



# SERVICE BULLETIN

<b>MODEL AFFECTED:</b>	SportCruiser (excluding those operating under EASA rules)
<b>SUBJECT:</b>	Installation of new engine cooling exhaust in the lower engine cowling
<b>AIRCRAFT AFFECTED:</b>	All SportCruiser aircraft (i) equipped with the latest variant of the lower engine cowling with oval air intake (see Fig. 1) and (ii) equipped with the dual thermostat Hektik F1107 installed and (iii) equipped with Rotax 912 ULS2 engine S/N starting from 6 781 410 inclusive, or with Rotax 912 engines with type designation followed by suffix-01, or with all other Rotax 912 engines equipped with the new cylinder heads design bearing P/N 413185 at cylinder head measuring position 2/3, as applicable.
<b>COMPLIANCE:</b>	According to the respective SportCruiser aircraft owner's decision.

#### DESCRIPTION:

This Service Bulletin contains instructions for installation of the new engine cooling exhaust into the lower engine cowling.

#### AUTHORISATION TO PERFORM:

USA: Repairman (LS-M) or Mechanic (A&P)

EASA: Part M or Part 145 Maintenance organization

#### REASON:

Improvement of the engine cooling in hot ambient conditions.

#### MANPOWER:

Approximately 8 workman hours + hardening / curing time (24 hrs of bonding) according to the used adhesive and cement specifications.

#### SPECIAL TOOLS:

- Direct drilling machine (chuck up to a diameter of 10 mm)
- Tools for cutting and machining fiberglass
- Pliers for cleco fastener
- Drill bit, diameter of 2.4 mm ( .094 inch)
- Cleco fasteners, diameter of 2.4 mm (16 pcs)
- Portable vacuum cleaner

#### PROTECTIVE AIDS:

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

#### WEIGHT AND BALANCE:

Insignificant effect.

#### PUBLICATIONS AFFECTED:

SportCruiser / Piper Sport Maintenance Manual.

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<p>No.: SB-SC-056</p>		<p>Rev.: 1</p>
<p>Date: 2018-12-12</p>		<p>Date: 2019-12-19</p>
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#### MATERIAL USED:

- Cooling exhaust SE0563N, 1 pc
- Epoxy laminating substance, approx. 0,2 kg  
Note:  
*It is recommended to use „LETOXIT PR 220“ resin hardened by „LETOXIT EM 315“ hardener or 3M Marine Adhesive Sealant 5200*
- Two-component epoxy adhesive, approx. 0,06 kg  
Note:  
*It is recommended to use „LETOXIT PR 220“ resin hardened by „LETOXIT EM 315“ hardener or 3M Marine Adhesive Sealant 5200*
- Two-component polyurethane sealant, approx. 0,1 kg  
Note:  
*It is recommended to use a sealant with glass fiber binder “GLASS”.*
- Glass fabric layers, weight approx. 280 g/m<sup>2</sup>, size approx. 400 mm x 600 mm  
Note:  
*It is recommended to use the glass fabric „AEROGLOSS 280 g/m<sup>2</sup>, kept“.*
- Isopropyl Alcohol, approx. 0,2 l
- Masking tape, width = 35 mm

#### COSTS:

To be covered by the aircraft owner.

#### ACCOMPLISHMENT INSTRUCTIONS:

##### Initial information:

- a) This SB is applicable only for those SportCruiser aircraft with the latest variant of bottom engine cowling with oval air intake (see Fig. 1) and does not apply to the older variant with angular air intake (see Fig. 2).
- b) This SB is applicable only for those SportCruiser aircraft with the dual thermostat Hektik F1107 installed.
- c) This SB is applicable for those SportCruiser aircraft equipped with Rotax 912 ULS2 engine S/N starting from 6 781 410 inclusive, or with Rotax 912 engines with type designation followed by suffix-01, or with all other Rotax 912 engines equipped with the new cylinder heads design bearing P/N 413185 at cylinder head measuring position 2/3.
- 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").
- e) Any markings (i.e. markings of symmetry axis, hole positions, etc.) to be carried out on the outer surface of the lower engine cowling, new exhaust and nose landing gear according to this Service Bulletin should be performed by such means that can be cleaned by alcohol.
- f) All measured dimensions are in mm unless otherwise stated.

