ATELIER CHABORD

HIGH PERFORMANCE MANUFACTURING

INSTALLATION PROCEDURE

Cessna 172

Table of contents :

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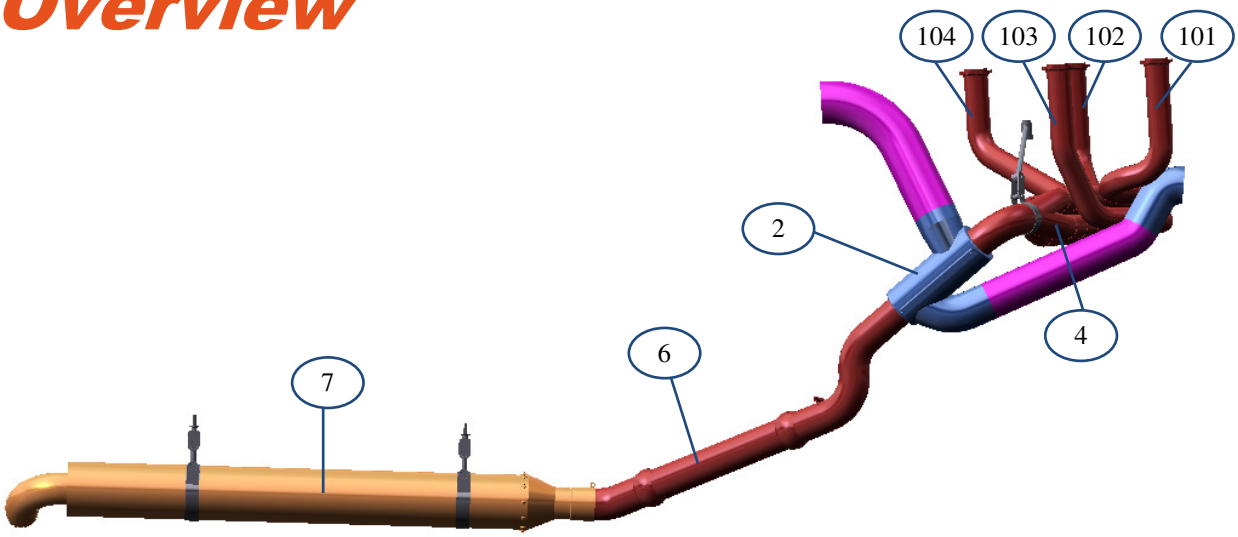
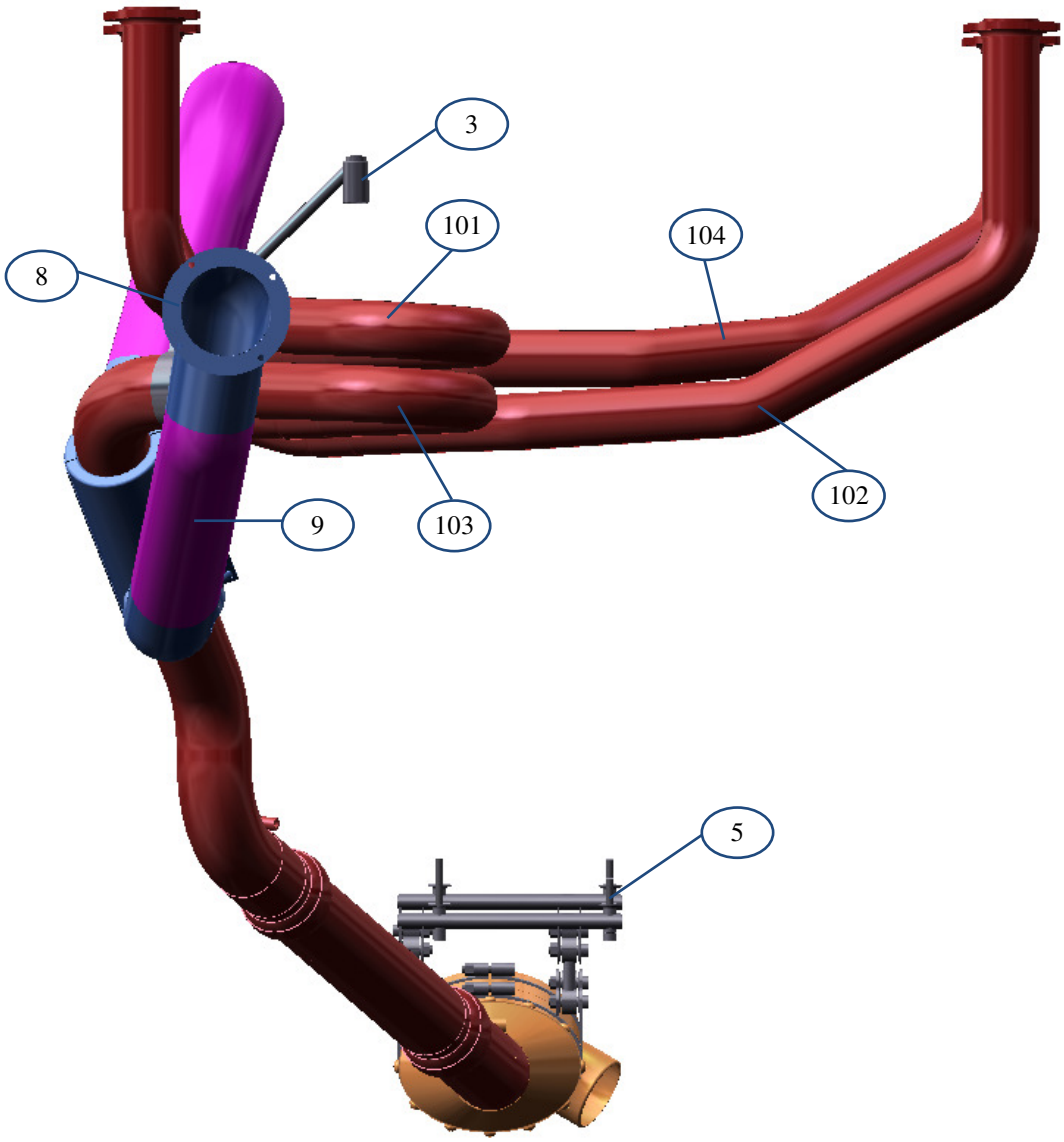
Overview





