

 <b>CZECH SPORT AIRCRAFT</b>	<h1>SERVICE BULLETIN</h1>	Czech Sport Aircraft a.s. Na Záhonech 212, 686 04 Kunovice Czech Republic office@czechsportaircraft.com	
		No.: SB-CR-067	Rev.: -
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<b>MODEL AFFECTED:</b>	PS-28 Cruiser (SportCruiser / Piper Sport operating under EASA rules)
<b>SUBJECT:</b>	Installation of new engine cowlings, SE0556N (upper) and modified lower SE0562N cowling for efficient cooling at high temperature conditions
<b>AIRCRAFT AFFECTED:</b>	All aircraft equipped with the Kuntzleman landing light and dual thermostat Hektik F1107 installed.
<b>COMPLIANCE:</b>	According to the respective aircraft owner's decision.

**DESCRIPTION:**

This Service Bulletin contains instructions for installation of new engine cowlings, SE0556N (upper) and modified lower SE0562N cowling for efficient cooling at high temperature conditions.

**AUTHORISATION TO PERFORM:**

EASA: Certifying staff according to EU 1321/2014.

**REASON:**

Installation of cowlings with improved engine cooling for efficient cooling.

**MANPOWER:**

Approximately 24 hours.

**SPECIAL TOOLS:**

- Direct drilling machine (chuck up to a diameter of 10 mm)
- Tools for cutting and machining of fiberglass
- Pliers for cleco fastener
- Riveting pliers for tear rivets
- Drill bit, dia. 2.5 mm
- Drill bit, dia. 3.3 mm
- Drill bit, dia. 4.1 mm
- Drill bit, dia. 6 mm
- Drill bit, dia. 9 mm
- Cleco fasteners, diameter of 2.4 mm (16 pcs)
- Tooling for mounting of CAMLOC lockers
- Circular tool or gradual drill bit, dia. 12 mm
- Circular tool or gradual drill bit, dia. 14 mm
- Marking tool for marking of holes for CAMLOC stud assembly (can be ordered from the airplane OEM or self-made of a suitable material)

**PROTECTIVE AIDS:**

- Surgical mask
- Rubber gloves
- Safety Glasses (Goggles)

**WEIGHT AND BALANCE:**

Insignificant effect.

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**PUBLICATIONS AFFECTED:**

Supplement No. 6, doc. CR-MM-1-0-00-S-06 to CR-MM-1-0-00

**MATERIAL USED:**

See table "Material used, Legend to the figures - Positions of parts in the figures" below.

**COSTS:**

To be covered by the aircraft owner.

**ACCOMPLISHMENT INSTRUCTIONS:**

Initial information:

- a) This SB is applicable only for those aircraft with the dual thermostat Hektik F1107 installed.
- b) The "cowling" in the text means "engine cowling".
- c) If masking tape is used in this bulletin, it is recommended to decrease the pertinent surfaces by spirit before application of the tape.
- d) It is necessary to use protective gloves and mask during processing the fiberglass and when working with the adhesives (see the section "Protective aids").

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Table - Material used, Legend to the figures - Positions of parts in the figures:

Position	Part name	Specification	Nomen- clature	Pcs.	Figure no.
1.	Engine lower cowling	SE0562N	-	1	1
2.	Engine upper cowling	SE0556N	-	1	1, 2
3.	Oil access cover	SE0045N	-	1	1, 3, 18
4.	Piano hinge	SE0138N	-	1	3, 18
5.	Air filter bracket	SE0037N	-	1	6, 19
6.	AIR filter socket	SE0156N	-	1	6, 19
7.	CAMLOC grommet	D4002-G-AVG	3111V043	19	4
8.	CAMLOC locker stud	D40S5-4AGV	3111V041	11	4
9.	CAMLOC locker stud	D40S5-5AGV	3111V042	8	4
10.	CAMLOC retaining ring	R4G-3	3111V044	19	4
11.	Receptacle	D214-16FGV	3111V045	8	5
12.	Lever lock	ONL 3616	3271A003	1	3, 18
13.	Air filter	825711	3800D002	1	6
14.	Nut	MS 21047-08	3121G472	1	6, 19
15.	Bolt	MS35206-245	3111O645	1	6, 19
16.	Rubber profile (0,45m)	Trelleborg D profile 12x10 EPDM	512K3502	-	6, 19
17.	Blind rivet	3,2 x 9,5 Al/St – 16040412	3171T018	22	2, 3
18.	Blind rivet	4,0 x 11,2 Al/St – 16040514	3171T019	1	6
19.	Blind rivet	2,4 x 6 Al/St – 10312406	3171T034	2	6
20.	Rivet	MS20426AD3-3,5	3172B353	4	3, 17
21.	Masking tape white, width 25 mm	-	-	-	-
22.	Masking tape white, width 50 mm	-	-	-	-
23.	Industrial spirit, 0,25 l	-	-	-	-

Work procedure:

1. Move the aircraft to a suitable place to perform the work.
2. Remove the upper cowling (see the CR-MM-1-0-00, the latest revision).
3. Disconnect the battery terminals (see the CR-MM-1-0-00, the latest revision).
4. Disconnect all hoses from the lower cowling and remove the lower cowling from the airplane (see CR-MM-1-0-00, the latest revision).
5. Lower cowling: dismount air filter, air filter socket and drill out carefully the air filter bracket. Remove the air filter bracket from the cowling and save it together with the air filter and the air filter socket. See Figure 6. Discard the original lower cowling. If in good condition, the original parts - air filter, air filter socket and air filter bracket will be used again.
6. Remove the holder of receptacle from the airplane bottom part. Install the washers and the nuts back on the fuselage (see Figure 7).

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7. Stick the masking tape on the upper front fuselage part (see Figure 8) which enables determination of the upper cowling margins line after matching the cowling on the fuselage. Mark a helping line in accordance with Figure 8.

Note: The digit “20” on the masking tape means that the marked helping line is 20 mm backwards from the fuselage skin edge.

8. The upper and lower front fuselage skin: stick the masking tape which enables to make holes for CAMLOC stud assemblies in such a way that these holes be concentric with the holes for receptacles being riveted on the firewall rim. On the masking tapes: mark lines going through the hole midpoints of the receptacles and, in a selected distance (40 – 50 mm) mark helping points on the lines defining the distance from the hole position of the pertinent receptacle, see Figure 9.

