

Installation of Wedekind-Sicherung Sleeves as a Safety Device for L'Hotellier Fittings



Performed on a
Glaser-Dirks DG-101G ELAN
Airbrake Shafts
Updated: April 26, 2022

See <http://aviation.derosaweb.net/wedekind> for the
latest version of this document

PLEASE NOTE

This document may have been updated with new information, changes, and corrections.

Be sure to visit my presentation web site and download the latest version of this document. It could make an important difference to your work!

<http://aviation.derosaweb.net/presentations>

Thank you, John

Disclaimer

Much care was taken to document the Wedekind sleeve assembly process for future use. However, there may be missing, erroneous, or conflicting information contained within this document.

Installation your glider may differ from what is shown in these slides. The documentation which was provided with the Wedekind sleeves, and from other sources, may not be identical to the situation found in your glider.

All work must be properly performed, documented, and approved by a licensed technician of the appropriate aviation governing authority.

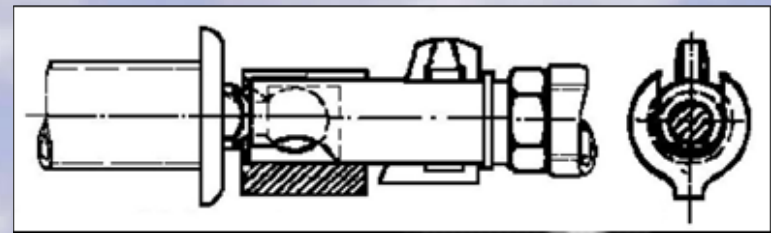
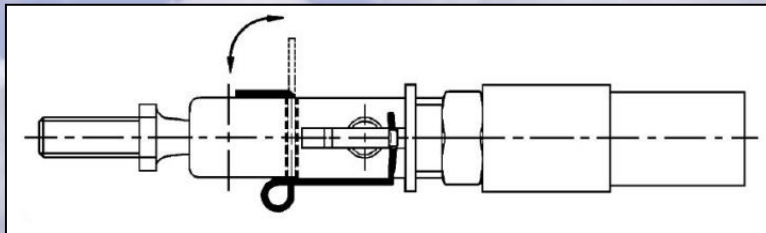
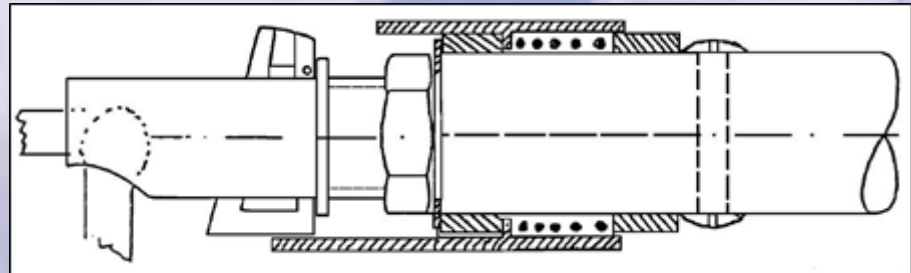
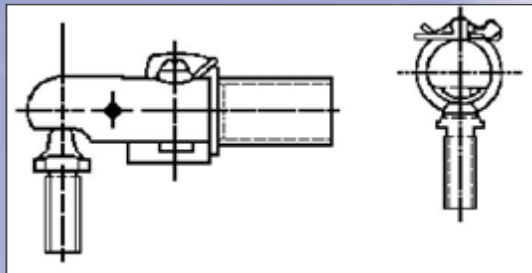
Proceed at your own risk.

Background Information

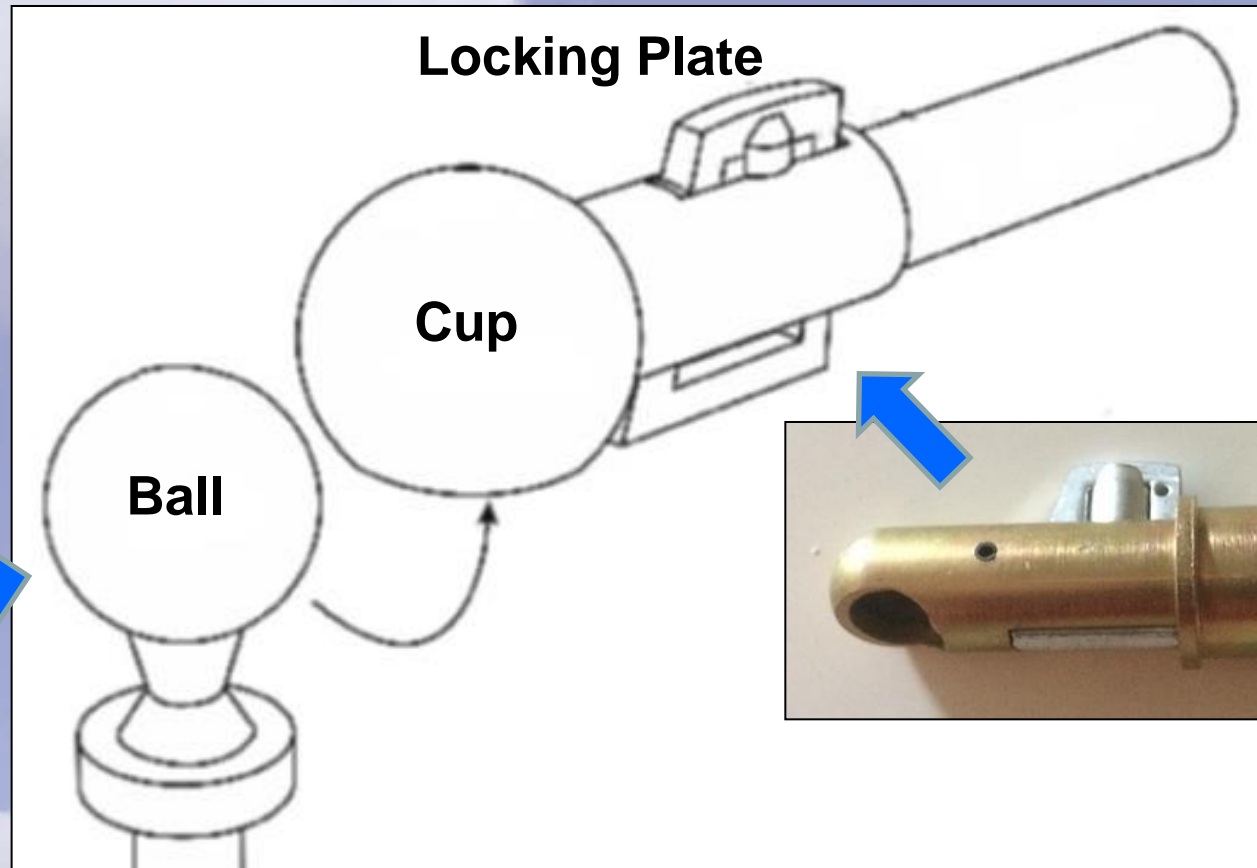
In 1997 the Federal Aviation Administration (FAA) issued airworthiness directive (AD) 97-08-06 to address an issue of L'Hotellier fittings becoming uncoupled during flight. This can result in the loss of control of the aircraft.

