



National Defence

National Defence Headquarters
Ottawa, Ontario
K1A 0K2

Défense nationale

Quartier général de la Défense nationale
Ottawa (Ontario)
K1A 0K2

**SOLICITATION AMENDMENT
MODIFICATION DE
L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À :**

By e-mail to: - Par courriel au :
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Title - Sujet COMMUTER BUS- AUTOBUS, NAVETTEUR		Amendment No. - N° modif. 002
Solicitation No. N° de l'invitation W8476-226489/A	Date of Amendment Date de modification 01-11-2022	
Address enquiries to: - Adresser toute demande de renseignements à : Kyle Grundy E-Mail Address - Courriel Kyle.grundy@forces.gc.ca		
Destination See herein - Voir aux présentes		

Instructions: Municipal taxes are not applicable. Unless otherwise specified herein all prices quoted must include all applicable Canadian customs duties, GST/HST, excise taxes and are to be delivered Delivery Duty Paid including all delivery charges to destination(s) as indicated. The amount of the Goods and Services Tax/Harmonized Sales Tax is to be shown as a separate item.

Instructions : Les taxes municipales ne s'appliquent pas. Sauf indication contraire, les prix indiqués doivent comprendre les droits de douane canadiens, la TPS/TVH et la taxe d'accise. Les biens doivent être livrés « rendu droits acquittés », tous frais de livraison compris, à la ou aux destinations indiquées. Le montant de la taxe sur les produits et services/taxe de vente harmonisée doit être indiqué séparément.

Delivery required Livraison exigée See herein - Voir aux présentes	Delivery offered Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Person authorized to sign on behalf of Vendor/Firm (type or print): La personne autorisée à signer au nom du fournisseur/de l'entrepreneur (taper ou écrire en caractères d'imprimerie) :	
Name - Nom	Title - Titre
Signature	Date

Solicitation Closes - L'invitation prend fin

At - à :
2:00 PM - 14:00

On - le :
2022-01-20

Time Zone - Fuseau Horaire :
Eastern Daylight Time (EDT)
heure avancée de l'Est (HAE)

THIS SOLICITATION AMENDMENT IS RAISED TO:

1. Provide clarification and answers to questions from potential suppliers;
2. Delete Annex A PURCHASE DESCRIPTION BUS, COMMUTER 21-03-01 and replace with Annex A PURCHASE DESCRIPTION BUS, COMMUTER 2022-01-10

QUESTIONS AND ANSWERS:

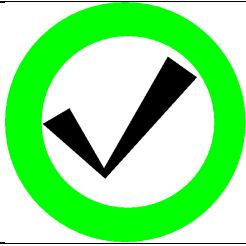
Question 2	<p>The vehicle must have a front axle setback of at least 1,905 mm and no more than 2,035 mm</p> <p>3.4.3.c The Specification asks for front axle set back of at least 1,905 mm and no more than 2,035 mm. Our product is a motor coach type Bus with Rear Engine and has 2086 mm, a difference of 51 mm. This relates to vehicle engineering, layout and other design factors.</p> <p>Can this requirement be adjusted to allow our product to comply?</p>
Answer 2	<p>The maximum vehicle overhang must not exceed Provincial/Regulations across Canada.</p> <p>The Paragraph 3.4.3 (c) will be removed from the Purchase Description.</p>
Question 3	<p>The passenger area must be provided with lower fixed glass windows and upper T-slider windows</p> <p>3.5.b.i.4. The specification requires the passenger area to be provided with lower fixed glass windows and upper T-Slider windows . Our coach has flush window design and upper T-Slider can not be provided.</p> <p>Can you remove this requirement?</p>
Answer 3	<p>It is important that the bus windows can be open. The flush windows provided can be open?</p>
Question 4	<p>The passenger access door must be at least 2,125 mm high and at least 750 mm wide</p> <p>3.5.b.v.3. The specification required the access door must be at least 2,125mm high and at least 750mm wide.</p> <p>Will 1,982mm height be acceptable ?</p>
Answer 4	<p>Yes, it's acceptable.</p> <p>The paragraph 3.5.b.v.3 will be amended to read : The passenger access door must be at least 1,982 mm high and at least 750 mm wide;</p>

Question 5	<p>The parcel rack must be provided with a vinyl extrusion over aluminum handrail extending the full length of both parcel racks; and</p> <p>3.5.b.vii.3 The specification says parcel rack must be provided with a vinyl extrusion over aluminum handrail extending the full length of both parcel racks. Our product has aluminum pipes with electrostatic powder coating. However, our product is 100.4 inches wide which makes the edge of the parcel rack further from the aisle that would be found on a 96-inch-wide product and hence is not as close to the aisle where people are walking or standing. The aluminum may be more hygienic. Also, vinyl has susceptibility to cracking in cold weather creating a safety hazard with sharp edges.</p> <p>Can this requirement be amended?</p>
Answer 5	<p>Yes, it's acceptable.</p> <p>The Paragraph 3.5(b) vii 3. will be amended to read: The parcel rack must be provided with a vinyl extrusion or Equivalent over aluminum handrail extending the full length of both parcel racks.</p>
Question 6	<p>The floor covering for the floor and steps must be Equivalent to Altro - Storm Grey</p> <p>3.5.b.viii.2. The requirement is of floor covering for the floor steps must be Equivalent to ALtro-Storm Grey . Our TS35 has GerfloorAntic Wood</p> <p>Will Gerfloor AnticWood be acceptable ?</p>
Answer 6	<p>More information is requested regarding GerfloorAntic Wood product (i.e. Specification/Brochure).</p>
Question 7	<p>The vehicle must be provided with air horn(s) protected from snow clogging.</p> <p>3.5.b.xiv The specification asks for an air horn (s) protected from snow clogging. This may still be offered on some trucks but nearly all automotive products now have electric horn.</p> <p>Can this be amended to include electric horns?</p>
Answer 7	<p>Yes, it's acceptable.</p> <p>The Paragraph 3.5 (b) xiv will be amended to read: The vehicle must be provided with air or electric horn(s) protected from snow clogging.</p>
Question 8	<p>The passenger area must have a water resistant plywood flooring at least 12.7 mm thick</p> <p>3.5.c.iv. The specification asks for passenger area must have a water resistant plywood at least 12.7mm thick , whereas we have 12mm thickness with the exception of areas that require a greater thickness. We have 15mm over the engine compartment and rear axles. Additionally 2 mm water resistant mat is also applied,</p> <p>Will this be acceptable?</p>

