Lesson 22 Oxyfuel Gas Cutting

Objectives:
You will be able to demonstrate how to assemble, adjust, and use the equipment required for oxyfuel gas cutting. You will gain skill in cutting metal with the oxyfuel gas cutting process. You will also be able to describe how to cut thick and thin carbon steel using manual and motor-driven equipment.

Instructions:
Read Chapter 22 and study Figures 22-1 through 22-18. Also, review the procedures in Chapter 21 for turning on, lighting, adjusting, and shutting down a cutting torch. Then, answer or complete the following questions.

1. True or False? When a cutting torch attachment is being used, the oxygen torch valve on the cutting attachment must be opened one full turn.

2. A piece of ________________ clamped to the work may be used to achieve straighter kerf line when cutting manually.

3. What type of slag is unacceptable when cutting metal with the oxyfuel gas process? __________

4. What are the suggested oxygen and acetylene gas pressures for cutting 1/2" (12.7 mm) mild steel when using a positive pressure torch?
   Oxygen pressure: ____ psig.
   Acetylene pressure: ____ psig.

5. What causes a bell-mouthed kerf?
   A. Too much acetylene pressure.
   B. Too much oxygen pressure.
   C. Moving too fast.
   D. Moving too slowly.
   E. None of the above.

6. True or False? Cutting tip sizes are identified by numbers ranging from 0–10?

7. Name five fuel gases that have been used with oxygen for oxyfuel cutting: ________________

8. A motor-driven magnetic tracer is held in contact with a steel pattern by ____________.

9. Which of the following does not affect the quality of the cut (kerf)?
   A. The cutting tip size.
   B. The torch cutting speed.
   C. A steady torch movement.
   D. The oxygen pressure.
   E. The size of the cutting torch.

10. True or False? An electric motor-driven carriage is adjustable for flame height, cutting speed, and torch angle.

11. If a positive pressure cutting torch is equipped with a cutting torch attachment, what additional step must be taken when shutting it down? ____________
12. How accurately will an electronic tracer follow a pattern or drawing?
   A. 1/64".
   B. .010".
   C. .003".
   D. .001".
   E. .025".

13. What may be done if the available cutting tips are too large for the metal thickness being cut?
   A. Decrease the fuel gas pressure.
   B. Increase the oxygen pressure.
   C. Increase the fuel gas pressure.
   D. Decrease the cutting speed.
   E. Decrease the angle between the base metal and the tip.

14. What is the ignition temperature of mild steel?
   A. 2470°F (1343°C).
   B. 816°F (435.6°C).
   C. 1500°F (815.6°C).
   D. 2470°C (4478°F).
   E. 1500°C (2732°F).

15. A high-pressure, high-volume _____________ may be required to provide additional oxygen when oxyfuel gas cutting.

16. True or False? A minimum of two preheating orifices should line up with the cutting line.

17. Identify the holes (orifices) in the cutting tip shown:
   A. ___________________________
   B. ___________________________

18. Name three basic types of cutting machines. ___________________________
    ___________________________
    ___________________________