



National Defence

National Defence Headquarters
Ottawa, Ontario
K1A 0K2

Défense nationale

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

**LETTER OF INTEREST
LETTRE D'INTERET**

Title - Sujet REQUEST FOR INFORMATION FOR AIRCRAFT TOW TRACTOR ELECTRICAL MOTOR DRIVEN DEMANDE D'INFORMATION POUR TRACTEUR DE REMORQUAGE D'AVION À MOTEUR ÉLECTRIQUE	
Solicitation No. N° de l'invitation W8476-236688/A	Date of Solicitation Date de l'invitation January 25th, 2023 - 25 janvier 2023
Address enquiries to: - Adresser toute demande de renseignements à : Roxanne Grenier E-Mail Address - Courriel Roxanne.Grenier@forces.gc.ca	
Destination N/A	

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 OR requested Livraison exigée OR demandée N/A	Delivery offered Livraison proposée N/A
---	---

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

Invitation Closes - Lettre d'intérêt prend fin At - à : 2:00 PM - 14:00 On - le : February 23, 2023 - 23 février 2023 Time Zone - Fuseau Horaire : Eastern Standard Time (EST) Heure normale de l'Est (HNE)

TABLE OF CONTENTS

PURPOSE AND OBJECTIVE OF THIS REQUEST FOR INFORMATION (RFI)	3
1.1 PURPOSE	3
1.2 OBJECTIVE	4
RESPONSE INSTRUCTIONS AND INFORMATION	5
1.3 NATURE AND FORMAT OF RESPONSES REQUESTED	5
1.4 RESPONSE COSTS	5
1.5 TREATMENT OF RESPONSES	5
1.6 FORMAT OF RESPONSES	6
1.7 LEGISLATION, TRADE AGREEMENTS, AND GOVERNMENT POLICIES POTENTIAL SCOPE AND CONSTRAINTS	6
1.8 IMPORTANT NOTES TO RESPONDENTS	7
ANNEX A : QUESTIONS TO INDUSTRY	8

Purpose and Objective of this Request for Information (RFI)

1.1 Purpose

- 1.1.1 The purpose of this Request for Information (RFI) is to inform and obtain feedback from industry on the upcoming procurement process for the Department of National Defence (DND) requirement to procure, six (6) Aircraft Tow Tractors Electric Motor Driven.
- 1.1.2 DND intent from this RFI is to engage industry in a consultative process by seeking responses to Canada's questions to fully understand industry's current technical capabilities for Aircraft Tow Tractor Electric Motor Driven, charging stations and cost.
- 1.1.3 DND requests that industry provides the written feedback requested in Annex A: Questions to Industry via e-mail, to the Contracting Authority.
- 1.1.4 This RFI is neither a call for tender nor a Request for Proposal (RFP). No agreement or contract will be entered into based on this RFI. The issuance of this RFI is not to be considered in any way a commitment by the Government of Canada, nor as authority to potential respondents to undertake any work that could be charged to Canada. This RFI is not to be considered as a commitment to issue a subsequent solicitation or award contract(s) for the work described herein. Although the information collected may be provided as commercial-in-confidence (and, if identified as such, will be treated accordingly by Canada), Canada may use the information to assist in drafting performance specifications (which are subject to change) and for budgetary purposes.

Respondents are encouraged to identify, in the information they share with Canada, any information that they feel is proprietary, third party or personal information. Please note that Canada may be obligated by law (e.g. in response to a request under the Access of Information and Privacy Act) to disclose proprietary or commercially-sensitive information concerning a respondent (for more information: <http://laws-lois.justice.gc.ca/eng/acts/a-1/>).

Respondents are asked to identify if their response, or any part of their response, is subject to the Controlled Goods Regulations.

Participation in this RFI is encouraged, but is not mandatory. There will be no short-listing of potential suppliers for the purposes of undertaking any future work as a result of this RFI. Similarly, participation in this RFI is not a condition or prerequisite for the participation in any potential subsequent solicitation.

Respondents will not be reimbursed for any cost incurred by participating in this RFI.

The RFI closing date published herein is not the deadline for comments or input. Comments and input will be accepted any time up to the time when/if a follow-on solicitation is published.

1.1.5 Potential suppliers of any goods or services described in this RFI should not reserve stock or facilities, nor allocate resources, as a result of any information contained in this RFI. Nor will this RFI result in the creation of any source list. Therefore, whether or not any potential supplier responds to this RFI will not preclude that supplier from participating in any future procurement.