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Parts List

CESSNA 172 exhaust parts list					
Set	**Under-set**			**Material**	**Qty**
	Ref	**Designation**	**Ref**		
Primary exhaust	101	Primary tube cylinder nr. 1	C172-101	Inox 316L	1
	102	Primary tube cylinder nr.2	C172-102	Inox 316L	1
	103	Primary tube cylinder nr.3	C172-103	Inox 316L	1
	104	Primary tube cylinder nr.4	C172-104	Inox 316L	1
	106	Aviation nuts	ECROUAVION90a	XC38Pb	8
4 in1 manifold 4		4 in 1	C172-41	Inox 316L	1
		TH M5 x 10mm screw	00965 10	Inox 316L	2
		Simmonds M5 locking nut	5080PH115	Inox 316L	2
4 in 1 support 3		Support 4/1	C172-31	15CDV6T	1
		Spacer 4/1	C172-32	15CDV6T	1
		Clamp 4/1	C172-33	Inconel	1
		CHC M6 x 25mm screw		Inox	2
		TH M6 x 30mm screw		Inox	1
		Simmonds M6 locking nut		Inox	1
		Nylstop M6 locking nut		Inox	2
Cabin-heat box 2		Cabin-heat box	C172-21	Inox 316L	1
		M4 x 8mm screw	1231048	Inox	18
		Washer Ø4mm	1494410	Inox	18
Cold air intake cabin elbow 8		Cold air intake cabin elbow	C172-81	Inox 316L	1
		Intake cabin elbow drilling template	C172-82	Inox	1
		Poelier M4 x 10mm screw		Inox	4
		Washer Ø4mm		Inox	4
		Nylstop M4 locking nut		Inox	4
Double-Swivel tube 6		Double swivel-tube	C172-61	Inox 316L	1
		M6 x 35mm screw	0094635	Inox	1
		Simmonds M6 locking nut	6100PH135	Inox	1
Under cockpit muffler bracket 5		Regular under cockpit support	C172-51	15CDV6T	2
		Large under cockpit support	C172-52	15CDV6T	2
		Articulated Connecting Rod		15CDV6T	4
		Regular muffler clamp	C172-53	Inox 316L	2
		Large muffler clamp	C172-54	Inox 316L	2
		CHC M6 x 25mm screw	0094625	Inox	8
		CHC M6 x 35mm screw	0094635	Inox	6
		Washer Ø6		Inox	4
		Simmonds M6 locking nut	6100PH135	Inox	2
		Nylstop M6 locking nut	03916	Inox	12
Muffler 7		Regular muffler	C172-71	Inox 316L	1
		Large muffler	C172-72	Inox 316L	1
		Regular final end elbow	C172-73	Inox 316L	1
		Small final end elbow	C172-74	Inox 316L	1
		Screw CHC M6x35	0094635	Inox	2
		Nut Simmonds M6	6100PH135	Inox	2
Intake cabin-heat flexible ducting Ø70mm 9	C172-91			Néoprène	1
Tie-wraps Ø70mm (Cerflex)	972BVPE			Inox 316L	2

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Exhaust installation procedure

1- Remove upper and lower engine cowlings.

2- Remove the cabin-heat flexible ducting, the air filter box and the original exhaust system.

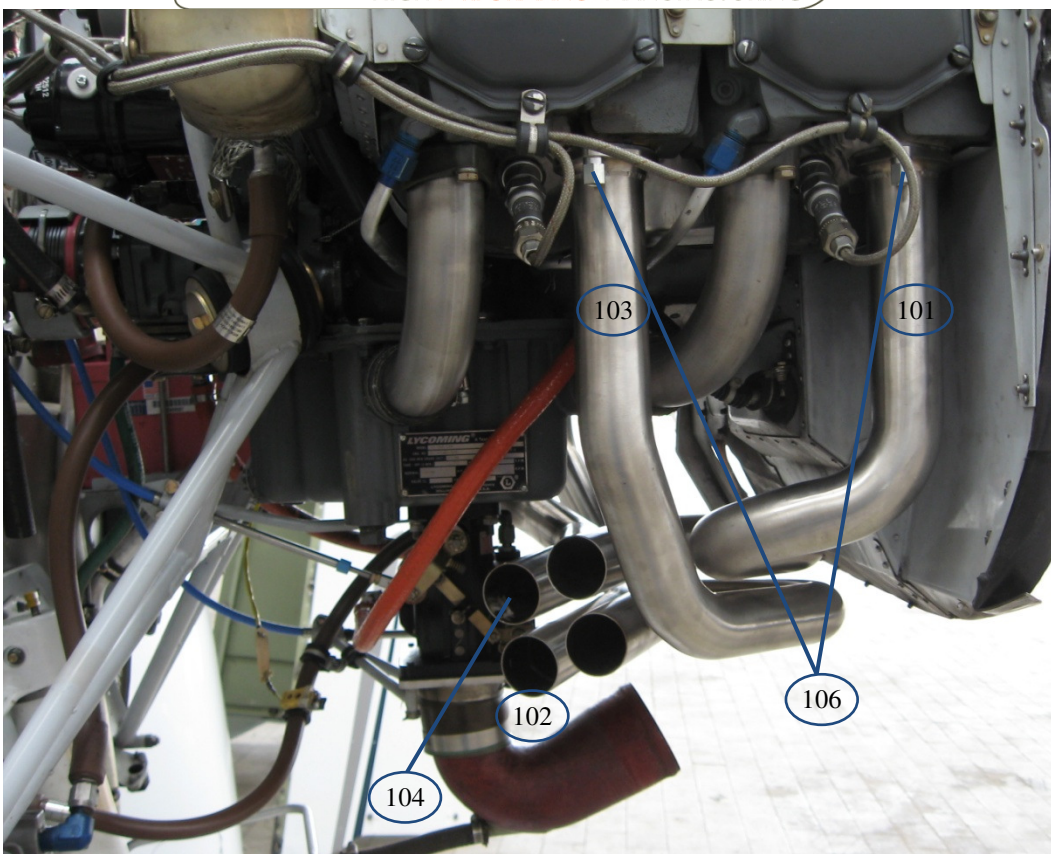
3 - Keep the 4 cylinder gasket seals.

