



	Instructions for Continued Airworthiness	Project Reference STC-005	ICA-STC-005
			REV. 02

Instructions for Continued Airworthiness and Installation Instructions

for BERINGER wheels and brakes on
SCHLEICHER ASW20 aircraft

Document Reference^(*)
ICA-STC-005

Project Reference
STC-005

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17 Nov 2021	18 Nov 2021	

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

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1 LOG OF REVISIONS

Rev. No	Rev. date	Description
00	18.06.2012	Initial edition
01	30.06.2017	Update with new wheel P/N
02	19 Oct. 2021	Administrative change: MM-STC-005 becomes ICA-STC-005: 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 Schleicher ASW20 aircraft 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
- FAR part 23

2.3 Effectivity

Type: SCHLEICHER

Models: ASW20

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3 GENERAL

3.1 Components list

This STC scope includes Main wheels and brakes (master cylinder, caliper, lines...) as replacement parts to original equipment. All the assemblies are listed in NP-STC-005, 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 wheels and brake	2,54	5,59

(Weights are given without tires, per wheel)

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

3.3 Tires

Wheel	Size	Type	Ply	Pressure max (Loaded)
Main	5.00-5	Tubeless	8	5 bars

3.4 Torque

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

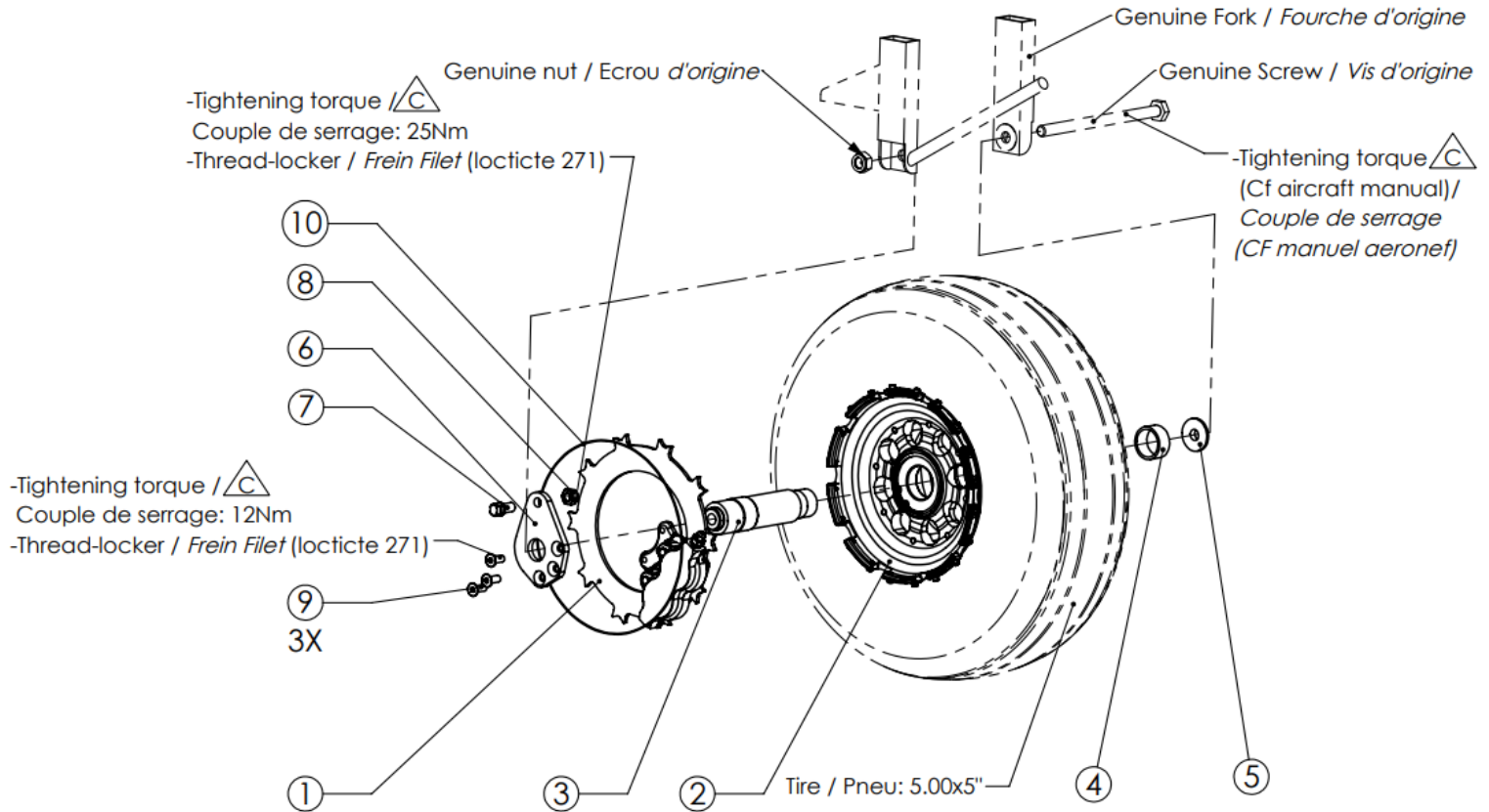
For interface parts with aircraft, unless otherwise specified by BERINGER, all fasteners should be torqued as per Aircraft Manual.

