



Indice A 12-12-2012

Mounting instruction Van's RV6-7-8-9

# Maintenance Manual



[www.beringer-aero.com](http://www.beringer-aero.com)



Agreements:  
EASA Part 21G  
APDOA



Ordering and support:  
BERINGER AERO USA Inc.  
4118 N. Nashville - Chicago, IL 60634  
Phone (708) 667 7891 Fax (773) 539 9328  
us.sales@beringer-aero-usa.com  
www.beringer-aero.com

Technical or specific questions:  
BERINGER AERO France  
Aéropôle, F-05130 Tallard  
tel +33 492 201 619  
sales@beringer-aero.com  
www.beringer-aero.com

# MOUNTING INSTRUCTIONS ON VAN'S RV6-7-8-9

Révision	Description	Date
0		23-07-2013

## BERINGER brake kit mounting instructions on VAN'S RV6-7-8-9 (2 main wheels):

- A. Replacement of main wheels..... p.1
- B. Replacement of master cylinder, brake lines..... p.3

### A. Replacement of main wheels

#### 1 Take apart existing system:



Fairing fixing plates do not change and will be use

Take apart following parts:

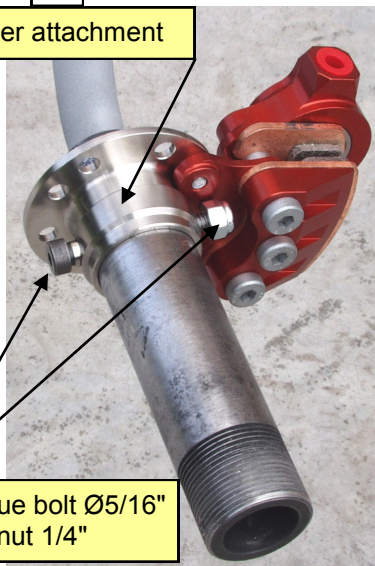
- Wheel fairing
- Brake line
- wheel
- Caliper and caliper plate
- fairing fixing plate

Clean wheel axle, remove eventual corrosion.



#### 2 Mount BERINGER wheel and caliper

Caliper attachment



Torque bolt Ø5/16" with nut 1/4"

Caliper is already fixed on the fixing plate.

- Caliper attachment part needs to be drilled to Ø5/16 individually on each landing gear leg.
- Insert Torque bolt and nut. Torque tighten to 90 in.lbs.
- Position caliper and fix it with screws at the rear side as shown on picture.

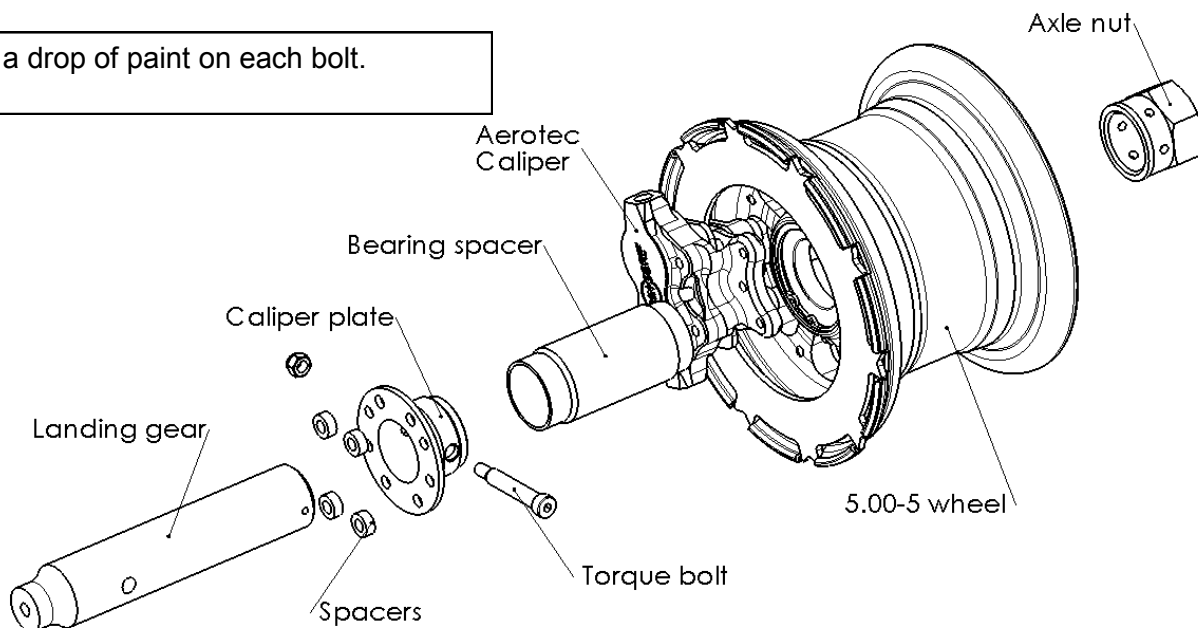
Grease or anti-corrosion paste can be applied between caliper attachment and axle.



