

## COLOMBAN MC-12/MC-15 CRI-CRI

Issue 2			
Revision A	New format	Dated 15/6/11	JV

**Section 1 - Introduction**1.1 UK contact

None.

However, drawings have in the past been available direct from the designer:

Michel Colomban, 37 bis rue Lakanal, 92500 Rueil Malmaison, FRANCE

Due to the original engines no longer being available, the designer is apparently reluctant to supply the drawings except to favoured customers.

1.2 Description

The Cri-Cri is a small, lightweight, single-seat, twin-engined, homebuilt aircraft built from plans. When fitted with 15 horsepower engines, as prototype, it is designated MC-12. The later variant with 18 horsepower engines is designated the MC-15. The 18 horsepower engines are strongly recommended, to give better single-engine climb capability. Despite its small size, the aircraft is not a microlight by virtue of wing loading and stall speed exceeding microlight limits.

The aircraft was designed and stressed to be aerobatic by its designer, M. Colomban. Limited aerobatic clearance has been granted by the LAA. A safe-life of 200 hours was estimated for the main spar, with a safety-factor of 4.0, using a severe aerobatic flight spectrum. With further work, it is expected that this fatigue-life could be extended.

The CAA does not require Cri-Cri pilots to have twin ratings: a special arrangement exists to allow single engine pilots to be cleared to fly the Cri-Cri following a limited training course.

The aerobatic clearance is only valid for MC-12 and MC-15 aircraft built to Colomban drawings and does not include Zenair kit aircraft, or aircraft in which Zenair kit components have been used.

Because of the heavier PUL 212 engines (18 hp) fitted to the aircraft tested for aerobatics (G-SHOG), testing at aft c.g. locations was impractical, so a limited aerobatic c.g. range has been selected for this aircraft.

The aircraft has only been accepted with the JPX PUL 212 engines fitted as shown on the drawings. The accepted propellers are Aerostructure MC/692/200. The JPX engines are no longer available. Various other engines such as Hirth F33 are under consideration.

**Section 2 – Mandatory information for owners, operators and inspectors**2.1 Fast Build Kit 51% Compliance

Not applicable - the Cri-Cri is built from drawings rather than a kit.

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2.2 Build Manual

The drawings provided by the designer included a detailed set of instructions.

2.3 Build Inspections

Build inspection schedule COLOMBAN CRI-CRI.

Inspector approval codes A-A or A-M. Inspector signing off final inspection also requires 'first flight' endorsement.

2.4 Flight Manual

A comprehensive flight manual is supplied by the designer which includes all essential operating information including procedures for carrying out aerobatics manoeuvres.

2.5 Mandatory Permit Directives

None applicable specifically to this aircraft type.

Also check the LAA website for MPDs that are non-type specific (TL2.22).

2.6 LAA Required Modifications (including LAA issued AILs, SBs, etc)

- The lap strap attachments were found on inspection to be prone to damage. The doubler reinforcing the safety-harness lap-strap attachment has been increased in size and thickness to reinforce this area. See PFA [MOD-133-001](#) as already cleared on G-SHOG. This modification is mandatory for aerobatic clearance.
- Because glued joints are used throughout the wing structure to bond ribs to the wing skins and to prevent inter-rivet buckling of riveted joints, it is mandatory to paint the aircraft's upper flying surfaces white.

2.7 Additional engine operating limitations to be placarded  
(or shown by instrument markings)

(Refer to the engine manufacturer's latest documentation for the definitive parameter values.)

With JPX PUL212 engines:  
Maximum CHT: 250°C

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2.8 Control surface deflections

Ailerons	Up: TBD Down: TBD
Elevators	Up: TBD Down: TBD
Elevator tab	Up: TBD Down: TBD
Rudder	Left: TBD Right: TBD

2.9 Operating Limitations and Placards

(Note that the wording on an individual aircraft's Operating Limitations document takes precedence, if different.)

