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	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.

**PURCHASE DESCRIPTION
FOR
LOADER, SKID STEER**

1. SCOPE

1.1 **Scope** - This purchase description covers the requirements for multiple configurations of a tracked type compact loader.

1.2 **Instructions** - The following instructions apply to this Purchase Description:

- (a) Requirements, which are identified by the word "**shall**", are mandatory. Deviations will not be permitted;
- (b) Requirements identified by "**shall**^(E)" are mandatory. The Technical Authority will consider substitutes/alternatives for acceptance as an Equivalent;
- (c) Requirements identified with a "will" define actions to be performed by Canada and require no action/obligation on the Contractor's part;
- (d) Where "**shall**", "**shall**^(E)", or "will" are not used, the information provided is for guidance only;
- (e) In this document "provided" **shall** mean "provided and installed";
- (f) Where technical certification is required, a copy of the certification or an acceptable proof of compliance **shall** be provided upon request;
- (g) Metric measurements **shall** be used to define the requirement. Other measurements are for reference only and may not be exact conversions; and
- (h) Dimensions stated as nominal **shall** be treated as approximate dimensions. Nominal dimensions reflect a method by which materials or products are generally identified for sale commercially, but which differ from the actual dimensions.

1.3 **Definitions** - The following definitions apply to the interpretation of this Purchase Description:

- (a) "Technical Authority" - The government official responsible for technical content of this requirement; and

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- (b) "Equivalent" - A standard, means, or component type, which has been accepted by the Technical Authority as meeting the specified requirements for form, fit, function and performance.

1.4 **Configuration Capability Table** - Vehicles covered by this Purchase Description are represented as configurations. The following table shows required performance and dimensions by configuration with clause reference.

CHARACTERISTIC	CLAUSE	UNITS	Configuration E (1-3)
RATED OPERATING CAPACITY	3.4.1 (a)	kg	850
DUMP HEIGHT	3.4.1 (c)	mm	2,300
DUMP REACH	3.4.1 (d)	mm	505

1.4.1 **Attachment Capability Table** - The following table shows required performance and capacity information by attachment with a clause reference.

ATTACHMENT TYPE	CHARACTERISTIC	CLAUSE	UNITS	QUANTITY
GENERAL PURPOSE BUCKET	BUCKET CAPACITY	3.5.1 (a)	m ³	0.42
FORKLIFT	CAPACITY	3.5.2 (a)	kg	2,200
ANGLE SWEEPER	SWATH	3.5.2 (d)	mm	2,000
POST DRIVER	ENERGY	3.5.2 (e)	J	1,800
LIGHT MATERIAL BUCKET	BUCKET CAPACITY	3.5.2 (f)	m ³	0.70
BACKHOE	DIG DEPTH	3.5.2 (g)	mm	3,000
	REACH		mm	1,500
	DUMP		mm	2,400
	BUCKET FORCE		kN	19.6
	BOOM FORCE		kN	14.7
	BUCKET WIDTH		mm	400
HYDRAULIC BREAKER	BREAKER ENERGY	3.5.2 (h)	J	800
COLD PLANER	CUTTING WIDTH	3.5.2 (i)	mm	400
EARTH AUGER	DIAMETRE	3.5.2 (j)	mm	450
	LENGTH		mm	1,450
SNOW BLOWER	SWATH	3.5.2 (k)	mm	2,100

1.4.2 **Attachment and Option Applicability Table** - The following table indicates with "✓" for each configuration, the attachments or options which *shall* be provided.

DESCRIPTION OF OPTION	CLAUSE	CONFIGURATION E		
		1	2	3
GENERAL PURPOSE BUCKET	3.5.1 (a)	✓	✓	✓
FORKLIFT ATTACHMENT	3.5.2 (a)	✓	✓	✓
FORK-LEVELING SYSTEM	3.5.2 (b)	✓	✓	✓
DOZER BLADE	3.5.2 (c)			✓

