or AS-11	5

Hazardous Condition(s):
i. door is inoperative or fails to remain in the closed position

28. Emergency Exit (Door, Window and Roof Hatch) on a Bus

Note: Inspection must be conducted according to the applicable requirements. **School buses** must meet Applicable CSA D250 for year of Manufacture.

Item and method of inspection	Reject if	Inspection Class
a) condition and operation	a) passage to any door is blocked	4, 5

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Confirm that each exit (door, window and roof hatch) opens, closes and latches as intended.	release or latch is inoperative from the inside or outside hinge is inoperative fails to open fully and smoothly on a school bus, emergency exit door hold mechanism does not operate as required per applicable CSA D250 standard	
b) label and signage **Note:** Inspection must be conducted according to the applicable requirements.	b) fails to display required label or sign identifying emergency exit fails to display required label or sign displaying operating instructions	4, 5
c) emergency door and roof hatch	c) interlock system on emergency door or roof hatch is inoperative	4, 5
d) emergency exit window warning on a school bus	d) warning device inoperative or missing on emergency window	4, 5

Hazardous Condition(s):
i. required and or marked emergency exits are inoperative, missing, or obstructed
ii. vehicle operates with emergency door locked

29. Passenger Compartment Window on a Bus (Except Emergency Exit Window)

Note: Items a), b) & c) below apply to all passenger compartment side windows. **School buses** must meet Applicable CSA D250 for year of Manufacture

Item and method of inspection	Reject if	Inspection Class
a) operation **Additional Inspection Procedure(s):** Test the operation of each opening side window.	a) fails to open, close or latch as intended	4, 5
b) condition	b) broken, exposed sharp edge, single pane glass is cracked or dual pane window is cracked on inside	4, 5

Item and method of inspection	Reject if	Inspection Class
	exposed edge is not banded on a school bus, double-paned windows or windows equipped with frost shields, are not fitted where required by the applicable requirements	
c) material type	c) not marked as one of the two material listed below: • glass type AS-1, AS-2, AS-3, AS-10 or AS-11 • rigid plastic type AS-4, AS-5 or AS-12	4, 5
d) window tint	d) aftermarket tint or sun screen is applied to the windows directly to the left and right of the driver (including windows in doors) on a school bus aftermarket tint or sun screen is applied to any window that is required to be double-paned by the applicable requirements	4, 5

30. School Bus Exterior Mirror (Except Standard Left and Right Side Mirror)

Note: Applies to school bus only. School buses must meet applicable CSA D250 for year of manufacture.

Item and method of inspection	Reject if	Inspection Class
a) left and right side convex rear-view mirror	a) required convex mirror is broken, insecure, loose, missing, or fails to meet any applicable CSA D250 requirement	5
b) cross-over convex mirror **Note:** A school bus manufactured after November 29, 1997, requires two cross-over mirrors.	b) not equipped with required one, or two, fender-mounted OEM or equivalent, cross-over mirrors mirrors fail to provide the driver with the required view of the front, and front-left and front-right sides of the school bus mirror, or mirror mounting, is insecure or loose, or fails to maintain adjustment power operated mirror is inoperative mirror is broken, cracked or pitted, on an aggregated area larger than 5% of the mirror surface has any condition that deteriorates, or interferes with the normal view from the mirror	5

Item and method of inspection	Reject if	Inspection Class
c) mirror heating and controls **Additional Inspection Procedure(s):** Test the operation of exterior mirror heaters. **Note:** Confirm compliance based on vehicle age with the applicable requirements. Any amount of heat produced by the mirror is sufficient to indicate functionality.	c) inoperative	5

Hazardous Condition(s):
i. mirror is insecure, loose or missing; obscured or seized

31. Passenger Seat on a Bus

Additional Inspection Procedure(s): Manually check the condition and security of each passenger seat.

Item and method of inspection	Reject if	Inspection Class
a) frame and mounting	a) broken, loose or not securely attached to the floor or wall as required	4, 5
b) seating surface	b) covering material is torn, exposing the seat base or springs padding or energy absorbing material thickness is reduced by more than 25%, over an aggregated area greater than 10% of the seating surface a tear in the covering is longer than 75 mm covering has a hole, or covering is missing, where the longest measurement across the area is more than 100 mm on a school bus, seat bottom is not secured to the frame	4, 5
c) seat back and barrier surface	c) loose or missing a tear in the covering is longer than 75 mm	4, 5

Item and method of inspection	Reject if	Inspection Class
	covering has a hole, or covering is missing, where the longest measurement across the area is more than 50 mm energy-absorbing material is reduced in thickness by more than 25%, where the longest measurement across the area is more than 75 mm	
d) location, position and capacity	d) does not meet CMVSS/FMVSS requirements on a school bus does not meet applicable CSA D250 standard seating capacity exceeds maximum number indicated by the vehicle primary or secondary manufacturer	4, 5

Hazardous Condition(s):
i. seat frame not securely attached to the floor or wall as required

32. School Bus Body Exterior

Note: Applies to school bus only.

Item and method of inspection	Reject if	Inspection Class
a) paint	a) body is not the required colour hood is not the required colour bumper is not the required colour	5
b) rub rail	b) broken, corroded, cracked, loose or torn sections, missing or removed repaired in a manner that does not meet industry standards any rivet is loose or missing bent and protruding from the side of the bus does not comply with applicable CSA D250 standard for year of manufacture	5
c) signs	c) any required sign is missing, not clearly visible and legible, damaged, or fails to comply with all applicable requirements	5
d) stop arm and control	d) inoperative	5

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Actuate the stop arm control to confirm it is not inoperative.	red paint has faded to less than 70% of original intensity (minimum intensity is equivalent to Pantone® PMS 7607U) **Note:** Use an industry standard colour-reference chart as necessary.	
e) stop arm lamp **Additional Inspection Procedure(s):** Check in conjunction with stop arm.	e) inoperative or fails to comply with an applicable requirement of the BC MVAR	5
f) pedestrian crossing arm **Additional Inspection Procedure(s):** Actuate the pedestrian crossing arm to confirm it operates in the manner intended by the manufacturer.	f) bent, broken or inoperative incorrect length	5

Hazardous Condition(s):
i. rub rail is protruding from the side of the bus
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

33. Auxiliary Compartment on a Bus

Item and method of inspection	Reject if	Inspection Class
a) access and baggage doors **Additional Inspection Procedure(s):** Operate all baggage compartment doors.	a) inoperative latch fails to hold hinge is broken, inoperative, missing or seized hinge mounting area is insecure counter balance cable is frayed or will not maintain open position	4, 5

Item and method of inspection	Reject if	Inspection Class
b) passenger compartment baggage area partition	b) does not have a securely attached barrier, separating baggage from occupant seating area	4, 5
c) overhead shelf/parcel rack	c) insecure or loose mounting fastener is broken, insecure or missing has no means of preventing articles from unintentionally falling out	4, 5

Hazardous Condition(s):
i. access or baggage door latch fails to hold door in closed position

34. Motorcycle Sidecar

Item and method of inspection	Reject if	Inspection Class
a) attachments	a) welded to frame, loose, missing, worn attachment points	6

35. Accessories

Item and method of inspection	Reject if	Inspection Class
a) canopy, cover, deck or equivalent	a) loose, insecurely mounted	1, 2

Section 9 - Tires and Wheels

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

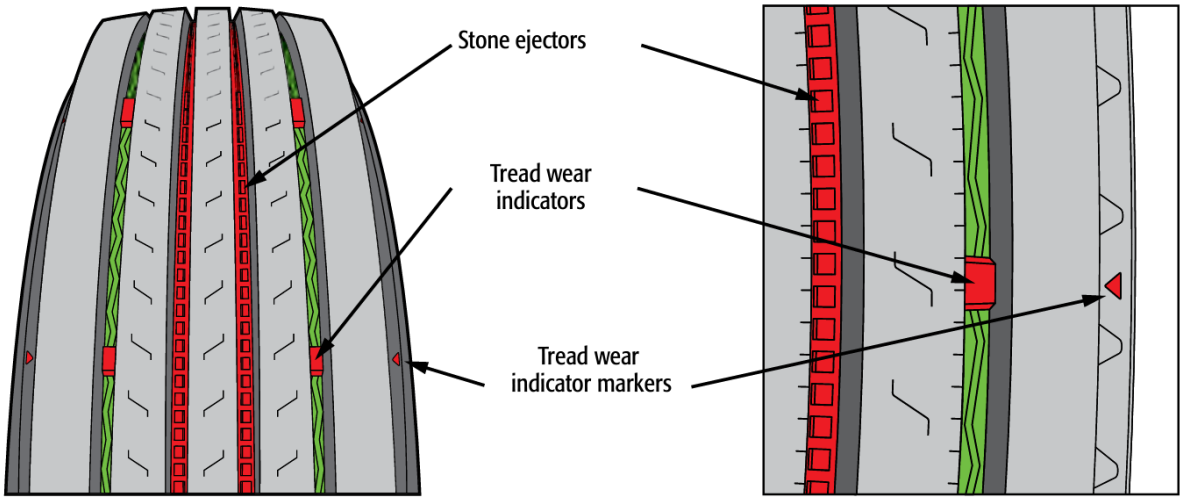
1. Tire Tread Depth and Condition

Additional Inspection Procedure(s):
Inspect the tire tread to locate the area where the tread depth is **lowest**. Measure the tread depth at a **any two adjacent major tread grooves, at three separate locations on the tire**, 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. Enter 'before' measurements in the "Measurements" section and 'after' measurements in the "Comments" section of the report.
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.