##### Work procedure:

1. Move the aircraft to a suitable place to perform the work.
2. Remove the engine upper cowling (see SC-AMM-1-0-00, latest revision).
3. Disconnect all the hoses from the lower engine cowling, remove the lower engine cowling (see SC-AMM-1-0-00, latest revision).

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4. Remove the holder of CAMLOCK locker from the airplane. Install the disassembled washers and nuts (that fastened the holder to the fuselage) back to the fuselage (see Fig. 5, 6).
5. Cut off the original cooling exhaust from the lower engine cowling in such a way, that only that part of the original cooling exhaust exceeding the lower engine cowling profile is cut off (see Fig. 7). Mark the symmetry axis on the outer surface of the cowling and on the nose landing gear (see the line on the NACA intake shown in Fig. 7 and see Fig. 8, 9). The above work should be performed by two persons in order to secure that the lower engine cowling is not damaged due to its reduced stiffness after removal of the original cooling exhaust.
6. Install the lower engine cowling back onto the aircraft. Do not connect the disconnected hoses. The work should be performed by two or three persons in order to secure that the lower engine cowling is not damaged due to its reduced stiffness.
7. Install the upper engine cowling and connect the upper and lower engine cowling together, including closing the CAMLOCK lockers.
8. Draw the longitudinal axis of symmetry on the outside side of the new cooling exhaust SE0563N (see Fig. 4) and draw the line of the bottom edge of the NACA intake (see Fig. 3, 9, 10, 11).

**Caution:**

The cut-out for the NACA intake made in the supplied new cooling exhaust is purposely made with the addition for matching. Therefore, the bottom edge of the cut-out in the supplied new cooling exhaust is not in line with the bottom edge of the NACA intake shown in Figure 3 (see also the note in Fig. 3).

9. Set the new cooling exhaust on the outer surface of the lower engine cowling and on the line of the lower edge of the NACA intake (see the symmetry axis marked according to the article 5), fix the position by the paper tape. Drill six holes  $\varnothing$  2,4 mm (by using cleco fasteners) in the lower engine cowling according to the holes made in the new cooling exhaust and deburr the holes. Mark the area for the NACA intake on the new cooling exhaust (see Fig. 3, 9, 10).

**Caution:**

The holes to be drilled under this section 9 (i.e. 2 + 2 side holes and 1 + 1 central holes) in the lower engine cowling have to be drilled according to the holes made in the edge of the new cooling exhaust. The central holes have to be aligned and drilled in such a way that they are positioned in the same line.

10. Remove the upper and lower engine cowling from the aircraft.
11. Mark and then make the cut-out in the lower engine cowling intended for installation of the new cooling exhaust SE0563N, make the cut-out for the NACA intake in the new cooling exhaust (see Fig. 3, 9, 11). Fit the new cooling exhaust with the lower engine cowling in such a way that the new cooling exhaust can be inserted from the inner side of the lower cowling. Insert the new cooling exhaust into the lower cowling and fix it by cleco fasteners. Drill the remaining 10 holes  $\varnothing$  2,4 mm (by using cleco fasteners) in the lower cowling according to the holes made in the new cooling exhaust. Remove the new cooling exhaust from the cowling, deburr the holes and grind the contact surfaces for gluing (see Fig. 3, 9).

**Caution:**

It is necessary to draw the cut-out contour in the lower engine cowling for the new cooling exhaust installation according to the position of the exhaust set and attached to the lower engine cowling by cleco fasteners. Dimensions and shape of the cut-out must comply both according to the Fig. 9 as well as according to the dimensions and shape of the new cooling exhaust without the edges that will be glued to the inside of the lower engine cowling.