DESCRIPTION OF OPTION	CLAUSE	CONFIGURATION E		
		1	2	3
ANGLE SWEEPER	3.5.2 (d)	✓	✓	
POST DRIVER	3.5.2 (e)			✓
LIGHT MATERIAL BUCKET	3.5.2 (f)	✓		
BACKHOE	3.5.2 (g)	✓		
HYDRAULIC BREAKER	3.5.2 (h)	✓		
COLD PLANER	3.5.2 (i)	✓		
EARTH AUGER	3.5.2 (j)	✓		
SNOW BLOWER	3.5.2 (k)	✓		
AMBER COLOURED STROBE LIGHT	3.16.1 (a)	✓	✓	✓
ADDITIONAL WORKING LIGHTS	3.16.1 (b)	✓	✓	✓
AUXILIARY HYDRAULIC SYSTEM	3.17.1 (a)	✓	✓	✓
INITIAL PARTS KIT	4.1.1 (c)	✓	✓	✓
TRAINING - FAMILIARIZATION	4.2 (a)	✓	✓	✓

2. APPLICABLE DOCUMENTS

2.1 Government Furnished Documents - NOT APPLICABLE

2.2 Other Publications - The following documents form part of this Purchase Description. Web sites for the organization are given when available. Effective documents are those in effect on date of manufacture. Sources are as shown:

SAE Handbook

Society of Automotive Engineers Inc.
400 Commonwealth Dr.,
Warrendale, PA, 15096
<http://www.sae.org>

International Organization for Standardization (ISO)

ISO Central Secretariat
1, ch. de la Voie-Creuse
CP 56, CH-1211 Geneva 20
Switzerland
<http://www.iso.org/iso/home.htm>

3. REQUIREMENTS

3.1 Standard Design

- (a) The vehicle/equipment **shall** be the latest model from a manufacturer who has demonstrated acceptability by manufacturing and selling this type and size class of vehicle for at least 3 years;
- (b) The vehicle/equipment **shall** have engineering certification available, upon demand, for this application from the original manufacturers of



major equipment systems and assemblies;

- (c) The vehicle/equipment **shall** 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; and
- (d) The vehicle/equipment **shall** have system and component capacities not greater than their published ratings (i.e. product or component brochures) or accompanied by proof of compliance.

3.2 Operating Conditions

3.2.1 Weather - The vehicle/equipment **shall** operate under the extremes of weather conditions found in Canada in temperatures ranging from -40 to 37° C.

3.2.2 Terrain - The vehicle/equipment **shall** be capable of being operated on highways, secondary roads, gravel roads, and off-road (e.g. construction sites, open fields and dirt tracks). Terrain conditions **shall** include year round operations on snow, mud, sand and ice.

3.3 Safety Standards

3.3.1 Noise Level - The vehicle/equipment noise levels **shall** meet the requirements of legislation relative to Occupational Safety and Health both at the operator's station and exterior to the vehicle.

3.4 Performance

3.4.1 Loader Performance - The vehicle, without optional equipment or features, and in accordance with SAE 732, ISO 7131 or ISO 8313, **shall**:

- (a) The loader **shall** have a rated operating load of at least the value given as "RATED OPERATING CAPACITY" in the Configuration Capability Table which **shall**^(E) be measured in accordance with SAE J818;
- (b) The loader **shall** have a bucket width of at least the vehicle width;
- (c) The loader **shall** have a dump height, with the general purpose bucket at maximum dump angle, of the bucket cutting edge of at least the value given as "DUMP HEIGHT" in the Configuration Capability Table; and
- (d) The loader **shall** have a reach at the specified dump height of at least that given as "DUMP REACH" in the Configuration Capability Table.

3.4.2 Vehicle Delivery Condition - The vehicle **shall** be delivered to destination in a fully operational condition (serviced and adjusted). Both the interior and exterior of the vehicle **shall** be cleaned. If the vehicle requires assembly at destination, the Contractor **shall** supply all manpower and equipment to perform assembly. The consignee will provide the area required for assembly. For shipment verification, all items such as wheel wrenches, jacks, and all other tools, equipment and accessories which are shipped loose with the equipment, **shall** be listed on the shipping certificate or to an attached packing note.

