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EFFECTIVE DATE: This SERVICE INSTRUCTION is effective October 21, 2010.

SUBJECT: Retrofit Cowl Flap Installation

MODELS AFFECTED: CC11-100 S/N 00001 thru S/N 00092, S/N 00097, S/N 00099, S/N00108, S/N 00112 S/N 00184 and S/N 00186.
 CC11-160 S/N 00093 thru S/N 00143 excluding S/N 00121, S/N 00133 and S/N 00137.

COMPLIANCE TIME: Compliance is not mandatory.

PURPOSE: Summer's higher ambient temperatures can cause cylinder head temperatures to run uncomfortably close to redline. This Service Instruction introduces a Cowl Flap Retrofit modification to reduce cylinder head temperatures.

PARTS LIST:

<u>PART</u>	<u>DESCRIPTION</u>	<u>CC11-100</u>	<u>CC11-160</u>
PC53005-001	Cowl Flap, LH	-	1
PC53005-002	Cowl Flap, RH	-	1
PC53031-001	Retrofit Cowl Flap Frame, LH	-	1
PC53031-002	Retrofit Cowl Flap Frame, RH	-	1
SC53031-001	Cowl Flap Frame, LH	1	-
SC53031-002	Cowl Flap Frame, RH	1	-
SC53032-001	Cowl Flap, LH	1	-
SC53032-002	Cowl Flap, RH	1	-
MS24693BB28	Screw, 6-32x1/2 Countersunk	24	24
AN526C632R6	Screw, 6-32x3/8	8	8
AN822-6D	Fitting, 90° Elbow	1*	-
AN823-6D	Fitting, 45° Elbow	1*	-
AN960-6L	Washer	32	32
AN363-632	High Temp. Lock Nut	32	32
RM4905-002	3M Acrylic Foam Tape	8 Ft	8 Ft
PC53599-001	Cowl Flap Retrofit Template	2	2

**For all CC11-100 aircraft except those with Executive Glass Panels.*

INSTRUCTIONS:

1. FOR CC11-160:

Install templates (PC53599-001) on both sides of the bottom cowl. With a flat edge placed along the molded edge (seam where top and bottom cowls meet) of the bottom cowl, measure 9.5" down to the top edge of the template. Measure 5" forward of the aft edge of the cowling to each corner of the template. Refer to Figure 1 below.

FOR CC11-100:

Install templates (PC53599-001) on both sides of the bottom cowl. With a flat edge placed along the molded edge (seam where top and bottom cowls meet) of the bottom cowl, measure 8.75" down to the top edge of the template. Measure 2.5" forward of the aft edge of the cowling to each corner of the template. Refer to Figure 2 below.

NOTE:

For early CC11-100 aircraft that have had the high-performance exhaust retrofitted, position the template for the cowl flap with minimal overlap so that no hardware is affected. All panel pieces can be cut through.



2. Mark the edge of the template using a scribe. Remove the templates.
3. Remove the cowling from the aircraft.
4. Drill the four corners of the marked area using an Ø.5" drill bit.

5. Remove the remaining material using a cutoff wheel. Cut on the inside edge of the scribed mark to each drilled corner.



