Compliant
High Performance
Forward Lighting

"Stay out of trouble!"

(Revision 06.2015)

TABLE OF CONTENTS:

PREFACE:

For much of the year, Canadian truck drivers operate in some of the most demanding driving conditions in the world. Extended hours of darkness combined with falling and blowing snow, ice-fog, slippery road surfaces and the unpredictable presence of large wildlife make our long highways seem even longer. Effective forward lighting has an enormous effect on your safety, comfort and level of fatigue when driving in these conditions. The distance that your lights allow you to see largely determines the amount of time that you will have to react to unexpected hazards. The colour and quality of the light greatly affects your ability to discern what may or may not be potential hazards on or near the road.

Many drivers do not realize that there are many compliant (road legal) forward-lighting products (bulbs, headlamps, driving lamps and fog lamps) with performance and light output that rival many of the popular non-compliant products. This information package has been prepared to help you distinguish between compliant and non-compliant forward lighting products and to provide examples of several of the SAE and DOT compliant lights that are available throughout Canada.

In the following pages you will find examples of high performance aftermarket light bulbs, headlamps, driving lamps and fog lamps that can be used legally on all roadways in Canada.
Also included in the appendices at the back of this booklet, are excerpts from various provincial motor vehicle acts (*British Columbia Alberta, Saskatchewan, Manitoba, Ontario and Quebec)* that will help you to correctly select and install compliant lighting products.

LIGHTING TECHNOLOGIES:

Modern high performance forward lighting products typically utilize one of three lighting technologies: Halogen, HID, and LED.

Halogen

A halogen lamp is an incandescent lamp in which a tungsten filament is sealed into a compact transparent envelope filled with an inert gas and a small amount of halogen such as iodine or bromine. The halogen cycle increases the lifetime of the bulb and prevents its darkening by redepositing tungsten from the inside of the bulb back onto the filament. The halogen lamp can operate its filament at a higher temperature than a standard gas filled lamp of similar power without loss of operating life. This gives it a higher output (10-30 lumens per Watt) and a higher color temperature compared to a non-halogen incandescent lamp.

HID (High Intensity Discharge)

HID lamps are also known as Xenon Arc Lamps. These lamps do not utilize a filament to produce light, but instead create a sustained arc between two tungsten electrodes housed in a fused quartz arc tube filled with Xenon gas. The high intensity of the arc comes from metallic salts that are vaporized within the arc chamber. Automotive HID lamps are sometimes called 'xenon headlamps'. HID lamps produce brighter and whiter light than halogen while using significantly less power. Typically life expectancy of an HID bulb is between 5 and 10 times longer than a halogen bulb.

LED (Light Emitting Diode)

A light-emitting diode (LED) is an electronic light source. Applications of LEDs are diverse and for many years were limited in the automotive market to low-power lighting such as clearance, running, tail, marker, and interior lamps. Recent advances in LED

technology have allowed LED's to be used for high-power forward lighting applications including headlamps and driving lamps. LED's offer several advantages including high efficiency, low current draw, unrivaled life expectancy and high durability (resistance to shock and vibration). LED's are not generally replaceable. Typically, if any electronic component of an LED lamp fails, the entire lamp must be replaced.

HIGH PERFORMANCE BULBS

For many drivers, the simplest way to upgrade their forward lighting is to install higher quality bulbs. There are several compliant headlamp bulbs available that will provide a significant improvement over standard equipment.

Philips Automotive Lighting

A couple of examples of high performance, compliant replacement bulbs are the CrystalVision *Ultra* and Xtreme Vision lines by Philips. These particular bulbs are available in a range of models which include: 9003, 9004, 9005, 9006, 9007, 9008, H1, H3, H4, H7, H10, H11, H13.

- The latest halogen technology makes *CrystalVision Ultra* and *Xtreme Vision* up to 100% brighter than standard halogen bulbs.
- Crystal Vision technology delivers the whitest light available from a halogen bulb, similar to HID Xenon technology
- Gives you significantly increased light output for much better visibility of road signs and hazards.