3.5 **Equipment**

3.5.1 **Application Equipment** - Equipment/features below **shall** be provided:

- (a) **General Purpose Bucket** - A general-purpose bucket. The general-purpose bucket **shall** have a heaped capacity of at least that given as "**GENERAL PURPOSE BUCKET - BUCKET CAPACITY**" in the Attachment Capability Table;
- (b) **Lift Arm(s)** - Manufacturers standard Lift arm(s) complete with lift arm safety device;
- (c) **Loader Arm Quick-Connect Attachment** - The loader **shall** have a quick-connect attachment.
 - i The quick-connect attachment **shall** allow attachments to be mounted and demounted by an operator from inside the cab; and
 - ii The quick-connect attachment **shall** include all fittings for connection of hydraulic power required for operation of all attachments required for the Configuration in the Attachment and Options Availability Table. Hydraulic Fittings **shall** be spill-proof.
- (d) **Vehicle Tie-Down Devices** - Vehicle **shall** be equipped with permanent and integral vehicle tie-down devices.
 - i The tie-down devices **shall** be designed for forward thrust of at least 4 G, a rearward thrust of at least 4 G, an upward thrust of at least 2 G and a side thrust of at least 1.5 G (1 G = shipping weight of the equipment), loads are not imposed simultaneously;
 - ii The tie-down devices **shall** be designed to withstand stresses imposed by thrust loads (all directions) with a factor of safety of at least 1.5 with respect to the ultimate strength of the material;
 - iii The tie-down devices **shall** be designed/located to prevent shifting or movement during transport on low-bed trailers, rail car and aboard ships;
 - iv The tie-down devices **shall** be located to permit easy attachment of cables or turnbuckles;
 - v The tie-down devices **shall** be identified and marked with maximum loads permitted. Markings **shall** be painted using a contrasting colour; and
 - vi The tie-down devices **shall** include complete tie down instructions showing locations. This information **shall** be shown in the Operators Manual and it is preferred that it is marked in the vehicle cab (in the form of decals).
- (e) **Protection against Vandalism** - The loader **shall** have vandal protection measures including provisions for locking the engine covers, filler caps and cab; and



- (f) **Recovery Hooks** - Towing hooks, loops or a component with equivalent capability at the front and rear of the vehicle. Recovery hooks whose location is other than the vehicle chassis **shall** be approved by the Technical Authority.

3.5.2 **Equipment and Features** - The following equipment and features **shall** be provided, when indicated with an "✓" in the Attachment and Option Applicability Table:

- (a) **Forklift Attachment** - The forklift **shall** be capable of lifting a pallet weighing at least the value given as "**FORKLIFT - CAPACITY**" in the Attachment Capability Table at a load centre of 610 mm (24 in);
- (b) **Fork-Leveling System** - A system that keeps the forks of the fork attachment at the same angle to the ground throughout the full lift of the loader arms;
- (c) **Dozer Blade** - A hydraulically angling dozer blade **shall** be provided. The blade **shall** angle 30 degrees (nominal) to both left and right sides. The width of the blade at its maximum angle **shall** be greater than the width of the vehicle;
- (d) **Angle Sweeper** - An angle Sweeper. The sweeper **shall**:
- i Have a sweeping swath of at least the value given as "**ANGLE SWEEPER - SWATH**" in the Attachment Capability Table; and
 - ii Angle to the left and right a minimum of 30 degrees.
- (e) **Post Driver** - A post driver **shall** capable of driving a post of 125mm diameter with a length of at least 2,400mm into the ground. The impact energy of the post driver **shall** be at least that defined as "**POST DRIVER - ENERGY**" in the Attachment Capability Table.
- (f) **Light Material Bucket** - A light material bucket, in addition to the standard bucket. The bucket **shall** have a heaped capacity of at least that given as "**LIGHT MATERIAL BUCKET - BUCKET CAPACITY**" in the Attachment Capability Table;
- (g) **Backhoe** - The backhoe **shall**:
- i Have a minimum digging depth of at least that given as "**BACKHOE - DIG DEPTH**" in the Attachment Capability Table;
 - ii Have a reach from centre of swing axis of at least that given as "**BACKHOE - REACH**" in the Attachment Capability Table;
 - iii Have a dump height of at least that given as "**BACKHOE - DUMP**" in the Attachment Capability Table;
 - iv Have a bucket cylinder digging force of at least that given as "**BACKHOE - BUCKET FORCE**" in the Attachment Capability Table;
 - v Have a boom cylinder digging force of at least that given as "**BACKHOE - BOOM FORCE**" in the Attachment Capability Table; and
 - vi Have a heavy duty digging bucket with a width of at least that



given as "BACKHOE - BUCKET WIDTH" in the Attachment Capability Table.