Note: The digit “50” on the masking tape means that the receptacle hole midpoints are located 50 mm from the helping points marked on the above mentioned lines.

9. Use the new lower cowling (SE0562N) and match it on the fuselage, engine, propeller flange and propeller spinner. The setting must be performed in such a way that the cowling contour, the fuselage contour and the propeller spinner contour concur each other, and
- the play between the cowling and the propeller spinner shall be 8 – 12 mm and
  - the play between the cowling and the propeller flange shall be about 30 mm
  - the play between the cowling margin and the fuselage skin edge shall be minimal

After the setting fix the lower cowling with help of masking tape, see Figure 10 and Figure 14.

Attention: During matching and inspection of mutual position of the lower cowling and the fuselage, the cowling must be fixed with masking tape only. Avoid a potential tension to the cowling, which could (due to a small cowling rigidity) negatively affect the mutual position of both parts.

10. Follow the helping points (see section 8) and, on the lower cowling, mark hole midpoints for CAMLOC stud assemblies which will fix the cowling to the fuselage. In the marks of the hole midpoints drill holes dia. 12 mm, see Figure 2, Figure 9, Figure 11, Figure 12.

Attention:

In order to work the receptacles correctly, the holes of receptacles riveted on the fuselage must be concentric with the corresponding holes dia.12 mm of the CAMLOC stud assemblies of the cowling. Therefore it is recommended to make the holes dia.12 mm step by step (with use of marking tool - see Figure 12) as follows:

- First make holes dia.9 mm in the marked hole midpoints on the lower cowling (*the holes will be filled out to dia.12 mm - see the steps below - after the marking tool is set in the receptacle*)
- After setting and fixing the lower cowling on the aircraft (section 9), insert the marking tool in the hole centre and slide it through this hole until the marking tool with its entire cylindrical forehead reaches the fuselage receptacle surface
- Slip the bushing dia.12 mm over the marking tool and mark circle dia.12 mm on the upper cowling surface
- Use a circular file and increase the predrilled hole dia.9 mm to hole dia.12 mm.

When executing the instructions of this section, do not install the retaining rings on the CAMLOC grommets.

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Go on step by step and fix the cowling with help of all already functioning CAMLOC lockers before marking the next circle dia.12 mm.

11. Lower cowling: stick the masking tape along the left and the right upper margins to enable determination of the lower cowling edge and the upper cowling margin line. Mark a helping line for determination of the upper cowling margins in a selected distance from the lower cowling edge, see Figure 13.

Note: The digit "20" on the masking tape means that the helping line marked on the masking tape is located 20 mm from the lower cowling edge.

12. Set the lower cowling on the fuselage and attach it on the fuselage with help of CAMLOC lockers; do not install retaining rings on the CAMLOC grommets, see Figure 2.
13. Use the new upper cowling (SE0556N) and match it together with the fuselage, lower cowling, propeller flange and the propeller spinner. The setting must be performed in such a way that the cowling contour, fuselage contour and the propeller spinner contour concur each other as follows:
- the play between the cowling and the propeller spinner shall be 8 – 12 mm and
  - the play between the propeller flange and the cowling shall be about 30 mm
  - the play between the cowling margins and the fuselage skin edge shall be minimal
  - the play between the upper cowling margins and the lower cowling edge shall be minimal, see Figure 14.
14. Upper cowling: - mark 8 hole midpoints for CAMLOC stud assemblies fixing the upper cowling to the lower one, see Figure 3 and Figure 15. Pre-drill 8 x dia.2,5 mm holes in the marked points. Deburr the holes.

Attention: This section does not pertain to the holes of CAMLOC stud assemblies fixing the upper cowling to the fuselage. (see section 16).

15. Set the upper cowling on the lower one, fix its position with help of masking tape and, based on the pre-drilled holes dia.2,5 mm in the upper cowling (section 14), drill 8 x dia.2,5 mm holes in the lower cowling. Fix the upper cowling to the lower one with help of Cleco fasteners, see Figure 1, Figure 16.
16. Upper cowling: - use the helping points (section 8) and mark hole midpoints for CAMLOC stud assemblies fixing the cowling to the fuselage and drill holes dia.12 mm according to instructions in section 10. See also Figure 3, Figure 9, Figure 11, Figure 12.

Note: Read attention in section 10.

17. Lower cowling: - redrill the holes dia.2,5 mm (section 15) to holes dia.14 mm. Set receptacles in these holes and drill the holes for receptacle rivets. Deburr and countersink the holes. Rivet the receptacles on the lower cowling, see Figure 2.
18. Set the upper cowling on the lower one and on the fuselage and fix it to the lower cowling and the fuselage, see Figure 1.

Note:

- Attach the upper cowling on the fuselage with help of CAMLOC lockers, do not install retaining rings on the CAMLOC grommets, see Figure 3.
- Use the masking tape to fix the upper cowling to the lower one.

19. Redrill the holes dia.2,5 mm made in the upper cowling (section 14) to holes dia.12 mm, see Figure 3 and Figure 12.

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**Attention:**

In order to work the CAMLOC lockers correctly, the holes of receptacles riveted on the lower cowling must be concentric with the corresponding holes dia.12 mm of CAMLOC stud assemblies installed in the upper cowling. Therefore it is recommended to make the holes dia.12 mm step by step (with use of marking tool – see Figure 12) as follows:

- First make holes dia.9 mm in the marked hole midpoints on the upper cowling (*the holes will be filled out to dia.12 mm - see the steps below - after the marking tool is set in the receptacle*)
- After setting and fixing the upper cowling on the lower one (section 18), insert the marking tool in the hole centre and slide it through this hole until the entire cylindrical forehead of the tool reaches the receptacle surface in the lower cowling
- Slip the bushing dia.12 mm over the marking tool and mark circle dia.12 mm on the upper cowling surface
- Use a circular file and increase the predrilled hole dia.9 mm to hole dia.12 mm.

When executing the instructions of this section, do not install the retaining rings on the CAMLOC grommets.

Go on step by step and fix the cowling with help of all already functioning CAMLOC lockers before marking the next circle dia.12 mm.