What could occur is that the release mechanism and locking plate are not properly engaged during assembly and/or worked loose during flight.

There were four (4) possible solutions to prevent this from happening.
(see next slide)



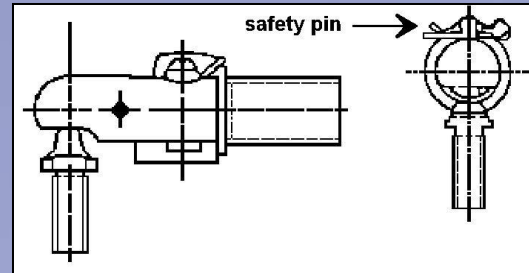
Components of a L'Hotelier Fittings



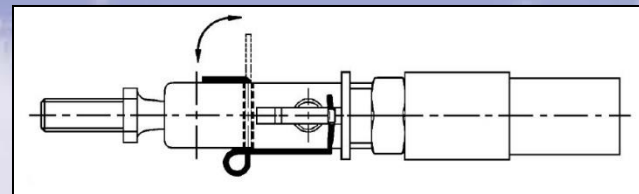
Types of L'Hotellier Securing Solutions

See <http://aviation.derosaweb.net/wedekind> for more details on the different types of solutions.

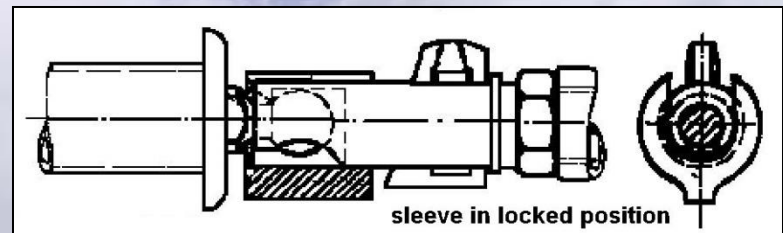
- 1) Drill a hole in the L'Hotellier fitting's release mechanism and insert a spring clip, safety pin, or safety wire.



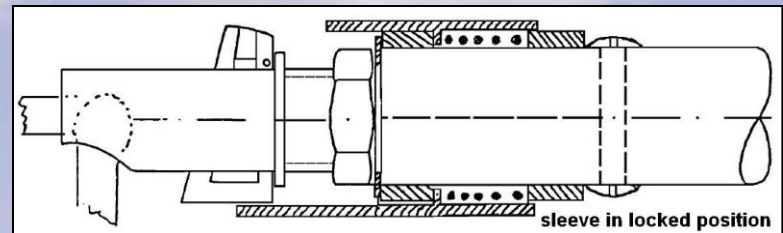
- 2) Drill two holes in the L'Hotellier fitting's release mechanism and insert an "LS Safety Spring".



- 3) Use a Uerling sleeve that rotates over the release mechanism. This will not work for 90° (right angle) L'Hotellier connections.

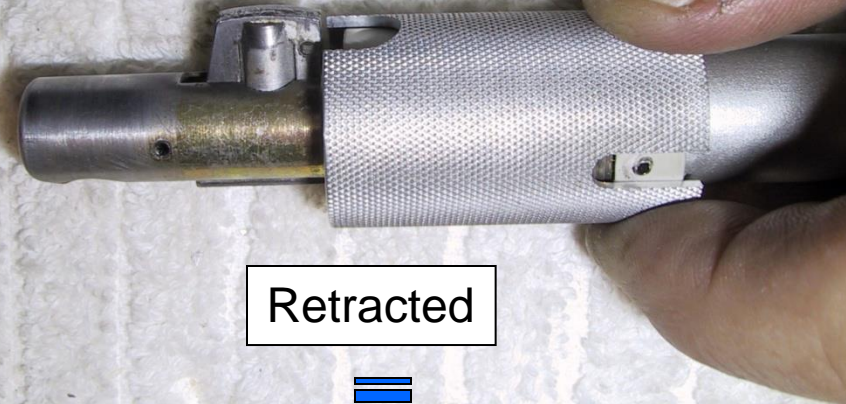


- 4) Use a Wedekind-Sicherung sleeve which captures the release mechanism.



