Light Aircraft Association

MANDATORY PLACARDS AND LABELS

One of the conditions of operating an aircraft with a Permit to Fly is that certain placards and notices, as required by that Permit to Fly, are present, correct and legible. Other placards are required by the LAA but we will deal with the Permit requirements first.

1. CAA Requirements when operating under Permit to Fly

1. The Air Navigation Order requires the following placard:

OCCUPANT WARNING
This aircraft has not been certificated to
an International Requirement

This is really the UK equivalent of the American practice of applying the word "Experimental" down each side of the aircraft. This placard must be in full view of the occupants; so, in the case of a tandem seater it may be necessary that two such placards are installed.

2. The Operating Limitations of the Permit to Fly require various additional placards to be fitted, typically:

Aerobatic Limitations showing permitted manoeuvres and maximum G's
Loading Limitations showing maximum weights, c of g datum and c of g limits. (Additional weight limitations for gyroplanes)
Engine Limitations showing maximum RPMs
Air Speed Limitations showing maximum air speeds in different configurations
Other Limitations showing daytime VFR and no smoking restrictions (Gyroplanes have a "Person Proximity" limitation under this heading too)

Where practicable these limitations may be shown by instrument markings – such as a red line on the ASI at maximum speed, but such marks should be correct, clear and unambiguous. Markings on the glass are acceptable but it should be established that the glass is secure in its housing and has no possibility of rotating. Aerobatic, loading and 'other' limitations should be shown by means of placards, the wording used is not critical, as long as the facts are correctly displayed and understandable.

3. Another vital, and indeed legally required item is a fireproof (stainless steel) metal plate engraved or stamped with the aircraft nationality and registration marks, eg G-ALAA. The Air Navigation Order (ANO) states that this plate is to be "affixed in a prominent position on the fuselage". We interpret this to mean it could be positioned inside or outside the aircraft as long as it is easily found when looked for.

The ANO used to require also the name and address of the registered owner to be included on the plate. A change in the ANO now lifts that requirement and means that the plate does not need changing with every change of ownership.

When completing the build of a new project or the overhaul of an imported type you will not know at that stage what placard details will be required by the Permit to Fly. In these circumstances the LAA will, when issuing you with a Permit Flight Release Certificate for test flight, inform you of the limitations to be observed. These are to be placarded before a Permit to Fly can be issued.

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2. LAA Requirements

These are along the lines of common sense but will be different for each aircraft.

Basically, wherever there is a switch, knob or lever, it should be labelled clearly to show its function and mode of operation. The mode of operation of a switch should be up for on and down for off – in common with established aviation practice.

Engine controls too should be marked for purpose and mode of operation. Where it is not obvious from their presentation, instruments should be labelled to show their purpose and range of acceptable indication. Warning lights must be marked to identify what they indicate.

Cockpit exit levers, door and canopy latches should be so marked and, if it helps, an arrow applied inside and outside the aircraft to show the direction for emergency use of such levers.

Baggage weight and cockpit loading limitations, where applicable, should be placarded.

It is a good idea to mark static vents with "keep vent clear" and to label your "delicate parts" with a "no push" sticker.

It is a good idea to display the oil capacity and spec. next to the oil filler, but perhaps the single most important set of labels are those used to show the orientation of fuel cocks in relation to on/off or right/left, etc. Some aircraft have three or more fuel cocks; each should be clearly marked to indicate the tank selected. If there are certain fuel system operational requirements such as rear tank empty for aerobatics, or front tank only for take off, etc, then this information should be placarded where it can be easily seen. Accidents have occurred throughout aviation history from mis-selection of fuel tanks – and continue to happen! The capacity and type of fuel to be used should be displayed adjacent to all fuel filler points, and if the aircraft is cleared for operation on unleaded mogas then the associated warning and information placards must be installed.

It is useful to sign-write the tyre pressure at a convenient place near each u/c wheel and creep marks should be applied to all wheels fitted with tubed tyres.

This is not meant to be a comprehensive list covering every possibility and your inspector can advise.

The foregoing applies, even if you have owned the aircraft for 150 years and are the only one ever likely to fly it. It also applies to LAA microlight aircraft and gyroplanes.

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3. Special Requirements For Microlight Aircraft

(Ref the requirements of BCAR Section S issue 2, BCAR S25, S29, S1557)

From June 2002, the microlight definition changed to a 450 Kg gross weight limit and in doing so absorbed the temporary Small Light Aeroplane category. Existing SLAs now become microlights and the term Small Light Aircraft will fade into oblivion.

Co-incident with this change in microlight definition, due to the fact that most microlight aircraft are limited in payload, and are easily inadvertently overloaded when flown as two-seaters, all LAA microlight aircraft must now be re-weighed at intervals not less than five years and be fitted with a cockpit placard, updated at each weighing, in full view of the pilot stating:

CATEGORY: MICROLIGHT AEROPLANE	SEE NOTE #
EMPTY WEIGHT	*1*
DATE OF WEIGHING	*2*
MAXIMUM PERMITTED EMPTY WEIGHT	*3*
MAXIMUM PERMITTED GROSS WEIGHT	*4*
MAXIMUM FUEL LOAD WITH TWO CREW OF 86 KG EACH	*5*
MAXIMUM COMBINED CREW WEIGHT WITH FULL FUEL TANKS (S)	*6*

NOTES

1. *Empty weight of the aircraft including full oil tank and unusable fuel (ie fuel tank empty apart from unusable dregs). Must include all permanent equipment fitted and everything required for flight. Must be updated following any change in empty weight, eg after fitting extra equipment, or after recovering/painting.*