1.1.6 The procurement of any of the goods and services described in this RFI will not necessarily follow this RFI. This RFI is simply intended to solicit feedback from industry with respect to the matters described in this RFI.

1.2 Objective

The objectives of this consultative process with industry are to:

- 1.2.1 Obtain industry feedback on any issues that could potentially impact Industry's ability to respond to any potential solicitation or to potentially deliver on Canada's resulting requirements including considerations such as Intellectual Property (IP) rights, warranty, supply chain, training, etc.;
- 1.2.2 Obtain current market availability and industry's interest, including feedback on any issues that could impact their ability to bid on a resulting solicitation;
- 1.2.3 Gather industry knowledge, expertise and recommendations with regard to best practices that would increase the success of the solicitation and/or identify any risks that would impact the solicitation;
- 1.2.4 Enhance competition, access and fairness of the resulting solicitation;
- 1.2.5 Request Industry to provide information on the current range of Aircraft Tow Tractor Electric Motor Driven technologies, design considerations, and commercial off-the-shelf products;
- 1.2.6 Mandatory Requirements

Response Instructions and Information

1.3 Nature and Format of Responses Requested

- 1.3.1 Respondents are requested to provide their comments, concerns and, where applicable, alternative recommendations regarding how the requirements or objectives described in this RFI could be satisfied. Respondents are also invited to provide comments regarding the content, format and/or organization of any draft documents included in this RFI. Respondents should explain any assumptions they make in their responses.
- 1.3.2 Canada requests that respondents submit their response in unprotected (i.e., no password) PDF format.

1.4 Response Costs

- 1.4.1 Canada will not reimburse any respondent for expenses incurred in responding to this RFI.

1.5 Treatment of Responses

- 1.5.1 Use of Responses: Responses will not be formally evaluated. However, the responses received may be used by Canada to develop or modify procurement strategies. Canada will review all responses received by the RFI closing date. Canada may, in its discretion, review responses received after the RFI closing date.
- 1.5.2 Review Team: A review team composed of DND representatives will review the responses. Canada reserves the right to hire any independent consultant, or use any Government resources that it considers necessary to review any response. Information will be protected by having any people from outside the Canadian Government enlisted to help with this review effort sign non-disclosure agreements. Not all members of the review team will necessarily review all responses.
- 1.5.3 Confidentiality: Respondents should mark any portions of their response that they consider proprietary or confidential. Canada will handle the responses in accordance with the Access to Information Act.
- 1.5.4 Follow-up Activity: Canada may, in its discretion, contact any respondents to follow up with additional questions or for clarification of any aspect of a response.

1.6 Format of Responses

- 1.6.1 Cover Page: If the response includes multiple volumes, respondents are requested to indicate on the front cover page of each volume the title of the response, the solicitation number, the volume number and the full legal name of the respondent.
- 1.6.2 Title Page: The first page of each volume of the response, after the cover page, should be the title page, which should contain:
- 1) the title of the respondent's response and the volume number;
 - 2) the name and address of the respondent;
 - 3) the name, address and telephone number of the respondent's contact;
 - 4) the date; and
 - 5) the RFI number.
- 1.6.3 Numbering System: Respondents are requested to prepare their response using a numbering system corresponding to the one in this RFI. All references to descriptive material, technical manuals and brochures included as part of the response should be referenced accordingly.

1.7 Legislation, Trade Agreements, and Government Policies Potential Scope and Constraints

- 1.7.1 There is no security requirement associated with this Request for Information, however, security requirements may be associated with any resulting procurement processes. Security requirements to access work sites may be required. Additional information on the security requirements will be communicated as part of any upcoming competitive procurement processes.
- 1.7.2 For information on personnel and organization security screening or security clauses, please refer to the Canadian Industrial Security Directorate, Industrial and Security Program of Public Services and Procurement Canada website. [Security requirements for contracting with the Government of Canada – Canada.ca \(tpsgc-pwgsc.gc.ca\)website.](https://www.tpsgc-pwgsc.gc.ca/contracting-with-the-Government-of-Canada-Canada.ca)
- 1.7.3 The following is indicative of some of the legislation, trade agreements and government policies that could impact any follow-on solicitation(s):
- a) Canadian Free Trade Agreement (CFTA)
 - b) World Trade Organization – Agreements on Government Procurement (WTO-AGP)
 - c) Defence Production Act
 - d) Federal Contractors Program for Employment Equity (FCP-EE)
- 1.7.4 Any additional information on the potential scope and constraints will be communicated on <https://buyandsell.gc.ca/> as part of any competitive process.

