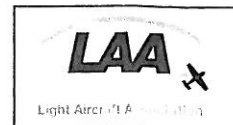


CLASSIFICATION: **A**

LAA Approval *[Signature]*

Date: *1.4.10*

Airworthiness Information Leaflet



Dyn Aero MCR-01, MCR-01 Club, and MCR-01 ULC Aircraft

Inspection of Mainplane Control Surface Attachment Brackets

Applicability:

All MCR-01, MCR-01 Club, and MCR-01 ULC aircraft with Aluminium alloy control surface hinge brackets.

Compliance by:

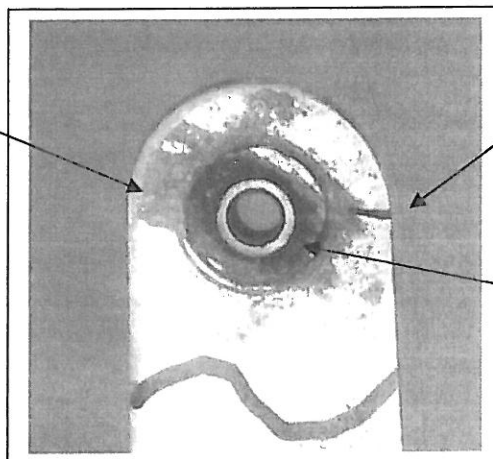
Within five (5) flying hours of the effective date of this Airworthiness Information Leaflet (AIL) and then at the subsequent and all following annual inspections for the renewal of the Certificate of Validity of the Permit to Fly.

Background:

During an annual inspection of a Dyn Aero MCR-01 aircraft the Flapperon was removed to inspect the extent of skin delamination noted during the initial visual examination. When the control surface had been removed the centre attachment bracket was found to have failed and the bearing had seized. Close examination of the failed bracket using electron microscopy showed strong evidence of Stress Corrosion Cracking (SCC).

It should be noted that whilst the MCR-01 aircraft is fitted with Flapperons, the Club and ULD variants have conventional Flaps and Ailerons but the attachment brackets may be the same and fall within the scope of this inspection. Some aircraft may be fitted with Carbon Hinge Brackets; this type of bracket has no separate bearing and is not susceptible to Stress Corrosion Cracking. Aircraft with Carbon Hinge Brackets do not fall within the scope of this bulletin.

Severe Surface corrosion; even minor corrosion must be treated as it will eventually lead to corrosion pits and may lead to stress corrosion failure.



Stress Corrosion Cracking.

Corroded and Seized Bearing.

Fig. 1. Stress Corrosion; material failure of an MCR-01 Flapperon Bracket

Actions Required:

Control Surfaces must be removed from the mainplanes and the brackets thoroughly cleaned and inspected for any sign of corrosion, particularly in the area of the bearing. Carefully inspect the bracket for cracks under a bright light. Check that the bearing is free to rotate and free of corrosion, if there is any doubt about the serviceability of this bearing it must be replaced.

Continued overleaf/

LAA Airworthiness Information Leaflet Classifications
 Classification A - Considered Mandatory by the LAA
 Classification B - Recommended by the LAA
 Classification C - Material published for information and/or guidance

Actions Required:

If there is no evidence of corrosion, pitting or cracking, and the bearing is in good order in each of the brackets the bearings should be lubricated and the control surface refitted.

Should corrosion be present, the bearing in the affected bracket must be carefully extracted and the protective paint removed from the bracket using a suitable paint stripper.

The extent of the corrosion on the bracket must be assessed; light surface corrosion may be removed using a gentle proprietary abrasive pad (not, under any circumstances, wire wool) and, if no pitting is evident, the bracket must be reprotected and the control surface may be returned to service.

If the corrosion present is severe or has produced corrosion pits or cracking in the surface of the bracket then this is unacceptable; the aircraft must not be flown and advice as to future action must be sought from LAA Engineering.

Certification:

Work carried out must be overseen by a suitably approved LAA Inspector before flight. Log book entry must be raised and signed by the inspector confirming compliance with MOD/301/021 issue 1.

Initial and Duplicate inspections are required on all disturbed flying controls.

**Advice and assistance for all Dyn Aero Aircraft
Can be obtained from:**

Jerry Davis.
Lyndhurst Touchdown
Services,
64 Welland Road,
Hants.
SO43 7AD

Telephone: 023 802 82619

A good guide to techniques available to the engineer for the inspection, removal and subsequent protection of metals from corrosion can be found in Chapter 6 of **AC 43.13-1B 'Acceptable Methods, Techniques and Practices – Aircraft Inspection and Repair'**.

This Advisory Circular, published by the US Department of Transportation, is available as a web document from the LAA Website (go to: Engineering/Aircraft Maintenance) or as a hard copy from the LAA Shop.