

ATLB-2120: PNEUMATIC TOOLS

Cuyahoga Community College

Viewing: ATLB-2120 : Pneumatic Tools

Board of Trustees:

September 2025

Academic Term:

Fall 2025

Subject Code

ATLB - AIT-Construct/Hazard Material

Course Number:

2120

Title:

Pneumatic Tools

Catalog Description:

The care and use of pneumatic tools including compressors and pavement breaking equipment, carpenter tending duties, and hydraulic splitters. The safe operation of a sandblaster. A review of OSHA Subpart I, pneumatic tools and personal protective equipment (PPE) is given.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Departmental approval: admission to the Construction Tending and Hazardous Material Abatement Technology Apprenticeship program.

Outcomes

Course Outcome(s):

1. Demonstrate the safe operation of pneumatic tools and operate in a job situation.

Objective(s):

1. List the pneumatic tools that are commonly used in construction.
2. Maintain various pneumatic tools by disassembling , inspecting, and and rebuilding components and lubricating as needed.
3. Identify types of pavement breakers and various interchangeable parts required for breaking concrete, asphalt and masonry block.
4. Differentiate between chipping guns and pavement breakers and tool selection for specific jobs.
5. Assess job situations and select proper pneumatic tools for different tasks.
6. Operate pneumatic tools in a safe manner and in accordance with safety regulations as prescribed by OSHA.

Course Outcome(s):

2. Recognize and identify various carpenter tasks, tools, and materials used in construction.

Objective(s):

1. Identify and label fasteners and materials including nails, screws, and lumber and plywood used in form building.
2. Demonstrate the construction of job built and patented forms for footing walls and slabs.
3. Identify the various tools and hardware used by carpenters on jobsites.
4. List materials, wood and wood substitutes used in form building and in different parts of a structure.
5. Compare types of forming methods including job-built and patented forming systems.

Course Outcome(s):

3. Discuss the operation of the hydraulic splitter, identify the components of the equipment and operate in a controlled break situation.

Objective(s):

1. Identify the components of the hydraulic splitter and demonstrate the safe operation of the tool.
2. Establish a layout pattern for controlled breaks including hole depth and spacing.
3. Position the tool for controlled breaks either horizontally or vertically.
4. Operate the hydraulic splitter in a safe and controlled manner.
5. Maintain the equipment by lubricating and or replacing worn parts.

Course Outcome(s):

4. Discuss the operation of the sandblaster and the components of the equipment, various applications and different blasting agents for hard and soft surfaces.

Objective(s):

1. List the parts of the sandblaster including hoses and tips.
2. Demonstrate the regulation of the pressure of the equipment.
3. Identify the different types of sandblasting agents for either hard or soft surfaces.
4. Demonstrate the operation of the sandblaster including tip selection, sand application and proper distance for effective operation.

Methods of Evaluation:

1. Quizzes
2. Tests
3. Class participation

Course Content Outline:

1. Pneumatic tools
 - a. Tools and equipment
 - i. Jack hammer
 - ii. Pavement breaker
 - iii. Chipping guns
 - b. Tool maintenance
 - c. Pavement breakers
 - i. Types and sizes
 - ii. Tools and bits
 - iii. Uses
 - d. Chipping guns
 - i. Uses
 - ii. Components
 - iii. Maintenance
 - e. Tool selection
 - f. Operation
 - i. Handling
 - ii. Positioning
 - iii. Hazards
 - iv. Safety
2. Carpenter tending
 - a. Tools and hardware
 - i. Measuring tools
 - ii. Squares
 - iii. Hammers
 - iv. Drills

- v. Pry bars
 - vi. Saws
 - 1. Power
 - 2. Hand
- b. Materials for forms and structures
 - i. Wood
 - ii. Wood substitutes
- c. Forming methods
 - i. Job built
 - ii. Patented systems
- d. Fasteners
 - i. Nails
 - ii. Screws
 - iii. Clamps
- e. Form hardware
 - i. Wedge bolts
 - ii. Waler ties and clamps
 - iii. Ties
 - iv. Turnbuckles
 - v. Braces and brackets
- f. Form construction
 - i. Panel layout
 - ii. Positioning
 - iii. Bracing and aligning
- 3. Hydraulic splitter
 - a. Components
 - i. Hydraulic lines
 - ii. Plugs
 - iii. Feathers
 - iv. Cylinders
 - b. Controlled breaks
 - i. Hole patterns
 - ii. Hole depth
 - iii. Break configuration
 - c. Positioning
 - d. Operation
 - i. Orientation
 - ii. Positioning
 - iii. Feed control
 - iv. Safety
- 4. Sand Blaster
 - a. Components
 - i. Hoses and nozzles
 - ii. Compressor
 - iii. Regulator
 - iv. Filters
 - v. Personal protective equipment
 - vi. Safety
 - b. Pressure regulation
 - i. Operating range
 - ii. Gages
 - c. Sand blasting agent
 - i. Silica sand
 - ii. Coal slag
 - iii. Metal shot
 - iv. Organic
 - d. Operation factors

- i. Task orientation
- ii. Tip selection
- iii. Operator distance

Resources

LIUNA Training and Education Fund. *Material Identification*. Pomfret Center, CN: LIUNA Training and Education Fund, 2007.

LIUNA Training and Education Fund. *Pneumatic Tools Operation*. current. Pomfret Center, CN: LIUNA Training and Education Fund, 2007.

T.T. Love. *Construction Manual: Concrete Formwork*. Carlsbad, CA: Craftsman Book Company, 1973.

Resources Other

1. "Power Tool Safety is Specific". http://www.powertoolinstitute.com/pti_pdfs/PTI_Safety.pdf
2. "Powered Hand Tools". <http://www.ncsu.edu/ehs/www99/right/handsMan/workplace/handtool.html>

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