1.8 Important Notes to Respondents

Interested Respondents may submit their responses to the DND Contracting Authority (CA), identified below, preferably via email:

Name: Roxanne Grenier
Title: Materiel Acquisition and Support Specialist
Position: DLP 5-3-1
E-mail: Roxanne.Grenier@forces.gc.ca

A point of contact for the Respondent should be included in the package.

Changes to this RFI may occur and will be advertised on the Government Electronic Tendering System. Canada asks Respondents to visit Buyandsell.gc.ca regularly to check for changes, if any.

Annex A : Questions to Industry

A. REQUIREMENT SUMMARY

Provide a high level summary of the requirement.

This Purchase Description describes the requirements for a minimum 133.4 kN (30,000 lbf) drawbar pull, Aircraft Tow Tractor Electric Motor Driven.

DND has always bought diesel tow tractor. However, DND is now exploring green alternatives for the fleet by acquiring six Aircraft Tow Tractors Electric Motor Driven.

VEHICLE – This information is used as a reference to improve the description of the procurement as well as to assist procurement staff in drafting the RFP and Contract.		
1.	Can the proposed electrical vehicle operate under the extreme of weather conditions found in Canada in temperatures ranging from -40 to 37° C (-40 to 99° F)?	
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "No" specify the minimal and maximal temperature the vehicle can operate.
2.	If you answered NO to Question 1 - Are there any external cold operating aids available to allow the electrical vehicle to operate at -40 degrees?	
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "No" explain why
3.	Do the proposed electrical vehicle's batteries have energy storage capacity sufficient to provide 6 hours of operation in extreme weather conditions without requiring a recharge?	
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "No" specify the maximum hour of operation without requiring a recharge.
4.	Are you able to provide maintenance manuals in both English and French for the complete electrical vehicle including chassis and sub-system?	
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "No" explain what document you are not able to provide in French.
5.	What is the proposed delivery schedule and lead time for the acquisition of six aircraft tow tractor electrical motor driven meeting the RFI requirements?	
	Yes <input type="checkbox"/> No <input type="checkbox"/>	Please provide calendar and details on possible deliveries.

CHARGING STATION - This information is used as a reference to improve the description of the procurement as well as to assist procurement staff in drafting the RFP and Contract.			
1.	Is it possible to provide a turnkey solution? Hence you provide both the vehicle and external charging station?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "No" explain why it is not possible.	
2.			
	Is the charging station commercially available?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "No" explain why it is not commercially available. Is it because the charging station is proprietary of the vehicle manufacturer?	
3.			
	Are any building modifications necessary before installation of the charging station?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	
4.			
	What is the charging station power requirement?		
		Please provide information on power requirement	
5.			
	What is the footprint required for the installation of the charging station?		
		Please provide information on footprint requirement	
6.			
	What power is required for the external charging station?		
		Please provide information on power requirement	
7.			
	Is there any information about DND infrastructure that is missing in the Purchase Description document to allow the company to bid the proper charging station?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	

8.	Is the charging station specific to your vehicles or can it be used to charge other vehicles?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	
9.	Are you able to install the charging station in a DND building?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	
10.	Are you able to provide in service support for the charging station?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	
11.	Does the charging station have network capability or not?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	
12.	For software updates - Is there a requirement for the equipment to be link to the internet or update can be completed manual through CD/USB?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	
13.	Is there a 24/7 customer support hotline?		
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	

<u>CONTRACTING</u>			
1.	What is the proposed delivery schedule and lead times for the procurement of qty 6 Aircraft Tow Tractors Electric Motor Driven meeting the requirements in the PD?		
		Provide potential delivery schedule and lead times	
2. Is there a yearly fee for in service support of the charging station?			
	Yes <input type="checkbox"/> No <input type="checkbox"/>	If "Yes" specify	
3. What is the warranty of the charging station?			
		Please provide information on warranty	
4. Charging station - Delivery lead time?			
		Provide potential delivery schedule and lead times	



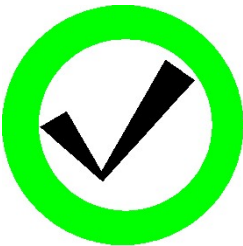
PURCHASE DESCRIPTION

FOR

Aircraft Tow Tractor Electric Motor Driven

ECC 168122

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.

