MODULE OVERVIEW
This module provides the trainee with an overview of pipefitting, pipefitter responsibilities, and career opportunities. The module also covers basic principles of safety.

PREREQUISITES
Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum.

OBJECTIVES
Upon completion of this module, the trainee will be able to do the following:
1. Describe the types of work performed by pipefitters.
2. Identify career opportunities available to pipefitters.
3. Explain the purpose and objectives of an apprentice training program.
4. Explain the responsibilities and characteristics of a good pipefitter.
5. Explain the importance of safety in relation to pipefitting.

PERFORMANCE TASKS
There are no performance tasks for this module.

MATERIALS AND EQUIPMENT LIST
Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment
Sample pipe
Common pipe wrenches
Copy of an employee manual
Job announcements for pipefitting from local newspapers (want ads)
NCCER Apprentice Training Recognition Forms
OSHA Safety and Health Standards for the Construction Industry
Module Examinations*

* Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

SAFETY CONSIDERATIONS
Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. Emphasize basic site safety.
ADDITIONAL RESOURCES

This module is intended to present thorough resources for task training. The following reference works are suggested for both instructors and motivated trainees interested in further study. These are optional materials for continued education rather than for task training.


TEACHING TIME FOR THIS MODULE

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 5 hours are suggested to cover Orientation to the Trade. You will need to adjust the time required for hands-on activity and testing based on your class size and resources.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Planned Time</th>
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</thead>
<tbody>
<tr>
<td><strong>Session I. Orientation to the Trade</strong></td>
<td></td>
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<tr>
<td>A. Introduction</td>
<td></td>
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<tr>
<td>B. Pipefitting Work</td>
<td></td>
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<tr>
<td>C. Opportunities in the Trade</td>
<td></td>
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<tr>
<td>D. Your Training Program</td>
<td></td>
</tr>
<tr>
<td>E. Responsibilities of the Employee</td>
<td></td>
</tr>
</tbody>
</table>

| **Session II. Human Relations, Safety Roles, Review, and Module Examination** | |
| A. Human Relations | |
| B. Employer and Employee Safety Obligations | |
| C. Review | |
| D. Module Examination | |
| 1. Trainees must score 70 percent or higher to receive recognition from NCCER. | |
| 2. Record the testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor. | |
MODULE OVERVIEW

This module covers general hand tool safety and procedures for identifying, selecting, inspecting, using, and caring for pipe vises and stands, pipe wrenches, levels, pipe fabrication tools, and pipe bending tools.

PREREQUISITES

Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; and Pipefitting Level One, Module 08101-06.

OBJECTIVES

Upon completion of this module, the trainee will be able to do the following:

1. Describe the safety requirements that apply to the use of pipefitter hand tools.
2. Explain how to properly care for selected pipefitter hand tools.
3. Demonstrate how to safely and properly use selected pipefitter hand tools.
4. Identify tools and state their uses.
5. Use selected hand tools.

PERFORMANCE TASKS

Under the supervision of the instructor, the trainee should be able to do the following:

1. Identify various pipefitting hand tools.
2. Secure a section of pipe in a vise and pipe stand.
3. Properly use:
   • Straight pipe wrenches
   • Offset pipe wrenches
   • Chain wrenches
   • Strap wrenches
4. Properly use:
   • Laser level
   • Torpedo and larger levels
   • Tubing water level
   • Center finder
5. Check square and level:
   • Turn tongue 180 degrees from where it was
   • Flip level to ensure it is level

