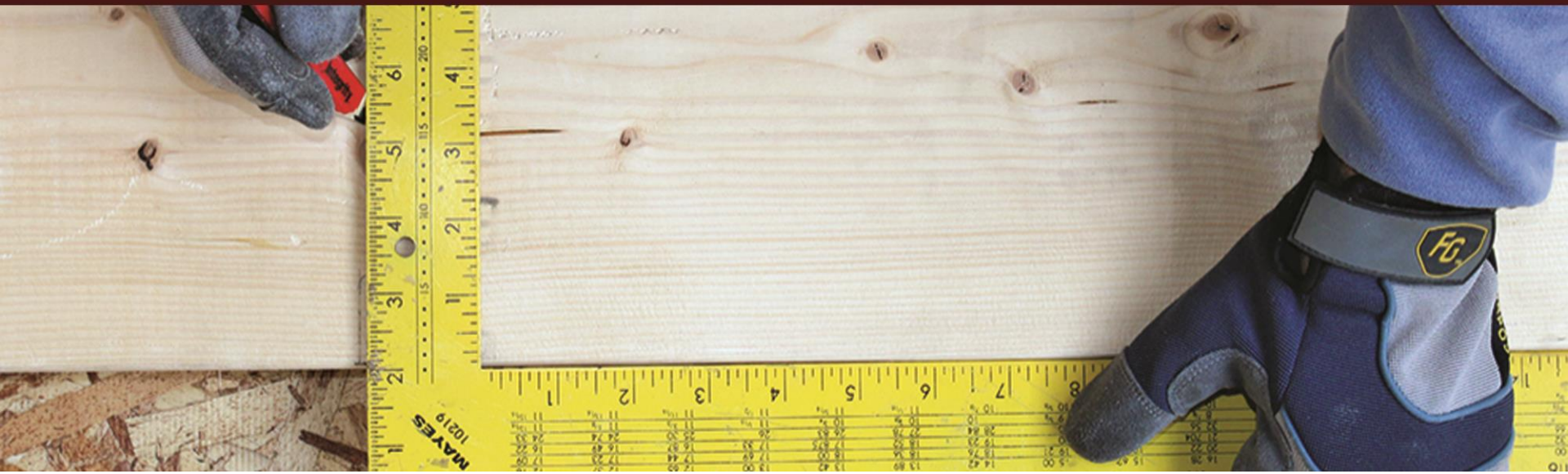
Core

Module 00103

Introduction to Hand Tools



1.0.0 Common Hand Tools

Objective

Successful completion of this module prepares you to do the following:

Name common hand tools and state how to use them.

a. Identify various hammers and demolition tools and explain how to use them.

b. Describe chisels and punches and how they are used.

c. Match screwdrivers to the appropriate hardware.

d. Differentiate between non-adjustable, adjustable, and socket wrenches.

e. Describe various types of pliers and explain how they are used.

Performance Task

Under supervision, you should be able to do the following:

1. Inspect and demonstrate the safe and proper use of the following hand tools:
    - Hammers
    - Demolition tools
    - Chisels and punches
    - Screwdrivers
    - Adjustable wrenches
    - Non-adjustable wrenches
    - Sockets
    - Pliers

Trade Terms (1 of 4)

Lanyard: A cord, rope, or similar material used to limit the travel of two connected objects.

Dowel: A pin or rod, usually round, that fits into a corresponding hole to fasten or align two workpieces.

Flush: As an adjective, to be even or at the same level with another object. For example, when a nail is fully seated, the top of the head is flush (even) with, or slightly beyond, the surface of the wood.

Overstriking: When a hammer misses the head of a nail, with the head going past it and allowing the hammer handle to impact the nail head instead. Overstriking is a common cause of hammer damage.

Trade Terms (2 of 4)

Level: Used as an adjective in this context, meaning flat or even with another surface or in relation to the Earth's horizon.

Drywall: A large, flat board made of layers of fiberboard and gypsum used primarily for wall construction and finishing. Drywall, also known as *sheet rock* and *wallboard*, is typically manufactured in 4' x 8' panels and readily accepts paint.

Lath: A thin, flat strip of wood used to form latticework or a foundation for wall plaster.

Peening: The process of bending, shaping, or cutting metal by striking it with a tool.

Trade Terms (3 of 4)

Welding: The process of heating two or more metal workpieces to their liquid state and fusing them to create a very strong joint.