HIGH PERFORMANCE HEADLAMPS

The following section outlines a few of the available aftermarket replacement headlamps for trucks that are factory equipped with halogen, sealed-beam type headlamps. Sealed-beam headlamps come in four common configurations:

- 4x6 inch small rectangular, 4 headlamp system, often referred to as H4656 (high-low) & H4651 (high)
- 7 inch round, 2 headlamp system, often referred to as H6024
- 5x7 inch large rectangular, 2 headlamp system, often referred to as H6054
- 5.75 inch round, 4 headlamp system, often referred to as H5006 (high-low) & H5001 (high)

The terminology “sealed beam” refers to a single sealed unit that functions as both the headlamp housing and bulb. The manufacturing process used to produce this type of lamp severely restricts the degree to which the light beam can be controlled. The easiest way to improve the performance of this type of headlamp system is to upgrade your sealed-beam headlamps to a system that uses a separate bulb and reflector.

J.W. Speaker

J.W. Speaker is a North American light manufacturer and a leader in the development of SAE/DOT compliant LED forward lighting products, including several high-power LED headlamps for sealed beam applications. J.W. Speaker LED Headlamps have a limited lifetime warranty and can be installed into almost any commercial vehicle without any modifications or additions to the vehicles wiring or headlamp mounting systems.

Model 8800 Evolution

- 4” x 6” LED Headlamps
- Low beam replaces H4656
- High beam replaces H4651
- SAE & DOT compliant
- Polycarbonate lens

Model 8900 Evolution

- 5” x 7” LED Headlamp
- Replaces H6054 sealed beam
- SAE & DOT compliant
- Polycarbonate lens

Model 8700 Evolution 2

- 7” Round LED Headlamp
- Replaces H6024 sealed beam
- SAE & DOT compliant
- Polycarbonate lens

Model 8630 Evolution

- 5.75” Round LED Headlamp
- Replaces H5006 & H5001
- SAE & DOT compliant
- Polycarbonate lens
- A mounting kit is typically required

STARR Lighting

STARR Lighting offers high performance halogen reflector and projector headlamps designed to directly replace sealed-beam headlamps and also allow the fitment of high performance bulbs that are available from several different manufacturers. These headlamps utilize a precision engineered reflector surface or projector lens and a flat glass or polycarbonate face, which produce a light pattern that is far superior (more even and better controlled) to standard sealed-beam type headlamps.

HR4656 - 4”x6” Halogen Headlamp
- Replaces H4656 sealed beam
- Includes replaceable 9007 bulb
- SAE & DOT compliant
- Crystal glass lens

HR4651 - 4”x6” Halogen High Beam
- Replaces H4651 sealed beam
- Includes replaceable 9005 bulb
- SAE & DOT compliant
- Crystal glass lens

HR6054 - 5”x7” Halogen Headlamp
- Replaces H6054 sealed beam
- SAE & DOT compliant
- Includes replaceable H4 bulb
- Wiring adapter not required
- Polycarbonate lens

HR6024 - 7” Halogen Headlamp

- Replaces H6024 sealed beam
- SAE & DOT compliant
- Includes replaceable H4 bulb
- Polycarbonate lens

HR5006 - 5.75” Halogen Headlamp

- Replaces H5006 sealed beam
- SAE & DOT compliant
- Includes replaceable 9007 bulb
- Crystal glass lens

Similar products are also offered by Bosch, Hella, IPF, and other headlamp manufacturers.

AUXILIARY DRIVING LAMPS

Quality headlamps are extremely important to safe and comfortable night driving, especially in areas with a steady flow of oncoming traffic. In areas where oncoming traffic is minimal, the use of high performance auxiliary driving lamps can provide a significant improvement in range of vision, comfort, fatigue, and the time that you will have to react to unexpected hazards. Compliant driving lamps, when properly installed, can significantly and legally improve the safety and comfort with which you operate your vehicle.

STARR Lighting

An impressive and compliant line of high performance lamps is from STARR Lighting. STARR driving lamps offer the latest LED lighting technology, stainless steel mounting bracket and hardware, and fully internal (enclosed) electronic components, all in an SAE compliant package.