Answer 8	<p>Yes, it's acceptable.</p> <p>The Paragraph 3.5 (c) iv will be amended to read:</p> <p>The passenger area must have a water resistant plywood flooring of at least 12 mm thick.</p>
Question 9	<p>Passenger seats must be provided with adjustable headrests;</p> <p>3.5.g.iii The specifications ask for passenger seats with adjustable headrests. Because our seating is high back recliner type no headrest is added.</p> <p>Can the specification be amended to include this seat type?</p>
Answer 9	<p>Yes, it's acceptable.</p> <p>The Paragraph 3.5(g) iii will be amended to read: Passenger seats must be provided with adjustable headrest or high back recliner seats.</p>
Question 10	<p>Each mirror must be provided with a convex mirror section, that has an area of at least 15,000 mm²</p> <p>3.5.h.ii.The specifications requires the convex mirror section , that has an area of at least 15,000 mm² , TS35 has 13,000mm²</p> <p>Will this be acceptable ?</p>
Answer 10	<p>The Paragraph 3.5 (h) ii will be amended to read:</p> <p>Each mirror must be provided with a convex mirror section, that has an area of at least 13,000 mm²;</p>
Question 11	<p>The vehicle must be provided with luggage compartment(s) with a total volume of at least 7.90 cu m (279 cu ft);</p> <p>3.5.k.iThe specification asks for a minimum of 270 cu. ft. in luggage compartment. Our product based on under floor structure has 215 cu. ft.</p> <p>The area of the under floor compartment is 248.2 cu. ft , if you include our parcel racks our compartment volume is 284.8 cu. ft</p> <p>Will this be acceptable ?</p>
Answer 11	<p>Yes, it's acceptable.</p> <p>Paragraph 3.5k.i will be amended to read: The vehicle must be provided with luggage compartment(s) with a total volume of at least 7.0 cu m (248 cu ft);</p>
Question 12	<p>The rear suspension system must be provided with a manual control dump valve;The dump valve must evacuate air from the suspension system;The dump valve must be mounted in the cab; andthe dump valve must be within easy access of the driver.</p> <p>3.6.1.d.(1, 2, 3 & 4) Our product contains air suspension system with kneeling-lifting features. The system can be controlled by driver through the switch on dashboard.</p>

	Vehicle can be lifted from front and rear axle. However, the vehicle can only be dropped from the front. Can the specification be changed to include this alternative?
Answer 12	Yes, its acceptable

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME



NOTICE

This documentation has been reviewed by the Technical Authority and does not contain controlled goods.

AVIS

Cette documentation a été révisée par l'Autorité technique et ne contient pas de marchandises contrôlées.

1. **SCOPE**

1.1 **Scope** - This Purchase Description covers the requirements for commuter buses with features and accessories.

1.2 **Instructions** - The following instruction apply to this Purchase Description.

- (a) Requirements, which are identified by the word "**must**", are mandatory. Deviations will not be permitted;
- (b) Requirements identified with a "will" define actions to be performed by Canada and require no action/obligation on the Contractor's part;
- (c) Where "**must**" or "will" are not used, the information supplied is for guidance only;
- (d) Where a standard is specified and the Contractor has offered an **Equivalent**, that **Equivalent** standard **must** be supplied by the Contractor;
- (e) Where a technical certification is referred to in this Purchase Description, a copy of the certification or an acceptable Proof of Compliance **must** be supplied when requested by the **Technical Authority** up until the date of the expiration of the warranty period; and
- (f) While the SI system **must** be used as the primary system of measurement to define requirements of this Purchase Description, both the SI system and the standard system for this product may be indicated. Conversion from one system of measurement to the other may not be exact.

1.3 **Definitions**

- (a) "**Provided**" means "provided and installed";
- (b) "**Technical Authority**" means the official responsible for the technical content of this requirement;
- (c) "**Equivalent**" means a standard, means, or component type, which the **Technical Authority** has approved for this requirement in writing as meeting the specified requirements for fit, form, function and performance;
- (d) "**Commercially Equipped**" means that the vehicle is provided in its standard commercial configuration with no additional government-specific requirements; and
- (e) "**Curb Weight**" (**CW**) means the weight of the fully equipped vehicle. The curb weight includes the cab and chassis, all

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attached accessories, equipment, fuel, lubricant and coolants. The **Curb Weight** does not include the **Payload**, the weight of the driver/passenger(s) or their personal kit and equipment.

1.4 **Data Table** - The following table shows the required performance and dimensions.

CHARACTERISTIC	PARAGRAPH	UNITS	CONFIGURATION
			A
HP	3.4.1 (c)	-	260
FUEL CAPACITY	3.7.2 (a)	litres	340
ALTERNATOR	3.14 (a)	ampere	270
CCA	3.14 (b)	ampere	2,300

1.4.1 **Accessory Table** - The following table indicates with an "X" and by Configuration, the accessories, features, additional items and training.

DESCRIPTION	PARAGRAPH	CONFIGURATION
		A
Insulation Upgrade	3.5.1 (a)	X
DVD Player and Monitors	3.5.1 (b)	X
Rear Luggage Compartment (applicable only for a front engine bus)	3.5.1 (c)	X
Aluminum Wheels	3.11.1 (a)	X
Decals	3.18.2 (a)	X



2. **APPLICABLE DOCUMENTS** - The following documents are referenced in this Purchase Description. Canada will not be supplying any reference documents. Available information on the organization is supplied.

SAE Standards

SAE World Headquarters
400 Commonwealth Dr.,
Warrendale, PA, 15096-0001
<http://www.sae.org>

Motor Vehicle Safety Regulations (MVSR)

Government of Canada / Transport Canada,
<https://www.tc.gc.ca/eng/acts-regulations/regulations-crc-c1038.htm>

Canada Motor Vehicle Safety Standards

<http://www.tc.gc.ca/eng/motorvehiclesafety/safety-standards-vehicles.html>



3. REQUIREMENTS

3.1 Standard Design

- (a) The vehicle **must** be the latest model from a manufacturer who has demonstrated acceptability by selling this type and size class of vehicle for at least five (5) years;
- (b) The vehicle **must** include all components, equipment and accessories normally supplied for this application, although they may be not specifically described in this Purchase Description;
- (c) The vehicle **must** have engineering certification available for this application from the original manufacturers of major equipment, systems and assemblies;
- (d) The vehicle **must** conform to all applicable laws, regulations and industrial standards in effect in Canada at the time of manufacture. The regulatory areas may include but are not necessarily limited to manufacturing, health and safety, noise levels, environment and emissions; and
- (e) The vehicle and accessories **must** operate in accordance with all original equipment manufacturers' (OEM) rated capacities and performance specifications.

