# BRITISH MICROLIGHT AIRCRAFT ASSOCIATION TECHNICAL INFORMATION LEAFLET

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#### **REPAIRS**

### 1. Repair definitions

To repair an aircraft is to return it to an airworthy condition after it has sustained damage<sup>1</sup>.

**Repairs NOT requiring approval.** A repair that is purely by replacement does not require explicit approval. To classify as a pure repair by replacement all replacement parts used in the repair must be approved<sup>2</sup>, and must be bolted in place (not require a fabrication process to fit).

**Repairs REQUIRING approval.** All repairs that are not purely by replacement require explicit approval<sup>3</sup>. Approval *MUST* be sought prior to the repair being implemented.

#### 2. Repair approval

Repairs can normally be approved either by the type-approval holder (factory-built aircraft only) or by the BMAA. A kit manufacturer / importer cannot approve a repair but may well be able to assist in the design of a suitable repair.

When repairing a factory-built aircraft the type-approval holder must be consulted first. They may have a suitable, factory repair scheme already approved. If not, and approval is to be sought from the BMAA, the BMAA require a Letter of No Technical Objection (NTO) from the type-approval holder.

#### 2.1. Applications to the BMAA

An application for assessment of a proposed repair must be made to the BMAA using form BMAA/AW/002b accompanying the following:

- o A Damage Report describing the damage requiring the repair.
- o A Repair Overview describing the entire repair (including those parts that are purely by replacement).
- o A Design Changes Report detailing those parts of the repair that change the design of the aircraft.
- A Replacement Parts / Materials Report describing the parts and materials used in the repair.
- o A Repair Processes and Procedures Report detailing those fabrication processes that require specific control.
- o A *Technical Justification* justifying the repair and in particular the design changes, replacement parts / materials and repair processes.

A template for a repair application, and an example repair application, are available on the BMAA's website<sup>4</sup>.

## 3. Technical justification

It is the applicant's responsibility to justify the proposed repair; it is the BMAA Technical Office's responsibility to assess the proposed repair and its justification. The BMAA Technical Team<sup>5</sup> of suitably qualified and experienced members is available to assist in the design of a repair and its justification – owners are strongly advised to make use of this valuable resource.

Repairs are normally justified by comparison with the original design. For instance, repairs to damaged structure are normally justified by demonstrating that the strength of the original, undamaged structure is regained<sup>6</sup>.

Repairs may also be justified by demonstrating compliance with the appropriate requirements in the approval basis (e.g. BCAR Section S) directly. However this normally requires more intellectual effort than justifying by comparison with the original design.

## 3.1. Standard repairs

Standard repairs, in particular those contained in the Federal Aviation Authority's AC 43-13.1B, should be used whenever possible<sup>7</sup>. Standard repairs are normally designed to regain the strength of the original, undamaged structure. Therefore providing technical justification for the repair is usually made significantly simpler.

<sup>&</sup>lt;sup>1</sup> A repair may involve some modification of the aircraft, such as a change in material specification or the addition of reinforcement. However only if the functionality of the aircraft were changed would the repair be reclassified as a modification.

<sup>&</sup>lt;sup>2</sup> BMAA TIL 058 – Replacement Parts

<sup>&</sup>lt;sup>3</sup> The BMAA will not normally approve a repair for damage that could be repaired purely by replacement unless the economic argument for doing so is overwhelming (e.g. sail repair versus new sail; weld repair versus new fuselage).

<sup>&</sup>lt;sup>4</sup> BMAA Form AW/074 – Repair Proposal Template; BMAA Form AW/074a – Example Repair Proposal

 $<sup>^{5}</sup>$  BMAA TIL 024 – BMAA Technical Team

<sup>&</sup>lt;sup>6</sup> Normally the same form, fit and function is satisfactory justification for the suitability of a replacement for a non safety-critical item.

<sup>&</sup>lt;sup>7</sup> Standard repairs still require explicit approval.