LED400 - 4" LED Driving Lamp

- SAE Y (J581) compliant
- Polycarbonate lens

LED500 - 5" LED Driving Lamp

- SAE Y (J581) compliant
- Polycarbonate lens
- Clear Polycarbonate covers available
- Available in black or chrome

LED700 - 7” LED Driving Lamp
- SAE Y (J581) compliant
- Polycarbonate lens
- Clear Polycarbonate covers available
- Available in black or chrome

LED900 - 9” LED Driving Lamp
- SAE Y (J581) compliant
- Polycarbonate lens
- Clear Polycarbonate covers available
- Available in black or chrome

LED660 - 4x6 LED Driving Lamp
- 152mm (6”) driving lamp
- SAE Y (J581) compliant
- Polycarbonate lens
- Clear Polycarbonate covers available

LBAR880 - 8.8” LED Light Bar
- 224mm (8.8”) light bar
- SAE Y (J581) compliant
- Polycarbonate lens

STARR Lighting also offers compliant high performance driving lamps that utilize HID and Halogen technology**.**

DLX680 - 6.8” HID Driving Lamp

- SAE Y (J581) compliant
- Philips D1S HID bulb
- Internal HID ballast
- Low, 35 watt power draw (3 amps)
- Clear Polycarbonate covers available

DLX760 - 7.6” HID Driving Lamp

- SAE Y (J581) compliant
- Philips D1S HID bulb
- Internal HID ballast
- Low, 35 watt power draw (3 amps)
- Clear Polycarbonate covers available

DLX880 – 8.8” HID Driving Lamp

- SAE Y (J581) compliant
- Philips D1S HID bulb
- Internal HID ballast
- Low 35 watt power draw (3 amps)
- Clear Polycarbonate covers available

DLH680 - 6.8" Halogen Driving Lamp

- 6.8 Inch Diameter
- SAE Y (J581) compliant
- 55 Watt H3 Halogen Bulb
- Clear Polycarbonate covers available

DLH680 - 6.8" Halogen Driving Lamp

- 7.6 Inch Diameter
- SAE Y (J581) compliant
- 55 Watt H1 Halogen Bulb
- Clear Polycarbonate covers available

J.W. Speaker

J.W. Speaker LED Driving Lamps are SAE & DOT approved and have a limited lifetime warranty.

TS3001 – LED Driving Lamps

- SAE Y (J581) compliant
- DOT Compliant for use as a high-beam headlamp
- Polycarbonate lens
- Solid state LEDs
- Shock & vibration resistant

RIGID Industries

RIGID is another manufacturer of SAE compliant, high performance LED driving lamps. Most of the RIGID lineup is designed for off-road use; however, they have recently introduced an auxiliary driving lamp that meets the SAE standards for on-road use. The RGD-106612 E-series driving lamp kit offers a high quality, SAE compliant LED driving lamp system that is extremely durable to punishing environments. The kit comes complete with wiring harness, switch, relay, mounting hardware and a pair of lamps. Optional clear and coloured protective covers are also available.

RGD-106612 - 6” Light Bar Kit

- SAE Y (J581) compliant
- 4^{o} x 45^{o} beam pattern
- Polycarbonate lenses

FOG LAMPS

Fog can create some of the most treacherous driving conditions that you will encounter. Whether it is ice-fog off of a river at minus 40, or the frequent presence of water vapor in the air near the coast, it is important that your vehicle is properly equipped for foggy weather conditions. Your best friend in these conditions is a set of properly installed, compliant fog lamps. Regulations regarding the mounting and wiring of fog lamps differ from those for driving lamps and can be found in the appendices at the end of this information package. The primary difference between fog lamps and driving lamps is the beam patter produced by each.

J.W. Speaker

The following LED fog lamps from J.W. Speaker utilize advanced lensing technology to produce a wide, low-profile beam pattern that will illuminate the surface of the road without illuminating the fog above the road. LED fog lamps offer unrivaled life expectancy and high durability compared to their halogen counterparts. Speaker LED fog lamps come with a limited lifetime warranty and include the following models:

Model 9049-3M

- 21" LED Fog Light Bar
- SAE F (J583) compliant
- Polycarbonate lens

Model 6146

- Ford F150 LED Fog lamp kit
- SAE F (J583) compliant
- Polycarbonate lens

Model 6145 & 6150

- LED Fog driving lamp
- SAE F (J583) compliant
- Polycarbonate lens

Model 6045

- LED Fog driving lamp
- SAE F (J583) compliant
- Polycarbonate lens
- Optional black rubber housing available

RIGID Industries

RIGID recently announced its first SAE compliant, high performance LED fog lamp. The RGD-50481 D-series Fog Lamp kit offers a high quality, SAE compliant LED fog lamp system that is very compact and extremely durable to punishing environments. The kit comes complete with wiring harness, switch, relay, mounting brackets and a pair of LED fog lamps. Optional clear and coloured protective covers are also available.