MATERIALS AND EQUIPMENT LIST

- Overhead projector and screen
- Transparencies
- Blank acetate sheets
- Transparency pens
- Whiteboard/chalkboard
- Markers/chalk
- Pencils and scratch paper
- Appropriate personal protective equipment
- Assorted diameters of pipe
- Assorted diameters of tubing at various lengths
- Conduit
- Chain vises
- Yoke vises
- Strap vises
Various jacks, stands, rollers, and supports
Straight pipe wrenches
Offset pipe wrenches
Compound leverage wrenches
Chain wrenches
Pipe tongs
Strap wrenches
Open-end wrenches
Adjustable wrenches
Framing levels
Torpedo levels
Laser levels
Tubing water levels
Framing squares
Pipefitter’s squares
Combination tri squares
Center finders
Straight butt welding clamps
Flange welding clamps
T-joint welding clamps
Elbow welding clamps
Shop-made aligning dogs
Hi-Lo gauges
Wraparounds
Drift pins
Two-hole pins
Flange spreaders
Hacksaws
Hacksaw blades
Soil pipe cutters
Tube and pipe cutters
Manual pipe reamers
Hand pipe and bolt threaders
Die heads
Thread gauges
Pipe extractors
Pipe taps
Spring tube benders
Lever compression tube benders
Manual benders
Hammer type flaring tools
Screw-in type flaring tools
Module Examinations*
Performance Profile Sheets*

* Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

SAFETY CONSIDERATIONS

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module requires trainees to use hand tools. Emphasize basic hand tool safety.

ADDITIONAL RESOURCES

This module is intended to present thorough resources for task training. The following reference work is suggested for both instructors and motivated trainees interested in further study. This is optional material for continued education rather than for task training.


TEACHING TIME FOR THIS MODULE

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 20 hours are suggested to cover Pipefitting Hand Tools. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.
Topic | Planned Time
--- | ---
**Session I. Introduction, Safety, Vises, and Stands**
A. Introduction
B. Hand Tool Safety
C. Vises and Stands
D. Laboratory – Trainees practice securing a section of pipe in a stand. This laboratory corresponds to Performance Task 2.

**Sessions II and III. Pipe Wrenches and Levels**
A. Wrenches
B. Laboratory – Trainees practice using various types of wrenches. This laboratory corresponds to Performance Task 3.
C. Levels
D. Laboratory – Trainees practice using various types of levels. This laboratory corresponds to Performance Task 4.

**Session IV. Pipe Fabrication Tools**
A. Squares and Center Finders
B. Clamps
C. Gauges and Wraparounds
D. Pins
E. Flange Spreaders

**Sessions V and VI. Pipe Cutting Tools**
A. Saws, Tube Cutters, and Pipe Cutters
B. Reamers and Threaders
C. Extractors and Taps

**Session VII. Benders and Flaring Tools**
A. Benders
B. Flaring Tools
C. Laboratory – Trainees practice fabricating pipe and checking square and level. This laboratory corresponds to Performance Task 5.

**Session VIII. Laboratory, Review, Module Examination, and Performance Testing**
A. Laboratory – Trainees identifying various pipefitting hand tools. This laboratory corresponds to Performance Task 1.
B. Review
C. Module Examination
   1. Trainees must score 70 percent or higher to receive recognition from NCCER.
   2. Record the testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.
D. Performance Testing
   1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
   2. Record the testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.
MODULE OVERVIEW
This module identifies the hazards and explains general safety procedures that must be followed when using power tools, and explains specific guidelines for using electric and pneumatic power tools.

PREREQUISITES
Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; and Pipefitting Level One, Modules 08101-06 and 08102-06.

OBJECTIVES
Upon completion of this module, the trainee will be able to do the following:
1. State the safety procedures that must be followed when working with power tools.
2. Cut pipe using a portable band saw.
3. Identify and explain the uses of portable grinders.
4. Explain the proper and safe operation of machines used in pipe joint preparation:
   • Pipe threaders
   • Portable power drives
   • Pipe bevelers
5. Perform selected pipe joint preparation operations using power tools.

PERFORMANCE TASKS
Under the supervision of the instructor, the trainee should be able to do the following:
2. Operate a portable grinder.
3. Replace dies in a threading machine.
4. Cut, ream, and thread pipe using a threading machine.
5. Cut and thread nipples using a nipple chuck.
6. Thread pipe using a portable power drive.
7. Identify several types of pipe bevelers.

