



LAA/MOD 8
REPAIR PROPOSAL
 Issue 6

Repair No. (Office use only)

This form is used to request LAA Engineering approval of a repair method to an aircraft following accidental damage prior to repair. Refer to Technical Leaflets [TL 2.16](#), [3.05](#) and [3.13](#).
 This form may be printed out, completed by hand and either posted to LAA Engineering or scanned and emailed to engineering@laa.uk.com. Please retain a copy of the completed form for your records.

1. AIRCRAFT DETAILS

Registration	Type	Serial Number
G - [REDACTED]	EUROPA MONO	[REDACTED]

2. APPLICANT DETAILS (Note: Applicant must be a 'Full plus' member)

Applicant's Name	Dave Disney	Membership No.	[REDACTED]
Name and address of person to be contacted regarding this repair:			
<i>Dave Disney 15 Homefield Locking Village Weston-super-Mare BS24 8ED</i>			
Daytime Telephone Number:	[REDACTED]	e-mail:	davedisney@yahoo.co.uk

3. DETAILS OF DAMAGE

Title:	Fuel tank repair
Cause:	Installed plastic fuel tank has developed a leak
Full description of primary damage showing details. Sketches/additional pages may be attached.	
<p><i>The aircraft internal structure will be compromised to gain access to the fuel tank. An inspection panel will be cut in the cockpit module area between the headrests and subsequently in the top of the fuel tank. The MPDE plastic fuel tank can be repaired by hot air welding gaining access through the newly created access panel in the top of the tank. A fuel tank cover plate, clamping nut ring and gaskets will be manufactured to seal the access hole and strengthen the plastic tank. A panel will need to be manufactured to reinforce the cockpit module in the area between the headrests and provide future access to the fuel tank cover for repair and maintenance.</i></p>	
Detail what checks have been made for secondary damage.	
<p><i>No checks for secondary damage, aircraft has not been involved in an incident.</i></p>	



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4. PROPOSED REPAIR

Full description showing details. Photographs and drawings may be attached or a report submitted. Note: Do not proceed with repair until written LAA approval of the proposed repair method is given.

Materials :-

- Fiberglass Bid 92125*
- Epoxy Resin Ampreg 21 + Std or slow hardner.*
- 3mm Brown foam or 3mm plywood*

Drain the fuel tank and disconnect all fuel lines and plug them to avoid dirt or particle ingress. Remove F09B and F09C tank fittings and fuel filler elbow so that the tank can be completely drained and purged of petrol vapors.

Make a tank cover plate to the dimensions shown in the "Tank Cover Plate 2" Drawing using 2.5mm HE30 aluminium. Make a nut ring to the dimensions shown in Drawing "Nut Ring" use captive sealed nuts F1968-3 for the nut ring and make 2 – 3mm thick fuel proof cork gaskets to the same dimensions as the nut ring to ensure a good seal.

Remove any carpet to expose the area between the headrests. Measure and cut an access hole in the centre between the headrests being careful not to damage the top of the fuel tank. See photo 1. This is best done using a dremel with a small diameter router bit with depth control as shown in Photo 7 following a former the same size at the Tank Cover Plate in Drawing "Tank Cover 2" that can be clecoed temporarily in place.

Continued on separate sheet.

5. DECLARATION

Owner's declaration: I declare that the foregoing information is correct and I agree to abide by any conditions pertaining to this repair. I agree that this repair and all ideas contained within are the property of LAA Ltd and can be used in any way for the benefit of the LAA and its members.

Name (owner): (on behalf of all the owners)	<i>Dave Disney</i>
Signature:	
Date:	<i>17/08/2016</i>

Inspector's declaration: I confirm that, to the best of my knowledge and having examined the aircraft, this is an accurate summary of the damage incurred. I have reviewed the above proposal and consider that this would make good the damaged described above.

Name:	
LAA Inspector number:	
Signature:	
Date:	

Using the nut-ring as a template and the same dremel and router bit, cut an access hole in the top of the plastic fuel tank the same size as the inside form of the nut ring, drill the fixing holes in the tank top to match those in the nut ring. See Photo 2.

