- Close both the acetylene and oxygen regulators by backing out the adjusting screw counterclockwise until loose.
- Carefully coil the hose to prevent kinking and store it to prevent damage to the torch and tip.

Gas Welding Procedures and Techniques

The material to be welded, the thickness of the metal, the type of joint, and the position of the weld dictates the procedure and technique to be used.

When light-gauge metal is welded, the torch is usually held with the hose draped over the wrist. *[Figure 5-24]* To weld heavy materials, the more common grip may provide better control of the torch. *[Figure 5-25]*

The torch should be held in the most comfortable position that allows the tip to be in line with the joint to be welded, and inclined between 30° and 60° from the perpendicular. This position preheats the edges just ahead of the molten puddle. The best angle depends on the type of weld, the amount of preheating required, and the thickness and type of metal. The thicker the metal, the more vertical the torch must be for proper heat penetration. The white cone of the flame should be held about ⅛-inch from the surface of the metal.

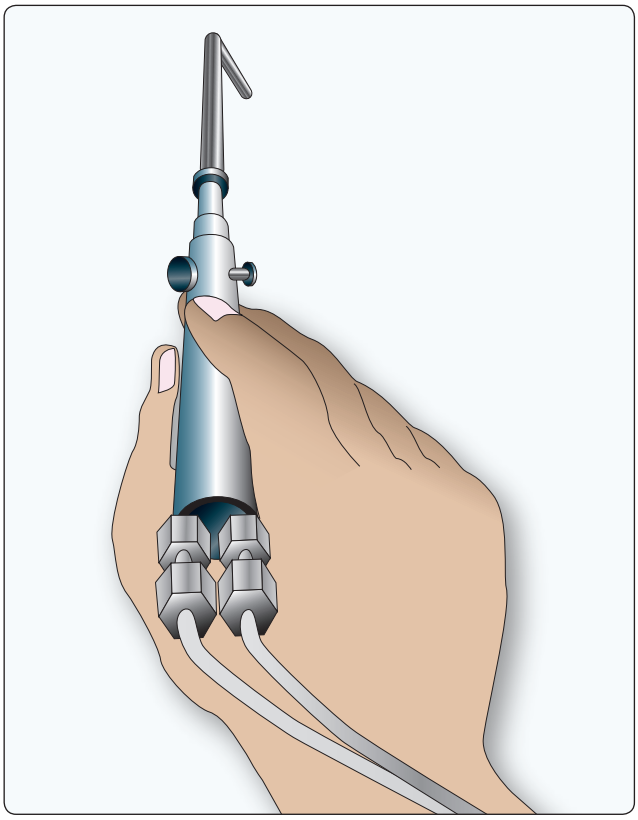

Figure 5-24. *Hand position for light-gauge materials.*

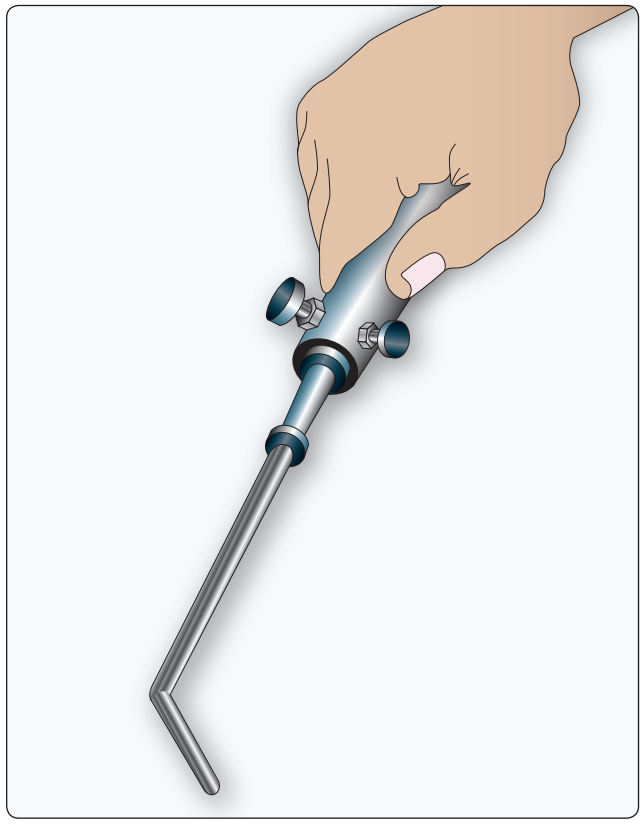

Figure 5-25. *Hand position for heavy-gauge materials.*

Welding can be performed by pointing the torch flame in the direction that the weld is progressing. This is referred to as forehand welding, and is the most commonly used method for lighter tubing and sheet metal. The filler rod is kept ahead of the tip in the direction the weld is going and is added to the puddle.

For welding thick metals or heavy plate, a technique called backhand welding can be used. In this method, the torch flame is pointed back toward the finished weld and the filler rod is added between the flame and the weld. This method provides a greater concentration of heat for welding thicker metals and would rarely be used in aircraft maintenance.

Puddle

If the torch is held in the correct position, a small puddle of molten metal forms. The puddle should be centered in the joint and composed of equal parts of those pieces being welded. After the puddle appears, the tip should be moved in a semicircular arc or circular motion equally between the pieces to ensure an even distribution of heat.

Adding Filler Rod to the Puddle

As the metal melts and the puddle forms, filler rod is needed to replace the metal that flows out from around the joint.