(Page intentionally left blank)



Table of Contents

1.0	SCOPE	6
1.1	Scope	6
1.2	Instructions	6
1.3	Definitions	6
2.0	APPLICABLE DOCUMENTS	6
2.1	Applicable Documents	6
3.0	REQUIREMENTS	7
3.1	Standard Design	7
3.2	Operating Conditions	7
3.2.1	Weather	7
3.2.2	Terrain	7
3.3	Safety Standards	8
3.3.1	Human Factors Engineering	8
3.4	Vehicle Performance	8
3.5	Frame	8
3.6	Engine	8
3.6.2	Cold Weather Starting Aid	8
3.7	Drivetrain	8
3.8	Transmission	8
3.9	Braking System	9
3.10	Steering	9
3.11	Wheels, Rims and Tires	9
3.12	Cab	9
3.13	Equipment Requirements	10
3.14	Electrical System	10
3.15	Lighting	10
3.16	Controls	10
3.17	Instruments	11
3.18	Paint	11
3.19	Retroreflective Tape	11
3.20	Warning, Markings and Instruction Plates	11
3.20.1	Vehicle identification	11
4.0	INTEGRATED LOGISTIC SUPPORT	11
4.1	ILS Deliverables	11



4.2	Vehicle Manuals	13
4.2.1	Operator's Manuals	13
4.2.2	Parts Manual(s)	13
4.2.3	Maintenance Manuals	13
4.2.4	Manual Delivery to Technical Authority	14
4.2.5	Manual Delivery with Vehicle	14
4.2.6	Electronic Format	14
4.2.7	Provisional Manuals	14
4.2.8	Manual Supplements	14
4.2.9	Changes to Manuals	15
4.3	Warranty Letter	15
4.3.1	Warranty Letter Delivery	15
4.4	Other ILS Deliverables to Technical Authority	15
4.4.1	Data Summary	15
4.4.2	Photographs	15
4.4.3	Dimensioned Drawing	15
4.4.4	Special Tools List	16
4.4.5	Preventive Maintenance Replacement Parts Kit List (PMRPKL)	16
4.4.6	Recommended Spare Parts List (RSPL)	16
4.5	Safety Recalls and Servicing Data	17
4.6	Initial Parts Kit	17
4.7	Training	17
4.7.1	Maintenance Training	17
4.7.2	Maintenance Training Curriculum	17
4.7.3	Operator Training	18
4.7.4	Operator Training Curriculum	18
4.7.5	Training Materials	18



(Page intentionally left blank)

1.0 **SCOPE**

1.1 **Scope**

- a) This Purchase Description describes the requirements for a minimum 133.4 kN (30,000 lbf) drawbar pull, aircraft tow tractor electric motor driven.

1.2 **Instructions**

- 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) In this document “provided” **must** mean “provided and installed”.
- e) Where a technical certification is referred to in this specification, a copy of the certification or an acceptable Proof of Compliance **must** be supplied for the vehicle when requested by the Technical Authority.
- f) Metric measurements are used to define the requirement. Other measurements are for reference only and may not be exact conversions.
- g) Nominal dimensions reflect a method by which materials or products are generally identified, but which differ from the actual measured dimensions.

1.3 **Definitions**

- a) “**Equivalent**” - Substitutes and alternatives that are equivalent in product, performance or a standard will be considered for acceptance by the Technical Authority where Proof of Compliance for equivalency for the respective requirement is provided for evaluation.
- b) “**Vehicle**” – The entire vehicle including all systems and sub-systems, in a complete manufactured state in accordance with the requirements in this Purchase Description.

2.0 **APPLICABLE DOCUMENTS**

2.1 **Applicable Documents**

- a) The following documents form part of this Purchase Description. Canada will not be supplying these documents. Sources are as shown:

Yearbook - Tire and Rim Association Inc.

SAE AIR 1363A – Four Wheel Drive Aircraft Tow Tractors – Factors for Design Consideration

SAE AIR 1854A – Battery Powered Aircraft Tow Tractors – Factors for Design Consideration

ISO 6966-1 – Aircraft Ground Equipment – General Design Requirements

ISO 6966-2 – Aircraft Ground Equipment – Safety Requirements

IATA AHM 907 – Basic Requirements for Electrically Powered GSE (e-GSE)

IATA AHM 916 – Basic Requirements for Towing Vehicle Interface (HITCH)

Transport Canada Advisory Circulars 300 Series – Aerodromes and Airports (for additional information and guidance only)