# MOUNTING INSTRUCTIONS ON VAN'S RV6-7-8-9

Révision	Description	Date
0		23-07-2013

Put a drop of paint on each bolt.



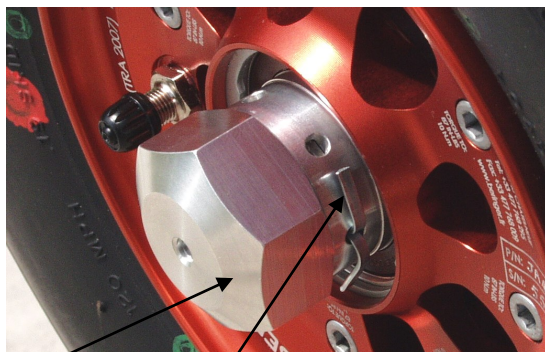
### 3 Insert brake disc

**Do not disassemble caliper:**

Insert by hand the disc between the 2 pads.  
No effort is needed for this operation.



### 4 Position main wheel



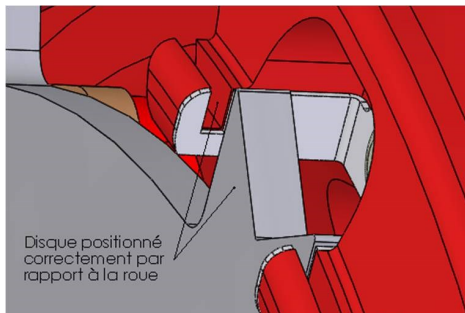
Axle nut

Cotter pin

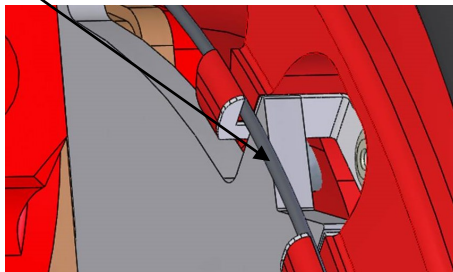
- Insert by hand main wheel 5.00-5 part# JA-61.
- help disc to slide into wheel rim by hand. No force is needed for this operation. DO NOT FORCE.
- Screw the nut to the contact with ball bearing.
- place safety cotter pin in holes like on picture

# MOUNTING INSTRUCTIONS ON VAN'S RV6-7-8-9

Révision	Description	Date
0		23-07-2013



**Safety wire**  
Stainless steel grade 302 Ø0.04 in



Place safety wire (stainless steel Ø1mm) in wheel ring groove as shown below. Safety wire prevents disc from going out of the wheel. Aspect and position of this wire should be checked before each flight.

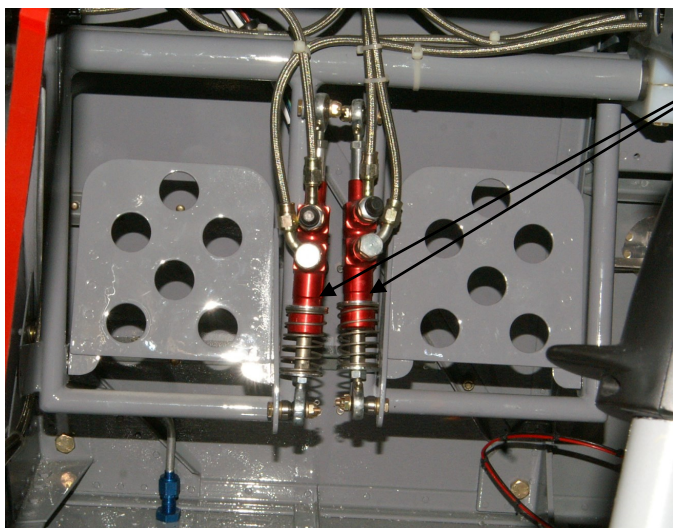
Fairing fixing plates can be mounted in the same place as previous system.

