Attachment 4 – Requirements

Amendment 1

Electric 5k - 6k DBP Burden Carrier Tractor

Section 1- Scope

- Conventional Burden Carrier Tractor of 5k - 6K draw bar pull (DBP); 50,000 pounds force minimum, to 70,000 pounds force maximum).

Section 2 – Delivery Requirements

- First Article for Quantity 1 requested to be delivered 90-120 days after receipt of order (ARO).

- First Article must pass Testing and Evaluation (T&E) performed and approved by United States Coast Guard (USCG).

- T&E performed and approved by Aviation Logistics Center's (ALC) Aviation Ground Support Equipment (AGSE) team and Engineering Specialist.

Section 3 – Requirements

- **Salient Characteristics**
  - Length without hitches not longer than 120 inches maximum.
  - Length with hitches not longer than 150 inches maximum.
  - Overall height is not taller than 90 inches maximum, with cab and beacon.
  - Overall width is 80 inches maximum without mirrors.
  - Tow Tractor gross weight: minimum 7,000 lbs. to 10,000lbs. maximum.
  - Draw Bar Pull Force (DBF): minimum 5,000 lbs. to 6,000 lbs. maximum
    - Rated capacity both front **and** rear.

- **Performance**
  - Minimum continuous increase forward speed. Minimum one speed reverse.
    - Reverse (R), Neutral (N), Forward (F), or
    - Reverse (R), Neutral (N), D1 (low range), D2 (high range).

  - Travel speed.
    - The tractor, without load, shall be capable of attaining and maintaining a travel speed on level, paved roads of not less than 15 mph forward.

  - Two or four wheel drive.

  - Hydrostatic steering.
    - Power steering, with emergency steering in the event of power failure, shall be furnished.

  - Suspension
    - Front: leaf spring or coil spring.

    - Rear: leaf springs.

  - Hydraulic service braking circuit.
    - The service braking system shall be the commercially available system provided by the manufacturer.
    - The service brakes shall be capable of bringing the tractor to a complete safe stop in accordance ASME B30.5.
    - Not more than 80 pounds of force on the brake pedal shall be required to meet the requirements of ASME B30.5.

  - Parking brake.
    - Parking brake(s) shall hold, but not necessarily stop the tractor, without rated load when the tractor is stopped on a 15 percent grade in both the ascending and descending position.
    - The parking brakes shall be operated by hand or foot controls and is located within reach of the seated operator. The brake shall have a locking device.
    - The force required to pull the hand lever when setting the brake shall not exceed 35 pounds.
    - The parking brake shall be independent from the service brakes.

  - Front **and** rear inching controls.
    - Inching movement: 3 inches minimum when activated within 5 seconds.

- **Power source**
  - Powered by electric Lithium-Ion battery or batteries meet a minimum of 8-hour duty cycle.
  - Minimum capacity of 10kW or higher.
  - On board charging system, 208-240V and/or 440-480V input voltage, three phase, 60Hz.
  - Optional external charging system, 208-240V and/or 440-480V input voltage, three phase, 60Hz.
    - First article will be 208-240VAC.
    - An alternate 440-480VAC version will be required.
    - If first article passes testing, an alternate 440-480VAC is required for other locations, unless the charger configuration is capable to accept 208-480VAC.

- **Towing hitch.**
  - Minimum 2-level front **and** rear hitches.
    - 1.18inch minimum to 2.75inch pin diameter maximum.

- **Operators cab with doors, windows, and mirrors:**
  - Operator and passenger cab.
    - The tractor shall be equipped with an enclosed cab and shall have doors with at least one window in each, which can be opened for ventilation.

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- The doors shall be provided with hinges that can be serviced without door removal. In addition to the door windows, the cab shall be furnished with a front windshield and rear window.
  - The windshield and all windows shall be safety glass.

- The cab interior shall be furnished with water-resistant non-absorbent thermal insulation to meet the heating requirements.

- Visibility.
  - The tractor cab shall allow for a 360-degree sight line around the tractor for a 95th percentile male and a 5th percentile female. The visibility shall conform to the standard visibility available in the industry.

- Mirrors to view front and rear hitch.

- Rearview and side mirrors; standard vehicle configuration.

- Cab heating system.
  - The heater shall be of sufficient capacity to maintain a temperature of +40° F at cab floor level, in an ambient temperature of -25° F.

- Defrosting windscreens (front and rear).

- Optional Air Conditioning.

- Windshield wipers (front and rear).

- Fan in cab.

- Driver seat suspended with passenger seat.

