7 & 11 GEE BEE

By Robert H. Granville
Lifetime Member 92558
RFD 4, Box 176
Skowhegan, Maine 04976

(Photos From The Author's Collection)

I AM A little concerned by the article which appeared in the March issue of *SPORT AVIATION* called "Speed Seekers". The #11 Gee Bee was referred to as the infamous Flying Silo which had been built in an abandoned dance hall.

I have decided that after the wonderful way I was treated at Oshkosh '75, my fellow members of EAA might like to know the truth about both #7 and #11. This will no doubt sound quite different than much that has been printed in the past. So here are the facts plus several quotes attributed to Jimmy Doolittle by the Springfield, Massachusetts newspapers of September in 1932 and a couple of statements from Cleveland papers.

Granville Brothers Aircraft received the order to build two racing ships in early spring, 1932. The customer was the Springfield Air Racing Association (S.A.R.A.) headed by famed distance flyer, Russell N. Boardman. Model R-1 was to be a pylon racer using a Pratt & Whitney Wasp engine with rated power of 740 at 2300 rpm, and designed especially to win the Thompson Trophy race. Model R-2 was to be a distance racer using a Wasp Jr. (530 at 2300) and carrying 302 gallons of fuel. It was designed to win the Bendix and take as much money as possible in the Thompson Trophy. The only difference in the two ships was the engine installation and larger gas capacity in the R-2. Wings, tail, fuselage, landing gear, and wires were identical.

Both ships had to be designed, built, and test flown before September 1st; to include wind tunnel testing. Certainly no one would attempt to do such a thing today, with only 6 months to deal with.

Z. D. Granville, known to everyone as Grannie, and Howell W. "Pete" Miller, teamed up for major design. Pete was and is a fine aeronautical engineer who graduated from New York University. As time was very short, several other engineers were hired, including Donald Delackner and Allen Morse. I cannot recall their names but there were probably at least three others.

A wind tunnel model was built as soon as the design was firm. Grannie and Pete took it to New York University and ran tunnel tests under the guidance of Alexander Klemin who was an early expert in the field and also a friend of Pete Miller. The tests worked out very well so construction went ahead on both ships as fast as drawings were sent into the shop. I believe our shop crew was as good as could be found anywhere, especially having been seasoned on our ATC production models. Ed and Mark Granville and also Hiram Jones were top welders and metal workers. Bill Munger was also a first class metal worker and all round mechanic. My job was first to see that we had the proper materials when needed, and then to help Tom Granville and Philip LaPalme build the wings and tail group which were of wood. There was some other help but it was mostly untrained. Every man was dedicated to building the finest ship possible and only the finest materials were used. Everyone worked many, many long hours to meet the deadline.

In the meantime, Russell Boardman, who had had no previous experience in the racing field, was flying the Model Y Gee Bee Senior Sportster at any and all air meets around the country, both aerobating and racing. This ship had not been designed as a racer but had won the Aerol trophy in 1931. Boardman won many small races and came back one afternoon from Omaha carrying the Speed Holman Trophy for Aerobatics. He was picking up lots of experience.

Many people have criticized the huge fuselages of the R series Gee Bee. However, the reason for this shape was very simple. It was only a matter of streamlining a given diameter radial engine. Both diameter and horse power of the engines was fixed, so, to get maximum speed or what was dubbed "Grannie's built in tail wind", maximum streamlining was absolutely essential. The shape was of tear drop design. At about one third the length of the ship the diameter was about three inches larger than the Wasp engine. From there it tapered to zero at the trailing edge of the rudder. Grannie felt that this was the ideal shape for air to flow around.

The R-1, carrying the racing number 11, was finished about one week ahead of its sister ship. Russell Boardman lifted it smoothly from the rough, little, 2000 foot Springfield Airport on August 23, 1932. It wasn't recommended that he land on this field so he flew over to beautiful Bowles Field a few miles away and made a perfect landing on his first attempt. When we opened the door he sat there grinning and said, "You boys sure build airplanes."

The only noted problem that Boardman encountered on his first flight was that, though safe, the ship could use more fin and rudder area. This was corrected during the next twenty-four hours right at Bowles Field and was also incorporated in the R-2 (#7) back at our shop at Springfield Airport. These were the **only** changes made in either ship before the air races.