4 - Install primary tube n° 104. Do not forget to install your original exhaust gaskets. Bring together the 2 aviation nuts (106) without tightening them.

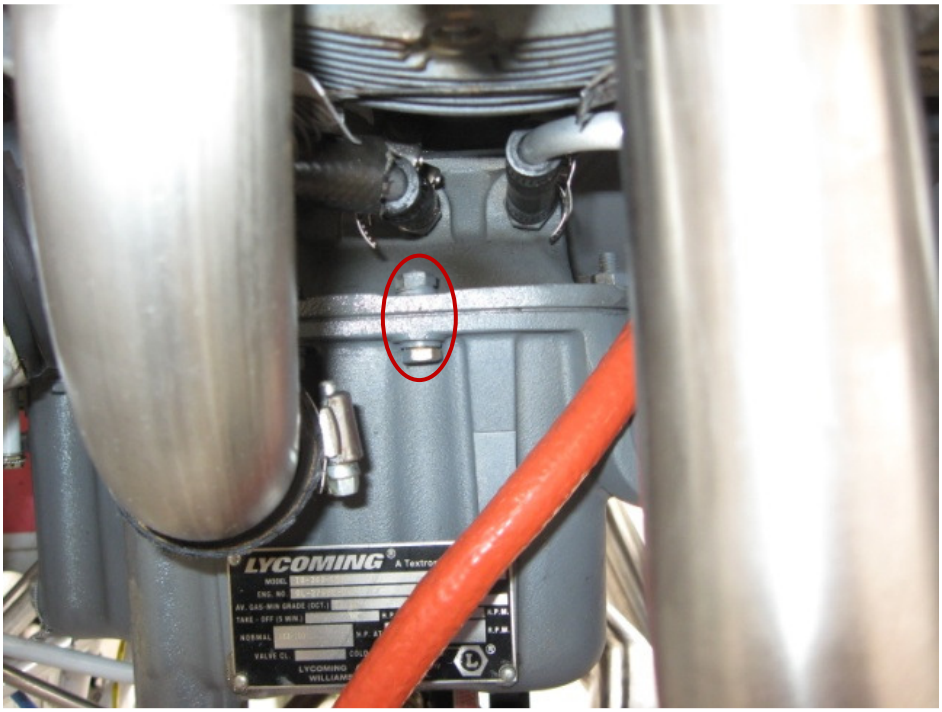
Install primary tube n° 102. Do not forget to install your original exhaust gaskets. Bring together the 2 aviation nuts (106) without tightening them.

Install primary tube n° 101. Do not forget to install your original exhaust gaskets. Bring together the 2 aviation nuts (106) without tightening them.

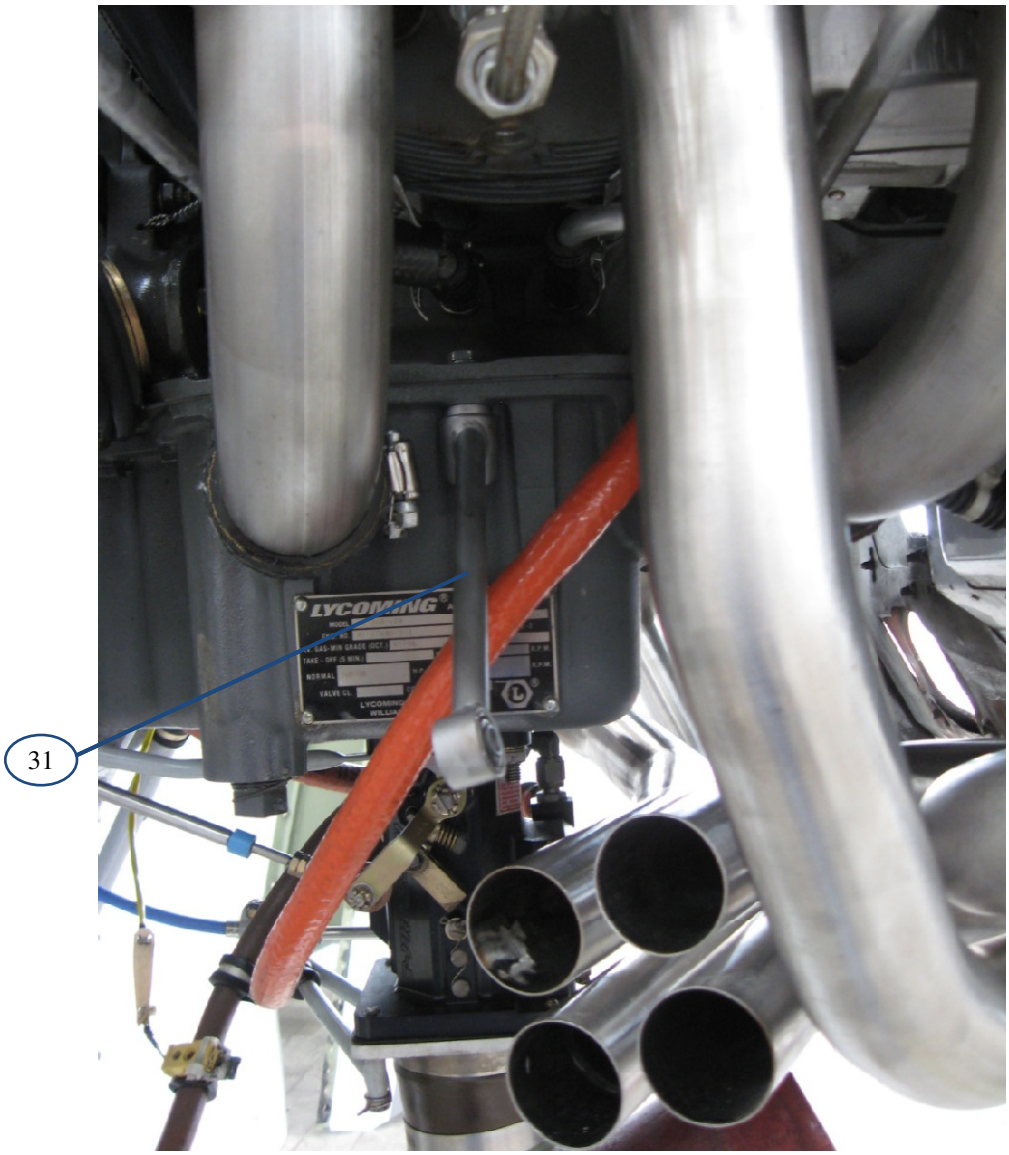
Install primary tube n° 103. Do not forget to install your original exhaust gaskets. Bring together the 2 aviation nuts (106) without tightening them.



