

NEWSLETTER – THIRD QUARTER 2007

Volume 2, Number 3

EARLY AVIATION – PART 2

CHARLES HEALY DAY AND EVOLUTION OF NEW STANDARD D-25

By

Robert G. Lock

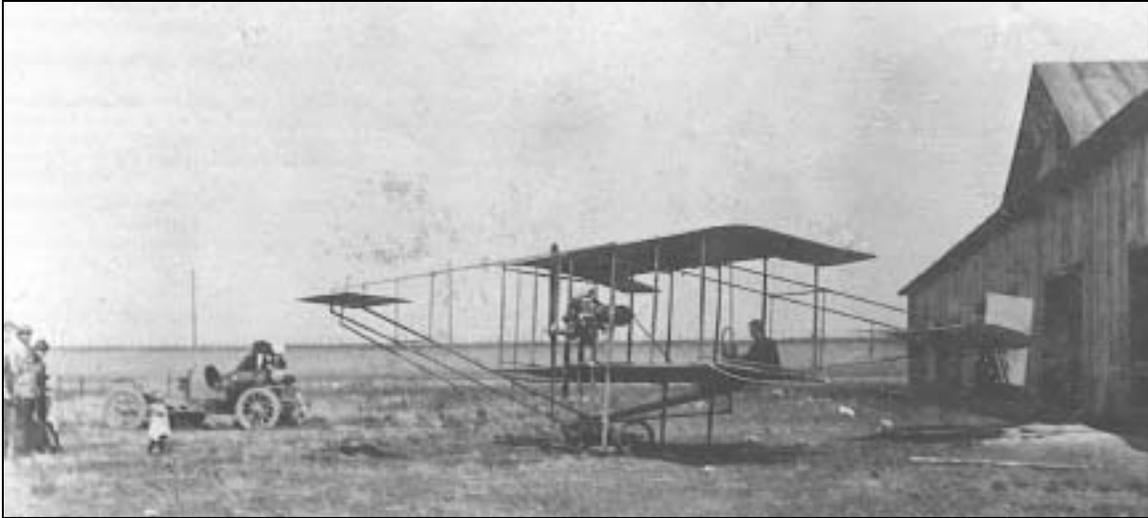
Charles Healy Day (December 29, 1884 – May 26, 1955) was a very talented designer in the early days of civil aviation in the United States and enjoyed a varied career in the world of airplanes. Day built the first tractor biplane in 1909 powered with a 30 hp



engine of his design using five-Harley Davidson cylinders arranged in a semi-radial fan configuration. Tractor design indicates propeller pulls the ship through the air, as opposed to a pusher design that pulls the ship through the air. Day flew the craft unsuccessfully near Playa Del Rey, southwest of Los Angeles. He repaired the craft and flew successfully at Dominguez Ranch, south of Los Angeles.

Left, a young Charles Day with his original aircraft and engine design. Photo from David B. Stevenson.

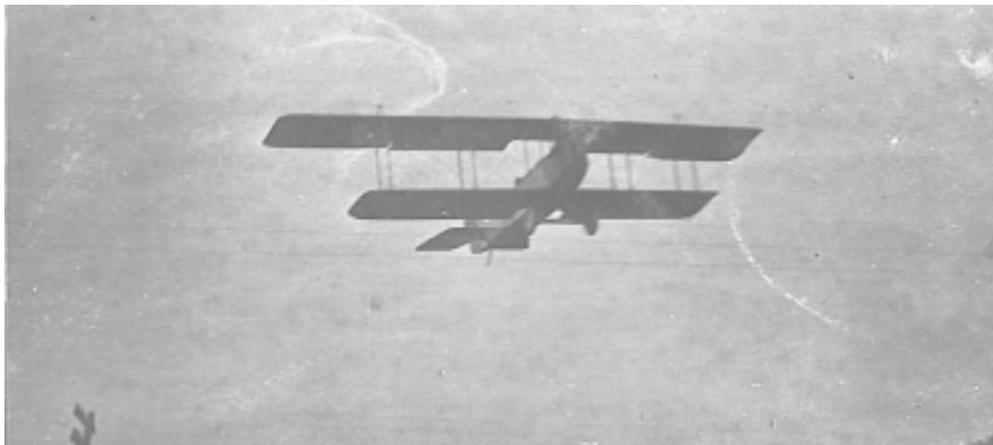
Day was associated with Glenn L. Martin during Martin's beginning in aviation. Day is also credited with developing the first laminated wooden propeller, thus making the prop much stronger. Charles Healy Day's first tractor ship was constructed on the west coast.