MATERIALS AND EQUIPMENT LIST
- Overhead projector and screen
- Portable band saws and accessories
- Transparencies
- Portable grinders and accessories
- Blank acetate sheets
- Assorted lengths of 1-, 1½-, and 2-inch pipe
- Transparency pens
- Assorted lengths of 3-, 4-, and 6-inch pipe
- Whiteboard/chalkboard
- Cut and beveled pipe
- Markers/chalk
- Soapstone
- Pencils and scratch paper
- Band saw blades
- Appropriate personal protective equipment
- Tripod chain vise
- Face shields
- Wraparounds
- Gloves
- Grinding wheels
- Ground fault circuit interrupter
- Measuring tapes
- Abrasive saws
- Spanner wrenches
SAFETY CONSIDERATIONS

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module requires trainees to use power tools. Review basic power tool safety, electrical safety, and eye and hand protection.

ADDITIONAL RESOURCES

This module is intended to present thorough resources for task training. The following reference work is suggested for both instructors and motivated trainees interested in further study. This is optional material for continued education rather than for task training.


TEACHING TIME FOR THIS MODULE

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 15 hours are suggested to cover *Pipefitting Power Tools*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Planned Time</th>
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</thead>
<tbody>
<tr>
<td><strong>Session I. Introduction, Safety, and Cutting</strong></td>
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<tr>
<td>A. Introduction</td>
<td></td>
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<tr>
<td>B. Power Tool Safety</td>
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<tr>
<td>C. Cutting Pipe Using Saws</td>
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<tr>
<td>D. Laboratory – Trainees practice cutting pipe using a portable band saw.</td>
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</tr>
<tr>
<td>This laboratory corresponds to Performance Task 1.</td>
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<tr>
<td><strong>Session II. Portable Grinders</strong></td>
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<tr>
<td>A. Types of Portable Grinders</td>
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<tr>
<td>B. Inspecting Grinders</td>
<td></td>
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<tr>
<td>C. Operating Grinders</td>
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<tr>
<td>D. Laboratory – Trainees practice operating a portable grinder.</td>
<td></td>
</tr>
<tr>
<td>This laboratory corresponds to Performance Task 2.</td>
<td></td>
</tr>
</tbody>
</table>

* Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

<table>
<thead>
<tr>
<th>Geared threaders and accessories</th>
<th>Ridgid 535 power drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread cutting oil</td>
<td>Pipe bevelers</td>
</tr>
<tr>
<td>Nipple chucks</td>
<td>Module Examinations*</td>
</tr>
<tr>
<td>Ridgid 300 power drive</td>
<td>Performance Profile Sheets*</td>
</tr>
</tbody>
</table>
Session III. Threading Machines
   A. Loading Pipe into a Threading Machine
   B. Cutting and Reaming Pipe
   C. Replacing Dies
   D. Laboratory – Trainees practice replacing dies in a threading machine. This laboratory corresponds to Performance Task 3.
   E. Threading Operations
   F. Machine Maintenance
   G. Laboratory – Trainees practice cutting, reaming, and threading pipe using a threading machine. This laboratory corresponds to Performance Task 4.

Session IV. Special Threading Applications
   A. Cutting and Threading Nipples
   B. Threading Pipe Using a Geared Threader
   C. Laboratory – Trainees practice cutting and threading nipples using a nipple chuck. This laboratory corresponds to Performance Task 5.

Session V. Portable Power Drives and Power Bevelers
   A. Portable Power Drives
   B. Laboratory – Trainees practice threading pipe using a portable power drive. This laboratory corresponds to Performance Task 6.
   C. Power Bevelers
   D. Laboratory – Trainees practice identifying several pipe bevelers. This laboratory corresponds to Performance Task 7.

Session VI. Review, Module Examination, and Performance Testing
   A. Review
   B. Module Examination
      1. Trainees must score 70 percent or higher to receive recognition from NCCER.
      2. Record the testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.
   C. Performance Testing
      1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
      2. Record the testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.
MODULE OVERVIEW
This module explains the safety requirements for oxyfuel cutting. It identifies oxyfuel cutting equipment and setup requirements. It explains how to light, adjust, and shut down oxyfuel equipment. Trainees will perform cutting techniques that include straight line, piercing, bevels, and washing.