## To be Checked:

- No axial play when push/pull the wheel by hand.
- Wheel must turn freely: 2 revolutions when turning with hand.
- Safety wire in place

## B. Replacement of master brake cylinders and brake lines

- 1 Take apart original master brake cylinders and brake lines
- 2 Install BERINGER master brake cylinders on original support

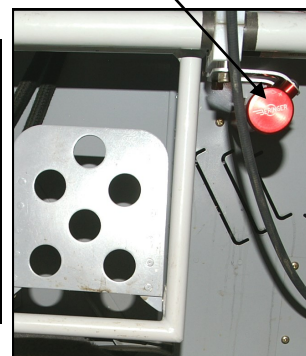


Master brake cylinders + extender + rod ends

Pressure regulator HCA02

- Place master cylinder as shown on picture  
 - Length of master cylinder can be adjusted with rod ends.

- Pressure regulator is fixed with a plate delivered in the kit on existing



- 3 Install BERINGER brake hoses following the « Assembly instruction for banjo fitting » following

## C. Bleeding: follow the “BLEEDING PROCEDURE” following

# Assembly instructions for hose and banjo fittings

Dossier ref: MONT\_BJO

Equipment concern: Brake hose and Banjo fittings

Révision	Description	Date
3	Modification address	05/12/2012

## 1) Preliminary:

Tools needed to make a brake line:

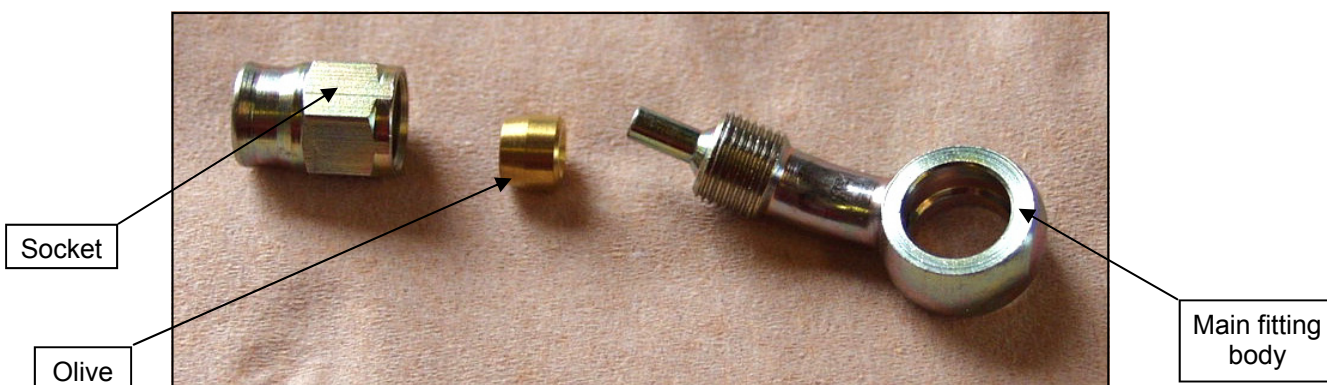
- click-type torque wrench
- fine screwdriver
- Cutter plier

## 2) Safety instructions:

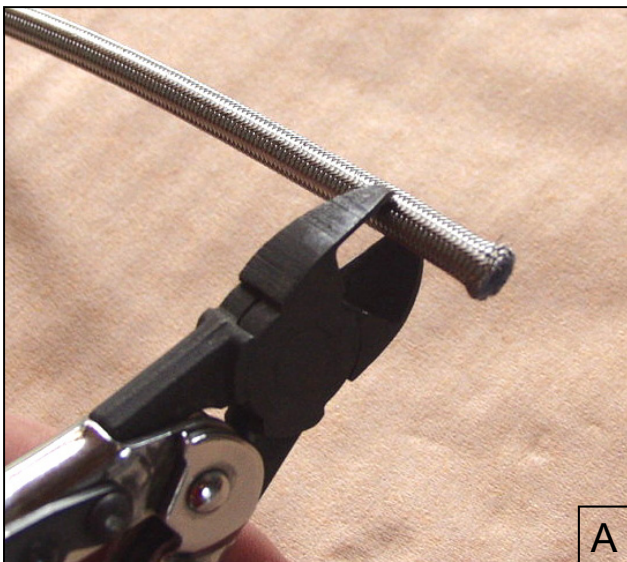
Brake lines must be made carefully. In the purpose to ensure an optimal safety of the brake system, the lines must be done as describe next.

