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This standard form is used to describe a modification in appropriate detail to constitute part of the aircraft build standard record. All pages must be included in any submission.

### 1. AIRCRAFT DETAILS

Registration	Type	Serial Number
	All Europas	Standard Mod

### 2. APPLICANT DETAILS

Owner's Name		Membership No.	
Name and address of person to be contacted regarding this modification: I. F. Rickard 7 Willowmead Close Woking, Surrey GU21 3DN Daytime Telephone Number:01483 714096 e-mail: g-iani@ntlworld.com			

### 3. MODIFICATION DETAILS

TITLE :	<b>STROBE UNIT INSTALLATION</b>
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The installation and operation of one or more strobe heads can improve flight safety by making the aircraft easier for others to see.

A single strobe head can be mounted on the fin or alternately fitted to the fuselage top, mid way between the rear of the doors and the fin leading edge. The position must be chosen to prevent flashing light being reflected from the instrument panel.

Optionally a second strobe head can be fitted to the fuselage underside. The position must be considered carefully. For Monowheel aircraft mounting it under one of the seat thigh supports (so that it is off centre) will make it less likely to be splashed with mud. Trigear aircraft could have the head elsewhere but location with respect to fuel lines, antenna cables etc. should be considered.

### 4. PARTS LIST

Qty	Part No.	Description	Source
1	SFD1	Single head system	Airworld (UK) Ltd
or	SFD2	Dual head system	PO Box 1835
	MS21047-L06	Anchor nuts	Winslow, MK18 3ZS
	MS21047-3	Anchor nuts	Tel 01296 714900
		P clips (made from Bid)	<a href="http://www.airworlduk.com">www.airworlduk.com</a>
	6-32 bolts	Bolts	
or	Screws	Self tapping screws	

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### LIST OF RELATED DRAWINGS / PHOTOS

Drawing No.	Title / Description	Issue
	<b>None</b>	

## 5. ACTION

### 5.1) Decide on the location

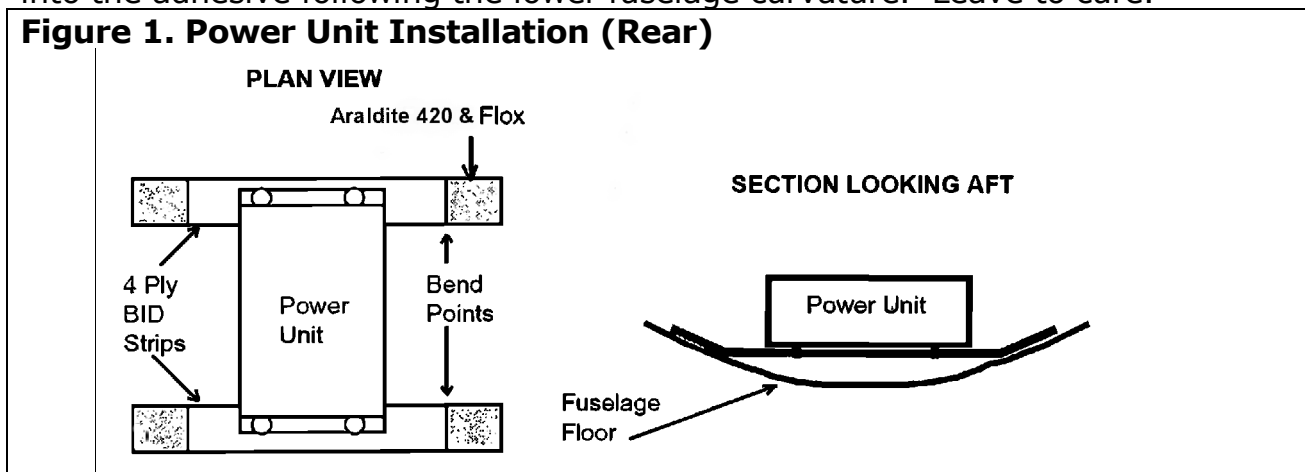
Decide on the location of both the strobe heads and the strobe power supply box. The location of the power supply should allow it to be firmly mounted and minimise the cable runs to the heads. A suitable location for mid mounted strobes is to bolt the power supply box to the baggage bay port side support rib. Mount on the inboard side just below the port access panel. For a fin mounted strobe the power unit can be located inside the lower rear fuselage, just forward of the rear bulkhead. It is then accessible through the lower access panel. If this position is used make sure the box will pass through the access panel.