PREREQUISITES
Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; and Pipefitting Level One, Modules 08101-06 through 08103-06.

OBJECTIVES
Upon completion of this module, the trainee will be able to do the following:

1. Identify and explain the use of oxyfuel cutting equipment.
2. Set up oxyfuel equipment.
3. Light and adjust an oxyfuel torch.
4. Shut down oxyfuel cutting equipment.
5. Disassemble oxyfuel equipment.
7. Perform oxyfuel cutting:
   • Straight line and square shapes
   • Piercing and slot cutting
   • Bevels
   • Washing
8. Operate a motorized, portable oxyfuel gas cutting machine.

PERFORMANCE TASKS
Under the supervision of the instructor, the trainee should be able to do the following:

1. Set up oxyfuel equipment.
2. Light and adjust an oxyfuel cutting torch.
3. Shut down oxyfuel cutting equipment.
4. Disassemble oxyfuel equipment.
5. Change empty cylinders.
6. Perform straight line and square shape cutting.
7. Perform piercing and slot cutting.
8. Perform bevel cutting.
MATERIALS AND EQUIPMENT LIST

Overhead projector and screen
Transparencies
Blank acetate sheets
Transparency pens
Whiteboard/chalkboard
Markers/chalk
Pencils and scratch paper
Appropriate personal protective equipment:
  Safety goggles
  Face shields
  Welding helmets
  Ear protection
  Welding cap
  Leather jacket
  Leather pants or chaps
  Gauntlet-type welding gloves
  Respirators

ANSI Z49.1-1999
OSHA 29 CFR 1910.146
MSDS for cutting products
Oxygen cylinder with cap
Fuel gas cylinder with cap
Regulators (oxygen and fuel gas)
Hose set
One-piece cutting torch
Combination cutting torch and torch tips
Assorted acetylene, liquefied fuel gas, and special-purpose cutting torch tips
Tip cleaners
Tip drills
Mechanical guide
Cylinder cart
Motorized oxyfuel track cutter
Framing squares
Combination squares with protractor head
Tape measure
Soapstone
Penknife
Pliers
Chipping hammer
Friction lighter
Vendor cutting tip chart
Wrenches (torch, hose, and regulator)
Steel plate
  Thin (16 to 10 gauge)
  Thick (¼ inch to 1 inch)
Television with VCR or DVD (optional)
Welding safety video (optional)
Module Examinations*
Performance Profile Sheets*

* Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.

SAFETY CONSIDERATIONS

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module requires that the trainees operate oxyfuel cutting equipment. Ensure that trainees are briefed on fire and shop safety policies prior to performing any work. Emphasize the special safety precautions associated with the use of cylinders and oxyfuel cutting equipment.

ADDITIONAL RESOURCES

This module is intended to present thorough resources for task training. The following reference works are suggested for both instructors and motivated trainees interested in further study. These are optional materials for continued education rather than for task training.