RGD-50481 - SAE Fog Lamp Kit

- SAE F (J583) compliant
- 4^{o} x 45^{o} beam pattern
- Polycarbonate lenses

Appendix A:
BC Motor Vehicle Act Excerpts

The following section is a series of excerpts from the **BC Motor Vehicle Act** regulations that can be viewed in full at:

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/26_58_01

[includes amendments up to B.C. Reg. 246/2010, July 30, 2010]

Division 4 — Lamps

4.02 - General lighting requirements

(1) A vehicle on a highway must only be equipped with and use lamps, reflectors or other illuminating devices authorized by this Division or authorized in writing by the director.

(2) A vehicle on a highway must be equipped with lamps equivalent to those provided by the original manufacturer in accordance with the requirements that applied under the *Motor Vehicle Safety Act* (Canada), or a predecessor to that Act, at the time of vehicle manufacture.

(3) All lamps, lamp bulbs and reflectors required or permitted by this Division must comply with

(a) the approved standards established by the *Motor Vehicle Safety Act* (Canada) and the applicable SAE standards

(b) the conditions of use described in this Division, and

(c) the requirements of Table 1 of the Schedule to this Division.

(4) The function of 2 or more lamps or reflectors may be combined if each function meets the following requirements:

(a) no turn signal lamp may be combined optically with a stop lamp unless the stop lamp is extinguished when the turn signal is flashing;

(b) a clearance lamp must not be combined optically with a tail-lamp or identification lamp.

(5) The director may exempt vehicles or classes of vehicles from the requirements of this section.

[en. B.C. Reg. 476/98, s. 2; am. B.C. Reg. 135/2003, s. 1.]

4.04 - General maintenance

(1) Lighting devices required by this Division must be maintained in good working order.

(2) Lamps and reflectors required by this Division

a) must be securely mounted on the vehicle,

b) must not have any cracked, broken, missing or incorrectly installed lenses, and a lamp must not have bent or broken rims that allow water to enter the lamp, and

c) must not be shielded, covered or obscured by any part of the vehicle or load or by dirt or other material.

[en. B.C. Reg. 476/98, s. 2.]

4.09 - Auxiliary driving lamps

(1) A motor vehicle may be equipped with 2 auxiliary driving lamps, mounted on the front of the vehicle at a height of not less than 40 cm and not more than 1.06 m, that are capable of displaying only white light.

(2) An auxiliary driving lamp must be directed so that the high intensity portion of the beam is, at a distance of 8 m from the lamp, at least 12 cm below the height of the lamp and, at a distance of 25 m from the lamp, not higher than 1.06 m from the road surface.

(3) An auxiliary driving lamp must operate so that it is illuminated only when the upper beam of a multiple beam headlamp is illuminated.

[en. B.C. Reg. 476/98, s. 2.]

4.11 - Fog lamps

(1) A motor vehicle may be equipped with 2 fog lamps, mounted on the front of the vehicle below the headlamps, that are capable of displaying only white or amber light.

(2) Each fog lamp must be

a) mounted not more than 30 cm below the headlamps, and

b) adjusted and aimed so that, at a distance of 8 m from the lamp, the centre of the beam is at least 10 cm below the height of the fog lamp.

(3) The fog lamp wiring and switch must permit simultaneous operation of the parking lamps, tail lamps, licence plate lamp and, if required, clearance lamps.

(4) The operator of a vehicle may use fog lamps instead of headlamps when atmospheric conditions make the use of headlamps disadvantageous.

[en. B.C. Reg. 476/98, s. 2.]

4.25 - Off-road lamps

Despite section 4.04 (2) (c), a vehicle equipped with off-road lamps when on a highway must have the off-road lamps concealed with opaque covers.

[en. B.C. Reg. 476/98, s. 2.]

Appendix B:
Alberta Traffic Safety Act Excerpts

The following section is a series of excerpts from the **Alberta Traffic Safety Act, Vehicle Equipment Regulation** that can be viewed in full at:

http://www.qp.alberta.ca/documents/Regs/2009_122.pdf

Source: Government of Alberta, Queens Printer Website (with amendments up to and including Alberta Regulation 165/2009).

