

The Idea Corner

Compiled by FRED B. FRIEDEWALD

(Note: Please send ideas for this column to Fred at 1611 Oriole Lane, St. Louis 17, Mo.)

This idea was sent to me by Ned Snead; however, he claims his brother Bill should be accredited with the idea. Take any assembly bolt or clevis, and make it about 1" longer than necessary. Place the extra length bolt in its fitting, slip on a washer then drill a hole to accommodate a safety pin behind the washer. Remove the bolt and cut a taper with a lathe on that portion of the bolt from the safety pin hole to the end of the bolt. The beauty of this type of connection is that the bolt will act as a drift pin when assembling. You can also hammer the hell out of the tapered end of the bolt when disassembling.

You're right! There is no nut on the bolt. The only thing holding the bolt in place is a safety pin backed up by a washer. It is perfectly safe if used only on bolts loaded in shear, which means that about 90% of your assembly bolts fall into this category. A good rule of thumb to follow is to use this method on assembly bolts hidden internally in the glider's structure or above the height of the grass of your take-off spot. Look out for small-fry. We here in St. Louis do not use this method except on internal assembly bolts because our sailplanes are hangared assembled and we are afraid that someone (small-fry spectators) might remove one of the safety pins and the pilot might not check the fitting before take-off.

Make all of your trailering bolts which are loaded in shear the same way, only make them 4" to 6" longer than necessary. Reason: a 6" bolt is easier to find when dropped in the grass at 12 o'clock at night than a 1 1/4" bolt.

Attention 1-26 owners: I have eliminated the fiber nuts on the main bolts and replaced them with the flat type castle nuts, then drilled the bolts to accommodate a safety pin, for two reasons. 1. It speeds up assembly or disassembly because the castle nuts can be threaded on and off by hand and a wrench is needed only to tighten or loosen them. 2. I don't care how clean you keep your bolts, or bolt holes, they all stick sometimes, so when this happens remove the castle nut and spacer washer, replace the castle nut by about a 1/2 dozen turns so the threads

of the bolt are not showing. With one good blow of a hammer on the nut, your bolt is free.

I have also constructed a box 12x 8x1 1/2 inches on the crossmembers above the wheel well in the 1-26. This serves two purposes. 1. To hold the barograph or radio or 2. As a junk collector for tools, bolts and nuts while assembling or disassembling.

NEXT MONTH - Leading edge by Thenhaus, compliments of Stan Hall, and a simple L-K taper pin puller. By the way, while zinc chromating your fittings, a light coat first, then a heavy coat of clear varnish later. This zinc chromate is available in spray cans at Sears Roebuck & Company.

Letters

African Activity

Dear Sir:

I enclose one year's subscription for your magazine *SOARING*.

You may be interested to learn that there are two small but quite active Gliding Clubs in South West Africa, one at Swakopmund on the coast close to Walvis Bay and the other near Windhoek. Each club has two machines, the former an L-Spatz and a Doppleraah, the latter a Grunau Baby and a brand new K-7. Both clubs use winches for launchings with occasional help from some friendly aircraft owner.

Thermal flying is very good inland, especially in the Windhoek area but unfortunately we have to depend on ridge soaring along the sand dunes bordering the coast or at Rosing Mountain when the east wind blows across the desert.

Both clubs are unsubsidized by any public body and have to meet their expenses from members' subscriptions and occasional fund raising events.

The Segelflug-Swakopmund would be interested to hear from any of your members who would like to swap experiences.

E. G. HINE

P.O. Box 4, Walvis Bay, South West Africa

"New Approaches" Comment

Sir:

Re Raspet's "Some New Approaches to Soaring" in November issue.

1. Drag values used in this article are approximately .002 to .003. In the sailplane regime of Reynolds Numbers, 700,000 to two million, these figures correspond to the *theoretical laminar flat plate at zero incidence*. These values have never been attained in experiment.

2. The wing of a lifting sailplane creates a "lifting line vortex system" involving turbulent shear drag with the stream that is best analyzed by G. I. Taylor's Vorticity Transfer Theory rather than Prandtl's mixing length or momentum transfer theory. A. Raspet knows, Taylor postulates, and it has been demonstrated that the drag of vortices normal or yawed to the stream, as behind a wing trailing edge, have a

mixing length 1.414 longer than those on a laminar flat plate. The attendant drag of this turbulent shear is an energy sink of the sailplane—more drag.

3. While it is possible to reduce drag by geometric boundary layer control and use of optimum aspect ratio (Span loading is a much better and more accurate term) the limit of this refinement is that resulting in a glide angle of less than 55 to one with the utmost in structural refinement. (If there is a man inside.)

4. Pfenniger was successful only in obtaining, at zero incidence and with full boundary layer suction, drag coefficients of .0035 at a Reynolds Number of one million and .0022 at a RN of three million (RJ-5 at 140 mph is about three million Reynolds Number).

5. A. Raspet states "With the suction boundary layer now fairly well reduced to a practical system we must re-examine our lust for high aspect ratio." Since I leech with most others for the highest AR compatible with circling performance and structure I would, gratefully, receive an outline of his system—along with a rigorous answer to the problems associated with the application of flat plate laminar data to a sailplane—vol planeur sans motor.

6. I am truly grateful for all that Carmichael and Raspet have been doing in supplying technical articles to *SOARING*: but I am sure others feel as I do, we would be even more grateful and enthusiastic with correct extrapolations or even no extrapolations at all.

Written in a sweet reasonable rage,

JOE GREENBAUM

963 Laird Av., Salt Lake City, Utah

The Cover Again

Gentlemen:

Please note that I have thought for years that the magazine *SOARING* had the most sophisticated cover of any magazine. I have had to accept the fact that the "old order changeth giving place to new," the autumn dripping gloom and all that but that cover of *SOARING*, . . . it was an inspiration. I hope someday we can have one as moving as the old one! Meanwhile, send me the list of sailplanes, so I can be happy and plan. I look forward to the next issue as I look forward to that diamond goal I am planning. How about one a week?

STEVE DUPONT

Buck Hill Farm, Southbury, Conn.

Symposium Papers & Cover

Lloyd:

The inclusion of a paper from SSA's Technical Symposium each month in *SOARING* is one of the magazine's highlights. Please keep up the good work.

Also, I may as well get in my "two cents" worth concerning the cover of *SOARING*: I like it the way it is.

CHARLES L. KIRSCHNER

1245 W. Av. H-14, Lancaster, Calif.

Circling Article Needed

Dear Lloyd:

I like the new format of *SOARING* very much. I'd like to see more articles similar to H. Drew's on winch towing, possibly one on "The Theory & Technique of Circling Flight."

I've been thinking of organizing a soaring club here at U of M, and I could use several of those "Get into Soaring" posters.

ROBERT D. KELLNER

20222 Charleston, Detroit 3, Mich.