

simplifies this process. *Figure 4-17* illustrates one type of hole duplicator. The peg on the bottom leg of the duplicator fits into the existing rivet hole. To make the hole in the replacement sheet or patch, drill through the bushing on the top leg. If the duplicator is properly made, holes drilled in this manner are in perfect alignment. A separate duplicator must be used for each diameter of rivet.

## Cutting Tools

Powered and nonpowered metal cutting tools available to the aviation technician include various types of saws, nibblers, shears, sanders, notchers, and grinders.

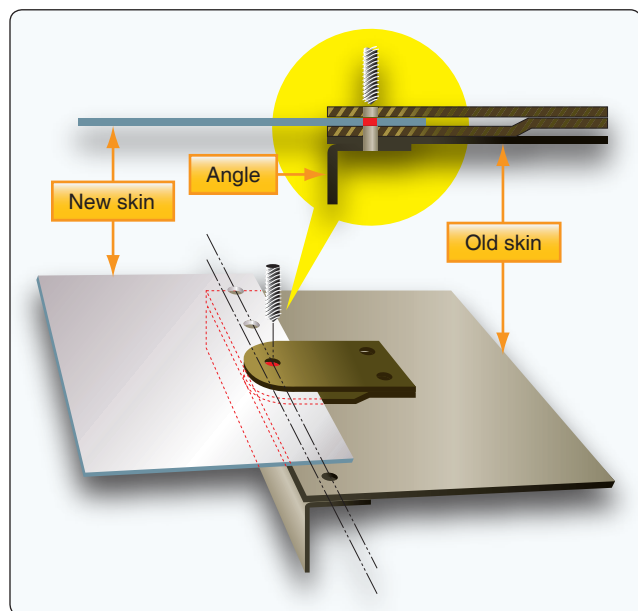
### Circular-Cutting Saws

The circular-cutting saw cuts with a toothed, steel disk that rotates at high speed. Handheld or table mounted and powered by compressed air, this power saw cuts metal or wood. To prevent the saw from grabbing the metal, keep a firm grip on the saw handle at all times. Check the blade carefully for cracks prior to installation because a cracked blade can fly apart during use, possibly causing serious injury.

#### Kett Saw

The Kett saw is an electrically operated, portable circular cutting saw that uses blades of various diameters. *[Figure 4-18]* Since the head of this saw can be turned to any desired angle, it is useful for removing damaged sections on a stringer. The advantages of a Kett saw include:

1. Can cut metal up to  $\frac{3}{16}$ -inch in thickness.
2. No starting hole is required.
3. A cut can be started anywhere on a sheet of metal.



**Figure 4-17.** Hole duplicator.



**Figure 4-18.** Kett saw.

4. Can cut an inside or outside radius.

### Pneumatic Circular-Cutting Saw

The pneumatic circular-cutting saw, useful for cutting out damage, is similar to the Kett saw. *[Figure 4-19]*

### Reciprocating Saw

The versatile reciprocating saw achieves cutting action through a push and pull (reciprocating) motion of the blade. This saw can be used right sideup or upside down, a feature that makes it handier than the circular saw for working in tight or awkward spots. A variety of blade types are available for reciprocating saws; blades with finer teeth are used for cutting through metal. The portable, air-powered reciprocating saw uses a standard hacksaw blade and can cut a 360° circle or a square or rectangular hole. Unsuitable for fine precision work, this saw is more difficult to control than the pneumatic circular-cutting saw. A reciprocating saw should be used in such a way that at least two teeth of the saw blade are cutting at all times. Avoid applying too much downward pressure on the saw handle because the blade may break. *[Figure 4-20]*



**Figure 4-19.** Pneumatic circular saw.