FIGURE 1 - CC11-160 Cowl Flap Retrofit Template Location

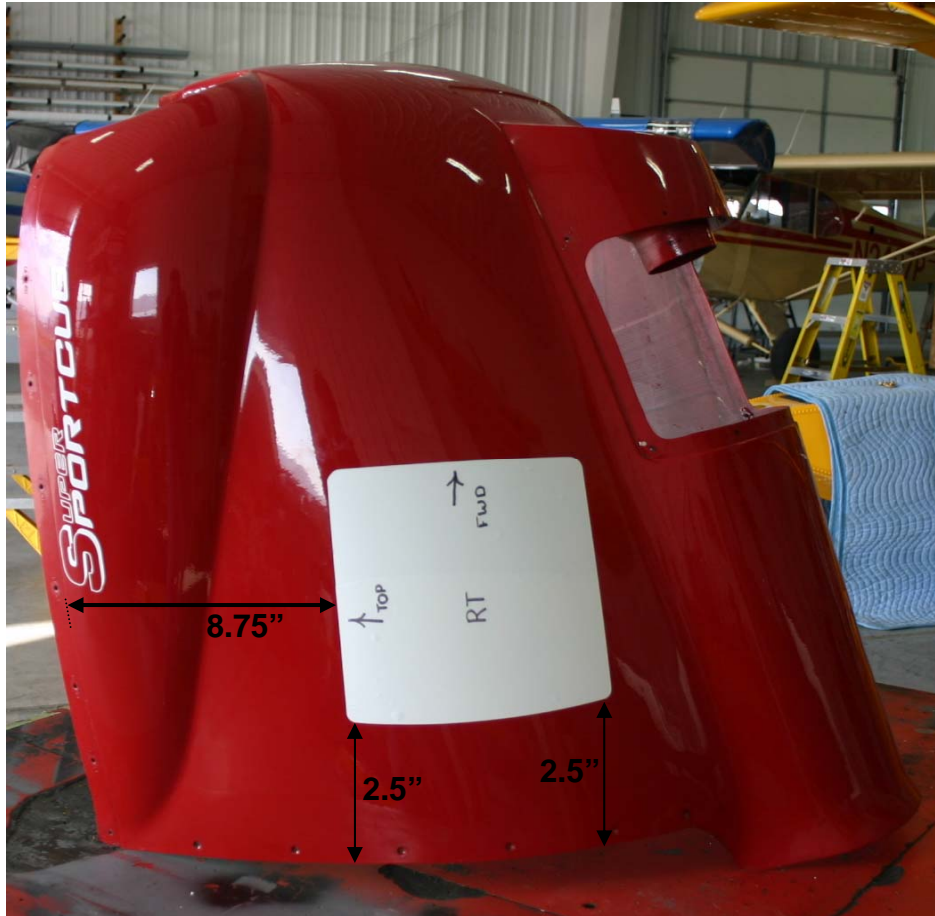


FIGURE 2 - CC11-100 Cowl Flap Retrofit Template Location

6. Dress the edge of the cutout using 320 grit or finer sandpaper.
7. Install 3M Acrylic Foam Tape to the bottom of both Cowl Flap Frames (For CC11-100, use SC53031-001 and SC53031-002. For CC11-160, use PC53031-001 and PC53031-002). Refer to Figure 3.
8. Use a scribe to puncture the tape on the frame through the pre-drilled holes. This will keep the tape from binding when the frame is match drilled.
9. Using the 3M Foam Tape to hold the frames in place, insert the Cowl Flap Frames into the appropriate cutouts (SC53031-001 or PC53031-001 on Left Side and SC53031-002 or PC53031-002 on Right Side) in the cowling.



FIGURE 3 - 3M Acrylic Foam Tape Installation

- 10.** Match drill the 12 holes in each frame using an $\text{Ø}.128$ drill bit.
- 11.** Install twelve (12) MS24693BB28 (screw), AN960-6L (washer), and AN363-632 (high temp. lock nut).

