

The "Spirit of St. Louis" was a very modified mailplane with the much larger wing and fuselage needs to carry the 430 gallons of fuel.

# THE BIRDS OF LINDBERGH

**Some of the Greatest Names In Aviation History  
Designed The Spirit Of St. Louis  
and the Lockheed Sirius**

**By Norm Goyer, with Plans By Wendell Hostetler,  
Bob Holman, and Jim Pepino**

**W**e're all very familiar with the famous "Spirit of St. Louis," and its daring young pilot, Charles Lindbergh. (I saw the excellent movie, starring Jimmy Stewart at least twenty times!) Lindbergh really wanted a Bellanca for his trip, but when he started getting the run-around from Guiseppe, he contacted a small company in San Diego, California, previously owned by Claude Ryan who, Lindbergh knew, built strong, dependable, very reliable mail planes. For \$10,000, which *included* a new Wright J-5 engine, Lindbergh could have his plane with minimum delays. As the promise of financial backing had already been

obtained from a group of bankers in St. Louis, Missouri, the new owners of the Ryan company, B. F. Maloney and his one engineer, Don Hall, began work immediately on the new design.

Starting with the standard Ryan mail plane, Maloney and Hall greatly enlarged the wing to carry all of the fuel. They lengthened the fuselage, both fore and aft, for proper balance with the new J-5 Wright powerplant. A newly-designed landing gear, to carry all the extra weight, was also necessary. As no one . . . not even Lindbergh, knew exactly how far it was to Paris from New York, he and the designer went to the San Diego City Library,

where, on a large world globe, they stretched a string between New York and Paris, and arrived at a distance of 3,600 statute miles. That meant that the necessary "still" air range (no wind or turbulence taken into account) would be at least 4,000 miles. So the contract was written for \$10,580, which included the engine and instruments; and a delivery time of 60 days was specified. The money men in St. Louis approved and signed the contract for that amount and time frame.

From designs sketched out on the hangar floor, work in San Diego on the new aircraft progressed rapidly. The plane was basically a flying fuel tank, and its projected weight re-

quired about ten more feet of wing-span than that of the mail plane version. (Kind of sounds like today's "Voyager" project, doesn't it?) The interior of the aircraft was spartan . . . "no" was the big buzz word . . . *no* parachute . . . *no* night-flying equipment (except for a hand-held flashlight) . . . *no* gas gauges . . . *no* forward visibility . . . *no* radio . . . *no* sextant. Lindbergh was forced to use dead reckoning and the drift angle of the ocean waves for his only source of navigation. (On the opposite end of *that* spectrum, some modern-day pilots, even with a cockpit full of expensive avionics equipment, can't fly from Phoenix to Tucson without getting lost!)

The original gas tanks were designed to carry 425 gallons, but actually carried 450 gallons. Gross weight of the aircraft was 5,250 pounds, with the empty weight just slightly over one ton. The "Spirit's" useful load was 1½ times its empty weight. The Wright J-5 engine delivered 225 hp, producing a maximum speed of 124 mph. Takeoff run, at gross, was estimated to be approximately 2500 feet, and the range of Lindbergh's plane was projected at an astounding 4,210 miles!

As soon as it was completed, Charles Lindbergh test-flew the "Spirit" briefly and, satisfied that it met every one of his performance specifications, he purchased charts from nautical houses in San Diego. He then flew the craft to New York in only two hops; the first was a long flight of 14½ hours, from San Diego to St. Louis, Missouri, *over the Rockies at night* . . . then from St. Louis to New York City in seven hours flat!

Once in New York, Lindbergh settled in for an anticipated long wait. Favorable weather conditions across the ocean were a necessity for his perilous flight. So he waited . . . then one night, on his way to the theater, he received the long-awaited message: "Mr. Lindbergh, weather systems are correct; Go!" After a sleepless night, he rose before dawn and climbed into the cockpit of his ship. Starting at the very farthest end of the runway, the "Spirit" took off from the rain-soaked, muddy airfield; the heavy craft staggered into the air, clearing the wires at the opposite end of the field by only twenty feet. He was in the air! But during that long, lonely thirty-three hour flight, Charles Lindbergh was plagued by his personal demons and the almost-real phantoms of his sleepless brain. He and the "Spirit" were beset by thunderstorms and icing, and Lindbergh had to fight hard to keep his unstable plane in



The Lockheed "Sirius" was designed by Charles Lindbergh, using components from previous Lockheed aircraft.