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12. Set, fix (by using cleco fasteners) and glue the new cooling exhaust into the lower engine cowling in such a way that edges of the exhaust lie on the inner surface of the lower cowling (see pos. 1, 2 in Fig. 9 and see Fig. 12, 13, 14). Apply a vaseline on cleco fasteners for separation before using them. Immediately after gluing and fixing the cooling exhaust to the lower engine cowling install the lower and upper engine cowling onto the aircraft, including locking the CAMLOCK lockers. Do not connect the disconnected hoses. Let the glued connection harden. Time for hardening should be set according to technical sheet of the adhesive used.

**Caution:**

Gluing of the new coolant exhaust to the lower engine cowling should be performed by a two component epoxy adhesive (see section "Material used"). Required amount of the adhesive has to be prepared and mixed before use, according to the instructions given in the technical data sheet of the adhesive used.

13. Remove the upper and lower engine cowling from the aircraft after the glued connection gets hardened.
14. Remove the cleco fasteners, grind the connection area between the lower engine cowling and the new cooling exhaust in the inner part of the cowling. Laminate the grinded connection area by three layers of glass fabric supplied together with the new cooling exhaust (see Fig. 15). Install the upper and lower engine cowling on the aircraft immediately after laminating the connection, including locking the CAMLOCK lockers between the upper and lower cowling. Do not connect the disconnected hoses. Allow the laminated connection to harden.

**Caution:**

For laminating the connection between the new exhaust and the lower cowling use the glass fabric layers supplied together with the new cooling exhaust and an epoxy laminating substance with the minimum processing time of 60 minutes. Required amount of the laminating substance has to be prepared and mixed before use, according to the instructions given in the technical data sheet of the substance used.

15. Remove the upper and lower engine cowling from the aircraft after the laminated connection gets hardened.
16. Seal up the joints between the lower engine cowling and the new cooling exhaust on the outer surface of the lower engine cowling. Seal up also the technological holes made in the cowling and in the new exhaust. Grind the sealant after it gets hardened in order to match with the outer surface of the lower engine cowling (see Pos. 1, 2 in Fig. 9, see Fig. 12, 16).

**Caution:**

For sealing up the outer joints between the new exhaust and the lower cowling and for sealing up the technological holes use a two-component polyurethane sealant with glass fiber (see the section "Material used"). Required amount of the sealant has to be prepared and mixed before use, according to the instructions given in the technical data sheet of the sealant used.

17. Use Isopropyl Alcohol to remove all remained markings made on the outer surface of the engine cowling (see para e) in section „Initial information“) and perform minimum necessary corrections of the external paint of the lower engine cowling (see Fig. 17).
18. Install the lower engine cowling onto the aircraft and connect all the hoses disconnected according to section 3 of this SB (see SC-AMM-1-0-00, latest revision).
19. Install the upper engine cowling (see SC-AMM-1-0-00, latest revision).
20. Complete the aircraft records (log book) to reflect compliance with this Service Bulletin.
21. Thereby, the performance of this Service Bulletin is duly completed.



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Figures relating to the text above:

