



# Instructions for Continued Airworthiness

Project Reference  
**STC-007**

ICA-STC-007




REV. 04

## Instructions for Continued Airworthiness and Installation Instructions

for BERINGER wheels and brakes on  
SCHEMPP-HIRTH Discus 2a and Ventus 2a aircrafts

Document Reference(\*)  
**ICA-STC-007**

Project Reference  
**STC-007**

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(\*) I.a.w. the numbering system defined in the APDOA manual.

(\*\*) Authorised signatories shall be as defined in the APDOA manual.

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## 1 LOG OF REVISIONS

Rev. No	Rev. date	Description
00	12.09.2012	Initial edition
01	14.01.2014	Change of wheel P/N, update of procedures
02	30.06.2017	Update with new wheel P/N
03	24.01.2020	EA-006(A) brake assy replaced by EA-006(B) Hydraulic connectors torque value
04	19 Oct. 2021	Administrative change: MM-STC-007 becomes ICA-STC-007. New maintenance document structure and addition of SensAIR system as an option.

## 2 INTRODUCTION

### 2.1 Purpose of the document

This manual gives removal and installation instructions of BERINGER wheels and brake system STC on the SCHEMPP-HIRTH Discus 2a and Ventus 2a aircrafts and guide you toward BERINGER maintenance system for continued airworthiness instructions.

**NOTE:** These BERINGER products have been fully tested and certified on the aircraft.

**NOTE:** Wheels and brake assemblies are TSO C26d/ETSO C26c approved, for detailed maintenance and overhaul procedures, please refer to the Servicing Manuals of BERINGER, in §6.

**CAUTION:** Substitution of parts by other than originally certified parts may cause failure of brake system. BERINGER quality process assures that replacement parts are produced and controlled with the same quality level as originally certified.

### 2.2 Applicable Certification Requirements

- CS-22, 14 Nov 2003.
- FAR part 23

### 2.3 Effectivity

Type: SCHEMPP-HIRTH

Models: Discus 2a, Ventus 2a

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### 3 GENERAL

#### 3.1 Components list

This STC scope includes Main wheels, brakes (master cylinder, caliper, lines...) and axles as replacement parts to original equipment. All the assemblies are listed in NP-STC-007, at the last revision.

For the assembly detailed composition to piece part, refer to the BERINGER Illustrated Part Catalogues (IPC) that are available in the maintenance documents MM-0x-001, sorted per product family, see §6.

In option, BERINGER pressure measurement device is available for this STC:

Assembly / Product Name	BERINGER Reference number
5" wheel SensAIR (option)	TP-005

#### 3.2 Weight and Balance

BERINGER Assembly Name	Weight (Kg)	Weight (Lbs)
Main wheel and brake	2,42	5,33

*(Weights are given without tires, per wheel)*

Refer to local regulation requirements to determine if mass and balance must be updated.

#### 3.3 Tires

Tires	Size	Type	Ply	Inflation pressure
Main	11x4.00-5"	Tubeless	8 ply	5 bars / 72 PSI

#### 3.4 Torque

All torques for BERINGER product assembly are specified in the installation instructions in this document or in the maintenance working cards.

