Common Course Outline
DEMT 114
Brake System Repair
4 Semester Hours

The Community College of Baltimore County

Description

DEMT 114 -- 4 Credits –Brake System Repair

covers the procedures to disassemble and reassemble hydraulic and air brakes. Students inspect the master cylinder and study the wheel cylinders, brake assemblies, and power brake units. Students learn how to inspect, and troubleshoot air compressors, foot and hand valves, relays, tractor protection valves, air driers, moisture ejectors, cam type, wedge type air disc brakes, air brake chambers, spring brake chambers and trailer air brake systems.
4 credits: 3 lecture hours per week; 3 laboratory hours per week
Prerequisite: DEMT 101

Overall Course Objectives

Upon completion of this course, students will be able to:

1. comply with personal and environmental safety practices associated with brake systems including personal protective equipment and the handling, storage, and disposal of chemicals and materials in accordance with federal, state, and local regulations;
2. diagnose poor stopping, air leaks, premature wear, pulling, grabbing, or dragging problems caused by supply and service system malfunctions and determine needed action;
3. diagnose poor stopping, brake noise, premature wear, pulling, grabbing, or dragging problems caused by the foundation brake, slack adjuster and brake chamber problems and determine needed action;
4. inspect, clean, and adjust air disc brake caliper assemblies and determine needed repairs;
5. inspect and test parking (spring) brake chamber diaphragm and seals; replace parking (spring) brake chamber and dispose of removed chambers in accordance with local regulations;
6. manually release and reset parking brakes in accordance with manufacturers' recommendations;
7. diagnose poor stopping, premature wear, pulling, dragging or pedal feel problems caused by the hydraulic system and determine needed action;
8. inspect and test brake fluid; bleed and/or flush system and determine proper fluid type
9. test and adjust brake stop light switch, bulbs, wiring, and connectors and repair or replace as needed;
10. inspect and measure brake drums and rotors and perform needed action;
11. inspect, test, repair or replace power brake assist, hoses, and control valves and determine proper fluid type;

12. diagnose antilock brake systems (ABS) electronic control(s) and components using self-diagnosis and/or specified test equipment (scan tool, personal computer) and determine needed action; and
13. diagnose automatic traction control (ATC) electronic control(s) and components using self-diagnosis and/or specified test equipment (scan tool, personal computer) and determine needed action.

Major Topics

I. Air brakes diagnosis and repair
II. Air supply and service systems
III. Hydraulic brakes diagnosis and repair
IV. Hydraulic system and power assist units
V. Air and hydraulic antilock brake systems (ABS) and automatic traction control

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member and will be provided on the first day of class.
The following will be required for this course:

1. Written paper or suitable practical project
2. Midterm exam
3. Comprehensive final (including a practical exam).

If a written paper is assigned, the following will apply:

a. Topic of the paper will be selected by the student and should relate to the subject material of the course.
b. The paper should be six (6) to eight (8) pages in length, typewritten, and double-spaced. It should include in addition to the six (6) to eight (8) pages of text, an author and title page and bibliography utilizing a minimum of three reference resources excluding classroom materials.
c. All papers are due when 80% of the class sessions are completed.

In addition, students can expect additional grades from the following areas:

4. Quizzes
5. Lab Projects
6. Homework Assignments.

Other Course Information

This course is a Diesel and Equipment Maintenance Technology core course.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

(8) Date Revised: 10/17/06