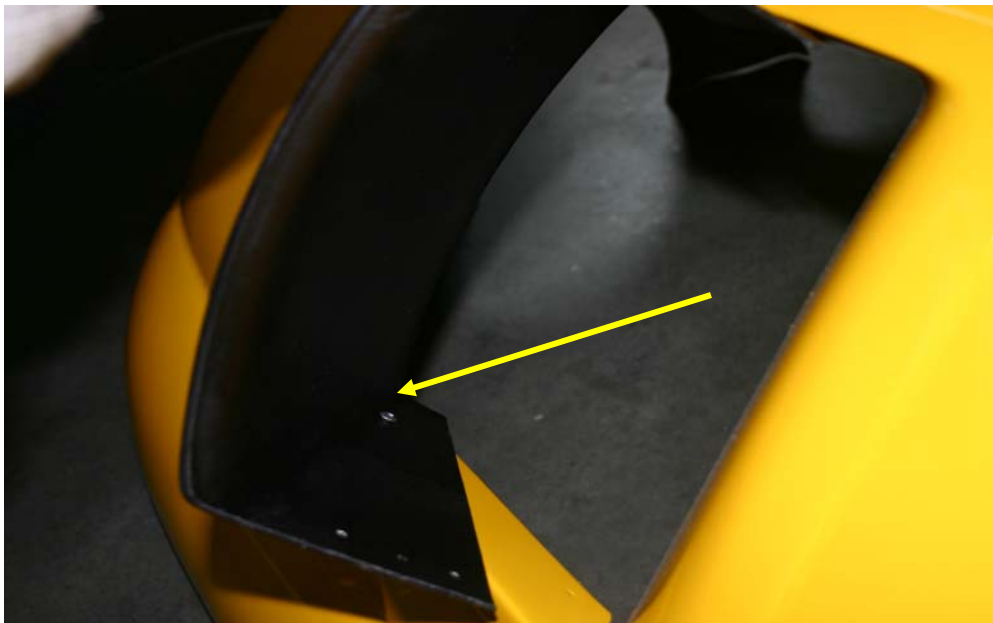


FIGURE 4 - Test Fit of the Cowl Flaps

12. FOR CC11-160:

The Left Hand Cowl Flap (PC53005-001) will be installed in the LH Cowl Flap Frame (PC53031-001) and the Right Hand Cowl Flap (PC53005-002) will be installed in the RH Cowl Flap Frame (PC53031-002).

FOR CC11-100:

The Left Hand Cowl Flap (SC53032-001) will be installed in the LH Cowl Flap Frame (SC53031-001) and the Right Hand Cowl Flap (SC53032-002) will be installed in the RH Cowl Flap Frame (SC53031-002).

13. Attach the Cowl Flaps (SC53032-001 or PC53005-001 and SC53032-002 or PC53005-002) into the appropriate frames using two (2) AN526C632R6 (screw), four (4) AN960-6L (washer) and two (2) AN363-632 (high temp. lock nut) in the pre-drilled holes in the cowl flap frame. Do not set the position of the cowl flap at this time. Allow the cowl door to move freely in the frame. Refer to Figure 4.

14. For CC11-100 except those with Executive Glass Panels:

Remove the fuel line and the straight AN816-6D fittings on the gascolator and carburetor. Replace the gascolator fitting with the AN822-6D 90° fitting and the carburetor fitting with the AN823-6D fitting. Reinstall the fuel line so that it routes up and over the exhaust securing the fuel line to the engine mount as shown in Figure 5.