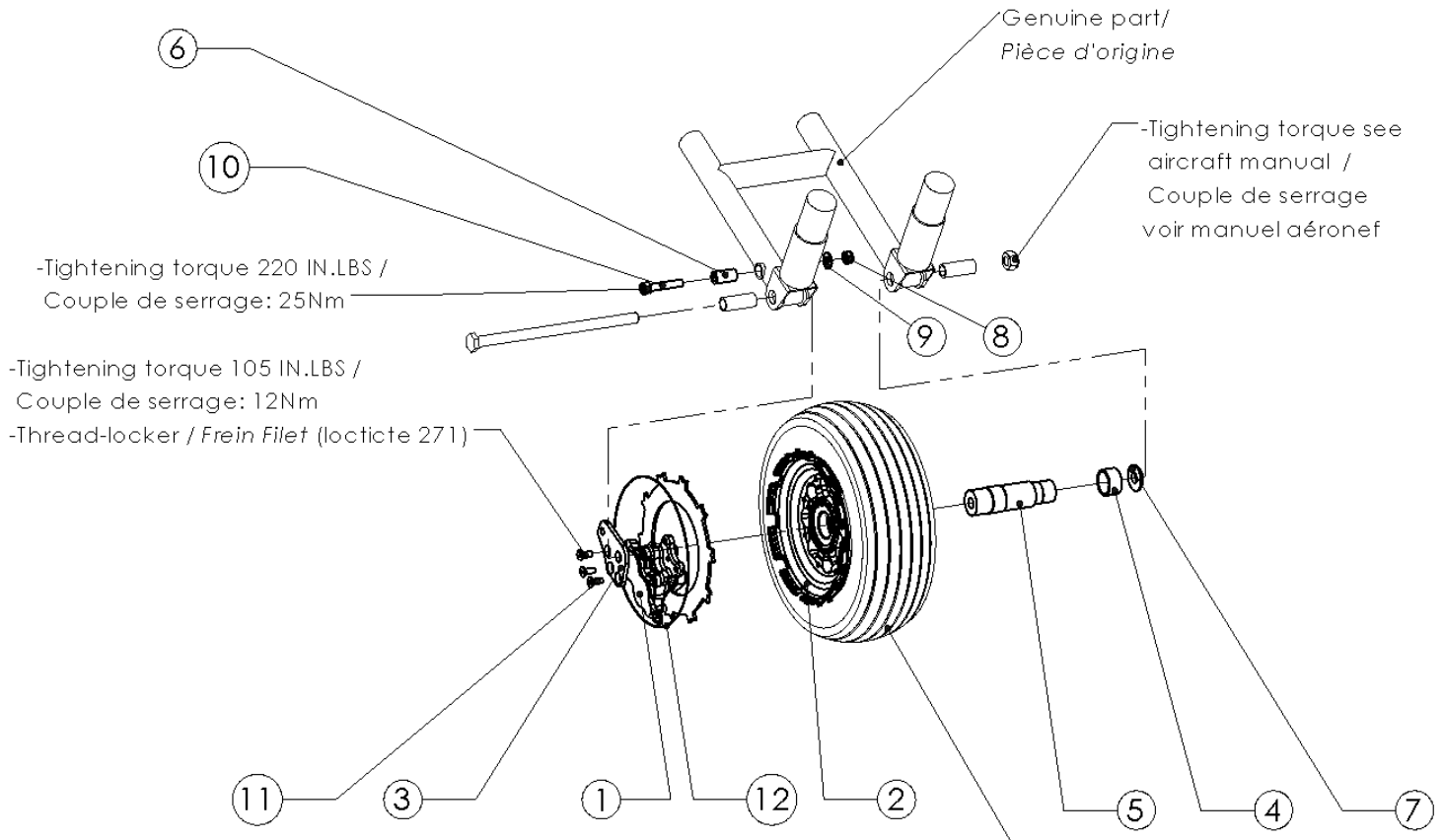
For interface parts with aircraft, unless otherwise specified by BERINGER, all fasteners should be torqued as per Aircraft Manual.

#### 3.5 Standard product and tools

- Tire lubricant : Tire lubricant or Ph neutral liquid soap
- Hydraulic fluid : DOT 4
- Tire mounting tool: Refer to MM-02-002.
- Bearing grease
- Torque wrench
- Paint marker

## 4 REMOVAL AND INSTALLATION

### 4.1 Main wheels and Brakes



12	ZPA02	Safety Wire	1
11	V-FHC-008	M16 Screw (Q12.9)	3
10	V-CHC-061	M8 Screw (Q12.9)	1
9	R-AP-013	M8 Washer	1
8	E-HN-004	M8 Self-Locking Nut	1
7	AV-SCHE-205	Washer	1
6	AV-SCHE-204	Spacer	1
5	AV-SCHE-202	Wheel Axle	1
4	AV-SCHE-203	Bearing Spacer	1
3	AV-SCHE-201	Caliper Plate	1
2	RF-020	Wheel Assy	1
1	EA-006E	Brake Caliper Assy	1
<b>REP.</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QTY.</b>