All long-distance flyers and explorers of the day used the very dependable Lockheeds.

the air. Remember his only "blind-flight" instruments were an airspeed indicator, needle and ball, but Lindbergh's years of mail plane flying experience stood him well, and, amazingly, his landfall of Ireland was *only five miles off course!* The crowd's tumultuous welcome on his landing at Le Bourget Aerodrome in Paris, France, and the ensuing worldwide publicity were very difficult indeed for the shy American hero to endure; he was much more at home in the air!

Expectedly, the Ryan-Maloney Aircraft Company capitalized on all this publicity, and started building a great six-seat version of the "Spirit of St. Louis" which they named the "B-5 Brougham." In 1929, Ryan-Maloney was merged with Lindbergh's backers in St. Louis, and they called the new entity the Detroit

Aircraft Corporation. They had not, however, reckoned with the Great Depression which befell the country and signaled the end of their company.

Undaunted, a few years later, Claude Ryan formed a new firm which he named Ryan Aeronautical, and he produced the beautiful little Ryan ST. But that's a story for another day.

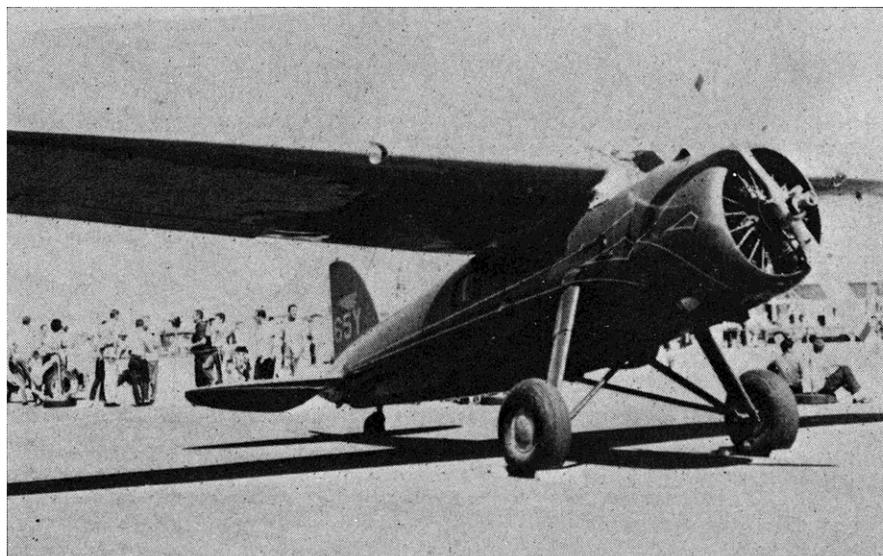
## CHAPTER TWO

### Enter The Lockheed!

While Lindbergh flew his obligatory tour of the country (*everybody* wanted to meet this brave national hero), two brothers, Allan and Malcolm, with the proud Irish name of Loughhead (correctly pronounced "lock-head"), hired a local garage mechanic in Santa Barbara, Califor-

The fuselage of the Vega, Sirius Series were built in a concrete mold, then a balloon was inflated, forcing the casein

glue into the pores of the birch plywood. The finished product was strong and smooth.



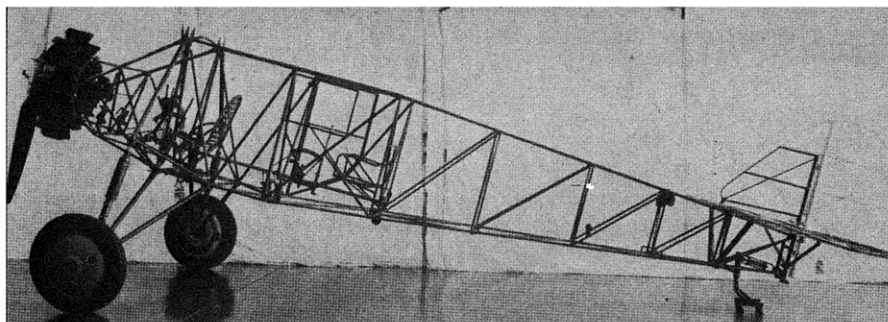
nia, to help them design a huge ten-passenger, twin-engine flying boat. The mechanic's name was Jack Northrop, and those Irish brothers, tired of hearing their name mispronounced "log head," officially changed their name to the way it was supposed to sound, Lockheed! And *that's* how one of the most famous names in aviation began.