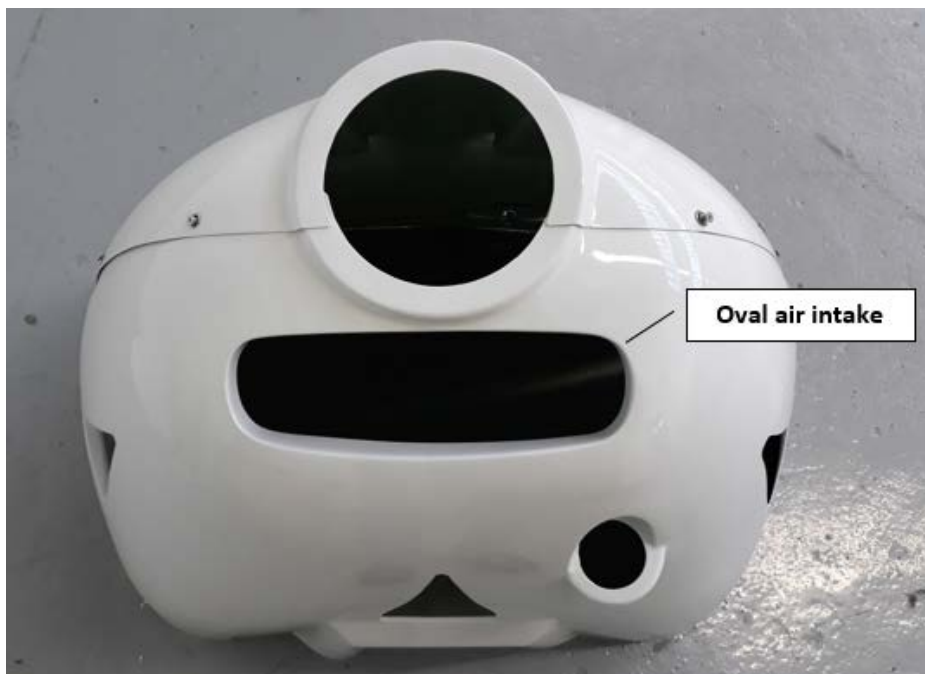


Fig. 1

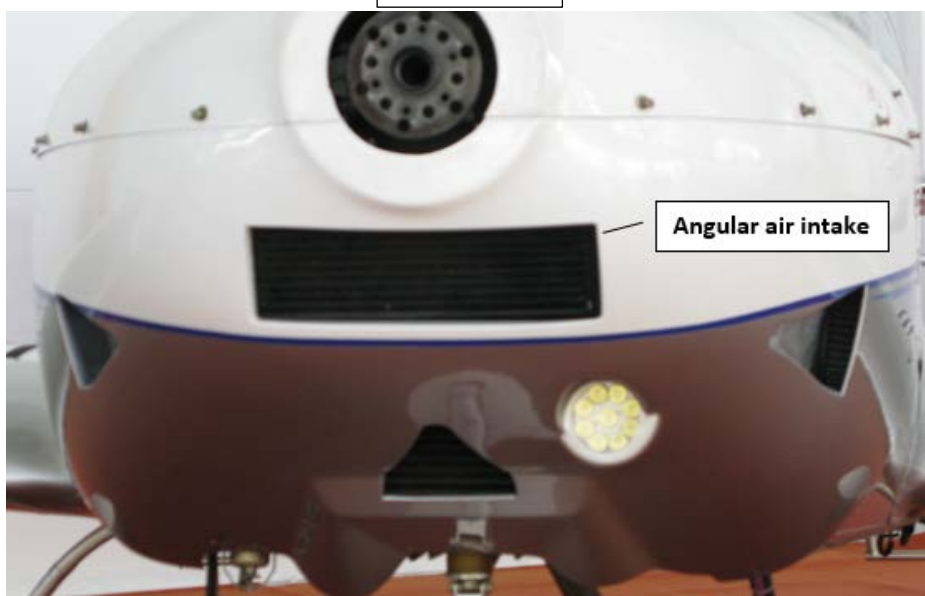


Fig. 2



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## Top view of the new cooling exhaust