20. Use CAMLOC lockers and install the upper and lower cowling on the airplane. Modify the cowlings margins in order to get a uniform gap of about 2 mm (see Figure 1, Figure 17):
  - between the upper cowling margins and the lower cowling edge, and
  - between the upper and the lower cowling margins and the fuselage skin edge.
21. Remove the cowlings from the airplane and deburr the cowling margins.
22. Make a hole dia.45 mm in the lower cowling (hole for landing light), see Figure 1.

**Note:** Extension of the hole dia.67 mm will be made in later section.

23. Oil access cover assembly: On the piano hinge – mark hole midpoints and drill 6 x dia.3,3 mm holes for rivets, deburr the holes. Match the hinge and the lever lock with the oil access cover and, according to the holes in the piano hinge, drill 3 x dia.3,3 mm holes in the cover. Deburr the holes, use cleco fasteners and fix the piano hinge and the lever lock on the cover. Set this assembly on the upper cowling and, according to the holes in the piano hinge, drill 3 x dia.3,3 mm holes in the upper cowling. Countersink and deburr the holes, see Figure 3, Figure 18.

**Note:**

Setting of the cover on the upper cowling must be performed in such a way that the cover and the cowling surface contours are identical.

24. Countersink the rivet holes in the cover. Rivet the piano hinge and the lever lock to the cover. Set and rivet this assembly to the upper cowling. See Figure 3, Figure 18.
25. Set the air filter bracket to the NACA inlet of the lower cowling. On the bracket – mark hole midpoints for the rivet and the bolt, drill 2 x dia.4,1 mm holes and deburr. See Figure 6, Figure 19.

**Attention:**

This section apply only if a new air filter bracket is used. If the original (dismounted from the original cowling) air filter bracket is used, skip this section.

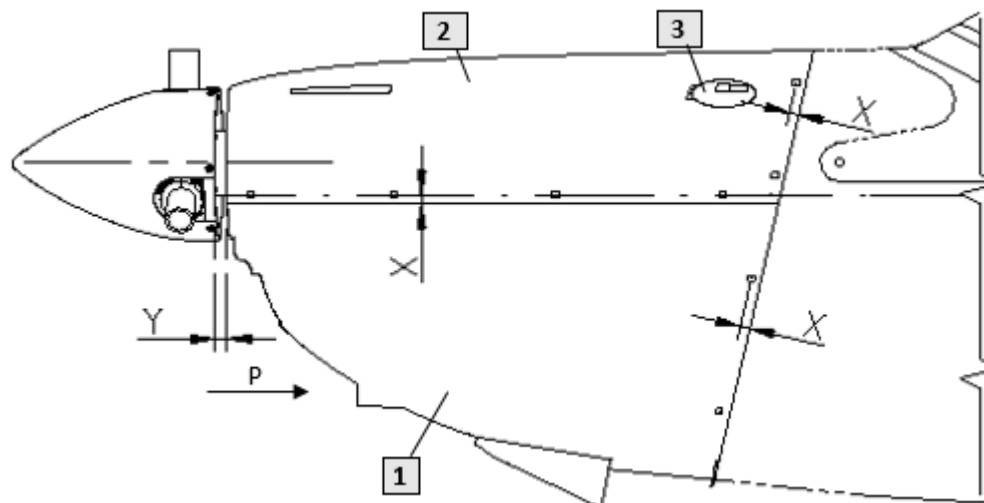
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26. Set the air filter bracket on the NACA inlet of the lower cowling and, according to the hole in the bracket, in the NACA inlet body - drill hole dia.4,1 mm for the rivet nut. Deburr the hole. Match the nut with the NACA inlet body and drill 2 x dia.2,5 mm holes for rivet nut in it. Countersink and deburr the holes and rivet the nut to the NACA inlet body. Set the air filter bracket on the NACA inlet and fix the bracket position with help of bolt and nut. Based on the dia.4,1 mm hole made in the bracket, drill hole dia.4,1 mm in the NACA inlet body. Rivet the bracket to the NACA inlet body. See Figure 6 and Figure 19.
27. Cut 3 pieces of self-adhesive rubber profiles, match the profiles and stick down to the lower cowling NACA inlet. Insert air filter and fix the air filter bracket with the bolt, see Figure 6, Figure 19.
28. Set and install the lower cowling on the fuselage (do not install the retaining rings on the CAMLOC grommets). On the landing light cover – mark out a hole for the light in such a way that the hole axis is optically concentric with the light optical axis. Follow the mark and extend the original hole diameter (section 22) to the hole dia.67 mm. See Figure 1.
29. Remove all masking tapes from the cowlings and fuselage, use spirit to wash all markings.
30. Install the upper cowling on the lower cowling and the fuselage (do not install the retaining rings on the CAMLOC grommets) and perform inspection of correct matching of the cowlings and the fuselage. Remove the cowlings from the fuselage. Remove also all CAMLOC stud assemblies with grommets from the cowlings, see Figure 2, Figure 3.
31. Perform painting of the upper and lower cowling.
32. Install the CAMLOC stud assemblies including retaining rings on both cowlings, see Figure 2, Figure 3.
33. Install the lower cowling on the airplane and connect all hoses. (see CR-MM-1-0-00, the latest revision).  
Attention:  
When connecting the hoses, do not forget to insert air filter socket in the filter, see Figure 6.
34. Connect the battery terminals (see the CR-MM-1-0-00, the latest revision).
35. Install the upper cowling on the airplane. (see CR-MM-1-0-00, the latest revision).
36. Complete the aircraft records (log book) to reflect compliance with this Service Bulletin.
37. Thereby, the performance of this Service Bulletin is completed.