- (h) **Hydraulic Breaker** - A hydraulic breaker. The breaker **shall**:
 - i Be able to be attached to the equipment in under five minutes;
 - ii Have a chisel point tool; and
 - iii Deliver breaker impact energy of at least the value given as "HYDRAULIC BREAKER - BREAKER ENERGY" for the configuration in the Attachment Capability Table.
 - (i) **Cold Planer Attachment** - A cold planer attachment. The planer **shall**:
 - i Have a cutting width of at least that given as "COLD PLANER - CUTTING WIDTH" in the Attachment Capability Table;
 - ii Have hydraulic side shift and tilt back capability;
 - iii Have individually removable and replaceable teeth; and
 - iv Have all components required to operate the planer including all additional hydraulic and control components required.
 - (j) **Earth Auger** - A heavy-duty earth auger. The Earth Auger **shall** be equipped with a heavy-duty auger bit which has a diameter of at least that given as "EARTH AUGER - DIAMETER" and a length of at least that given as "EARTH AUGER - LENGTH" in the Attachment Capability Table;
 - (k) **Snow Blower** - Have a snow blower with a snow-blowing swath of at least the value given as "SNOW BLOWER - SWATH" in the Attachment Capability Table;
- 3.6 **Operator Station** - The operator station **shall** include:
- (a) **ROPS Cab** - A weatherproof pressurized, insulated cab incorporating a certified Roll Over Protective Structure **shall** be provided. The following applies:
 - i The cab **shall** have a ventilation and defrosting system capable of keeping windows free from frost and moisture and include a heater conforming to SAE J1503 and SAE J169 or conforming to ISO 10263-4;
 - ii The cab **shall** have safety glass in windows. It is preferred the glass be tinted to reduce solar heating load;
 - iii The cab **shall** have windshield wipers on the front and rear windows conforming to SAE J198 including a windshield washer for each wiper; and
 - iv The cab **shall** have two lockable doors, or one door and at least visibly labelled one window as an emergency operator escape route.
 - (b) **Suspension Seat** - An operator's air suspension seat and backrest in conformance with SAE J899 or in conformance with ISO 11112:1995 and ISO 7096. The seat **shall** be selected to be comfortable for an operator who may be operating the vehicle for extremely long periods and **shall**^(E)



have seat material being a breathable fabric or a mesh surface.

- i The seat **shall** be equipped with seat belts, conforming to with SAE J386 , Type 1 or ISO 6683; and
 - ii The seat **shall** be horizontally and vertically adjustable while in a seated position.
- (c) **Mirror(s)** - Rear view mirror(s) **shall** be positioned to provide a full view of both sides for safe reverse operations;
- (d) **Radio** - An AM/FM radio which turns off automatically when the vehicle is not in service **shall** be provided. It is preferred that the radio system includes an auxiliary input connection; and
- (e) **Air Conditioner** - An air conditioning system conforming to SAE J1503 and SAE J169 or conforming to ISO 10263-4 **shall** be provided. Air conditioning units **shall** not use ozone depleting refrigerants such as CFCs (ChloroFluoroCarbons) but preferably use HFCs (Hydro FluoroCarbons).
- 3.7 **Chassis** - The vehicle chassis **shall** be the manufacturer's standard for a vehicle of this type and size.
- 3.8 **Engine** - The engine **shall** be diesel powered.
- 3.8.1 **Engine Components** - Engine components **shall** be the manufacturer's standard.
- 3.8.2 **Fuel Tank(s)** - The fuel tank(s) **shall** be the manufacturer's standard. The fuel tank(s) **shall** be at least half full when delivered.
- 3.8.3 **Engine Cold Weather Aids** - The engine **shall** be equipped with cold weather aids to enable the engine (operating with winter grade fuels/oils) to be started at temperatures down to -40° C.
- (a) A 110-volt engine heater(s). The vehicle **shall** be fitted a 110-volt engine heater(s). The heater(s) **shall** have a capacity as recommended by the engine manufacturer or conforming to SAE Information Sheet J1310; and
 - (b) A low temperature starting aid. The engine **shall** have one of the following: an ether injection system, glow plug(s) or intake air preheat system.
- 3.9 **Transmission** - The loader **shall**:
- (a) The loader **shall** be fitted with a hydrostatic type transmission or a continuously engaged clutch-type transmission;
 - (b) The loader **shall** deliver full power to the wheels; and
 - (c) The loader **shall** allow for same rotation or opposite rotation of wheels on opposite sides.

