UNIT 4: BASIC HAND TOOLS

LESSON 2: TYPES OF SCREWDRIVERS AND PLIERS

I. Screwdrivers

A. The standard screwdriver has a straight blade for turning screws with a slot that is the same width and length as the screwdriver blade.

CAUTION: The standard screwdriver is not intended for use as a pry bar, chisel, or gasket scraper. These misuses of the screwdriver can damage the tool and injure the technician.

B. The Phillips screwdriver fits the crossed slot of a Phillips screw. One advantage this screwdriver has over the standard one is when it is inserted in the slot, it is self-centering.

1. Phillips screwdrivers are available in various tip sizes (e.g., #0, #1, #2, #3, #4) with the lower number being the smallest.

2. A technician should not attempt to use a standard screwdriver to turn a Phillips screw.

3. A good deal of pressure must be applied when using a Phillips screwdriver or the tip may disengage the slot, damaging the screw or the tool.

4. If the slot of a Phillips screw is stripped, it will have to be drilled out.
C. The Pozidriv screwdriver is similar to the Phillips in that it is used on a cross-slotted screw. However, the Pozidriv screwdriver and screw head have four additional points of contact.

1. More torque can be applied with the Pozidriv screwdriver because the blade will not slip out of the screw head as easily as the Phillips screwdriver will.

2. Although not recommended because of improper fit, a Phillips screwdriver will turn a Pozidriv screw. A Pozidriv screwdriver, however, will not turn a Phillips screw.

D. The torx screwdriver has a 6-point tip that is used on torx-head screws.

E. Nut drivers have a handle and shaft like a screwdriver but have a socket at the end of the shaft that is not removable. Because nut drivers can be operated with greater speed than socket wrenches, they are ideal for loosening and tightening the small nuts and bolts found on vehicles.

F. Maintenance

1. Keep screwdrivers free of dirt and grease and store them in a dry place to prevent rust.

2. Keep the heads in good condition, free from nicks.

G. Safety

1. The right size screwdriver should be used for each job.
   a. The screwdriver should be the right length for access to leverage.
b. The head of the screwdriver should match the head of the screw (both type and size of the screw).

2. Do not try to use another tool, such as locking pliers, to grab the handle of the screwdriver and get more leverage. If it cannot be turned by hand, another tool is needed.

3. Use screwdrivers with insulated handles to prevent electric shock.

4. Do not use a screwdriver as a punch or chisel.

II. Pliers

A. Standard slip-joint pliers are one of the most common types of pliers used by technicians. These grip irregular parts and hold work during drilling.

B. Locking pliers are very similar to standard slip-joint pliers. By turning a knob and then clamping the handles in place, the locking pliers hold work securely.

CAUTION: When clamping or removing locking pliers, keep a proper grip on the handles. The handles snap together and snap apart with considerable force.

C. Adjustable-joint pliers have a long slot with a wide variety of adjustment positions. The offset jaws of the adjustable-joint pliers offer a reach advantage.
D. Long-nose pliers, or needle-nose pliers, are useful for gripping tiny pins and parts during the service of carburetors and other small assemblies.

E. Diagonal-cutting pliers are used to cut electrical wire and tape as well as a variety of other material. Diagonal-cutting pliers are well-suited for removing cotter pins on front-end components.

CAUTION: Do not use on live electrical circuits.

CAUTION: Do not cut spring steel with diagonal-cutting pliers because the pliers will be nicked and ruined.

F. Snap-ring pliers come in many styles and types. Snap-ring pliers are required for spreading or compressing springy snap rings found in transmissions. Snap-ring pliers are available that can remove internal snap rings, external snap rings, or both.

G. Maintenance

1. Pliers should be kept free of dirt and grease and stored in a dry place to prevent rust.

2. If the jaws of the pliers are held by a screw, the screw should be kept snug.
H. Safety

1. When working near electrical equipment, use pliers with insulated handles.

2. Do not use pliers as a hammer.

3. Do not hammer on the handles.