Above, Charles Healy Day's first aeroplane design in 1909. The ship was a tractor biplane with forward and aft horizontal stabilizers, a rudder with no fixed vertical fin and moveable panels on the upper wings acting as ailerons. Photo from David B. Stevenson.

Day eventually hired on with the John E. Sloane Airplane Company in Astoria, Long Island, New York as chief engineer. Sloane was the son-in-law to Thomas Edison, thus there most likely was an influx of capital into his company from Edison. Day's first design at Sloane was the model H, the direct ancestor to his famous wartime Standard J-1. The H-1 was a two-passenger open land biplane powered with a 180 hp Hisso E engine. The next variation was the model H-2, similar to the H-1 but with swept-back upper wings and powered by a 125 hp Hall-Scott A-5 motor. Wingspan was 40'1" and length was 27'0". This design was the basis for the next aircraft, which would make Day famous; the model J-1.

With Sloane Aero Corporation as a nucleolus, the Standard Aero Company was formed on May 12, 1916 at Plainfield, New Jersey. In 1917 the company was incorporated into the Standard Aircraft Corporation in Elizabeth, New Jersey. Day was still chief engineer. The United States entered into World War 1 on April 6, 1917 and work at the plant continued to the next variant of the models H-1, H-2 and H-3 ships.



Above, an early Standard J-1 powered by a 90 hp Hall-Scott water-cooled motor takes wing. Day's design for a basic training ship was to enter service near the end of the war, which limited the numbers of produced aircraft. Photo from Elmer "Buck" Leighton

The first version of this aircraft was one of four that would help the U.S. Army chase down Mexican bandit, Pancho Villa in 1916. When the United States entered the first World War in 1917, the Standard J-1 was built to supplement the Curtiss JN-4 "Jenny" for training pilots. Most aircraft that were produced were underpowered with the 4-cylinder Hall-Scott or Curtiss OX-5 engines producing 90 hp. By war's end, more than 1,600 Standard J-1's had been produced. Four companies would eventually construct the J-1 design because Standard Aircraft Corporation was not capable of mass production. Those companies were Standard, Dayton-Wright, Fisher Body and Wright-Martin and they constructed approximately 1601 ships. After the Armistice was signed in November 1918, the government abruptly cancelled an additional 2,700 ships. In 1920 Standard Aircraft Corporation ended operations and the inventory of J-1 parts was sold to Nebraska Aircraft Company, which produced several aircraft that were known as the Lincoln Standard.

When the government effectively grounded all wooden aircraft from carrying passengers for hire, an alternative was needed.

Needing a replacement ship for his barnstorming operation, Ivan Gates approached Charles Healy Day with a proposition. They join forces to design and construct an aircraft specifically for the barnstormers. On October 17, 1927 the Standard Aircraft Corporation was reorganized into the Gates-Day Aircraft Corporation. By December Charles Day, working at the Gates Flying Circus headquarters in Lodi, New Jersey had completed the design for a four-passenger biplane replacement for the model J-1, the Gates-Day model 23.



Above, a photo of the Gates Aircraft Corporation, Lodi, New Jersey around 1927. It was likely that this is the building that Charles Healy Day began design of the model GD-24.
Photo from Bill Rhode scrapbook

GATES FLYING CIRCUS AND AVIATION COMPANY
are pleased to announce the opening of their
SCHOOL of AVIATION (Division)
 at Fokker's Teterboro Airport
 Hasbrouck Heights, New Jersey
 New York's nearest airplane seven miles distant—"45 minutes from Broadway" by auto

Bus leaves Hermitage Hotel, 7th Ave. and 42nd St., New York, every hour direct to Field

Greatest Opportunity and Environment Ever Offered a Student

Fokker Aircraft Corporation, Atlantic Aircraft Corporation, Wright Aeronautical Corporation Hangars, United States Air Mail, of Colonial Airways Inc., Clarence D. Chamberlin's home situated on Airport.	Colonel Lindbergh's famous plane now there on exhibition—our own factory and shops immediately adjacent.
---	---

See the Giant Fokker Planes Built—See the Famous Wright Whirlwind Motors Tested

Instruction From the Master Pilots of Gates Flying Circus
 BY THE LESSON, HOUR OR COMPLETE COURSE—LOW TUITION FEES.