In case of any question or problem, please contact BERINGER.

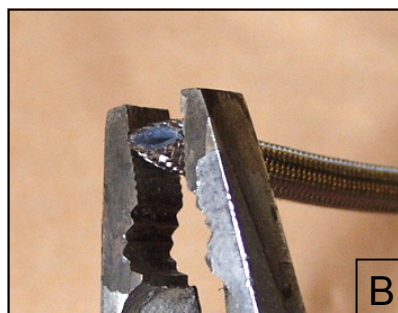
**1** A banjo fitting is made of the 3 following parts :



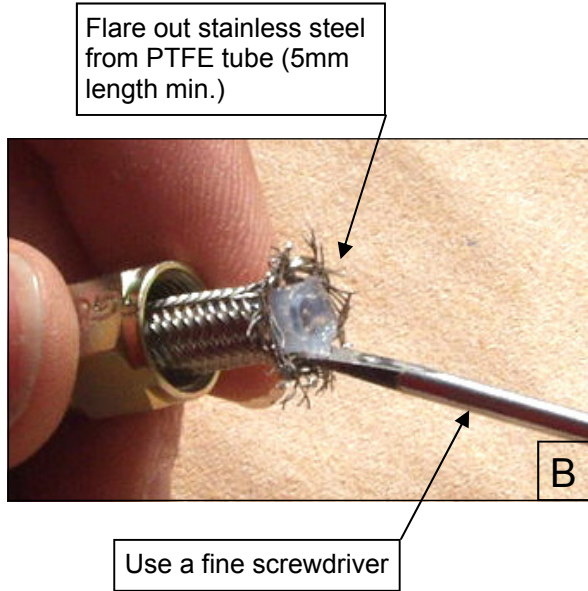
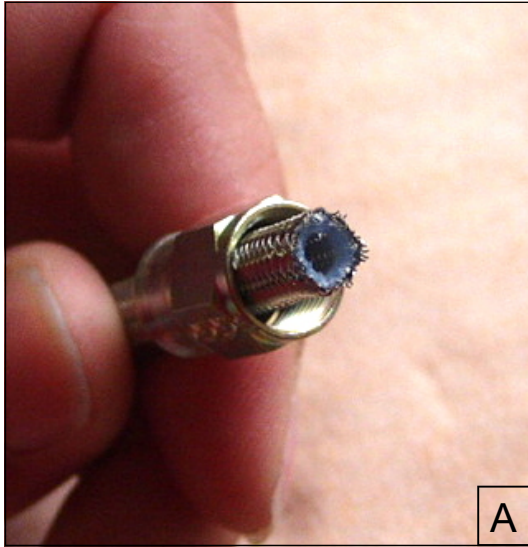
**2** Cut the hose to the required length :



- Using a fine tooth saw blade or cutter plier, cut hose to the required length.
- Clean any loose debris from both the cut ends and inside the hose.
- Then use a flat pliers to make the hole circular, as shown on the picture below.



