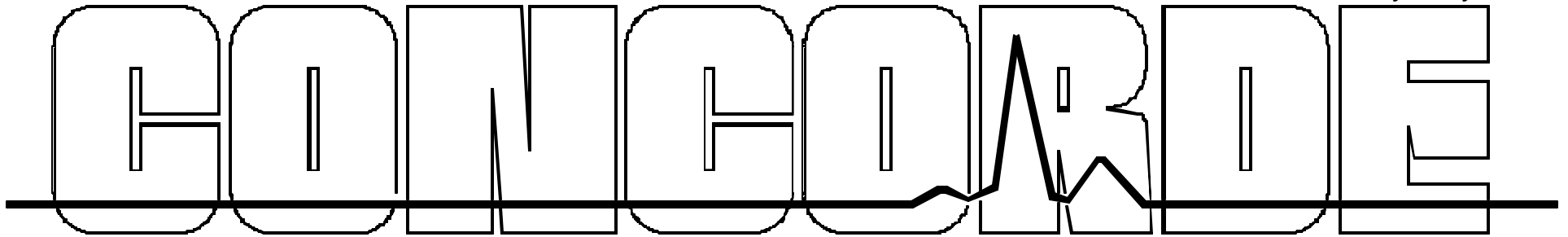


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## **Concorde Battery Corporation**

2009 San Bernardino Road  
West Covina, California, USA 27106

### **RG-132**

**24 VOLT 6.0 Ah, VALVE REGULATED, LEAD-ACID, AIRCRAFT BATTERY**

### **DECLARATION OF DESIGN PERFORMANCE**

**TO THE REQUIREMENTS OF**

**RTCA DO-293 and IEC 60952**

**Applications: Fixed and Rotary Wing Aircraft, Fuselage Mounted**

**Note: Applications may not be a complete list of all applications for this battery type.**

*The item or Technical Data contained herein has been reviewed and approved for general release on the basis that it contains no Export-controlled information.*

Characteristic	RTCA DO-293 IEC 60952	Requirement/Performance	Test Report / Reference
Description	<p>The RG-132 is a 24 volt, 6.0 ampere hour, valve regulated lead-acid aircraft battery for emergency avionics.</p> <p>The RG-132 battery consists of twelve 2 volt cells connected in series. The cells are sealed and will not leak or spill electrolyte. See Material Safety Data Sheet for hazardous material identification and precautions. These cells are housed within an epoxy fuse coated aluminum case and cover. 1/8 inch rivets are used to join the cover to the case. The RG-132 connector consists of a 16 AWG wire harness cable with a 25A fast blow fuse and a 4 pin socket (Manufacturer: Amp/Tyco Electric, PN: 206060-1).</p> <p>The RG-132 series battery conforms to Concorde Drawing RG-132 and assembly drawing CB-00347.</p>		
Format	IEC 60952-2	Concorde Drawing No. RG-132	
Connector	IEC 60952-2	The battery is equipped with a 4 pin socket (Manufacturer: Amp/ Tyco Electric, PN 206060-1)	
Mass		6.6 Kg (14.5 lbs.) Max.	
Charging method	IEC 60952-1, 4.3	Constant potential at 28.25	
Any auxiliary requirement:		none	
Ventilation	DO-293, 1.9 IEC 60952-2	Battery is not equipped with vent tubes	
Flammability	IEC 60952-2	Outer container is fire resistant	
Unspillability		Non spill	
<b>Electrical Performance</b>			
Rated Capacity	DO-293, 2.2.2 IEC 60952-1, 5.1.1	6.0 Ah	
Capacity at -18°C	DO-293, 2.2.3 IEC 60952-1, 5.1.2	3.8 Ah when discharged at the C <sub>1</sub> rate.	
Capacity at -30°C	DO-293, 2.2.4 IEC 60952-1, 5.1.3	3.0 Ah when discharged at the C <sub>1</sub> rate.	
Capacity at +50°C	DO-293, 2.2.5 IEC 60952-1, 5.1.4	6.0 Ah when discharged at the C <sub>1</sub> rate.	
Power Rating +23°C	DO-293, 2.2.6.1 IEC 60952-1, 5.2.1.1	N/A, for engine starting batteries only	
Power Rating -18°C	DO-293, 2.2.6.2 IEC 60952-1, 5.2.1.2	N/A, for engine starting batteries only	
Power Rating -30°C	DO-293, 2.2.6.3 IEC 60952-1, 5.2.1.3	N/A, for engine starting batteries only	
Rapid Discharge Capacity at 23°C	DO-293, 2.3.1 IEC 60952-1, 5.3.1	N/A IAW DO-293. Rapid DCH rate is 60A the battery output is fused at 25A	
Rapid Discharge Capacity at -30°C	DO-293, 2.3.2 IEC 60952-1, 5.3.2	N/A IAW DO-293. Rapid DCH rate is 60A the battery output is fused at 25A	
Charge Retention	DO-293, 2.4 IEC 60952-1, 5.4	+23 C - Rating value for design = 90%	
		+50 C - Rating value for design = 65%	
Storage	DO-293, 2.5 IEC 60952-1, 5.5	DO-293 - 1 year storage test in progress.	