3.5 Standard product and tools

- Tire lubricant : Tire lubricant or 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



10	ZPA02	Safety Wire/Fil a freiner	1
9	V-FHC-008	M6-16(Q12.9)_Screw/Vis	3
8	E-HN-004	Self-locking Nut M8/ Ecrou NL M8	1
7	AV-CENT-005	Centrair Pegase 5.00x5" Std_Torque Screw/ Vis De Reprise Couple	1
6	AV-CENT-004	Centrair Pegase 5.00x5" Std_Caliper plate/ Platine Etrier	1
5	AV-CENT-003	Centrair Pegase 5.00x5" Std_Axle Washer/ Rondelle Axe	1
4	AV-CENT-002	Centrair Pegase 5.00x5" Std_Bearing Spacer/ Entretoise Rlt	1
3	AV-CENT-001	Centrair Pegase 5.00x5" Std_Main Wheel Axle/Axe	1
2	RF-019	5.00x5" Std (25-30)_Main Wheel Assy/ Roue Freinée	1
1	EA-006E	2P27-6-3.2 (T1 M6 DOT4)_ Brake Caliper / Etrier de frein	1
REP	PART NUMBER	DESCRIPTION	QTY.

AV-CENT-020

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Remove the old system :

- Wheel and brake
- Axle
- Brake lines or cable
- Brake lever

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

Installation of the new system:

Wheel and tire, and Caliper and plate are already mounted and tested.

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

WARNING: The grease prevent from corrosion between the axle and the wheel.

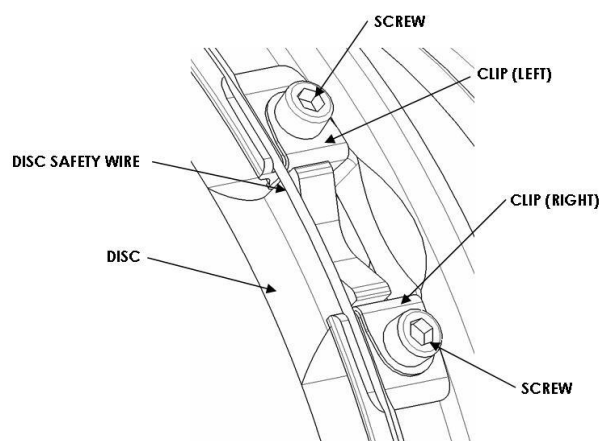
- b) Insert the wheel axle AV-CENT-001 inside the wheel
- c) Insert the disc into the caliper: do not disassemble the caliper
- d) Place the disc and caliper into the wheel, locate the caliper plate onto the axle.
- e) Insert the bearing spacer onto the axle (valve side).
- f) Present the entire assembly in the landing gear fork
- g) Insert the axle washer AV-CENT-003 and then insert the axle bolt
- h) Place the washer and nut, torque tighten to the appropriate torque