3.0 **REQUIREMENTS**

3.1 **Standard Design**

- a) **Latest Model** - The vehicle design **must** be the manufacturer's latest model.
- b) **Industry Acceptability** - The vehicle design **must** have demonstrated industry acceptability by having been manufactured and sold commercially for at least 2 year, or be manufactured by a company that has at least 5 years' experience in design and manufacturing of a comparable type of equipment of equivalent or greater complexity.
- c) **Engineering Certification** - Original manufacturers engineering certification **must** be provided upon request for major drive train components, and major equipment systems and assemblies, to demonstrate that assemblies are used within their design limitations.
- d) **Regulations** – The vehicle **must** conform to all applicable laws, regulations and industrial standards governing manufacture, safety, noise levels and pollution in effect in Canada at the time of manufacture. International equivalent laws, regulations, and industrial standards will be accepted only if certified for equivalency by a professional engineer.
- e) **Measurements** – Values for labels and indicators provided with equipment must be presented in metric units, or must have both imperial and metric units with metric dominant.
- f) **Foreign Object Debris (FOD)** - To prevent FOD, all loose metal parts **must** be securely attached to the vehicle with wire lanyards. If removable panels are provided they **must** be attached with captive fasteners.

3.2 **Operating Conditions**

3.2.1 **Weather**

- a) The vehicle **must** operate under the extremes of weather conditions found in Canada in temperatures ranging from -40 to 37° C (-40 to 99° F).

3.2.2 **Terrain**

- a) The vehicle **must** operate on concrete and asphalt surfaces that include year round operations on rain, snow, hard packed snow and ice with up to 2.0% (percent) slope in all weather conditions.

3.3 Safety Standards

3.3.1 Human Factors Engineering

- a) The vehicle **must** be equipped, with warning and instruction plates, non-slip walking surfaces and heat shields, for operator safety.

3.4 Vehicle Performance

- a) The vehicle **must** have a minimum drawbar pull of 133.4 kN (30,000 lbf) on dry level concrete.

3.5 Frame

- a) The chassis **must** not be an articulated design.

3.6 Engine

- a) The vehicle **must** be electric motor driven.
- b) The vehicle **must** be equipped with maintenance free batteries.
- c) The batteries **must** have a minimum energy storage capacity sufficient to provide 6 hours of operation without requiring a recharge.
- d) The vehicle **must** be provided with an external charging station.
- e) The vehicle **must** be equipped with a state of charge indicator.

3.6.2 Cold Weather Starting Aid

- a) If required to meet para 3.2.1 a) a battery heating system **must** be provided.

3.7 Drivetrain

- a) The vehicle **must** be all-wheel drive.
- b) The drivetrain **must** include a "Park" or "Neutral" starting interlock.

3.8 Transmission

- a) The transmission shift control **must** clearly indicate the position of the shift column under all lighting conditions.
- b) An audible back-up alarm **must** be installed to alert personnel that the vehicle transmission is in reverse.

3.9 Braking System

- a) The vehicle **must** be equipped with a power assisted braking system, including a parking brake.

3.10 Steering

- a) The vehicle **must** be provided with a power steering system.
- b) The steering system **must** be provided with a telescopic and tilting steering column.
- c) The steering system **must** include three steering modes, front wheel, coordinated four wheel, and crab steer.

3.11 Wheels, Rims and Tires

- a) All tires **must** be the same size, ply ratings, make and model.
- b) One full size spare tire assembly **must** be delivered with each vehicle.

3.12 Cab

- a) The vehicle **must** be equipped with a three-person weatherproof cab.
- b) An adjustable driver's seat **must** be provided, with suspension and arm rests.
- c) Each seat **must** be provided with retractable seat belt.
- d) A minimum of two (2) doors **must** be provided.
- e) A ventilation and heater and defrosting system, with a multi-speed fan, **must** be provided.
- f) An air conditioning system **must** be provided equipped with all components and controls required for regulation of the cab interior temperature.
- g) A powered windshield washer system **must** be provided with multi-speed wipers, where the wiper blades **do not** travel from a vertical center windshield position to a horizontal position near the roof line.
- h) The cab floor or floor mats **must** be weatherproof.
- i) Two interior sun visors **must** be installed.
- j) A back-up color camera system with a minimum screen size of 6 inches **must** be installed in the cab.
- k) An AM/FM stereo radio with an auxiliary port **must** be provided.
- l) Two heavy-duty heated exterior side mirrors, with convex section, **must** be provided.

- m) The cab **must** be equipped with a 2.3 kg (5 lb) ULC approved and rechargeable dry chemical fire extinguisher, with a minimum rating of 3A10BC, equipped with a pressure gauge, service inspection tag, and accessible to the operator.