3.2 Operating Conditions

3.2.1 **Weather** - The vehicle **must** start and operate under the extremes of weather conditions found in Canada in temperatures ranging from -40 to 40°C.

3.2.2 **Terrain** - The vehicle **must** be operate in all-weather conditions on highways, secondary roads, gravel roads, and off-road (e.g. construction sites, open fields and dirt tracks).

3.3 Vehicle Safety Regulations

- (a) The vehicle **must** meet the provisions of the Canada Motor Vehicle Safety Regulations; and
- (b) The vehicle **must** be certified as compliant with all applicable Canadian Motor Vehicle Safety Regulations and Canadian Motor Vehicle Safety Standards.

3.4 **Vehicle** - The vehicle **must** be a flat nose commuter bus.

3.4.1 Vehicle Performance

- (a) The vehicle **must** have a road speed of at least 110 km/h when operating fully loaded on a flat level road;
- (b) The vehicle **must** have gradability at 90 km/h of at least 1.2 % when operating fully loaded; and
- (c) In order to provide the performance specified in paragraphs 3.4.1 (a) and (b), the vehicle **must** be provided with an engine with a horsepower of at least that stated as "HP" in the Data Table (paragraph 1.4).

3.4.2 Payload

- (a) The vehicle **must** transport at least forty (40) seated adult passengers;
- (b) The vehicle **must** have a payload capacity of at least 97 kg for the vehicle driver;



- (c) The vehicle **must** have a payload capacity of at least 97 kg per passenger; and
- (d) The vehicle payload **must** include a capacity of 15 kg per passenger for luggage.

3.4.3 Dimensions

- (a) The vehicle **must** have an interior headroom height at the interior centreline of at least 1,905 mm; and
- (b) The vehicle **must** have an exterior width of no more than 2,590 mm; and
- (c) The vehicle **must** have a height of no more than 4, 150 mm.

3.5 Standard Vehicle

- (a) 40 Passenger Cabin - The vehicle **must** be provided with a cabin for forty (40) seated adult passengers in forward facing seats;

- (b) Vehicle Features

- i Windows

- 1. The vehicle **must** be provided with a tinted windshield;
 - 2. The vehicle **must** have a side window in the driver's area;
 - 3. All windows **must** be tinted thermo-pane safety glass (AS);
 - 4. The passenger area **must** be provided with lower fixed glass windows and upper T-slider windows;
 - 5. At least three (3) windows per side **must** be emergency exit window; and
 - 6. The emergency windows **must** be clearly labelled.

- ii Fans

- 1. The vehicle **must** have two (2) adjustable fans to augment the windshield defrost system
 - 2. One fan **must** be located in the upper left hand corner of the windshield and the other located at the bottom of the windshield in the centre; and
 - 3. Fans **must** be provided with blade guards.

- iii Windshield Wipers

- 1. The vehicle **must** be provided with windshield wipers with at least 2 continuous speeds and one (1) intermittent speed; and
 - 2. The windshield wipers **must** be provided with arctic wiper blades.

- iv Sun Visors

- 1. The vehicle **must** be provided with two rotating and pivoting interior sun visors or **Equivalent**; and



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2. The vehicle **must** be provided with a fold-down transparent tinted sun visor or **Equivalent**, for the driver.

v

Passenger Doors

1. The vehicle **must** be provided with a passenger access door on the right hand side;
2. The passenger access door **must** be a lockable door;
3. The passenger access door **must** be at least 1,982 mm high and at least 750 mm wide;
4. The door **must** include a side window and a curb window;
5. Each of the door leaves **must** be provided with thermal pane AS safety glass windows;
6. The door **must** be manually or electrically actuated with the control to the right of the driver and accessible by a seated driver;
7. The door control **must** not interfere with the removal of the engine access cover;
8. An entrance door header pad **must** be provided;
9. The entrance door **must** be provided with a means to secure it;
10. The entry step **must** be electrically heated or **Equivalent** in order to prevent the accumulation of ice and snow under the extreme weather condition found in Canada of minus 40°C. The door will remain open for at least 10 minutes at a time; and
11. The rear emergency door **must** have a warning system with warnings visible to a seated driver that show when the rear emergency door is ajar.

vi

Escape Hatches

1. The passenger area **must** be provided with at least one (1) roof-mounted emergency escape hatch; and
2. The escape hatch **must** have an opening that is at least 510 mm square.

vii

Parcel Racks

1. The passenger area **must** be provided with overhead parcel racks;
2. The parcel rack **must** be provided with mesh netting for retention of parcels;
3. The parcel rack **must** be provided with a vinyl extrusion or **Equivalent** over aluminum handrail extending the full length of both parcel racks; and
4. The front corners of the racks **must** be rounded or an **Equivalent** feature for passenger safety.

- viii **Floors**
1. The passenger area **must** be provided with non-slip rubber floors and toe boards; and
 2. The floor covering for the floor and steps **must** be **Equivalent** to Altro - Storm Grey.
- ix The driver's area **must** be provided with an interior light with a control switch;
- x The driver's area **must** be provided with a coat hook;
- xi The vehicle **must** be provided with a handrail located on the right side of the passenger access door to assist passengers entering and exiting the bus;
- xii **Divider**
1. The vehicle **must** be provided with a full height clear divider located behind the driver's seat;
 2. The divider **must** be translucent. The preferred colour for the divider is charcoal; and
 3. The divider **must** not interfere with the front passenger seat clearance.
- xiii The vehicle **must** be provided with side wall carpeting on both sides; and
- xiv The vehicle **must** be provided with air or electric horn(s) protected from snow clogging.

(c) **Vehicle Body Structure**

- i The vehicle body **must** be built in compliance with all commercial standards;
- ii The vehicle **must** be provided with a light-weight engine compartment door equipped with acoustical panels or **Equivalent** to reduce engine noise;
- iii The passenger area **must** be provided with a removable inner panels to allow access to the roof cap area;
- iv The passenger area **must** have a water resistant plywood flooring at least 12 mm thick; and
- v The vehicle **must** be provided with left and right removable mouldings to allow access to body wiring harnesses.

(d) **Vehicle Insulation**

- i The vehicle **must** be provided with insulation with an insulation value of at least R5 for all the vehicle body (except windows and doors);
- ii The vehicle **must** be provided with acoustic insulation to maintain an interior noise level of no greater than 78 dB(A) while the vehicle is travelling at 100 km/h on a level paved road;
- iii The vehicle **must** be provided with walls, ceiling and floor with a chemical and flame resistant insulation; and



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iv The vehicle **must** be provided with an insulated bulkhead separating the engine and interior passenger compartment in order to minimize vibration and noise.