TEACHING TIME FOR THIS MODULE

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 17½ hours are suggested to cover Oxyfuel Cutting. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Planned Time</th>
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<tbody>
<tr>
<td><strong>Session I. Introduction, Safety, and Oxyfuel Cutting Equipment</strong></td>
<td></td>
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<tr>
<td>A. Introduction</td>
<td></td>
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<tr>
<td>B. Oxyfuel Cutting Safety</td>
<td></td>
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<tr>
<td>C. Oxyfuel Cutting Equipment</td>
<td></td>
</tr>
<tr>
<td>1. Cylinders, Regulators, and Hoses</td>
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<tr>
<td>2. Cutting Torch, Tips, and Tip Equipment</td>
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<tr>
<td>3. Friction Lighters</td>
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<tr>
<td>4. Cylinder Cart</td>
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<tr>
<td>5. Soapstone Markers</td>
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<tr>
<td>6. Specialized Equipment</td>
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<tr>
<td><strong>Session II. Setting Up Oxyfuel Equipment</strong></td>
<td></td>
</tr>
<tr>
<td>A. Setting Up Oxyfuel Equipment</td>
<td></td>
</tr>
<tr>
<td>1. Cylinders</td>
<td></td>
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<tr>
<td>2. Hoses and Regulators</td>
<td></td>
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<tr>
<td>3. Torches and Tips</td>
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<tr>
<td>4. Purging and Testing</td>
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<tr>
<td>B. Laboratory – Trainees practice setting up oxyfuel equipment.</td>
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</tr>
<tr>
<td>This laboratory corresponds to Performance Task 1.</td>
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<tr>
<td><strong>Session III. Torch Operations</strong></td>
<td></td>
</tr>
<tr>
<td>A. Controlling the Oxyfuel Torch Flame</td>
<td></td>
</tr>
<tr>
<td>B. Laboratory – Trainees practice lighting and adjusting an oxyfuel cutting torch. This laboratory corresponds to Performance Task 2.</td>
<td></td>
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<tr>
<td>C. Shutting Down Oxyfuel Equipment</td>
<td></td>
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<tr>
<td>D. Laboratory – Trainees practice shutting down an oxyfuel cutting outfit. This laboratory corresponds to Performance Task 3.</td>
<td></td>
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<tr>
<td>E. Disassembling Oxyfuel Equipment</td>
<td></td>
</tr>
<tr>
<td>F. Laboratory – Trainees practice disassembling an oxyfuel cutting outfit. This laboratory corresponds to Performance Task 4.</td>
<td></td>
</tr>
<tr>
<td>G. Changing Empty Cylinders</td>
<td></td>
</tr>
<tr>
<td>H. Laboratory – Trainees practice changing empty cylinders on an oxyfuel cutting outfit. This laboratory corresponds to Performance Task 5.</td>
<td></td>
</tr>
</tbody>
</table>
Sessions IV through VI. Performing Cutting Operations

A. Performing Cutting Procedures
B. Portable Oxyfuel Cutting Machine Operation
C. Laboratory – Trainees practice straight line and square shape cutting with an oxyfuel cutting torch. This laboratory corresponds to Performance Task 6.
D. Laboratory – Trainees practice piercing and slot cutting with an oxyfuel cutting torch. This laboratory corresponds to Performance Task 7.
E. Laboratory – Trainees practice bevel cutting with an oxyfuel cutting torch. This laboratory corresponds to Performance Task 8.
F. Laboratory – Trainees practice washing with an oxyfuel cutting torch. This laboratory corresponds to Performance Task 9.

Session VII. Review, Module Examination, and Performance Testing

A. Review
B. Module Examination
   1. Trainees must score 70 percent or higher to receive recognition from NCCER.
   2. Record the testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.
C. Performance Testing
   1. Trainees must perform each task to the satisfaction of the instructor to receive recognition from NCCER. If applicable, proficiency noted during laboratory exercises can be used to satisfy the Performance Testing requirements.
   2. Record the testing results on Craft Training Report Form 200, and submit the results to the Training Program Sponsor.
MODULE OVERVIEW
This module covers hazards and general safety procedures governing the use of stepladders, straight and extension ladders, fixed scaffolds, and rolling scaffolds.

PREREQUISITES
Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; and Pipefitting Level One, Modules 08101-06 through 08104-06.

OBJECTIVES
Upon completion of this module, the trainee will be able to do the following:
1. Identify the different types of ladders and scaffolds used on a work site.
2. Describe how to safely use ladders and scaffolding.
3. Properly set up, inspect, and use stepladders, extension ladders, and scaffolding.

PERFORMANCE TASKS
Under the supervision of the instructor, the trainee should be able to do the following:
1. Select, inspect, and use stepladders.
2. Select, inspect, and use straight and extension ladders.
3. Erect, inspect, and disassemble tubular buck scaffolding.