3.13 Equipment Requirements

- a) Two multi-level hitches, one in the front and one in the rear of the vehicle **must** be provided.
- b) The hitches **must** have a drawbar pull of a minimum rating of 133.4 kN (30,000 lbf).
- c) Mirrors **must** be provided for the front and rear hitch.
- d) Front licence plate holder **must** be provided.
- e) Rear licence plate holder with LED light **must** be provided.
- f) Wheel chocks with onboard storage **must** be provided.

3.14 Electrical System

- a) Wiring **must** be protected by insulating grommets, where passing through metal.
- b) A master switch, which cuts off any flow of electricity from the batteries to protect the entire electrical system of the vehicle except for components requiring retained power, **must** be provided.

3.15 Lighting

- a) The vehicle **must** be equipped with LED lights.
- b) Lights **must** be recessed or otherwise protected from damage with all components accessible for servicing.
- c) One amber coloured beacon light **must** be provided on the highest point of the vehicle.
- d) In-cab instrument panel lights **must** be dimmable.
- e) Spot lights **must** be provided to illuminate the front and rear hitch.
- f) Separate control switches for the spot lights **must** be provided.

3.16 Controls

- a) Each control **must** be permanently marked to identify the function, in both English and French or international symbols as defined by SAE J1362.
- b) Vehicle controls **must** be grouped together in the cab.
- c) Controls **must** not restrict the operator's field of view.

- d) Control panel lights **must** be provided for adequate lighting for nighttime operations.

3.17 Instruments

- a) Instruments **must** be metric and visible to the seated operator in all lighting conditions.
- b) An hour-meter with numeric display, which accurately records accumulated engine running time up to at least 9,999 hours **must** be provided.

3.18 Paint

- a) All metal surfaces **must** be protected.
- b) The prime coating **must** be a high durability, corrosion resistant type, such as an epoxy.
- c) The colour **must** be SAE AMS-STD-595A DOT Highway Yellow chip number 13507 or **equivalent**.

3.19 Retroreflective Tape

- a) Retroreflective tape **must** be placed on the vehicle to increase visibility on the airfield.

3.20 Warning, Markings and Instruction Plates

- a) All identification, instructional, and warning labels **must** be bilingual or International symbols defined in SAE J1362.
- b) All identification, instructional, and warning labels **must** within view of the operator.
- c) All indicators and controls **must** be permanently labelled.

3.20.1 Vehicle identification

- a) The vehicle identification information **must** be permanently affixed in a conspicuous and protected location.
- b) Identification information **must** include the equipment manufacturer's model and serial number.
- c) Identification information **must** include the GVWR and GAWR ratings.

4.0 INTEGRATED LOGISTIC SUPPORT

4.1 ILS Deliverables

- a) 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.

Element	Format/ Medium	Delivered to TA by E- mail for approval	Delivered to TA by mail/courier for approval	Supplied with each vehicle/ equipment	Remarks	Reference Paragraph
Set of Manuals	Digital	-	X	X	PDF	Erreur ! Source du renvoi introuvabl e.
	Paper	-	-	X	-	
Warranty Letter	Digital	X	-	X	-	Erreur ! Source du renvoi introuvabl e.
Data Summary	Digital	X	-	-	-	Erreur ! Source du renvoi introuvabl e.
Photographs	Digital	X	-	-	JPEG	Erreur ! Source du renvoi introuvabl e.
Dimensioned Drawing	Digital	X	-	X	-	Erreur ! Source du renvoi introuvabl e.
Special Tool List	Digital	X	-	-	PDF	Erreur ! Source du renvoi introuvabl e.
Preventive Maintenance Replacement Parts Kit List (PMRPKL)	Digital	X	-	-	PDF	Erreur ! Source du renvoi introuvabl e.
Recommended Spare parts List (RSPL)	Digital	X	-	-	PDF	Erreur ! Source du renvoi introuvabl e.

Initial Parts Kit List	Digital	X	-	-	PDF	Erreur ! Source du renvoi introuvable.
Warranty Letter	Digital	X	-	-	PDF	x.x.x
	Paper	-	-	X	-	
Initial Parts Kit	-	-	-	X	1 kit	x.x.x

4.2 Vehicle Manuals

- a) All manuals required for the description, operation, maintenance and repair of the complete equipment, including chassis and sub-systems, **must** be provided.