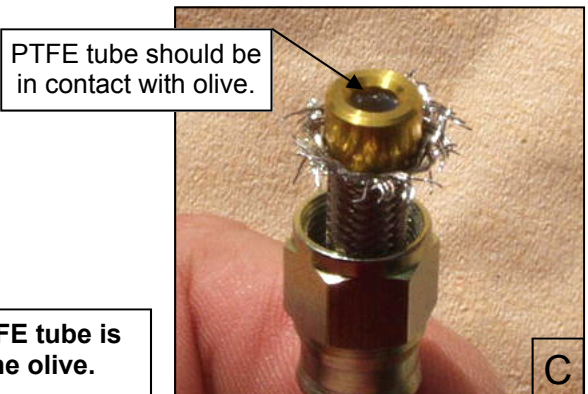
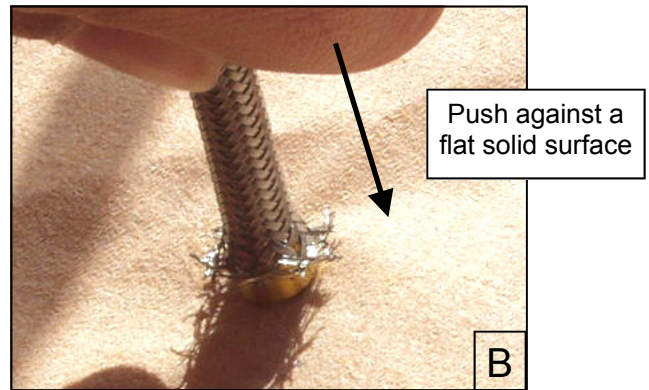
**3 Push one socket over the overbraid working and flare out end of stainless steel from the PTFE inner tube.**