Characteristic	RTCA DO-293 IEC 60952	Requirement/Performance	Test Report / Reference
Charge Stability	DO-293, 2.6 IEC 60952-1, 5.6, Class I	OK. Max temperature on charge was 48.9°C. Charge current fell during the charge period. Capacity at end of test was greater than the C <sub>1</sub> rating.	
Short-circuit Current	DO-293, 2.7 IEC 60952-1, 5.7	Peak current = 45.72 A, with fuse bypassed Last recorded current = 0.2 A at 60 sec	
Charge Acceptance	DO-293, 2.8 IEC 60952-1, 5.8	+23 C = 95 %	
		-18 C (battery with heaters only) N/A	
		-40 C (battery with heaters only) N/A	
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	
Water consumption Test	DO-293, 2.11 IEC 60952-1, 5.11	N/A	
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.	
<b>Environmental Performance</b>			
Vibration	DO-293, 3.1 IEC 60952-1, 6.1	Random vibration per Curve C, Section 8, DO-160E, 1 hour per axis.	
Acceleration	DO-293, no requirement IEC 60952-1, 6.2	Not tested	
Operational Shock	DO-293, 3.3.1 IEC 60952-1, 6.3, Class I	Category B, DO-160E - OK	
Crash Safety Shock	DO-293, 3.3.2 IEC 60952-1, 6.4, Class I	Category B, DO-160E, Impulse and sustained - OK. Sustained per DO-160E Table 7-1, Aircraft Type 5, Test Type R, 20g's in each orientation.	
Explosion Containment	DO-293, 3.4 IEC 60952-1, 6.4	All samples successfully met the test requirement.	
Gas Emission	DO-293, no requirement IEC 60952-1, 6.5	Not Tested	
Altitude	DO-293, 3.5 IEC 60952-1, 6.6	Tested to 20,621m (67,654 ft) IAW DO-293.	

Characteristic	RTCA DO-293 IEC 60952	Requirement/Performance	Test Report / Reference
Rapid Decompression	DO-293, 3.5.2 IEC 60952 no reqmt	Tested from 2,300m (8,000 ft) to 20,621m (67,654 ft) IAW DO-293.	
Temperature Shock	DO-293, 3.6 IEC 60952-1, 6.7	RG-132 tested from +85°C to -55°C IAW DO-293. Sample successfully met the test requirements.	
Fungus Resistance	DO-293, 3.7 IEC 60952-1, 6.8	DO-160D Category F. All samples successfully met the test requirement.	
Humidity	DO-293, 3.8 IEC 60952-1, 6.9	Qualified to DO-293 and DO-160E, Category B.	
Fluid Contamination	DO-293, 3.9 IEC 60952-1, 6.10	Test was performed on representative material samples. Fluids tested: Fuels 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	Qualified to DO-293 and DO-160E, Category S.	
Physical Integrity at High Temperature	DO-293, 3.11 IEC 60952-1, 6.12	All samples successfully met the test requirements	
Flammability	DO-293, no requirement IEC 60952-1, 6.13	Not tested. Fire resistant by definition, see FAR 1.1	
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	N/A	
Component Qualification tests	DO-293, 3.14 IEC 60952-1, 6.16	All samples successfully met the test requirement.	

<b>Characteristic</b>	<b>RTCA DO-293 IEC 60952</b>	<b>Requirement/Performance</b>	<b>Test Report / Reference</b>
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 Ni-Cd batteries only.	
Strength of Receptacle	DO-293, 3.15 IEC 60952-1, 6.19	N/A	
Handle Strength	DO-293, 3.16 IEC 60952-1, 6.20	N/A	

N/A = Not Applicable

#### Authentication:

Manufacturer.                    Concorde Battery Corporation

Signed:                                    .....

Name of signatory:                    John B. Timmons, PE

Title or Function:                      Vice President Engineering