Jack Northrop and the Lockheed brothers *did* successfully design that big flying boat, but unfortunately, the aviation market was not quite ready to accept this revolutionary design, and not one was ever sold. So one brother went into real estate; the other manufactured hydraulic brakes for automobiles, and Jack Northrop went to work for a man named Donald Douglas.

In spite of that setback, and with unflagging enthusiasm for all things aviation, in their spare time, Allan Lockheed and Jack Northrop drew up plans for a streamlined, molded-plywood fuselage monoplane. Backers were found, and the now historic line of Lockheed "Vega" aircraft was born. For a 1926 airplane, the "Vega" was extremely modern in concept. The first "Vega" cost \$17,500, and that included machine tools *and* its Wright Whirlwind engine! This prototype was sold to George Hearst of the newspaper chain, and named the "Golden Eagle," but it was lost at sea on a what was supposed to be a record flight from San Francisco to Hawaii.

Another adventurer had seen the "Vega," and he, an Australian pilot named Hubert Wilkins, bought the second "Vega" which had been outfitted with *both* wheels *and* skis, and with extra gas tanks. His friend, Ben Eilson, did fly it to Alaska. Together, Wilkins and Eilson left Point Barrow for Spitzbergen, 2200 miles across the frozen Arctic. After more than twenty hours of flying, they were forced down in a blizzard and sat for five days in the frigid aircraft. After many attempts at take-off, with only ten gallons of gas left, they were finally able to unstick the skis and take off. Miraculously, within only five miles, they spotted the Norwegian settlement of their destination and landed safely there. This flight of the Lockheed "Vega," Serial No. 2, was acknowledged by the aviation world to be an amazing combination of navigational skill, bravado, and just plain good luck, and it immediately and firmly established the reputation of the "Vega."

Orders poured in, and the backlog soon totaled more than a quarter of a million dollars, but the designer, Jack Northrop, seeing the handwriting on the wall, decided to move on,



Claude Ryan didn't own the company when the "Spirit" was built, but he later regained the rights, and manufactured the Ryan ST.

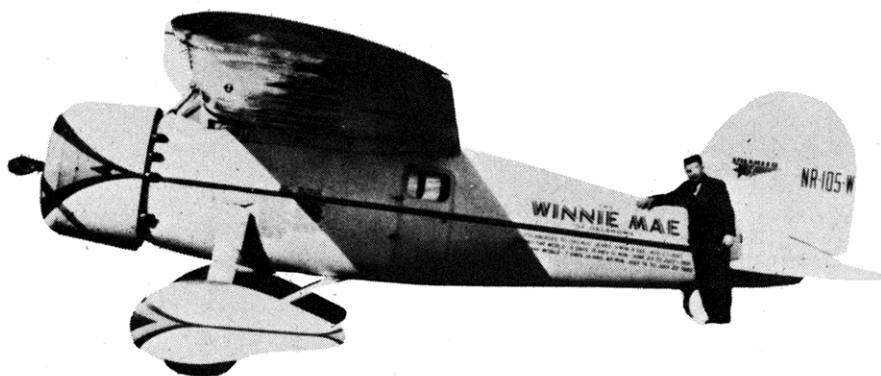
away from the World War One construction technique of molded plywood . . . on to the use of metal fabrication. And who should take his place as chief engineer but a man named Gerry Vultee. (This is beginning to sound like a "Who's Who of Aviation History!")