Part 1 - Vehicle Lamps

Section 4 - General standards

(1) The following standards respecting lamps on vehicles are adopted and apply to a light or lamp incorporated in or attached to a vehicle:

(a) section 108 of the *Motor Vehicle Safety Regulations* under the *Motor Vehicle Safety Act* (Canada), including Technical Standards Document No. 108;

(b) the alternative standards adopted by section 108.1 of the *Motor Vehicle Safety Regulations* under the *Motor Vehicle Safety Act* (Canada);

(c) SAE Standard J583 Revised June 1993 applies to fog lamps marked SAE F;

(d) SAE Standard J595 applies to warning lamps marked SAE W for emergency, maintenance and service vehicles;

(e) SAE Standard J845 applies to 360-degree emergency warning lamps marked SAE W3;

(f) SAE Standard J1318 applies to 360-degree gaseous discharge lamps marked SAE W5;

(g) SAE Standard J581 applies to driving lamps marked SAE Y.

(2) A lamp on a vehicle, wherever it is located,

(a) must comply with the appropriate standard under the *Motor Vehicle Safety Act* (Canada) on the date it is incorporated in or attached to the vehicle, or

(b) must comply with the SAE standard applicable on the date on which the motor vehicle is manufactured.

(3) A lamp or replacement lamp on a vehicle complies with this section if it

(a) meets the manufacturer's specification for the vehicle it is incorporated in or attached to, or

(b) has a mark or label on it that indicates in words or symbols that the appropriate standard has been met.

(4) A person shall not drive or operate a vehicle that has a lamp unless the lamp is required or allowed by this Regulation or another regulation under the Act.

Division 1 - Headlamps

Section 6 - Location

(1) A motor vehicle, other than a motor cycle or moped, must have at least 2 headlamps, one on each side of the front of the motor vehicle.

(2) A headlamp must be mounted so that the centre of the headlamp is not more than 1.4 metres and not less than 560 millimetres above ground level when the motor vehicle is not loaded.

(3) Subsection (2) does not apply to a snowplough truck with a front mounted plough.

(4) The light from a headlamp must be white, and the lens and bulb of the headlamp must be made of clear, untinted glazing.

Division 5 - Other Lamps

Section 42 - Auxiliary driving lamps or fog lamps

(1) In this section,

(a) "auxiliary driving lamp" means a SAE Standard J581 type Y lamp;

(b) "fog lamp" means a SAE Standard J583 type F lamp.

(2) If a motor vehicle has auxiliary driving lamps or fog lamps, they must be mounted on the front of the motor vehicle and the centres of the auxiliary driving lamps or fog lamps must be lower than the centres of the headlamps.

(3) Two auxiliary driving lamps may be mounted, one on each side of the vertical centre line.

(4) Two fog lamps may be mounted, one on each side of the vertical centre line.

(5) Auxiliary driving lamps on a motor vehicle must be used only at the same time the high beams on the headlamps are used.

(6) Fog lamps on a motor vehicle must be used only at the same time the low beams on the headlamps are used.

(7) Despite subsection (6), fog lamps may be used without headlamps if the weather and road conditions make the use of headlamps disadvantageous.

(8) A person shall not drive or operate or own a motor vehicle that has a total of more than 2 auxiliary driving lamps and 2 fog lamps.

(9) A person shall not drive a motor vehicle with both auxiliary driving lamps and fog lamps lit at the same time.

(10) An auxiliary driving lamp or fog lamp on an unloaded motor vehicle must be adjusted and aimed so that none of the high-intensity portion of the light to the left of centre of the vehicle projects, at a distance of 8 metres ahead, higher than 100 millimetres below the centre of the lamp from which the light is projected.

(11) Fog lamps on a motor vehicle may only emit amber or white light.

Appendix C:
Saskatchewan Traffic Safety Act Excerpts

The following section is a series of excerpts from the **Saskatchewan Traffic Safety Act, Vehicle Equipment Regulations** that can be viewed in full at:
http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/V2-1R10.pdf
Source: Government of Saskatchewan, Queens Printer Website (with amendments up to and including Saskatchewan Regulation 29/2012)

PART III - Type A Vehicles

Interpretation - s. 2(1)(oo) of the Act:

"type A vehicle" means a self-propelled vehicle designed for operation on highways and includes a car, truck, van, motorhome, multipurpose passenger vehicle, power unit and bus as defined in CMVSS and type A-1 to type A-3 vehicles, but does not include a vintage vehicle, all-terrain vehicle, motorcyle or special mobile machine.