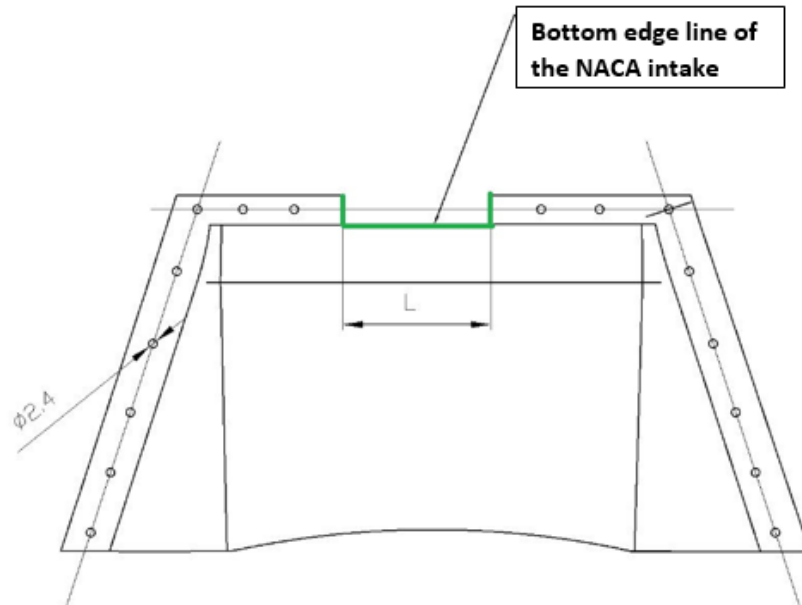


Fig. 3

**Note:**

Cut-out for the NACA intake bottom edge marked in green (see “Bottom edge line of the NACA intake”) is to be finished according to sections 8, 10. NACA intake is a part of the engine lower