5 - Remove this original crankcase screw :

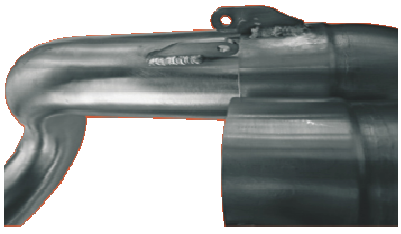


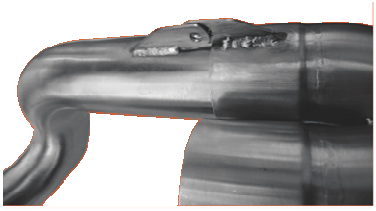
6 - Preposition the 4 in 1 tube support (31) on the engine crankcase with the TH M6 x 30mm screw and a nylstop nut.



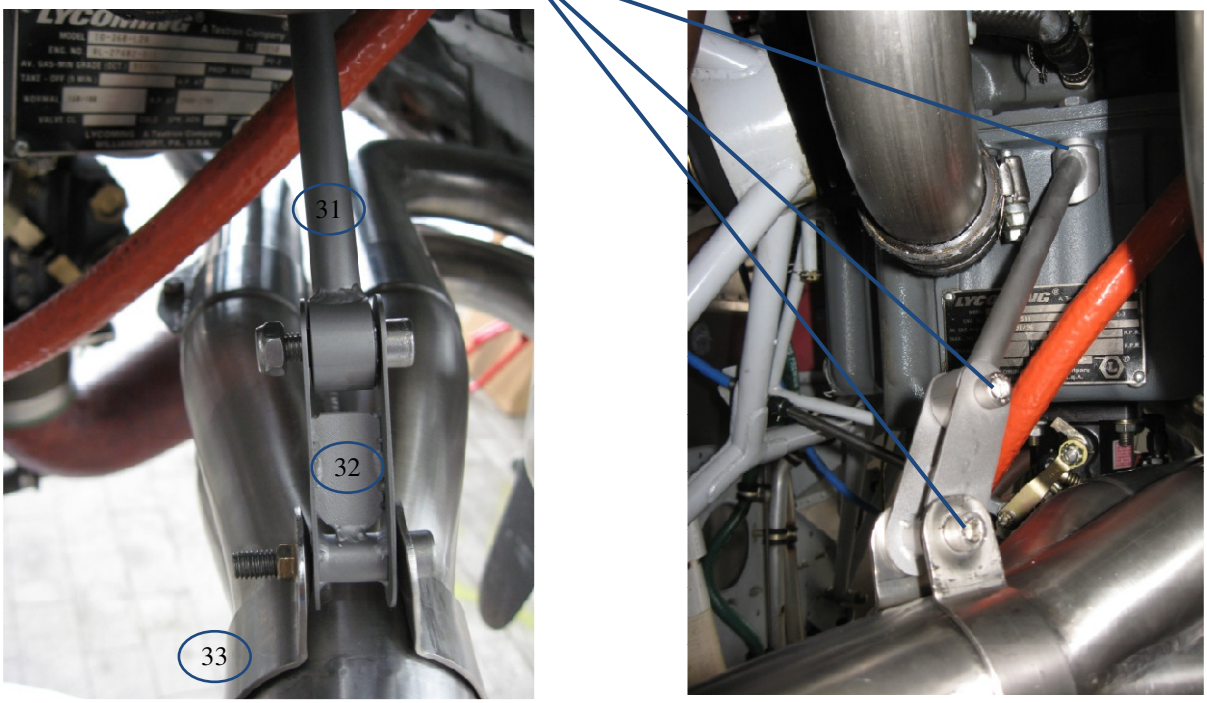
7 - Apply high temperature grease to the inside of 4 in 1 tube.

8 - Insert the 4 in 1 tube (41) on the primary tubes according to the numbers etched on the supports of the primary tubes : the numbers must be face to face.
Install the TH M5 x 10mm screws and the Simmonds M5 locking nuts. Fully tighten the locking nuts.





9 - Line up the 4 in 1 clamp with the spacer and the support. Position and then tighten the 3 screws.



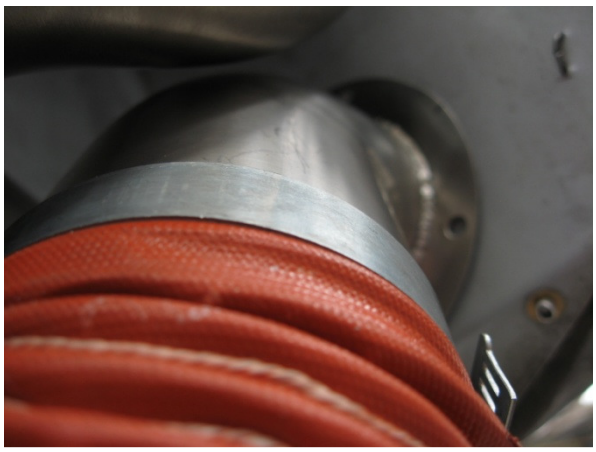
10 - Bring together the 8 aviation nuts (106) without tightening them. And block the 8 aviation nuts (106) on the primary tubes gasket flanges.

11 - Position the cold air intake elbow on the right front side of the engine with the flexible ducting.