(e) **Heating, Ventilation and Air Conditioning**

i The vehicle **must** be provided with a forced air heating, ventilation and air conditioning system;

ii The heating system **must** use the vehicle engine coolant to provide heating;

iii The passenger heating system **must** leave the aisle clear of obstructions;

iv The passenger heating system **must** allow the use of the area under the seat in front of them as space for their feet;

v The passenger heating system **must** be provided with an auxiliary fuel-fired forced-air heating system, which can operate when the engine is shut-down;

vi The system **must** include a control switch and temperature control;

vii The heating system **must** be provided with a front heater system complete with defrosting ducts;

viii The front heater system must provide at least 20,173 kilocalories (80,000 BTU) of heating capacity;

ix The heating system **must** be provided with a stepwell heater;

X The entry step must be electrically heated or **Equivalent** in order to prevent the accumulation of ice and snow;

xi The heating system **must** be provided with at least two (2) under seat heaters or **Equivalent**;

xii The under-seat heaters or Equivalent must provide a total of at least 30,303 kilocalories (140,000 BTU) of heating capacity;

xiii The vehicle **must** be provided with an air conditioning system;

xiv The air conditioning system **must** provide a cooling capacity of at least 18,875 kilocalories (75,000 BTU) in the passenger compartment;

xv The air conditioning system **must** provide a cooling capacity of at least 3,775 kilocalories (15,000 BTU) in the driver's area; and

xvi The air conditioning system **must** distribute cooling throughout the passenger compartment and driver's area.

(f) **Driver's Seat**

i The vehicle **must** be provided with a six way high-back medium to dark coloured upholstered driver seat with lumbar support;



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ii The seat **must** be provided with pivoting arm rests;

iii **Seat Suspension**

1. The seat **must** be suspension seat with air suspension; and
2. The seat **must** be push button controlled using air from the vehicle air system.

iv The seat **must** be provided with a retractable shoulder/lap belt assembly.

(g) **Passenger Seating**

i Passengers **must** be provided with upholstered forward facing seats;

ii Passenger seats **must** be provided with aisle and centre armrests;

iii Passenger seats **must** be provided with adjustable headrests or high back recliner seats;

iv A row of passenger seats **must** have a width of at least 900 mm;

v Passenger seats **must** be at least 1,065 mm high from the floor to the top of a lowered headrest;

vi Passenger seating **must** be installed with a distance from the back of one row to the back of the row in front of at least 810 mm on the road side and at least 760 mm on the curb side;

vii Passenger seats **must** recline with the exception of the rear row;

viii The passenger seating **must** be provided with aisle side grab rails;

ix Seats **must** be provided with a shoulder/lap belt assembly ; and

x Mesh map pockets **must** be provided on the back of each seat.

(h) **Mirrors**

i The vehicle **must** be provided with two (2) mirrors with flat section having an area of at least 60,000 mm² each;

ii Each mirror **must** be provided with a convex mirror section, that has an area of at least 13,000 mm²;

iii Mirror glass **must** be replaceable.

iv Both mirrors **must** be motorized and adjustable from within the cab; and

v **Mirror Heating**

1. Mirrors **must** be provided with heating systems;
2. Mirror heating **must** be activated by an in-cab control; and



3. Heating elements **must** be replaceable.

vi Cross-view mirror

1. The vehicle **must** be provided with a cross-view mirror;
2. The vehicle **must** be provided with a stainless steel mount for the cross-view mirror; and
3. The cross-view mirror **must** be mounted on the right front corner of the vehicle.

vii One interior, adjustable, rear view mirror mounted in the driver's compartment and positioned to allow the driver full view of the interior of the coach **must** be provided.

(i) Backup Camera

- i The vehicle **must** be provided with a backup camera;
- ii The camera **must** be mounted at the rear of the vehicle to allow visibility when the vehicle is being backed up;
- iii The camera **must** be positioned to provide optimal visibility; and
- iv The vehicle **must** be provided with a coloured monitor in the driver's area and positioned within easy view of the driver.

(j) Destination Sign

- i The vehicle **must** be provided with a front mounted digital display;
- ii The destination sign **must** be illuminated, if required, and glass enclosed;
- iii The destination sign **must** be programmed on delivery to display the name of the delivery destination (in English and in French); and
- iv The destination sign **must** be programmable to display up to at least 6 additional locations.

(k) Luggage Compartment(s)

- i The vehicle **must** be provided with luggage compartment(s) with a total volume of at least 7.0 cu m (248 cu ft);
- ii The luggage compartment(s) **must** be accessible from the outside of the bus;

iii Compartment Doors

1. The under body compartment **must** be provided with fully opening door(s), either swinging door(s) opening at least 135° or a pantograph style door(s);
2. The doors **must** be provided with weatherproof seals;



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3. The doors **must** be provided with flush mounted, lockable, slam latches; and
4. The doors **must** be provided with gas struts or an **Equivalent** to hold the doors in the fully open position.

iv **Compartment Lining**

1. The under body compartment **must** have the interior walls and floor sprayed with a Line -X or **Equivalent** protective coating; and
2. The floors of the under body compartments **must** be lined with tough perforated vinyl matting **Equivalent** to a Dry-Dek® vinyl flooring mat.

(1) **Audio System**

- i The vehicle **must** be provided with a pre-wired radio compartment including a conduit, wiring harness to support a Motorola XTL 1500 VHF M28KSSPW1 N dash mount 2-way radio system or the **Equivalent**;
- ii The vehicle **must** be provided with an AM/FM radio with a Bluetooth system with USB and auxiliary port;
- iii All controls **must** be in the driver's area;
- iv The radio **must** be equipped with a volume and fader control for the speakers in the passenger area;
- v The radio **must** turn off automatically when the vehicle is turned off;
- vi The radio system **must** be wired to allow it to be used as a public address system;
- vii The passenger area **must** be provided with eight (8) speakers; and
- viii The vehicle **must** be provided with the **Equivalent** to a Linebacker VHF Omni-directional transit antenna.

(m) **Keys**

- i A common key **must** be used for all cab and chassis locks; and
- ii This **must** include, but is not limited to, ignition and doors.