Item and method of inspection	Reject if	Inspection Class
a) tread depth	a) on commercial vehicle with a gross vehicle weight rating of 5 500 kg or more, less than 3 mm of tread groove depth of a front tire or 1.5 mm of tread groove depth of a rear tire any tanker trailer involved with transportation of dangerous goods has less than 3 mm of tread groove depth on any tire on any other vehicle, less than 1.5 mm of tread groove depth on any tire **Note:** <u>On a winter tire only,</u> unless wear indicators are exposed, **PASS WITH CAUTION** if tread depth is more than 1.5 mm and less than 3.5 mm. Owners must be advised that tires do not meet minimum standards for use as winter tires (MVA 208, MVAR 7.162). tread worn to the extent that tread wear indicators in any 2 adjacent grooves of the tread contact the road surface	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
 Do not measure at the stone ejectors or tread wear indicators.		
d) tread condition	d) 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 any flat spots or cupped to wear bars any section repairs done in a manner that does not meet industry standards any separation is evident **Additional Inspection Procedure(s):** Where possible, spin the wheel by hand and observe.	1, 2, 3, 4, 5, 6
e) 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.	e) retreaded tire is installed on an active steering axle **Note:** Retreaded tires are permitted on a tag axle of a bus having either active or passive steering. Retreaded tires are permitted on vehicles inspected under inspection class 1, except business vehicles or commercial passenger vehicles (MVAR 10.19).	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
f) retread condition	f) retread material is loose, peeled, missing, or separated at the interface where the retread is bonded to the tire casing	1, 2, 3, 4, 5, 6
g) regrooving	g) regrooving has been performed on a tire not marked “Regroovable”	1, 2, 3, 4, 5, 6
h) studded tires	h) equipped with studded tires in violation of MVAR 7.1635 and 7.164	1, 2, 3, 4, 5, 6

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. regrooved, recapped, or retreaded tire on front steering axle of any bus
iv. 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
v. any piece of tire tread is missing and the longest dimension across the missing section is greater than 50 mm
vi. tire contacts any part of the vehicle
vii. tire regrooved and not marked “Regroovable”
viii. on commercial vehicle with a gross vehicle weight rating of 5 500 kg or more, less than 2 mm of tread groove depth of a front tire or 1 mm of tread groove depth of a rear tire
ix. on any vehicle (other than sub viii), less than 1 mm of tread groove depth on any tire

2. Tire Sidewall and Manufacturer Markings

Right Hand Drive Vehicles additional inspection requirements (see Appendix D).

Item and method of inspection	Reject if	Inspection Class
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, or on a motorcycle any tire is labelled “Not for Highway Use” or in any way that indicates the tire is not intended for on-road use	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	directional tire incorrectly mounted	
b) condition	b) ply separation is evident or body cords are exposed tire has a bump or bulge caused by tread or sidewall separation **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. casing is broken or distorted presence of plug-type repair, or rubber coated or cured rubber plug is used in the sidewall dual tires making contact, or any tire making contact with any vehicle component UV degradation damage more than 3 mm deep	1, 2, 3, 4, 5, 6
c) markings **Note:** Tires must have the letters "DOT" or a "Maple Leaf" National Safety Mark embossed on the sidewall indicating that they meet Motor Vehicle Tire Safety Regulations.	c) sidewall markings do not meet the requirements outlined in CMVSS 109, 119, 139.	1, 2, 3, 4, 5, 6

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

3. 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 add/remove air prior to completing the inspection. When inflation pressure is corrected, record found (before) and adjusted (after) pressure values on the inspection report.

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3, 4, 5, 6
b) valve stem	b) cracked, damaged or inaccessible preventing gauging of pressure or re-inflation, or leaking valve stem cap is damaged or missing	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6

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

4. Wheel Hub

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
b) stud/bolt hole	b) any stud/bolt hole is enlarged or damaged in a way that prevents proper fitting and retention of studs	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6
e) lubricant (grease lubricated)	e) grease is leaking from hub hub cap is cracked, loose or missing	1, 2, 3, 4, 5, 6

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

5. 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. 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.

Item and method of inspection	Reject if	Inspection Class
a) axial end play/adjustment	a) does not meet the following criteria: • OEM standard or industry standard if there is no OEM standard • is less than 0.02 mm, or more than 0.13 mm if none of the above is available 0.02 mm = 0.001 in., 0.13 mm = 0.005 in.	1, 2, 3, 4, 5, 6
b) condition	b) binding or roughness is detected while rotating the bearing	1, 2, 3, 4, 5, 6
c) locking device Additional Inspection Procedure(s): Must be inspected when the locking device is visually accessible at the time of inspection.	c) bearing adjustment locking device is missing, not engaged or non-functional	1, 2, 3, 4, 5, 6
d) damage Additional Inspection Procedure(s): Must be inspected when the bearing is disassembled at the time of inspection.	d) race or roller is damaged or shows evidence of overheating	1, 2, 3, 4, 5, 6
e) spindle or axle stub Additional 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 not meet OEM standard or industry standard if there is no OEM standard spindle or axle stub is cracked, or damaged in a way that does not meet the OEM standard or industry standard if there is no OEM standard bearing condition or fit of the bearing onto the spindle prevents proper end play or adjustment from being maintained	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
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

6. Wheel/Rim (Applies to all Wheel Types)

Item and method of inspection	Reject if	Inspection Class
a) condition	a) wheel/rim is bent, broken, cracked, damaged, distorted or modified wheel/rim has been welded or repaired in a way that is not in accordance with the Weld Repair of Aluminum Alloy Wheels Regulation homemade or remanufactured rim/wheel not stamped certified by Transport Canada or The Tire and Rim Association wheel/rim is damaged or discoloured as a result of heating bolt/stud hole is elongated on a motorcycle, any wheel has eccentricity or wobble in excess of 5 mm (3/16 in.) as measured at the rim	1, 2, 3, 4, 5, 6
b) matching and size	b) wheel/rim size does not match tire size (diameter or width - i.e. tire stretching) on a motorcycle, wheel/rim diameter is less than 250 mm	1, 2, 3, 4, 5, 6
c) centre-lock knock off type	c) loose hub splines	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
i. wheel/rim, or any weld, is broken or cracked
ii. any welded repair on an aluminum wheel not in accordance with the Weld Repair of Aluminum Alloy Wheels Regulation
iii. wheel/rim has been welded or repaired in a way that does not meet OEM standard
iv. on a motorcycle, two or more wheel spokes broken or missing, or wheel cracked

7. Multi-Piece Wheel/Rim

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3, 4, 5
b) lock ring	b) there is less than 3 mm clearance between butt ends of the lock ring	1, 2, 3, 4, 5
c) matching	c) mismatched wheel/rim component	1, 2, 3, 4, 5

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

8. Spoke Wheel/Demountable Rim System

Item and method of inspection	Reject if	Inspection Class
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 any welded repair on an aluminum wheel does not meet the Weld Repair of Aluminum Alloy Wheels Regulation	2, 3, 4, 5
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	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
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	2, 3, 4, 5

Hazardous Condition(s):
i. wheel/rim, or any weld, is broken or cracked
ii. wheel/rim has been repaired in a way that does not meet OEM standard

9. Disc Wheel System

Item and method of inspection	Reject if	Inspection Class
a) installation	a) incompatible wheel or component is used on a wheel system wheel is incorrectly installed	1, 2, 3, 4, 5, 6
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 any welded repair on an aluminum wheel does not meet the Weld Repair of Aluminum Alloy Wheels Regulation	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
i. bolt/stud hole is elongated
ii. wheel/rim, or any weld, is broken or cracked
iii. wheel/rim has been repaired in a way that does not meet OEM standard

10. Wheel Fasteners (Nuts, Bolts and Studs)

Additional Inspection Procedure(s): If the wheels are removed, wheel fasteners must be torqued.