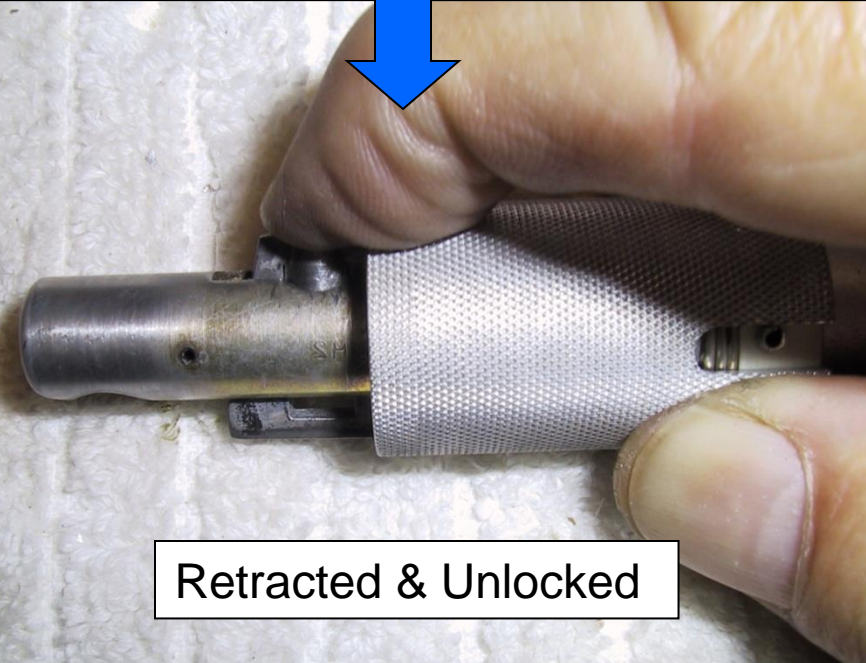
Operation of the Wedekind Sleeve

1



Retracted

2



Retracted & Unlocked

3

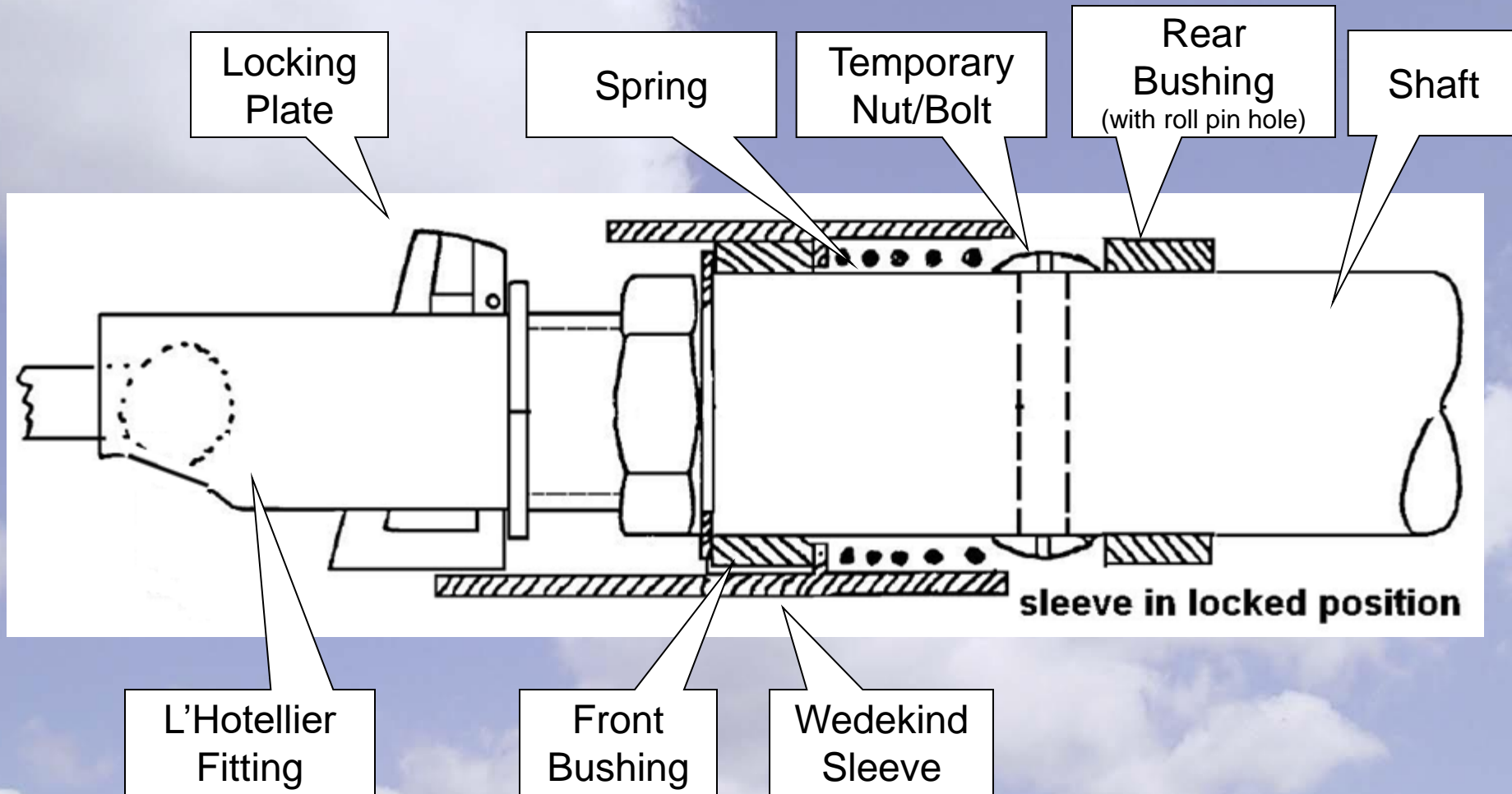


Released & Locked

DG-101 Airbrake Shaft Procedure

***180° (straight)
L'Hotellier Fitting
(Type S)***

Assembly of 180° (straight)



Note: This diagram is not completely accurate for DG-100 use and should be used for general reference purposes only.

Initial Steps

- 1) Remove the airbrake torque tube from the glider by removing the nut/bolt from the bell crank
- 2) IMPORTANT - Measure the total length of the torque tube between the fitting and the end of the aileron shaft. Accurate measurement is important. I clamped two blocks onto a work bench with the assembled shaft in between for later reference. After completion of the Wedekind fitting assembly, adjust the shaft length per the distance between the reference wooden blocks.

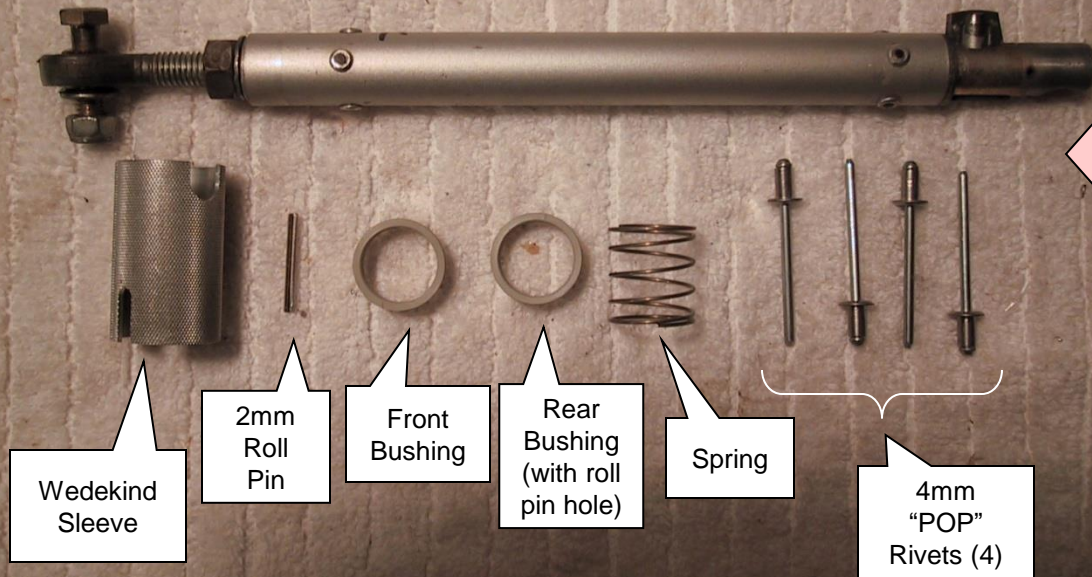
General Comments

- 1) All drilling performed in the procedures is specified as metric. While metric drill bits can be purchased in the US via internet sources and some hardware stores, there are two VERY closely sized SAE numbered drill bits which are much easier to find at locally

2.0mm (0.0787") = #47 drill bit (1.9939mm or 0.0785")

4.1mm (0.1614") = #20 drill bit (4.0894mm or 0.1610")

