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Concorde Battery Corporation

2009 San Bernardino Road
West Covina, California, USA 27106

RG-131

24 VOLT Various Ah, VALVE REGULATED, LEAD-ACID, AIRCRAFT BATTERY

DECLARATION OF DESIGN PERFORMANCE

TO THE REQUIREMENTS OF

TSO-C173, RTCA DO-293 and IEC 60952-1

Applications: Fixed and Rotary Wing Aircraft, Fuselage Mounted

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export-controlled information

Characteristic	RTCA DO-293 IEC 60952-1	Requirement/Performance	Remarks
Description	The RG-131 is a 24 volt, valve regulated lead-acid aircraft storage battery. The RG-131 battery consists of two12 volt monoblocks connected in series. The monoblocks are constructed in high impact polypropylene containers with a one piece cover attached with an epoxy adhesive. The monoblocks are enclosed by an epoxy fusecoated aluminum container which incorporates the hold down. The battery assembly is equipped with two CAMLOC 61L2-1-2AA latching handles which secure the battery to the mounting rack. The electrolyte is a sulfuric acid and water solution and is absorbed within the battery plates and separators. There is no free electrolyte. See Material Safety Data Sheet for hazardous material identification and precautions. The RG-131 batteries have a 20A MS3320 circuit breaker on the output. The RG-131 battery conforms dimensionally to ARINC Specification 404A, 1/2 ATR Short.		
Format	IEC 60952-2	Concorde Drawing No. RG-131	
Connector	IEC 60952-2	The battery is available with a Cannon DXPB-8-34P-0101-A152 or equal connector. See envelop drawings for connection details and schematic.	
Mass		14.1 kg	
Charging method	IEC 60952-1, 4.3	Constant potential at 28.25 V	
Any auxiliary requirement:		MS3320-20 Circuit breaker on output	
Ventilation	DO-293, 1.9 IEC 60952-2	Battery is not equipped with vent tubes	
Flammability	IEC 60952-2	RG-131 Series outer container is fire resistant	
Unspillability		Non spill	
Electrical Performance			
Rated Capacity (C1)	DO-293, 2.2.2 IEC 60952-1, 5.1.1	12.0 Ah	
Capacity at –18°C	DO-293, 2.2.3 IEC 60952-1, 5.1.2	6.5 Ah	
Capacity at –30°C	DO-293, 2.2.4 IEC 60952-1, 5.1.3	4.0 Ah	
Capacity at +50°C	DO-293, 2.2.5 IEC 60952-1, 5.1.4	14.0 Ah	
Power Rating +23°C	DO-293, 2.2.6.1 IEC 60952-1, 5.2.1.1	N/A Not rated for engine starting	
Power Rating -18°C	DO-293, 2.2.6.2 IEC 60952-1, 5.2.1.2	N/A Not rated for engine starting	
Power Rating -30°C	DO-293, 2.2.6.3 IEC 60952-1, 5.2.1.3	N/A Not rated for engine starting	

Characteristic	RTCA DO-293 IEC 60952-1	Requirement/Performance	Remarks
Rapid Discharge Capacity at 23°C	DO-293, 2.3.1 IEC 60952-1, 5.3.1	N/A Battery has a 20A current limiting device on the output.	
Rapid Discharge Capacity at -30°C	DO-293, 2.3.2 IEC 60952-1, 5.3.2	N/A Battery has a 20A current limiting device on the output.	
Charge Retention	DO-293, 2.4 IEC 60952-1, 5.4	+23 C - Rating value for design = 90% +50 C - Rating value for design = 45%	
Storage	DO-293, 2.5 IEC 60952-1, 5.5	DO-293 - 1 year storage life test in process	
Charge Stability	DO-293, 2.6 IEC 60952-1, 5.6, Class I	OK. For all battery types, max battery temperature on charge = 55°C. Charge current fell during the entire charge period. Capacity at end of test > C1	
Short-circuit Current	DO-293, 2.7 IEC 60952-1, 5.7	Peak current = 0 A at 0.1s, Circuit breaker tripped immediately.	
Charge Acceptance	DO-293, 2.8 IEC 60952-1, 5.8	+23°C = 103% -18°C – N/A Battery does not contain heaters. -40°C – N/A Battery does not contain heaters.	
Insulation Resistance	DO-293, 2.9.1 IEC 60952-1, 5.9.1	All samples successfully met the test requirement.	
Dielectric Strength	DO-293, 2.9.2 IEC 60952-1, 5.9.2	All samples successfully met the test requirement.	
Duty Cycle Performance	DO-293, 2.10 IEC 60952-1, 5.10	N/A Not rated for engine starting.	
Water Consumption	DO-293, 2.11 IEC 60952-1, 5.11	N/A Applies to flooded electrolyte batteries only.	
Overcharge Endurance	DO-293, no requirement IEC 60952-1, 5.12	Not tested	
Cyclic Endurance	DO-293, 2.12 IEC 60952-1, 5.13	100 cycles	
Deep Discharge	DO-293, 2.13 IEC 60952-1, 5.14	All samples successfully met the test requirement.	
Induced Destructive Overcharge	DO-293, 2.14 IEC 60952-1, 5.15	All samples successfully met the test requirement.	
Electrical Emissions	DO-293, 2.15 IEC 60952-1, 5.16	N/A Battery contains no active electronics.	
Environmental Performance			
Vibration	DO-293, 3.1 IEC 60952-1, 6.1	All samples successfully met the test requirement.	
Acceleration	DO-293, no requirement IEC 60952-1, 6.2	Not tested.	

