



# Historic Wings

1:72 Metal Kit of the



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# 1894 Lilienthal Glider

History, Notes and  
Assembly Instructions

## History

Otto Lilienthal (May 23, 1848 – August 10, 1896) was a German pioneer of human aviation who was the first person to make well-documented, repeated, successful gliding flights. He followed an experimental approach established earlier by Sir George Cayley.

In 1867 he began his experiments on the force of air in earnest, interrupted when he volunteered to serve in the Franco-Prussian War. Lilienthal made his flights from an artificial hill he built near Berlin and from natural hills, especially in the Rhinow region. Working in conjunction with his brother Gustav, he made over 2,000 flights in gliders of his design starting in 1891 with his first glider version, the Derwitzer, until his death in a gliding crash in 1896.

Lilienthal did research in accurately describing the flight of birds, especially storks, and used polar diagrams for describing the aerodynamics of their wings. He made many experiments in an attempt to gather reliable aeronautical data. His gliders were controlled by changing the centre of gravity by shifting his body, much like modern hang gliders. However they were difficult to manoeuvre and had a tendency to pitch down, from which it was difficult to recover.

He made over 2000 flights, but during a flight on 9 August 1896, Lilienthal's glider stalled and he fell from a height of 17 m (56 ft), breaking his spine. He died in Berlin the following day, saying "Kleine Opfer müssen gebracht werden!" ("Small sacrifices must be made!"). He was buried at Lankwitz Cemetery in Berlin.

## Specifications

### General characteristics

Length: ..... 7.92 m (13 ft 8.75 in)

Width: ..... 5.31 m ( 21 ft 11 in)

### Introduction

This Historic Wings kit is made from etched brass for the structure. The flying surfaces can be covered with the Litespan film supplied, although many modellers may prefer to leave the structure uncovered to show the details.

Brass components can be soldered together, or joined with Cyanoacrylate Adhesive (CA or SuperGlue) or 5-minute epoxy.

To remove parts from the etched fret, you can use a pair of side cutters, or put the fret on a ceramic tile or similar hard flat surface, and press down on each attaching tab with a sharp knife. If you use the 'knife & tile' option, put the attaching tab with the half-etched side of the tab face down. Whichever method is used, it may necessary to remove the burr of the attachment tab with a needle file afterwards.

**CAUTION - MAKE SURE THE ORIENTATION OF THE WING IS CORRECT BEFORE YOU TWIST EACH RIB.**

The wings are etched with integral ribs. Hold the leading or trailing edge in a vice or clamp, and then hold each rib in turn with a pair of fine flat-nosed pliers, and twist that rib through 90 degrees, while simultaneously holding the other end with another pair of pliers.