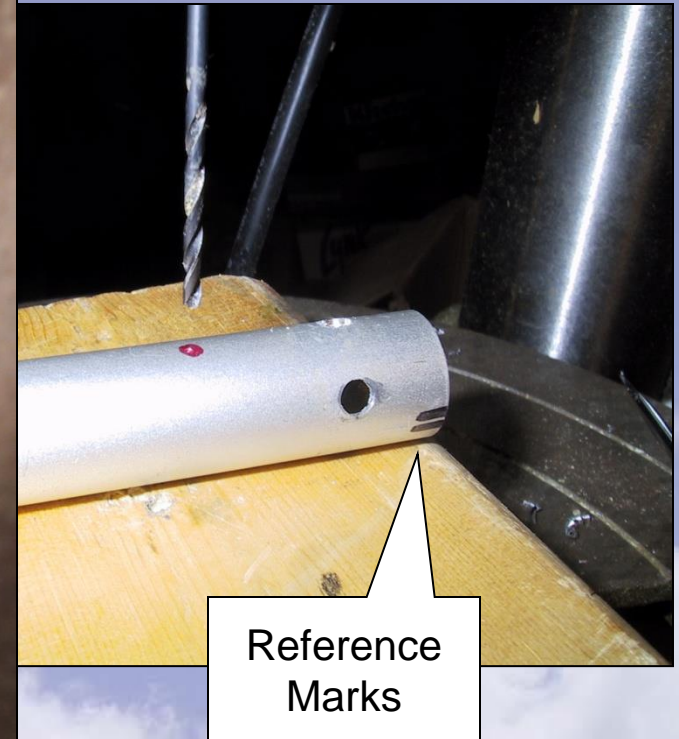
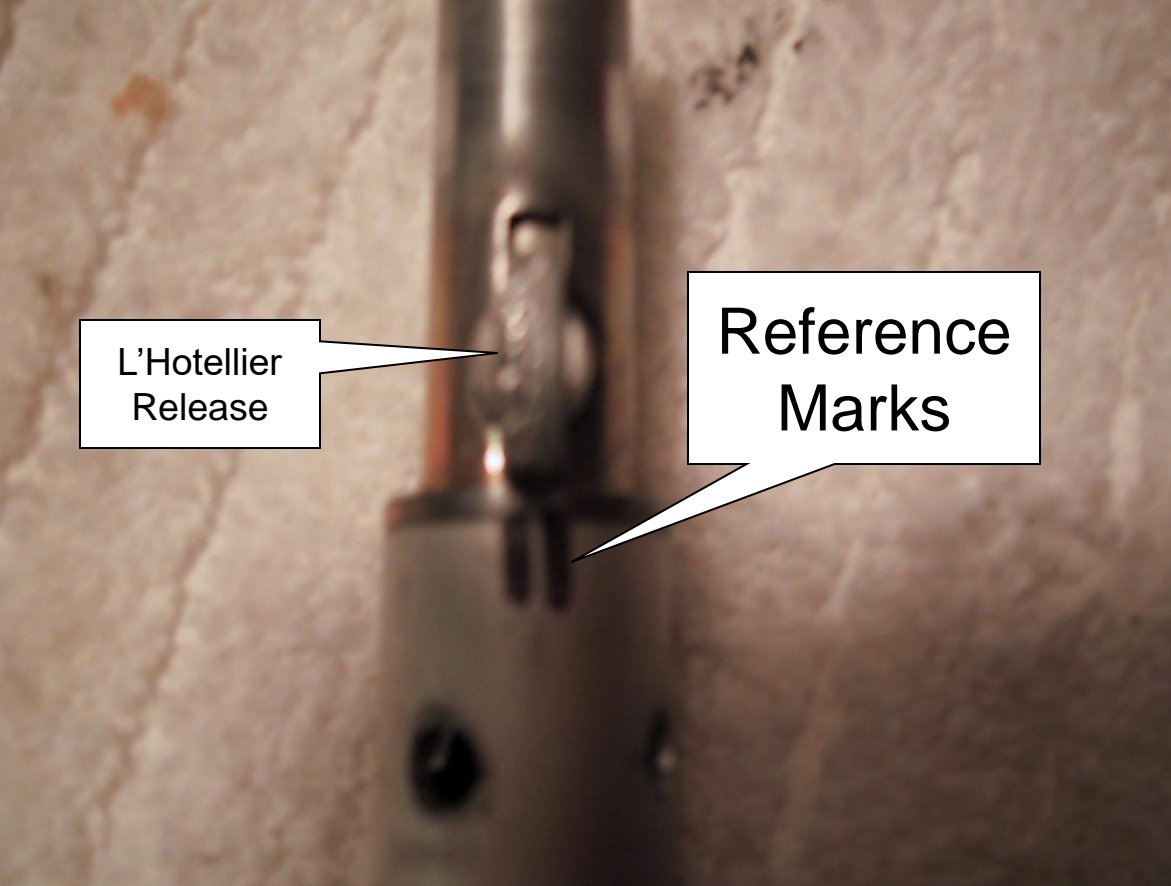
Unaltered Airbrake Push Tube with the Wedekind Sleeve Kit



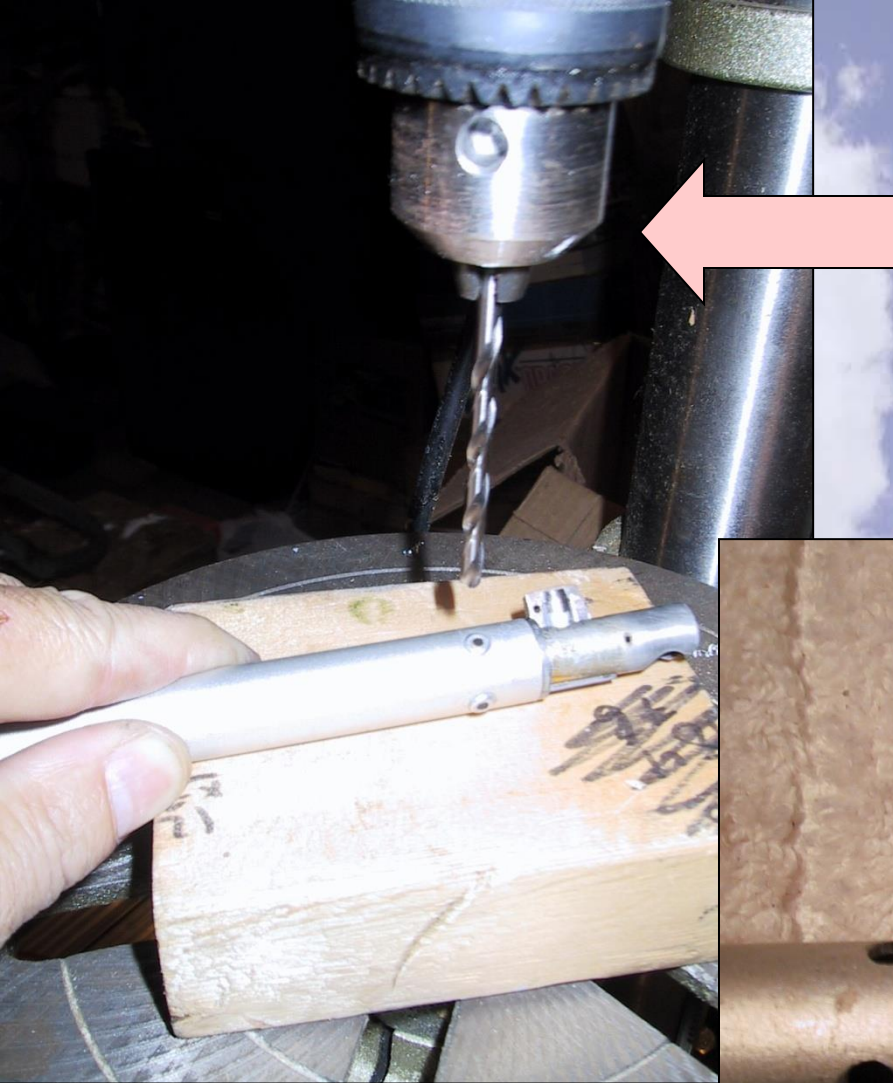
NOTE: The DG's airbrake push tube's L'Hotellier fittings are riveted in place. However, the aileron push tubes's L'Hotellier fittings are screwed in place (slide 19).

Close up of the unaltered Airbrake push tube L'Hotellier fitting with factory riveting.





