

HOW TO AVOID DISCONNECTS ON L'HOTELLIER CONNECTORS EQUIPPED WITH A SAFETY SLEEVE

By Tillmann Steckner

What prompts me to write this article is Larry Sanderson's editorial on flight safety, "Not Hannes!" as well as Michael Adams' letter "Safety Devices for L'Hotellier." Both items appear in the July 1999 issue of *Soaring*.

About two years ago, I discovered an improper aileron connection on a sailplane - fortunately before taking off. As we shall see, a partial connection may remain undetected during a control check, or even when shaking the linkage joints by hand. This most unsettling discovery led me to develop a very simple, but effective routine of connecting the control rods which I consider foolproof.

When during a flying holiday at Keystone Gliderport in Pennsylvania, in the fall of 1998, Tom Knauff drew my attention to an article by Karl Striedieck on the subject at hand, I first became aware of the fact that aileron disconnects have become a fairly frequent cause of serious accidents. This led me to post my method of assembly on the internet. Subsequently, I contacted a sizable number of glider pilots whose model of aircraft was shown statistically to be the most affected by the problem. While the type of safety sleeve shown in the diagram below is, in my opinion, an excellent design, it cannot prevent a disconnect of a L'Hotellier connector if the latter was not connected correctly in the first place. While this type of safety sleeve is used on several makes and models of sailplanes, those most likely to have a disconnect are apparently those where direct viewing of the connector is either

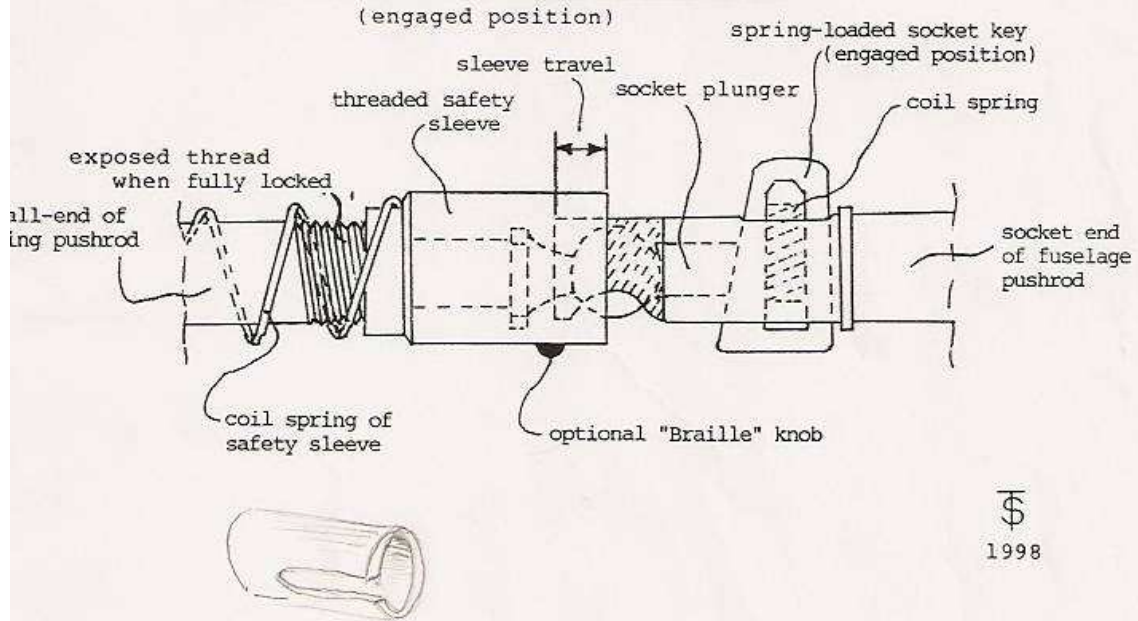
Michael Adams advises "that each glider pilot develop his own process for assuring the glider he is about to fly has been properly assembled." Regrettably, he provides no guidance as to how this may be done. I hope to fill this gap with the following.

When engaging the ball-end of a pushrod with the socket of its counterpart, use a thumb and a forefinger. The forefinger will also serve us as a "feeler" to ensure that the two parts have indeed been fully mated. The socket of the connector should drop onto the ball-end without too much resistance by about 1/4 inch and do so with an audible click. If the two parts are properly coupled, the ball resting in its respective socket can barely be touched with the tip of the forefinger.

On my glider, the threaded safety sleeve requires 7 1/2 turns to move from the fully retracted position to the fully engaged position. (You should verify this on the particular glider you are rigging.) Thus, in the present case it takes about 15 half turn "twirls" between thumb and forefinger to complete the 7 1/2 rotations of the safety sleeve to fully secure the connection. If you have trouble counting the 15 half turn "twirls," clean the knurled safety sleeve thoroughly with lacquer thinner and place a dab of JB weld epoxy on it to serve as a "Braille" knob (but do not use the knob to apply extra torque to the safety sleeve).

As a double-check you may also count the number of thread turns exposed behind the fully locked safety sleeve

CONTROL-ROD CONNECTOR WITH SAFETY SLEEVE



sailplane makes direct viewing of the connectors impossible, you will have to use a mirror. Some planes are already equipped with inspection mirrors mounted on the bulkhead for this purpose.

On the day I discovered the afore-mentioned partial connection, the safety sleeve stopped after only 8 half-turns. It jammed against an incompletely seated ball. Beware and start all over again in such a case. If you don't, this "stow away devil" is bound to be rattled into unholy action after take off at a time when the unsuspecting, if not completely innocent, pilot already deems himself close to soaring heaven.

Strangely, after I mailed close to 30 letters to pilots flying planes most likely to encounter the problem, I received only 4 or 5 replies although I had specifically requested notification of receipt of the information. Considering the seriousness of the matter and the effort involved, I must admit to some disappointment. After all, world-wide a number of pilots, flying various makes of sailplanes, were killed or severely injured in crashes involving aileron disconnects. None of these tragedies need to have happened. As I see it, we can either clean up our act on our own (the procedure described above is safe and simple.) or we shall face costly mandatory retrofits and modifications dictated by the powers that be. Some of my colleagues urged me to notify the FAA and the German Luftfahrt-Bundesamt of my remedy. I have written to both, but so far received no reply. A certain sailplane manufacturer also chose to remain silent.

What finally made me once again take up this seemingly fruitless safety campaign was, as I stated earlier, Larry Sanderson's editorial "Not Hannes!" It brought to mind a letter which a friend of Hannes' wrote to me last December on his behalf (at the time he was still recuperating from his injuries) to thank me for my analysis of the problem and the recommended remedy. I feel somewhat guilty now for not having come forward with this information over two years earlier to save him and others a great deal of pain and misery.

That two national champions who wrote to me had experienced aileron disconnects themselves on different makes of aircraft, proves such disconnects can happen to the best of us. Please help me to pass this vital information to others who may have missed it in *Soaring*.

About the author: Tillmann immigrated with his wife Marianne from Germany to Canada in 1953. He eventually became an automotive instructor and he holds a patent on a rotary engine design. He has a B.A. in English and Psychology, and has published several books, short stories and articles. His flying career started in 1987 and he completed his three Diamonds four years later.