**AV-SCHE-220**

**Remove the old system:**

- wheel and brake
- axle
- brake cable

**NOTE:** The axle bolt is not changed and remains the same.

**Installation of the new system:**

a) Apply a thin coat of grease on the wheel bearings

**WARNING:** The grease avoid corrosion between the axle and the wheel.

b) Insert the wheel axle inside the wheel

c) Insert the disc into the caliper: do not disassemble the caliper

d) Place the disc and caliper into the wheel, locate the caliper plate onto the axle.

e) Insert the bearing spacer onto the axle (valve side).

f) Present the entire assembly in the landing gear fork

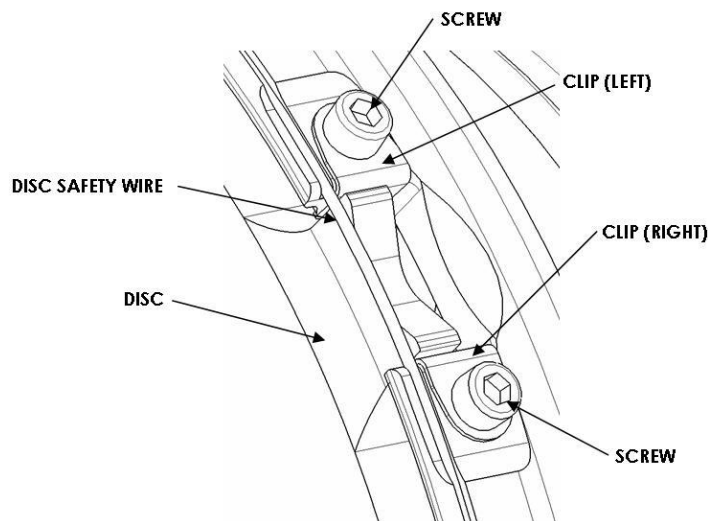
g) Insert the axle washer and then insert the axle bolt

h) Insert the torque bolt and spacer into the hole in the landing gear. Place the nut and torque so that the brake plate cannot turn.

i) Place the axle washer and nut, torque-tighten to the appropriate torque

**NOTE:** Check that the caliper is not moving  
Check that the wheel has no axial play

j) Place the safety wire all around the disc and twist it on 8mm.