Joint: The intersection of workpiece components where a physical connection is generally made. Joints are often named by the style of connection, such as butt joints and miter joints.

Bevel: The inclination of a surface that intersects another surface at any angle less than 90 degrees; also used as a verb, meaning to cut or trim an edge to an angled profile.

Tempered: Treated with heat to enhance or restore steel hardness.

Trade Terms (4 of 4)

Mushroomed: Refers to the head of a tool that is struck or used for striking when the head becomes wider and distorted, like the head of a mushroom.

Torque: The rotating or twisting force applied to an object such as a fastener or the shaft of a motor.

Stripping: Damaging or distorting the head or threads of a fastener.

Flats: The flat, straight sides of a wrench opening; also, the sides on a nut or bolt head.

Cheater bar: A length of pipe or rod used to increase the leverage on a wrench or similar tool. The increased leverage provided by a cheater bar often exceeds the tool's capacity and strength, resulting in a damaged tool as well as damaged workpieces.

1.1.1 – Claw Hammers

Hold the hammer with the end of the handle even with the lower edge of your palm. Keep your eye on the nail head!

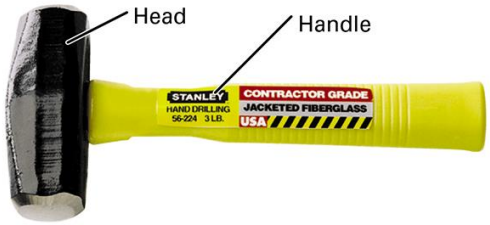
1.1.3 – Ball Peen Hammer

Ball peen hammers should not be used to hammer a nail, since the steel is tough but not as hard.

1.1.4 – Sledgehammers

Sledgehammers are heavy and require a lot of effort to swing. Start with lighter blows until you achieve a rhythm.

(A) Double-Face Long-Handled



(B) Double-Face Short-Handled

(C) Crosspeen

1.2.1 – Chisels

Cold chisels are designed for working with metal. Many wood chisels are designed to be tapped with a mallet, but others are designed only for use by hand.

(A) Cold Chisels

(B) Wood Chisels

1.2.2 – Punches

Center and prick punches have different tip angles. Pin punches (not shown here) have straight and round shafts and are often used to drive connecting pins out.