Free ground schooling available to students; actual repairing, re- building, rigging, motor work in our own shops, meteorology, taxi-	gation, Department of Commerce Laws, Business Tactics of Com- mercial Aviator.
--	---

AMERICA SERIOUSLY NEEDS AVIATORS—LEARN TO FLY NOW.

GATES FLYING CIRCUS AND AVIATION CO.
 (SCHOOL AND REPAIR DIVISION)
 OLDEST ORGANIZATION OF ITS KIND IN THE WORLD—ESTABLISHED IN 1911

CLYDE E. PANGBORN, Chief Pilot Phone Passaic 8448	IVAN R. GATES, General Manager 140-150 MAIN ST., LODI, NEW JERSEY
--	---

Above, an advertisement from Ivan Gates. Gates had his finger in several pies dealing with aviation. Note that Ivan Gates is listed as General Manager.

There is no firm evidence that Ralph Charles had anything to do with the Day's wider fuselage design, as there is no firm evidence that Charles built a four-passenger fuselage out of steel tubing, using Standard J-1 wings and tail assemblies.

Before the prototype could be constructed, Day modified the design and identified it as the GD-24 (Gates-Day, Day's 24th design). This was a completely new airplane to replace the old Hiss Standard J-1's and was specifically tailored for hauling passengers around the field in large numbers, carrying mail or hauling passenger's cross-country. Day did not create a ship for passenger or pilot comfort, having everyone sit in drafty open cockpits. The new Gates-Day ship, licensed X-7286 displayed at the International Aeronautical Exhibition in Chicago in 1928.

The International Civil Aeronautics Conference of 1928 was the first significant national recognition of the Wright brothers' achievement of powered manned flight. Before the business of the conference began, delegates had the opportunity to attend the International Aeronautical Exhibition in Chicago. The show featured American aircraft and technology, including nearly every American airplane in production, motors and accessories, special exhibits, and displays of foreign aircraft as well.



Above, the Gates-Day GD-24 prototype, NX7286, serial number 101. Power was a 180 hp Wright "Hisso" water-cooled motor.

The first production ship from the factory was New Standard D-24, NC193E, serial number 102. The New Standard Flying Service at Teterboro, New Jersey operated the aircraft into late 1929. Sold to John McDonald Miller in July 1930. Miller remembers,

"New Standard NC193E was S/N 2. It was first a D-24 with Hisso engine. It was wrecked at Teterboro when Tony Fokker [although Fokker never flew an airplane to Tucson, he and his wife are recorded on page 44 as passengers with pilot Thomas J. Fowler in June 1926] rammed into it on the ground with an experimental airplane. I bought the wreck and rebuilt it with a Wright J-5, thus it became a D-25. I



sold it in 1935 as I remember. It ended its days when a propeller blade failed and pulled the engine out just as it was leaving the ground with four passengers aboard. It zoomed, then rolled over on its side and crashed on the front yard of a house. All aboard walked away. Evidently it was scrapped."

Above, John Miller's New Standard D-24 converted to a D-25. Photo from David B. Stevenson.

From his account of "Charles Healy Day and his New Standards," written by David B. Stevenson a description of John Miller's early days of flying is described. "Miller learned to fly in a J-1 Standard and had flown with the Gates Flying Circus for one

season, operated with Ives McKinney, New Standard Flying Service at Teterboro about 1930. Following McKinney's death in an OX-5 race at Teterboro, Miller bought from his estate the wreckage of New Standard D-24, NC913E, construction number 102, which had been badly damaged on the ground when hit by a Fokker experimental plane." After extensive repairs Miller teamed with Roy Ahern and Charlie Arnold with two more D-25's operating as Red Wing Flying Circus. There is much more about John Miller and New Standard, but I'll save it for another newsletter.



Above, a rare glimpse inside the factory of New Standard Aircraft Corporation, Paterson, New Jersey. If one looks close there are five-aircraft in various stages of assembly. NC9193 is serial number 132 and is a model D-25. It was first sold in 1930 to Roosevelt Flying Service, Mineola, Long Island, New York. It was transferred to Alaskan Airways, Fairbanks, Alaska in 1932. Note the two wings that appear to be painted. They are upper wings for a model D-27 mail plane because there are landing lights in the leading edge.

