

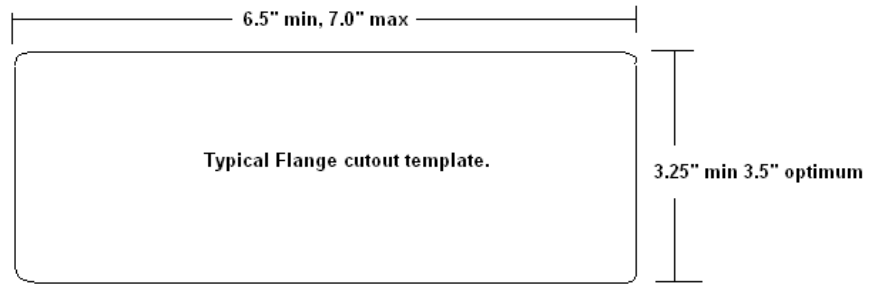
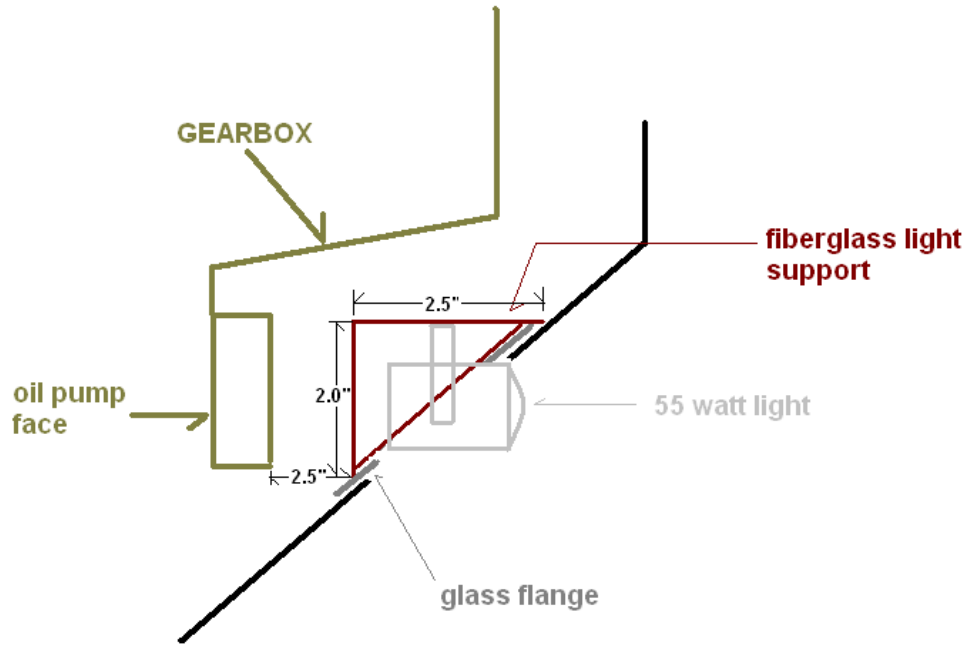
Cowl mounted landing lights

A Custom Flight Creations Modification

Concept. Cowl lights are not supplied by the manufacturer in many aircraft. CFC has made a simple cowl modification which allows two automobile driving lights of 35 to 55 watt to be installed under the spinner in the Europa. Essentially a hole is cut in the cowl about an inch below the spinner. An inspection hole is made carefully and a flange is built in as would be done in installing any access panel. Nutplates or similar are normally fastened to the flange to hold the face. A simple angle support is built to hold the brackets which come with the lights. Lights are mounted and aligned to the pilot's preference. A mask is made to smooth the gaps around the lights and custom fitted to compensate for the difference between the landing and taxi light angles. The final parts are disassembled and filled and sanded final.

Instructions:

1. The lower cowl should be mounted to the plane and measurements taken.
2. The clearance needed for the lights is normally a 2 inch vertical cut to allow the lights to clear the prop and oil pump face.
3. Make templates for the cut from paper and allow for the lights and glassing. See drawing below.
4. Cut the hole. Try to save the piece removed as this is now your light cover base. Cutting a round corner can be done with a very fine coping or scroll saw blade. I use a grit blade (looks like wire with a number of sharp bumps and get a really neat job).
5. Cover the plate with plastic and make a 4 ply flange on the inside of the cowl.
6. When cured, cut the flange to leave about 3/8 inch for solid mounting.
7. Trial fit the lights again to ensure they will clear.
8. Make a mounting bracket (flat piece of cowl scrap left over from the cowl trim) which will come out from the inside of the cowl about 2.5 inches from the center line of the cowl, level with the engine. Make two triangles to support the flat mount to stabilize the mounting plate.
9. Mount lights so the landing light is level with the door sill and the taxi slightly below level when sitting on the ground.
10. Tape over the lights carefully. Cut your light cover base out to clear the lights.
11. Put the light cover base over the lights and secure to the flange.
12. Cut the supplied mask to shape and make the holes for the lenses. This takes time and may require removal of the lights, fit the mask to the cover base, then reinstall the lights and cut for the lenses.
13. Glass the mask to the cover base. For a tail dragger, it may be best to make a mask from scratch by using release tape, clay, foam or fillers to get an approximate shape, then glass over the form. Remove the filler, foam or clay from the inside and finish to suite.
14. Bolt on the new cover and adjust. Make corrections and check the fit.
15. Fill sand and prime to suite.



Additional photo instructions

1. Figure out where you want it to mount the lights. The mask provided is a good start to help it clear the duct inlets, and spinner.



2. Mark where the cut out will be, and cut to suite and save the cutout plate. Cover the plate removed with release tape and reinstall in the hole. When satisfied it is level and even, glass the inside with four layers as a flange similar to the method used to make access holes in the aircraft. After cure, drill and cleco in place for nut plates. Allow clearance for glassing.



3. Make templates per the instruction provided on the drawing.
4. Install the support bracket and figure out how far to put the lights out of the cowl. Two plies of bid will hold it well.





5. Install lights and check clearance.



6. Drill platform for light brackets and install the lights with temporary screws and nuts.



7. Cut the plate removed and used for glassing in the flange. Cut and fit the plate to just clear the lights and final trim.



8. Align the lights for landing/taxi and with longitudinal axis



9. Check clearances and centering.



10. Looks like just enough room.



11. Make sure the flange clears enough to allow for maintenance.



12. Cover the lights and prepare for glassing.



13. Check that the mask has enough room to clear the lights and will allow the mask to have enough surface to be bonded and allow for screws to hold it in place.



14. Mask prepared for installation.



15. Mask installed and glassed on. If you build your own, shape as desired to a pleasing shape...