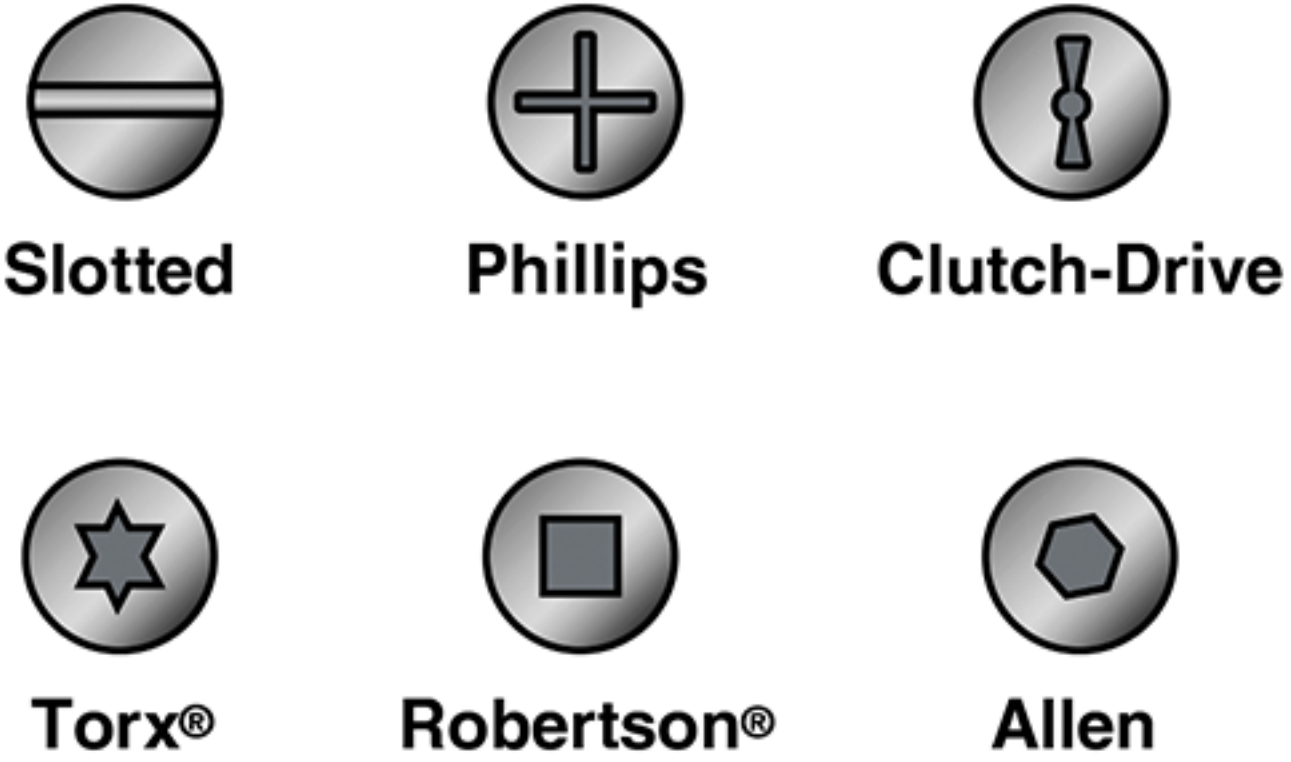
(A) Center Punch

(B) Prick Punch

(C) Tapered Punch

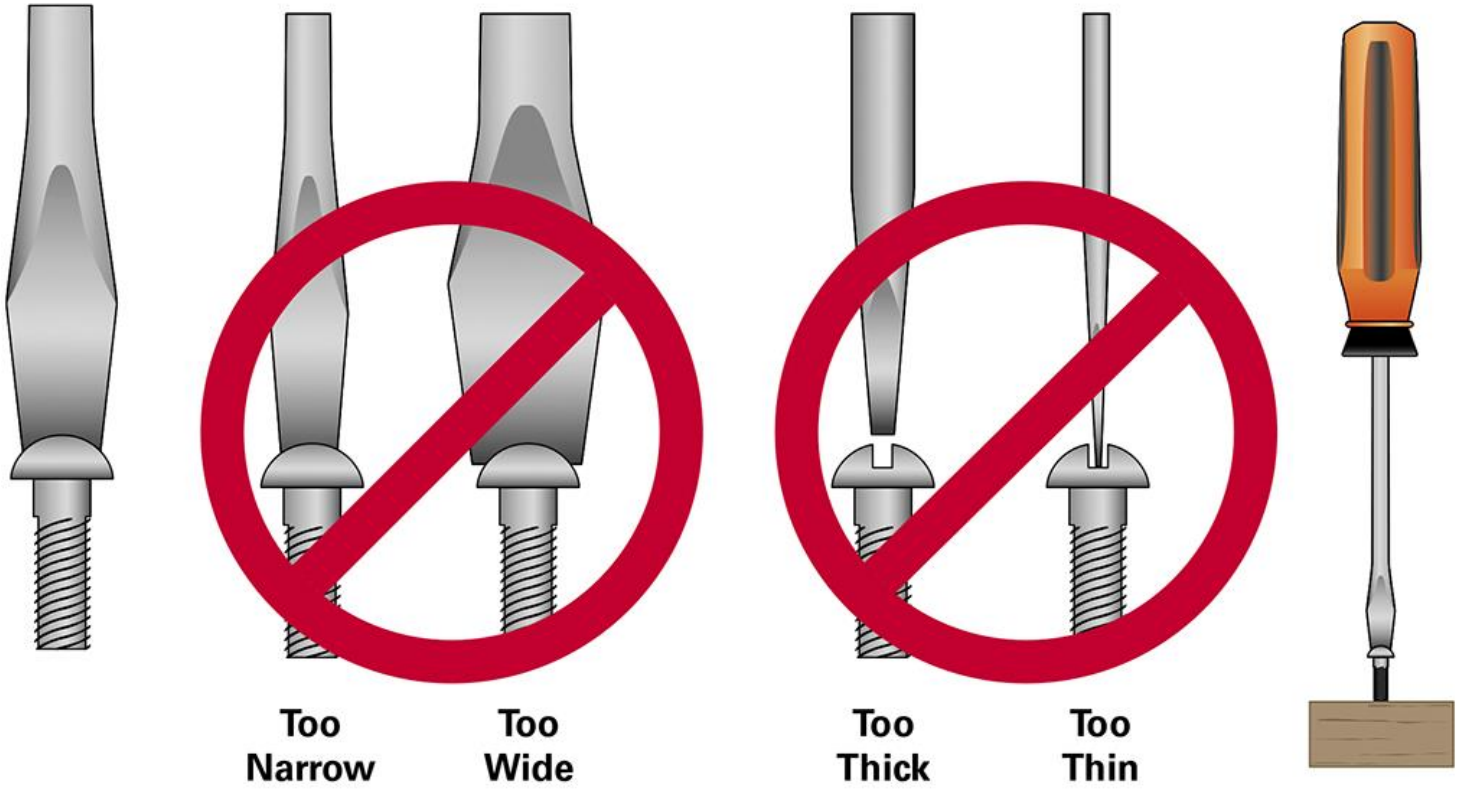
1.3.0 – Screwdrivers (1 of 2)