3.5.1 **Vehicle Accessories**

- (a) **Insulation Upgrade** - In lieu of the insulation with a value of at least R5 as specified in paragraph 3.5 (d), the vehicle **must** be provided with an insulation package with a insulation value of at least R7;



(b) DVD Player and Monitors

- i The vehicle **must** be provided with a DVD/Blu-ray player; and
- ii The passenger area **must** be provided with at least six (6) 380 mm colour LCD wide-screen TV monitors (three on each side), suitably located below the parcel rack.

(c) Rear Luggage Compartment (applicable only for a front engine bus)

- i The vehicle **must** be provided with a fully enclosed luggage compartment separate from the passenger area at the rear of the vehicle
- ii Where the rear luggage compartment is installed, the rear emergency exit **must** not be installed;
- iii The rear luggage compartment **must** have inside dimensions of at least 1,955 mm high, 1,143 mm deep and 2,280 mm wide;
- iv Any window in the rear luggage compartment **must** be protected from luggage damage with a protective screen or bars;
- v Any shelf **must** have a net covering to prevent luggage movement;
- vi The rear luggage compartment **must** be provided with a rear access door with a weather protected locking mechanism;
- vii Stairs
 - 1. The rear luggage compartment **must** be provided with hinged fold down stairs with handrails for access or an **Equivalent**;
 - 2. The stairs **must** be designed to support up to 136 kg; and
 - 3. The stairs **must** be fabricated from a lightweight material with a non-slip surface.
- viii The rear tow hooks (paragraph 3.20(c)) **must** not be installed where the rear luggage compartment is provided.

3.6 Chassis - The chassis **must** be reinforced at towing points and equipment mounting points.

3.6.1 Suspension

- (a) The vehicle **must** be provided with a (highway type) air suspensions. A front suspension that is a leaf spring suspension with air assist will be acceptable;
- (b) The suspension system **must** be provided with shock absorbers at all wheel stations;
- (c) The rear suspension system **must** be provided with an immediate response automatic height control valves; and



(d) Dump Valve

1. The rear suspension system **must** be provided with a manual control dump valve or **Equivalent**;
2. The dump valve **must** evacuate air from the suspension system;
3. The dump valve **must** be mounted in the cab; and
4. The dump valve **must** be within easy access of the driver.

3.7 Engine - The vehicle **must** be provided with a diesel engine.

3.7.1 Engine Components

(a) Air Filter

- i The engine **must** be provided with an air filter;
- ii The air filter **must** be a replaceable dry-type; and
- iii The filter **must** be provided with a filter restriction gauge.

(b) The engine **must** be provided with an engine coolant suitable for temperatures down to -40 degrees;

(c) The engine **must** be provided with an exhaust system that directs the exhaust away from the vehicle;

(d) The cooling system **must** be provided with a thermostatic fan; and

(e) The engine **must** be provided with an internal engine compression brake.

3.7.2 Fuel system

(a) The fuel system **must** have a total capacity of at least the capacity stated under "FUEL CAPACITY" in the Data Table (paragraph 1.4); and

(b) The fuel tank filler cap **must** be marked to identify the vehicle fuel.

3.7.3 Engine Cold Weather Aids

(a) The engine **must** be provided with cold weather aids to enable the engine (operating with winter grade fuels/oils) to be started at temperatures down to -40° C. The engine starting aids may include but are not limited to: glow plug(s) and intake air grid heater;

(b) The engine **must** be provided with 110-Volt engine block heaters with a capacity as recommended by the engine manufacturer or conforming to SAE J1310;

(c) The battery **must** be provided with a 110-volt battery blanket;

(d) The engine **must** be provided with a heated fuel filter/water separator to preheat diesel fuel prior to starting; and

(e) Fuel-Fired Heater

- i The vehicle **must** be provided with a fuel-fired heater;



- ii The fuel-fired heater **must** have an output of at least 11.5 kW;
- iii The fuel-fired heater **must** draw its fuel from the engine fuel reservoir;
- iv The fuel-fired heater **must** be provided with a controller that is programmable for seven (7) days or more; and
- v The exhaust from the fuel-fired coolant heater **must** be directed away from the vehicle.

3.8 Vehicle Driveline

3.8.1 Automatic Transmission

- (a) The vehicle **must** be provided with an electronically controlled fully automatic transmission;
- (b) The transmission **must** have at least five (5) forward speeds and one reverse speed;
- (c) The transmission **must** be provided with a neutral start safety switch; and
- (d) The transmission **must** be provided with an oil cooler.

3.8.2 Axles - The vehicle **must** be provided with a limited slip differential on driven axles or a traction control system.

3.9 Brake System

- (a) The vehicle **must** be provided with full air actuated service brakes and spring actuated parking brakes;
- (b) The brake system **must** be provided with a 4-channel anti-lock brake system (ABS);
- (c) The brake system **must** be provided with S-cam type air brakes with automatic slack adjusters. Air disc brakes will be acceptable;
- (d) All wheels **must** be provided with visual brake stroke indicators or **Equivalent**;
- (e) The brake system **must** be provided with an air compressor with a capacity of at least 0.367 cubic metres per minute;
- (f) The brake system **must** be provided with a wet air reservoir that is rechargeable using a quick connect fitting (glad hand);
- (g) The air reservoir **must** be provided with a pull type drain that is accessible from beside the vehicle;
- (h) The brake system **must** be provided with an automatic air dryer with a heated dump valve;
- (i) The brake system **must** be provided with dust shields on each wheel station; and
- (j) The brake system **must** be provided with emergency brake chambers on the rear axle.



3.10 **Steering**

- (a) The vehicle **must** be provided with a power assisted steering system; and
- (b) The steering system **must** be provided with a telescopic/tilt steering column.

3.11 **Wheels and Tires**

- (a) The vehicle **must** be provided with steel-belted, tubeless radial tires;
- (b) The front axle **must** be provided with highway tires;
- (c) The rear axle **must** be provided with tires with a mud and snow tread;
- (d) The tires **must** be mounted on hub pilot disc wheels;
- (e) Loose wheel nut indicators **must** be provided;
- (f) The wheel assemblies **must** have a capacity equal or greater than the load applied, at the top vehicle speed (paragraph 3.4.1(a));
- (g) The wheel assemblies **must** be assembled in accordance to the tire and rim manufacturer's specifications; and
- (h) **Spare Wheel Assembly with Storage**
 - i The vehicle **must** be provided with a spare wheel assembly identical to those on the front axle; and
 - ii A dedicated and secure storage location for the spare wheel assembly **must** be provided on the vehicle.

3.11.1 **Tire and Wheel Accessories**

- (a) **Aluminum Wheels** - The vehicle **must** be provided with polished aluminum wheels, in lieu of the standard wheels (paragraph 3.11(d)).