4.2.1 Operator's Manuals

- a) The operator's manuals **must** be in both English and French.
- b) The operator's manuals **must** include instructions for the safe operation of the vehicle.
- c) The operator's manuals **must** include daily operator maintenance instructions/checks (including lubrication).
- d) The operator's manuals **must** include safety warnings.

4.2.2 Parts Manual(s)

- a) The parts manual(s) **must** be in English
- b) The parts manual **must** have illustrations showing all components of the vehicle including equipment and accessories from other manufacturers that are supplied to meet the requirements of the contract, with numbers for the itemization of the parts.
- c) The parts manual **must** have a listing for all itemized parts showing the Original Equipment Manufacturers (OEM) part number, the part name and a brief description of the item.
- d) The parts manual **must** cross reference the OEM part number to the correct illustration and item number.
- e) The parts manual **must** have a representation of bilingual warning signs and identification labels delivered on the equipment.

4.2.3 Maintenance Manuals

- a) The maintenance manual **must** be in both English and French.

- b) The maintenance manual **must** include a troubleshooting guide, showing the steps and tests required to determine the exact cause of a problem and an explanation of the steps required to correct a problem.
- c) The maintenance manual **must** include a listing of the necessary tolerances, torque levels, fluid volume, and special tools (including item part numbers).
- d) The maintenance manual **must** include information on the order of disassembly and assembly of the systems and components of the vehicle.
- e) The maintenance manual **must** include special tools list as per 4.4.4.

4.2.4 Manual Delivery to Technical Authority

- a) Sample manuals **must** be submitted to the Technical Authority (TA) prior to the delivery of the vehicle for each model and or sub-system for approval. Sample manuals will not be returned. TA will provide approval or comments on the manuals within 30 days.
- b) The contractor **must** provide response to the TA comments.
- c) One (1) complete set of approved manuals (Operator's, Maintenance, and Parts) in electronic format **must** be delivered to the Technical Authority.

4.2.5 Manual Delivery with Vehicle

- a) One (1) complete set of manuals (Operator's, Maintenance, and Parts) **must** accompany each vehicle, shipped to each location.
- b) The manuals **must** be in paper and electronic format.

4.2.6 Electronic Format

- a) Electronic format **must not** require installation, password and/or Internet connection to be accessed and be an unlocked PDF in a searchable format.

4.2.7 Provisional Manuals

- a) In the event that approved manuals are not available at the time of delivery of the equipment, manuals marked "Provisional" **must** be supplied with the equipment.
- b) The contractor **must** deliver replacement approved manuals to all destinations where Provisional manuals were delivered.

4.2.8 Manual Supplements

- a) The contractor **must** supply manual supplements (Operator's, Maintenance and Parts) to support dealer-installed equipment not covered in the Vehicle Manuals.
- b) Manual supplements **must** be delivered in accordance with 4.2.4 and 4.2.5.

4.2.9 Changes to Manuals

- a) During the period of the contract, changes to equipment, which affect the contents of manuals, **must** be reflected in the revision of the electronic and paper version of the manuals.
- b) Changes to the manuals **must** conform to the same format and presentation requirements as the original manuals.
- c) The revised electronic version of the manual **must** be sent to the Technical Authority by the Contractor.

4.3 Warranty Letter

- a) The warranty letter **must** include a list of all Canadian designated warranty service providers that will honour the warranty for the equipment and attachments (if applicable) procured under this contract, including the contact person and phone number at each warranty service provider.
- b) The warranty letter **must** include additional warranty coverage of sub-systems and a copy of the warranty letter from each sub-system's Original Equipment Manufacturer (OEM).
- c) The warranty letter **must** include warranty period as negotiated in the contract.
- d) The warranty letter **must** include Contractor contact information, name and phone number, for warranty support.

4.3.1 Warranty Letter Delivery

- a) The Contractor **must** provide a bilingual warranty letter to the Technical Authority and with each vehicle. If the Technical Authority requires the letter to be in DND format, then they will provide the Contractor a template for the DND acceptable format of the warranty letter.

4.4 Other ILS Deliverables to Technical Authority

4.4.1 Data Summary

- a) The Contractor **must** provide a bilingual Data Summary for each make/model/configuration of vehicle by completing Technical Authority's template with data and a vehicle picture.

4.4.2 Photographs

- a) The Contractor **must** provide photographs in colour, taken against a plain background, and in digital JPEG format with a minimum 10 megapixel resolution.
- b) One left front three-quarter view of a completed unit **must** be provided.
- c) One right rear three-quarter view of a completed unit **must** be provided.

4.4.3 Dimensioned Drawing

- a) One side and front view sketch showing the dimensions **must** be provided.

