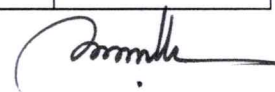


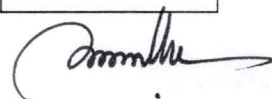
ANNEX E TO
TENDER NO 06.06.0000.279.07.037.26
DATED 07 OCTOBER 2026

TECHNICAL SPECIFICATION FOR PROCUREMENT OF 110 X MAINT-FREE SEALED LEAD ACID BATTERY FOR AIRCRAFT STARTING TROLLEY

Ser No	Nomenclature/ Description	Specification Specified	To be filled up by the principal/ manufacturer
1.	<u>Item Name</u>	Maintenance-Free Sealed Lead Acid Battery for Aircraft Starting Trolley	
2.	<u>Model / Equivalent Part No</u>	7HKM-182	
3.	<u>Purpose / Utility</u>	To provide reliable high-current electric power for starting aircraft engines and onboard systems while on ground through a Ground Power Unit (GPU) or starting trolley.	
4.	<u>Battery Type and Design</u>	a. <u>Battery Type.</u> Maintenance-Free Sealed Lead Acid (VRLA type), Valve-Regulated, Absorbent Glass Mat (AGM) technology. b. <u>Configuration.</u> 07 (seven) lead-acid cells connected in series forming a mono-block assembly. c. <u>Electrolyte Type.</u> Immobilized electrolyte absorbed in AGM separator: no free acid. d. <u>Maintenance Requirement.</u> Fully maintenance-free; no requirement for electrolyte top-up or water replenishment during service life. e. <u>Design Feature.</u> Spill-proof, leak-resistant, vibration resistant and low self-discharge suitable for rugged ground operations.	
5.	<u>Electrical Characteristics</u>	a. <u>Rated Voltage:</u> 14 VDC (2 V per cell x 7 cells). b. <u>Rated Capacity:</u> Minimum 182 Ah at 10-hour discharge rate (C10 rating) at 25°C (77°F). c. <u>Discharge Current (Cranking Load):</u> Capable of delivering a minimum of 600 Amps for 5 minutes continuously. (1) Final voltage per cell ≥ 1.5 V at $30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ (2) Total final battery voltage ≥ 10.5 V at $30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ d. <u>End-of-Discharge Voltage:</u> (1) Per Cell: Not below 1.70 V at 10-hour discharge rate (2) Battery Total: Not below 12.0 V at 10-hour discharge rate e. <u>Internal Resistance:</u> To be declared by the manufacturer (lower is preferable for high-current applications). f. <u>Self-Discharge Rate:</u> $\leq 3\%$ per month at 25°C	



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6.	<u>Mechanical Characteristics</u>	a. Max Overall Dimensions per Battery: (1) Length: ≤ 830 mm (2) Width: ≤ 178 mm (3) Height: ≤ 266 mm b. Approx. Weight per Battery: To be clearly stated by the bidder in kilograms (kg). c. Container Material: Hard rubber mono-block or equivalent durable, acid-resistant, flame-retardant casing. d. Terminals: Heavy-duty threaded or bolt-on terminals suitable for high-current aircraft connectors.	
7.	<u>Operating Environment</u>	a. Operating Temperature Range: (1) Discharge: -20°C to $+55^{\circ}\text{C}$ (2) Charge: 0°C to $+45^{\circ}\text{C}$ b. Storage Temperature: -20°C to $+50^{\circ}\text{C}$ c. Humidity: Up to 95% RH, non-condensing d. Vibration & Shock Resistance: Suitable for mobile ground equipment; must comply with relevant aviation GSE vibration standards.	
8.	<u>Charging Requirements</u>	a. Charging Method: Constant voltage or constant current charging per manufacturer's recommendation. b. Float Charging Voltage: 13.5 to 13.8 VDC c. Boost Charging Voltage: 14.4 to 14.8 VDC d. Max Charging Current: As recommended by OEM; typically $\leq 0.25C$ (i.e., 45A for 182Ah battery)	
9.	<u>Life and Durability</u>	a. Design Life: Minimum 5 years under float service at 25°C b. Cycle Life: ≥ 500 cycles at 80% Depth of Discharge (DOD) c. Shelf Life (without charging): Minimum 6 months at 25°C without degradation below 80% SOC	
10.	<u>Standards and Compliance</u>	Battery must conform to or exceed the following standards: a. IEC 60896-21 / 22: Valve-Regulated Lead-Acid (VRLA) Batteries b. SAE J537: Storage Battery Test Procedures c. IATA UN2800 Compliant: Non-spillable battery for air transport d. RoHS / REACH Compliance: Environmentally safe e. ISO/ CE / UL certification: To be provided if available	
11.	<u>Country of Origin</u>	Battery must be manufactured in: Japan/UK/USA/EU Countries/China/Hong Kong/South Korea.	



Ser No	<u>Nomenclature/ Description</u>	Specification Specified	To be filled up by the principal/ manufacturer
12	<u>Marking and Documentation</u>	a. Battery must be clearly marked with: (1) Manufacturer's name and logo (2) Part number and serial number (3) Rated voltage and capacity (4) Date of manufacture (month/year) b. Documentation to be provided with offer: (1) Technical datasheet with performance curves (2) Manufacturer's quality certification (ISO 9001 or higher) (3) Type test reports and compliance certificates (4) OEM authorization certificate (if bidder is not the manufacturer)	
13	<u>Warranty</u>	Minimum 02 (two) years from the date of acceptance/use, covering manufacturing defects, failure to meet capacity or premature degradation.	