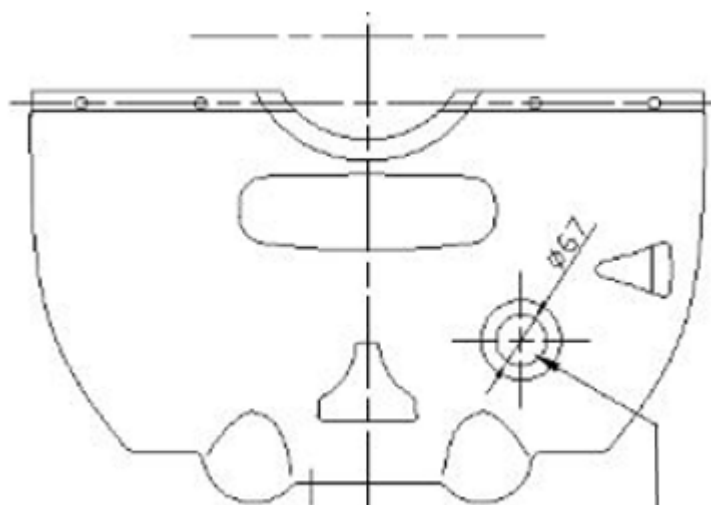


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## Figures



VIEW P



The hole be concentric with the light optical axis

Figure 1: Engine cowlings assembly





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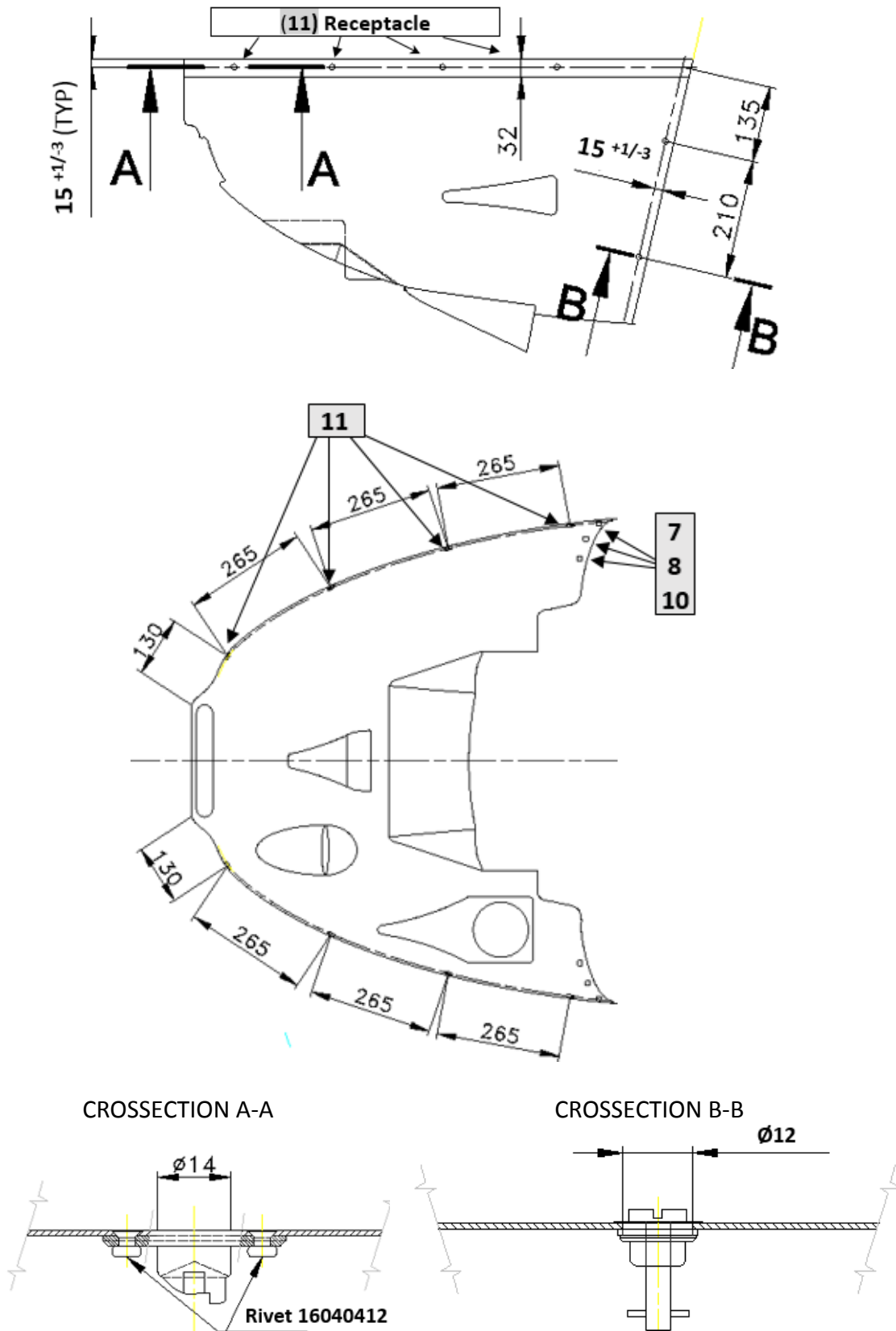


Figure 2: Engine lower cowling SE0562N



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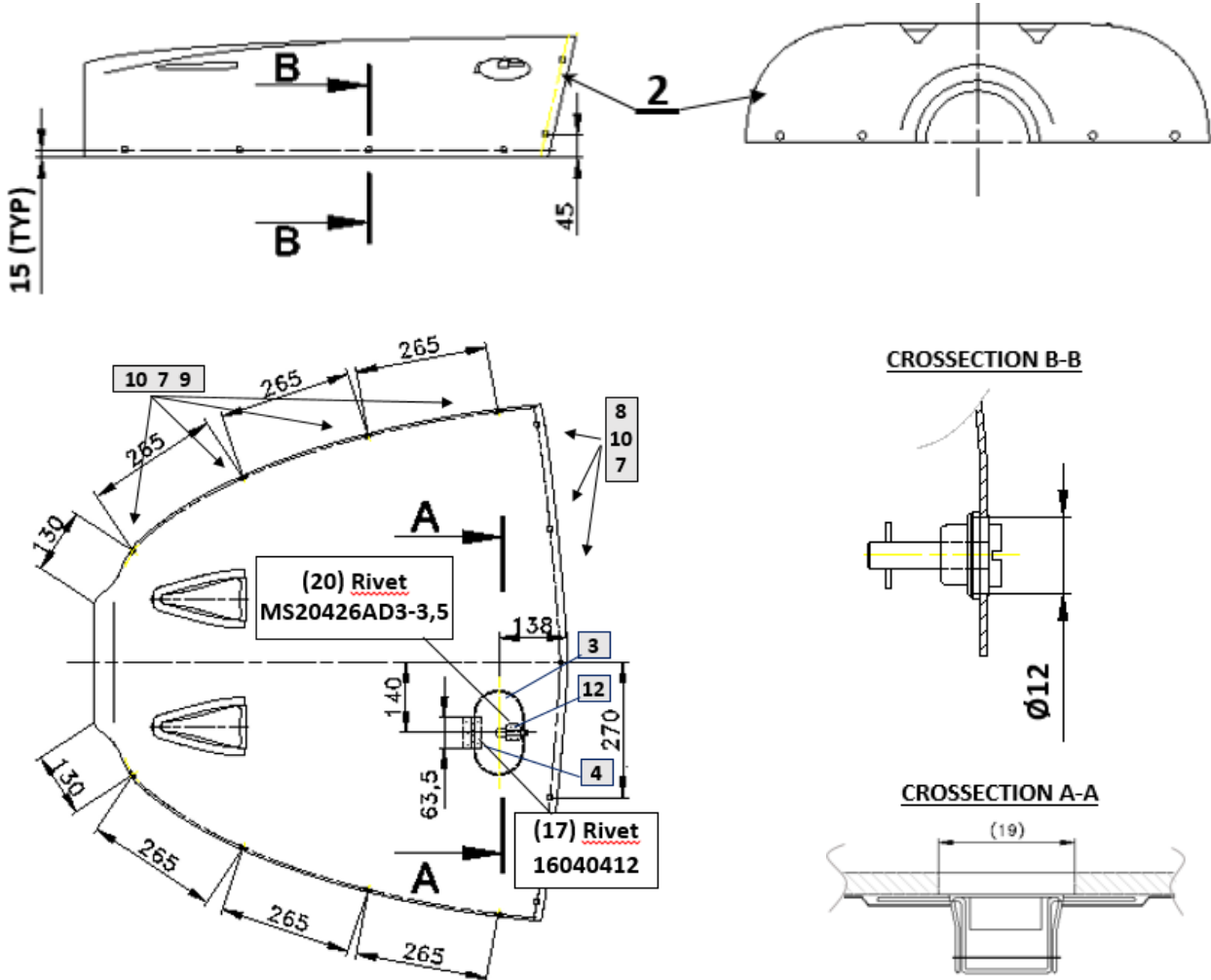