# Parts List

## Cast Metal

Otto Lilienthal figure ..... 1 off

## Etched metal

Fret 1 - brass ..... 1 off

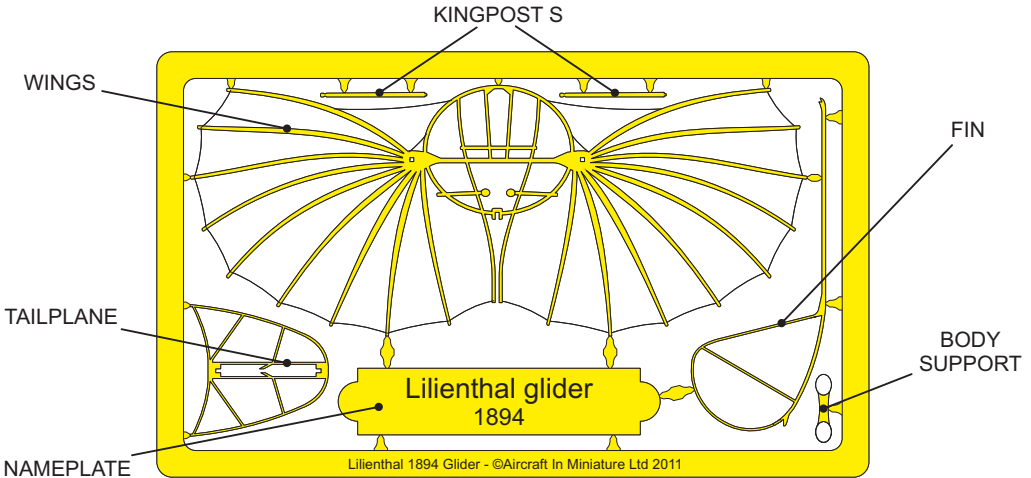
## Miscellaneous

Grass matting ..... 1 sheet

Litespan film ..... 1 sheet

Instructions..... 1 set

## Fret 1



## 1 ASSEMBLY

- A Remove the wing, tailplane and fin from the fret and remove all burrs from the attachment tabs.
- B Gentle curve the ribs of the wings downwards as shown in Figure 1.
- C If it is intended to cover the model with the Litespan film, cover the fin and tailplane at this stage (it will be much simpler than trying to cover them on an assembled model).
- D Remove the body support from the fret and remove any burrs. Make sure that it will fit onto the outstretched arms of the figure in the kit, then attach it to the central wing structure. If the loops will not fit over the arms, make the oval loops more circular with a pointed tool (for example as a scriber).
- E Attach the boom of the fin to the wing structure. Make sure that it is vertical when you attach it.
- F Slide the tailplane down over the fin and attach it to the lugs on the fin.
- G Cover the wing with Litespan film if required, then attach the two kingposts to the wing structure.

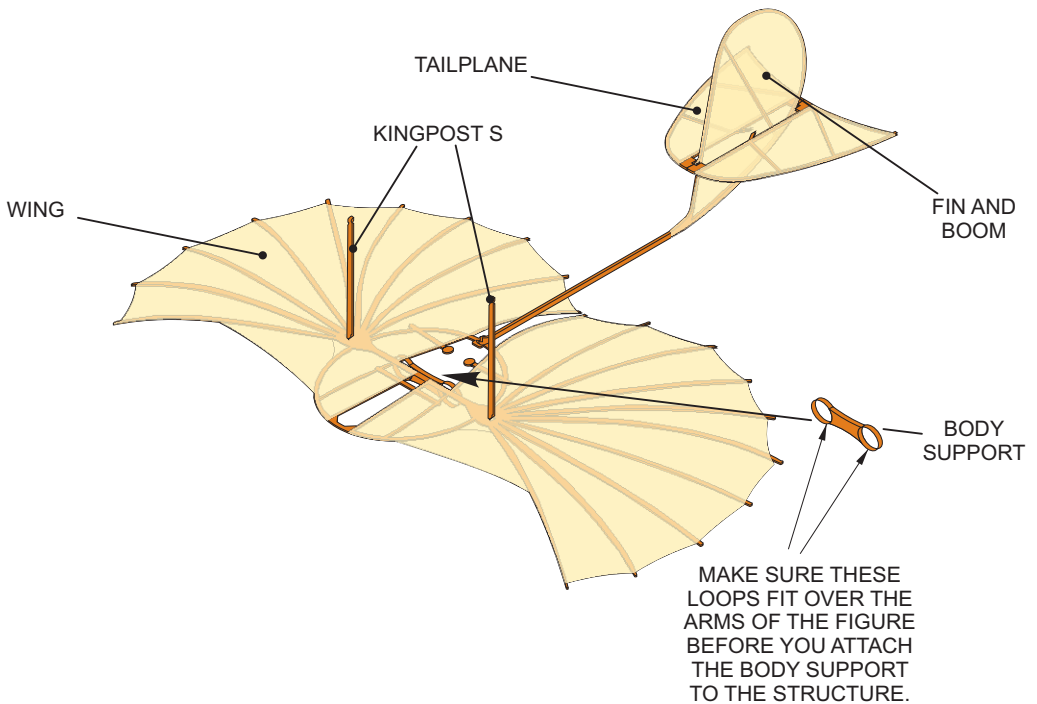


Figure 1

## 2 FINISHING AND DIORAMA LAYOUT

### A Paint the components.

- (1) Paint the visible structure of the glider to represent wood.
- (2) Paint the figure of Otto Lilienthal with dark coloured breeches, black shoes, white shirt, waistcoat of your choice and flesh for his face and hands..

### B Arrange the diorama

- (1) Mount the grass matting on the preferred base, and attach the name plate.
- (2) Attach the figure to the base.
- (3) Slide the glider onto the arms of the figure.