

## STEP 5

### Read this *continued*

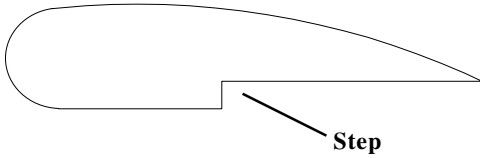


Figure 4-2

Floyd was so impressed with the discovery that he suggested Richard get a U.S. Patent on the design. A U.S. Patent would protect Richard's invention so that someone else would not steal the idea and sell it. In order to patent the wing design, it was necessary for the two men to find out why the wing performed so well in conditions that would cause others to stall. After many tests involving wind tunnels and many tries at the patent office, the patent was awarded to Richard Kline.

The wing shape became known as the Kline-Fogleman airfoil (**Figure 4-2**). An airfoil is a specially shaped object that is designed to provide a lifting motion as air passes over and under it. An article was written about Richard and Floyd and placed in *Time Magazine*, Morley Safer did a segment on *60 Minutes*, and more recently Richard appeared on the David Letterman show and the CBS Morning News. Many airplane manufacturers as well as NASA have studied the airfoil and have been impressed with its stability and non-stall characteristics. Perhaps you might fly in a plane that utilizes the Kline-Fogleman airfoil someday. If you do, you will know that it all came from a paper airplane.

When you think about this story it should make you realize how some inventions come from unlikely sources. For example, the Wright brothers were bicycle mechanics, yet they are credited with the first successful manned flight.

## STEP 6

### Quiz



You will now take a short quiz to determine your understanding of this activity's objectives. Click the **Lessons** button, **Activity 4**, then **Quiz 3**, and complete the quiz by choosing the correct answers and then clicking Score It! to register your answers.

## STEP 7

### Career choices



Click the **Lessons** button, **Activity 4**, then the **Career** button. This button will cover the career of the wind tunnel technician.

### STEP 3



### Do this

Click the **Lessons** button, **Activity 5, Multimedia 4**. This multimedia presentation covers the forces that act upon a plane, Bernoulli's Principle, Newton's Third Law, and the Wright Brothers.

### STEP 4

### Read this

For more information on how planes fly, find the book titled *The Ultimate Paper Airplane* and read pages 57-62.

### STEP 5



### Quiz





You will now take a short quiz to determine your understanding of this activity's objectives. Click the **Lessons** button, **Activity 5**, then **Quiz 4**, and complete the quiz by choosing the correct answers and then clicking Score It! to register your answers.

### STEP 6

### Do this

In this step, you will test various airfoils at different angles of attack.

#### Testing Airfoils in the AeroDyne Wind Tunnel

-  1 Locate the **Airfoil Test Work Sheet**, and the three airfoils you will test. *The airfoils are shown on the work sheet.*
-  2 Open the safety shield on the wind tunnel and, if necessary, remove the existing shape from the tunnel's strain gauge assembly.
-  3 Place the first airfoil shown on the **Airfoil Test Work Sheet** on the strain gauge assembly.
-  4 If necessary, use the wing nut on the strain gauge assembly to get the angle indicator's needle to point directly down to 0 degrees.

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