We suffered a major setback on September 25. Boardman climbed into the Gee Bee Sportster E model NC46V to go to Bowles intending to make a second flight in #11. The NC46V was the same ship that had served Lowell Bayles so well in the Ford Reliability Tour of 1931. Eye witnesses said that Boardman attempted a loop off the end of the field and didn't have room to recover. Had he been flying the more powerful Y he probably would have made it. Anyway, he crashed in the woods and was badly hurt. When he recovered he had no memory of the flight or the airplane which was demolished.

Boardman could not possibly recover in time for the races and as Doolittle had damaged his Laird and had no ship to race, he was offered the job of flying #11.

Jimmy Doolittle's few flights in #11 are history. The ship had almost zero time on it, yet he flew directly to Cleveland without making even one trial landing at Bowles. In the few days that he had the ship he set a World Speed record of 296.287 with one pass at better than 309. He won the Thompson Trophy by lapping every other ship in the race and at a speed of 252.686. This was the speed record for the Thompson until it was finally broken in 1936 by Michel Detroyat of France at about 264 mph.

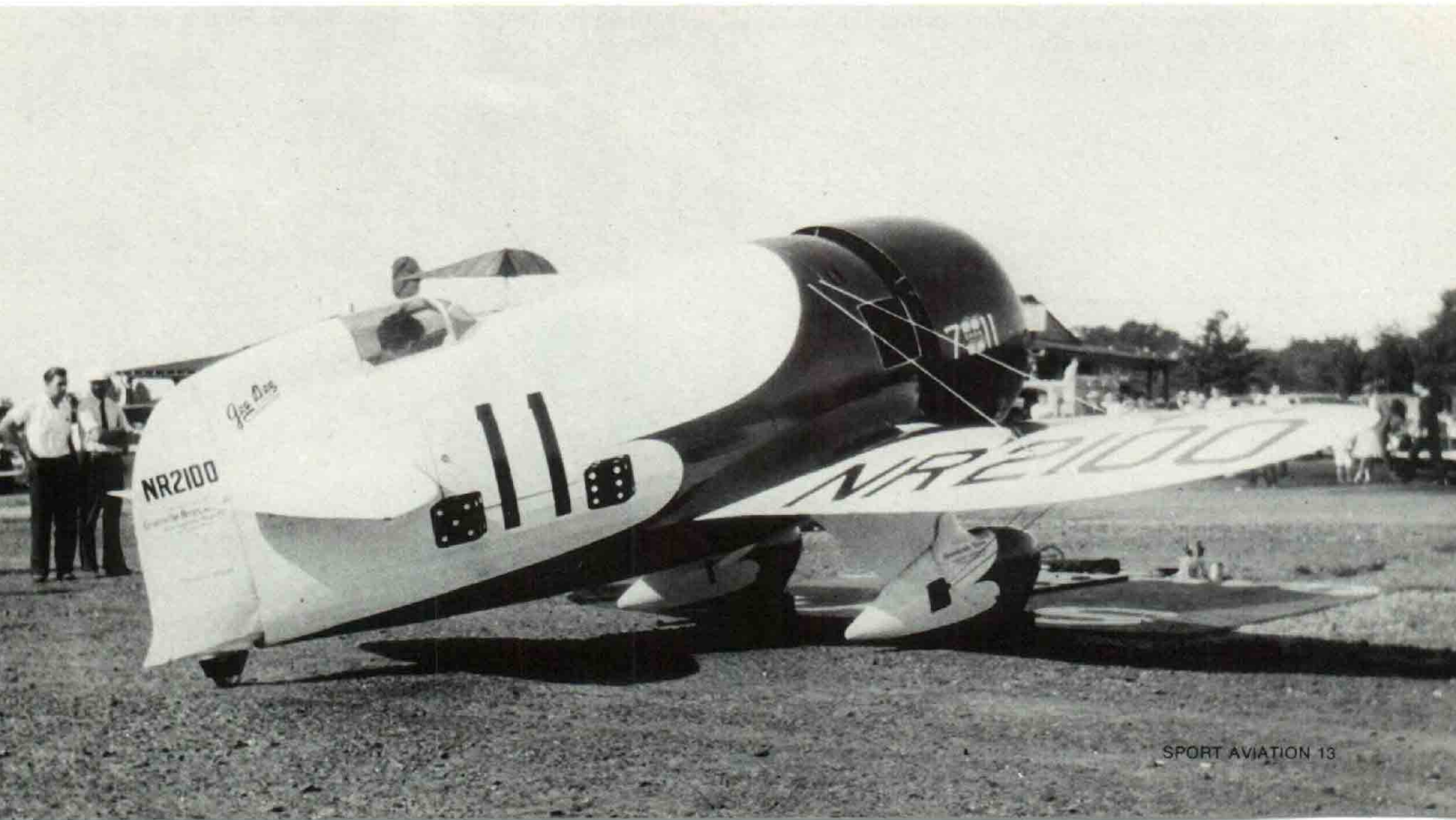
Before the qualifying trial, the Cleveland papers quoted Doolittle as saying:

