

SECTION 6

Cowl



Rotax aircraft engines are manufactured and supported by Rotax GmbH of Austria. Read and understand the Rotax manuals completely before starting with the engine installation, as they contain important engine installation, operation and maintenance information. Follow all of the important safety information provided in the Rotax manuals regarding the installation, operation and maintenance of the Rotax engine. Read and understand the Rotax Operator's Manual before starting the engine.

Make sure that your engine is registered with Rotax or an authorized distributor so that the factory warranty is in effect. In the United States, the Rotax distributor is Kodiak Research: <http://www.kodiakbs.com> Contact a Rotax distribution or service partner if you do not understand the instructions or if you have any additional questions. Maintain copies the manuals with the aircraft in case of sale. Obtain current versions of the manuals from the official Rotax website, as well as current service and maintenance information: www.rotax-aircraft-engines.com

If a discrepancy arises between the information provided by Rotax and the following pages, the Rotax manuals and/or service information and instructions take precedence. Zenith Aircraft Company does not manufacture or directly support engines.

Alternative engines will affect performance, specifications and flight characteristics of the aircraft. Also, the weight and balance of the aircraft may be adversely affected by alternative engines, and the original fuel system may not be adequate or suitable for some engines. Most alternative engines will require a custom engine mount and engine cowl.



Bottom cowl fits against the radiator.



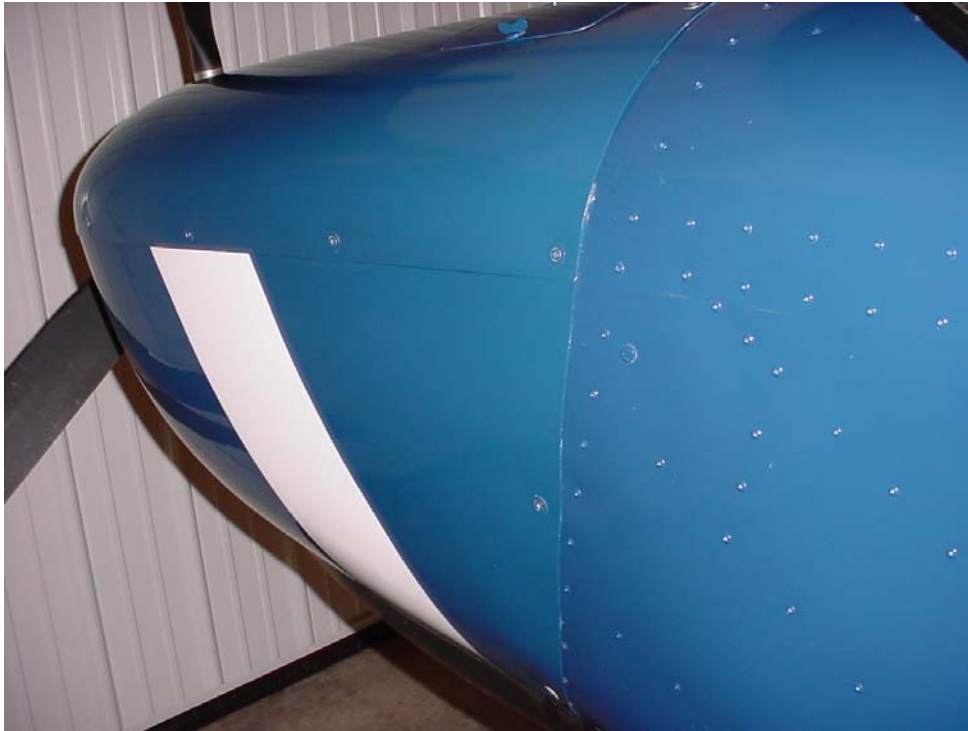
Spinner is centered left and right on cowl opening.



Aft edge of cowl is not parallel to the firewall rivet line.