Item and method of inspection	Reject if	Inspection Class
a) installation	a) incorrect fastener type, thread direction or style is installed any nut is not fully engaged with the stud or bolt	1, 2, 3, 4, 5, 6
b) condition	b) any fastener is bent, broken, damaged or missing	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
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.	c) any fastener rotates before reaching the torque specification set by OEM standard or industry standard if there is no OEM standard **Note:** A fastener that requires less than 1/6-turn to reach the specified torque value is considered slightly loose. A fastener that requires more than 1/6- turn to reach the specified torque value is considered very loose. Wheels must 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	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
i. wheel is loose
ii. any wheel nut or stud is broken, cracked, loose, missing, or threads are stripped

Section 10 - Coupling Devices

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

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.

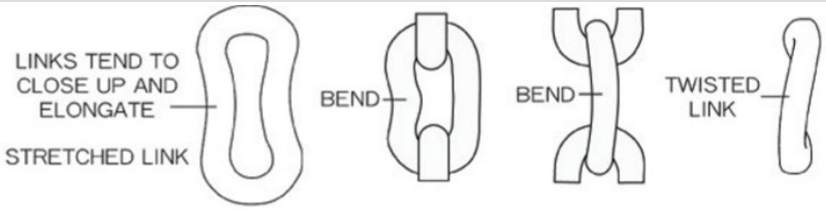
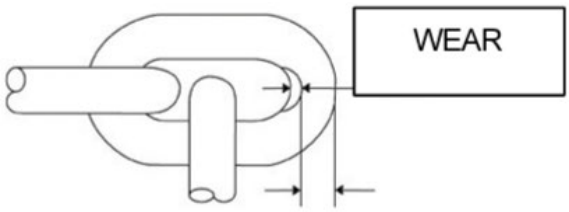
Additional Inspection Procedure(s): Inspect using suitable tools.

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
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

2. Secondary Attachment (Safety Chain or Cable)

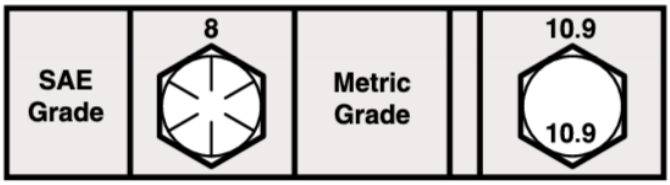
Item and method of inspection	Reject if	Inspection Class
a) condition	a) bent, broken, cracked, missing, abnormally worn, or worn beyond manufacturer specifications improper length any part is ineffective, insecure, loose, or missing safety chain: • contains gouges, abrasions, is twisted, knotted or links are stretched or bent	1, 2, 3, 4, 5, 6

Item and method of inspection	Reject if	Inspection Class
	 • repaired or attached to frame by welding • excessive wear causing a 20% or more reduction in original material thickness  cable: • kinked, bird caging, core is popped or knots in the working section of the wire rope  • corroded with pitting of the external or internal wires • wires broken in any one strand 	
b) cable clamps	b) insufficient quantity, incorrectly installed, loose	1, 2, 3, 4, 5, 6
c) hooks	c) cracked, missing, part broken	1, 2, 3, 4, 5, 6
d) safety catches	d) operate ineffectively, missing	1, 2, 3, 4, 5, 6

Hazardous Condition(s):

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

Item and method of inspection	Reject if	Inspection Class
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 latch mechanism worn to beyond the OEM standard	1, 2, 3, 4, 5, 6
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 	1, 2, 3, 4, 5, 6
c) cast or forged part	c) cracked, or has been repaired by welding material is worn to beyond the OEM standard	1, 2, 3, 4, 5, 6
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 modified in a way that does not meet the OEM standard	1, 2, 3, 4, 5, 6
e) lunette (or drawbar eye) on trailer	e) cracked, or is worn to beyond the OEM standard	3

Hazardous Condition(s):

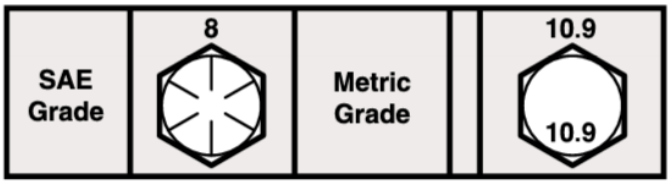
i. wear on hitch or lunette (eye) exceeds 10 mm
ii. any component is broken, cracked, or missing
iii. bent, damaged, improperly repaired, loose, or worn to the degree that it is no longer effective
iv. improper type or inadequate capacity
v. missing or ineffective fastener
vi. insecure latch

4. Ball Type Hitch

Item and method of inspection	Reject if	Inspection Class
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.	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6
c) ball coupler	c) bent, cracked or loose abnormally deteriorated or perforated by corrosion	1, 2, 3, 4, 5, 6
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	1, 2, 3, 4, 5, 6

Hazardous Condition(s):
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

Item and method of inspection	Reject if	Inspection Class
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	2, 3, 4, 5
b) operation **Additional Inspection Procedure(s):** Test the operation of the coupling and controls according to the manufacturer service instructions.	b) inoperative	2, 3, 4, 5

Hazardous Condition(s):
i. inoperative
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

Item and method of inspection	Reject if	Inspection Class
a) condition	a) inoperative	2, 3, 4, 5

Item and method of inspection	Reject if	Inspection Class
Additional Inspection Procedure(s): Test the operation of the coupler according to the manufacturer service instructions.	welded or repaired in a way that does not meet OEM standard	

Hazardous Condition(s):
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

Item and method of inspection	Reject if	Inspection Class
a) upper coupler (pick up plate) on trailer Additional Inspection Procedure(s): Check the condition and flatness of the upper coupler plate using a tool specifically intended for that purpose or an equivalent measuring device.	a) cracked, loose, warped or worn so that the area in contact with the lower fifth wheel is less than 75% of the surface of the lower coupler bent upward or downward more than specified by manufacturer lubricant is contaminated with an abrasive material upper coupler's attachment or a structural member is corroded, damaged or in a condition that the plate or king pin is weakened mounting bolt or rivet is broken, corroded, loose or missing (also refer to Section 8 - Body, Item 6 - Frame, Rails & Mounts) bulge is present in attaching and mating surface due to corrosion rivet is dimpled due to corrosion rivet area bulged due to corrosion	1, 2, 3, 4
b) kingpin on trailer (or on towing vehicle)	b) bent, broken, cracked, deformed or loose worn more than 3.0 mm repaired by welding	1, 2, 3, 4

Item and method of inspection	Reject if	Inspection Class
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.	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.	
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)	1, 2, 3, 4
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	1, 2, 3, 4
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	1, 2, 3, 4

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3, 4
g) air-operated control or feature	g) inoperative **Note:** Do not reject if air cylinder rendered inoperative by airline removal.	1, 2, 3, 4
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	1, 2, 3, 4

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

Minimum 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 lb (30,846 – 38,556 kg)	8	5	8	5	7	5
85,000 – 105,000 lb (38,557 – 47,628 kg)	10	6	10	6	8	5

Bolt size refers to the outside diameters 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

Minimum Number of Bolts per Side Based on Type & Size of Bolt
• 16 mm bolts have 24 mm inch heads and nuts

Hazardous Condition(s):
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 all frame and structural elements, and fifth wheel coupler parts as described above in items 1 and 6, respectively. Inspect additional oscillating items as listed below.

Item and method of inspection	Reject if	Inspection Class
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	1, 2, 3

Hazardous Condition(s):
Refer to hazardous conditions in item 7 above.

9. Ball-Bearing Type Turntable on Trailer

Item and method of inspection	Reject if	Inspection Class
a) condition **Additional Inspection Procedure(s):** Check for wear and defects according to manufacturer service instructions.	a) bolt loose or missing cracks in weld or parent metal wear exceeds manufacturer specification binding, lack of lubrication or evidence of imminent failure	3

Hazardous Condition(s):
i. top flange has less than 6 effective bolts
ii. bottom flange has less than 6 effective bolts
iii. twenty percent or more of original welds (or repaired original welds), or parent metal cracked
iv. upper flange half touching lower flange half
v. cracked flanges

10. Permanently Mounted Equipment

Note: Permanently mounted equipment has the same meaning as defined in the Commercial Transport Regulations, Division 1.

Item and method of inspection	Reject if	Inspection Class
a) security	a) insecure or loose	2, 3, 4

Section 11 - Vehicle Operation and Function

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

1. Operation and Function

Additional Inspection Procedure: Following the visual inspection of a vehicle for compliance with applicable standards and regulatory requirements, the vehicle may be operationally and functionally tested for confirmation of proper performance, drivability and safe on highway operation prior to the application of a certificate of approval and inspection report submission.