Figure 3: Engine upper cowling SE0556N

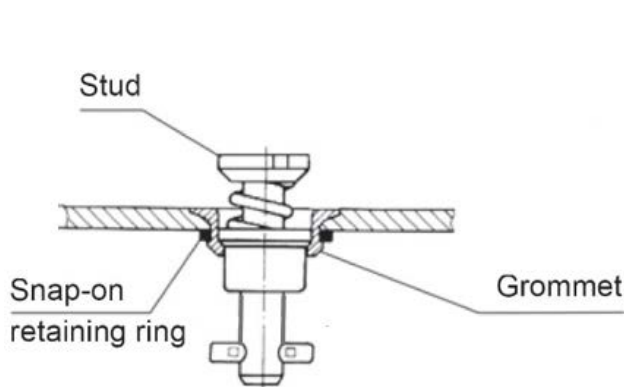


Figure 4: CAMLOC stud assembly

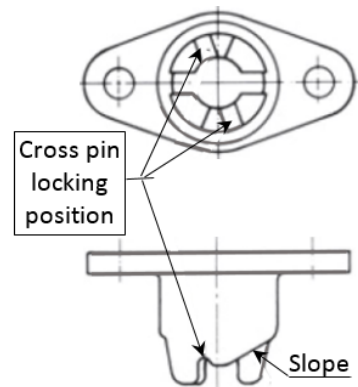


Figure 5: Receptacle



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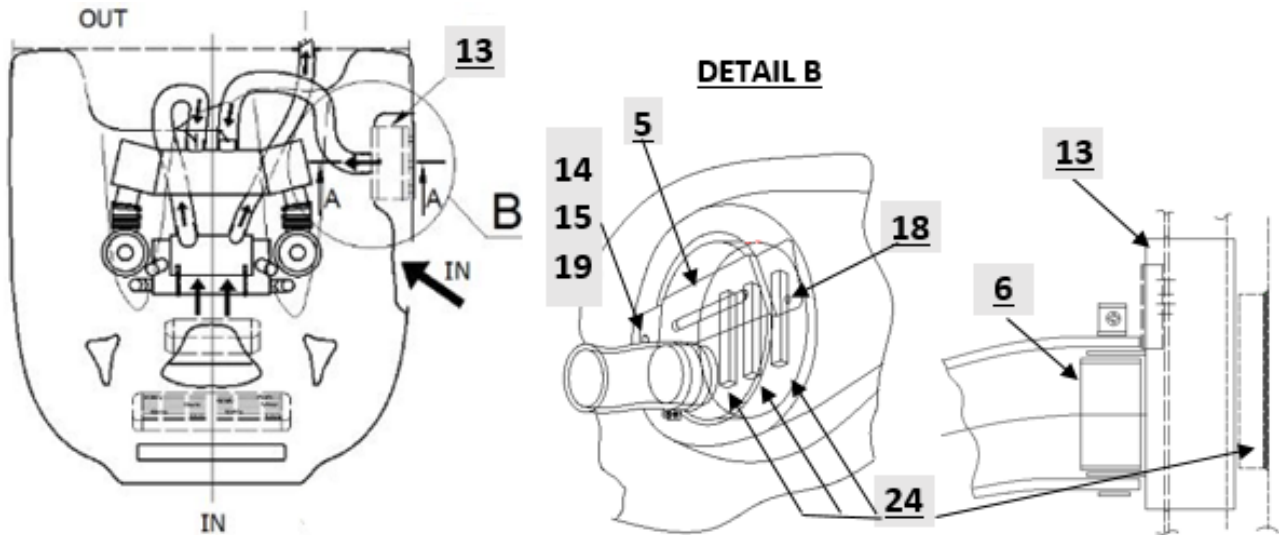