3.12 **Controls**

- (a) The vehicle **must** be provided with cruise control system, which includes a fast idle system;
- (b) The fast idle system **must** be provided with an on/off switch; and
- (c) The fast idle system **must** be disengaged automatically when the brakes are applied or the transmission is engaged.

3.13 **Instruments**

- (a) All dash board gauges and readouts must be in metric units; and
- (b) Gauges and readouts which show both metric and English units will be accepted.



3.14 Electrical System

- (a) The electrical system **must** be provided with an alternator with an output of at least that given as "ALTERNATOR" in the Data Table (paragraph 1.4);
- (b) The electrical system **must** be provided with maintenance-free batteries with cold cranking amperes (CCA) of at least that given as "CCA" in the Data Table (paragraph 1.4);
- (c) The electrical system **must** be provided with a master disconnect switch;
- (d) The wiring **must** be protected by insulating grommets where passing through metal;
- (e) The electrical system **must** be provided with an isolation bar to prevent trickle discharge of the batteries;
- (f) The vehicle **must** be provided with three (3) knockouts for additional switches on the dashboard;
- (g) The electrical system **must** be provided with a backup alarm to alert personnel that the vehicle is in backup mode;
- (h) The electrical system **must** be provided with an audible warning to indicate that a door is unlatched or an emergency exit is ajar;
- (i) Audible alarms **must** be disengaged when the parking brake is applied;
- (j) The vehicle **must** be provided with a 12-VDC power outlet at the driver's station; and
- (k) Slave Receptacle
 - i The vehicle **must** be provided with a slave receptacle as close as possible to the battery compartment; and
 - ii The slave receptacle **must** be **Equivalent** to Grot Part number 84-9279.

3.15 Lighting

- (a) The vehicle **must** include integral LED body lighting;
- (b) The lighting system **must** be provided with halogen headlights;
- (c) The lighting system **must** be provided with clearance lights, stoplights, left and right turn signal lights (rear and mid-body), taillights and reverse movement lights;
- (d) Stop Lights
 - i The vehicle **must** be provided with stoplight; and
 - ii The stoplight **must** be mounted at the rear centre of the bus and at least at eye level.
- (e) The vehicle **must** be provided with an engine compartment light;
- (f) The vehicle **must** be provided with fog lights;



(g) Stepwell Lighting

- i The vehicle **must** be provided with a protected stepwell light mounted in the right hand front part of the step well; and
- ii The light **must** be energized when any door is opened or the interior lights are energized.

(h) Ceiling Lights

- i The passenger area **must** be provided with centre aisle, ceiling lamps with switches located on the dashboard; and
- ii The ceiling lamps **must** be located to minimize driver glare.

(i) The vehicle **must** be provided with a reading map light switch installed on dash and within an easy reach of the driver;

(j) Passenger Reading Lights

- i The vehicle **must** be provided with individual passenger reading lights for each seat location; and
- ii Each individual passenger reading light **must** be provided with an on/off push button switch.

(k) Compartment Lights

- i The vehicle **must** be provided with lights in the under-body luggage and rear baggage compartment; and
- ii The lights **must** be activated through pin switches when the doors are opened, or by an illuminated master light switch located in the driver's compartment.

(l) External lights **must** be shock mounted and recessed or otherwise protected from damage.

3.16 Hydraulic System - NOT APPLICABLE

3.17 Lubricants and Hydraulic Fluids

- (a) The vehicle **must** operate using synthetic non-proprietary lubricants and hydraulic fluids; and
- (b) Grease fittings provided on the vehicle **must** conform to SAE J534.

3.18 Paint Colour - The vehicle **must** be painted white.

3.18.1 Corrosion Protection

- (a) An approved aftermarket rust protection system **must** be supplied. Rust protection systems that have been approved include Krown Rust Kontrol, Rust Check or an **Equivalent**; and
- (b) The warranty papers from the rust protection system provider **must** accompany each vehicle.



3.18.2 Paint Accessories

- (a) Decals - The vehicle **must** be painted and have decals provided in accordance with those shown in FIGURE 1 - DECALS.

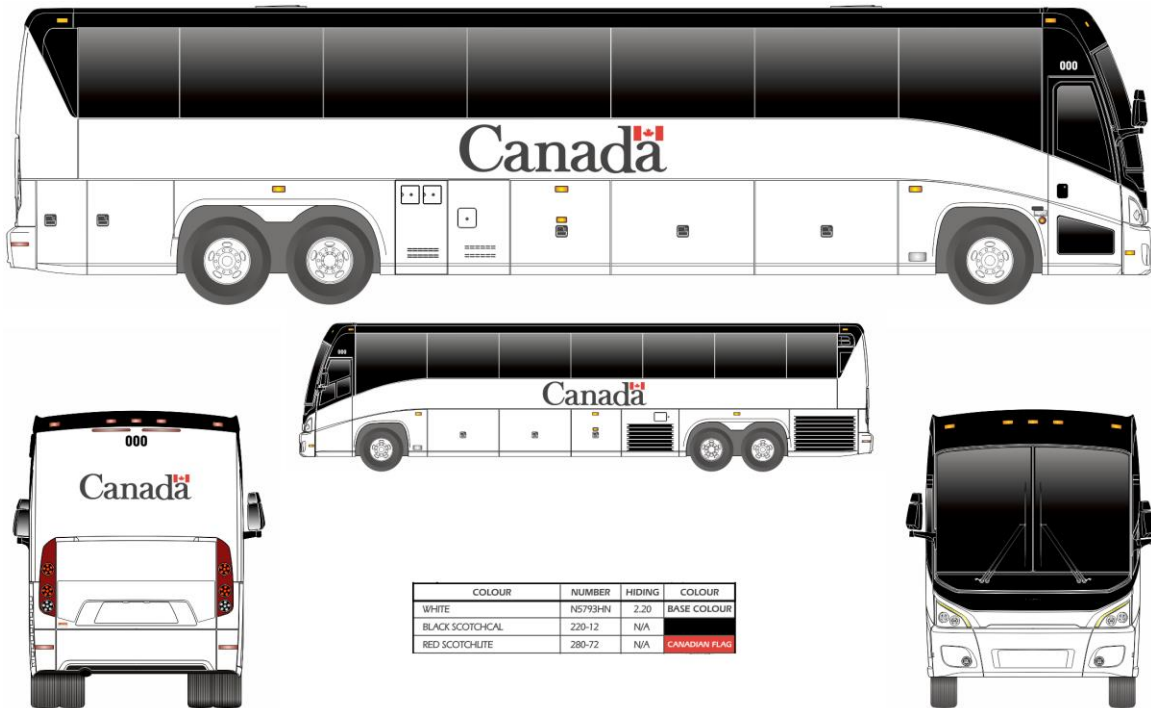


FIGURE 1 - DECALS

This figure is only a visual representation of the decals and their position.