> "She's got plenty of stuff. I gave her the gun for just a few seconds and she hit 260 like a bullet, without any chance for momentum and without diving for speed and she had plenty of reserve miles in her when I shut her down."

After the qualifying trial and a new speed record had been set, the press quoted him as saying:

> "I could have shoved the ship up to five miles an hour faster but I didn't let it out to the full extent. It was made for Russell Boardman who has his heart set on making the world's record and he can give the ship all its got after he recovers from his accident."

The R-1 in its original configuration. After the initial test flights the fin and rudder were enlarged as seen in the other pictures of the aircraft accompanying this article.



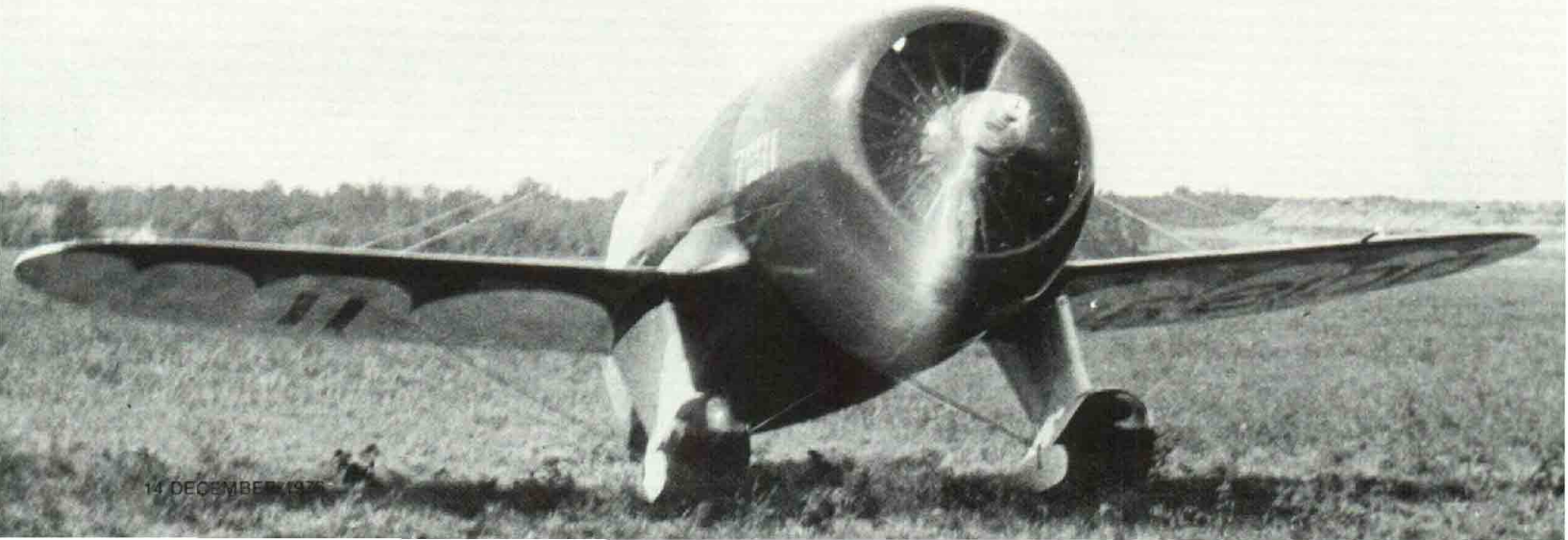
Back at Springfield, Jimmy Doolittle had high praise for the ship and the men who built her. Here are some quotes as printed in the Springfield papers and as he stated in his personal letter. I still have these clippings which I am always delighted to show to anyone who is interested.

