



DEM233 Locomotive Air Brake

Credit Hours: 3

Description:

This course is the third in a series of four courses in Locomotive Mechanics. It is designed to provide the student an introduction to the operation, testing, maintenance, and troubleshooting for 26L and 30 ACDW locomotive air brake systems. This course also emphasizes FRA air brake requirements applicable to locomotives.

Supplies:

Please check with the instructor for details about any supplies that may be required.

Objectives:

1. List the differences between straight and automatic air brake systems.
2. List the steps in troubleshooting air compressor operations.
3. Explain the automatic drain operation.
4. Define locomotive air brake terms.
5. Identify when the air brake system is fully charged.
6. Evaluate and solve problems on the 26 L simulator.
7. Evaluate and solve problems on the 30 ACDW simulator.
8. Recognize and explain operation of the independent quick release valve.
9. List the FRA Air Brake requirements.

Content Outline and Competencies:

I. Air Brake Fundamentals

- A. List the differences between straight and automatic air brake systems.
- B. Explain the "fail-safe" component of air brakes.

II. Locomotive Air Compressors

- A. List the steps in troubleshooting air compressor operations.
- B. Match air compressor terms with definitions.

III. Automatic Drain Operation

- A. Explain the automatic drain operation.
- B. Identify flaws in the operation from given scenarios.

IV. Automatic Brake Valve Handle Positions

- A. Identify correct handle positions from diagrams.
- B. Define and select correct handle positions.

V. Locomotive Main Reservoir System

- A. Identify when the air brake system is fully charged.
- B. Apply corrections to bring reservoirs to proper pressures.

VI. CBT 26 L Air Brake Simulator

- A. Evaluate 26 L simulator scenarios.
- B. Apply corrective action to 26 L simulator.

VII. 30 ACDW Simulator

- A. Evaluate 30 ACDW simulator scenarios.
- B. Apply corrective action to 30 ACDW simulator.

VIII. Independent Quick Release Valve

- A. Identify the independent quick release valve.
- B. Apply proper actions to operate the independent quick release valve.

IX. FRA Air Brake requirements

- A. Match air brake terms with definitions.
- B. Identify air brake components from diagrams.

Guidelines for Success:

Assessment Plan – Assessment is an integral part of the educational process at Washburn Tech and accurate feedback is an important tool in continuously improving the institution's technical programs. Students can expect to participate in assessment activities prior to entry into programs, within specific courses and following program completion for specific fields of study.

Grading Criteria:

- 90-100% A
- 80-89% B
- 70-79% C
- Below 70% Failing

- Labs Pass/Fail

Instruction includes 50% lecture and 50% laboratory exercises.

Attendance:

Classroom attendance is required. Class attendance requirement is 90%.

Disability:

The Americans with Disabilities Act (ADA) Office is responsible for assisting in arranging accommodations and for identifying resources at Washburn Institute of Technology for persons with disabilities. Qualified students with disabilities **MUST** self-identify by completing an application. In addition students must provide appropriate medical documentation to the ADA coordinator to be eligible for accommodations. New requests for accommodations should be submitted at least two months or more prior to the date the accommodations are needed. However, please contact the ADA office as soon as a need may arise. Depending on the accommodation request, four to eight weeks lead time may be needed for timely and effective provision of accommodations. The ADA Office coordinates and assists in arranging accommodations it deems appropriate for eligible students on a case-by-case basis.

If you are a student with a disability that may substantially limit your ability to participate in any of our classes and you believe that you will need accommodations, it is your responsibility to contact:

ADA Coordinator

Phone: 785-228-6356

Email: gloria.christian@washburn.edu