The plastic tank can now be repaired using a small electric hot air welding gun.

Using the dremel, route out the split in the tank in a 'V' to a depth of about 3 millimeters deep, clean up the surface around the split 10 - 15 mm all around it. See Photo 3 & 4. For plastic welding rod, cut plastic strips from the access panel that was cut out. The strips should be approx.5 mm wide cut along the length of the oval panel, clean up the surface of the strips using the dremel.

Use the hot air gun to slowly heat the area to be welded until the plastic becomes soft and malleable (melted state). Introduce the filler rods as required to replace the plastic that was removed by routing and cleaning. A successful fuel tight repair can be made using this method. See photos 3, 4 & 5. Leak test the tank to ensure the repair is sound.

Repair the area between the headrests as follows.

Make a laminated cockpit cover using either 3mm brown foam or 3mm plywood to the dimensions shown in the Drawing 'Cockpit cover 3'. One ply of Bid on both sides of the foam or plywood provides enough strength. Prepare a flat surface for laying up over the cover to make a cockpit cover retaining panel. I use a glass sheet that is treated with a release agent and vacuum bagged the layup. Make a layup over the cockpit cover that will be large enough to trim and fit the area between the headrests of the cockpit module as in Photo 9. Make sure you use a release agent on the cockpit cover before commencing the layup. The cockpit cover retaining panel layup should be made up of 2 plies at $\pm 45^\circ$ followed by a further 2 plies that have been cut 40mm larger than the oval cover plate followed by 3 plies at $\pm 45^\circ$, see Photo 6 for details. Cut out an area of the cockpit cover retaining panel to leave a flange to secure the cockpit cover. Rivet anchor nuts or bond on thin nuts using Araldite 420 if space is limited between the top of the fuel tank and the underside of the flange for retaining the cockpit cover. See photo 7.

Prepare the area between the headrests by routing out an area to accept the flange of the cover retaining panel. You will need to provide clearance holes for the anchor nuts on the cockpit cover retaining panel. See photo 2, 7 & 8.

Prepare the area between the headrests for bonding and bond the cockpit cover retaining panel in place using Araldite 420 and flox, secure with clecos or weights and leave overnight to set.

Ensure all swarf and debris has been cleaned out of the tank before installing the nut ring and a gasket on the inside of the tank and the tank cover and a gasket on the outside, secure the cover using AN526C-1032-R16 screws or countersunk equivalents. Refit all of the tank fittings, re-connect the fuel lines and fill the tank with fuel & check for leaks. Disconnect the fuel line at the mechanical fuel pump inlet and use the electric pump to empty the fuel from the tank including the reserve side. Check the fuel filters and clean or replace as necessary.

Re-connect the fuel line to the fuel pump, refill the tank, pressurise the fuel system to check for leaks & fit the cockpit cover.

Weight & Balance

The installed weight of the repair is approx 1.5 lb. (all components have been weighed at 1lb 4oz).