It is difficult to see in the left picture but I marked the relative location of the L'Hotellier fitting on the shaft before drilling out the factory rivets to make sure that I riveted the fitting back into the original orientation. These reference marks do not need to be particularly accurate but simply indicate the orientation of the L'Hotellier fitting around the shaft's diameter for later re-assembly. These marks can also be seen in the right-hand picture above.

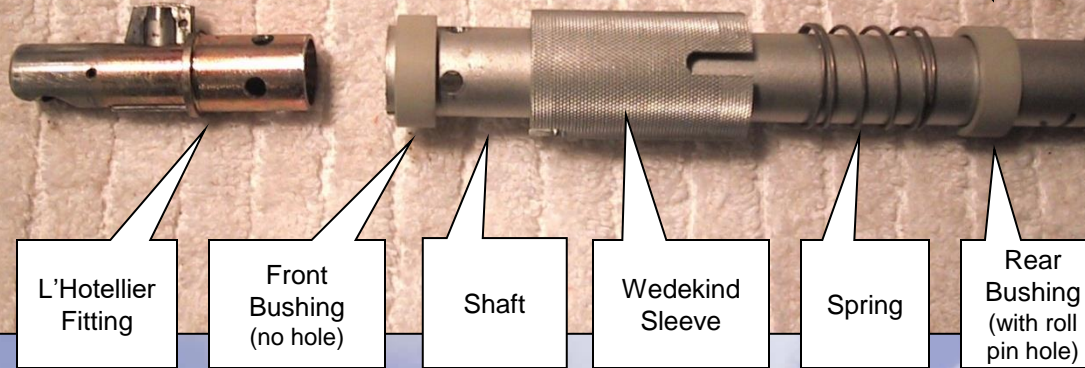


Drilling out the original “POP” rivets.
When I attempted to center punch the rivets, I found that the center of the rivet pushed in, making accurate centering of the drill bit on the rivet a bit easier.



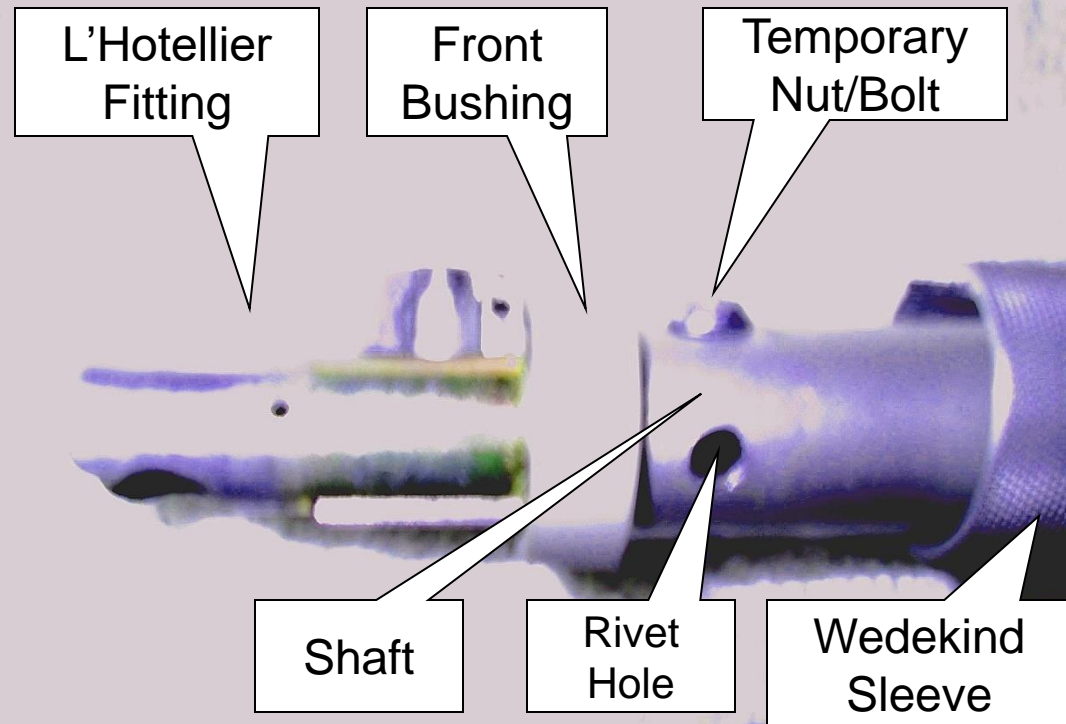
Disassembled
L'Hotellier fitting
and shaft.

Trial Assembly

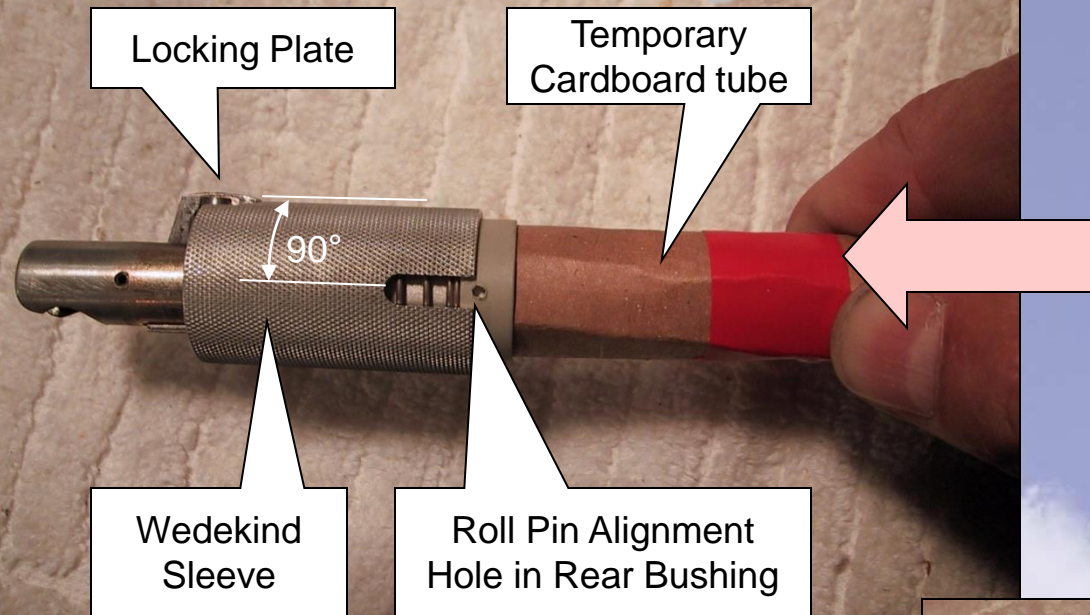


Here are the Wedekind parts lined up on the shaft in the correct order. The rear bushing has a hole in it for a roll pin.

Difficult to see clearly in this picture but I inserted a nut/bolt as a replacement “rivet” to temporarily hold the L’Hotellier fitting in place on the shaft during the trial assembly. The head/tail of the nut/bolt needed to be filed down to clear the sleeve. See the next slide for more details.