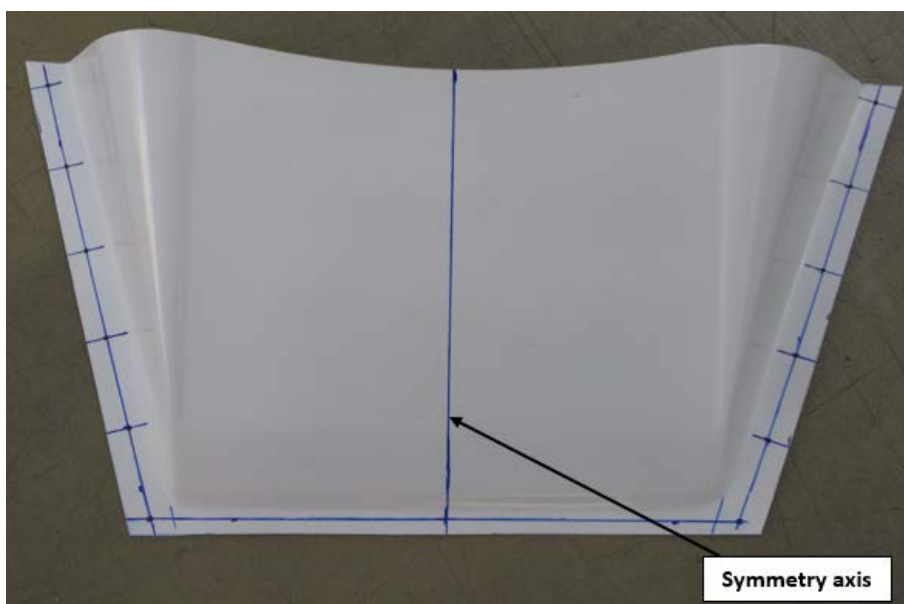


Fig. 4





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Fig. 5

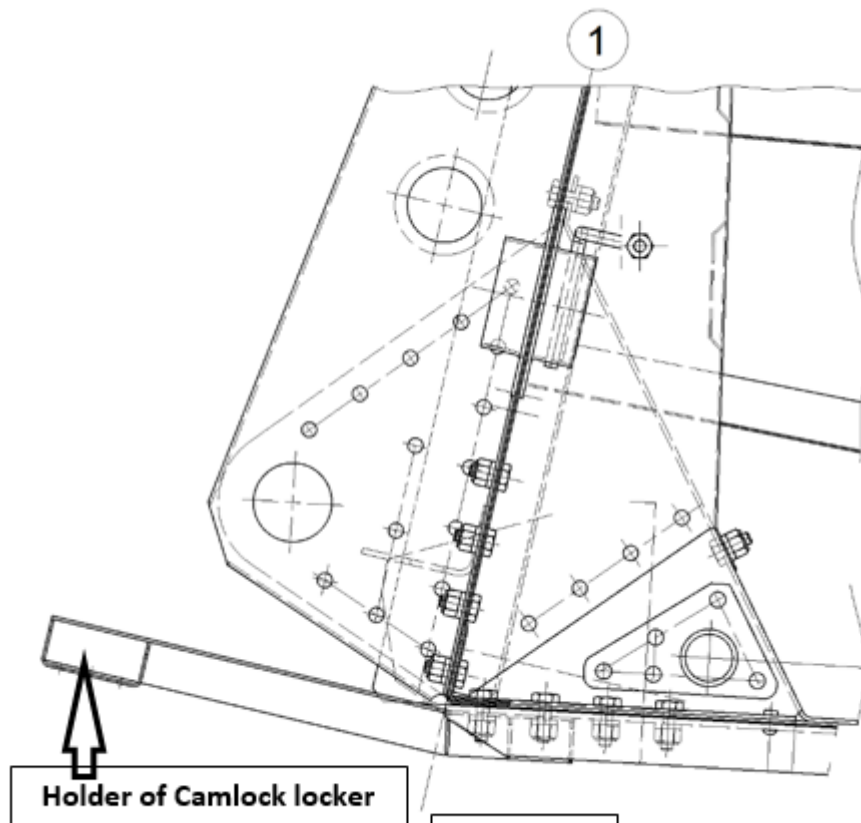


Fig. 6



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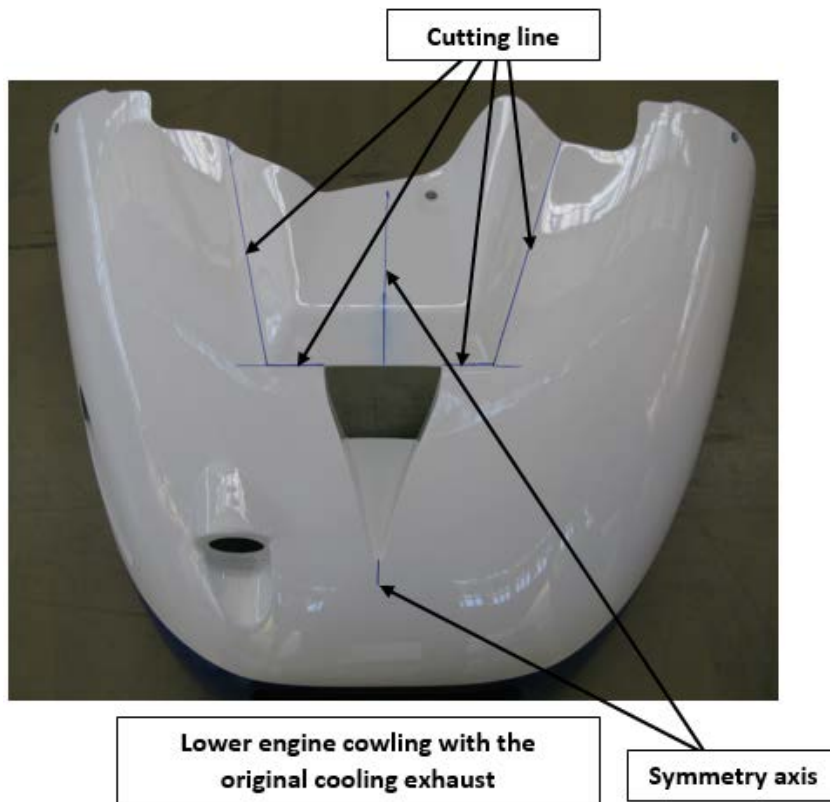