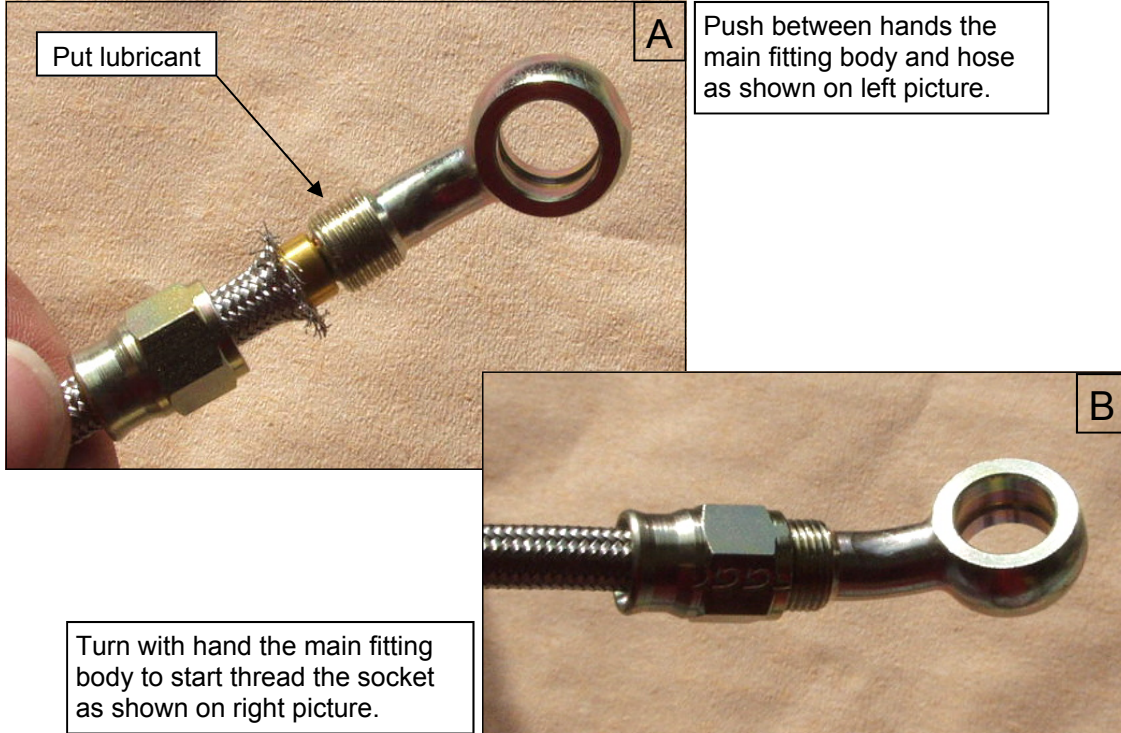
**4 Insert olive**



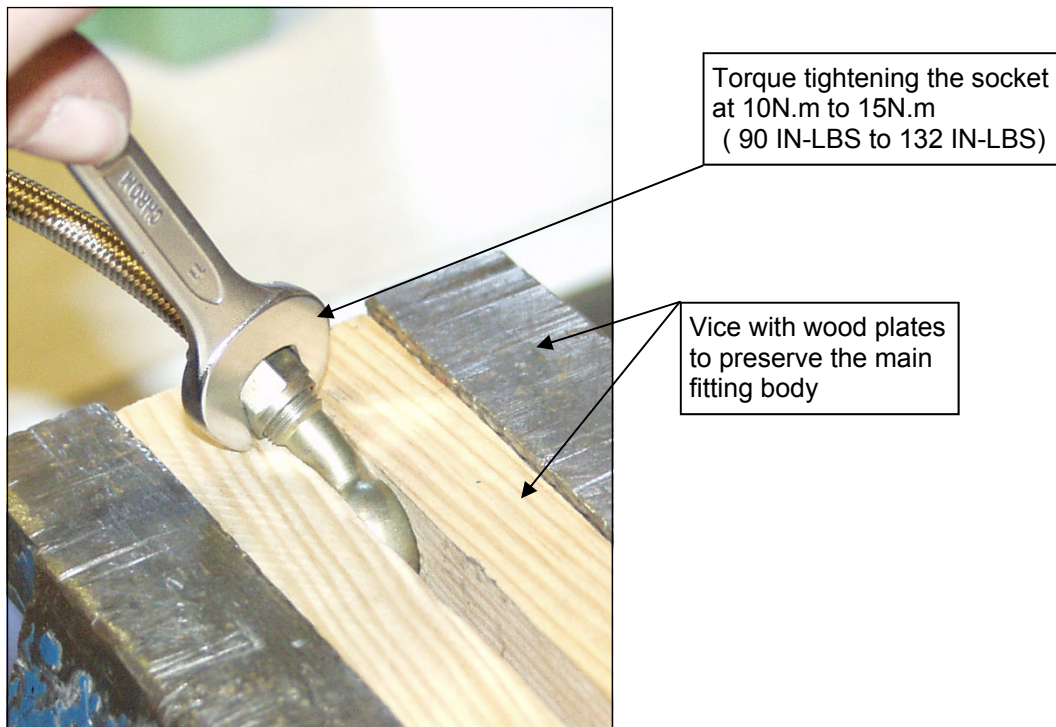
Push the olive onto the end of PTFE inner tube and under the stainless steel. **Make sure that all stainless steel filaments are outside the olive.**