Each screwdriver type has its own advantages. Some are popular for woodworking while others have more varied purposes.



1.3.0 – Screwdrivers (2 of 2)

A slotted screwdriver that does not fit the screw head is likely to result in damage to the screw and possibly the workpiece as well.



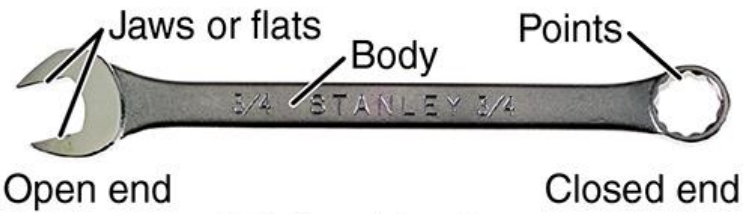
1.4.1 – Non-Adjustable Wrenches

The correct wrench fits the hardware snug, provides enough leverage for the task, and can be manipulated in the space available.

(A) Open-End

(B) Box-End Wrench

(C) Offset Ratcheting Box Wrench



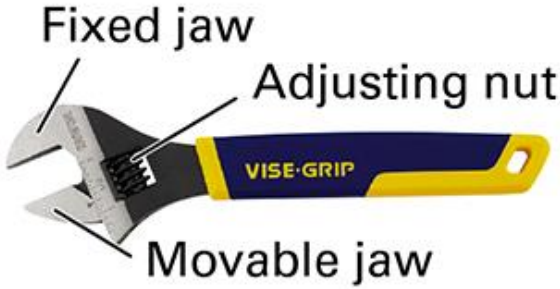
(D) Combination

1.4.2 – Adjustable Wrenches

Spud wrenches are very handy if you are often working with large valve caps or plumbing fixtures.

(A) Pipe Wrench

(B) Spud Wrench



(C) Adjustable Wrench

1.4.3 – Socket Wrenches (1 of 2)