Vehicle operation and function testing is subject to all applicable driver and driving requirements, vehicle licensing, and vehicle insurance. Results and confirmation of operation and function test must be noted on the inspection report.

Item and method of inspection	Reject if	Inspection Class
a) operate vehicle	a) any vehicle component or system required by applicable requirements which directly relates to vehicle safety is inoperative onboard diagnostic code(s) related to the safe operation of the vehicle are present vehicle presents drivability issues that may compromise its safe operation	1, 2, 6 **Note:** For class 2 this applies to vehicles with a GVWR of 4536kg or less only.

Appendix A - Federal Lighting

Note: Every lamp, reflex reflector, and conspicuity treatment (device) 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 vehicle 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.

This table summarizes lighting equipment requirements contained in Federal Motor Vehicle Safety Standard 108. For complete compliance requirements consult *Title 49 - Code of Federal Regulations, Section 571.108*. (USA) and *Section 108 of the Motor Vehicle Safety Regulations* (Canada).

1. Basic Equipment Required on All Trucks, Buses & MPVs

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
1	**Headlamps - Lower Beam** (H, HR) **Quantity**: minimum 2; **Colour**: white; **Functional Purpose**: forward road illumination	560-1370 (22-54)	Front - symmetrical • as far apart as practicable (If 4 lamp system - outboard or above upper beams)
	Headlamps - Upper Beam (H, HR) **Quantity**: minimum 2; **Colour**: white; **Functional Purpose**: forward road illumination	560-1370 (22-54)	Front - symmetrical (If 4 lamp system - inboard or below lower beams)

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
	Parking Lamps (P) Required only on vehicles less than 2032mm wide. **Quantity:** minimum 2; **Colour:** white or yellow; **Functional Purpose:** indicate parked vehicle	380-1530 (15-60)	Front - symmetrical • as far apart as practicable
	Daytime Running Lamps (Y2) for Canada required, for US optional. For US, "DRL" lettering required on lens if device is not headlamp. **Quantity:** minimum 2; **Colour:** white or yellow; **Functional Purpose:** indicate in-use vehicle	380 (15) minimum Maximum depends on type of DRL	Front - symmetrical • as far apart as practicable
	Front Turn Signal/Hazard Warning Lamps (I) **Quantity:** minimum 2; **Colour:** white or yellow; **Functional Purpose:** indicate direction of turn/identify disabled vehicle	380-2110 (15-83)	Front - symmetrical • as far apart as practicable
2	**Front Clearance Lamps** (P2, PC* or P3*,PC2) **photo-metrically certified at installation angle* Required for vehicles 2032mm wide or wider. **Quantity:** minimum 2; **Colour:** white or yellow; **Functional Purpose:** show vehicle's width	As high as practicable	At widest point - symmetrical • on the front or near the front • facing forward
3	**Front Identification Lamps (ID)** (P2 or P3) **Quantity:** exactly 3; **Colour:** yellow; **Functional Purpose:** indicate presence of a wide vehicle	As high as practicable or on top of cab	Front - center • horizontally spaced 150 mm (6 in.) to 300 mm (12 in.) apart
4a	**Front Side Marker Lamps** (P2, PC* or P3 ,PC2*)	380 (15) minimum	Front - each side

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
	photo-metrically certified at installation angle* **Quantity: minimum 2; **Colour:** yellow; **Functional Purpose:** indicate vehicle's presence and length		• as far forward as practicable
4b	**Front Side Reflex Reflectors** (A) **Quantity:** minimum 2; **Colour:** yellow; **Functional Purpose:** indicate vehicle's presence and length	380-1530 (15-60)	Front - symmetrical • as far forward as practicable - facing sideward
5a	**Rear Side Marker Lamps** (P2, PC* or P3, PC2*) **photo-metrically certified at installation angle* Not required on truck tractors. **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** indicate vehicle's presence and length	380 (15) minimum	Each side at rear • as far back as practicable
5b	**Rear Side Reflex Reflectors** (A) Not required on truck tractors. **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** indicate vehicle's presence and length	380-1530 (15-60)	Each side at rear • as far back as practicable • facing sideward
6	**Rear Clearance Lamps** (P2, PC* or P3, PC2*) *photo-metrically certified at installation angle Required for vehicles 2032mm wide or wider, but not required on truck tractors. MAY NOT be combined with tail lamps. **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** show vehicle's width	As high as practicable. May be lower only if rear ID lamps are at the top	At widest point - symmetrical • on the rear or near the rear • facing rearward
7	**Rear Identification Lamps (ID)** (P2 or P3)	***in Canada*** : at the top - maybe lower if door header narrower than	Rear - center

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
	Required for vehicles 2032mm wide or wider, but not required on truck tractors. **Quantity:** exactly 3; **Colour:** red; **Functional Purpose:** indicate presence of a wide vehicle	25mm *in USA:* as high as practicable	• horizontally spaced 150 mm (6 in.) to 300 mm (12 in.) apart • facing rearward
8	**Tail Lamps** (T) **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** indicate vehicle's presence and width	380-1830 (15-72)	On the rear - symmetrical • as far apart as practicable
	Stop Lamps (S) **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** indicate braking	380-1830 (15-72)	On the rear - symmetrical • as far apart as practicable
	Rear Turn Signal/Hazard Warning Lamps (I) **Quantity:** minimum 2; **Colour:** red or yellow; **Functional Purpose:** indicate direction of turn/ identifies disabled vehicle	380-2110 (15-83)	On the rear - symmetrical • as far apart as practicable
	Rear Reflex Reflectors (A) **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** show vehicle's presence and width	380-1530 (15-60)	On the rear - symmetrical • as far apart as practicable • facing rearward
9	**Backup Lamp** (R) **Quantity:** minimum 1; **Colour:** white; **Functional Purpose:** illuminate ground behind the vehicle and alert road users	No requirement	Rear
10	**License Plate Lamp(s)** (L) **Quantity:** minimum 1; **Colour:** white; **Functional Purpose:** illuminates license plate	No requirement	Rear - above or at the sides of license plate
11	**Center High Mounted Stop Lamp** (U3) Required for vehicles less than 2032mm wide and 4536kg.	860 (34) minimum	Rear - centerline of the vehicle

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
	Quantity: minimum 1; **Colour:** red; **Functional Purpose:** indicates braking		

2. Additional Equipment for Specific Vehicles

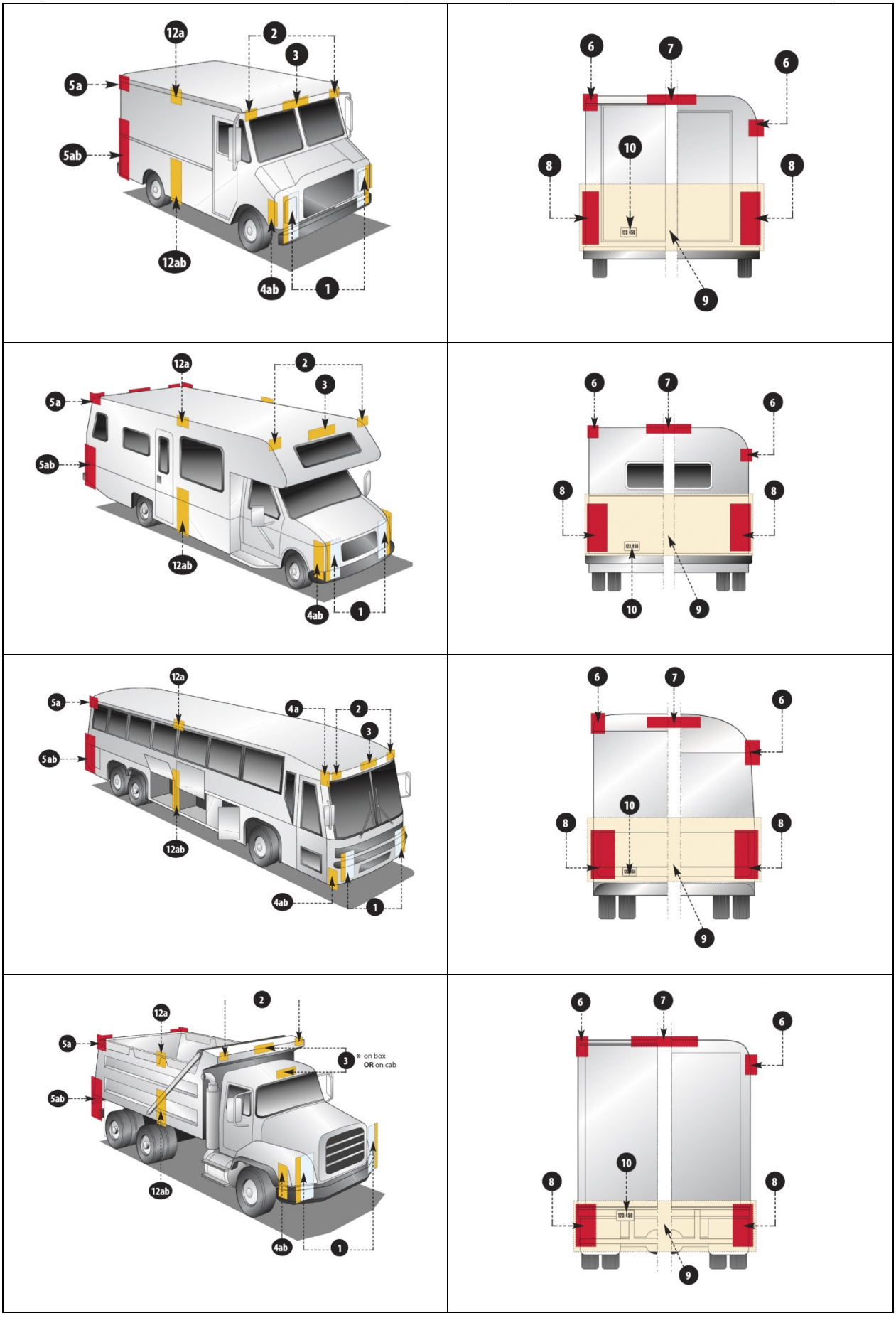
A. Vehicles 9.1 m (30 ft.) Long or Longer