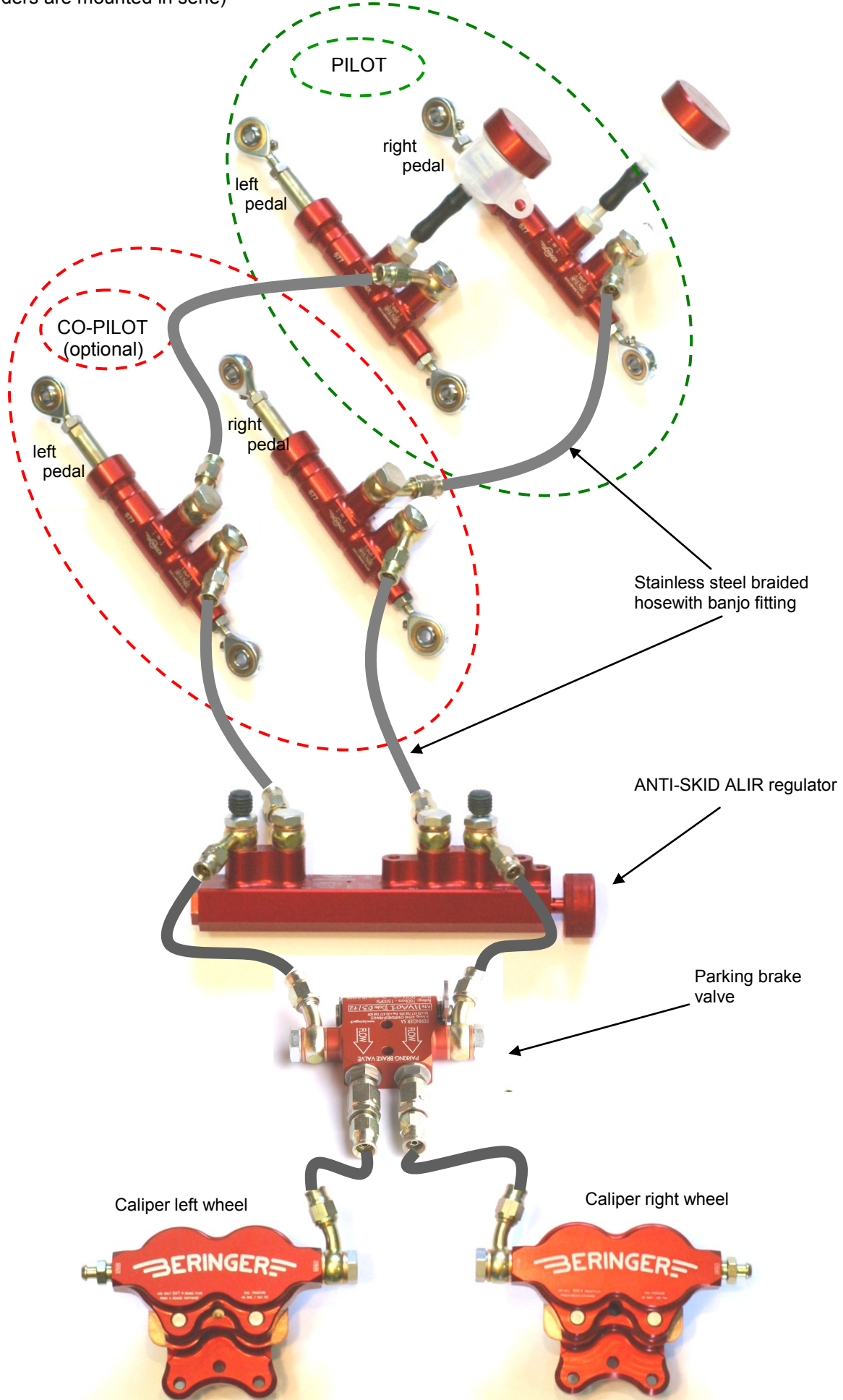
## 5 Insert main fitting body



## 6 Finish tightening the socket onto the fitting



**Differential braking system with in-line balanced anti-lock regulator (anti-skid & in-line braking) and parking brake valve**  
(master cylinders are mounted in serie)





## A. Bleeding of the braking system

### 1 Tools

Tools:

- Pressure bleeder kit
- lots of rags

USE ONLY the brake fluid indicated on the parts

**DURING THE BLEEDING PROCEDURE, Master cylinders and regulators MUST be positioned horizontally with the screws up.**

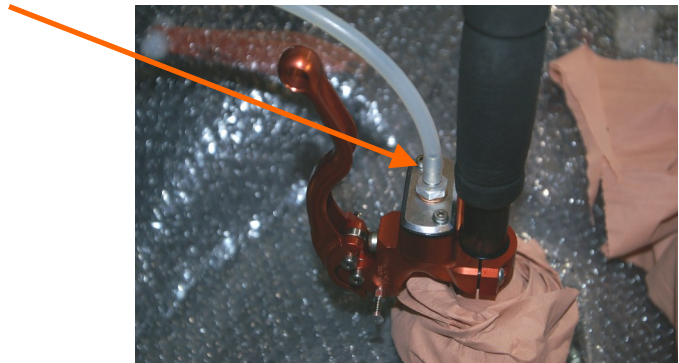
### 2 Method

To bleed the brake system consists in removing all air bubbles.

If bleeding is not done properly, bubbles can stay in the brake system. It will result in poor brake performances, or no brake torque at all.

Next are some recommendations:

- open the reservoir of the master cylinder : remove the reservoir cap and replace it with the proper cap delivered in the bleeding kit. Then connect the small bottle to the cap as shown on the photo.



- Open the bleeding screw of the caliper
- Connect the pressure tank to the bleeding screw of the caliper as shown on the photo and protect CAREFULLY the brake disc and the brake pads from the brake fluid.



- Fill in the pressure tank with brake fluid
- Pump the handle of the pressure tank to reach a 15psi pressure
- The fluid goes up from the caliper to the master cylinder reservoir

# BRAKE SYSTEM BLEEDING PROCEDURE

18-03-2013

- When the reservoir is full, the extra fluid goes away to the small bleeding bottle through the transparent hose. You can see the air bubbles leaving the circuit through this hose.
- The bleeding operation is completed when no bubble can be seen any more in the hose

*At this step, you should have some brake pressure when pulling master cylinder lever.*

*If you feel no effort at all on the master cylinder lever, that means too much air bubbles are still in the brake system. Repeat the operation taking care that you still have fluid in the tank under pressure.*

- to help the bleeding process, release and pull lever 5-6 times and check if lever is harder to pull (or push) than before.