Weight	Arm	Moment
1.5 lb	76"	114

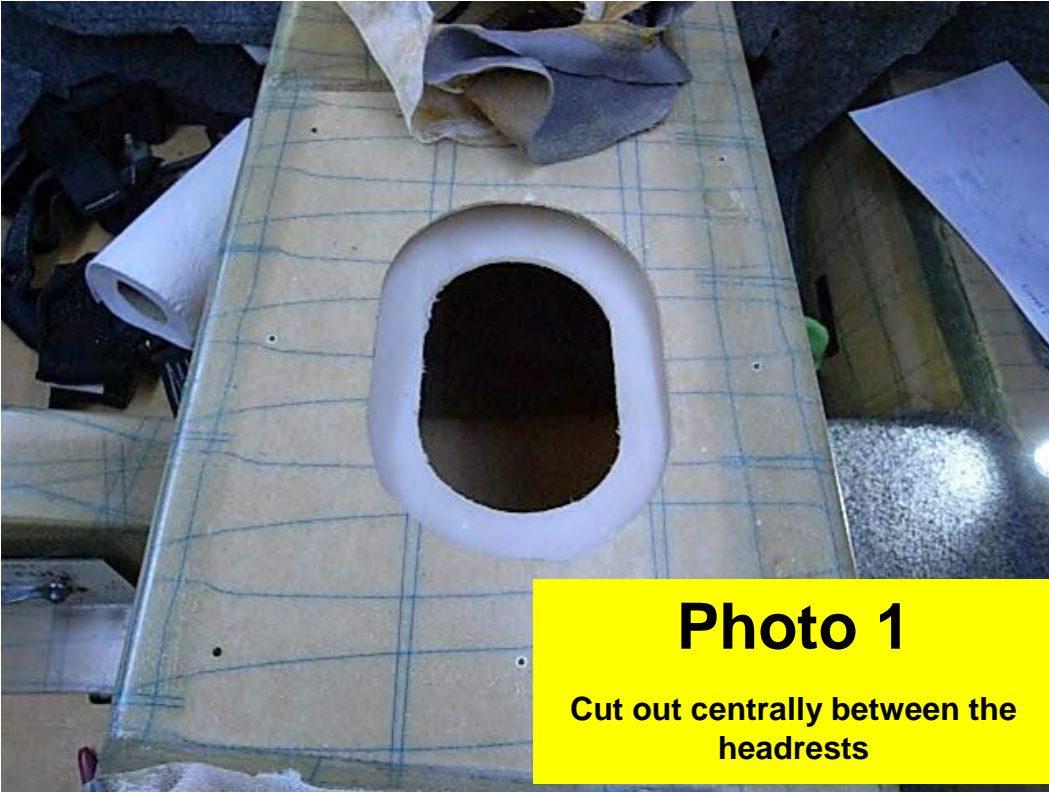


Photo 1

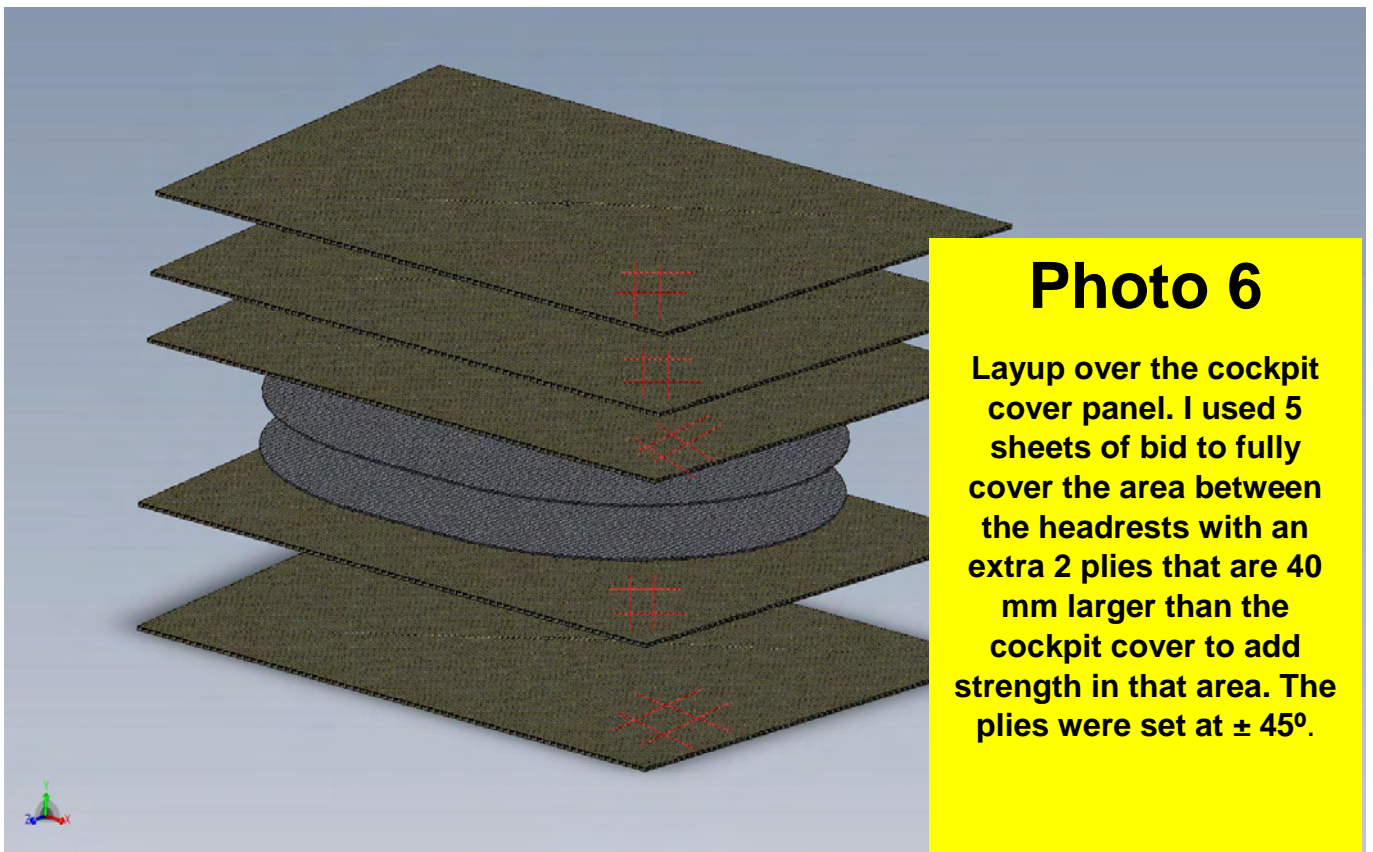
Cut out centrally between the headrests



Photo 2

Use the nut ring as a guide for the tank cut out. Note the area routed for bonding in the cockpit cover retaining panel