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
12a	**Intermediate Side Marker Lamps** (P2 or PC) **Quantity:** minimum 2; **Colour:** yellow; **Functional Purpose:** indicate presence of a long vehicle	380 (15) minimum	Each side near center
12b	**Intermediate Side Reflex Reflectors** (A) **Quantity:** minimum 2; **Colour:** yellow; **Functional Purpose:** indicate presence of a long vehicle	380-1530 (15-60)	Each side near center • facing sideward

B. Truck Tractors

Area	Equipment (DOT Coding)	Height mm (in.)	Location / Requirements
13	**Rear Upper Body Marking** (DOT-C, DOT-C2, DOT-C3, or DOT-C4) **Quantity:** Exactly 2 pairs of 300mm long strips; **Colour:** red;	As high as practicable excluding fairings	Rear upper corners of cab • facing rearward
14	**Rear Marking** (DOT-C, DOT-C2, DOT-C3, or DOT-C4) **Quantity:** Exactly 2 sections of min. 600mm each; **Colour:** red/white;	As horizontal as practicable and not higher than 1525 mm from the ground	Rear • facing rearward • on fenders, on mud flaps brackets, or within 300mm below of the top of mud flaps If mud flaps not used - on the cab or frame mounted brackets

3. Illustrations of Federal Lightning Equipment Location Requirements - Trucks, Buses & MPVs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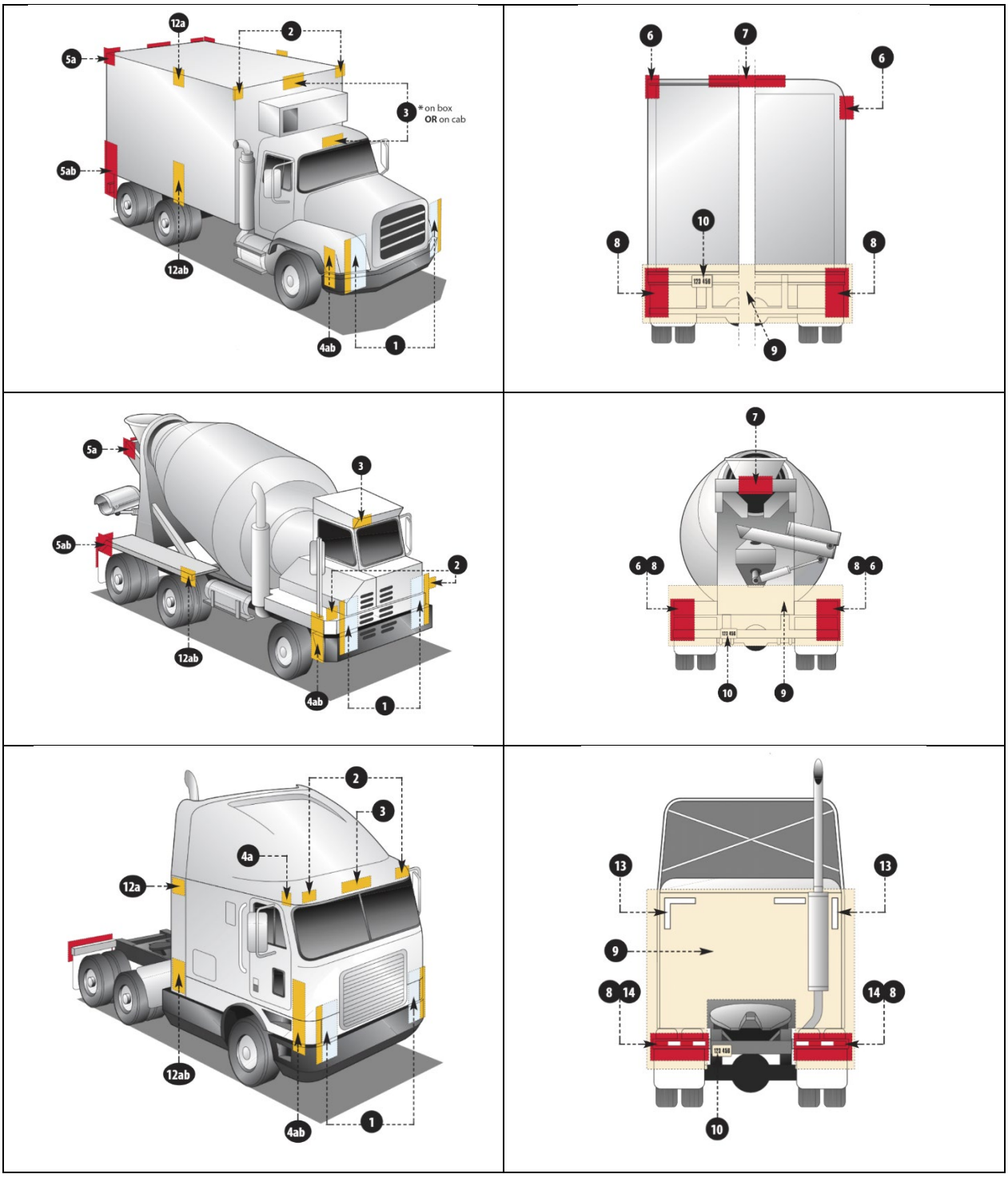


4. Basic Equipment Required on all Trailers

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
1	Tail Lamps (T)	380-1830 (15-72)	On the rear - symmetrical • as far apart as practicable

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
	Quantity: minimum 2; **Colour:** red; **Functional Purpose:** indicate vehicle's presence and width		
	Stop Lamps (S) **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** indicate braking	380-1830 (15-72)	On the rear - symmetrical • as far apart as practicable
	Rear Turn Signal Lamps (I) **Quantity:** minimum 2; **Colour:** red or yellow; **Functional Purpose:** indicate direction of turn	380-2110 (15-83)	On the rear - symmetrical • as far apart as practicable
	Rear Reflex Reflectors (A) **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** indicate vehicle's presence and width	380-1530 (15-60)	On the rear - symmetrical • as far apart as practicable • facing rearward
2	**License Plate Lamp(s)** (L) **Quantity:** minimum 1; **Colour:** white; **Functional Purpose:** illuminates license plate	No requirement	Rear - above or at the sides of license plate
3	**Rear Side Marker Lamps** (P2, PC* OR P3, PC2*) *photometrically certified at installation angle **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** indicate vehicle's presence and length	380-1530 (15-60) no max. for vehicle under 2032mm (80"") wide	Rear - Each side • as far back as practicable
	Rear Side Reflex Reflectors (A) **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** indicate vehicle's presence and length	380-1530 (15-60)	Rear - Each side • as far back as practicable • facing sideward
4a	**Front Side Marker Lamps** (P2, PC* OR P3, PC2*) *photometrically certified at installation angle **Quantity:** minimum 2; **Colour:** yellow; **Functional Purpose:** indicate vehicle's presence and length	380 (15) minimum	Front - Each side • as far forward as practicable
4b	**Front Side Reflex Reflectors** (A)	380-1530 (15-60)	Front - Each side