### 5.2) Mounting the power supply

5.2a If mounting on the port baggage bay support rib the unit can be bolted directly to the plywood rib with the power connectors forward.

5.2b If mounted in the rear fuselage place the box in position and check that the rudder cables remain clear of it throughout their range of travel. There is a lot of fuselage curvature in this area so a secure fixing must be created. The control boxes have a flange at each end with holes for bolt fixing. Make up two pieces of 4 ply 'bid' 15mm wide and 60mm longer than the box is wide. Rivet pairs of anchor nuts (MS21047-3) to their undersides and bolt them to the underside of the box so that 30mm protrudes from each side. Position the box in its position in the fuselage and mark the four areas where the 'bid' straps extend from the box and abrade the fuselage skin in this area. Mix up some epoxy or Araldite 420 with flox to make a stiff paste and smear it onto the fuselage in these areas. Now carefully heat the strap extensions with a hot air gun (avoid getting the box hot) so they become flexible and without delay place the box in position with a weight on top so that the strap extensions bed fully into the adhesive following the lower fuselage curvature. Leave to cure.

**Figure 1. Power Unit Installation (Rear)**



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### 5.3) Mounting the Strobe unit

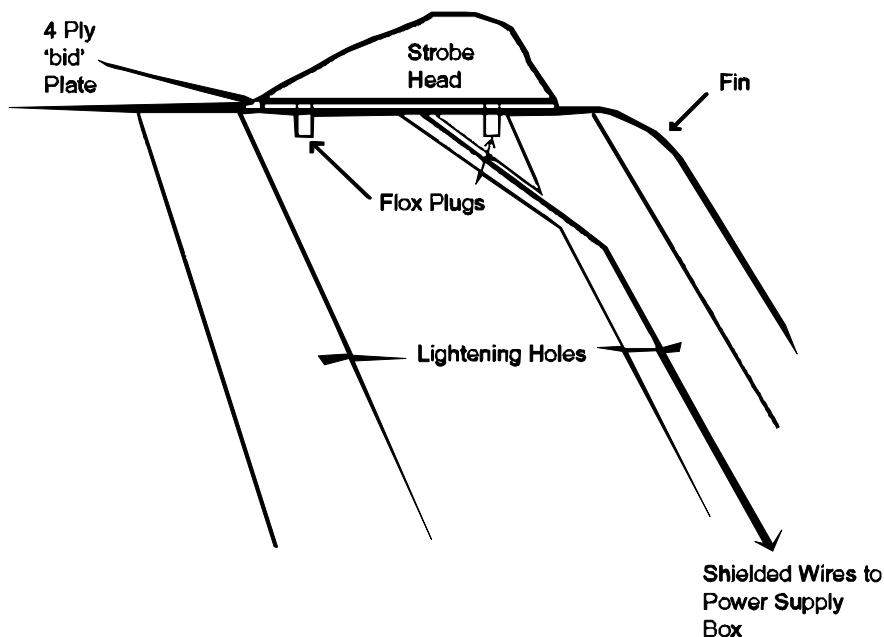
The strobe units can be mounted directly on the skin. If the skin surface is significantly curved or lacks strength (see 5.3e below) a mount plate should be bonded to the skin. Three holes are required, two for the bolts/screws and a centre hole for the cable. The method used must take into account the nature of the skin.