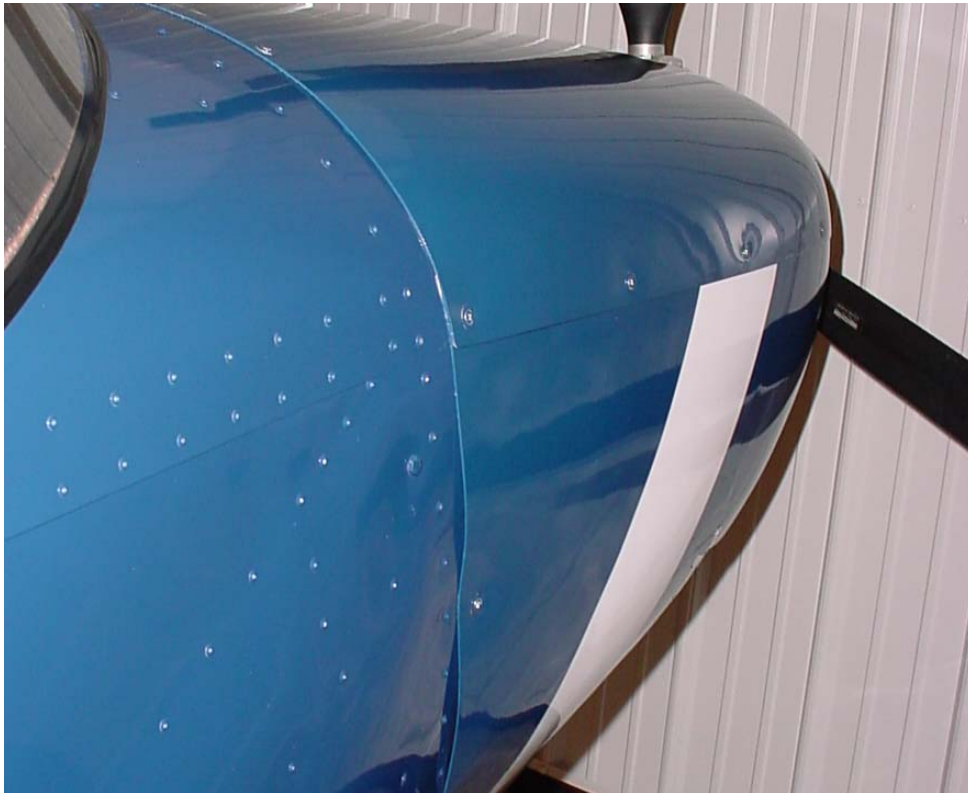
The cowl overlap on top of the fuselage skins that overhang past the firewall.



Top cowl overlaps on top of the bottom cowl.
Left side.



The bottom edge of the top cowl is even with the bottom edge of the forward top skin.



Right side.



Screw through the top, bottom cowl into the forward top skin and forward fuselage skin.



Edge of supplied cowl is oversize. It must be trimmed to fit the aircraft.

Joining the top and bottom cowl at the front.



Trial fit of bottom cowl. Cutout for nose gear leg.