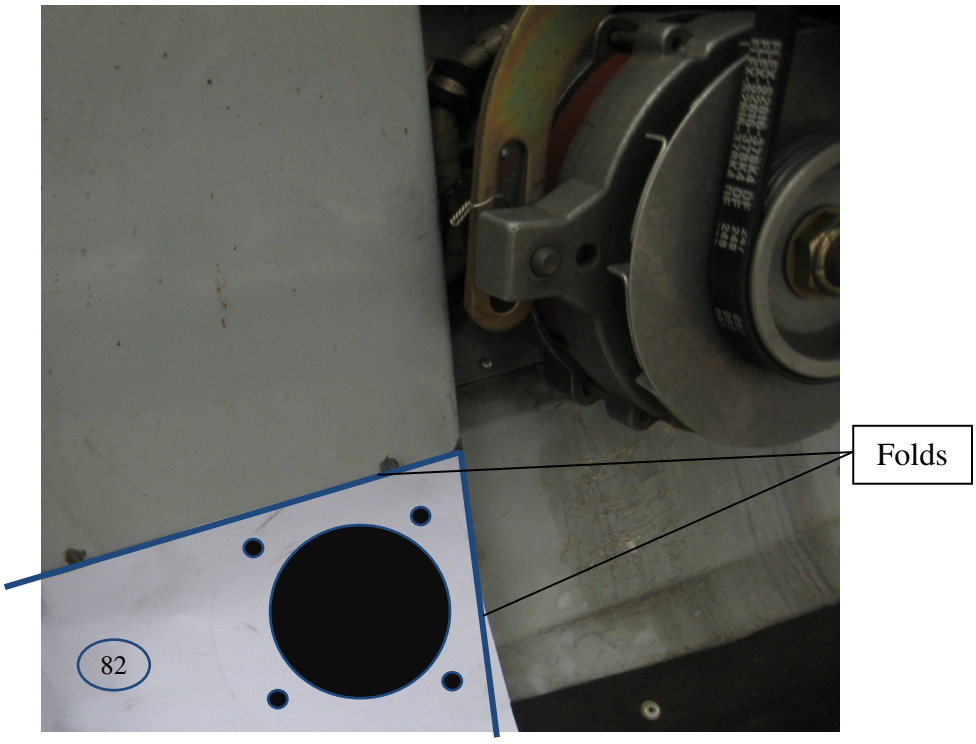
Position one end of the cabin-heat flexible ducting (9) at the end of the cold air elbow (8) and the other end on the intake of the cabin-heat box (2).

Orient the cabin-heat box to ensure that the flexible ducting are correctly positioned and do not in contact with any of the primary tubes.

Tighten all of the M4 screws on the cabin-heat box to secure it in place.
Make sure the flexible ducting and the cold air intake elbow isn't in contact with the exhaust.

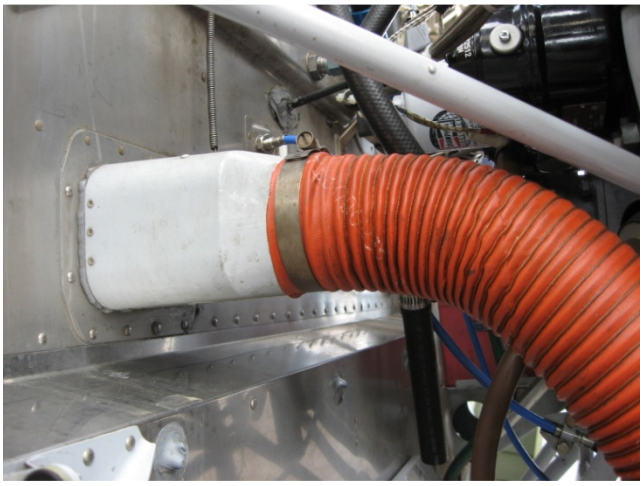


Check with the drill template (82) if the position match, if not modify the template to match with the elbow position on your plane. Use it on the front side of the aluminium sheet.



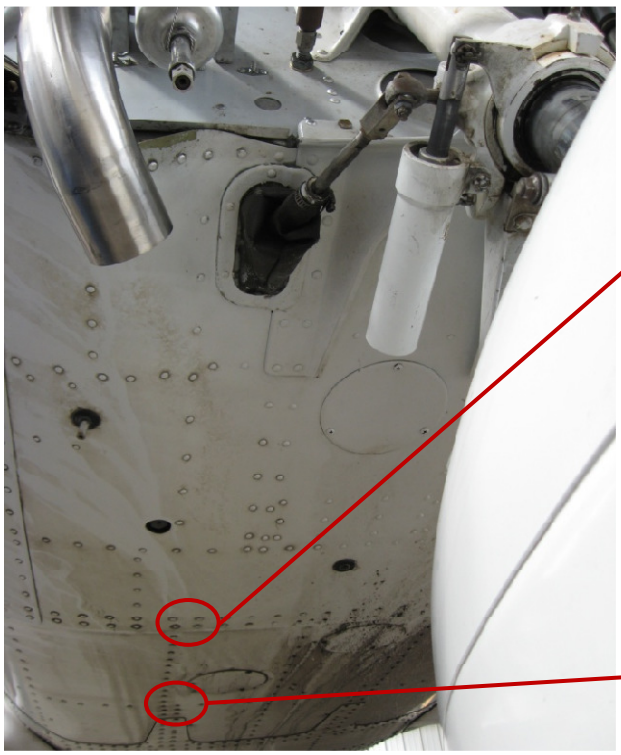
Drill 4 holes diameter 5mm in the aluminium sheet.
Cut a hole diameter 70mm in the aluminium sheet.
Affix the elbow with TH M5 x 10mm, washers and M5 nylstop nuts.
Make sure the flexible ducting and the cold air intake elbow isn't in contact with the exhaust.