- 3.10 **Brake System** - The manufacturer's standard brake system **shall** be provided and **shall**^(B) conform with ISO 3450.
- 3.11 **Steering** - The steering system **shall** be the manufacturer's standard.
- 3.12 **Tires** - Tires with L-2 treads or **Equivalent shall** be provided
- 3.13 **Controls** - Controls **shall** be Joystick type. The controls **shall** be capable of operating in ISO and H-pattern selected by the operator. The controls **shall** include a safety device ensuring that engine can only be started with the transmission in a neutral position and a throttle control positioned for convenient operation. Controls **shall** be capable of operating all attachment related to the given configuration as defined in the Attachment and Option Applicability Table.
- 3.14 **Instruments** - Instruments **shall** be manufacturer's standard including a numeric read-out hour-meter, which displays accumulated running time up to 9,999 hours.
- 3.15 **Electrical System** - The vehicle **shall** be equipped with the manufacturer's standard electrical system, which **shall** include:
- (a) **Warning Horn** - A readily accessible driver-operated warning horn; and
 - (b) **Back-Up Alarm System** - A back-up alarm system to alert personnel that the vehicle is in back-up mode.
- 3.16 **Lighting** - The vehicle **shall** have the manufacturer's standard lights, LED lighting is preferred. The lighting system **shall** include:
- 3.16.1 **Amber Coloured Strobe Light** - Amber coloured omni-directional strobe light(s) either on continuously or with a dash mounted control switch **shall** be provided. The strobe light(s) **shall** provide maximum vehicle visibility. The strobe light(s) **shall** be LED strobe(s); and
 - 3.16.2 **Working Lights** - Additional forward and rearward facing working lights for no/low light working conditions **shall** be provided. The working lights **shall** be LED lights.
- 3.17 **Hydraulic System** - The hydraulic system **shall** be the manufacturer's standard complete with all components required for the operation of the hydraulic equipment specified.
- 3.17.1 **Hydraulic System Options** - When specified in the Attachment and Option Applicability Table, the following hydraulic system options **shall** be provided:
 - (a) **Auxiliary Hydraulic System** - A high flow auxiliary hydraulic system **shall** be provided. The auxiliary hydraulic system **shall** power all additional hydraulic attachments provided with the vehicle.
- 3.18 **Arctic Lubricants and Hydraulic Fluids** - The vehicle **shall** be serviced with Arctic lubricants. The preference is synthetic oils.
- 3.19 **Paint** - The vehicle **shall** be painted using manufacturer's standard

commercial colours. The prime coating **shall** be a high-durability, corrosion-resistant type. The prime coating **shall**^(E) be epoxy type or baked powder coat.

3.20 **Identification** - The following information **shall** be permanently marked in a conspicuous and protected location:

(a) Manufacturer's name, model and serial number; and

4. **Integrated Logistic Support** - The Contractor is required to ensure that spare parts required to properly maintain and repair vehicles are available for purchase for a period of 10 years.

4.1 **Documentation and Support Items** - The Contractor **shall** provide the following documentation and support items.