- Maximum number of occupants authorised to be carried: One
- The aircraft must be operated in compliance with the following operating limitations, which shall be displayed in the cockpit by means of placards or instrument markings:

## 2.1 Aerobatic Limitations

Intentional spinning is permitted not exceeding 6 turns.

Maximum airspeed for full control deflection: 115 mph

The following aerobatic manoeuvres only are permitted:

<u>Manoeuvre</u>	<u>Entry Air Speed</u>
Inside Loop	130 mph
Half Cuban	130 mph
Half Reverse Cuban	130 mph
Cuban Eight	130 mph
Roll-Off-The-Top	140 mph
Roll (Slow, Hesitation)	110 mph (minimum 90 mph)
Barrel Roll	130 mph
Inverted Flight	110 mph (minimum 90 mph)

Stall turns, flick manoeuvres and all other non-listed manoeuvres prohibited.

Aerobatic manoeuvres imposing G forces in excess of +4.5g or -2.25g prohibited.

## 2.2 Loading Limitations

Maximum Total Weight Authorised: 170 kg

CG Range: 150 mm to 250 mm aft of datum

CG Range for aerobatics: 150 mm to 200 mm aft of datum

Datum Point is: leading edge of the wing

Max Aerobatic Fuel Quantity: 15 Ltrs

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- 2.3 Engine Limitations  
Maximum Engine RPM: 6500
- 2.4 Airspeed Limitations  
Maximum Indicated Airspeed ( $V_{NE}$ ): 160 mph
- 2.5 Other Limitations  
The aircraft shall be flown by day and under Visual Flight Rules only.  
Smoking in the aircraft is prohibited.

Additional Placards:

“Occupant Warning - This Aircraft has not been Certificated to an International Requirement”

A fireproof identification plate must be fitted to fuselage, engraved or stamped with aircraft’s registration letters.

For examples without the additional spar doublers, aerobatic life limit of the wing spars is 200 hours.

2.10 Maximum permitted empty weight

Not applicable.

**Section 3 – Advice to owners, operators and inspectors**

3.1 Maintenance Manual

Nil supplied. In the absence of a special maintenance schedule, owners are recommended to follow the LAMS schedule.

3.2 Standard Options

- An optional doubler can be fitted at the initial build-stage to the root region of the lower spar caps to increase the fatigue life of this region. Without this doubler in place, a safe-life of 200 hours was estimated for the main spar, using a severe aerobatic flight spectrum. With further work, it is expected that this fatigue-life could be extended.
- 18 horsepower JPX PUL-212 engines.

3.3 Manufacturer’s Information (including Service Bulletins, Service Letters, etc)

None known.

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3.4 Special Inspection Points

- The Poplar wood blocks acting as spar doublers at the main wing spar fuselage attachment pins should be checked for condition and replaced if the main pin holes have become enlarged.
- On inspection of one example, it was found that the wall thicknesses of the main wing attachment pins were under-sized on this aircraft. New pins were subsequently manufactured. This area should be checked on future aircraft, as the reduced wall-thickness pins may be a standard part manufactured incorrectly.

3.5 Special Test Flying Issues

- Advice on preparations for first flight and carrying out the test program are included in the build manual.
- The flight manual for the aircraft indicates that at high speeds, stick-forces can be light.
- Spins of up to 6 turns were carried out by LAA during tests. In all cases, spin recovery could be accomplished in or within one turn with slight opposite rudder and centralised stick.
- Aerobatics were found to be straight forward to execute, with no special tendency towards exceeding VNE on recovery. A limited range of permitted manoeuvres has therefore been approved based on the results of the flight tests. It was noted that the recommended entry speeds given in the flight manual were rather high, resulting in a large altitude loss when diving to achieve these speeds. Lower manoeuvre entry speeds have therefore been recommended.

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Please report any errors or omissions to LAA Engineering: [engineering@laa.uk.com](mailto:engineering@laa.uk.com)