



Fire Protection Training

Procedures Handbook 4300

HANDTOOLS

TOPIC: Axes; Double Bit, Single Bit, and Pick-Head

TIME FRAME: 30 Minutes

LEVEL OF INSTRUCTION:

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will identify, describe the basic use, care, maintenance, and safety precautions associated with axes used in the fire service.

Standard: With a minimum of 70% accuracy

MATERIALS NEEDED:

- Different types of axes
- Appropriate visual aids
- Audio visual equipment
- Vise
- Wooden blocks
- Gloves
- File with a handle and a guard

REFERENCES:

- Wildland Firefighting, Clayton, Day, McFadden, Chapter 6
- IFSTA, Essentials of Firefighting, 2nd Edition, Chapter 1

PREPARATION:

Even in the age of the computer, firefighting involves a substantial amount of "grunt" work. One of the more useful tools in this regard is the axe. It is a basic tool used in both wildland and structural firefighting operations.



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PRESENTATION	APPLICATION
<p>I. TYPES</p> <ul style="list-style-type: none">A. Double BitB. Single Bit<ul style="list-style-type: none">1. Flat head axeC. Pick-Head Axe<ul style="list-style-type: none">1. Fireman's axe <p>II. PARTS AND NOMENCLATURE</p> <ul style="list-style-type: none">A. Handle, Wooden or Fiberglass<ul style="list-style-type: none">1. Shoulder2. ButtB. Head, Metal<ul style="list-style-type: none">1. Cutting edge2. Eye3. Pick-head4. Flat headC. Wedges<ul style="list-style-type: none">1. Wood2. Steel3. Polystyrene (plastic) <p>III. BASIC USE</p> <ul style="list-style-type: none">A. Vegetation Fires	<p>Information sheet #1</p>



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<ul style="list-style-type: none">1. Cutting brush and small treesB. Structure Fires<ul style="list-style-type: none">1. Ventilation2. Overhaul3. Forcible entry <p>IV. CARE AND MAINTENANCE</p> <ul style="list-style-type: none">A. Inspect Tools Before and After Each Use:<ul style="list-style-type: none">1. Handle<ul style="list-style-type: none">a. Smooth<ul style="list-style-type: none">(1) Sand as necessary(2) Do not apply<ul style="list-style-type: none">(a) Linseed oil(b) Waxb. Straight<ul style="list-style-type: none">(1) Place out of service if<ul style="list-style-type: none">(a) Warped(b) Twisted(c) Not properly aligned with headc. Sound<ul style="list-style-type: none">(1) Free of cracks(2) Free of burnsd. Clean and dry	



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<p>2. Head</p> <ul style="list-style-type: none">a. Free of cracks<ul style="list-style-type: none">(1) If found place out of service(2) Do not paint head<ul style="list-style-type: none">(a) Paint will hide cracksb. Free of burrs or chips<ul style="list-style-type: none">(1) File as necessaryc. Secure<ul style="list-style-type: none">(1) Head is tightly fastened to the handled. Sharp<ul style="list-style-type: none">(1) Cutting edges properly sharpened<ul style="list-style-type: none">(a) Use a 12" flat mill bastard file(b) Apply even pressure across full width of the cutting edge(c) Sharpened from cutting edge back in an arc which is 2" deep at deepest point(2) Free of nicks or chips(3) Permissible to treat with a rust inhibitor	<p>Information sheet #2 and #3</p>



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<p>(4) Tool guard in place whenever tool is not in use</p> <p>V. SAFETY PRECAUTIONS</p> <p>A. When Using</p> <ol style="list-style-type: none">1. Maintain 10 foot interval2. Maintain firm footing3. Watch for obstructions<ol style="list-style-type: none">a. Overheadb. Within arc of swing4. Wear gloves and full safety uniform<ol style="list-style-type: none">a. Pay particular attention when gloves are wet5. Do not allow head of tool to get too near body6. Concentrate on impact area to:<ol style="list-style-type: none">a. Prevent ricochet or glancing blowb. Avoid rocks and other hard objectsc. Avoid hazards<ol style="list-style-type: none">(1) Beehives(2) Electrical wires(3) Barbed wire7. Pace yourself8. Use proper tool for the job <p>B. When Carrying</p>	