4.1.1 **Items with Each Vehicle** - The Contractor **shall** provide the following items with each vehicle:

(a) **Vehicle Manuals** - Manuals required for safe operation, maintenance and repair of the vehicle and all attachments. Complete sets of manuals **shall** be provided on CD/DVD-ROM (without password(s), installation requirements or requiring an Internet connection). An Operator's Manuals in paper format **shall** always be provided with each vehicle. The Vehicle Manuals **shall** include:

i **Operator's Manuals** - Operator's manuals in a bilingual format or as 2 manuals in a single binder (one English, and one French);

ii **Parts Manuals** - The Parts Manuals in English (French translation is desirable); and

iii **Maintenance (Shop Repair) Manuals** - The Maintenance (Shop Repair) Manual in English (French translation is desirable).

(b) **Warranty Letter** - A paper copy of the completed bilingual Warranty Letter in the approved format provided with each vehicle shipped. Designated warranty providers **shall** honour the warranty letter; and

(c) **Initial Parts Kit** - One initial parts kit **shall** accompany each vehicle. The initial parts kit **shall** include all items listed in the "Initial Parts Kit List" from the Original Equipment Manufacturer;

(d) **Keys** - Four (4) complete sets of keys to operate the vehicle and any locks **shall** be supplied; and

(e) **Material Safety Data Sheets** - A paper copy of the Material Safety Data Sheets **shall** be provided with each vehicle.

4.1.2 **Documents Provided to Technical Authority** - Example documents are available from the Technical Authority. The Contractor **shall** provide the following documents to the Technical Authority:

(a) **Data Summary** - A bilingual Data Summary for each make/model/configuration in accordance with the requirements of CFTO D-01-100-200/SF-002: "Preparation of Data Summaries for Commercial Vehicles & Equipment" with data and a vehicle picture. The Contractor **shall** provide a Data Summary before shipment of vehicles;

- (b) **Sample Manuals** - A set of Sample Manuals in digital format, including the Operator, Parts and Maintenance Manuals. The sample manuals **shall** be delivered to the Technical Authority 30 working days before delivery of vehicles. Sample manuals will not be returned. The Technical Authority will provide manual approval or comments within 30 days;
- (c) **Warranty Letter Technical Authority Copy** - The Contractor **shall** send a copy of the Warranty Letter, in electronic format, to the Technical Authority for each vehicle, at shipment;
- (d) **Photographs** - Two (2) digital pictures, one left-front three-quarter view, and one right-rear three-quarter view of each make/model/configuration. It is preferred that pictures have an uncluttered background. Pictures **shall** have a resolution of at least four (4) Mega pixels;
- (e) **Initial Parts Kit List** - A list of parts needed to perform preventive maintenance on one vehicle for a 1 year period as per the maintenance manual. A complete change of all filters and filter elements **shall** be included in the list. The list will be reviewed, amended (if required) and approved by the Technical Authority. The list **shall** include the following elements:
 - i Part description;
 - ii Original Equipment Manufacturer Part number;
 - iii Suggested quantity; and
 - iv Unit cost.
- (f) **Material Safety Data Sheets** - The contractor **shall** provide a listing of all hazardous materials used in the fabrication of the product supplied to the Technical Authority, if there are no hazardous materials used, this **shall** be noted on the listing. The contractor **shall** provide Material Safety Data Sheets for all the hazardous materials present on the vehicle; and
- (g) **Sample Training Plan** - A sample training plan in digital format **shall** be delivered to the Technical Authority for approval at least 30 working days before delivery of vehicles. Sample training plan will not be returned. The Technical Authority will provide training plan approval or comments within 30 days.

- 4.2 **Training** - The Contractor **shall** perform the following training:
- (a) **Familiarization** - At least 1-day (8 hours) familiarization instruction at each destination, for a maximum of 8 personnel, no later than one month after delivery of each vehicle. The instruction **shall** include the detailed operation and normal servicing of the vehicle/equipment and **shall** be split into two - four (4) hour segments for operator familiarization and maintainer familiarization. Familiarization instructions **shall** be available in both official languages for destinations in the province of Quebec or as requested by the Technical Authority. The training dates **shall** be arranged in conjunction with the Technical Authority. After completion of the familiarization session, the Contractor **shall** have a copy of the "**PROOF OF FAMILIARIZATION INSTRUCTION**" certificate signed by the consignee. The Technical Authority will supply this document in an electronic format, when requested.