Section 31 - Lamps general

All lamps required pursuant to this Part shall be securely mounted, meet SAE standards applicable at time of manufacture and, except for headlamps and instrument lamps, be visible from a distance of at least 200 metres on a clear night.

[4 Sep 87 cV-2.1 Reg 10 s31.]

Section 32 - Headlamps

(1) The vehicle shall have at least two headlamps that have both a high beam and a low beam and that are located at the front as far apart as practicable and, where practicable, at a height of not less than 535 millimetres and not more than 1400 millimetres from the ground, measured to the centre of the lamp unless impracticable because of the equipment or construction of the vehicle.

(2) The headlamps shall, while on high beam or low beam, emit a white light visible from a distance of 500 metres.

(3) The headlamps shall, while on high beam or low beam, illuminate a 1000 millimetres by 300 millimetres gray object with white light so that it is visible to the driver, on a clear night, from a distance of at least:

a) 150 metres in the case of the high beam;
b) 50 metres in the case of the low beam.

(4) The headlamps shall have a control by which the driver is able to switch between the high and low beams without interruption of light.

(5) The low beam of the headlamp shall be focused so that when the vehicle is unloaded and on level ground and the low beam is:

a) the left edge of the high intensity zone is not more than 100 millimetres right or left of straight ahead; and
b) the top edge of the high intensity zone is no more than 100 millimetres above or below the height of the lamp.

(6) The vehicle shall have a lamp on the instrument panel that indicates to the driver when the high beam is activated.

[4 Sep 87 cV-2.1 Reg 10 s32]

Section 33
Auxiliary lamps

(1) If the vehicle is equipped with auxiliary headlamps, fog lamps or driving lamps, those lamps shall be:

a) focused at least as low and as far to the right as the low beam of the headlamps; or
b) connected so that they are switched off when the low beam is selected.

(2) The auxiliary lamps shall be mounted no higher than the headlamps except where front mounted equipment makes that impracticable.

[4 Sep 87 cV-2.1 Reg 10 s33]

Appendix D:
Manitoba Highway Traffic Act Excerpts

The following section is a series of excerpts from the **Manitoba Highway Traffic Act** that can be viewed in full at:
http://web2.gov.mb.ca/laws/statutes/ccsm/h060e.php

Lighting equipment of vehicles

35(1) Except as otherwise provided in this Act, every vehicle shall, at all times while it is upon a highway, be equipped with lamps and other equipment in good working order as in this section provided, namely:

(a) Every motor vehicle other than a motorcycle, mobility vehicle or moped and special mobile machine shall carry

(i) at least two, but not more than four, headlamps, an equal number of which shall be on each side of the front of the vehicle and each of which shall cast a white light only,

Fog lamps

37(11) Notwithstanding any other provision herein, but subject to subsection (12), a motor vehicle may be equipped with not more than two fog lamps of such type and design as may be approved by the traffic board, and

(a) that are fixed to the front of the motor vehicle so that no part thereof is higher than the headlamps or lower than 310 millimetres below the lowest part of the headlamps;

(b) that cast a light that is white or amber;

(c) that has an intensity of light of not more than thirty-two candle power; and

(d) the beam or beams of the light from which are so aimed and directed that no part of the main beam falls to the left of the centre of the roadway, and that at a distance of 8 metres from the fog lamp, no part of the main beam is higher than 110 millimetres below the level of the centre of the fog lamp.

Use of fog lamps

37(12) The lamps to which reference is made in subsection (11) may be lighted on a highway

a) alone; or
b) in conjunction with headlamps, on low beam, required under section 35 or 36.

Prohibited lamps

38(1) Except as otherwise provided in this Act, the regulations or the *Motor Vehicle Safety Act* (Canada), or when authorized by permit under subsection 37(6) or (7), a motor vehicle on a highway shall not be equipped with

a) more than five lamps of over four candle power (of which not more than four are headlamps) on the front of, or visible from in front of, the vehicle; or
b) any search light or any lamp other than a stationary lamp; or
c) any lamp
    i. that casts a light of a colour other than white, or
    ii. that lights intermittently or in flashes; or
d) any lamp casting a light of over four mean spherical candle power unless it is so constructed, arranged, and adjusted, that no portion of the parallel beams of reflected light, when measured 25 metres or more ahead of the lamp, rises above 1.07 metres from the level surface on which the vehicle stands, as those heights are determined while the vehicle is fully loaded.