**CAUTION:** The safety wire must be in place to prevent the disc from going out the slots

k) Check that the wheel is turning freely with hand

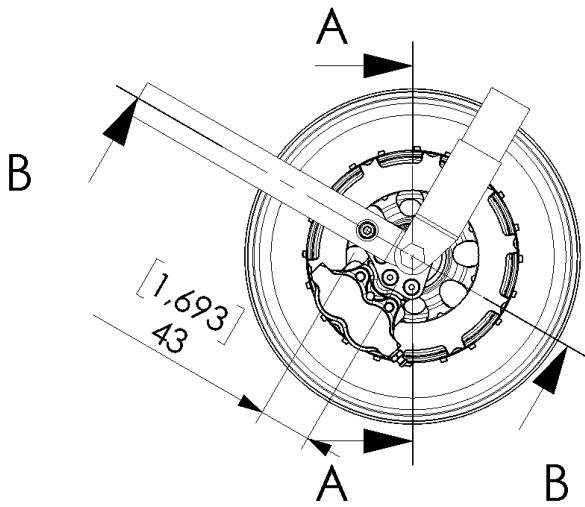


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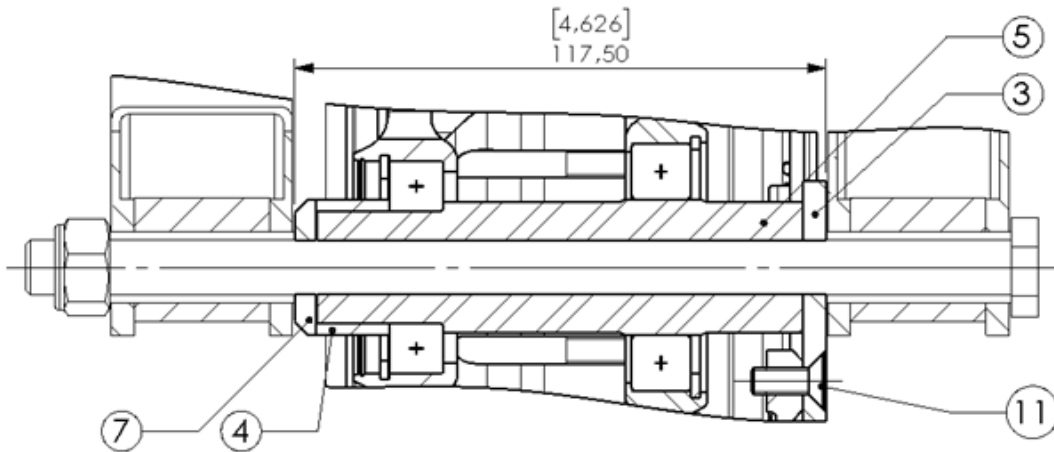
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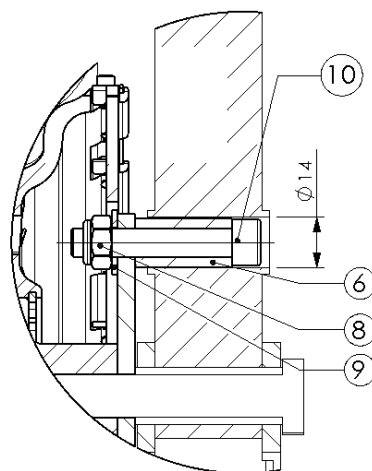
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COUPE/SECTION A-A