Characteristic	RTCA DO-293 IEC 60952-1	Requirement/Performance	Remarks
Operational Shock	DO-293, 3.3.1 IEC 60952-1, 6.3, Class I	All samples successfully met the test requirement.	
Crash Safety Shock	DO-293, 3.3.2 IEC 60952-1, 6.4	All samples successfully met the test requirement.	
Explosion Containment	DO-293, 3.4 IEC 60952-1, 6.5	All samples successfully met the test requirement.	
Altitude	DO-293, 3.5 IEC 60952-1, 6.6	All samples successfully met the test requirement.	
Rapid Decompression	DO-293, 3.5.2 IEC 60952 no requirement	All samples successfully met the test requirement.	
Temperature Shock	DO-293, 3.6 IEC 60952-1, 6.7	All samples successfully met the test requirement.	
Fungus Resistance	DO-293, 3.7 IEC 60952-1, 6.8	All samples successfully met the test requirement.	
Humidity	DO-293, 3.8 IEC 60952-1, 6.9	All samples successfully met the test requirement.	
Fluid Contamination	DO-293, 3.9 IEC 60952-1, 6.10	Test was performed on representative material samples. Fluids tested: Fuels. All samples successfully met the test requirement. Aviation Jet A fuel Aviation piston engine fuel (100LL AVGAS) Hydraulic fluids Mineral based (MIL-H-5606) Non-mineral based synthetic (MIL-PRF-83282 and MIL-PRF-87257) Lubricating oils Mineral based (MIL-L-6081) Ester based synthetic (MIL-L-23699) Internal combustion engine SAE 15W40 Solvents and cleaning fluids Isopropyl alcohol (TT-I-735) Denatured alcohol De-icing fluid Ethylene Glycol Propylene Glycol AMS 1424 (SAE AEA Type I) AMS 1428 (SAE AEA Type VI) Insecticides - none Sullage - none Disinfectants (heavy duty phenolics) - none Coolant dielectric fluid - none Fire extinguishants - none	
Salt Spray	DO-293, 3.10 IEC 60952-1, 6.11	All samples successfully met the test requirement.	

Characteristic	RTCA DO-293 IEC 60952-1	Requirement/Performance	Remarks
Physical Integrity at High Temperature	DO-293, 3.11 IEC 60952-1, 6.12	All samples successfully met the test requirement.	
Flammability	DO-293, no requirement IEC 60952-1, 6.13	Not tested. See Section 1	
Electrolyte Resistance	DO-293, 3.12 IEC 60952-1, 6.14	All samples successfully met the test requirement.	
Thermal Sensors	DO-293, 3.13 IEC 60952-1, 6.15	All samples successfully met the test requirement.	
Component Qualification tests	DO-293, 3.14 IEC 60952-1, 6.16	All samples successfully met the test requirement.	
Battery Airtightness	DO-293, no requirement IEC 60952-1, 6.17	N/A	
Cell Baffle	DO-293, no requirement IEC 60952-1, 6.18	N/A. Applies only to nickel-cadmium batteries only.	
Strength of Receptacle	DO-293, 3.15 IEC 60952-1, 6.19	N/A. Connector strength dictated by specification for connector.	
Handle Strength	DO-293, 3.16 IEC 60952-1, 6.20	All samples successfully met the test requirement.	

N/A = Not Applicable

Authentication:

Manufacturer. Concorde Battery Corporation

John B. Timmons, PE

Digitally signed by John B. Timmons, PE
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Reason: I am approving this document
Date: 2007.06.19 15:23:18 -04'00'

Signed: ……

Name of signatory: John B. Timmons, PE

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