Appendix E:
Manitoba Vehicle Standards & Inspection Handbook

ITEM AND METHOD OF INSPECTION:

Section 6: Lamps - 6-1 Lamps (page 15 of handbook)

1. All lamps mentioned below except a hazard lamp must be inspected with lights on.
2. All vehicle lighting must meet CMVSS, DOT or SAE standards for lights and signalling devices.

VISUALLY INSPECT:

a. Headlamps
b. tail lamp(s)
c. stop lamps
d. centre high-mounted stop lamp (if equipped) (required January 1, 1987 on passenger cars)
e. turn signal lamps
f. hazard warning lamps (where equipped)
g. side marker lamps (where equipped) - NOTE: A lamp may be both side marker and clearance lamp if visible from side and end.
h. front parking lamps
i. backup (if equipped)
j. fog lamps
k. driving lamps
l. roll-bar high-mounted lamps and off-road lamps
m. other lamps
n. clearance lamps (not required on vehicles under 2.05 m (81 in.) width)
o. identification lamps (not required on vehicles under 2.05 m (81 in.) width)
p. daytime running lamps

REJECT IF:

1. Auxiliary equipment is placed on, in, or in front of any lamp (except originally equipped with transparent covers).

2. Any lamp is missing or not securely mounted: fails to illuminate properly; any lens broken or cracked so as to impair its effectiveness; modified wiring in poor condition; water (not just moisture droplets) inside the lamp.
    a. not 2 or 4, not white, not facing front as far apart as practical; not proper filament
    b. not clearly visible, not the proper filament(s) lit; not red
    c. not clearly visible, not red, not the proper filament(s) lit
    d. not red, comes on with signal lights
    e. front: not white or amber; rear: not amber or red; not clearly visible, not proper filament lit, not flashing, indicator does not show correct turn direction
    f. all hazard warning lamps do not operate in unison
    g. not 4 located 2 on each side, front: amber, rear: red; not clearly visible
    h. not white or amber, not clearly visible
    i. more than 2, not white, not clearly visible, illuminated in forward gear
    j. more than 2 on front, (not white or yellow)
    k. more than 2 on front, not white
    l. opaque covers not in place
    m. red light showing toward front or white light showing toward rear
    n. (if equipped) does not have 4, not located at widest part of vehicle, front not amber, rear not red
    o. (if equipped) does not have 6, (3 amber on front, three red on rear), not as high and near centre as practical, not clearly visible
    p. not equipped on all vehicles manufactured after December 1, 1989; not located on front of vehicle; not white or yellow in colour; does not operate continually when engine operating and master lighting switch is not in the “ON” position

Appendix F:
Ontario Highway Traffic Act Excerpts

The following section is a series of excerpts from the Ontario Highway Traffic Act R.R.O. 1990, REGULATION 596 GENERAL that can be viewed in full at:

http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_900596_e.htm

Last amendment: O. Reg. 406/09.

This is the English version of a bilingual regulation.

HIGHWAY TRAFFIC ACT
R.R.O. 1990, REGULATION 596
GENERAL

HEADLAMPS

1. (1) In this section and in sections 2, 3 and 4, "beam" means the light projected from a pair of lighted headlamps. O. Reg. 213/03, s. 1.

   (2) In this section and in sections 2, 3, 4 and 4.1, "headlamp" means one of the lamps on the front of a motor vehicle required by subsection 62 (1) of the Act. O. Reg. 213/03, s. 1.

2. (1) Subject to section 3, the headlamps on a motor vehicle shall be capable of projecting at least two beams, so controlled that only one beam can be selected for use by the driver of the motor vehicle at any one time according to the requirements of traffic. R.R.O. 1990, Reg. 596, s. 2 (1).