3.19 Identification - The vehicle information (manufacturer's name, model, Vehicle Identification Number (VIN) and the GAWR and GVWR ratings) **must** be permanently marked in a conspicuous and protected location.

3.19.1 Warning and Instruction Plates

- (a) The vehicle **must** be provided with warning and operation instruction plates in accordance with SAE J115;
- (b) The plates **must** be visible to a person standing near the location; and
- (c) The plates **must** use graphic symbols, as defined in SAE J1362 or be written in the two (2) official languages (English and French).

3.20 Equipment

- (a) Wheel Changing Tools - The vehicle **must** be provided with wheel changing tools including a heavy-duty jack, capable of lifting the vehicle;
- (b) Front Tow Hooks
 - i The vehicle **must** be provided with tow hooks mounted at the front; and
 - ii Tow hooks and mountings **must** have sufficient strength to permit the recovery of the vehicle.



(c) Rear Tow Hooks

- i The vehicle **must** be provided with tow hooks mounted at the rear; and
- ii Tow hooks and mountings **must** have sufficient strength to permit the recovery of the vehicle.

(d) Mud Flaps and Rubber Splash Guards

- i The vehicle **must** be provided with front and rear mud flaps; and
- ii Rubber splash guards **must** be installed at all wheel stations.

(e) License Plate Holders

- i The vehicle **must** be provided with front and rear license plate holders; and
- ii The rear license plate **must** be illuminated.

(f) Filler Caps - The vehicle **must** be provided with permanently marked filler caps, which identify the contents using international symbols or in French and English.

(g) Emergency Equipment

- i The vehicle **must** be provided with an emergency equipment kit;
- ii The emergency equipment kit **must** be supplied with a 10 unit first aid kit;
- iii The emergency equipment kit **must** be supplied with two triangular emergency warning signs with storage containers;
- iv The emergency equipment kit **must** be supplied with 1 (one) glass breaking tool securely mounted near to the driver. A fireman's axe will be acceptable in lieu of a glass breaking tool;
- v Fire Extinguishers
 - 1. The emergency equipment kit **must** be supplied with 2 (two) dry chemical fire extinguishers with a 5BC rating;
 - 2. The fire extinguishers **must** be securely mounted;
 - 3. One fire extinguisher **must** be mounted in a location close to the driver; and
 - 4. One fire extinguisher **must** be mounted in the cargo compartment closest to the engine compartment.

3.21 Vehicle Delivery Condition

- (a) The vehicle **must** be delivered to destination in a fully operational condition (serviced and adjusted)
- (b) The vehicle **must** be completely cleaned;
- (c) For shipment verification, items such as wheel wrenches, jacks, and all other tools, equipment and accessories, which are



shipped loose, **must** be listed on the shipping certificate or to an attached packing note;

- (d) The vehicle fuel tank(s) **must** be at least half full on delivery; and
- (e) Lubricants in the vehicle at time of delivery **must** be suitable for the destination and the season of delivery.



4. **INTEGRATED LOGISTIC ITEMS**
- 4.1 **Contractor Documentation and Integrated Logistic Items**
- 4.1.1 **Not Applicable**
- 4.1.2 **Documents to Technical Authority (Designated Contact) on Contract**
- (a) **Manuals for Approval**
- i The Contractor **must** supply access to a set of manuals, in digital format including the operator, parts and maintenance (shop repair) manuals;
 - ii The set of manuals **must** include manuals for all the specified accessories and features for the Configuration. Accessory manuals may be included as supplements to the vehicle manuals;
 - iii Digital copies **must** be supplied as a searchable PDF;
 - iv On-line maintenance manuals may be supplied in lieu of the digital maintenance manuals, however, these **must** be provided without subscription fees;
 - v Digital copies **must** be functional without the requirement for a password, an auto-run installation procedure or an Internet connection;
 - vi Digital copies **must** be supplied on a CD or a DVD;
 - vii A separate CD/DVD **must** be supplied with all accessories;
 - viii The CD or DVD **must** be permanently and legibly marked with a list of contents;
 - ix Manuals will not be returned;
 - x Manual approval or comments will be supplied within 15 working days of receipt; and
 - xi The Contractor **must** supply responses to the **Technical Authority's** comments.
- (b) **Photographs and Line Drawings**
- i The Contractor **must** supply two (2) digital colour photographs, one left-front three-quarter full vehicle view, and one right-rear three-quarter full vehicle view;
 - ii One (1) digital colour photograph of each attachment taken at the three-quarter view that best illustrates the attachment **must** be supplied;
 - iii One front-view and one side-view line drawing showing dimensions of the vehicle **must** be supplied. Brochure line drawings are acceptable;
 - iv Photographs **must** have a plain background;
 - v Photographs **must** be in a JPEG (Joint Photographic Experts Group) format; and
 - vi Photographs **must** have a resolution of at least eight (8) Mega pixels.



(c) Data Summary

- i The Contractor **must** supply a bilingual data summary, with vehicle data (including accessories and features) and a vehicle picture;
- ii The **Technical Authority** will supply a bilingual template of a data summary to the Contractor;
- iii The Contractor **must** submit a digital copy (MS Word) of the completed data summary for approval;
- iv Data summary approval or comments will be supplied within 15 working days of receipt; and
- v The Contractor **must** provide responses to the Technical Authority's comments.

(d) Warranty Letter

- i The **Technical Authority** will supply a current bilingual warranty letter template to the Contractor;
- ii The Contractor **must** supply a complete description of the warranty with the requested warranty terms and any system or sub system warranty that exceeds the minimum requested;
- iii The warranty letter **must** include the name and contact information of the closest designated warranty provider and other designated warranty providers across Canada;
- iv Designated warranty providers **must** honour the warranty letter; and
- v The Contractor **must** supply a copy of the warranty letter, in PDF digital format, for each vehicle delivered, to the **Technical Authority**.

(e) Safety Data Sheets

- i The Contractor **must** supply a list, in digital format, of all hazardous materials used on the vehicle;
- ii If there are no hazardous materials are used, this **must** be stated on the list; and
- iii The Contractor **must** supply safety data sheets of all hazardous materials in the list.