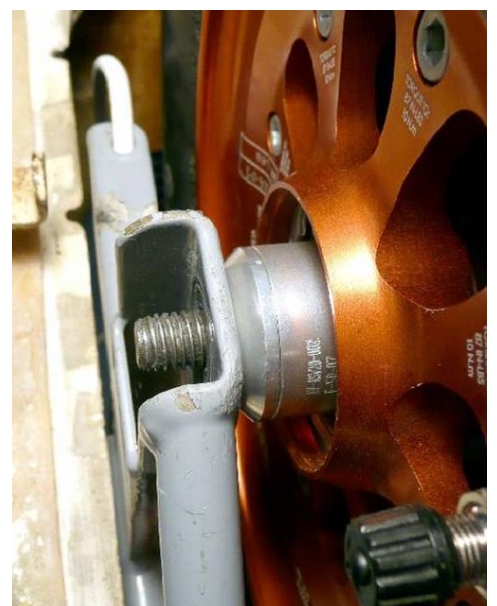
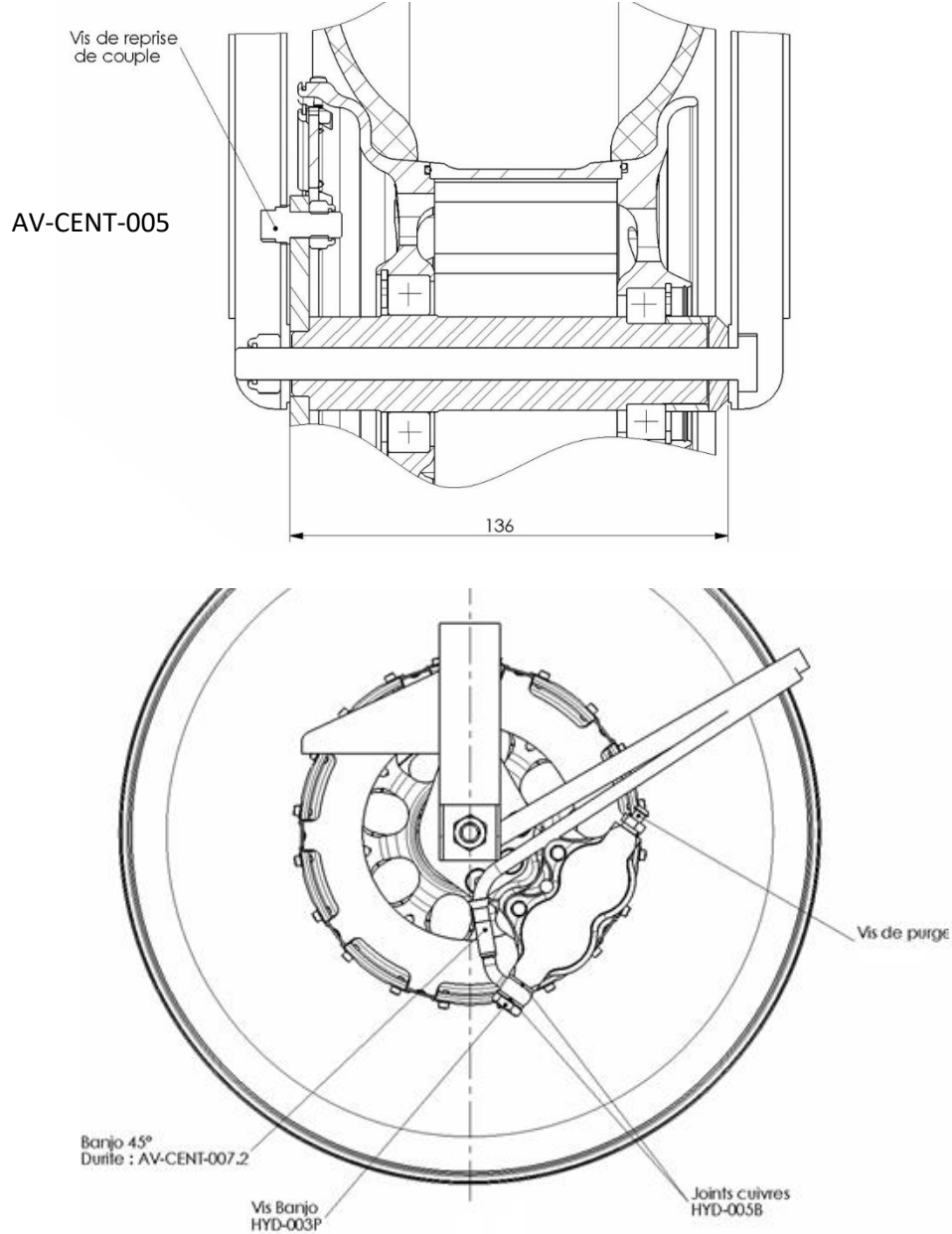
NOTE: Check that the caliper is not moving
Check that the wheel has no axial play