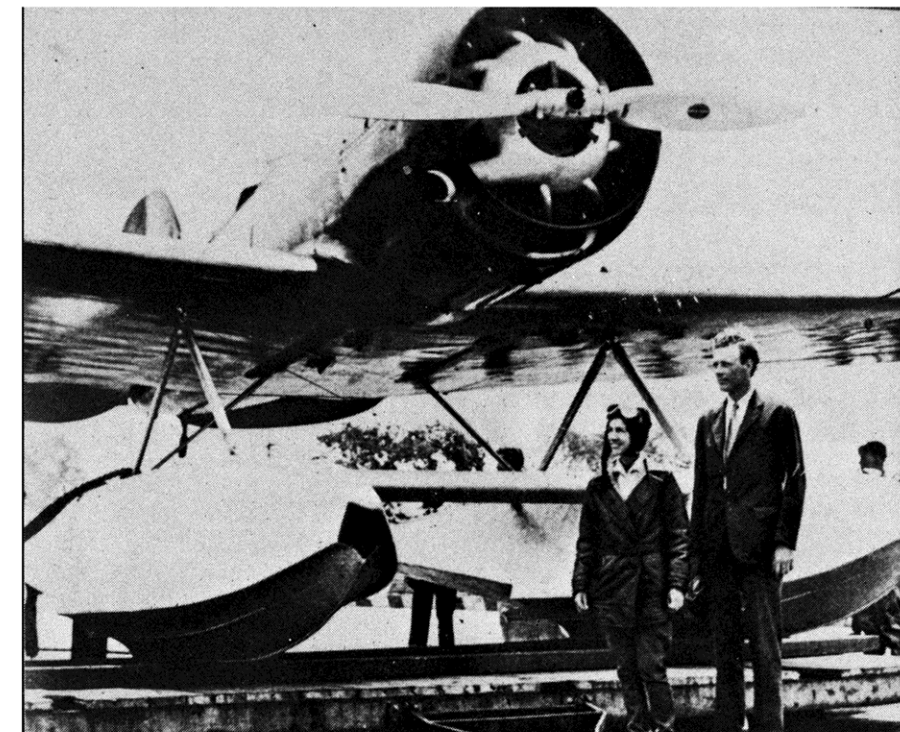
One of Lockheed's customers, Western Air Express, wanted Lockheed to increase the power of the "Vega" by replacing the old Whirlwind 220 with a Pratt & Whitney 450, and they did. And those in corporate power at Western Air Express figured that even an airline pilot needed the wind on his face in order to fly properly, so they insisted that their aircraft have an open cockpit! In order to fulfill the wishes of those owners with such antiquated ideas, Lockheed builders had to move the cockpit way back to the tail and lift the wing on struts for adequate forward visibility. Thus, the ugly (in this writer's opinion, anyway) "Air Express" was conceived. It did go fast, though . . . with its 150 mph cruise, it beat the "Vega" by 35 mph!

In 1927, Lockheed built *three*



When the Lindberghs traveled to remote corners of the world, they had the necessary gasoline for the Pratt & Whitney shipped to their destinations in advance. There were no FBOs to care for your plane where the Lindberghs flew their Lockheeds.





Wendell Hostetler's 1/4 scale "Sirius" is all-balsa construction, and makes a great flyer, both on wheels and/or on scale floats. One of Wendell's pretty daughters is holding the big Lockheed.

The Lindberghs flew their "Sirius" on Edo floats the equivalent of many times around the world in their search for new routes for Pan American Airways.

planes; by 1928, they had increased their production to 64 plywood bullets. Slogans were coined: "It Takes a Lockheed to Beat a Lockheed!"; "Lockheed Aircraft Will Carry A Payload Farther, Faster, And With Less Fuel Expenditure!" All of the operating airlines ordered Lockheeds; even the air racers and speed kings were flying Lockheeds.

One of the best known pilots was Wiley Post. In 1931, Post, in his famous Vega, the "Winnie Mae," accompanied by his navigator, Australian Harld Gatty, *flew around the world in only nine days!* Later, Wiley Post made the flight around the world *solo*, using one of Sperry's newly-designed autopilots. Shortly

after that, Post had an experimental space suit constructed for him. He also had a "droppable" landing gear built on the "Winnie Mae," and with this combination, achieved an altitude of 55,000 feet and 340 mph, making him the very first pilot to ever encounter the jet stream!

All of these events made it obvious to the aviation community that Lockheed had the best products available for the civilian market. Even the flamboyant Colonel Roscoe Turner, accompanied by his real lion cub (who was equipped with *his own parachute*), made personal appearances around the country in his factory-sponsored Lockheed.