Fig. 7

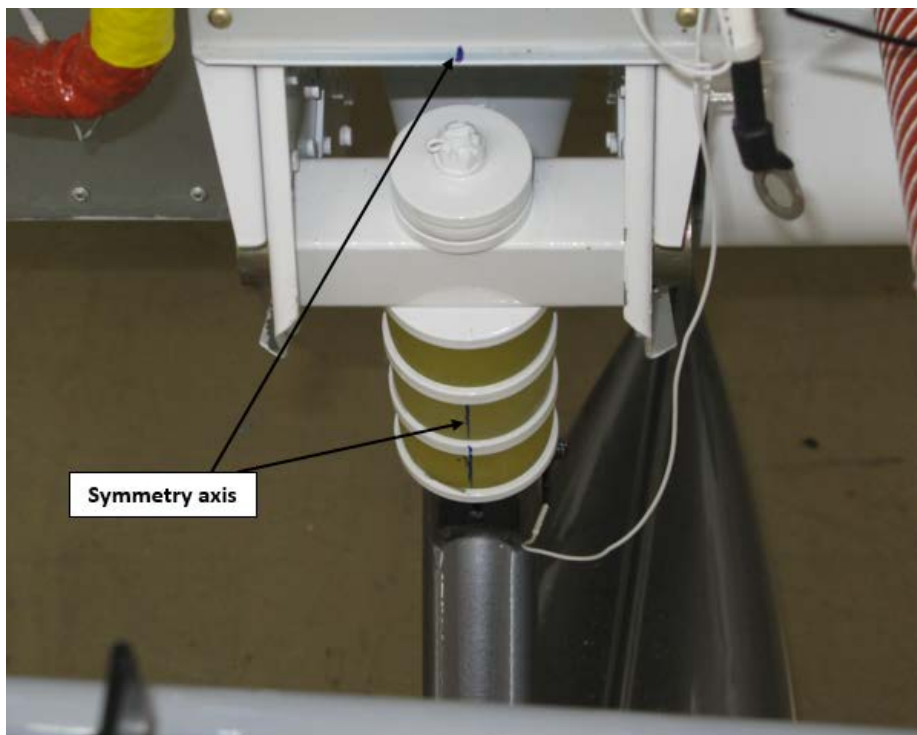
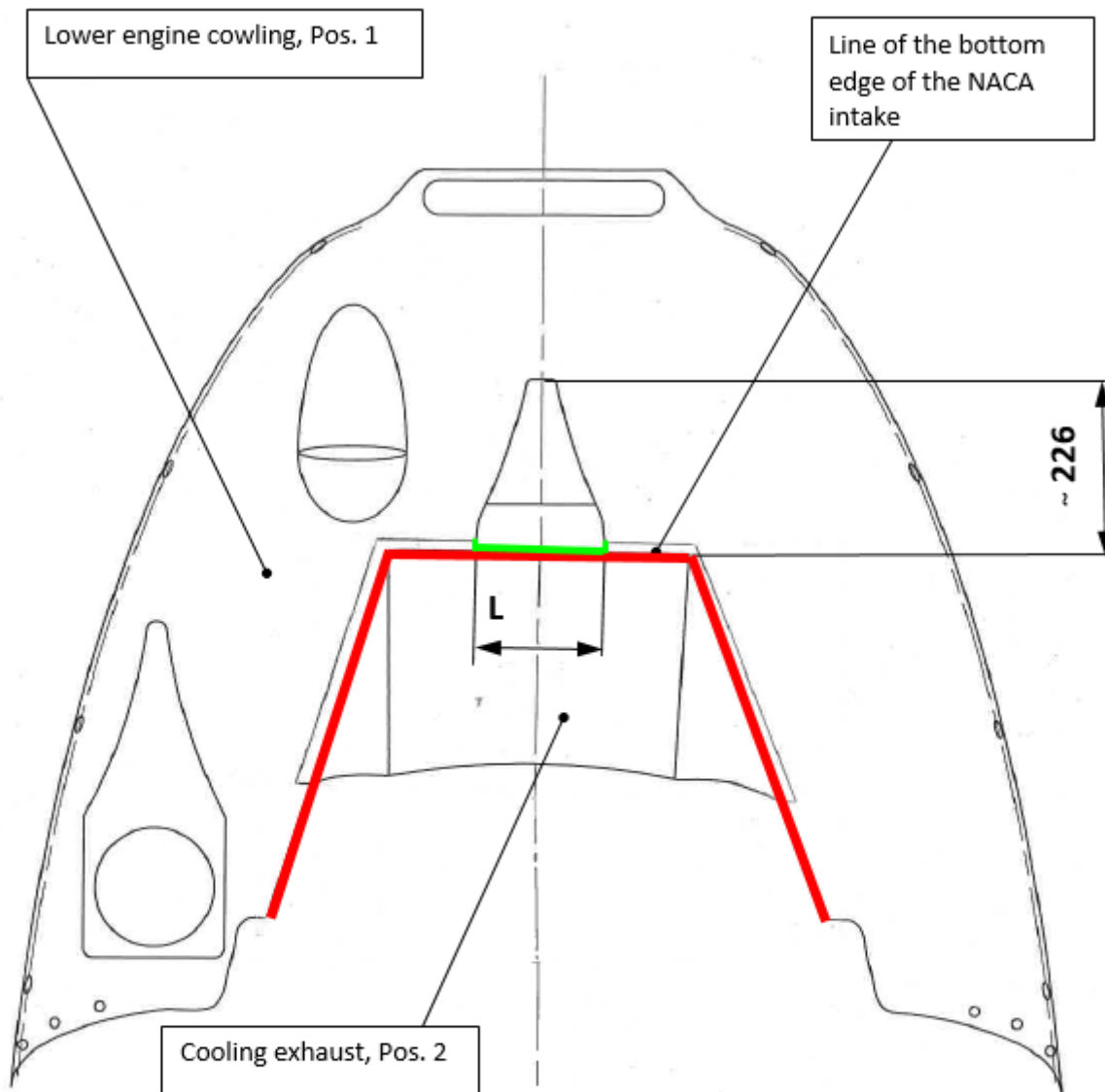