Trial Assembly



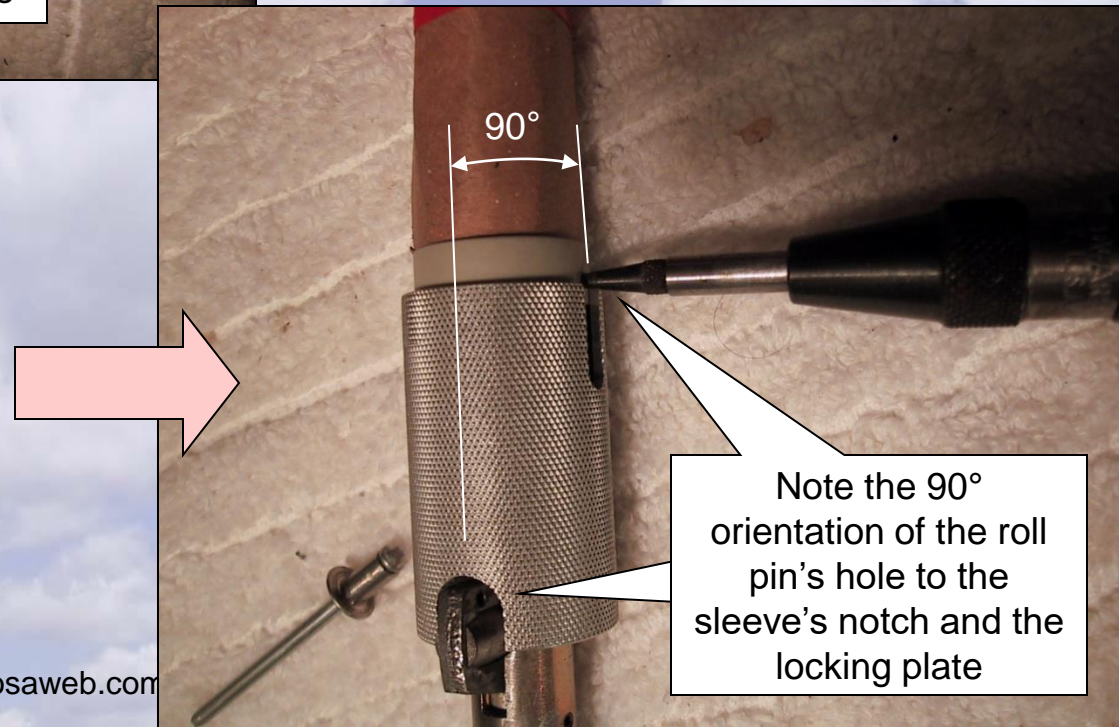
Final trial assembly testing before drilling any irreversible holes.

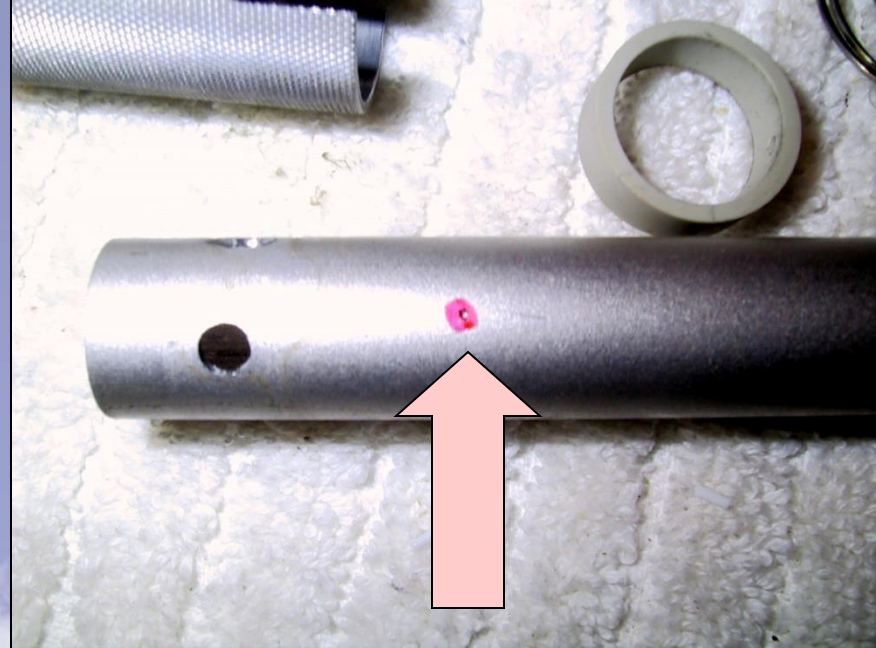
The roll pin alignment hole (on the rear bushing) can be seen near the sleeve slot, 90° to the L'Hotellier cam. When the roll pin is inserted the Wedekind sleeve will not be able to rotate out of position.

I am holding the rear bushing in place with a tube made of cardboard to determine the correct final location of the rear roll pin bushing by testing the action of the spring loaded sleeve. **Test! Test! Test!**

One I have accurately determined the location for the roll pin hole, I used a center punch to mark it.

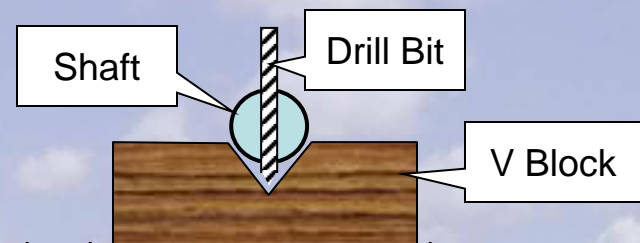
Note the 90° orientation of the roll pin's hole to the sleeve's notch and the locking plate.