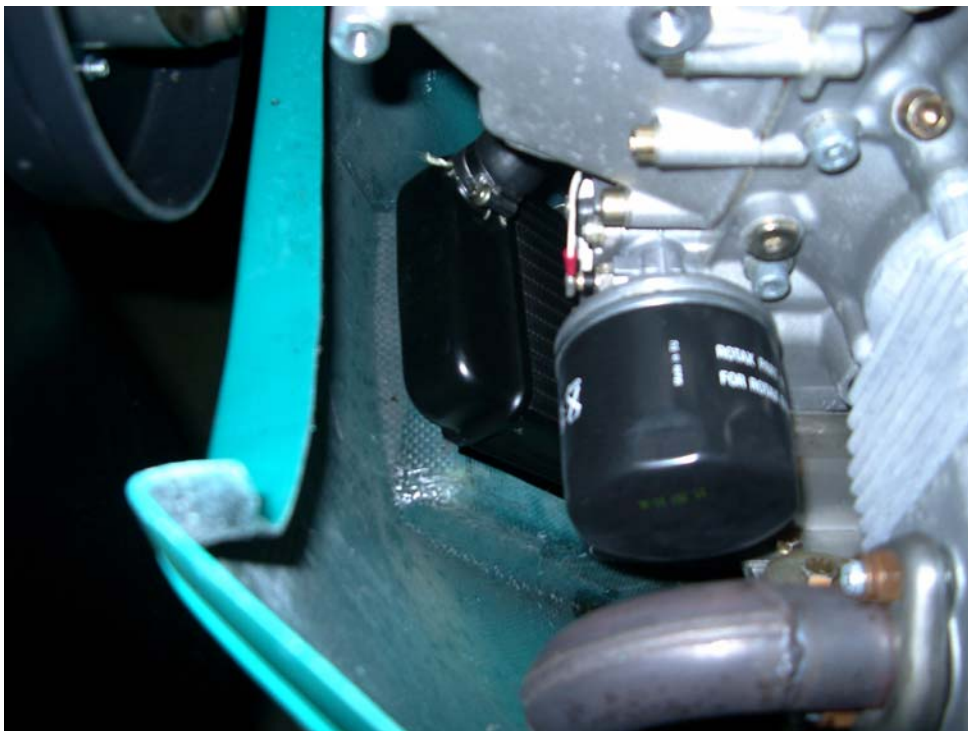
Bottom cowl is not supplied with the cutout for the nose gear leg.



Fit cowl with the prop and spinner installed on the engine.



Cutout in the bottom cowl to make room for the nose gear leg.

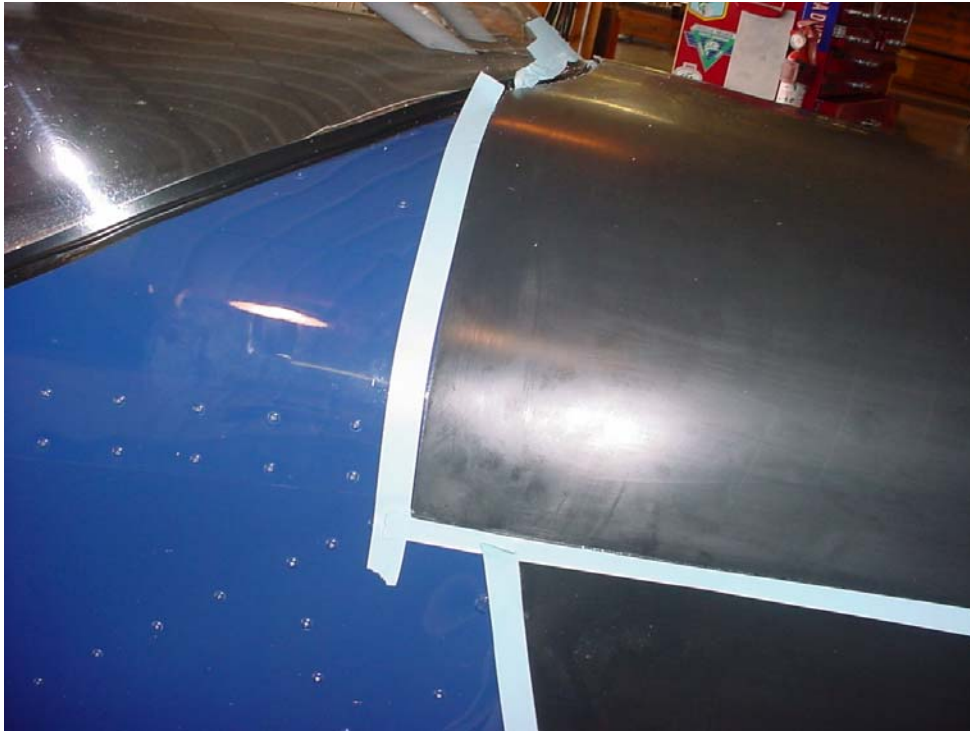


Looking down at the radiator

Note: The cowl is against the radiator.