MATERIALS AND EQUIPMENT LIST

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead projector and screen</td>
<td>Transporter</td>
</tr>
<tr>
<td>Transparencies</td>
<td>Twelve hinge pins</td>
</tr>
<tr>
<td>Blank acetate sheets</td>
<td>Two middle guard rails</td>
</tr>
<tr>
<td>Transparency pens</td>
<td>Two scaffold cross braces</td>
</tr>
<tr>
<td>Whiteboard/chalkboard</td>
<td>Two scaffold planks with safety</td>
</tr>
<tr>
<td>Markers/chalk</td>
<td>Two scaffold upper end frames</td>
</tr>
<tr>
<td>Pencils and scratch paper</td>
<td>Two scaffold vertical supports</td>
</tr>
<tr>
<td>Appropriate personal protective equipment</td>
<td>Two top guardrails</td>
</tr>
<tr>
<td>Stepladder</td>
<td>Company safety manual with procedures for fall protection and rescue after a fall</td>
</tr>
<tr>
<td>Platform ladder</td>
<td>Scaffolding tags</td>
</tr>
<tr>
<td>Straight ladder</td>
<td>OSHA requirements for scaffolds: 29 CFR 1926.450, Subpart L Scaffolds</td>
</tr>
<tr>
<td>Extension ladder</td>
<td>Television with VCR or DVD (optional)</td>
</tr>
<tr>
<td>Personal fall arrest system</td>
<td>Safety training video (optional)</td>
</tr>
<tr>
<td>Pliers</td>
<td>Module Examinations*</td>
</tr>
<tr>
<td>Four base plates</td>
<td>Performance Profile Sheets*</td>
</tr>
<tr>
<td>Four caster wheels</td>
<td></td>
</tr>
<tr>
<td>Four leveling jacks</td>
<td></td>
</tr>
<tr>
<td>Four toe boards</td>
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</tbody>
</table>

* Single-module AIG purchases include the printed exam and performance task sheet. If you have purchased the perfect-bound version of this title, download these materials from the IRC using your access code.
SAFETY CONSIDERATIONS

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module requires trainees to use ladders and scaffolding. Review fall hazards and personal fall arrest systems.

ADDITIONAL RESOURCES

This module is intended to present thorough resources for task training. The following reference work is suggested for both instructors and motivated trainees interested in further study. This is optional material for continued education rather than for task training.


TEACHING TIME FOR THIS MODULE

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 12.5 hours are suggested to cover *Ladders and Scaffolds*. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Planned Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sessions I and II. Introduction and Ladders</strong></td>
<td></td>
</tr>
<tr>
<td>A. Introduction</td>
<td></td>
</tr>
<tr>
<td>B. Stepladders</td>
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<tr>
<td>C. Laboratory – Trainees practice selecting, inspecting, and using a stepladder. This laboratory corresponds to Performance Task 1.</td>
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<td>D. Straight and Extension Ladders</td>
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<tr>
<td>E. Laboratory – Trainees practice selecting, inspecting, and using straight and extension ladders. This laboratory corresponds to Performance Task 2.</td>
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<tr>
<td><strong>Sessions III and IV. Scaffolding</strong></td>
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<tr>
<td>A. Using and Caring for Tubular Buck Scaffolding</td>
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<td>B. Using and Caring for Pole Scaffolding</td>
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<td>D. Scaffolding Hazards</td>
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<td>E. Scaffolding Safety Guidelines</td>
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<td>F. Rescue After a Fall</td>
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<tr>
<td>G. Laboratory – Trainees practice erecting, inspecting, and disassembling scaffolding. This laboratory corresponds to Performance Task 3.</td>
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<tr>
<td><strong>Session V. Review, Module Examination, and Performance Testing</strong></td>
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MODULE OVERVIEW
This module explains the applications, proper use, and safety considerations for using engine-driven generators, welding machines, air compressors, pumps, forklift trucks, and hydraulic cranes.