5.3a The unit can be mounted with either bolts and captive stiff nuts (MS21047-L06 or similar) or self tapping screws into Flox nuts. Flox nuts are created by "casting" a block of epoxy/flox at the position of the nut. This should be at least 3x the diameter of the screw and longer than the screw penetrates. When cured a pilot hole is drilled and the self-tapping screw inserted.

5.3b The mounting plate is made from 4 ply epoxy/glass sheet cut to the shape of the base of the strobe head. The captive stiff nuts are riveted to the underside of the mounting plate. The plate is glued to the skin using epoxy or Araldite 420 and flox. If Flox nuts are to be used these can be formed on the under side of the plate using blue foam as a mould.

5.3c For early aircraft the fin is two plies of 'uni' over blue foam and a mounting plate must be installed to reinforce the surface. By positioning the head well forward a diagonal hole will allow access to the foremost lightning hole to route the wiring down to the forward side of the rear bulkhead (See Fig 2).

**Figure 2 Fin installation**



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5.3d If the skin is solid epoxy/glass (such as the pre-moulded fin cap) the unit can be simply bolted/screwed to this skin. Use a mounting plate as described above if the surface is not flat.

5.3e If the skin is of sandwich construction (the fuselage) the unit can be bolted directly to the skin but the sandwich skin must be prevented from being crushed by the attachment bolts and water must be prevented from entering the sandwich foam. This can be achieved by drilling through the skin, removing the foam round the hole between the inner and outer skins to a depth of 3 to 4mm (use a bent, sharp pointed tool). Fill this area with epoxy/flox. The aim is to effectively create a "flox" washer between the two skins. When the flox has cured re-drill the hole. The cable access hole should be treated identically. Use a mounting plate as described above if the surface is not flat.

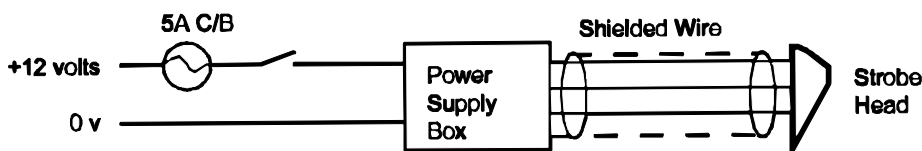
#### 5.4) Wiring

5.4a LAA Engineering recommends keeping the high voltage wiring away from fuel tanks and other fittings for obvious reasons.

5.4b The three-core wire supplied by the manufacturer is not shielded. If the strobe unit is to be installed in the fin, close to the comm. antenna, shielding may be necessary. Earth only one end of the shielding.

5.4c The supply wiring to the power supply is made with the usual switch/circuit breaker arrangement. A 5A breaker is normally required.

**Figure 2 Wiring**



5.4d All wires should be adequately supported and attached to the fuselage skin with "P" clips. These clips can be custom made from epoxy/glass for the wire concerned and glued on with epoxy resin.


5.4e If the strobe unit is installed in the pre-moulded fin it will be necessary to drill holes in each of the moulded ribs. The holes should be on the centre of the rib. A rubber grommet must be fitted in each hole to protect the cable. The cable will exit the fin behind the rear bulkhead.

### 6. FLIGHT TEST AND SPECIAL INSTRUCTIONS

LAA inspector to inspect completed jobs and raise log-book entry, update weight schedule and issue PMR

### 7. LIST OF RELATED ANALYSIS OR TEST REPORTS

Report No.	Title / Description	Issue
	<b>None</b>	


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### 8. WEIGHT AND BALANCE EFFECT

	Weight (lb/kg)	CG (in/mm)	Moment
Existing A/C			
+/- Weight Change	+0.70lb (Power) +0.25lb (head)		
Post Mod A/C			

### 9. APPLICANT'S DECLARATION

I declare that the foregoing information is correct and I agree to abide by any conditions pertaining to this modification. I agree that this modification and all ideas contained within are the property of PFA (Ulair) Ltd and can be used in any way for the benefit of the LAA and its members.

Signed  Print I. F. Rickard Date 16/05/2008