ATLB-2120: PNEUMATIC TOOLS

Cuyahoga Community College

Viewing: ATLB-2120 : Pneumatic Tools

Board of Trustees:
2012-06-28

Academic Term:
Spring 2019

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 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 rebuiliding 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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