4.4.4 Special Tools List

- a) The Contractor **must** provide an itemized list of specific special tools required for the servicing and repair of the vehicle and include:
- i. Item name;
 - ii. Contractor's part number;
 - iii. Manufacturer's part number (OEM);
 - iv. Quantity recommended per delivery location;
 - v. Unit price; and
 - vi. Unit of issue.

4.4.5 Preventive Maintenance Replacement Parts Kit List (PMRPKL)

- a) The contractor **must** provide a list detailing the parts that are required to perform preventive maintenance to the system for a period of 12 months, and include:
- i. Item name;
 - ii. Contractor's part number;
 - iii. Manufacturer's part number (OEM);
 - iv. Manufacturer's NATO Supply code (NCAGE) or name and address;
 - v. NSN (NATO Stock Number) (if known);
 - vi. Quantity per equipment;
 - vii. Quantity recommended;
 - viii. Unit price; and
 - ix. Unit of issue.

4.4.6 Recommended Spare Parts List (RSPL)

- a) The Contractor **must** provide a list detailing the spare parts deemed necessary to maintain the vehicle for a period of 12 months exclusive of any warranty period, and include:
- i. Item name;
 - ii. Contractor's part number;
 - iii. Manufacturer's part number (OEM);

- iv. Manufacturer's NATO Supply code (NCAGE) or name and address;
- v. NSN (NATO Stock Number) (if known);
- vi. Quantity per equipment;
- vii. Quantity recommended;
- viii. Unit price; and
- ix. Unit of issue.

4.5 Safety Recalls and Servicing Data

- a) Safety recalls, and manufacturer's technical service bulletins, or equivalent **must** be provided to the technical authority and the final delivery locations on a continuing basis, throughout the life expectancy of the vehicle or for no less than 10 years.

4.6 Initial Parts Kit

- a) One initial parts kit **must** be delivered with each vehicle.
- b) Each kit **must** include a complete set of filters and filter elements from the Original Equipment Manufacturer (OEM) required in the first 12 months of service.
- c) One kit per location **must** include the special tools listed in Paragraph 4.4.4.

4.7 Training

4.7.1 Maintenance Training

- a) The Contractor **must** provide a maintenance training course.
- b) The course **must** have a minimum duration of one (1) day to provide training of up to eight (8) maintenance personnel and have the final dates arranged with the Technical Authority.
- c) The course **must** have a syllabus or course outline and schedule available for review seven (7) days prior to the course commencement date.
- d) After completion of the course, the Contractor **must** have a "PROOF OF MAINTENANCE TRAINING" certificate signed by a Canada Representative for the destination. The Technical Authority will supply this document in an electronic format.

4.7.2 Maintenance Training Curriculum

- a) Operator's training detailed in Paragraph 4.7.4 below **must** be included in the curriculum.
- b) Operation and maintenance safety precautions **must** be included in the curriculum.
- c) Preventive maintenance including servicing schedules **must** be included in the curriculum.

- d) Trouble shooting, testing, and adjustments **must** be included in the curriculum.
- e) Special tools and test equipment **must** be included in the curriculum.

4.7.3 Operator Training

- a) The Contractor **must** provide an operator training course.
- b) The course **must** be given at the delivery destination and be available in both official languages.
- c) The course **must** have minimum duration of one (1) day to provide training for up to eight (8) operators and have the final dates arranged with the Technical Authority.
- d) The course **must** have a syllabus or course outline and schedule available for review seven (7) days prior to the course commencement date.
- e) After completion of the course the Contractor **must** have a “*PROOF OF OPERATOR TRAINING*” certificate signed by a Crown Representative for the destination. The Technical Authority will supply this document in an electronic format.

4.7.4 Operator Training Curriculum

- a) Safety precautions to be observed while operating and servicing the vehicle **must** be included in the curriculum.
- b) Vehicle operating characteristics **must** be included in the curriculum.
- c) Vehicle operating procedures **must** be included in the curriculum.
- d) Pre-operating and pre-shutdown procedures **must** be included in the curriculum.
- e) Daily/weekly operator servicing procedures **must** be included in the curriculum.

4.7.5 Training Materials

- a) Training materials **must** be provided to each attendee, in French for locations in Quebec.
- b) Training materials **must** include a list of topics to be covered.
- c) Training materials **must** include an approximate timetable showing when topics are scheduled to be covered and how much time is scheduled for each topic.
- d) Training materials **must** list any reference material.
- e) Training materials **must** make available any reference material used.