The **Springfield Union** of September 6, 1932 quoted Doolittle as saying, "She is the sweetest ship I've ever flown. She is perfect in every respect and the motor is just as good as it was a week ago. It never missed a beat and has lots of stuff in it yet. I think this proves that the Granville Brothers up in Springfield build the very best speed ships in America today."

The **Union** of September 10 said Jimmy Doolittle flew in yesterday from Cleveland in the R-11, rolled it into the hangar at Bowles Airport, patted the fuselage, and said, "Gee Bee's are mighty fine ships."

Z. D. "Grannie" Granville and the R-1 at Bowles Field shortly before Jimmy Doolittle flew it to Cleveland. The author says that the Gee Bees "had an exceptionally fine finish in bright red and white. Lots of 320 and 400 wet or dry sandpaper, rubbing compound, and wax with plenty of elbow grease was responsible for this."

The R-1 just moving forward on its first flight. Russell Boardman is the pilot and he has only 2,000 feet of rough sod in front of him! The Gee Bee was landed without incident at the larger Bowles Field a few miles away.



Another Springfield paper of the same date quoted Doolittle as saying, "The ship performed admirably. She was so fast that there was no need of my taking sharp turns although if the competition had been stiffer I would have. I just hope Russell Boardman can take her out soon and bring her in for a new record. There were lots of things we might have adjusted more properly if we had had time to run tests with the ship, and they would have meant more speed. I am sure Russell Boardman can take her around at quite a bit more than 300 miles an hour so you see my record may not last long after all."

A letter dated September 7, 1932, on Shell Petroleum stationary and addressed to Granville Brothers Aircraft reads as follows:

Dear Grannie:

Just a note to tell you that the big G. B. functioned perfectly in both the Thompson Trophy and the Shell Speed Dash.

With sincere best wishes for your continued success, I am as ever.

Jim

Pete Miller still has this original letter.