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
	Quantity: minimum 2; **Colour:** yellow; **Functional Purpose:** indicate vehicle's presence and length		• as far forward as practicable • facing sideward

5. Additional Equipment for Trailers Exceeding the Following Parameters

A. Length 9.1m (30 ft.) or longer

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
5a	**Intermediate Side Marker Lamps** (P2 or P3) **Quantity:** minimum 2; **Colour:** yellow; **Functional Purpose:** indicate presence of a long vehicle	380 (15) minimum	Each side near center facing sideward
5b	**Intermediate Side Reflex Reflectors** (A) **Quantity:** minimum 2; **Colour:** yellow; **Functional Purpose:** indicate presence of a long vehicle	380-1530 (15-60)	Each side near center facing sideward

B. Width 2032mm (80 in.) or wider

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
6	**Rear Clearance Lamps** (P2, PC* OR P3, PC2*) *photometrically certified at installation angle May NOT be combined with tail lamps. **Quantity:** minimum 2; **Colour:** red; **Functional Purpose:** show vehicle's width	As high as practicable may be lower only if ID lamps are at the top	Rear or near the rear at widest point - symmetrical • facing rearward
7	**Rear Identification (ID) Lamps** (P2 or P3) **Quantity:** exactly 3; **Colour:** red; **Functional Purpose:** indicate presence of a wide vehicle	At the top - may be lower if door header narrower than 25mm	Rear - centre • horizontally spaced 150mm (6 in.) to 300mm (12 in.) apart • facing rearward
8	**Front Clearance Lamps** (P2, PC* OR P3, PC2*)	As high as practicable	Front or near the front at widest point - symmetrical

Area	Equipment (SAE Lens Coding)	Height mm (in.)	Location / Requirements
	*photometrically certified at installation **Quantity:** minimum 2; **Colour:** yellow; **Functional Purpose:** show vehicle's width		• facing forward

C. Width 2032mm (80 in.) or wider AND GVWR 4536 kg (10,000 lb.) or more

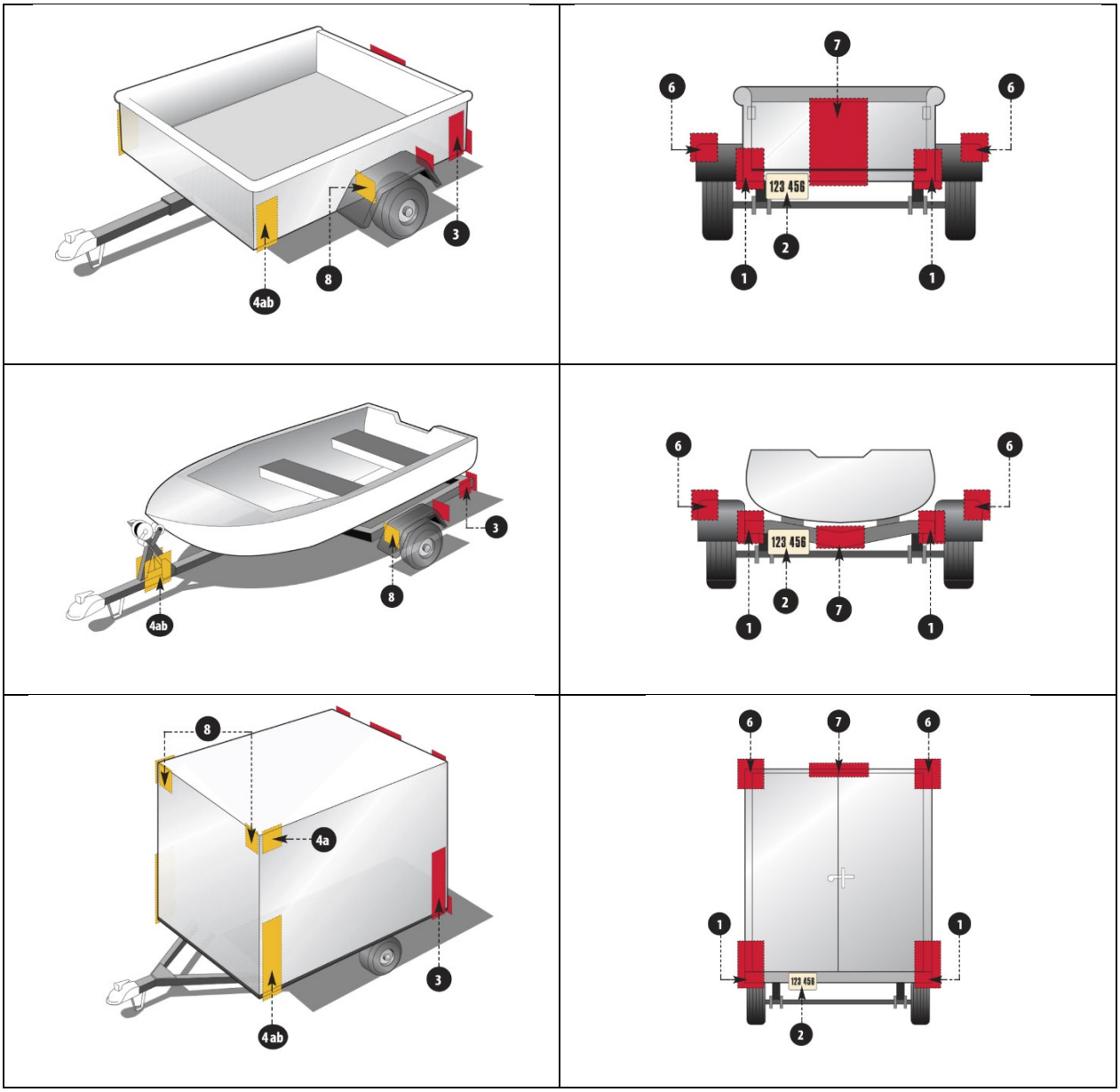
Reflex reflectors may not be required if they are replaced in their required location with conspicuity treatment.
Optional in Canada:
Rear lower body and side conspicuity treatment may also be solid white, solid yellow, or white and yellow.

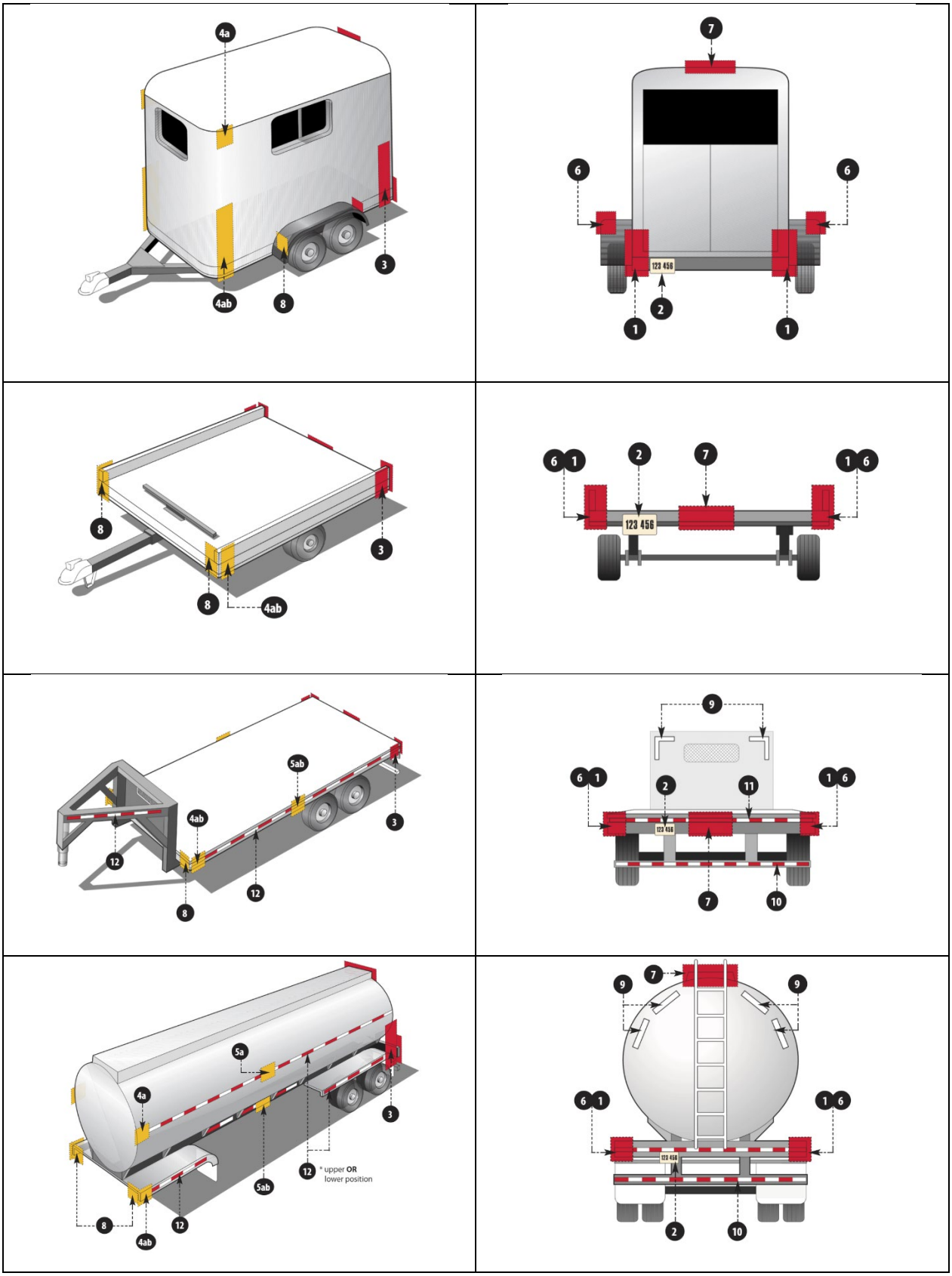
Area	Equipment (DOT Coding)	Height mm (in.)	Location / Requirements
9	**Rear Upper Body Markings** (DOT-C, DOT-C2, DOT-C3, DOT-C4) **Quantity:** exactly 2 pairs of 300mm long strips; **Colour:** white	At the top	On the rear upper corners facing rearward
10	**Bumper Bar Marking** (DOT-C, DOT-C2, DOT-C3, DOT-C4) **Quantity:** Continuous; **Colour:** red/white;	No requirement	Rear bumper bar's horizontal element - full width • facing rearward
11	**Rear Lower Body Marking** (DOT-C, DOT-C2, DOT-C3, DOT-C4) **Quantity:** Continuous; **Colour:** red/white;	As horizontal as practicable and as close as practicable to the range of 375 to 1525mm from the ground	Rear - full width of the vehicle • facing rearward
12	**Side Marking** (DOT-C, DOT-C2, DOT-C3, DOT-C4) **Quantity:** (see location/requirements); **Colour:** red/white	As horizontal as practicable and as close as practicable to the range of 375 to 1525mm from the ground	Each side • facing sideward continuous, or evenly spaced over minimum of 50% of length • starts and ends as close to the front and rear of the vehicle as practicable