2. *Date of last weighing, ie when empty weight in 1. above was established.*

3. *Maximum permitted empty weight*. Normally specified in the LAA's Airworthiness Approval Note for the type. For a two seat microlight, this can be calculated by subtracting the weight of two 86 Kg crew (ie 172 Kg) from the maximum permitted gross weight (see 4 below) and then subtracting the weight of fuel consumed by the engine during an hour of flight at maximum power, normally assumed as follows:*

   Jabiru 2200 10 Kg Rotax 582 18 Kg Rotax 447 11 Kg Rotax 618 23 Kg
   Rotax 912 10 Kg Rotax 912S 13 Kg Rotax 503 15 Kg Rotax 532 15 Kg

   For a single seater microlight, maximum permitted empty weight can be calculated by subtracting the weight of a single 86 Kg crew from the maximum permitted gross weight of the aircraft (see 4 below) and then subtracting the weight of fuel carried when all fuel tanks are filled to maximum capacity.

4. *Maximum gross weight. This is the figure specified on the Operating Limitations Sheet of the Permit to Fly under 'Maximum Total Weight Authorised'. Note that not all Microlights have a max gross weight of 450 Kg, this is simply the category upper limit.*

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5. *Maximum fuel load with two average weight crew (86 Kg each). Only required on two seat microlights. To obtain this figure, subtract the empty weight of the aircraft from the maximum gross weight, then subtract 172 Kg from the remainder. (If the resulting fuel quantity exceeds the full tank capacity, write 'full tanks')*

6. *Maximum combined crew weight that can be carried with full fuel tanks(s). To calculate this, subtract the empty weight of the aircraft from the maximum permitted gross weight. Then from the remainder subtract the weight of the full quantity of useable fuel that can be carried.*

3.1 Example Microlight Weight Placard

An imaginary 'Skydancer' two seater microlight with Jabiru 2200 engine.

Maximum gross weight for the Skydancer is 430 Kg. A LAA inspector weighed the aircraft on 1st April 2001 and found the empty weight to be 244 Kg. Fuel tank capacity is 8 imp. Gallons.

Empty weight 244 Kg

Date of weighing 1st April 2001

Max permitted empty weight. As the Skydancer has a Jabiru 2200 engine, the fuel consumed in an hour at max power is assumed to weigh 10 Kg. Hence –

Max permitted empty weight = 430 – 172 – 10 = 248 Kg

Maximum fuel load with two average weight crew = 430 – 244 – 172 = 14 Kg

One Kilogram weight of petrol occupies 0.305 imperial gallons, hence –

14 Kg of fuel is just 14 x 0.305 = 4.3 imperial gallons ie only just over half tanks.

The weight of 8 imperial gallons of petrol (full tanks) is 8/0.305 = 26.2 Kg, hence –

Maximum combined crew weight with full fuel = 430 – 244 – 26.2 = 159.8 Kg

So for the 'Skydancer', placard should be as follows:

CLASSIFICATION : MICROLIGHT AEROPLANE	
EMPTY WEIGHT	**244 Kg**
DATE OF WEIGHING	**1.4.2001**
MAXIMUM PERMITTED EMPTY WEIGHT	**248 Kg**
MAXIMUM PERMITTED GROSS WEIGHT	**430 Kg**
MAXIMUM FUEL LOAD WITH 2 X 86 KG CREW	**14 kg (4.3 Imp gal)**
MAXIMUM COMBINED CREW WEIGHT WITH FULL FUEL	**160 Kg**

In the case of certain individual older aircraft, which first operated as 'Group A' machines prior to the introduction of the SLA category, it may be possible to negotiate with LAA Engineering a greater maximum permitted empty weight on a 'grandfather rights' basis. In no case may the empty weight exceed that calculated in accordance with FAR 23.25 and 23.29, ie the addition of

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two 77 Kg crew and the weight of fuel required for half an hour's flight at a maximum continuous power must not result in the aircraft exceeding max permitted gross weight.

4. Implementation

It's not important how these labels are produced. You can, if you wish, type them on to card and stick them to your panel, but professionally produced plastic engraved notices will complement your aircraft.

For advertisers of label and placard producing services, we would suggest you refer to the Classified advertisements in aviation magazines, such as *Light Aircraft, Flyer, Pilot* etc.

LAA inspectors are not expected to recommend the renewal of a Permit to Fly unless all the required placards are present, correct, secure and legible.

5. Registration Markings

It's not quite under the heading of placards, but this information would not be complete if we did not include a few words on registration letters.

The legal requirements which affect LAA aircraft are exactly the same as for aircraft holding a C of A, in that they pertain to all aircraft registered in the UK. The requirements concern the size, shape, positioning and colour of registration letters. The requirements are far too lengthy to reproduce here, but there is an excellent guidance document available from the CAA on the subject.

"CAP 523" is available by download from the CAA website or from Documedia, 37 Windsor Street, Cheltenham, Glos. GL50 2DG, telephone: 01242 235151. Priced at £1.50, it is sent free to anyone who registers an aircraft.

The only circumstances where an aircraft may not bear its UK registration as above is when a special exemption has been granted by the CAA registrations department. This might apply to ex-military or replica military types in a period colour scheme.

One last point that is commonly overlooked is that the ANO states that "An aircraft shall not bear any marks which purport to indicate that the aircraft is registered in a country in which it is not in fact registered".

There are a few LAA American imports drifting around, still bearing their American "N" registration as well as their new UK "G" registration. Don't let the men from the Ministry catch you!

For further information please contact LAA Engineering.