- i) 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

NOTE: Check that the wheel is turning freely with hand





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4.2 Master Cylinder

Remove the old system

- Fix the master cylinder on the stick, use the small aluminium spacer
- Position the master cylinder as on the picture next.
- If required cut the plastic grip
- Torque the 2 screws to 5 N.m

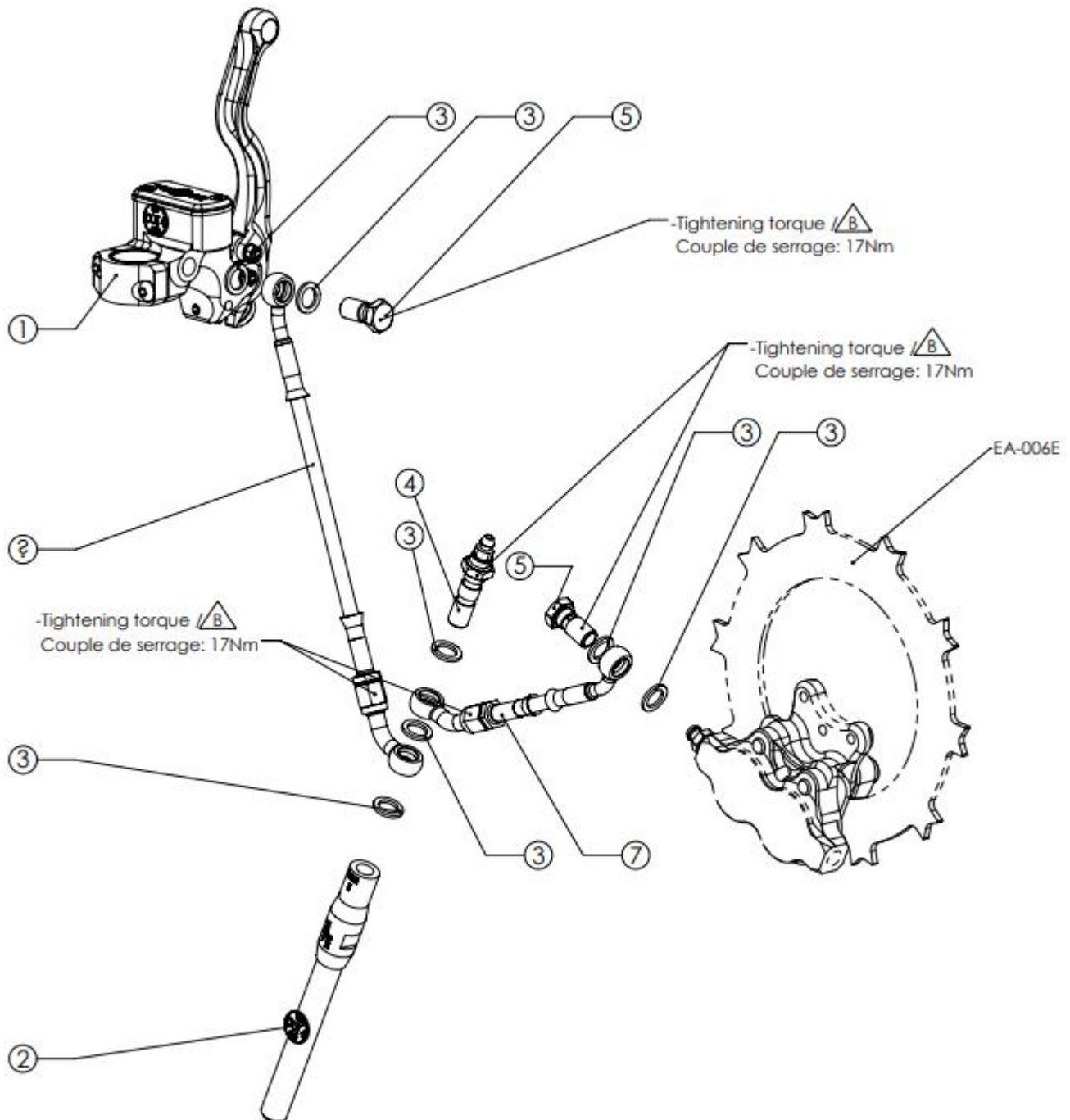


- Check carefully that the lever is not touching anything when moving the stick in all positions

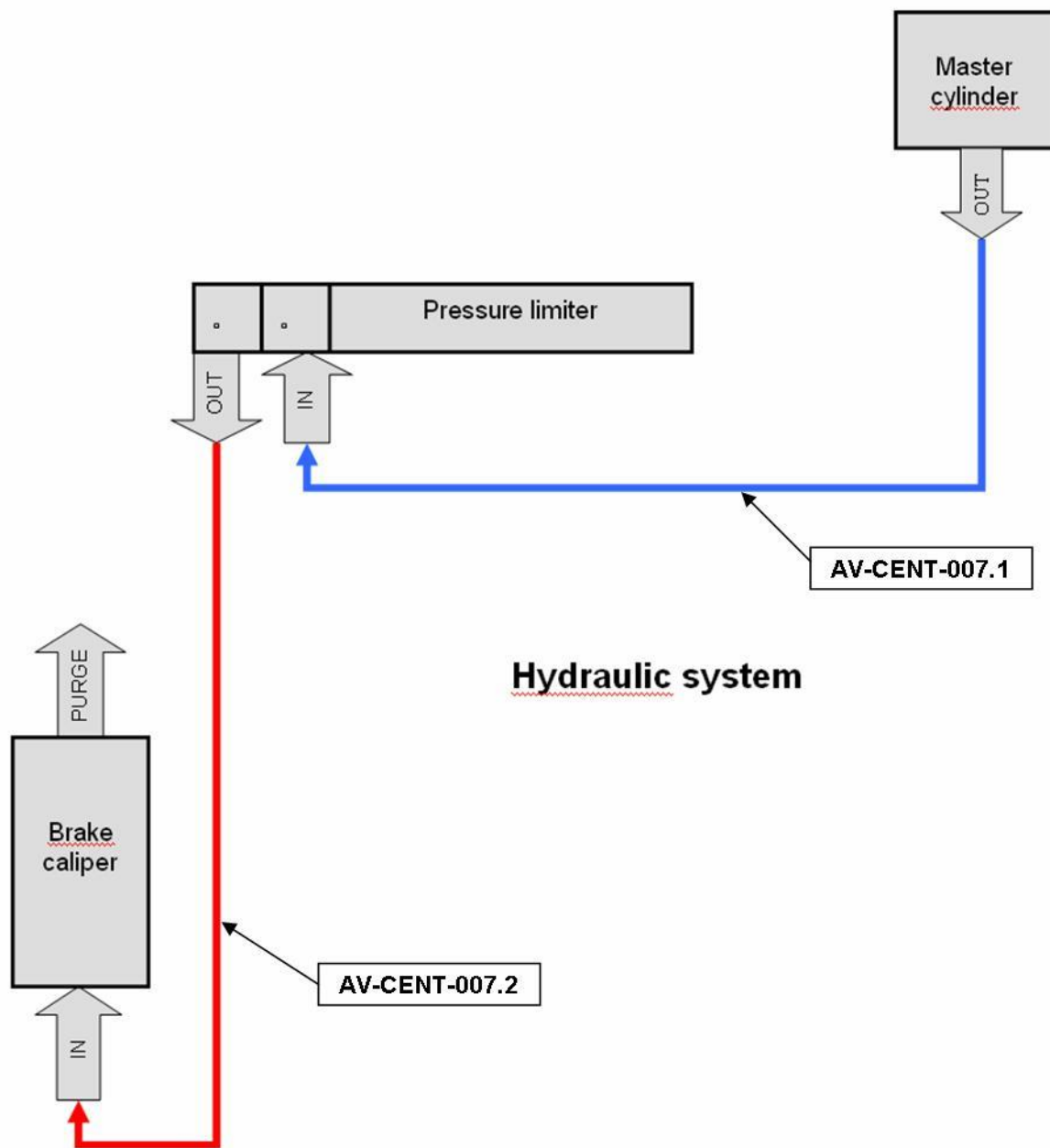
NOTE: The lever of master cylinder can be adjusted in distance with the thumbwheel at the lowest point of the master cylinder