With the cowl pushed up against the radiator, tape the cowl to the fuselage and to the spinner.



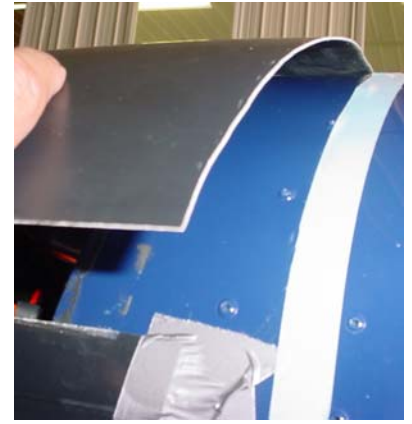
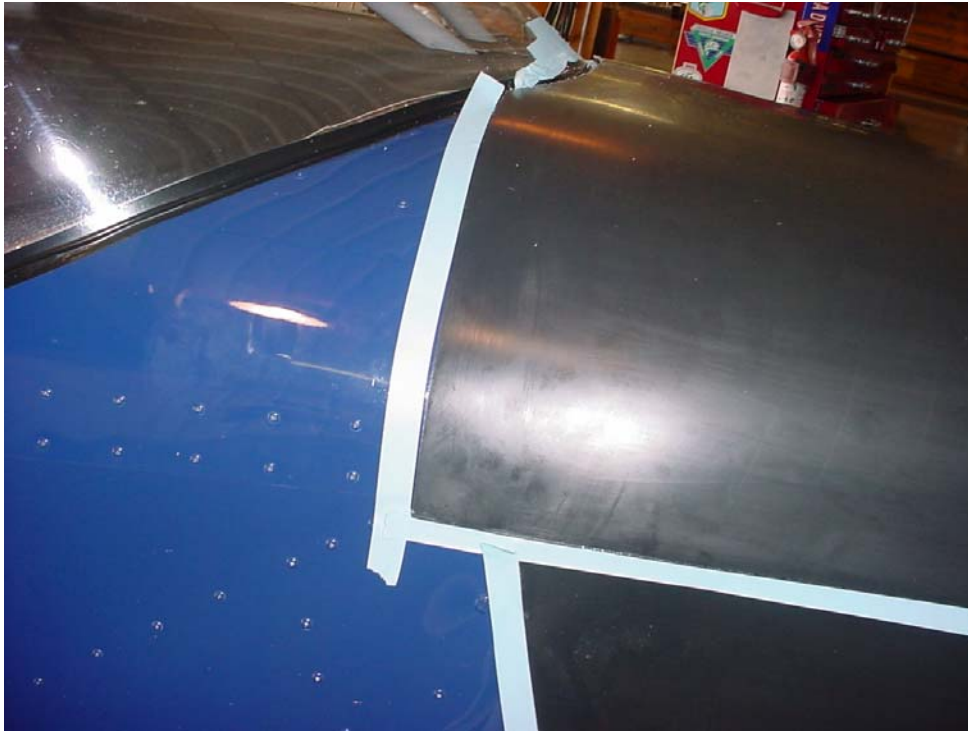
If necessary, file the flange on the bottom cowl to join up with the top cowl.

The supplied top cowl is too long and will touch the windshield. Start in the middle and trim back along the aft edge to make room for the windshield. Keep cutting until the front of the cowl joins up with the bottom cowl.



