Lesson 2: Welding With Oxyacetylene

Welding an Outside Corner Joint With and Without Welding Rod

Objective: Students will use the oxyacetylene outfit to weld an outside corner joint in flat position with and without welding rod.

Directions: Students will use an oxyacetylene outfit to weld an outside corner joint in flat position.

Materials and Equipment:

- Oxyacetylene outfit and accessories
- Welding goggles with appropriate shaded lens*
- Safety glasses or goggles
- Leather gloves and any other protective clothing recommended by instructor
- Spark lighter
- Pliers
- Wire brush
- Firebrick or angle iron
- Steel plates, selected by instructor
- Welding rods, selected by instructor. Use the pliers to bend the back end of the rod into a hook to distinguish it from the end that could be hot.

* Everyone participating in or observing the demonstration should wear appropriate protective eyewear.

Procedure:

Weld an outside corner joint without welding rod.

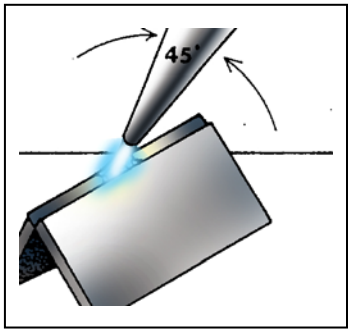

Figure 1

1. Wear appropriate face protection and protective clothing.
2. Inspect equipment, materials, and work area to ensure safe and correct operation.
3. Prepare the metal to be welded.
4. Position the plates on the worktable. Use a firebrick or angle iron as a jig to hold the work.
5. Set up the welding outfit.
6. Light the torch using the spark lighter.
7. Adjust the flame to a neutral flame.
8. Use the torch to tack weld the pieces together.
9. Position the piece so that the outside corner is ready to be welded in the flat position. Use pliers or tongs to move hot work.

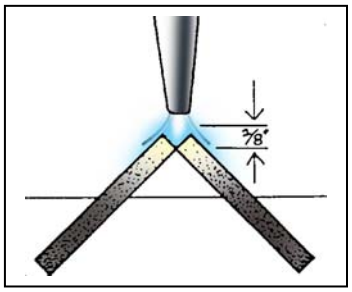

Figure 2

10. Start welding at one end, with the torch at a 45-degree angle and the inner flame cone approximately 1/8 in. from the work.
11. Hold this position until a weld pool forms.
12. Carry the bead forward by moving the torch with a smooth, uniform motion. Refer to Figures 1, 2, and 3.
13. Continue moving forward until the weld is complete.
14. Shut off the outfit.
15. Steps follow for welding an outside corner joint using welding rod. If this portion of the activity has not been demonstrated or assigned, shut down the outfit according to the assigned procedure, return equipment and materials to their proper places, and turn in work to be graded by the instructor. If the second part of the activity is performed at a different time, set up the outfit according to the instructor's directions before continuing with step 16.

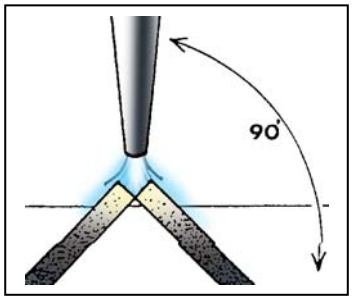

Figure 3

Weld an outside corner joint using welding rod.

16. Position the plates on the worktable. Use firebrick or angle iron to support the work.
17. Set up the outfit, if needed, and light and adjust the torch.
18. Use the torch and welding rod to tack weld the pieces together.
19. Position the pieces so that the outside corner is ready to be welded in the flat position. Use pliers or tongs to move hot work.
20. Start welding at one end, with the torch at a 45-degree angle and the inner flame cone approximately 1/8 in. from the work.
21. Hold this position until a weld pool forms.
22. At the same time, use the other hand to bring the welding rod close to the flame for preheating. The end of the rod should be approximately 3/8 in. from the flame and 1/16 to 1/8 in. from the pool surface. The rod is held at an angle to the work, usually about 45 degrees. Refer to Figure 4.
23. When the weld pool needs additional material, dip the end of the rod in the front edge of the weld pool. When enough filler is added to make the desired bead, move forward.
24. Carry the bead forward by moving the torch and adding filler with a smooth, uniform motion. Refer to Figure 5.
25. Continue moving forward until the weld is complete.
26. Shut off the outfit if the torch must be set down.
27. Shut down the outfit according to the assigned procedure. Materials and equipment should be returned to their proper places.
28. Turn in work to be graded by the instructor.

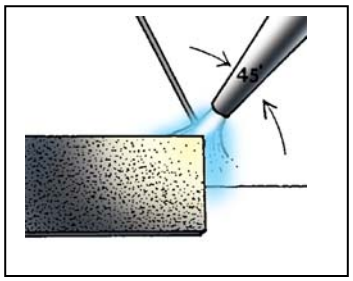

Figure 4

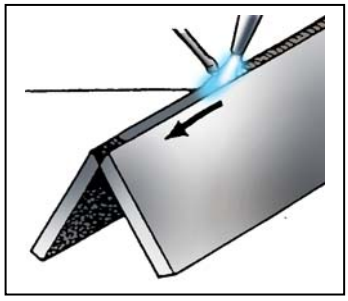
Figure 5