(f) Rust Protection Warranty - A copy, in digital format, of the warranty from the rust protection provider **must** be supplied, to the **Technical Authority**;

(g) Training Plan(s) - The Contractor **must** supply the training plan for approval, for each of the training requirements listed in paragraph 4.2 to the **Technical Authority**; and

(h) Line Setting Ticket - The Contractor **must** supply a copy of the production line setting ticket, in digital format, with supplemental listing for each completed vehicle, to the **Technical Authority**.

4.1.3 Items Supplied with Each Vehicle

(a) Operator's Manual - The Contractor **must** supply an approved bilingual operator's manual in both paper and digital format;



- (b) Warranty Letter - The Contractor *must* supply a paper copy of the warranty letter;
- (c) Safety Data Sheets
 - i The Contractor *must* supply a set of safety data sheets; and
 - ii The safety data sheets *must* be the same as those provided to the *Technical Authority* as per paragraph 4.1.2 (e).
- (d) Rust Protection Warranty - The Contractor *must* supply a copy of the warranty letter from the rust protection provider;
- (e) Line Setting Ticket - The Contractor *must* supply a copy of the production line setting ticket with supplemental list; and

4.1.4 Additional Items

- (a) Digital Maintenance Manual - English
 - i The Contractor *must* supply the approved searchable digital maintenance (shop repair) manuals in English required for maintenance and repair of the vehicle features and accessories;
 - ii The Contractor may supply this deliverable as a bilingual package;
 - iii On-line maintenance manuals may be supplied in lieu of the digital maintenance manuals, however, these *must* be provided without subscription fees.
 - iv Paper format maintenance manuals may be supplied in lieu of the digital maintenance manuals.
- (b) Digital Parts Manual
 - i The Contractor *must* supply the approved searchable digital parts manuals required the vehicle, features and accessories on a CD/DVD-ROM;
 - ii On-line parts manuals may be supplied in lieu of the digital maintenance manuals, however, these *must* be provided without subscription fees; and
 - iii Digital copies *must* be functional without the requirement for a password, an auto-run installation procedure or an Internet connection.



4.1.5 **ILS Deliverables.** The following table indicates the ILS elements that the Contractor **must** deliver, including the medium (paper or digital), the expected means of delivery and the reference paragraph.

Deliverables	PD Ref	Delivery Location	Delivery Timing
Operator's Manuals	4.1.3(a)	With Each Vehicle	At Delivery
Warranty Letter	4.1.3(b)	With Each Vehicle	At Delivery
Safety Data Sheets	4.1.3(c)	With Each Vehicle	At Delivery
Rust Protection Warranty	4.1.3(d)	With Each Vehicle	Within 15 Days After Vehicle Delivery
Line Setting Ticket	4.1.3(e)	With Each Vehicle	At Delivery
Manuals for Approval	4.1.2(a)	To Technical Authority	30 Days Prior to Vehicle Delivery
Photographs and Line Drawings	4.1.2(b)	To Technical Authority	15 Days Prior to Vehicle Delivery
Data Summary	4.1.2(c)	To Technical Authority	15 Days Prior to Vehicle Delivery
Warranty Letter	4.1.2(d)	To Technical Authority	15 Days Prior to Vehicle Delivery
Safety Data Sheets	4.1.2(e)	To Technical Authority	15 Days Prior to Vehicle Delivery
Rust Protection Warranty	4.1.2(f)	To Technical Authority	Within 15 Days After Vehicle Delivery
Maintenance and Parts Manuals	4.1.4	To Each Destination	Within 30 Days After Vehicle Delivery
Training			
Familiarization	4.2	At Receiving Base(s)	Draft-30 days Prior to Deliver TA Approval-14 days Updated(if required)-14 days



4.2

Training

(a) Training - Familiarization - English

- i The Contractor **must** supply a familiarization course in English, at the delivery destination, optimized for operators and technicians who are qualified on the vehicle type but require training on newer or unique features and sub-systems of the delivered model;
- ii The instructor **must** be an OEM Factory Certified Training Provider;
- iii Curriculum
 - 1. The familiarization course **must** include operation and maintenance segments;
 - 2. The operation segment **must** include safety precautions to be observed while operating and servicing the vehicle, vehicle operating characteristics, pre-operating and shutdown procedures and daily/weekly operator servicing procedures;
 - 3. The operation segment **must** include sub-systems including automatic grease system and pre-heaters; and
 - 4. The operation segment **must** demonstrate all safety measures required for safe vehicle maintenance.
- iv The familiarization course **must** have a minimum duration of eight (8) hours, divided into four (4) hours for operators and four (4) hours for technicians;
- v The familiarization course **must** accommodate up to eight (8) personnel; four (4) operators and four (4) technicians;
- vi For vehicles shipped to DND, the date for the familiarization course **must** be arranged with the **Technical Authority**, or the identified user or designated contact person for vehicles shipped for users other than DND;
- vii After completion of the familiarization course, the Contractor **must** have the "PROOF OF FAMILIARIZATION" certificate signed by the senior course attendee; and
- viii The **Technical Authority** will supply the "PROOF OF FAMILIARIZATION" document template in a digital format.

(b) Training - Familiarization - French

- i The Contractor **must** supply a familiarization course in French when requested by the **Technical Authority**, at the delivery destination, optimized for operators and technicians who are qualified on the vehicle type

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- but require training on newer or unique features and sub-systems of the delivered model;
- ii The instructor **must** be an OEM Factory Certified Training Provider;
- iii **Curriculum**
1. The familiarization course **must** include operation and maintenance segments;
 2. The operation segment **must** include safety precautions to be observed while operating and servicing the vehicle, vehicle operating characteristics, pre-operating and shutdown procedures and daily/weekly operator servicing procedures;
 3. The operation segment **must** include sub-systems including automatic grease system and pre-heaters; and
 4. The operation segment **must** demonstrate all safety measures required for safe vehicle maintenance.
- iv The familiarization course **must** have a minimum duration of eight (8) hours, divided into four (4) hours for operators and four (4) hours for technicians;
- v The familiarization course **must** accommodate up to eight (8) personnel; four (4) operators and four (4) technicians;
- vi For vehicles shipped to DND, the date for the familiarization course **must** be arranged with the **Technical Authority**, or the identified user or designated contact person for vehicles shipped for users other than DND;
- vii After completion of the familiarization course, the Contractor **must** have the "PROOF OF FAMILIARIZATION" certificate signed by the senior course attendee; and
- viii The **Technical Authority** will supply the "PROOF OF FAMILIARIZATION" document template in a digital format.