Area	Equipment (DOT Coding)	Height mm (in.)	Location / Requirements

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.

6. Illustrations of Federal Lightning Equipment Location Requirements - Trailers

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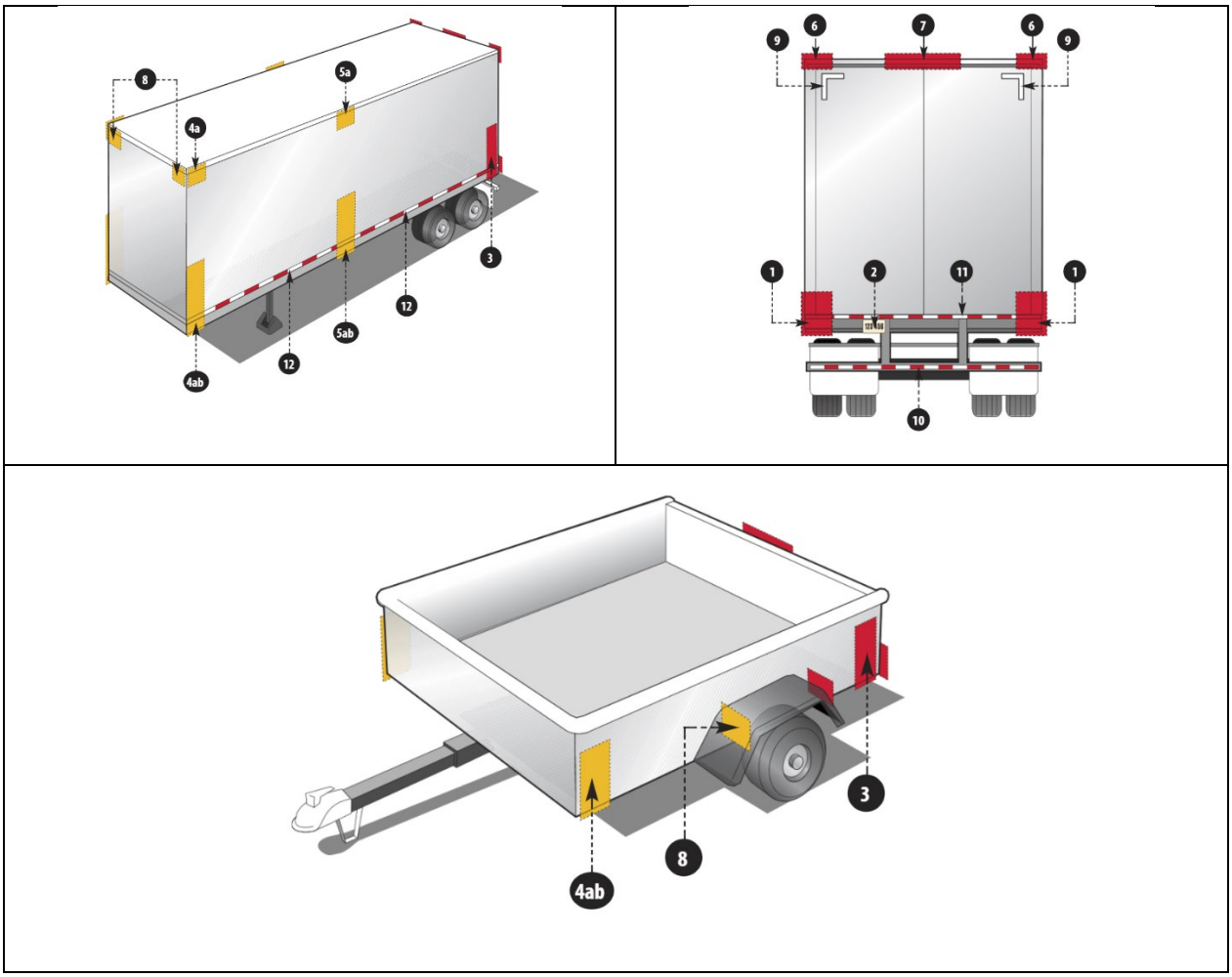


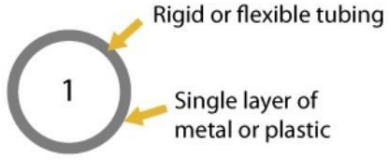
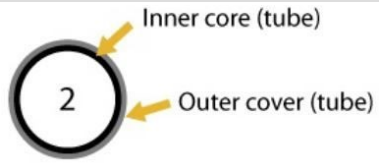
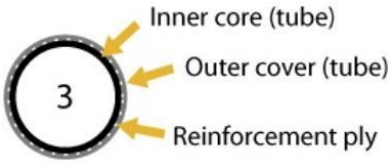
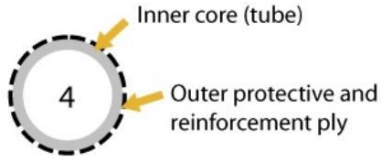
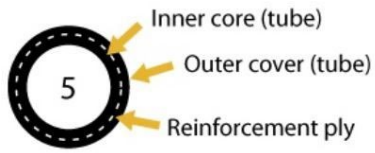
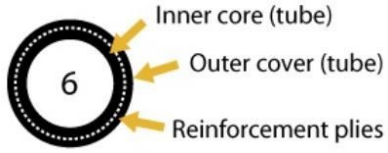
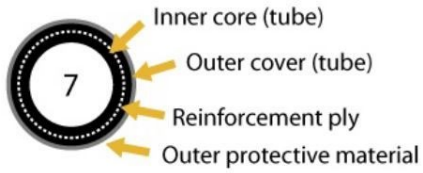
7. ECE Code Lens Markings

ECE lighting and signaling function markings	
A	Parking lamp
AR	Back up lamp
F or B	Rear fog lamp
IA	Reflector
R	Tail lamp
S1	Stop (brake) lamp
S3	Centre high-mount stop lamp
1, 1a or 1b	Front turn signal lamp
2a	Rear turn signal lamp

ECE lighting and signaling function markings	
5	Side turn signal lamp
SM1 or SM2	Side marker lamp
RL	Daytime running lamp (DRL)
→	Function or device intended for right side of vehicle
←	Function or device intended for left side of vehicle
ECE forward illumination function markings	
B	Front fog lamp
C	Low-beam headlamp with tungsten bulb
R	High-beam headlamp or driving lamp with tungsten bulb
CR or C/R	Low/high-beam headlamp with tungsten bulb
HC	Low-beam headlamp with halogen bulb
HR	High-beam headlamp with halogen bulb
HCR or HC/R	Low/high-beam headlamp with halogen bulb
DC	Low-beam headlamp with HID Xenon bulb
DR	High-beam headlamp or driving lamp with HID Xenon bulb
DCR or DC/R	Low/high-beam headlamp with HID Xenon bulb
PL	Plastic lens (may occur with any forward illumination markings)
→	Designed for left-hand traffic only (right-hand drive vehicle)
[No arrow]	Designed for right-hand traffic only (left-hand drive vehicle)
↔	Designed for right- and left-hand traffic

Appendix B - Defective Conditions of Hose, Tubing and Lines used on Vehicles

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

	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 colour.	Inner core becomes visible from the outside, as shown by colour change.
	Type 3 – Plastic (usually nylon) tubing commonly used in air brake systems. With reinforcement ply. Inner and outer core are different colour. **Note:** Type 2 and 3 may appear identical externally.	Reinforcement ply or inner core is visible from the outside, as shown by colour 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.

