



EMERGENCY MANDATORY PERMIT DIRECTIVE

**Number: 2017-004-E**

Issue date: 15 May 2017

In accordance with Article 41(1) of The Air Navigation Order 2016, as amended, the following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

Type Approval Holder's Name:

P&M Aviation Ltd

Type/Model Designation(s):

Various, see below**Title:****Rigging Cables with Roll Swaged End Terminals – Inspection / Replacement****Manufacturer:**

P&M Aviation Ltd

Applicability:

All Microlights of the following types where P & M Aviation Ltd are the Type Approval Holder:

TADS No. Aircraft Type

BM4	Gemini Flash
BM10	Pegasus Flash
BM14	Gemini Flash 2
BM16	Scorcher
BM17	Pegasus Flash 2
BM23	Gemini Flash 2 Alpha
BM43	Mainair Mercury
BM47	Mainair Blade
BM51	Mainair Blade 912
BM54	Mainair Rapier
BM60	Mainair Blade 912S
BM70	Quik GT450
BM77	QuikR
BM80	Quik GTR
BM81	PulsR

Reason:	A P&M Quik GT450 in a flying school had a partial failure of a lower side rigging cable (Part No. YQD-045) when recovering from a spiral manoeuvre, within the limits of the flight envelope. These cables are arranged in pairs, to give a backup load path. The second cable carried the load and the aircraft landed safely. This is the only recorded lower side cable failure since 1984. The partial failure was at the edge of the roll swaged terminal end. The alternative cable terminations using Nicopress sleeves and thimbles allow more progressive flexing of the cable. The incident Quik GT450 lower side rigging cables had been in use for 1050 hours and 9 years. The aircraft had been subject to an accident and rebuilt once in its life. It was also operated quite near the coast where it is probable that sea air chlorides could have affected the material. There were corrosion pits in the S316 stainless steel material which accelerate fatigue failures. CLSCC (Chloride Stress Corrosion Cracking) is known to affect stainless steel. The cable fitting was at the bottom end of the cable, where solutions can wick down it and collect. The strand failures were caused by bending and tensile fatigue because of cracks propagating from scratches and corrosion pits on the surface. All the remaining cables had broken strands at the edge of the roll swaged terminals. Some of these strands had been failed for some time, as shown by discolouration of the failure surfaces. The cable is 7 cores of 7 strands construction. Failure of a lower rigging cable would potentially reduce the integrity of the wing and hazard the aircraft.
Effective Date:	15 May 2017