

THE SWEEPBACK BULLDOG ENIGMA

By Mike Kusenda

A widely respected manufacturer of highly detailed model airplane kits recently introduced its version of the controversial 1932 Hall Bulldog racer. Unfortunately, the configuration chosen is not that of the actual airplane. In the 60 years that have gone by since the V-2 Bulldog flew, a great many misconceptions have appeared in various aviation publications. Since the Bulldog was not a race winner, finishing only a dismal 5th place in the 1932 Thompson Trophy Race, many historians and writers have avoided any serious research of the plane. None the less, the Bulldog's radical departure from the then contemporary low wing racer design is worthy of more than passing notice.

The sweepback wing delusion originated with an official drawing by David Bradford, Chief Draftsman of the Springfield Aircraft Co., Inc. The Bradford drawing carries a copyright 1932 note as well as a warning against reproduction without permission. Certainly, there is no doubt as to the authenticity of this drawing. The Drawing's date, Aug. 19, 1932, stirs some curiosity in that the Bulldog had already flown three days earlier, on Aug. 16, 1932. The obvious question that arises, what was the purpose of this drawing?

Since the drawing shows the first of several rudder modifications we must assume that this is an alteration drawing showing changes to the existing airplane to correct early problems.

Because this writer is a member of an ever-diminishing group of old geezers that had the opportunity to see the Bulldog up close, I confess I am an agnostic in regard to the sweepback wing configuration. So the Bradford drawing's swept wing panels got my close scrutiny. Because the wing panels are elliptical in plan form, it's difficult to discern the 5 degrees of sweepback, but the straight main spar serves as the reference as it angles aft from a normal line perpendicular to the center line of the fuselage on the Bradford drawing. Using basic mechanical drawing practice, we projected lines tangent to the leading and trailing edges of the wing from the side view over to the top view. The swept wing panel falls outside of the line from the side view trailing edge. Constructing a triangle around this overhang and solving for the tangent sine, we get 5 degrees!

So, it appears the Bradford drawing shows both the proposed sweepback and the existing wing! Apparently, Bradford traced the original Bulldog layout, then changed the top view to depict the proposed sweepback configuration, but neglected to change the side view to conform.

Why the proposed sweepback? In addition to the directional and lateral instability demonstrated by the Bulldog on its test flight, the plane was also tail heavy. The sweepback was proposed to correct this condition by moving the center of lift aft.

To undertake the actual incorporation of the sweepback at that late date, Aug. 19, eight days before the scheduled start of the Bendix, was out of the question. This would have required a complete rebuild of the wing panels. Each rib would have required repositioning to conform with the angled spars. This project was postponed until after the 1932 NAR. Unfortunately, this was not to be; legal action ordered the plane to be cut up for scrap in Cleveland after the 1932 Thompson Trophy Race.

The tail heavy condition was the primary factor in Russell Thaw's withdrawal of the Bulldog from Bendix competition. On Aug. 27, 1932, with a full fuel load (216 gal.), Thaw was unable to get the ship airborne at Roosevelt Field. Had the sweepback been incorporated at the time, events may have played out differently.

Several years ago, this writer was fortunate to locate Richard Schneeloch. As a young teenager, Dick enrolled in the Springfield Aircraft Company's aircraft mechanic training course. He and about six other trainees were supervised by a cadre of former Granville workers in the fine art of aircraft construction. Dick recalls that the first project was a single place sportster to be powered with a Warner Scarab engine. In appearance, the sportster resembled the Bulldog, high gull wing, but lighter in construction. To simplify construction and hold costs down -- the leading edge of the wing panels were straight and parallel to the main spar. The tips and trailing edge were elliptical like the Bulldog. This ship was aimed at the sportsman pilot market and was projected to sell for \$4,500. For the Springfield Aircraft Co. this plane was to be their bread and butter product. More importantly, the sportster was to act as a test ship for the coming Bulldog. The project was financed by a group of aviation enthusiasts.

A change in priorities put the sportster project on hold when, on March 21, 1932, Frank Lynch ordered the L-1 Cicada. At the time, the welded tube fuselage, as well as the wing panels of the sportster, were completed. A second interruption came on May 15, 1932 when construction on the V-2 bulldog was initiated. The small work force completed the Cicada on June 25, 1932 and focused efforts on the Bulldog. The Springfield Aircraft Co. was faced with two deadlines. Russell Thaw's contract for the Bulldog specified that delivery must be made by Aug. 16, 1932 or suffer a \$1500 penalty.

The penalty became a reality when Thaw refused to accept the plane on the specified date. As the various modifications to the Bulldog were underway, the Aug. 27, 1932 date for the Bendix race loomed, forcing a night work program to be added. Severe rains forced the postponement of the Bendix until the 29th, saving the Bulldog project from oblivion.

Richard Schneeloch recalls working on the wing of the Cicada and points out that sweepback was a prominent feature of the design. He is equally certain that in the case of the Bulldog, the spars were straight and parallel wing tip to wing tip. Dick attests to the fact that the Bulldog was tail heavy. This was particularly noticeable on take off even when only the 25 gal. fuel tank was filled.

One last element of corroboration, by no means the least; a statement from the late Russell Thaw. In a letter to this writer dated Aug. 30, 1982, Thaw states as follows - "The wing planform of the Bulldog was elliptical. This planform provides better aerodynamic load distribution and improved stall characteristics. There was no sweep angle except in the outer half of the wing panel due to the elliptical shape".

Russel Thaw was convinced that the decision to adapt the Bulldog to compete in the Bendix as well as the Thompson was a serious mistake. As the plane was being rushed to completion, he expressed to Bob Hall his desire to forego the 1932 NAR and instead prepare for 1933. Hall pointed out his obligation to the crew that was working around the clock to build the ship. This was the beginning of the rift that ended with Thaw's withdrawal. In the lingering days of his terminal illness in 1984, Thaw felt a great deal of sorrow and regret for his ruthless actions in 1932. He sincerely wanted to go to Bob Hall and apologize to clear his conscience. Unfortunately, life ran out for Thaw, leaving this desire unfulfilled.

An often quoted statement declares that cameras do not lie. This is true to a degree, however cameras do distort. We have all seen photographs of airplanes in which the tip chord of the wing appears wider than the root chord. Racing cars that appear to be leaning forward with oval shaped wheels as they speed past the camera. Proponents of the sweepback theory rely heavily on a flight photo of the Bulldog which they purport shows a sweepback to the wing panels. This photo has been cropped out of a group shot showing the Turner Wedell, one of the Gee Bee's as well as a civilian plane passing over the racers. Distortion is apparent, the Turner Wedell looks to have a longer right wing than its left. The Gee Bee wings can be construed to be slightly swept forward. A similar photo, that appears to have been taken

seconds later, shows the Bulldog at a lesser angle to the camera lens and shows no perceivable sweepback. Interestingly, the Turner Wedell in this shot appears to have slightly tapered wings. Certainly, these action photos are valuable in that they depict the dramatic competition that existed in the 1932 Thompson, however, their use as basis for an accurate scale drawing is questionable.

Most experienced plastic modelers have an acquired ingenuity and should be able to save their investment in the Bulldog kit with an improvised fix for the misconceived swept wing.