   (2) One beam shall be a lower or passing beam so aimed that none of the high intensity portion of the beam that is directed,

   (a) to the left of the vehicle, is higher than 127 millimetres below; or

   (b) to the right of the vehicle, is higher than,

   the horizontal line through the centre of the headlamp from which it comes, at a distance of 7.6 metres ahead of the headlamp, when the vehicle is not loaded, and the high intensity portion of the lower or passing beam shall not rise higher than 1.07 metres above the level on which the vehicle stands at a distance of 22.9 metres ahead of the vehicle. R.R.O. 1990, Reg. 596, s. 2 (2).

4. No lighting device of over four mean spherical candela shall be carried on a motor vehicle unless it is equipped with a device for the elimination of glare approved by the Minister. R.R.O. 1990, Reg. 596, s. 4.

The following section is a series of excerpts from the Ontario Highway Traffic Act Chapter R.S.O. 1990, CHAPTER H.8, that can be viewed in full at:
http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90h08_e.htm#BK118

Highway Traffic Act R.S.O. 1990, CHAPTER H.8
PART VI – Section 62
EQUIPMENT
Strength of front lamps:
62 (9) No motor vehicle shall carry on the front thereof more than four lighted lamps that project a beam having an intensity of over 300 candela. R.S.O. 1990, c. H.8, s. 62 (9).

The following section is an excerpt from the National Safety Code Standard 11 Maintenance and Periodic Inspection Standards, which can be viewed in full at:
http://ccmta.ca/images/publications/pdf//CCMTA-PMVI-Report-Feb.pdf
National Safety Code Standard 11 Maintenance and Periodic Inspection Standards – Page 33 COMMERCIAL VEHICLE MAINTENANCE STANDARD

Section 6 Lamps
Item and Inspection Criteria:
1. General
a) Each circuit shall light the filaments of all the lamps on that circuit when the appropriate switch is in the “ON” position, and each indicator light shall operate correctly.
b) The operation of any lighting circuit shall not interfere with the operation of any other circuit.
c) Each lens and reflex reflector shall be correctly and securely installed and shall not be discolored or missing in whole or in

part, and comply with Canadian Motor Vehicle Safety Standards (CMVSS).

2. Headlamps
   a) A vehicle shall be equipped with two or four white in color headlamps mounted in the same location as the manufacturer's design, and operate on both high and low beam and all diodes on an LED lamp must be functional.
   b) No headlamp shall be equipped with a tinted cover or coated with a color lacquer.
   c) No headlamp shall be modified by the attachment to the lamp or to the vehicle of any device that reduces the effective area of the lens or the brightness of the light.
   d) Each headlamp shutter or retracting headlamp shall operate over the full range of movement or shall be secured in the fully open position.
   e) All headlamps shall be properly aligned.
   f) All required headlamps shall meet CMVSS, DOT or SAE standards, and shall not be broken, cracked, inoperative, loose or missing.

Note: At the time of this publication, the editors could find nothing in the Ontario Statutes or Legislation governing commercial vehicles or non-commercial vehicles which contains any provision allowing or prohibiting or limiting the use of aftermarket fog lamps and/or auxiliary driving lamps.

Appendix G:
Quebec Highway Safety Code Excerpts

The following section is a series of excerpts from the HIGHWAY SAFETY CODE – Quebec, chapter C-24.2, that can be viewed in full at:
http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/C_24_2/C24_2_A.html
(Updated to 1 March 2015)

HIGHWAY SAFETY CODE – Quebec, chapter C-24.2
PRELIMINARY TITLE - SCOPE AND DEFINITIONS
CHAPTER II - PROVISIONS RESPECTING VEHICLE LIGHTING DEVICES AND WARNING LIGHTS

215. Every motor vehicle, other than a motorcycle or a moped, must carry at least two single or double white headlights, at the same height, one on each side of the vertical centreline and as far apart as practicable;

222. The fog lights that may be mounted on a road vehicle must conform to the standards established by regulation and must be on the front of the vehicle and at the same height, which must not be higher than that of the white headlights. 1986, c. 91, s. 222.

621. The Government may by regulation
(2) prescribe standards for the manufacture, sale, installation and use of fog lights, exhaust systems, tires and protective helmets;
(6) prescribe standards respecting the number, colour, intensity, shape and dimensions of headlights, lights and reflectors;

Note: At the time of this publication, the editors could find nothing in the Quebec's Statutes or Legislation governing commercial vehicles or non-commercial vehicles, which contains any provision limiting the use of aftermarket fog lamps and/or auxiliary driving lamps.