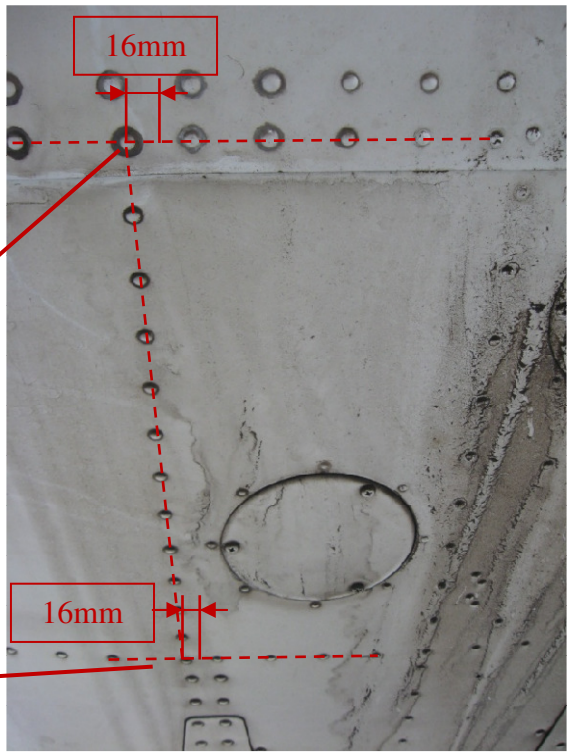
12 – Position one end of the cabin-heat flexible ducting on the mixing box on the firewall, and the other end on the exit of the cabin-heat.



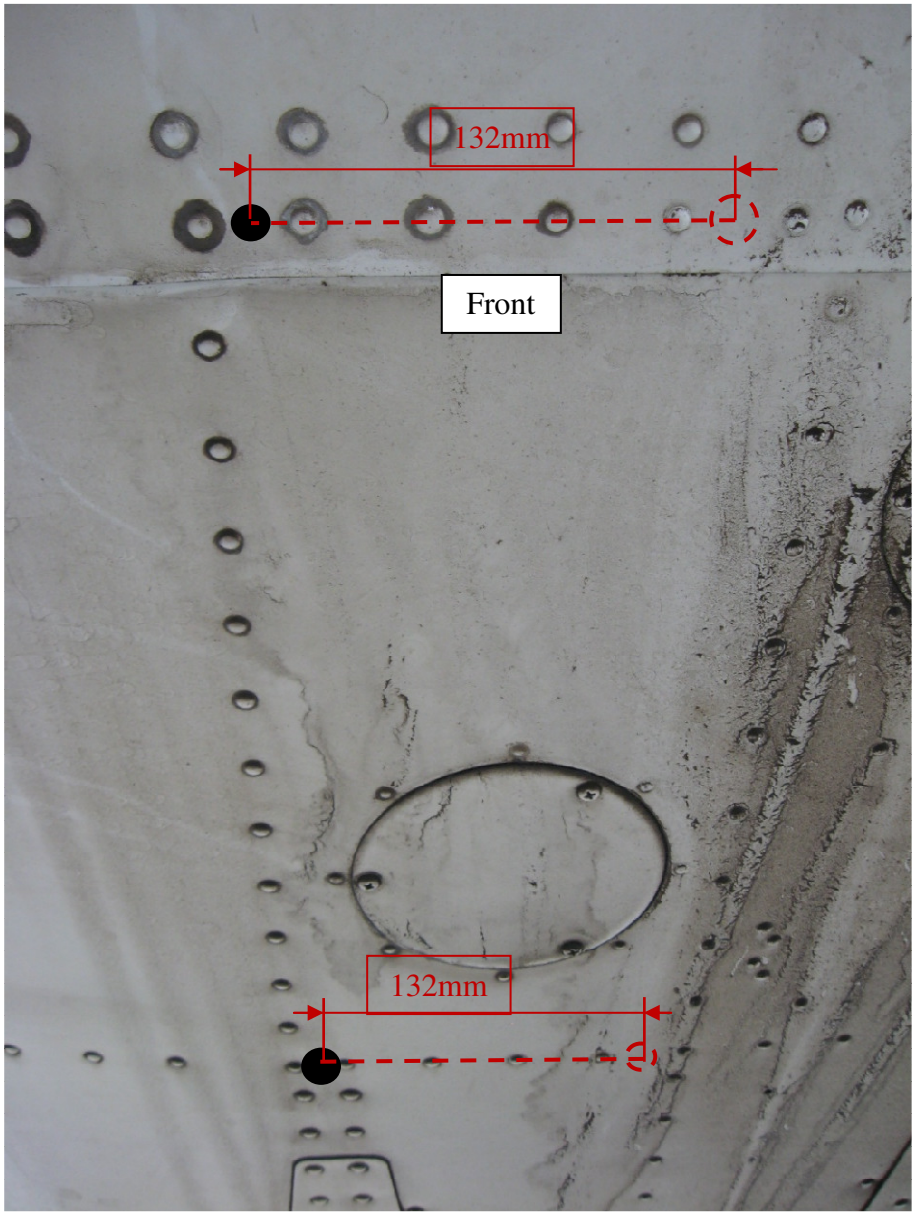
Tighten the tie-wraps.

12 - Drill 2 diameter 6mm holes lined with the rivets as shown on the picture.