Figure 6: Air inlet

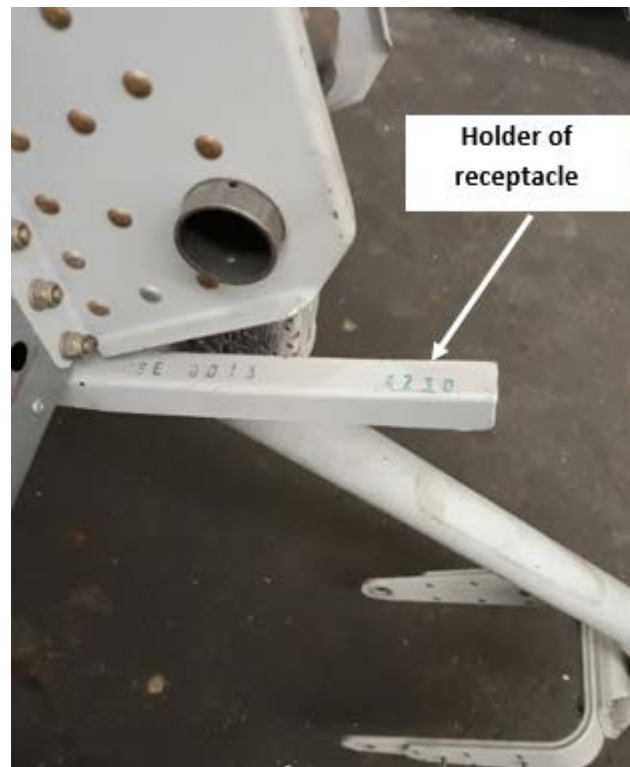


Figure 7: Holder of receptacle

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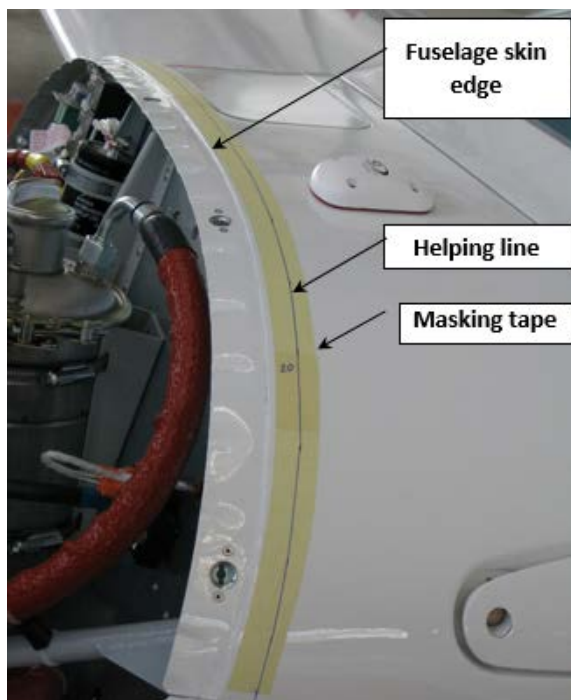


Figure 8: Helping line on the fuselage

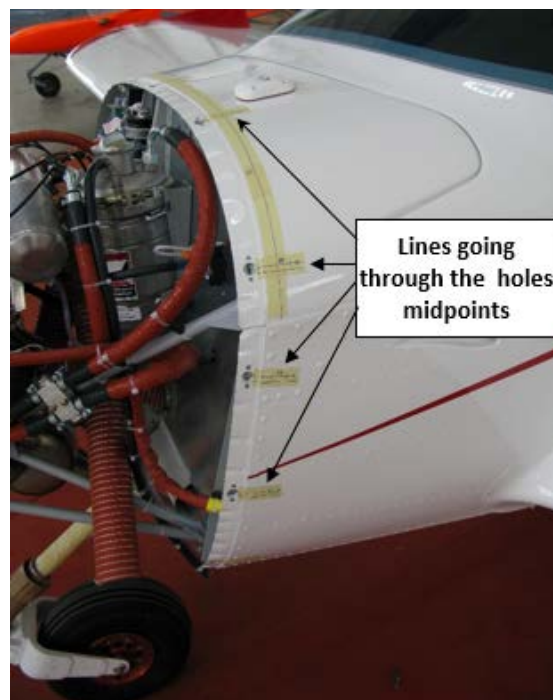


Figure 9: Lines going through the holes midpoints



Figure 10: Fixing the lower cowling to the fuselage by masking tape

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*Figure 11: Helping line for hole midpoints – detail*



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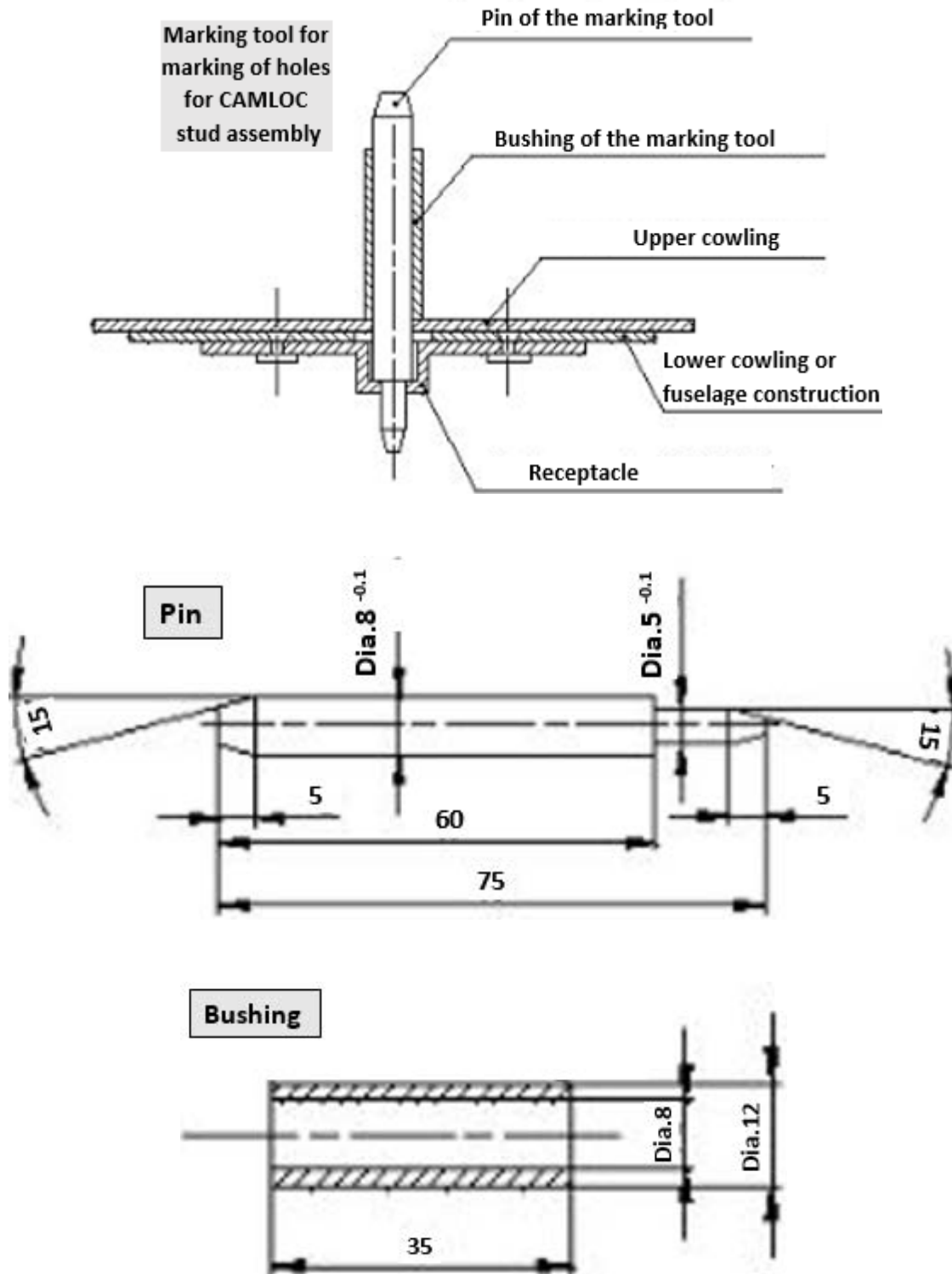