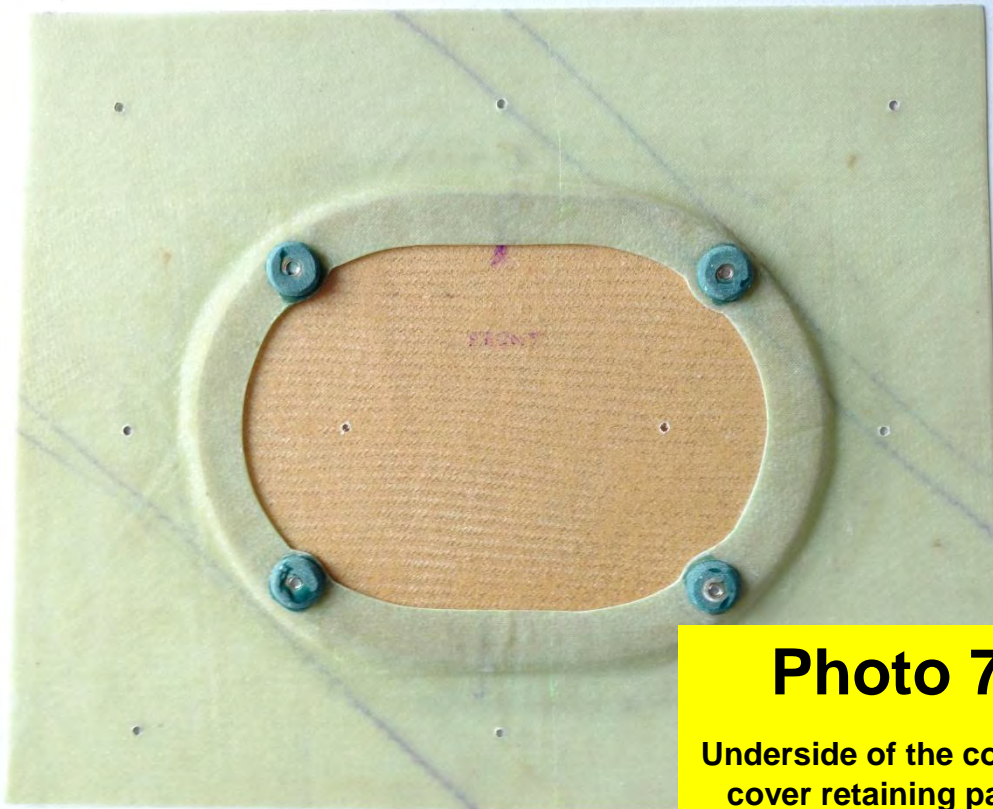


Photo 7

Underside of the cockpit
cover retaining panel
with cover in place

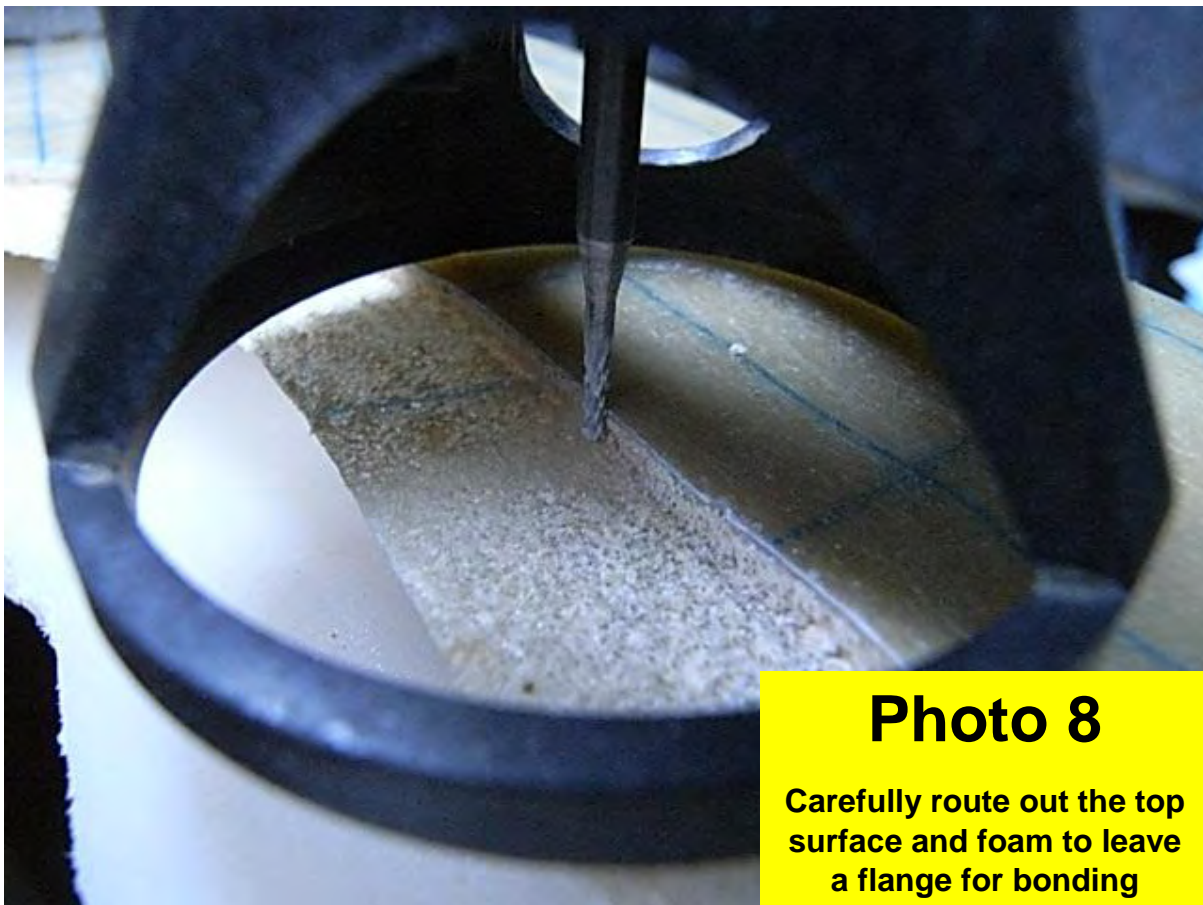


Photo 8

Carefully route out the top
surface and foam to leave
a flange for bonding

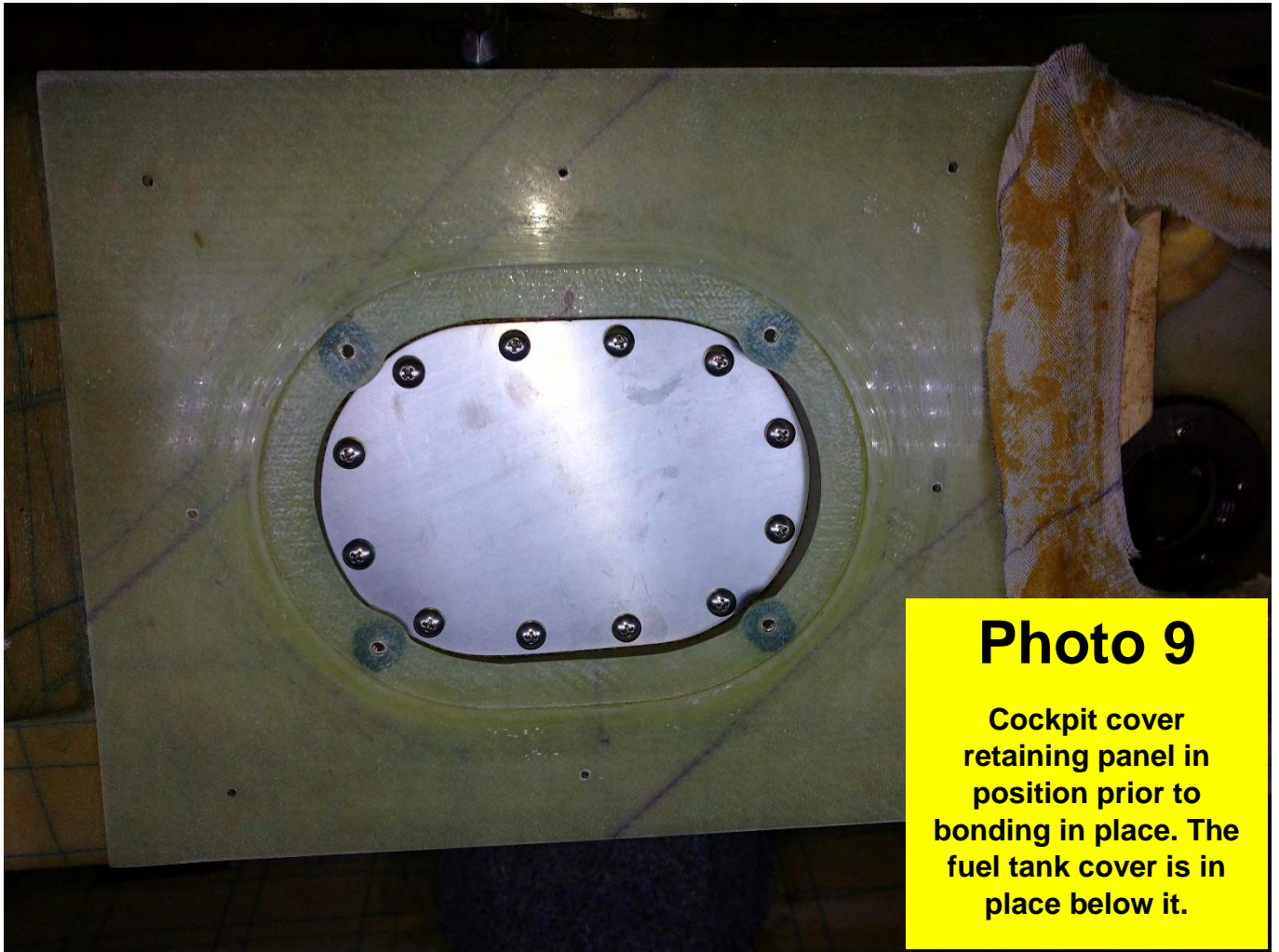