- Driver's seat safety switch.

- An operator's and passenger's seatbelt conforming to SAE J 386 restraint devices.
  - Seatbelts shall be designed to ensure the operator and passenger remain seated and entirely within the protection of the cab in the event of tip over.

- **Operational lighting:**
  - Rotating amber beacon on top of cab (not to exceed 90 inches overall height).
  - Parking brake light.
  - Lighting systems comply with road traffic regulations.

- Head, tail, and side operation lights. Turn & hazard signals. Reverse lights.
  - Front and rear hitch work lights.

- **General requirements**
  - Instruments and controls.
    - In addition to the instruments supplied on the standard commercial tractor, an hour meter shall be installed in the instrument panel. Except the hour meter, all instruments shall illuminate.
    - All vehicle controls shall be located within easy reach of the operator in the operator's cab.
    - All controls shall be clearly marked as to their use and function.
  - Reverse alarm.
    - An audible backup alarm shall be furnished. The alarm shall automatically activate when the tractor selector is placed in reverse.
  - Horn.
    - An electric horn shall be provided. The horn may be hand or foot actuated.
  - Optional back-up camera (CCTV System): Weatherproof dash cam.
  - A commercial fire extinguisher shall be mounted on the exterior of the tractor in an easily accessible location.
    - The fire extinguisher shall be a minimum 20-pound capacity ABC type, or equivalent.
    - The fire extinguisher shall be UL listed.
  - Dissimilar metals.
    - Unless suitably protected against galvanic corrosion, dissimilar metals shall not be in intimate contact with each other.
  - Coating.
    - The tractor shall be primed and painted using standard commercial practices using commercially available coatings and shall conform to coating manufacturer's guidelines.
    - The finish shall show no evidence of uneven application, curtains, runs, snags, orange peel, lack of adhesion, or other defects.
  - Primer.
    - The primer shall consist of a base coat of zinc-rich primer and an intermediate primer coat.

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- Tropical Rustproofing package.
  - This should be considered a premium rust proofing package usually consisting of an additional coating. The tractor shall be treated with a corrosion preventative compound complying with AA-59295. Some of these tractors may be used in tropical/coastal environments and experience high humidity and salt spray. These environments usually cause high levels of corrosion in the areas listed below. At a minimum, these areas shall be coated in the following:

    - Cab, interior
    - Cab, exterior
    - Seams
    - Welds
    - Hidden recessed areas
    - Locations where dissimilar metals come in contact
    - Battery box

- Topcoat.
  - The final top-coat shall be the manufacturer's standard commercially available polyurethane.

- Exterior / Interior Color: Semi-gloss White.

- Chassis / Frame / Suspension Color: Flat Black.

- Drain holes.
  - Structures shall be designed to eliminate pockets where debris and water might accumulate. All structural configurations shall allow water run-off, or shall have adequate sized and placed drain holes.

- Walkway / Step coating.
  - Floor plates and step surfaces shall be coated with a nonslip-coating compound, or be furnished with a nonslip metal or tread plate surface.

- Markings, data plates, and instruction plates.
  - Corrosion resistant identification plate and all warning and instruction plates shall be provided and permanently mounted on the tractor. The identification plate shall contain the following information:

    - Tractor, Aircraft Towing
    - Capacity: (___) DBP
    - Gross Vehicle Weight (GVW):
    - National / Local Stock Number (NSN): (Provided by CG)

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- Contract Number:
- Serial Number:
- Model Number:
- Manufactured by:
- Manufacturer Name:
- Manufacturer Address:
- Manufacturer Service Phone Number:
- US Property

- ATA airport markings for Ground Support Equipment.
  - Markings must be reflective.

- Slinging and tie down provisions.
  - Slinging and tie-down devices that enable the tractor to be tied down to the floor of a transportation medium shall be provided. All devices should be easily accessible and minimize the need to crawl under the vehicle when securing it.
  - All devices shall be capable of accepting a chain and hook with an outside diameter of 3.00 inches through its opening, and shall have a structural safety factor of 2.3 to 1, based on static load.
  - The notation “LIFT HERE” or “TIE-DOWN” shall be stenciled in paint near each lifting and tiedown device.

- Transportability.
  - The tractor shall withstand, without damage, highway, rail and marine transport.

- **Manuals**
  - One (1) complete <u>hardcopy</u> of printed operation manual per delivery.
  - One (1) complete electronic (PDF) copy of (operation, maintenance, and parts) manuals.
  - Permission to upload electronic copy of manuals to USCG intranet for internal use.