Figure 12: Marking tool for marking of holes for CAMLOC stud assembly



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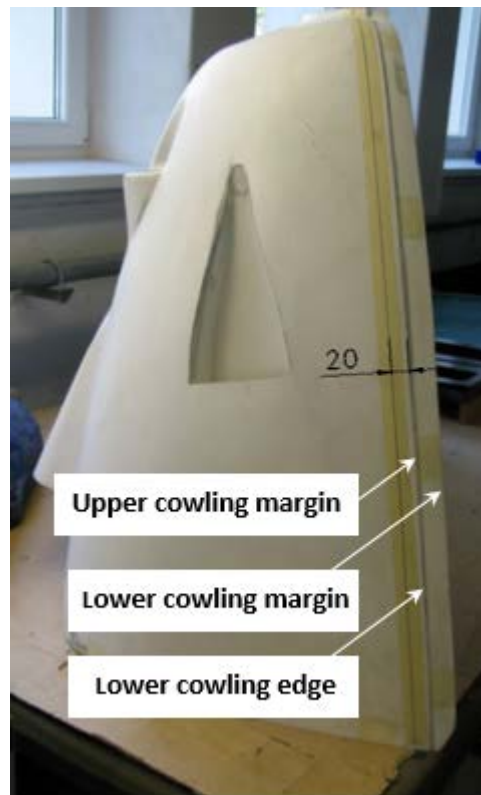


Figure 13: Helping line for determination of the upper cowling margins

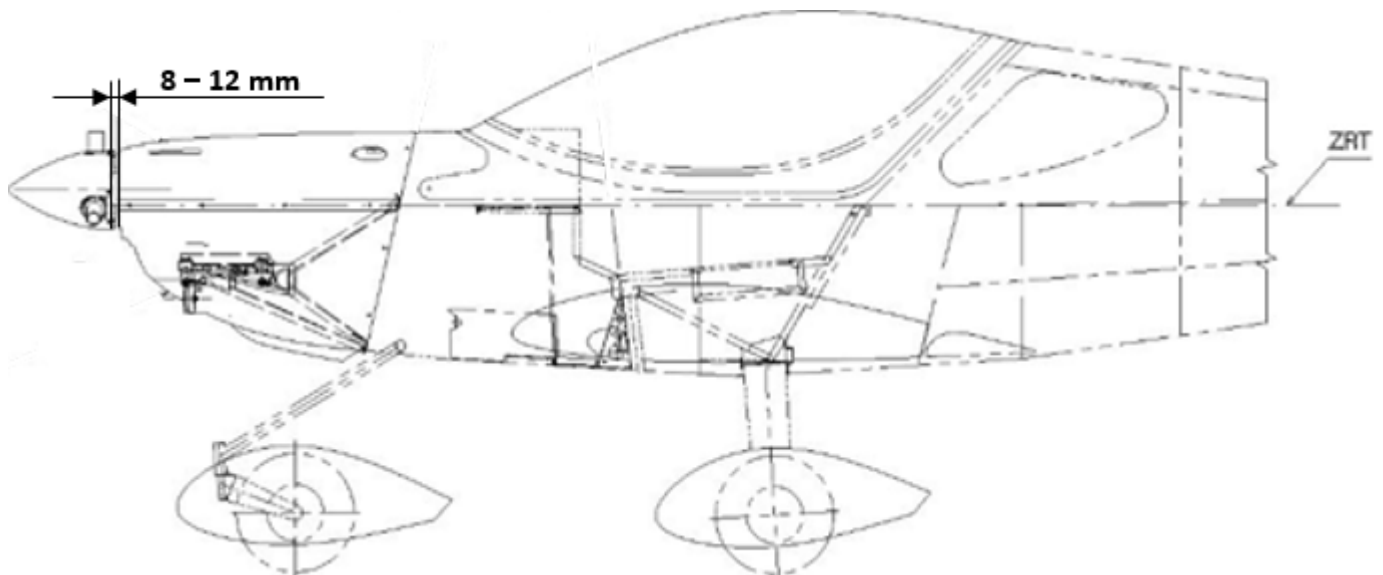


Figure 14: Matching the cowlings with the fuselage, propeller flange and the propeller spinner



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*Figure 15: Hole midpoint marks for CAMLOC stud assemblies on the upper cowling*