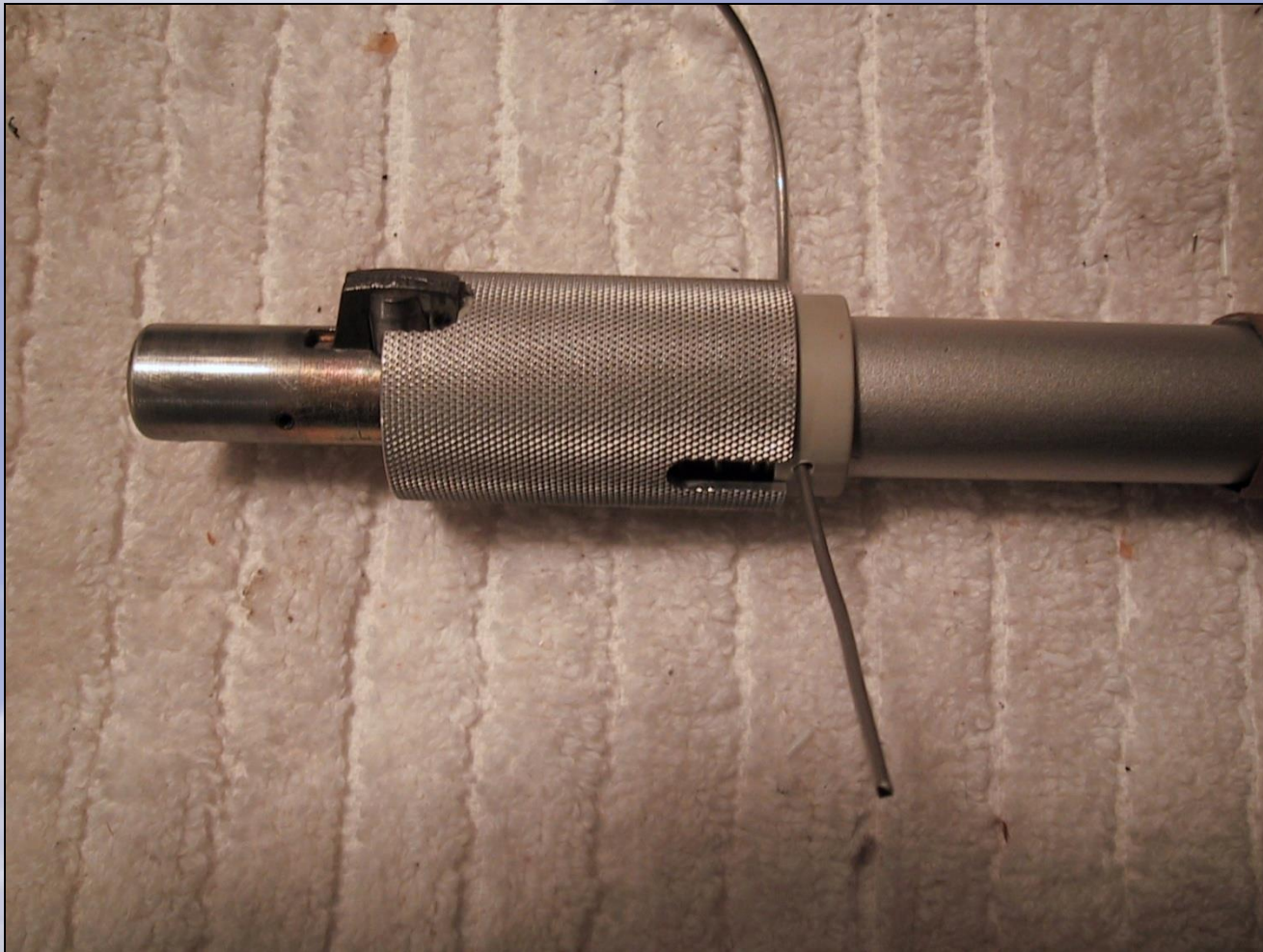


To avoid any mistakes, I clearly highlighted the roll pin location mark before drilling a 2mm hole.

The drill must go through the exact opposite sides of the shaft and be 180° from one another. I recommend using a V-shaped block as shown below to accurately hold and center the shaft before drilling.



Here the rear bushing is temporarily held in position by placing some stiff safety wire through the roll pin holes. At this point I have only drilled a single hole in the shaft for the roll pin and can test the complete action of the sleeve in its final form.



Final Assembly

Slide all the parts on the shaft as shown below.

The front bushing must be between the L'Hotellier fitting and the rivets. Then rivet the L'Hotellier fitting back into place.

Per the AD/TN, the shaft's rivet holes needed to be re-drilled (oversized to 4.1mm) to accommodate the replacement 4mm "POP" rivets.

The spring, sleeve and rear bushing are on the shaft but hidden by the riveting tool.

Front Bushing

Wedekind parts in the correct assembly order

L'Hotellier Fitting

Front Bushing (no hole)

Shaft

Wedekind Sleeve

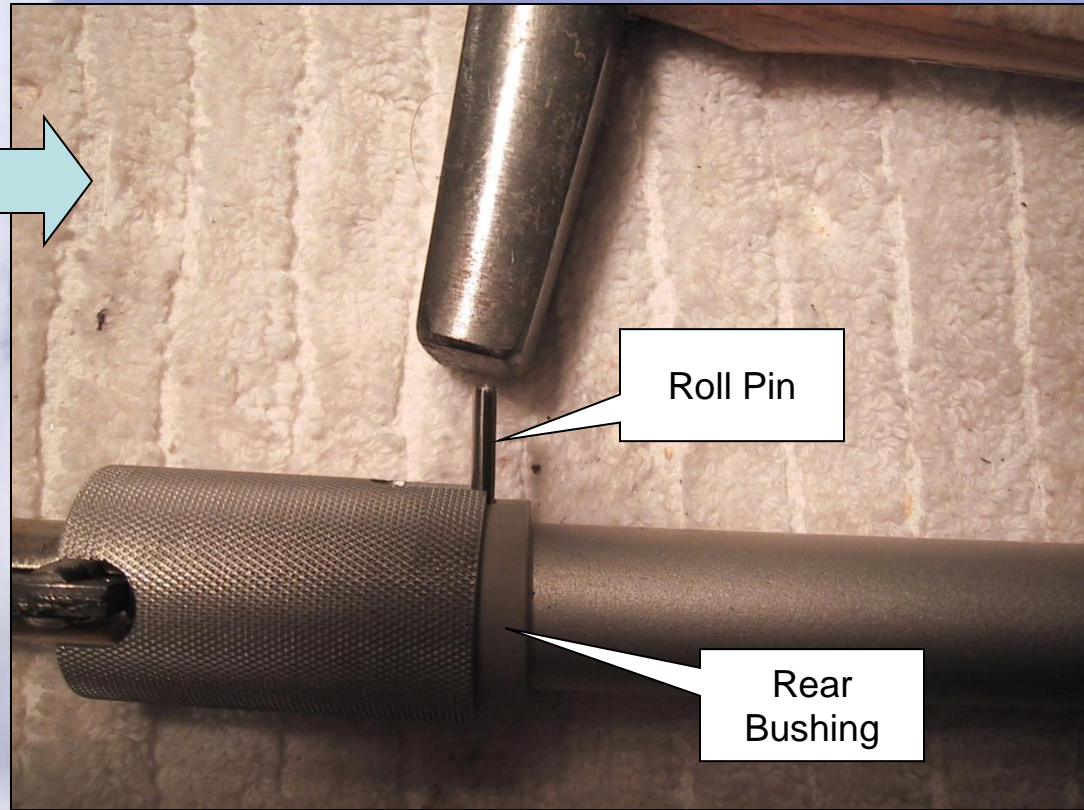
Spring

Rear Bushing (with roll pin hole)

Final Assembly

Slide the spring, sleeve and rear bushing into place, set the 2mm roll pin in place.

The roll pin is slightly longer than the rear bushing to engage the sleeve slots and prevent the sleeve from rotating out of alignment.