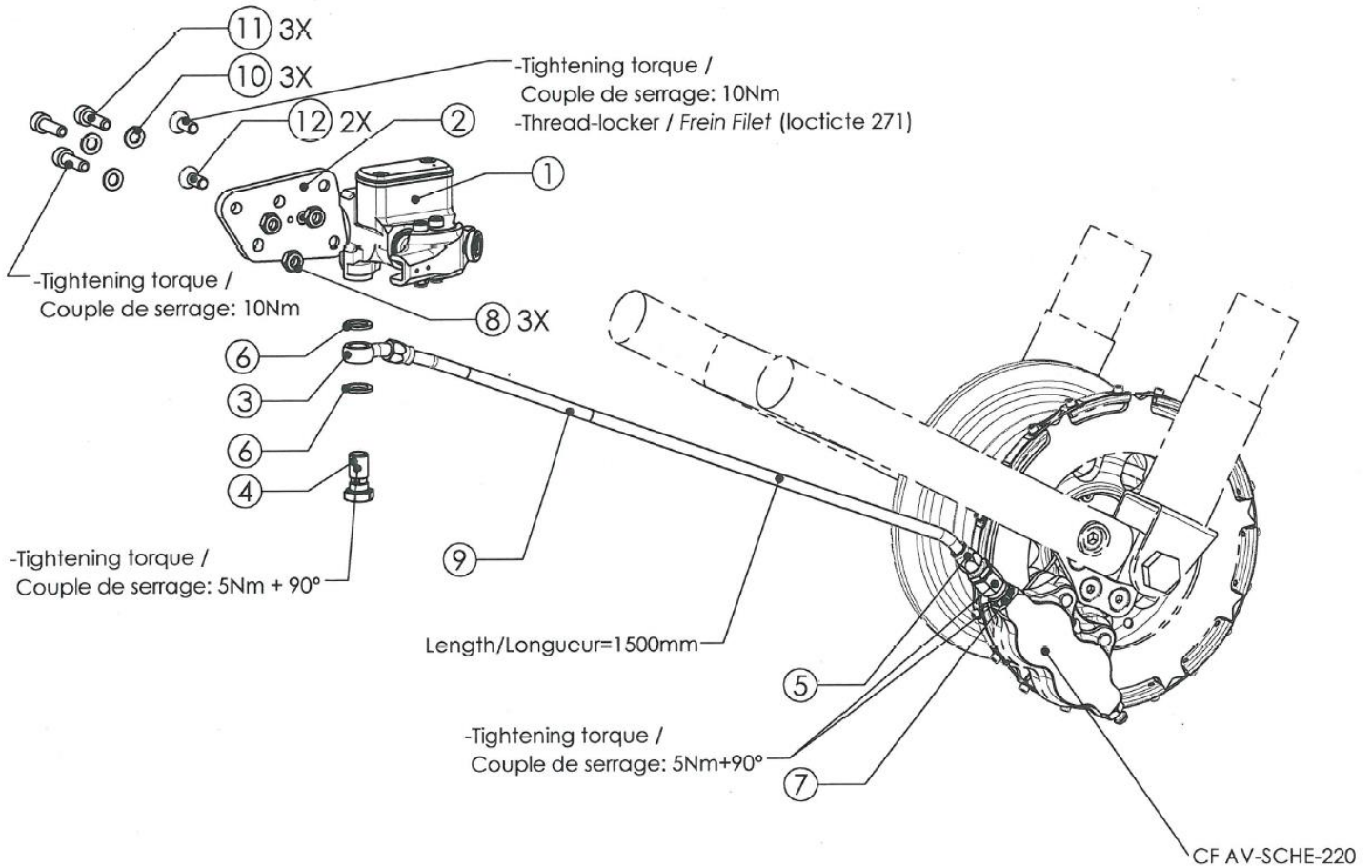


COUPE /SECTION B-B



## Wheel - Brake Installation

## 4.2 Master Cylinder

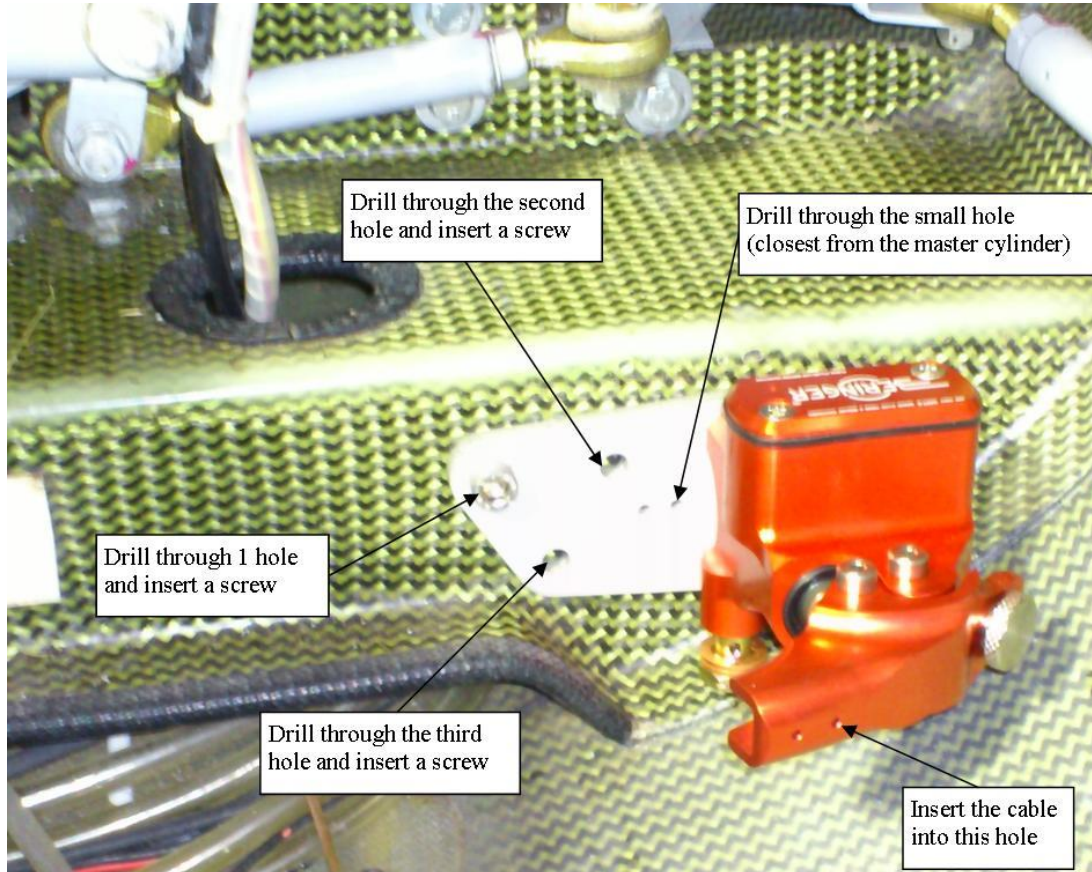


12	V-FHC-008	M6-16(Q12.9)_Screw/Vis	2
11	V-CHC-058	M6x20 (Q12.9)_Screw/Vis Chc	3
10	R-AP-009	Washer Z6/ Rondelle Z6	3
9	HYD-032	Stainless steel brake hose/Durite tressée non gainée	1
8	E-HN-003	M6_self-locking Nut/Ecrou NL	3
7	HYD-006	M10/3-8_Adaptor/Adaptateur	1
6	HYD-005B	Copper Seal/ Joint cuivre	2
5	HYD-008OP	female fitting 3/8x24	1
4	HYD-003P	M10x1_Banjo Bolt/ Vis Banjo	1
3	HYD-002OP	Steel fitting 20° /Banjo 20° Acier	1
2	AV-SCHE-208	Découpe Discus 2a, Ventus 2a 4.00x5" _Plate/ Platine	1
1	MM-002E	MM (Discus,Ventus) _Hand Master Cylinder / Maitre Cylindre de Manche	1
<b>REP</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QTY.</b>

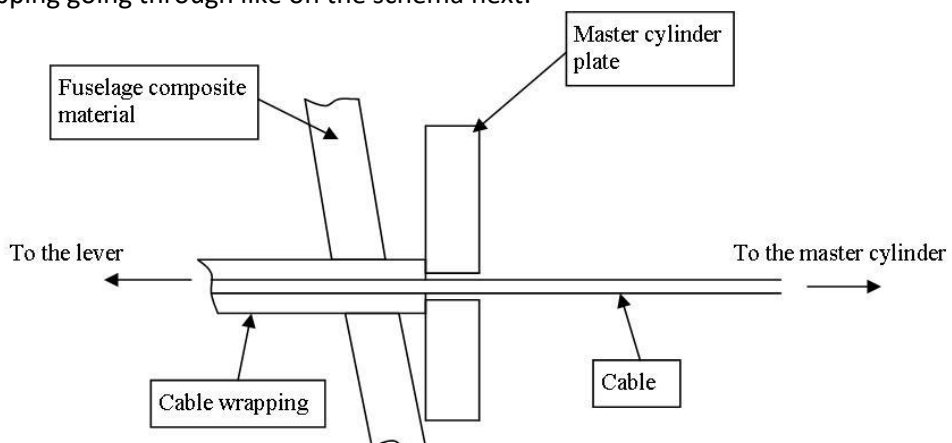