Price of the new ship introduced in late 1928 was \$4,250 and advertising listed the manufacturer as New Standard Aircraft Corporation, Paterson, New Jersey. A manufacturing facility was established in an old silk mill in Paterson and corporate officers were announced. Ivan Gates was president, Charles Healy Day was vice-president and chief engineer and George Daws, and a former newspaperman in charge of publicity and public affairs for the Gates Flying Service was secretary. Clyde Pangborn, chief pilot for Gates was hired as chief pilot of New Standard and New Standard Flying Service.

Since the factory was in the town of Paterson, newly constructed and ready to assemble components were towed or hauled to Teterboro for final assembly and test flights. Aaron “Duke” Krantz, the Gates Flying Circus “stuntman” and mechanic transferred his skills to the New Standard Aircraft Corporation when the Gates Flying Circus ceased operations.

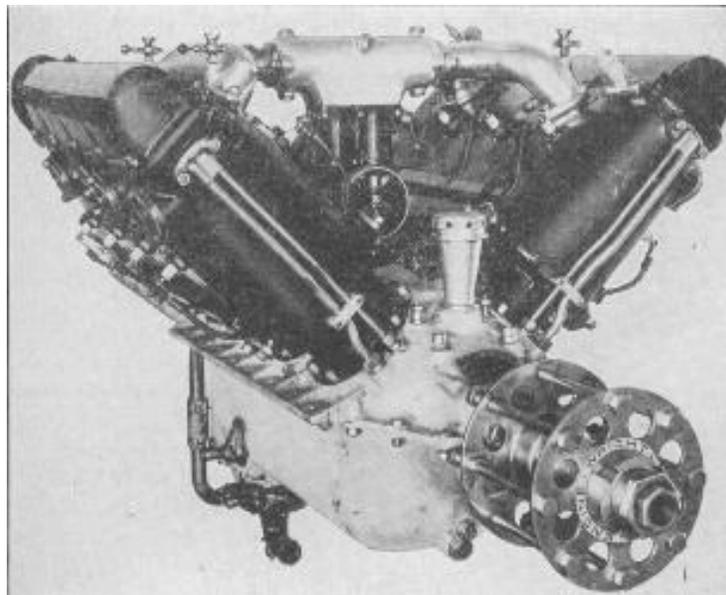


Left, Aaron “Duke” Krantz, “diavolo” with Gates Flying Circus hangs by heels from lower wing of Standard J-1. Photo from Bill Rhode scrapbook.

“Duke” Krantz was in charge of the crew that assembled and rigged newly produced New Standard D-25’s in the open field of Teterboro.

Near the end of 1928, Ivan Gates left the company to pursue his own interests and on December 29, 1928, the corporate name was officially changed to the New Standard Aircraft Corporation. Beside the prototype GD-24 NX7286 (serial 101), five other GD-24 aircraft were constructed in accordance with Approved Type Certificate 107, NC193E (serial 101), NC442 (serial 103), NC9756 (serial 105 and currently owned by Waldo Wright’s Flying Service), NC9794 (serial 107) and NC9102 (serial 112). All aircraft were originally powered by a Wright “Hisso” 180 hp water-cooled engine.

Right, the Wright “Hisso” engine producing 180 hp at 1450 rpm. By the end of WW1 more engines had been produced by Wright Aeronautical Corporation than airplanes to put them in. Thus new engines could be bought surplus from the government for as little as \$10 each, crated and unused! The “Hisso” engine was the first mass produced engine to use a solid aluminum cylinder block in which steel sleeves were threaded to form the cylinder housing.





Above, in this poor grainy photo is New Standard GD-24, NC9756 flying above the city of Manhattan, New York early 1929. Note wing walker hanging from left wing strut. Actually there are two wing walkers, one on each wing. Photo from Bill Rhode scrapbook.

NC9756 was first owned by the New Standard Flying Service based at Teterboro. In the above photo the ship has original Wright "Hisso" engine installed, therefore it belongs to New Standard Flying Service.



Above, NC9756 serial 105, originally a model D-24 now converted to a model D-25 by factory by installation of the Wright J-5, 225 hp engine. Also installed were mechanical brakes and a pneumatic tail wheel to replace original tailskid. Photo from Peter Bowers.

