



LORDGATE ENGINEERING

PRODUCT PROFILE

INTEGRATED BATTERY BOX SYSTEMS FOR RAIL APPLICATIONS

•PROJECT **CORADIA DMU**

•OBJECTIVE

Working in parallel with the brake system and supporting raft manufacturer, to ensure collective achievement of all load cases to the Railway Group Standards, the objective was to design, validate and manufacture the mechanical structural elements of the battery box and crates to envelop in a totally integrated system, the battery cells, battery charger and electrical management system.



•DIMENSIONS

Height - 649.0 mm
Length - 2801.0 mm
Depth - 750.0 mm closed
- 1380.0 mm fully extended
Weight - 944.0 kg Total inclusive

•DESIGN CONSTRAINTS

With the parameters defined for the component parts, both individually and collectively, a Finite Element Analyses (FEA) for the assembly was created, detailing that the load characteristics proved compliant with the following criteria;

- Compliance with Railway Group Standards eg. GM/TT0179
- Compliance of space envelope
- Reduction of target weight
- Application of telescopic slides for battery maintenance
- Co-ordination of installation arrangements for electrical, charger & battery systems
- Installation mounting requirements with brake module raft.
- Internal heat management

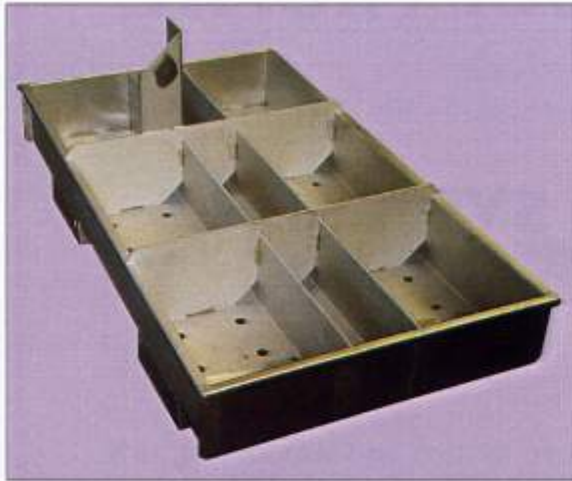
•PROCEDURE

Detailed overleaf are the sub-assembly parts and completed assembly, with the individual specifications and compliance requirements detailed alongside each component unit.

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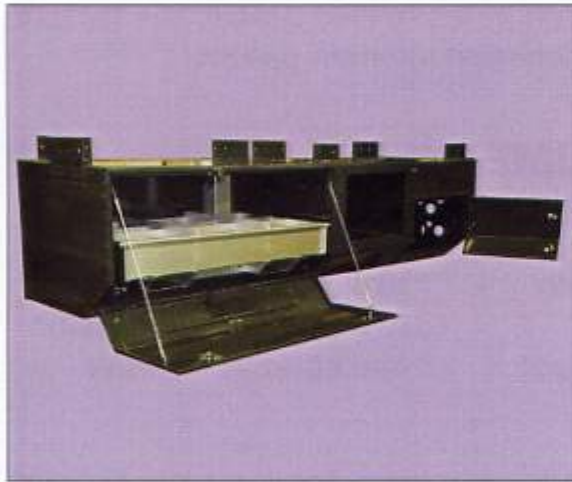
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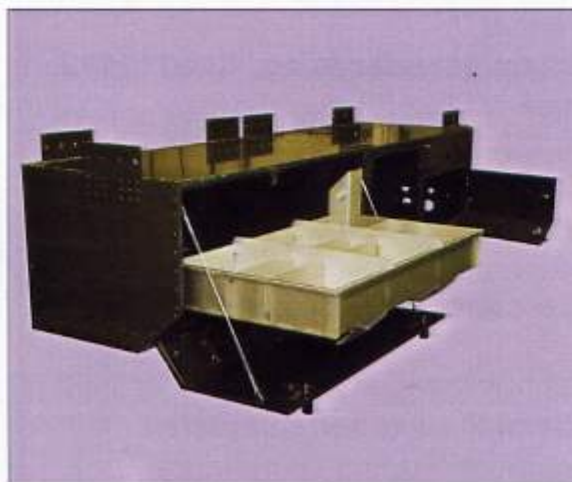
BATTERY CRATE

- Stainless steel construction
- Coded welding in accordance to BS4872, part 1, tests 1&2
- Pickled & passivated pre treatment
- Battery cell ventilation system
- Fork truckable
- Telescopic slide & locking mountings



BATTERY BOX ENCLOSURE

- Integral framework & structural cladding
- Environmentally compliant paint system
- Fire & water screening
- Multiple crate latching system
- Integral electronic management housing with IP65 door access
- Galvanic & crevice resistant design
- Battery compartment ventilation



BATTERY BOX ASSEMBLY

- Compliant longitudinal transverse and vertical critical loading to GM/TT0179
- 100% extension on telescopic slide arrangement
- Pull-out force operable by one person
- Maintenance access for batteries in or out of depot
- Ease of access for electrolyte & system maintenance
- Incorporative design housing modular charger unit