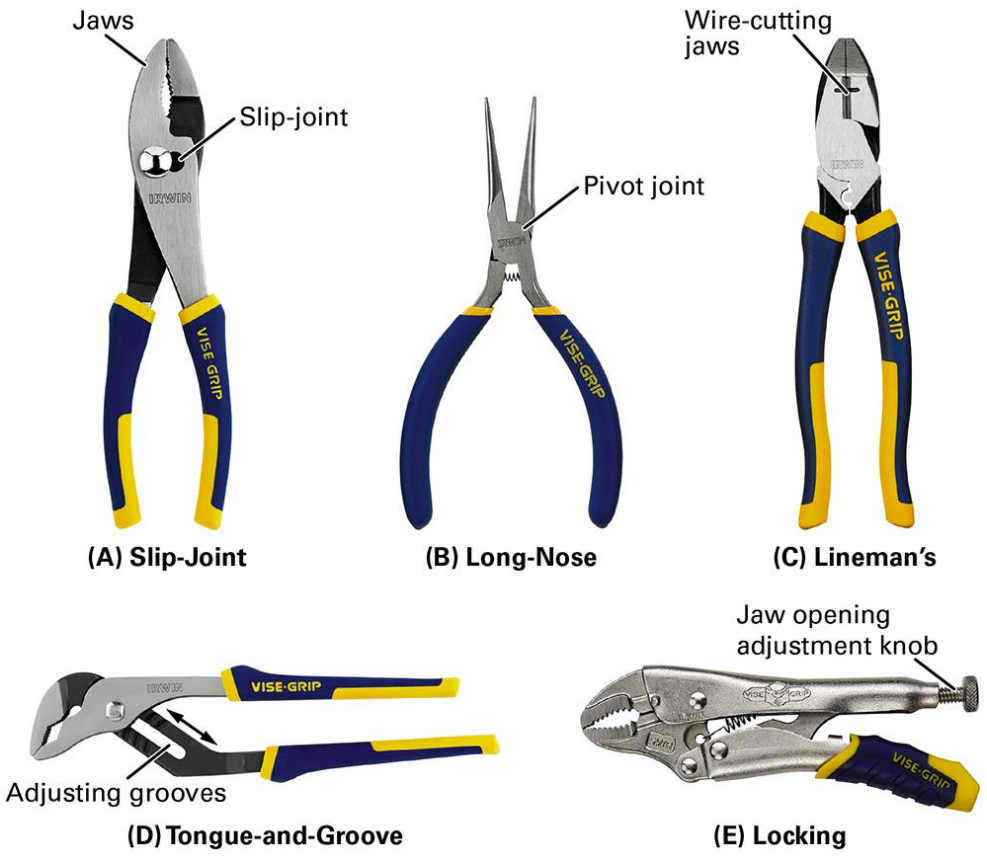
Sockets and ratchet drives are very popular due to their versatility and speed.

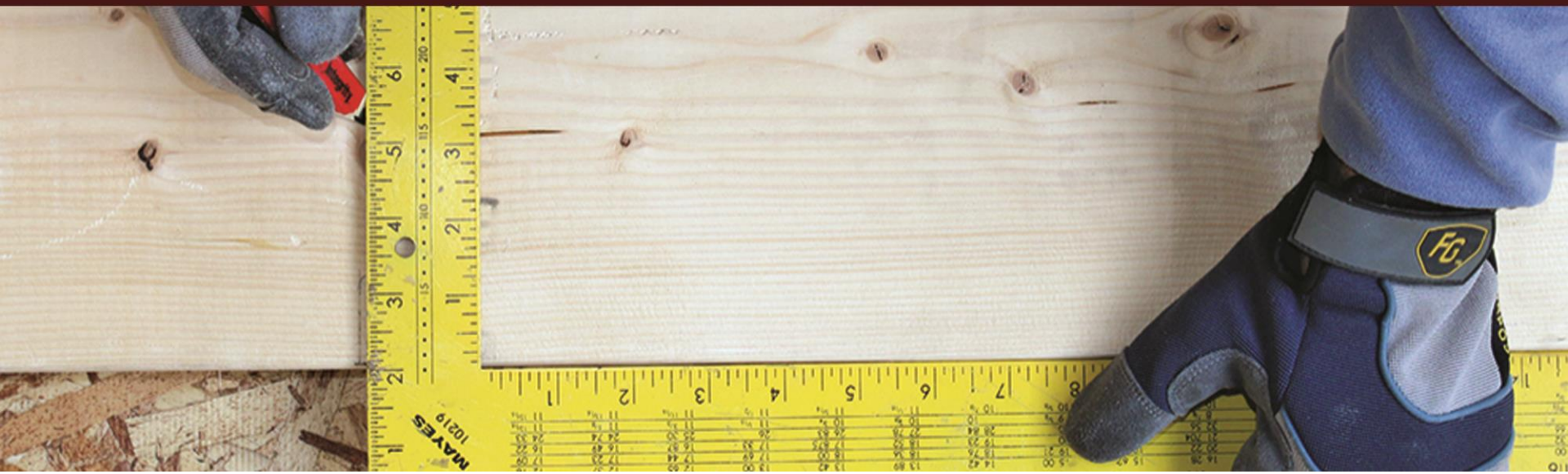
1.4.3 – Socket Wrenches (2 of 2)

Torque wrenches allow the user to apply a specific amount of twisting power to the hardware.

1.5.0 – Pliers and Wire Cutters

Each type of plier and jaw shape is best for specific uses. Locking pliers can free one hand by standing in as a clamp.





Next Section…

2.0.0 Measurement and Layout Tools

Read Sections 2.0.0 through 2.2.8. Complete the Section 2.0.0 Review.