

SOCKET, RATCHET, & WRENCH SAFETY



What's so hard about working safe?

- Most accidents aren't caused by a lack of knowledge on how to use tools. They happen because someone takes a shortcut or uses the wrong tool for the job.
- You need to think every time you use a hand tool...
 - Am I using the right tool for the job?
 - Am I using it for its intended purpose?
 - Am I using it the right way?

Make it a habit to stop and think every time you use a hand tool.



Basic Hand Tool Safety Review

- Always wear safety-rated eye protection.
- Use proper hand protection.
- Dress right for the job.
- Never modify a tool.
- Stay alert; be aware of your surroundings.
- Stay in control; maintain your balance and don't reach



Following basic hand tool safety practices is essential.



Socket Safety – Types of Sockets

Hand Sockets



- Made with high alloy steel and heat treated to a high level of hardness.
- Never use a hand socket on a power tool or impact driver. The socket can fail unexpectedly and create an opportunity for injury.

Hand sockets are designed for hand use only and can fail if misused.



Socket Safety – Types of Sockets

Hand Socket Safety Tip



- Pass-Through hand sockets, paired with Pass-Through ratchets, cannot be accidentally used with impact tools because of their unique ring-drive design. Besides being safer, Pass-Through design virtually eliminates the need for additional sets of deep sockets.

Pass-Through sockets cannot be accidentally used with impact tools.



Socket Safety – Types of Sockets

Impact Sockets

- Designed thicker and softer to withstand the repetitive hammering force of impact tools.
- Never hold in impact socket or impact universal joint in your hand when in operation.



Impact sockets are strong, but must still be treated with caution.



Socket Safety – Types of Sockets

Impact Sockets



- Never assume impact sockets are properly attached to drive tools. Make sure ball or pellet is fully engaged.
- Use a retainer pin and O-ring for drive sizes of $\frac{3}{4}$ inches or greater.

Make sure impact sockets are firmly attached to drive tools.



Socket Safety

Never use sockets that are worn or damaged.



- Inspect sockets regularly for cracks or signs of excessive wear and discard. Damaged sockets may fail suddenly.
- Discard worn sockets after normal service life and replace with new.

Using damaged sockets creates an opportunity for accidental injury.



Socket Safety

Select the right socket for the job.



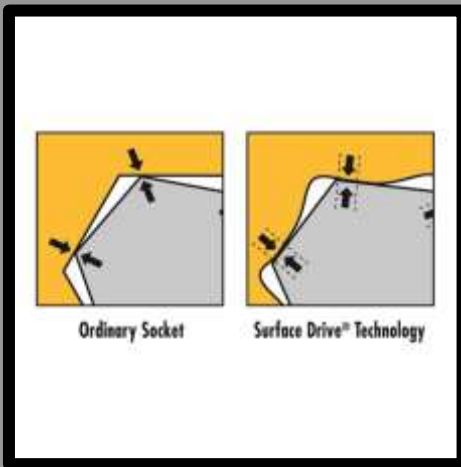
- Select a socket that fits the fastener exactly: SAE for SAE, metric for metric.
- Use a 6-point socket rather than a 12-point socket on rounded fasteners.

Match the socket to the fastener as closely as possible.



Socket Safety

Surface Drive® Technology



- Helps prevent rounding by spreading turning pressure over the larger flat areas of the fastener rather than concentrating all the pressure on the corners of the fastener.
- Non-rounded fasteners don't slip as easily as rounded fasteners.

Minimizing fastener rounding helps prevent slips and improves safety.



Socket Safety

Don't abuse sockets.



- Never force a socket onto an oversized or rounded fastener.
- Use caution when using an adaptor to go down a drive size. The potentially higher torque may cause the smaller drive socket to fail unexpectedly.

Don't abuse sockets. Use them as they were designed to be used.



Ratchet Safety

Use ratchets properly.

- Never use a standard ratchet as a hammer.
- Select the proper kind of ratchet for the task. A Scaffold Ratchet, for example, has an integrated hammer that is used together with its 7/8" socket for scaffolding assembly and teardown.



As a general rule, you should never use a ratchet as a hammer.



Ratchet Safety

Don't overload ratchets.

- Never use a cheater bar or extender. This overloads the ratchet, and may cause failure and potential injury.
- Use a larger drive size, breaker bar, slugging wrench, or torque multiplier instead.



Using a cheater bar may cause a ratchet to fail, resulting in injury.



Ratchet Safety

Don't abuse ratchets.



- Never strike the ratchet head or handle to turn a fastener. Ratchets are not designed to be struck, and may fail, creating an opportunity for injury.
- The only types of wrenches designed to be struck are striking or slugging wrenches.

Striking a ratchet may cause it to fail, resulting in injury.



Wrench and Ratchet Safety

Always pull toward your body. Don't push.



- Pulling a wrench or ratchet toward your body gives greater control and helps you maintain your balance.
- Don't reach. Reposition yourself so your footing is secure.

Pulling toward your body provides more control and less chance of injury.



Wrench and Ratchet Safety

Clean and inspect your tools often.



- Dirt can cause wear and premature failure. When a tool fails there is a greater possibility for accidental injury.
- Tools must be clean in order to inspect them effectively.

Clean wrenches and ratchets last longer and are safer to use.



Wrench Safety

Never use a wrench that is worn or damaged.



- Inspect wrenches regularly for cracks or signs of excessive wear and discard. Damaged wrenches may fail suddenly.
- Never attempt to repair a damaged or cracked wrench. Discard and replace it.

Using damaged wrenches creates an opportunity for accidental injury.



Wrench Safety

Select the right wrench for the job.



- Select a wrench that fits the fastener exactly: SAE for SAE, metric for metric.
- Use a 6-point box rather than a 12-point box on rounded hex fasteners.

Match the wrench to the fastener as closely as possible.



Wrench Safety

Don't misuse wrenches.

- Never use a cheater bar or extender. As with ratchets, this puts greater forces on the wrench than it was designed for, and may cause catastrophic failure and potential injury.
- Use a longer wrench, breaker bar, slugging wrench, or torque multiplier.



Cheater bars can fail suddenly with catastrophic consequences.



Wrench Safety

Use the right wrench.

- Don't use an adjustable or open-end wrench to remove frozen-on fasteners or tighten fasteners to very high levels of torque.
- Use a box-end or socket wrench instead.



Adjustable and open-end wrenches are made for low-torque applications.



Wrench Safety

Use penetrating oil.



- When attempting to loosen a frozen-on fastener, apply penetrating oil to help reduce the wrenching force required.
- Allow ample time for the lubricant to penetrate deep into the threads of the fastener.

The less force required to turn a fastener, the less chance for injury.



Wrench Safety

Use combination wrenches properly.



- The open end is designed for speed and access, not for final tightening.
- Use the box end when loosening stuck fasteners or tightening to high levels of torque.

Open ends of combination wrenches are not meant for high torque loads.



Wrench Safety

Don't abuse wrenches.

- Never strike a standard wrench with another tool. Most wrenches are not designed to be struck, and may fail, creating an opportunity for injury.
- Use a longer handle wrench, breaker bar, slugging wrench, or torque multiplier instead.



Striking a wrench may cause it to fail, resulting in injury.



One more time...

- Working safe is easy if you think every time you use a hand tool...
 - Am I using the right tool for the job?
 - Am I using it for its intended purpose?
 - Am I using it the right way?

Make it a habit to stop and think every time you use a hand tool.