In 1932, Charles Lindbergh and

his wife, Anne Morrow, were approached by Pan American Airways for assistance in plotting their air routes to the various "ports" of the world. Naturally, Lindbergh wanted Lockheed to build him the aircraft. After all, Lockheeds were the state-of-the-art when it came to long-distance, high-flying, explorer-type aircraft. So Gerry Vultee designed a low-wing aircraft to Lindbergh's specifications; the Edo factory built floats for it, and *another* version of the familiar Lockheed "Vega" was launched! Named the "Sirius," Charles and Anne Lindbergh flew the equivalent of several trips around the world in their plane, and it served them well for several years, but,

while being loaded onto a ship in a China port on one of their voyages, it was inadvertently wrecked.

The Lockheed "Vega" Series was a masterpiece of cabinet-makers' art . . . the fuselage was built in two halves inside a concrete mold; more layers of birch veneer were applied at cross-grain; the entire assembly saturated with casein glue; then an airbag inserted into the mold and 20 pounds of pressure per square inch applied to the curing veneer laminate. These shells were attached to a wooden network of stringers, longerons and formers. The wings were also fashioned of birch veneer, with ribs, spars and a version of the Pratt truss used to maintain the airfoil,

then covered with birch veneer.

In 1932, all of the Lockheed shares were sold, for \$40,000, to the only bidder, a group headed by Robert E. Gross, which still runs Lockheed today.

Of the 197 wooded Lockheed manufactured, only about *twelve* survive today. Most were sold in the late thirties to small transport companies in Mexico and Alaska, where they met their doom at the end of short runways, because of difficult topography or bad weather. The low-wing versions ended up with jammed landing gears, and the resulting wood-crunching crashes. Another group was smuggled into Spain, and were consumed, or vanished, in the debris of that country's civil war.

At one time, one of the surviving "Vega" aircraft was tested by our military to see if an all-wooden airframe could be used to sneak undetected past enemy radar.

Lockheed lovers can see Lindbergh's "Tingmissartog" in Washington, and Wiley Post's "Winnie Mae," the most magnificent Lockheed of them all, hangs in honor in the Smithsonian Air And Space Museum.

Tragically, Will Rogers, noted humorist, and Wiley Post perished in a takeoff accident in Alaska in an aircraft similar to Lindbergh's "Sirius."

Modeling-wise, I've always been attracted to Lindbergh's aircraft, the NX-211 which is "The Spirit of St. Louis," and to the NR-211, the "Sirius," probably because they are just a little bit different enough to be attractive.

Plans in all sizes are available for the "Spirit"; Mike Beaulieu (M. C. Beaulieu Plan Service, 84 University St., Presque Isle, ME 04769) has plans for John Pahlow's "Spirit" with an imposing 144-inch span. Bob Holman Plans, P.O. Box 741, San Bernardino, CA 92402, has excellent 3-views of that aircraft, and Wendell Hostetler Plans for the "Sirius" are presented here, and are available in *full size*: Wendell Hostetler's Plans, 1041 Heatherwood Lane, Orrville, OH 44667, (216) 682-8896. Scale Edo float plans are available from Jim Pepino's Scale Plans & Photo Service, 3209 Madison, Greensboro, NC 27403, (919) 292-5239. These plans will be a little short, but they can easily be extended to make up the difference to achieve proper

scale r/c modeler 25

scale. The "Sirius" had a higher weight and a larger wingspan than the Cub to which the Edo float plans were scaled, but putting the "Sirius" on anything *but* scale Edos just would not look right.

In future issues, we'll feature the other aircraft most often associated with Charles Lindbergh—the Lockheed P-38 "Lightning" which he flew in the South Pacific as a factory demo pilot. He wasn't afraid to mix it up with those Japanese "Zero" fighters. To this day, however, the "Spirit of St. Louis," built by the Ryan Aircraft Corporation, and designed to Lindbergh's exacting specifications, remains an enduring masterpiece of pure performance. And those scenes of Lindbergh's memorable takeoff from that rainy field, and his victorious landing at Le Bourget in Paris, faithfully replayed on television every year on the anniversary of his historic flight, are an important reminder of that pilot's monumental courage in flight.