NOTE: The new brakes can be operated only from the lever and not from the airbrakes

4.3 Pressure limiter – Brake lines

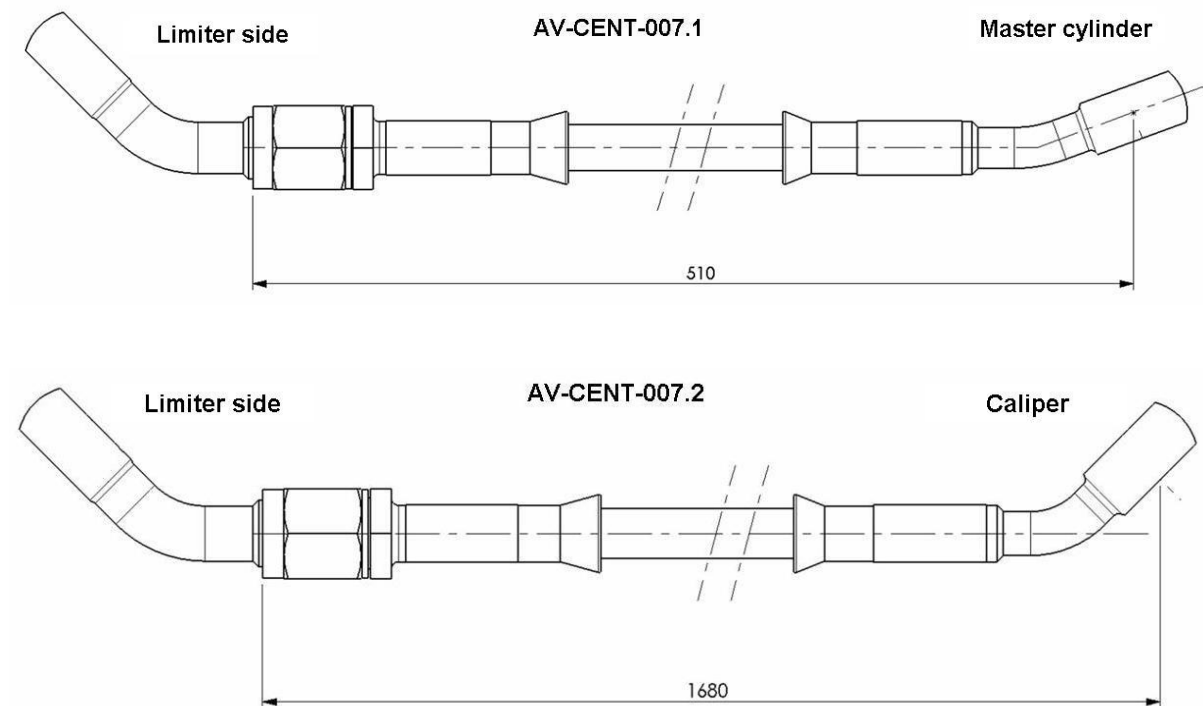


7	AV-CENT-007.2	Brake line	1
6	AV-CENT-007.1	Brake line	1
5	HYD-003P	M10x1_Banjo Bolt/ Vis Banjo	2
4	HYD-046P	Dual Banjo Bolt With bleed / Vis Banjo Double avec purge	1
3	HYD-005B	Copper Seal/ Joint cuivre	7
