



# Southwest Center

FOR AGRICULTURAL HEALTH, INJURY PREVENTION, AND EDUCATION

Shop Safety  
Mini Series

## Power Hand Tool Safety

Power hand tools are used by every trade and business in many different situations to make jobs faster and easier. From drills to saws and everything in between, there are risks to be aware of when using these small but powerful machines.

### Electric Power Tools

Electric power tools like the ones pictured in figure 1 are cheap, easy to use, powerful, and efficient. When dealing with them you should always keep in mind:

- Electric shock is one of the primary risks associated with electric power tools. Inspect cords for damage prior to use. When possible, use a GFCI plug/outlet and never bend or cut the ground pin in order to use a non-grounded extension cord or outlet.
- Do not carry tools by the cord, or yank on the cord to unplug it from the receptacle.
- Electric tools generate heat with use, so be sure to let the tool cool off if it gets too hot.
- Do not use electric tools in overly wet environments.
- Disconnect tools from power when not in use, before servicing, and when changing blades, etc.
- Do not stall the electric motor, as this can melt the insulation, cause smoke, and keep it from working.
- Never use an extension cord rated for less than the tool's maximum power draw, and always keep extension cords coiled up out of the way.



Figure 1: Electric Power Tools

Photo Source:

<http://www.lampcoplumbingsupplies.com/electrical.html>

### Pneumatic/Air Power Tools

Pneumatic or air tools (figure 2) are used in many garages, farms, and ranches due to their better durability, serviceability, and power. With air tools:

- Be aware that air tools get colder with use. On cold days it may be advisable to wear gloves.
- Be aware that air tools generate much more power and RPMs than a comparably sized electric or battery tool and handle them accordingly.



Figure 2: Air/Pneumatic Power Tools

Photo Source: <https://airtoolresource.com/invaluable-pneumatic-tools/>

*The Shop Safety Mini Series was written by Zac Harris, 2019 CASH Intern  
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- Air tools can be used without fear of electrocution and so may be used in wet environments or where a sparking electric tool could otherwise be dangerous.
- Air tools are extremely loud, so wear hearing protection when using them.
- Never use a worn, damaged, or cracked air hose, and keep air hoses coiled up out of the way. Do not carry tools by the hose.

## Gasoline Hand Tools

Gasoline powered hand tools (figure 3) are found mainly in the form of string trimmers, edgers, blowers, and chainsaws.



Figure 3: Gas Powered Tools

Photo Source: <https://www.stihlusa.com/Content/images/layout/top-rated-desktop.png>

- Always keep the spark arrester clean and in place. This screen in the muffler helps prevent fires.
- Start the machine resting on the ground, using a foot to hold it in place in order to prevent injury.
- With two-stroke engines, always mix oil and gas per the manufacturer's instructions for optimum cooling efficiency, fuel usage, lubrication, and power.
- When string trimming or edging, eye protection is especially important, as the strings or blades frequently fling rocks and debris in the user's direction.
- Keep gas and oil in approved containers and in a safe location as they are very flammable.
- When using a chainsaw, always make sure to:
  - Wear chaps, helmet, eye and ear protection
  - Have a clear plan for both the direction of the tree falling and for your escape should the tree not go where planned
  - Support the wood and make relief cuts to prevent kickback. Anti-kickback chains are advisable.
  - Always use a sharp chain to prevent overheating the bar.
  - Stop the saw or use the chain brake when carrying the saw.
  - Avoid running the chain in dirt, as this can dull the chain and fling debris at the user.

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# Power Hand Tool Quiz

1. Always keep air hoses and extension cords:
  - a. In OSHA-approved containers
  - b. In a corner
  - c. Coiled or wound up out of the way
  - d. On the floor
2. When an electric power tool gets hot:
  - a. Pour water on it
  - b. Use it, but at a reduced speed
  - c. Allow it to cool off before further use
3. A pneumatic tool generally makes \_\_\_\_\_ RPM's than a comparable electric tool.
  - a. More
  - b. Less
  - c. About the same
4. When starting gasoline driven hand tools:
  - a. Hold the rope and use the weight of the tool to start it
  - b. Hold the tool between your knees and start it
  - c. Have a friend hold the tool while you start it
  - d. Put the tool on the ground and hold it with a foot to start it
5. Chainsaw PPE includes:
  - a. Chaps, hard hat, earmuffs, safety glasses and gloves
  - b. Hard hat, safety glasses, earmuffs, and gloves
  - c. PPE is for sissies
  - d. Sunglasses, hard hat, earmuffs, and gloves

# Power Hand Tool Quiz Key

1. C, Coiled or wound up out of the way
2. C, Allow it to cool before further use
3. A, More
4. D, Put the tool on the ground and hold it with a foot to start it
5. A, Chaps, hard hat, ear muffs, safety glasses and gloves