*Figure 16: Fixing the lower and upper cowlings with cleco fasteners*



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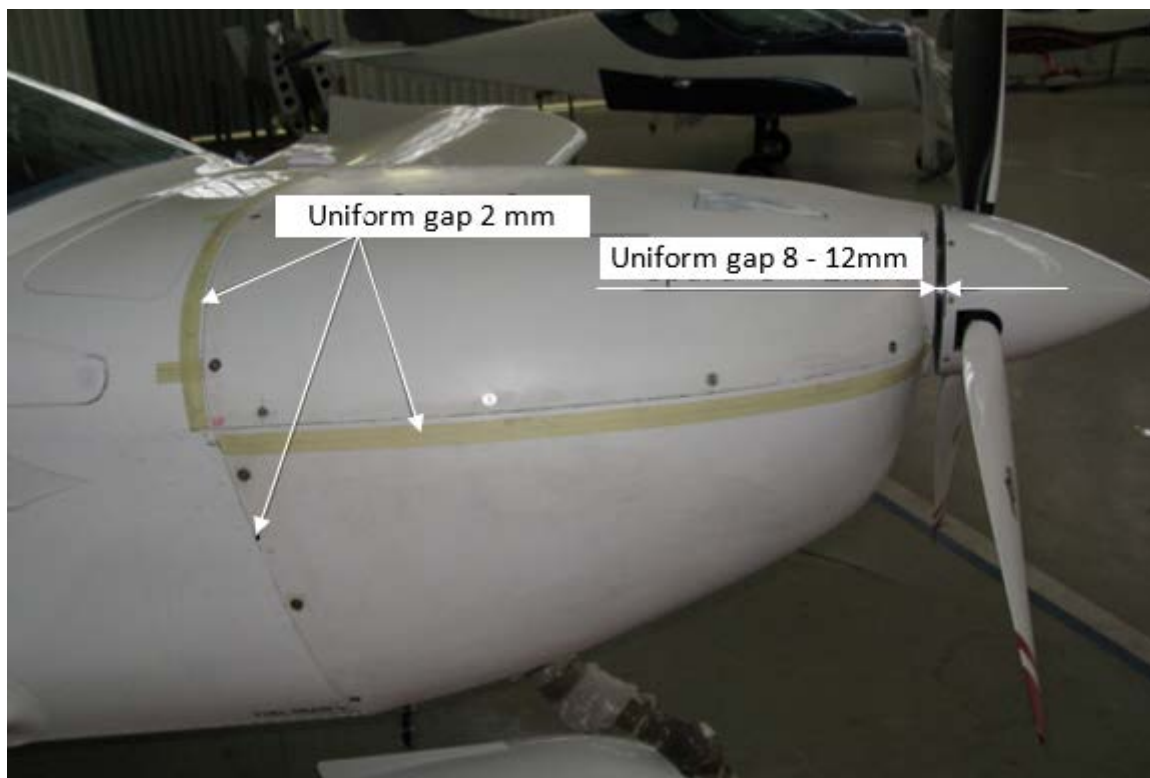


Figure 17: Uniform gaps along margins of the cowlings

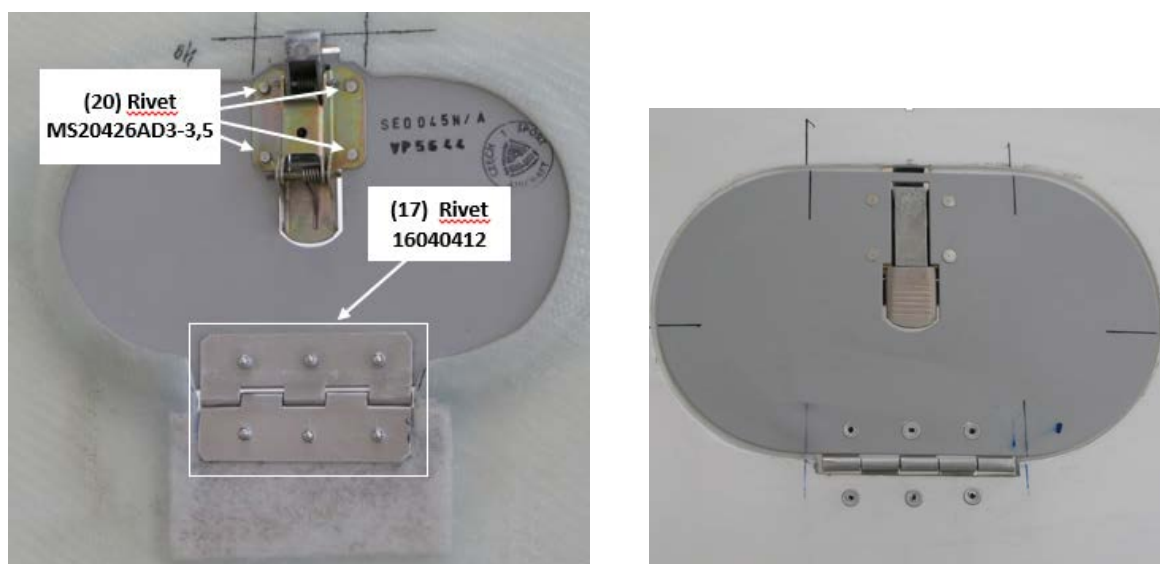


Figure 18: Mounting of Oil access cover assembly



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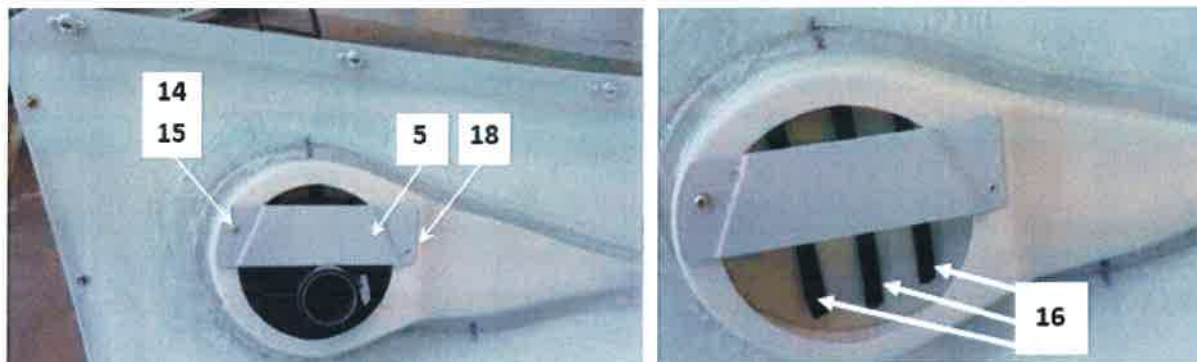


Figure 19: Air filter bracket + rubber profiles

## APPROVAL:

This SB was approved by:

Title	Head of the Design Organisation	Airworthiness Manager
Name	Jiří Sklenář	Miroslav Koukal
Hand written signature	