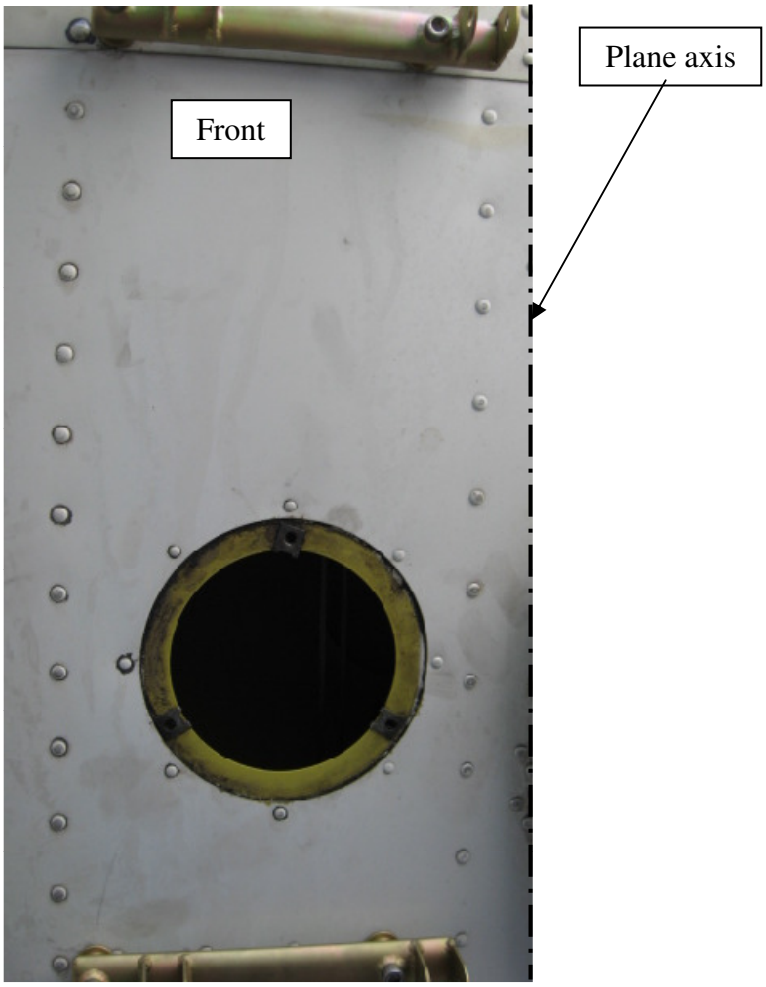


Use the supports as a template to drill the 2 others holes. Make sure the supports are lined with the rivets.



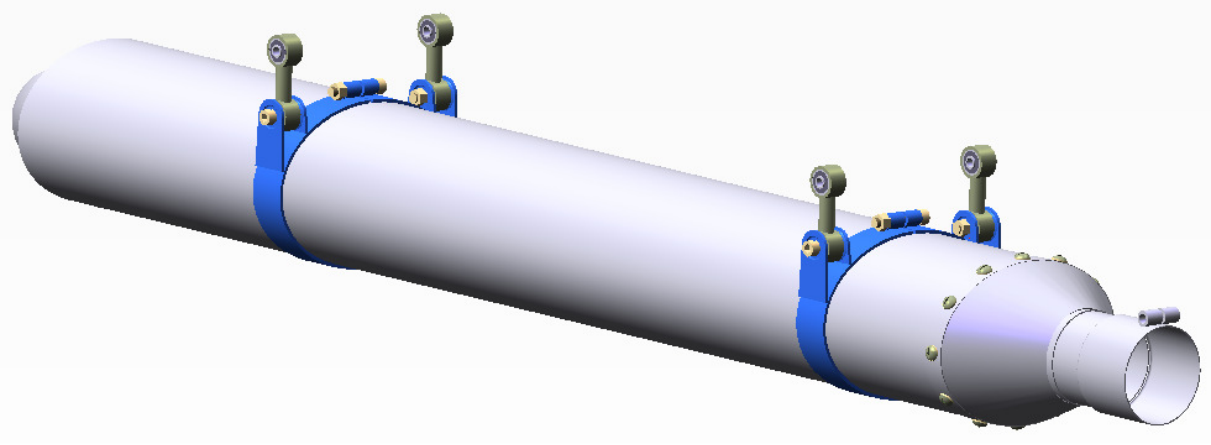
13 - Remove the trapdoor under the cockpit.

14 - Affix the 2 supports with CHC M6 x 30, washer and nylstop nut. Make sure the supports are in the position shown on the picture :

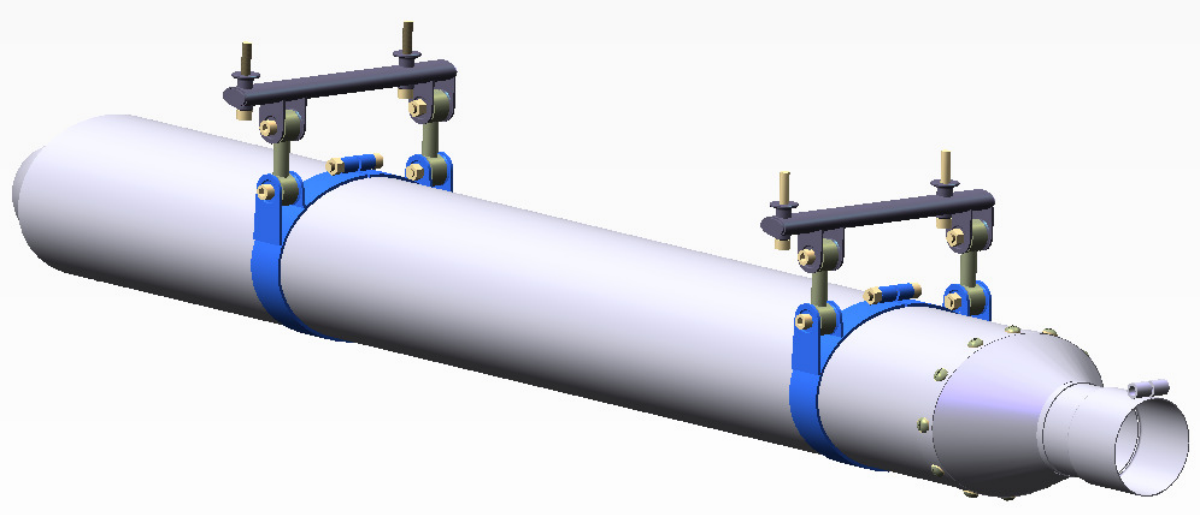


15 - Apply high temperature grease to the inside of double swivel-joint tube and of muffler.