When the bleeding is completed on the first wheel:

- Close the bleeder screw of the caliper
- Disconnect the hose of the caliper
- Repeat the same operation on the other wheel.

When the bleeding is completed **on both wheels.**

- Disconnect the hose of the bleeding bottle
- Remove carefully the bleeding cap of the reservoir
- Replace it with the normal reservoir cap

**Air bubbles stay always at upper points**

**Check your brake lines**

**Bleeders should be at each upper point of  
brake system**

**Do not use thinner or equivalent,  
it will damage seals**

**Clean only with dry rags or  
with soaper water**

## B. Security check before flying

**it is necessary to check next points before the first flight**

- All bolts and nuts must be torqued to appropriate value and locked with wire.
- Distance between controls and new parts must be checked.
- Wheels must turn freely on the axle (2 revolutions min. when turning with hand).
- Safety wire around the disc must be in place.
  
- Level of brake fluid adjusted to maximum (indicated on reservoir).
- Clean brake fluid with dry rags.
- Place lever in parking position during 15min and check eventual leakage of fluid around parts and fittings. Torque again if necessary.
- Place lever in parking position and check that plane cannot be moved by 2-3 persons.

**On the ground:**

- Check brake efficiency: performs 2-3 stops at low speed on taxiway (do not perform more than 2-3 consecutive brakings, system can overheat).
- place lever in parking position and apply engine power: the plane should not move at all, even at full power.
- After these tests, check again that wheel are turning freely when brakes are released (2 revolution min. when turning by hand).

**ATTENTION: Brake efficeincy can be surprising. Make sure than you can control the new brake system before flying.**

**For any question, please contact directly BERINGER AERO**

### Limitations:

Please refer to the concern wheel assembly drawing.

### When mounting the wheels on the plane, you must check:

- No play between wheel bearings and axle, no axial play.
- **The stainless steel safety wire to stop brake disc must be in place.** This wire (diameter 1mm) should be checked when doing the ground checklist each flying day. The safety wire prevents the disc from going out of the rim.
- Check that wheels can rotate freely on the axle. Wheels can be turned easily by hand.
- Performe 2 consecutive full stop braking application from 20-25 Knots.
- Apply brakes and check for restraint at high static throttle. If brakes hold conditioning is complete.

### Life time of wear parts:

Wear parts :	Limit wear allowed :
Brake pads (linings)	Min. thickness : 1mm (0.039 Inch)
Stainless steel protection clips	Max. play between disc and rim: 0.8mm (0.0315 Inch)
O-rings : Ø118 (2x) et Ø2.8 (1x)	Change at each rim dysassembling
Brake fluid : see what kind of fluid is written on the part	

Life time of BERINGER products is function of the use. In case of intensive use, the wear of parts above should be often checked.



BERINGER AERO, Aéroport, F-05130 Tallard  
Tel : +33 (0) 4 92 20 16 19  
contact@beringer-aero.com

## MAINTENANCE MANUAL

Référence document :

**ME-002**

- **Next products: wheel, caliper, master cylinder, anti-lock regulator are safety parts. They have been assembling with strict procedures and test to ensure a total reliability.**
- **Disassembling without respecting the proper procedures cancel the guaranty.**
- **Consult us before disassembling any product, we will send you the adapted procedures.**

### IMPORTANT NOTES :

- Use only **WATER** or SOAPED WATER to clean BERINGER products. Do not use any thinner or cleaning sprays, it will damage the seals. Do not use any grease or lubricants that are not prescribe by BERINGER, they may be not compatible with seals.
- Use only high quality screws to fix wheel axles and caliper : stainless steel screws (quality A2-70 min.) or steel screws with anti-corrosion coating (quality 8.8 min)
- In case of problem, contact us before doing anything on the products.
- Use only the type of brake fluid indicated on the parts from a sealed bottle in our brake parts. All other brake fluid will cause damages on the brakes. **Using other type of brake fluid is strictly forbidden.**

Révision: 1

Page 2/2

Date de révision: 03-12-2012