This completes the 180° straight airbrake shaft assembly

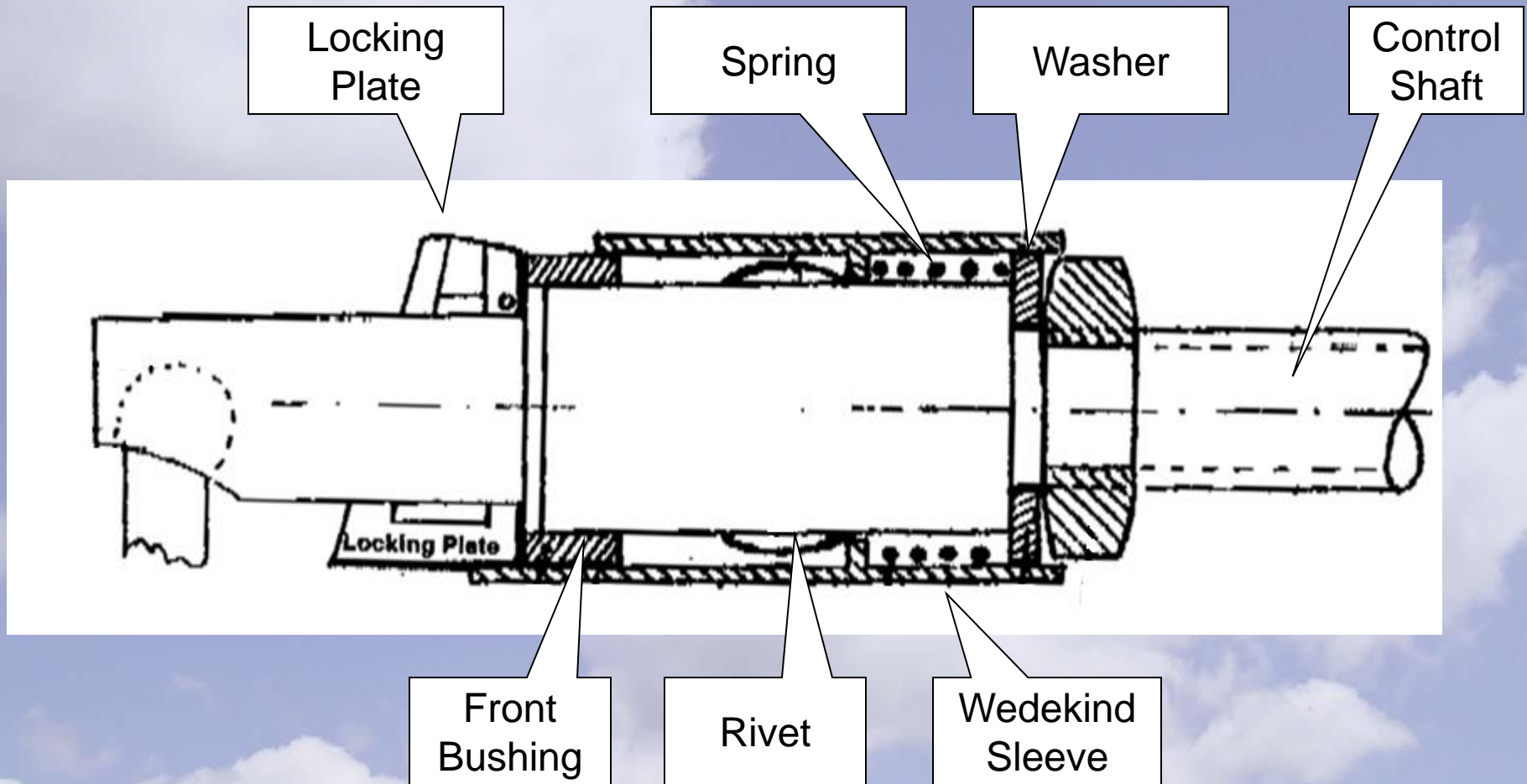
DG-101 Aileron Shaft Procedure

90° (right angle)
L'Hotellier Fitting (Type W)

The assembly is basically identical to the airbrake shaft installation procedure except for a few important differences.

- 1) The aileron push tube isn't removed from the glider. The L'Hotellier fitting is removed (unscrewed) from the push tube before installation of the Wedekind sleeve.
- 2) Instead of riveting the fitting in place, a large diameter washer (item #7 on the next page) is used to hold all the components into place. No riveting is necessary.
- 3) Test the sleeve for proper action and mark the proper location of the roll pin. Drill the hole for the roll pin, replace all the parts, test once more, then drive in the roll pin. Then screwed the assembly back onto the push tube.

90° (right angle) Detail



Note: This diagram is not perfectly accurate for DG-100 use and should be used for general reference purposes only.

Possible Sources for Wedekind Sleeves

NOTE: Some of these are probably obsolete! Let me know!

Eastern Sailplane
Waynesville, OH USA
+1-513-897-5667
john@easternsailplane.com

LMT-Linder GmbH
Walpertshofen, Germany
+49-7353/22 43
<http://www.ltb-lindner.com>

Solaire Canada (LS DG Dealer)
Thamesford, Ontario Canada
+1-519-461-1464
<http://www.solairecanada.com/>

Williams Soaring Center
Williams, CA USA
+1-530-473-5600
<http://store.williamssoaring.com/>

Alexander Schleicher GmbH
Wasserkuppe, Germany
+49-6658 / 89 – 0
info@alexander-schleicher.de

MZ Supplies (Ulrich Werneburg)
Ontario, Canada
613 826-6606
<https://mzsupplies.squarespace.com>

M&H Soaring
Big Flats, NY USA
+1-607-796-4973
<http://mandhsoaring.com>

Güntert + Kohlmetz GmbH,
Bruchsal, Germany
++49-7251-93106-0
<http://www.guentert-kohlmetz.de>

Glasfaser-Flugzeug-Service GmbH
+49 (0)7382 1032
info@streifly.de
<http://www.streifly.de/home-e.htm>

Knauff and Grove
Julian, PA USA
+1-814-355-2483
<http://www.egliders.org>

McLean Aviation
York, UK
+44-1904-738653
<http://www.mclean-aviation.com>

Juergen Nick
Cave Creek, AZ USA
Juergen_nick@msn.com

Miscellaneous Information about Wedekind Sleeves

I bought my Wedekind sleeves from McLean Aviation (UK LS DG Dealer). Nice folks.
However their Wedekind installation information didn't cover the DG airbrake installation sleeves that they sold me.
York, UK +44-1904-738-653 <http://www.mcleanaviation.co.uk/>

I received some very good information from Solaire Canada (LS DG Dealer)

"Their Wedekind information was written by Jurgen Nick which was much better than the information received from McLean's (which is DG's TN). They show instructions for three types, Type V (not used on DG's) Type W is for the DG's ailerons and Type S is for the airbrakes."

Ed Hollestelle 519-461-1464

<http://www.solairecanada.com/>

Air Sailing safety report on the use of L'Hotellier fittings.
<http://www.airsailing.org/downloads/safety/Hotellier%20Connectors%20R71.pdf>

Colorado Soaring Association use of L'Hotellier fittings on an LD-4A.
<https://www.soarcsa.org/index.php?page=ls-4a-user-guide>

Another Idea – The “SKB-Connector”

This may be a replacement for the L’Hotellier/Wedekind system. This is said to fit the EB28 & EB29 gliders (Binder Motorenbau GmbH) and the LS1-c, LS1-d, LS1-f, LS4, LS4-a, LS6, LS6-a, LS6-b gliders (DG Flugzeugbau GmbH) plus possibly other DG gliders in the near future.

<https://www.binder-flugmotorenbau.de>

<https://www.dg-aviation.de/en/dg-aircraft-news/ersatz-l-hotellier/18390>



See My Other Presentations

- Transceiver Troubleshooting
- Glider Oxygen Systems
- Working with Glider Air Lines
- Sailplane Electrical Wiring
- Trailer Wiring & LED Lights
- Pilot Relief Systems
- Battery Testing
- Spar Alignment Tool
- L'Hotellier Fittings
- Carbon Fiber Panels
- IGC Filename Decoding
- Blanik L-23 Strut Work
- Survival Kits
- Removing Painted Letters

<http://aviation.derosaweb.net/presentations>

The End Questions?

Email: jhderosa@yahoo.com

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