

CC ENGINEERS PVT. LTD.

Complex Systems Simplified; Through Simulation.



TRAINING LABS

LHB Simulators

From Design to Reality

A complete design and development solution for LHB simulation equipment.



BRAKING & SAFETY

RUNNING GEAR

COACH UTILITIES

POWER & ELECTRICAL



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INTRODUCTION

Introduction to LHB Simulator

LHB coach sub-system simulators replicate the experience of sub-systems of LHB coaches in a realistic and controlled environment.

They are designed to provide training to operations staff and maintenance staff with a safe and effective training tool, so trainees can practise their skills in a simulated environment without injury or damage to equipment.

LHB Simulators is a family of sub-system training products, not a single simulator — a collection of simulation and training systems for major LHB coach sub-systems.



PURPOSE

Purpose & trainees

The LHB Simulator product family gives training to operations and maintenance staff in a safe, controlled way to build practical skills on LHB coach sub-systems.

- | | |
|---|--|
| ■ Operations staff training | ■ Maintenance staff training |
| ■ Sub system familiarisation | ■ Controlled practical training |
| ■ Fault-oriented learning, where applicable | ■ Safer training without risk to operational equipment |

PRODUCT FAMILY

Sub-system training modules

BRAKING & SAFETY

LHB Air Braking Simulator

KE-1 and C3W Distributor Valve with an integrated fault trainer and Wheel Slide Control system (KNORR BREMSE / FLIT type).

RUNNING GEAR

LHB Suspension System (FIBA)

FIBA suspension system training panel for hands-on maintenance skill-building.

POWER & ELECTRICAL

LHB Air Conditioning & Train Lighting

Air conditioning and train lighting training across AC3/2/1, Chair Car, Power Car and Non-AC coach configurations.

COACH UTILITIES

LHB Control Discharge Toilet System

A separate training module for the LHB control-discharge toilet system.

POWER & ELECTRICAL

LHB EOG Power Car

Training panel for the LHB End-On Generation (EOG) power car.

COACH UTILITIES

LHB Bio Vacuum Toilet System

Training panel for the LHB bio-vacuum toilet system.

- | | |
|---|--|
| ■ LHB coach train lighting system | ■ LHB coach virtual maintenance |
| ■ LHB coach - HVAC system | ■ LHB Coach FDSS & FSDS system |
| ■ Twin pipe air brake simulator & fault simulator | ■ Safer training without risk to operational equipment |

FEATURED TRAINER

LHB Air Braking Simulator

The Maintenance Simulator concept spans multiple domains - aerospace, land, naval and rail.



LHB Air braking simulator KE-1 and C3W Distributor valve along with fault trainer / Wheel Slide Control system (KNORR BREMSE / FLIT Type).

The air-braking trainer includes a fault trainer and Wheel Slide Control system, so fault-based troubleshooting practice forms part of the braking simulator scope.

Components & Systems Referenced

- LHB air braking system
- KE-1 distributor valve
- C3W distributor valve
- Fault trainer
- Wheel Slide Control system
- FLIT type



COVERAGE

Air Conditioning & Train Lighting

Air conditioning and train lighting training across the full range of LHB coach configurations.

COACH TYPES

- | | |
|-------------|----------------|
| ■ AC 3-tier | ■ Chair Car |
| ■ AC 2-tier | ■ Power Car |
| ■ AC 1-tier | ■ Non-AC Coach |

TRAINING AREAS

- | |
|--------------------|
| ■ Air conditioning |
| ■ Train Lighting |



AT A GLANCE

Product capability summary



Brake Training

- Air braking
- KE-1 distributor valve
- C3W distributor valve
- Wheel Slide Control
- Fault training
- FDSS& FSDS



Suspension Training

- FIBA suspension system



Coach Utility Systems

- Bio-vacuum toilet
- Control discharge toilet



Power Systems

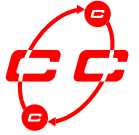
- EOG Power Car



Comfort & Electrical Systems

- Air conditioning
- Train Lighting





ENVIRONMENT

Safe & controlled training environment

Environment

- Realistic environment
- Controlled environment
- Safe training environment

Intended Users

- Running staff
- Maintenance staff

Training Value

- Practise skills without risk of injury
- Avoid damage to operational equipment
- Improve familiarity with LHB coach systems

CONFIGURATIONS

Trainer configurations

Air Braking Simulator

KE-1 and C3W Distributor Valve trainer with an integrated fault trainer and Wheel Slide Control system (KNORR BREMSE / FLIT type).

Suspension System Trainer

Dedicated FIBA suspension system training panel for hands-on maintenance skill-building.

Toilet System Trainers

Bio-vacuum and control-discharge toilet system panels replicating real LHB coach sanitation systems.

Power & Lighting Trainers

EOG power car and air-conditioning / train-lighting panels covering AC3/2/1, Chair Car and Non-AC coach configurations.

APPLICATIONS

Where the labs are used

- Running-staff training on LHB braking and sub-system operation
- Maintenance-staff fault diagnosis and troubleshooting practice
- Safe, damage-free skill development away from live rolling stock
- Depot-based recurrent training and competency assessment

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CREDIBILITY

Why CC Engineers

Founded in 1987 and headquartered in Pune, Maharashtra, CC Engineers Pvt. Ltd. designs, manufactures and delivers dynamic simulators and technology-intensive customised projects for the transport and defence industries.



In-house engineering

- Civil
- Mechanical
- Electrical
- Electronics
- Computer engineering
- Software
- Manufacturing
- Turnkey project execution



Services

- Software Development
- Modeling for Simulations
- Turnkey Project Execution
- Design, Development & Innovation
- Manufacturing
- Civil Engineering



Certifications

- ISO 9001:2015
- MSME registered
- NSIC registered

Clients



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FAQ

Which LHB sub-systems are covered?

Air braking (KE-1 / C3W with Wheel Slide Control), suspension (FIBA), bio-vacuum and control-discharge toilet systems, EOG power car, and air conditioning / train lighting across AC and Non-AC coach configurations.

Can fault scenarios be injected for training?

Yes. The air braking simulator includes an integrated fault trainer and Wheel Slide Control system, allowing instructors to inject faults for realistic troubleshooting practice.

Build the skill before the shift starts.

Functional sub-system training panels — from design to reality.



www.railsimulation.com



sales@railsimulation.com



+91 020 2565 2865 | +91 93706 66219



1087, Hare Krishna Mandir Rd, Model Colony, Shivajinagar, Pune, Maharashtra – 411016

Visit our website

