



VIDEO SCRIPT - The Link Trainer

By Graham Communications

Hello, I'm Ava, and I'm standing here at the Millville Army Air Field Museum in Millville, New Jersey. This interesting contraption behind me is called a LINK Trainer. It looks like something you might see at a carnival, but in reality, it is a very significant invention that helped the Allies win World War II. Let's go back to its humble beginnings and find out more about this interesting invention.

A gentleman named Ed Link was born way back in 1904 in Huntington, Indiana. In 1910, his family moved to Binghamton, New York, where his father bought a bankrupt organ and piano company. Their new company manufactured organs for movie theaters. In those days, movies had no sound, so every theater had a piano or organ playing music during the "silent movies".

Young Ed Link loved to hang around his father's manufacturing facility. He really enjoyed working with his hands. He read every engineering book that he could find. Since there was no Playstation back then, people did a lot more reading. Science and mechanics were his big interests. He was not interested in school, but his mind was always thinking. His older brother excelled in school, and the same was expected of him by his father.

Anyone want to take a guess yet on what the LINK Trainer was for?

- An amusement ride?
- A decompression chamber for divers?
- A phone booth for sending secret messages?
- Let's learn more...

At the young age of 13, Ed dropped out of school, much to his father's displeasure. He was immediately put to work in the piano factory. When Ed turned 14, his parents divorced. His mother moved to California, and Ed would spend time with both parents.

In California, Ed saw his first airplane close up, and immediately fell in love with the thought of flying. It took three expensive lessons before young Ed was even allowed to touch the airplane controls. This frustration made his engineering mind go to work.

Ed hung out at the local airport whenever he visited his mother, just like this one! He would help pilots anyway he could, and they would teach him things and let him "taxi" their planes on the ground. Ed learned all about the cockpit instruments and controls. He finally did get a pilots license in his early 20s.

Ed went to work inventing the LINK Trainer. It was a ground-based flight simulator designed to help pilots fly by their instruments instead of just by their eyes. In the basement of his father's piano factory, Ed was building the first LINK Trainer. He named his invention "The Pilot Maker," and he used pipe organ valves, motors and bellows to give the LINK Trainer movement. This is where the fun begins!

Mr. Link was summoned for a meeting to pitch his invention to the US Army. He flew his small plane at night and in bad weather, landing safely by his instruments alone. That alone sold the US Army. Following that meeting, the US Army purchased 6 LINK Trainers, and the rest is history, as they say.

Once WWI broke out, the LINK Trainer became a very valuable asset, training pilots safely and conserving fuel and saving expensive aircraft from being damaged. Keep this in mind - the average pilot during the war was 22 years old - not much older than a high school student!

How important was the LINK trainer? No young pilot was ever killed in a LINK trainer. By the end of the war, over 10,000 Link trainers were built and put into service, and over 500,000 pilots were trained in this device. During one of his speeches to British Parliament, Prime minister Winston Churchill said that flight trainers had contributed mightily to the defeat of the German air defense during the battle to save Britain.

Here is how the Link Trainer Worked

The instructor would sit at a desk located near the Link trainer. The operator would give the pilot a set of altitudes and courses to fly. Just like in real flight, the pilot would keep in touch with the control tower, or instructor, by radio.

The instructor had an operators control panel on their desk that displayed exactly what the pilot was seeing inside the Link trainer. The instructor could control certain variables such as wind speed, wind direction and turbulence.

The Crab was a device that traced the track of the pilot on a map on the desktop. The Crab was designed so that the instructor and pilot could see how the simulated flight was going - and then grade out after the exercise.

The maps simulated different places the pilot was flying such as US airport locations, or overseas locations such as cities in Japan and Germany, where the war was raging.

Inside the Link trainer was a generic cockpit - not meant to mimic a specific plane such as the P-51 Mustang. You would find these instruments on every plane back in the 1940s and 50s

The pilot would close the door, pull back the blackout canopy, and learn to fly only using the lights of their instrument panels. For dusk and twilight, they also used a yellow glass cover to practice with.

Once the pilot was successfully trained on the LINK trainer, they would move on to flying actual planes, but this gave them a great head start without the risk of a crash landing. The average training time required in the Link was 20 hours.

Mr. Link was an inventor and a problem solver. He put his imagination to work and did great things. It all started with his passion for flying.

We can learn a lot from his story. What is your passion? How do you want to make your mark in history?

Written by Graham Communications
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