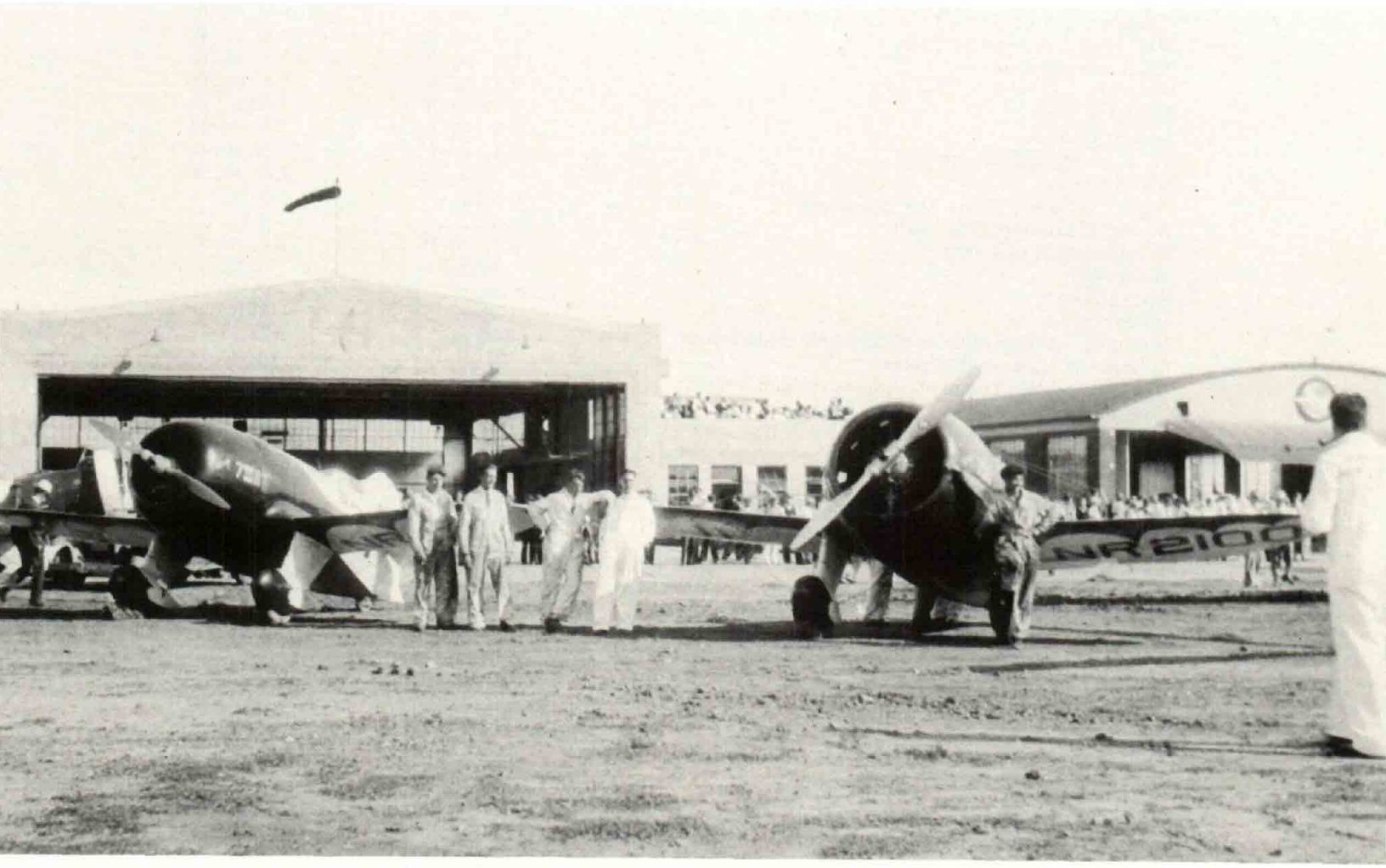
Now to get back to the R-2, racing number 7. Lee Gelbach was chosen to fly her and he flew over to Bowles Airport on August 21st or 22nd. This was his kind of airplane and he had no problems or complaints. On the 24th he pointed her nose west and made an uneventful trip to California to enter the Bendix. In the race, the R-2 made great time until it was over Illinois. Here Gelbach began to get a fine spray of oil over his windshield. He landed at Chanute Field and found he had a cracked oil line. Deciding he could not repair it, Lee refilled his oil tank, left his cockpit cover at the field, and took the warm oil in his face all the way to Cleveland. This, of course, cut his speed considerably, and he landed drenched and out of the money.

A new line was installed, a wash job done, and Gelbach qualified in the Shell Speed Dash at 247.339. In the Thompson Trophy Race, Lee flew a beautiful tight, and often vertical, race to take fifth place at 222.098 miles per hour. If #7 had had those extra 210 horses, the same as #11, Gelbach would have been a hard man to beat.

It is also noteworthy that #7 was flown at standard low level and subjected to propwash — unlike #11 which was flown at a much greater height.

After the races Gelbach had this to say: "Number 7 is the most wonderful handling ship I've ever flown. You can cover a lot of territory without adding much flying time with this ship. All told I've only flown it about 30 hours." So he flew back to Springfield and sat down to write up the ship's log. Sure enough, total time was about 31 hours since roll out.

To me, Lee will always be the great pilot of the thirties. He always brought them back whole and never blamed



The R-2 (Number 7), left, and the R-1 (Number 11) in front of the Skyways Hangar, Cleveland, Ohio in 1932. This view of the two aircraft together clearly shows the difference in the two aircraft (as originally configured). The small cowl of the R-2 at the left houses a P&W R-985 and was intended for the transcontinental Bendix race. The R-1's larger cowling contains a P&W R-1340 for all-out speed — to win the no-holds barred Thompson pylon race and capture the world's speed record for land planes . .. which it did with ease.

the ship if he was not the winner.