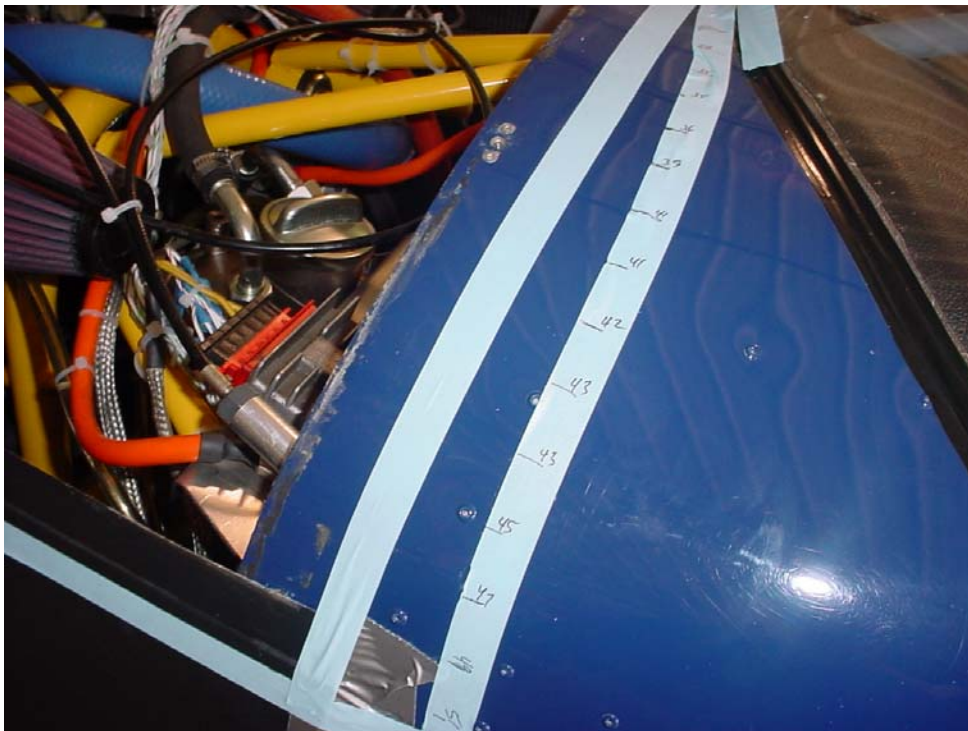
Tape the top cowl to the bottom cowl. Center the cowl with the spinner in the middle of the opening (left and right only, the height is set by the cowl against the radiator).

Tape the top and bottom cowl together at the front only. At the front the top cowl overlaps the flange on the bottom cowl. At the firewall, let the top cowl overlap the bottom cowl (the bottom edge of the top cowl is well below the top flange of the bottom cowl).



Cowl overlaps on top of front top skin.

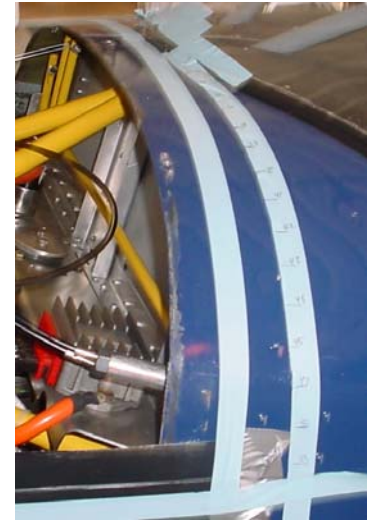
Use tape to mark the aft edge of the top cowl on the fuselage.



Mark off intervals of 20mm on the tape line.

Measure the distance between the tape lines and mark the number on the tape. (The distance is the difference between the actual aft edge of the top cowl and the proposed aft edge of the cowl).

Remove the top cow.
Put a piece of tape on the front top skin where the aft edge of the cowl should be after it is cut.