2	LM-003E	35 Bars (DOT 4)_Pressure limiter / Limiteur	1
1	MM-001E	Hand Master Brake Cylinder/ Maitre Cylindre de manche	1
REP	PART NUMBER	DESCRIPTION	QTY.

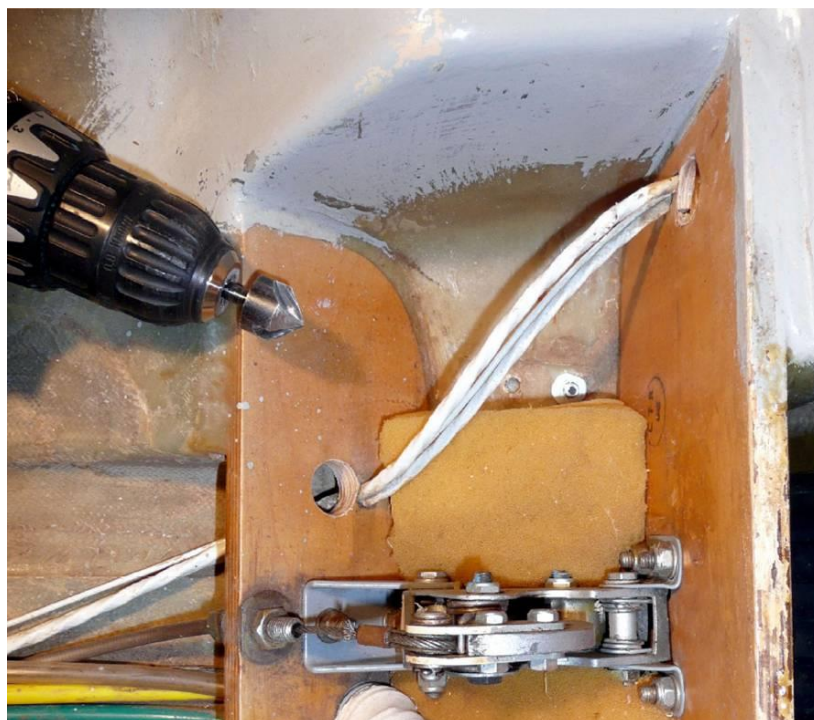


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Two Brake lines are included in the kit:



- Remove old brake lines and cables
- Increase the holes diameter to 18-20mm for the new lines like the picture next :