What was the total time on #11 when returned to Springfield? I don't know, maybe 15 or 20 hours.

It was not until some years after Grannie's tragic and needless death in 1934 that we began to hear these tales of instability, flying death trap, and on and on. It was always pointed at the #11, and never at #7. Grannie would certainly have defended the ship and the good name of the company had he been there. He had always been able to express the facts very clearly. He would have told the truth as I have and been able to prove it.

As Mr. Foxworth stated, it is a fact that the Gee Bee shop was a dance hall before we turned it into a factory. However, this did not, in any way, detract from the quality, stability, or speed of the Gee Bee airplanes. I leave it to you. Were #11 and #7 flying death traps or were they two of the finest racing ships ever designed and built?

Pilot Lee Gelbach with the R-2, Number 7, before the start of the 1932 Bendix. Notice the path of the oil streaks down the side of the streamlined fuselage. Also note the many fairings and attention to detail (like the carefully faired running lights) in order to reduce drag . . . then remind yourself that this was 1932. The more closely you look at the Gee Bee racers the more you come to realize they were much more than mere "cut and try" backyard bombs . . . which is Bob Granville's point in writing this article.

SPECIFICATIONS OF THE GEE BEE MODELS R-1 AND R-2
Source: Robert H. Granville

	Model R-1 NR-2100	Model R-2 NR-2101
Gross wing area, including section through fuselage	101.9 sq. ft.	101.9 sq. ft.
Net wing area, wing panels	73.9 sq. ft.	73.9 sq. ft.
Total aileron area	11.1 sq. ft.	11.1 sq. ft.
Fin area	2.4 sq. ft.	2.4 sq. ft.
Elevator area	8.06 sq. ft.	8.06 sq. ft.
Stabilizer area	7.5 sq. ft.	7.5 sq. ft.
Total horizontal tail area	15.56 sq. ft.	15.56 sq. ft.
Rudder area	7.3 sq. ft.	7.3 sq. ft.
Aspect ratio s = S^2/A, A = gross area	6.14	6.14
Aspect ratio, horizontal tail	4.11	4.11
Total vertical tail area	9.7 sq. ft.	9.7 sq. ft.
Wing span	25 ft.	25 ft.
Root chord	53 in.	53 in.
Wheel tread	76 in.	76 in.
Distance, leading edge of wing to elevator hinge	129 in.	129 in.
Maximum fuselage diameter	61 in.	61 in.
Distance, leading edge of wing to rudder hinge	136.5 in.	136.5 in.
Fuel tank capacity:		
Front tank	—	103 gal.
Rear tank	160 gal.	199 gal.
Total	160 gal.	302 gal.
Oil tank capacity (includes foaming space)	18 gal.	20 gal.
Engine	P&W Wasp (TD)	P&W Wasp Jr.
Power at rated RPM	740 at 2300 rpm	530 at 2300 rpm
Engine displacement	1344 cu. in	985 cu. in.
Bore and stroke	5¾ x 5¾	$5^3/_{16}$ x $5^3/_{16}$
Compression ratio	6:1	
Blower ratio	12:1	
Propeller diameter	8 ft.	
Propeller	Smith Adjustable	Smith Adjustable
Airfoil	M-6 (modified)	M-6 (modified)
Incidence	2½°	2½°
Dihedral	4½°	4½°
Wheels	6.50 x 10	6.50 x 10
Tailwheel	6 x 2½	10 x 3
Empty weight	1840 lbs.	1796 lbs.
Weight, pilot and chute	185 lbs.	185 lbs.
Weight, fuel (full tanks)	960 lbs.	1812 lbs.
Weight, oil (12 gal.)	90 lbs.	90 lbs.
Gross weight, full fuel	3075 lbs.	3883 lbs.
Normal gross, 50 gal.	2415 lbs.	2371 lbs.
Normal power loading	3.26 lbs./hp	4.48 lbs./hp
Wing loading, gross weight	30.2 lbs./ft.^{2}	38.1 lbs./ft.^{2}