Re-install the top cowl.
Layout the distance recorded on the tape to make the proposed aft edge (cut line)

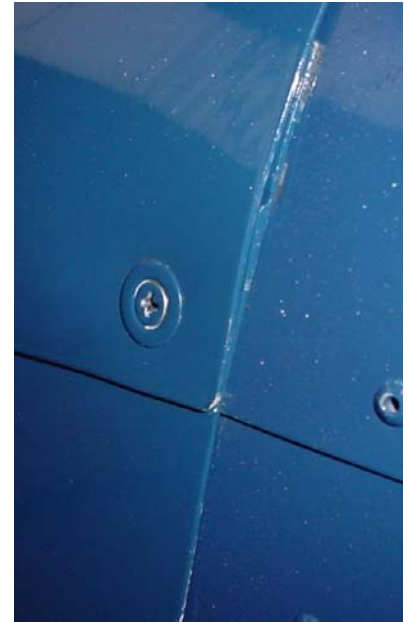
Use the same technique to trim the bottom edge of the top cowl

Also pull a tape line along the aft edge of the bottom cowl.



NOTE: On our demo, we push up the bottom cowl to fit around the fuselage and ignored the beveled flange along the top of the bottom cowl.

Determine what will look best to set the bottom edge of the top cowl.



The bottom edge of the top cowl overlaps down below the beveled flange. In this installation the beveled flange was not used.

See what will be best:

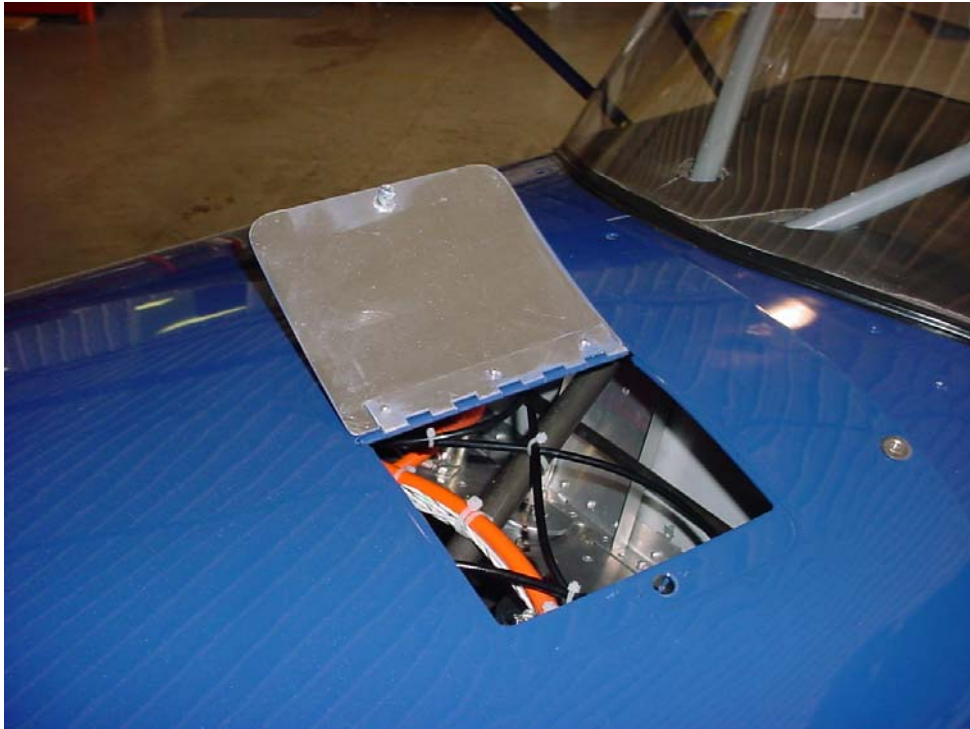
- 1) Straight line from the front of the cowl to the bottom edge of the front top skin.
- 2) Straight line following the beveled edge of the bottom cowl. If necessary adjust the bottom cowl to change the slope of the line.



Outlet cutout on bottom cowl.