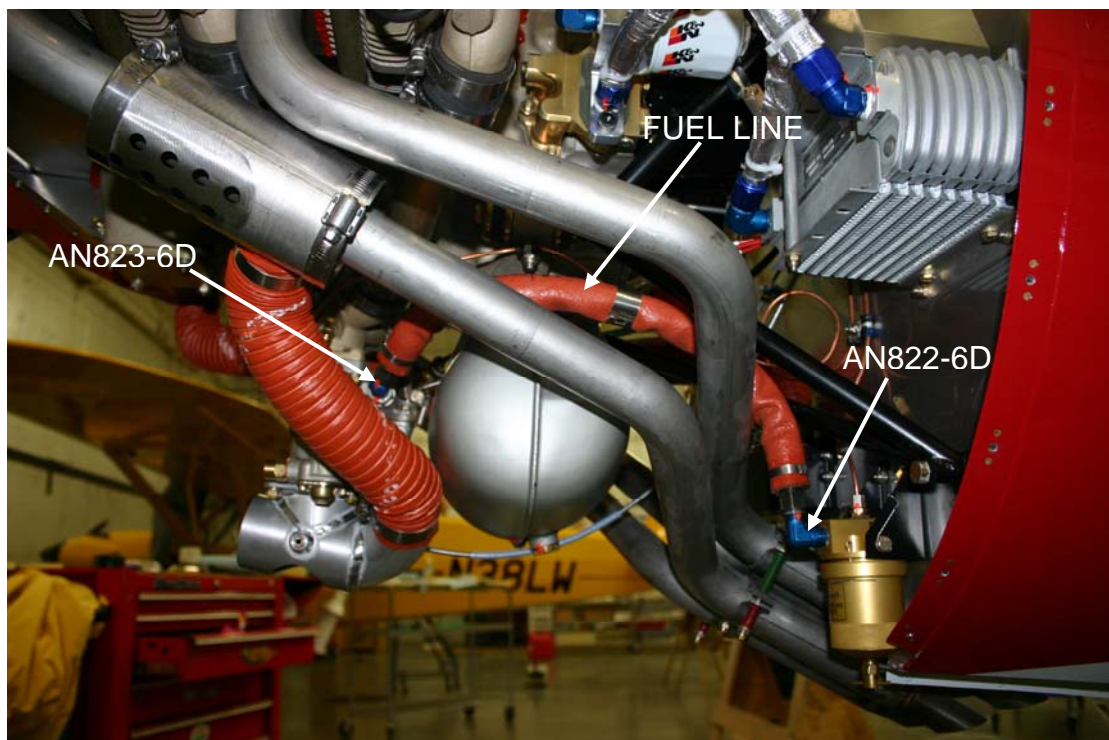


FIGURE 5 – Fuel Routing Change CC11-100 except Executive Glass

15. Test fit the lower engine cowling using one screw in each corner to hold the cowl in place. Refer to Figure 6.

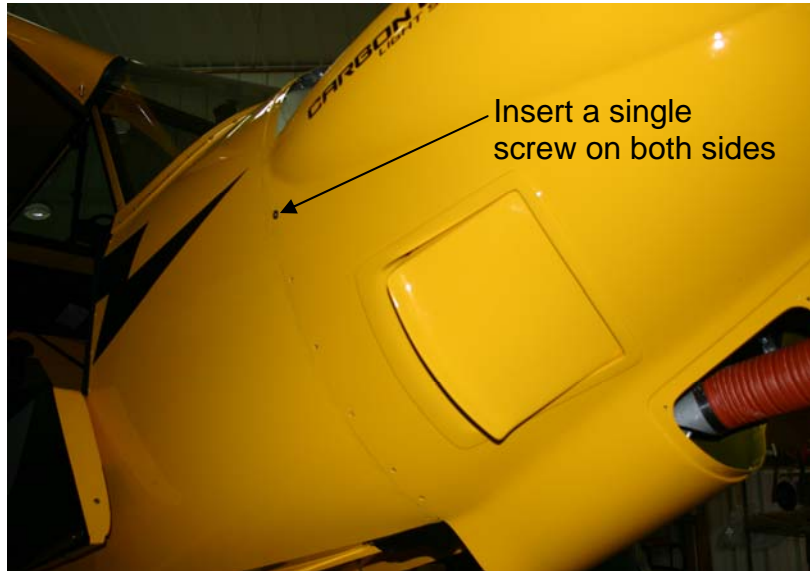


FIGURE 6 - Test Fit of the Cowling

16. Visually inspect the cowl doors in all three positions making sure they do not contact the engine or its components. Refer to Figure 7.

NOTE:

If the cowl door contacts the engine or its components, trim as needed for clearance. There should be at least ½ "of clearance between parts to allow for engine movement.

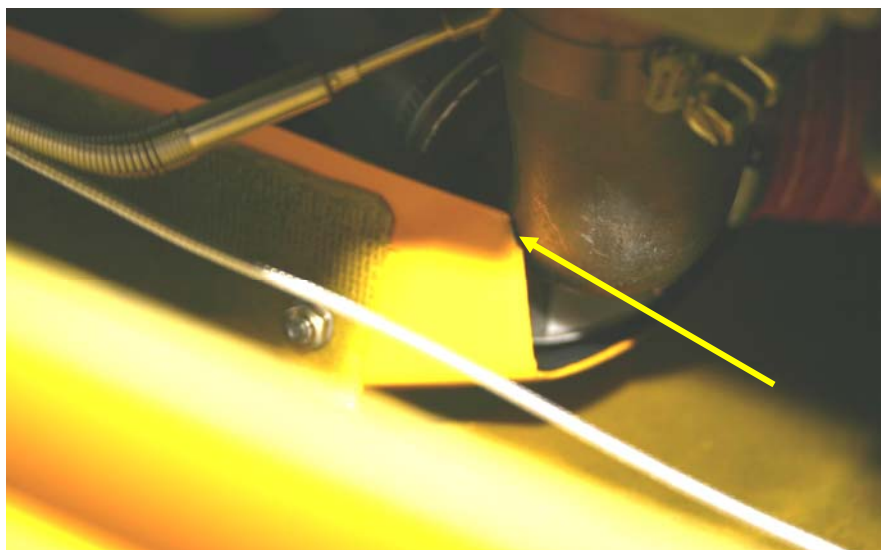


FIGURE 7 - Cowl Flap Clearance



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- 17. Remove the cowling.
- 18. Set the cowl flap to the desired position. Install the remaining hardware of two (2) AN526C632R6 (screw), four (4) AN960-6L (washer) and two (2) AN363-632 (high temp. lock nut).

NOTE:

The setting of the cowl flap position should be determined by the pilot depending on weather conditions. It is recommended that the flap be in the closed position during the winter months and adjusted accordingly as conditions dictate.

- 19. Tighten all hardware. Make sure not to damage the cowl flap or frame when the hardware is tightened.
- 20. Reinstall the cowl assembly.
- 21. Make logbook entry stating Cowl Flaps were installed per Service Instruction No. SI0017.