Fig. 8





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Notes:

1. Dimension L – see Fig. 3
2. Cut-out in the lower engine cowling is marked in red
3. Cut-out in the cooling exhaust is marked in green

Fig. 9



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Line of the bottom edge of NACA  
intake



Fig. 10

Line of the bottom edge of NACA intake



Fig. 11



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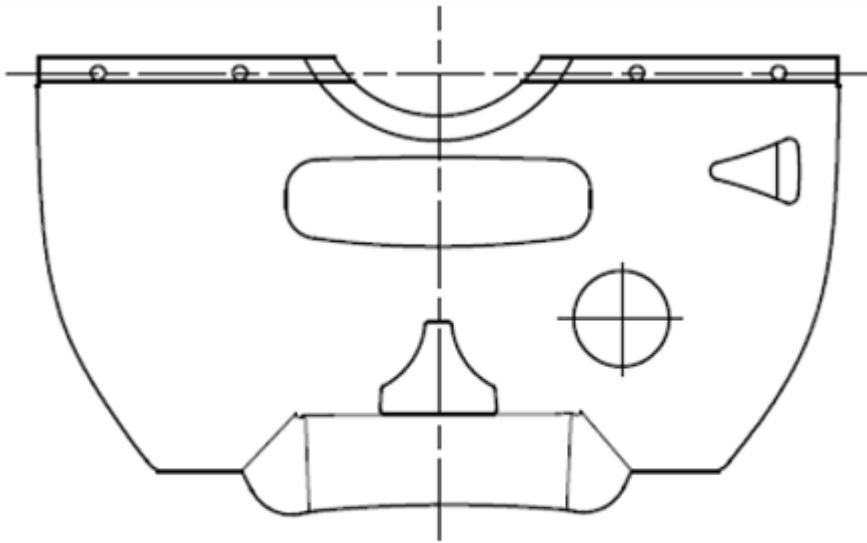
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Front view of the lower cowling with the new cooling exhaust

Fig. 12



Fig. 13



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Fig. 14



Fig. 15



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Fig. 16



Fig. 17

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**APPROVAL:**

This SB was approved by:

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