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<ul style="list-style-type: none">1. Grasp at balance point with head forward2. Carry on downhill side3. Carry horizontally (parallel) to the ground4. Sound off when passing another person with "coming through" and wait for that person to yield right of way <p>C. When Passing</p> <ul style="list-style-type: none">1. Pass handle (butt) first2. At arms length from other person<ul style="list-style-type: none">a. Never toss <p>D. When Grounding Tool</p> <ul style="list-style-type: none">1. Place head of tool toward center of circle with handle outward if a group of tools or cover with shovel if single tool2. Shield the head of the tool to the extent possible<ul style="list-style-type: none">a. Use tool guards whenever practicable3. Place all crew tools in the same area <p>E. When Sharpening</p> <ul style="list-style-type: none">1. Secure tool in vise<ul style="list-style-type: none">a. Utilize wooden blocks orb. Newman tool holder2. Use gloves3. Use file with handle and a file guard in place4. Rest the palm of the hand on the tip of the file	



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<ul style="list-style-type: none">a. Do not wrap the fingers over the tip of the file5. Sharpen in a motion away from the body6. Remove tools from the vise if leaving the area7. Make visual check for sharpness, do not run finger across cutting edge <p>F. When Storing</p> <ul style="list-style-type: none">1. Store in a clean, cool, dry area2. Store in a secure area or in the proper compartment3. Separate in-service and out-of-service tools4. Always keep the tool guards in place5. Secure tools properly in tool racks <p>VI. REHANDLING</p> <p>A. Removing Handle Without Epoxy</p> <ul style="list-style-type: none">1. Secure head in vise<ul style="list-style-type: none">a. Do not put tool head in vise without wood blocks2. Saw off handle next to head3. Drill holes (3 or 4) through wood remaining in axe head (use 1/4" bit)4. Drive out remaining wood in direction it was inserted <p>B. Installing Handle Without Epoxy</p> <ul style="list-style-type: none">1. Inspect eye for cracks, breaks, or burrs (remove burrs with file)	



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<ul style="list-style-type: none">2. Check new handle for defects, warp, twists, etc.3. File down handle with coarse wood rasp to fit eye of axe head. Finish with fine rasp.<ul style="list-style-type: none">a. Leave 1/2" shoulder on handle4. If not already provided saw slit for wooden wedge 2/3 the depth of the head5. Fit handle into eye of head<ul style="list-style-type: none">a. Should have no gaps between handle and eye of headb. Check for proper alignment of head (90o to handle)c. When fitting head, never pound directly on head6. Drive soft wood wedge into slit as far as possible (avoid splitting handle)7. Saw off excess wedge with hacksaw and rasp smooth8. Drive two metal wedges (#4 or #5) at a 45° angle to the wooden wedge, being careful not to spread eye9. Check for tightness and alignment by putting axe in vise (using head blocks) with handle horizontal and try to move handle up or down10. Sight down handle for alignmentC. Removing Handle Secured With Epoxy<ul style="list-style-type: none">1. Saw off handle next to head2. Boil head 20 to 30 minutes	



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<ol style="list-style-type: none">3. Drive out handle with punch while still hot4. Clean eye with wire brush and sandpaper5. Wipe head with solvent rag and air dry <p>D. Installing Handle With Epoxy</p> <ol style="list-style-type: none">1. Check head for cracks or defects2. Shape handle to fit eye using coarse wood rasp, finish with fine rasp<ol style="list-style-type: none">a. Leave 1/2" shoulder on handle3. If not provided, saw slit for wedge 2/3 the depth of head4. Mix epoxy according to manufacturer's instructions and apply to surfaces to be bonded5. Drive handle into place6. Using polystyrene wedge, coat with epoxy and drive into slit of handle (avoid splitting handle)7. Allow epoxy to completely harden8. Saw off excess handle and dress with a coarse rasp9. Remove excess epoxy with a wire wheel brush	



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SUMMARY:

In order for firefighters to effectively use an axe, they must be familiar with its uses, how to maintain it, and the safety factors to be considered while using the axe.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).