**AV-SCHE-240**



- a) Position the master cylinder as on the picture next. It should be at the lowest point as possible on the right side of the stick.
- b) Drill the 3 fixing holes through the plate and the small hole for the cable



- c) Remove the master cylinder and drill the composite to increase the small hole to  $\varnothing 6\text{mm}$  and allow the cable wrapping going through like on the schema next:



d) Re-use the original cable and wrapping or use a new cable and wrapping (recommended) and adjust the length.

**NOTE:** It is recommended to insert the cable through the master cylinder before fixing on the structure.

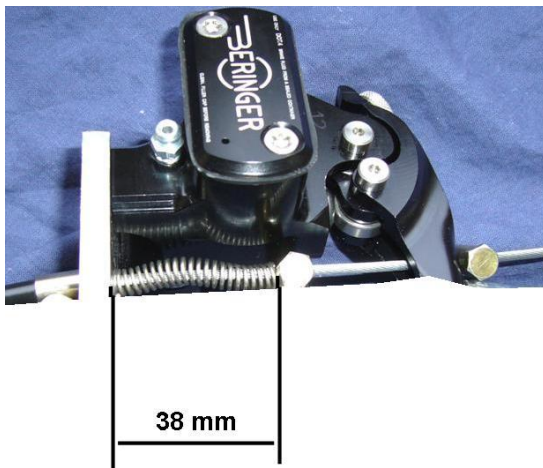
e) Place the It is recommended to insert the cable through the master cylinder before fixing on the structure.

f) Then fix the master cylinder onto the structure with the 3 screws and nuts. Place 3 washer on the 2 upper holes, this is to avoid the master cylinder touching the seat.