After the federal government took over control of civil aviation in the United States, it instituted certain standards that would have to be met before an aircraft could be manufactured and sold to an individual or company. These standards set forth in the Approved Type Certificate (ATC). The first ATC was issued in March 1927 and was ATC #1. By the time that Charles Healy Day applied for an ATC on his New Standard GD-24 design the number had risen to ATC #107, which was issued by the Aeronautics Branch of the Department of Commerce in February 1929. Only six GD-24 and D-24 ships were constructed under ATC #107 and in the same month ATC #108 was issued. Day modified his D-24 by removing the 180 hp Wright "Hisso" water-cooled engine and installed the more reliable Wright J-5, a 9-cylinder air-cooled radial engine. The J-5 was the first mass produced radial engine and was responsible for powering Charles Lindbergh to Paris in his "Spirit of St. Louis." The model was changed from D-24 to D-25.

Bill Rhode writes "Aerial Anecdotes – Old Jersey Airport," which chronicled early aviation activities around Paterson. In this particular issue Rhode writes, "At the South end of the field, brand new New Standard D-25 biplanes were being assembled by Duke Krantz and crew. Clyde Pangborn test flew them.

In March 1929, the last road show of the famous Gates Flying Circus returned to Teterboro after being grounded by the Government. The four J-1 Standards arrived over the center of the field and all looped in formation. Then they spun down to spectacular landings. The days of the flying circus, plane-changes, wing walkers and aerialists were over."

Bill Rhode continues, "Gates chief pilot Clyde "upside down" Pangborn quickly set up the New Standard Flying Service with three J-5 powered New Standard D-25 biplanes NC9756 was one of these ships. "A typical Sunday afternoon at Teterboro went something like this. Under the hot sun, a water wagon ran up and down the field to dampen down the dust of the sun-baked sod. The barkers on the P.A system sold passenger ride by the hundreds at a dollar a head. Capt. Warren B. Smith, Homer Fackler and Bill Diehl hopped the many passengers four at a time in the New Standards.

About 3 p.m Capt. Smith (Smitty) went aloft to do some fancy stunt flying. He concluded his act at 3,000 feet by cutting his ignition and gliding down with a dead engine. On the way down, he looped with his dead engine and by skillfully sideslipping, he landed the J-5 Standard on the field and rolled right up to the ticket booth. The purpose – to drown out the argument that a plane faltered when its engine went dead.

The huge crowd waited all afternoon for the spectacular parachute jump that was held off the keep the crowd about. When the chute-jumper went aloft, two planeloads of

passengers followed along side to view the bale-out. The annual Air Shows were usually held in conjunction with Elks Crippled Children fund.”



Above, a New Standard D-25, perhaps from the New Standard Flying Service hops passengers from Teterboro in 1929. The flying service operated NC193E, NC442 and NC9756. The old Gates Flying Circus Standard J-1's can be seen in background. Photo from Bill Rhode scrapbook.

The D-25 seated four-passengers in a large front cockpit, which increased revenue for barnstormers fighting the effects of the Great Depression. With a 45-foot upper wingspan the ship would carry about anything you could pack in the front cockpit, including liquor. Yes, several New Standard biplanes were used for smuggling liquor

from Canada into the United States during prohibition. Perhaps I can tell the whole story in a later newsletter.



Left, NC9756 departing on flight from Plum Island with four-passengers on board. Lockfoto



Above, New Standard D-25 serial number 139, loading passengers for a hop. Aircraft appears to be near town. Couple at rear are having photograph taken while pilot supervises loading of passengers for next flight. Photo source unknown.



Today, two-New Standard's fly daily at Fantasy of Flight in Polk City, Florida. The two aircraft have taken thousands flying, many for the first time in an open cockpit biplane.



New Standard pilots for Waldo Wright's Flying Service in "uniform." Right, Rob Lock, owner and left Bob Lock, your humble newsletter editor. Photo by Jim Abels.

Ship number 9 is a 1931 New Standard D-25A, NC9125 (formerly NC150M), serial number 205, the last ship manufactured by the original company. Ship number 21 is a 1929 New Standard D-25, NC9756, serial number 105, the fifth ship produced by the original company.

Both ships continue to operate regularly and with the utmost safety. Number 21, NC9756 has flown since overhaul in June 2000. Number 9, NC9125 has flown regularly since overhaul in March 2003.

References: "Charles Healy Day and his New Standards," David B. Stevenson
"U.S Civil Aircraft," Joseph Juptner
"Chewing Gum, Baling Wire and Guts," Bill Rhode
"Barnstorming," Martin Caidin

Web: http://www.dmairfield.com/people/miller_jm/index.htm