Appendix C - Steering Alignment Angles

Item	Function	Effects If Incorrect
Caster The forward (-) or backward (+) tilt of spindle support (ball joints or king pin) at top. Positive caster is the rearward tilt of the steering axis from a true vertical as viewed from the side of the wheel.	1. Positive caster gives front wheels tendency to maintain straight ahead position and return to straight ahead in turn. 2. Positive caster can be used to enhance stability. 3. Uneven caster will cause car to pull to side of least caster. 4. Negative caster can be used to reduce steering effort. 5. Negative caster can be used to enhance ride.	1. Can cause vehicle to pull to one side. 2. Can cause vehicle instability and to wander and weave. 3. Instability at high speeds and braking. 4. High effort steering. 5. Uneven braking.
Camber The inward (-) or outward (+) tilt of the wheel at top. Positive camber is the outward tilt of the wheel at the top from a true vertical line as viewed from the front of the wheel.	1. Projects vehicle load towards the center of the tire. 2. Provides easier steering by having the weight of vehicle borne by larger inner bearing. 3. Reduces tire wear by allowing for the crown of the road. 4. Reduces vehicle side skidding in a turn. 5. Gives maximum tire tread contact with the road.	1. Uneven camber from side to side will cause vehicle to pull to side with most camber. 2. Cause tire wear and scuffing. 3. Vehicle instability.
Toe-Inward or Outward Pointing of Wheels Toe is defined as when a pair of wheels is set so that their leading edges are pointed slightly towards each other, the wheel pair is said to have toe-in. If the leading edges point away from each other, the pair is	1. Reduces tire scuffing and wear. 2. Ensures tires are pointing in straight line with vehicle when in motion.	1. Excessive tire scuffing and wear. 2. Vehicle wander. 3. Torque steering on front wheel drive vehicles.

Item	Function	Effects If Incorrect
said to have toe-out. The amount of toe can be expressed in degrees as the angle to which the wheels are out of parallel, or more commonly, as the difference between the track widths as measured at the leading and trailing edges of the tires or wheels.	3. Enhances vehicle stability.	
Steering Axis Inclination (SAI) - Kingpin Inclination The inward tilt of a line through the centre of top of a strut mount or ball joint and the centre of lower ball joint in relation to a true vertical line through the centre of the tire.	1. Helps project the load of the car towards center of tire. 2. Enhances vehicle stability. 3. Assists in returning the steering to straight ahead position after a turn. 4. Can be used to increase steering effort.	1. Adversely effects stability especially in braking. 2. Steering wander. 3. Increased transmission of road shock through steering. 4. Torque steering on front wheel drive vehicles if different from one side to the other.
Included Angle The included angle is the sum of the steering axis inclination angle (SAI) and the camber angle. A negative camber angle must be subtracted from the SAI to calculate the included angle.	1. Enhances vehicle stability.	1. Difference from one side to the other will affect directional stability. 2. Difference from side to side will affect the steering returning to neutral position.
Total Toe Total toe is the sum of the toe, whether in or out, of the right and left tires of the vehicle.	1. Reduces tire wear. 2. Enhances stability.	1. Increased tire wear. 2. Vehicle wander. 3. Torque steering on front wheel drive vehicles.
Setback Setback is the condition in which one wheel is moved rearward in relation to the other.	1. Ensures that the front wheels track straight with the vehicle chassis and the rear wheels.	1. Tire scuffing and wear. 2. Adverse vehicle handling if extreme.

Item	Function	Effects If Incorrect
	2. Steering wheel centered with vehicle direction.	
Turning angle The turning angle is also known as the Ackerman Angle. This is defined as a turning angle of a vehicle in a corner when the front and rear wheels turn around a common pivot point with respect to the turning radius of each wheel. This is the difference in steering angles of the right and left front wheels in turn. In a turn, the inside wheel must roll around a smaller circle than the outside wheel. Therefore, the inside wheel must be turned more if it is to follow the smaller inside circle.	1. Ensures the vehicle can negotiate a turn with minimal side slip. 2. Enhances vehicle stability when vehicle is in a turn. 3. Reduces tire wear associated with a turn.	1. Tire scuffing in turns. 2. Poor turning characteristics. 3. Excessive side slip.
Thrust angle The angle between centreline and rear wheel track.	1. Allows the rear of the vehicle to follow the front. 2. Rear wheels run perpendicular to the front.	1. Poor handing. 2. Tire wear.

Appendix D - Right Hand Drive Vehicles (RHD)

All inspection procedures are visual unless additional inspection procedures are indicated or where applied force is necessary to verify tightness and/or component security. The definitions can be found in the “Definitions and Acronyms” section.

This appendix applies to Right Hand Drive vehicles. During the inspection of a Right Hand Drive vehicle the authorized inspector must give **extra attention** to the following items:

1. Engine Start Safety Feature

Right Hand Drive vehicles may not be equipped with neutral and clutch safety switches.

All vehicles manufactured on or after November 25, 1970, equipped with an automatic transmission are required by CMVSS 102 (2) to be equipped with a neutral safety switch.

All vehicles manufactured on or after June 18, 2003 with a GVWR at or below 4,536 kg are required by CMVSS 102 (7) to be equipped with a clutch safety switch.

Item and method of inspection	Reject if	Inspection Class
a) operation	a) does not meet Section 1, subsection 8 criteria of this Vehicle Inspection Manual	1, 2

2. Wheel Alignment

Note: Wheel alignment on Right Hand Drive vehicles that are originally designed or adjusted for road crown to the right of the driver and must be geometrically corrected for operation on roads with crown to the left of the driver.

Item and method of inspection	Reject if	Inspection Class
a) 4-wheel alignment check	a) does not meet Section 4, subsection 7 criteria of this Vehicle Inspection Manual any geometric steering angle can not be corrected by adjustment or replacement of components	1, 2

3. Lighting

Note: Many Right Hand Drive vehicles are either not originally equipped with all the lighting requirements of CMVSS 108, or the lamps and lenses that are equipped by the OEM do not meet the standards required by CMVSS.

Item and method of inspection	Reject if	Inspection Class
a) all lamps	a) does not meet Section 6 criteria of this Vehicle Inspection Manual	1, 2

4. Seat Belt/Occupant Restraint

Note: All factory installed seating positions in vehicles manufactured after 1970 must be equipped with either lap or lap-shoulder seatbelt. All passenger cars and light trucks manufactured after 1973 must have lap-shoulder belts at the front drivers and outboard passenger seats, and vehicles manufactured after 1992 must have lap-shoulder seatbelts at both the front and rear outboard seating positions. This also applies to Right Hand Drive vehicles.

Item and method of inspection	Reject if	Inspection Class
a) seat belt	a) does not meet Section 8 subsection 19 criteria of this Vehicle Inspection Manual	1, 2

5. Mirrors

Note: Right Hand Drive vehicles are typically equipped with mirrors on the right hand side of the vehicle that are unit magnification (flat) glass, and equipped with mirrors on the left hand side of the vehicle that are convex. All passenger cars and light trucks must be equipped with a unit magnification (flat) left exterior mirror and either a right exterior mirror or an interior mirror. Only the right exterior mirror may be convex. This must be corrected in order to pass inspection.

Item and method of inspection	Reject if	Inspection Class
a) type **Note:** The right hand side exterior mirror may remain as a non-convex mirror.	a) left hand exterior side mirror is convex	1, 2
b) condition	b) does not meet Section 8 subsection 17 criteria of this Vehicle Inspection Manual	1, 2