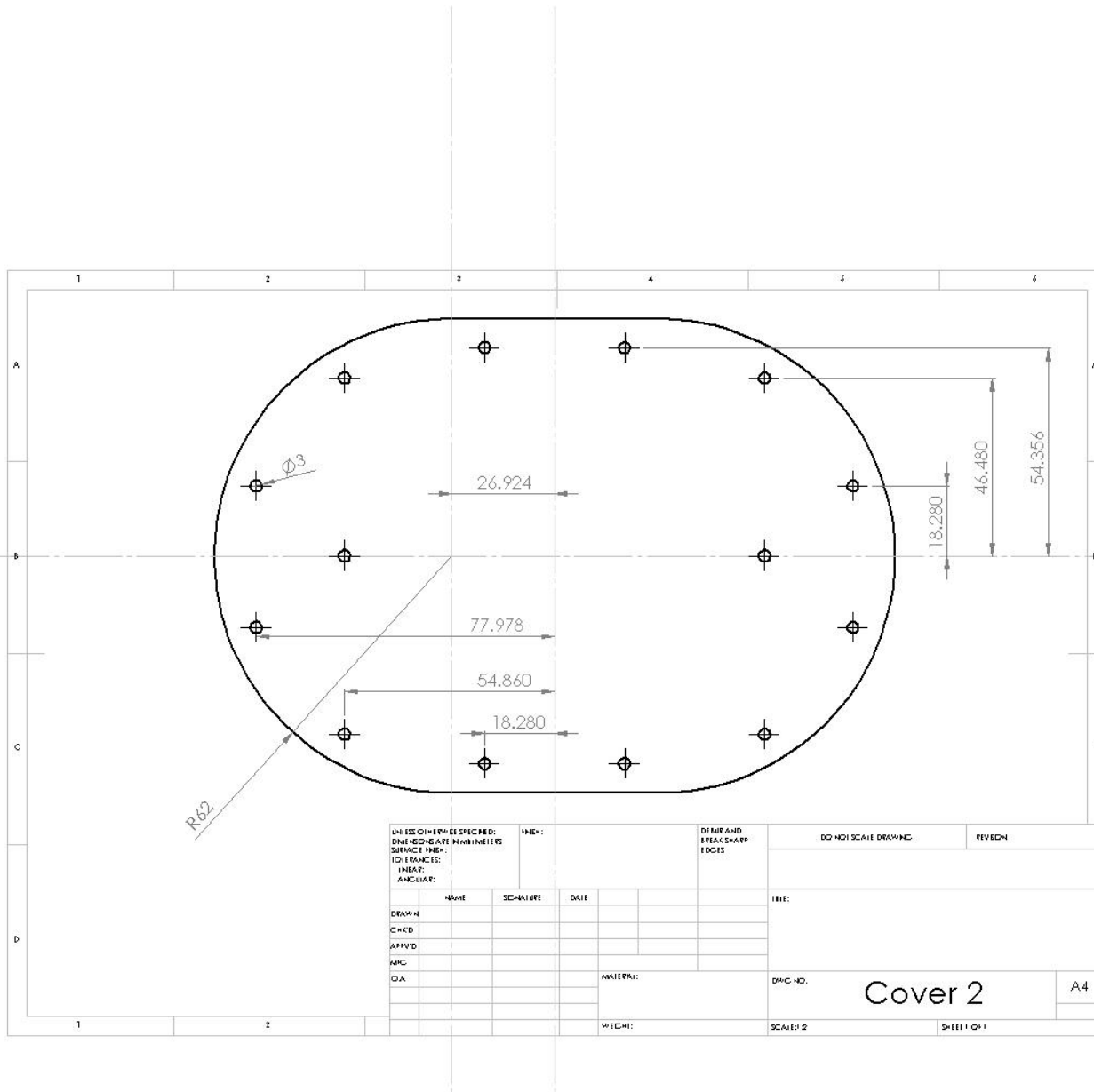
Photo 9

Cockpit cover retaining panel in position prior to bonding in place. The fuel tank cover is in place below it.



Photo 10

Nut Ring, Tank Cover and gaskets.



UNLESS OTHERWISE SPECIFIED:		INCHES	DEBUR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING	REVISION
DIMENSIONS ARE IN MILLIMETERS						
SURFACE FINISH:						
TOLERANCES:						
LINEAR:						
ANGULAR:						
DRAWN	NAME	SIGNATURE	DATE		TITLE	
CHECKED						
APPROVED						
AWC						
D.A.						
				ANGULAR:	DWG NO.	A4
				WEIGHT:	SCALE: 2	SHEET 1 OF 1

Cover 2

A4