PREREQUISITES
Prior to training with this module, it is recommended that the trainee shall have successfully completed Core Curriculum; and Pipefitting Level One, Modules 08101-06 through 08105-06.

OBJECTIVES
Upon completion of this module, the trainee will be able to do the following:

1. State the safety precautions associated with the use of motor-driven equipment on job sites.
2. Identify and explain the operation and use of the following motor-driven equipment.
   • Welding machines
   • Portable generators
   • Air compressors
   • Portable pumps
   • Aerial lifts
   • Forklifts
   • Compaction equipment
   • Trenching equipment
   • Backhoe loaders
   • Mobile cranes
3. Perform prestart checks and operate the following equipment:
   • Portable generators
   • Welding machines
   • Portable pumps
   • Air compressors

PERFORMANCE TASKS
Under the supervision of the instructor, the trainee should be able to do the following:

1. Perform all prestart checks for engine-driven generators.
2. Set up and operate engine-driven welding machines.
3. Operate engine-driven generators.
4. Perform all prestart checks for portable air compressors.
5. Operate portable air compressors.
6. Identify portable pumps to use for specific applications.
7. Identify forklift trucks and recognize safety hazards involved in working around them.
8. Identify types of hydraulic cranes and recognize safety hazards involved in working around them.
SAFETY CONSIDERATIONS

Ensure that the trainees are equipped with appropriate personal protective equipment and know how to use it properly. This module requires trainees to use various types of motorized equipment. Review hazards associated with each type of equipment and general precautions needed when operating motorized equipment.

ADDITIONAL RESOURCES

This module is intended to present thorough resources for task training. The following reference works are suggested for both instructors and motivated trainees interested in further study. These are optional materials for continued education rather than for task training.

TEACHING TIME FOR THIS MODULE

An outline for use in developing your lesson plan is presented below. Note that each Roman numeral in the outline equates to one session of instruction. Each session has a suggested time period of 2½ hours. This includes 10 minutes at the beginning of each session for administrative tasks and one 10-minute break during the session. Approximately 10 hours are suggested to cover Motorized Equipment. You will need to adjust the time required for hands-on activity and testing based on your class size and resources. Because laboratories often correspond to Performance Tasks, the proficiency of the trainees may be noted during these exercises for Performance Testing purposes.

<table>
<thead>
<tr>
<th>Topic</th>
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<td><strong>Session I. Introduction, Safety, Generators, and Welding Machines</strong></td>
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<tr>
<td>A. Introduction</td>
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<td>B. Safety Precautions</td>
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<td>C. Generators</td>
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<tr>
<td>D. Laboratory – Trainees practice performing prestart checks and operating generators. This laboratory corresponds to Performance Tasks 1 and 3.</td>
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<tr>
<td>E. Welding Machines</td>
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<tr>
<td>F. Laboratory – Trainees practice setting up and operating welding machines. This laboratory corresponds to Performance Task 2.</td>
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<td><strong>Session II. Air Compressors, Portable Pumps, Aerial Lifts, and Compaction Equipment</strong></td>
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<td>A. Air Compressors</td>
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<td>B. Laboratory – Trainees practice performing prestart checks and operating air compressors. This laboratory corresponds to Performance Tasks 4 and 5.</td>
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<td>D. Laboratory – Trainees identifying portable pumps to use for specific applications. This laboratory corresponds to Performance Task 6.</td>
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<td>E. Aerial Lifts</td>
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<td>F. Compaction Equipment</td>
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<td>A. Forklifts</td>
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<tr>
<td>B. Laboratory – Trainees practice identifying forklifts and recognizing hazards associated with them. This laboratory corresponds to Performance Task 7.</td>
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<tr>
<td>C. Backhoes</td>
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<td>D. Trenchers</td>
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<td>E. Cranes</td>
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<td>F. Laboratory – Trainees practice identifying cranes and recognizing hazards associated with them. This laboratory corresponds to Performance Task 8.</td>
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