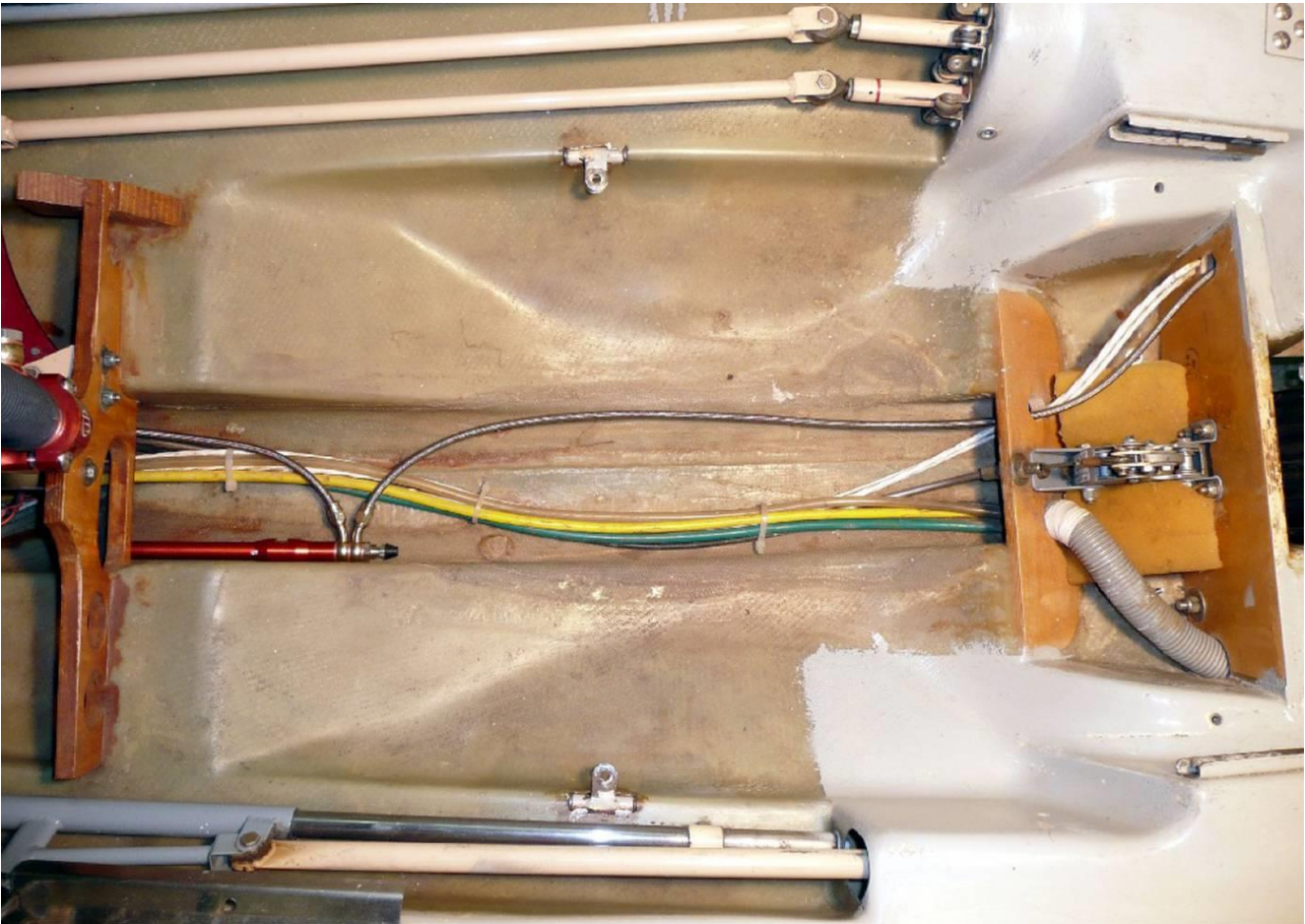


- Place the brake lines and torque tighten the banjo bolts to 5 Nm + 90° (45 in-lbs +90°), Do not twist the brake lines
- Use the plastic clamps to fix the brake lines

- e) Fix the pressure limiter with plastic clamps to the cables in the back of the fuselage

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.





- f) 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.

- g) If the brake was actuated with airbrake lever, then remove the pictograph of braked wheel on the airbrakes

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5 INITIAL USE

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

All documents are all available on:



BERINGER website: www.beringer-aero.com/Support
Go to Support section.

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7 ASSOCIATED DOCUMENTS

Document reference	Document title
NP-STC-005	Part Nomenclature
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.