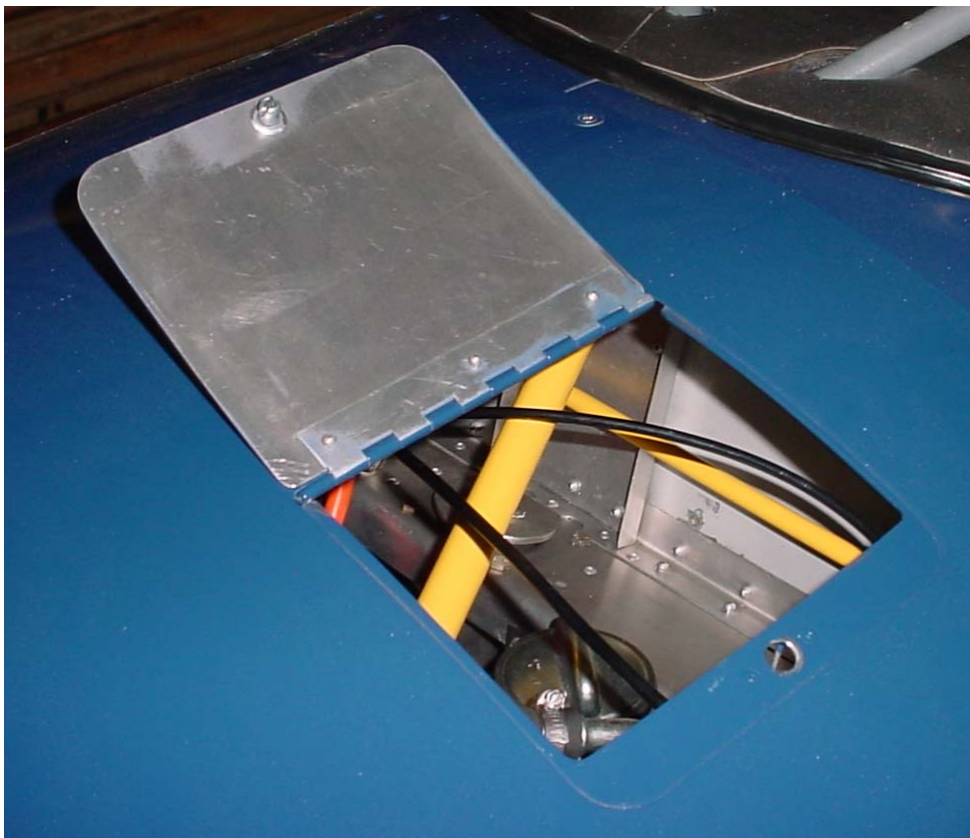
NOTE: Wait to trim outlet till flight testing. Trim away the bottom cowl as required for proper cooling.

NOTE: On our demo a large outlet was required for proper cooling.



Oil Door
P/N: OD

Over the oil reservoir, make a cutout the size and shape of the oil door. The oil door is the smaller piece of material provided with P/N: OD.



Trim the Frame so as to provide a 5mm lip for the oil door to rest on when closed. For the side with the fastener, allow 20mm overlap for the DZUS faster to hold the door closed.

12 Rivets A4 to attach the Frame to the Upper Cowl (the frame is flush riveted on our demo).

6 Rivets A4 to attach the Upper Cowl, Oil Door Hinge, and Oil Door.



Left side view on installed cowling.



Drill hole in cowl for screw and countersunk finishing washer with a 5/16" drill. Drill hole for nutplate with a 3/16" drill.

16 Flat Head Screws attach the cowls together and to the Fuselage. Counter sink and flush rivet the Nutplates to the Lower Cowl and Fuselage.



Expand the rivet holes in the nutplates with a #30 drill.



**P/N: MS21047-08
NUTPLATE**



Right side view of installed cowl.



P/N: MS24693-C50
FLAT HEAD
SCREW



P/N: A3135-017-24
COUNTERSUNK FINISHING
WASHERS 100 DEGREES