**NOTE:** position the seat and check with fingers that there is 1cm of gap between the seat and the master cylinder.

g) Check carefully that the lever is not touching anything when moving the stick in all positions

**NOTE:** The lever of master cylinder can be adjusted in distance with the thumbwheel at the lowest point of the master cylinder



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### 4.3 Brake lines

- a) Place the new brake line exactly in the same place as the old cable wrapping.
- b) The banjo is going onto the master cylinder, the other fitting is not made to allow going through the hole in the landing gear compartment.
- c) Assemble the hydraulic fitting on caliper side at the required length.  
Refer to the BERINGER procedure: **MM-00-002** Hydraulic lines for hydraulic fitting assembly available in BERINGER maintenance document, see §6.
- d) Torque the banjo bolts to 5Nm (45in-lbs) then add 90°. Do not twist the brake lines
- e) Use the plastic clamps to fix the brake lines

**WARNING:** A wrong positioning of brake lines may block the controls, make sure that all is positioned and fixed properly with no interferences with the controls.

- a) Fill the system from the caliper with brake fluid **DOT4** and only **DOT4** (yellow colour used in cars or motorbikes). All other type of fluid is forbidden.

**CAUTION:** Using another fluid will damage the seals.  
If red or green mineral oil has been used, all the parts must be sent back to Beringer for seals replacement

**NOTE:** To bleed the system properly it is recommended to use a bleeder pump.  
Do not try to fill the reservoir and pump, it will not work. Use a bleeder pump or a syringe and push from the caliper. Refer to the BERINGER procedure: **MM-00-003**.

## 5 INITIAL USE

**WARNING:** BERINGER brakes need to be bled and conditioned prior to use.

For procedure instructions, refer to the following manuals available on BERINGER website:

- BRAKE BLEEDING procedure MM-00-003
- BRAKE CONDITIONING procedure MM-01-002

Completing the procedure conforms the brakes to the STC requirements. However, note that the brake performance will continue to improve during the first few hours of use.

## 6 INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

All instructions for continued airworthiness are provided through the Servicing Manuals (SM) and Maintenance Manual (MM) of BERINGER.

- The Servicing Manuals (SM) sums-up the parts replacement scheme, the maintenance intervals, troubleshooting and the Maintenance Working Cards to be used for each BERINGER assembly.
- The Maintenance Manual (MM) describes each maintenance step for all BERINGER products.

Refer to the maintenance guide **SM-00** for **general guidance**.

The SM breakdown structure is as follows:

Servicing Manual Reference	Product Type	Product Reference
<b>SM-01</b>	Brake Assembly	EA-xxx
<b>SM-02</b>	Nose/Tail wheel	RA-xxx
<b>SM-02</b>	Main wheel	RF-xxx
<b>SM-03</b>	Control-stick Master-Cylinders	MM-xxx
<b>SM-03</b>	Longitudinal Master-Cylinders	MP-xxx
<b>SM-04</b>	Parking Brake	FP-xxx
<b>SM-05</b>	Brake Pressure regulator	RE-xxx
<b>SM-06</b>	Brake Pressure limiter	LM-xxx
<b>SM-07</b>	Shock Wheel	LL-xxx
<b>SM-08</b>	SensAIR device	TP-xxx
<b>SM-09</b>	Tyre 5x2.00-3.7 & 6x2.00-3.7	PAR-xxx
<b>SM-10</b>	Carbon Fairing	CR-xxx

**All documents are all available on:**



BERINGER website: [www.beringer-aero.com/Support](http://www.beringer-aero.com/Support)  
Go to Support section.

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## 7 ASSOCIATED DOCUMENTS

Document reference	Document title
NP-STC-007	Part Nomenclature
MM-00-002	Hydraulic lines procedure
MM-00-003	BRAKE BLEEDING procedure
MM-01-002	BRAKE CONDITIONING procedure
SM-00	BERINGER PRODUCTS MAINTENANCE GUIDE
SM-02	Wheels Servicing Manual

*Refer to the latest revision.*