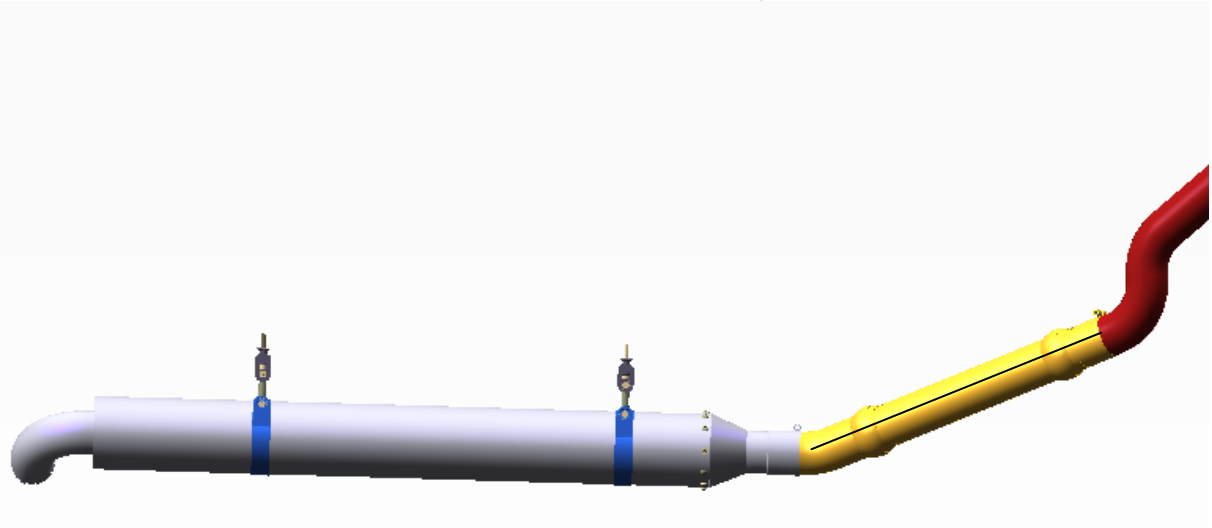
16 - Position the 2 clamps with the small connecting rods on the muffler without tightening them.

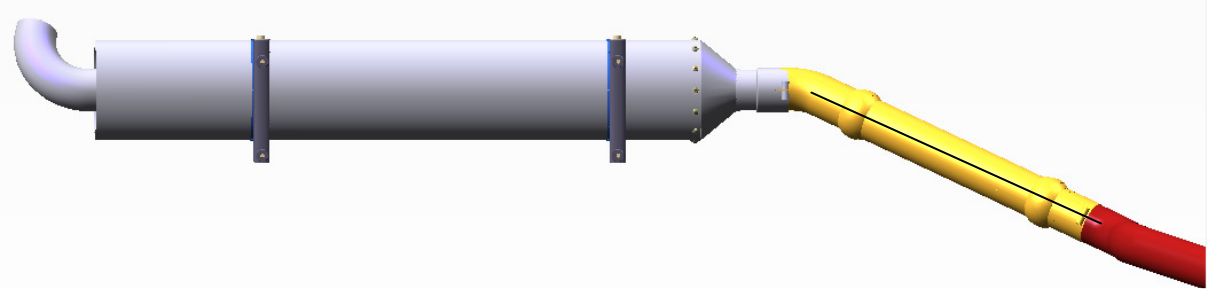


17 - Affix the muffler with the small connecting rods on the supports



18 - Position the double swivel-joint tube on the 4 in 1 tube,
Position the muffler and make sure that the swivel-joints are lined.

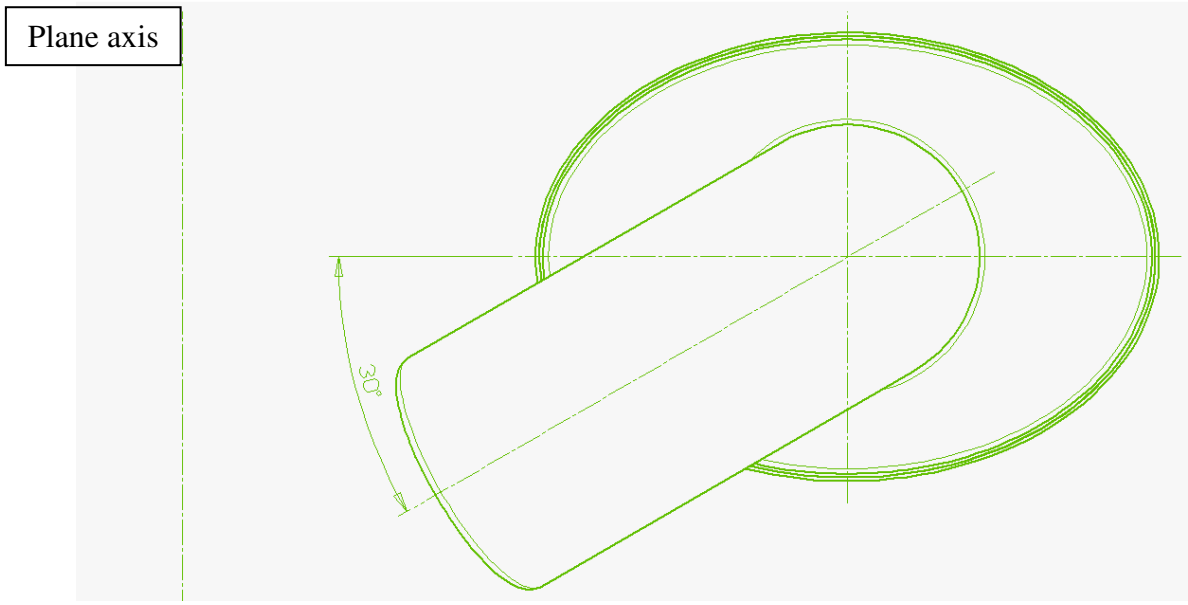




19 - Position the lower cowling and make a cut to ensure that the exhaust isn't in contact with the cowling.

We supply the exhaust with 2 mufflers and 2 final end elbow, so you can try several combinations depending of what you want : weight, noise, performance.

According to our experience, the diagram below shows the best elbow position to decrease noise level (inside and outside the cabin) :



Be careful, you mustn't direct the final end elbow towards the fuselage.

20 - Check that all screws handled during the installation of the exhaust and muffler are in place and properly tightened.

21 - Ensure that no electrical cable or fuel line is in contact with any of the "hot" portion of the exhaust system. Should a cable or line be in contact, or too close, keep them away from the exhaust with clamps and / or isolate them thermally.

22 - Check that no tools or any other materials are left in the engine compartment, cockpit, or anywhere else in the aircraft.

23 - Weigh the aircraft.

24 - You have to make a run up before flying and check if everything's OK.

25 - You have to make a field approval before flying with this exhaust system.

Atelier Chabord shall not be held liable for any or all incidents resulting of an improperly mounted exhaust, and / or any exhaust not mounted in full conformity with the instruction above.