

WHITTAKER MW7

Issue 1 Initial issue
14.8.07

1. UK contact

Plans for all aircraft are available from:
M Whittaker, Appletree Cottage, Churchfield Road,
Clayton, Doncaster, DN5 7BZ. Tel 01977 643508

MW CLUB, Web: www.mwclub.org

2. Description

The MW7 is a single seat high-wing aircraft, of tailwheel undercarriage configuration, available as a set of plans for constructions by amateurs. The pilot sits in a small open cockpit nacelle slung beneath the wing and engine. Engines options include the Rotax 503, 532 and 582. Unlike the similar MW5 and MW6, the MW7 is an SEP Aeroplane rather than a microlight, by virtue of its higher wing loading and stall speed. The MW7 is not cleared for aerobatics.

The MW7 incorporates a hinged wing rear spar attachment to the fuselage which allows the wings to be folded for storage, and allow one-person rigging. The all-flying tail surfaces slide onto spigots and are attached with a single clip.

All MW aircraft are constructed from readily available, mainly commercial materials such as HE30TF or 6061T6 aluminium alloy, and S514 or 4130 steel. The aircraft are assembled using pop rivets and bolts. There is a small amount of turning and milling of key components and also some welding in the undercarriage and control system. The wings are of mono-spar design, in which a single large diameter tube carries both bending and torsional loads. Plywood ribs with spruce cap strips are slid along the spar tube in a simple assembly jig and are attached with a fillet of chopped strand fibreglass and polyester resin making a strong and robust joint. Builders are required to proof load test sample rib/spar joints during wing construction. In the absence of a manufacturers recommended schedule, LAMS should be used as a guide to required inspections and this is reflected in the checklist in Section 1 of the LAA's permit renewal application form. Engines should be maintained in accordance with the engine manufacturer's recommended maintenance schedule.

3. Fast Build Kit 51% Compliance

Not applicable - plans built aircraft

4. Build Inspections

Build inspection schedule 9 (MW aircraft).
Inspector approval codes A-A or A-W. Inspector signing off final inspection also requires 'first flight' endorsement

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5. Build Manual

Build information is provided by a set of drawings available from the designer, Mike Whittaker.

6. Maintenance Manual

Nil. In the absence of a manufacturers recommended schedule, LAMS should be used as a guide to required inspections and this is reflected in the checklist in Section 1 of the LAA's permit renewal application form. Engines should be maintained in accordance with the engine manufacturer's recommended maintenance schedule.

7. Flight Manual

None known. In the absence of a Flight Manual, briefing by a pilot experienced on type is strongly recommended. LAA inspector Eddie Clapham tel 01454 412094 is particularly experienced on MW type aircraft, having completed much of the development test flying and test flown many examples.

8. Mandatory Permit Directives

None applicable specifically to this aircraft type, but note

MPD: 1998-019-R1 Flexible Fuel Tubing Applies to all permit aircraft

9. LAA Mandatory Modifications

171/MWC/0001	Tailwheel
171/MWC/0002	Design update: issue B drawings
171/MWC/0003	Anti-balance tab
171/MWC/0004	Wing/tail spar rib joints

Contact Mike Whittaker or MW Club for details if these are not supplied with your drawings

10. Service Bulletins

- Nil known for airframe.
- For Rotax engines, there are many Rotax service bulletins dealing with a variety of important safety topics. Copies of the bulletins applicable to individual engines by engine serial can be downloaded directly from the Rotax website at <http://www.rotax-aircraft-engines.com> More information is available on www.skydrive.co.uk

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171/MWC/0005	Under wing fuel tanks
171/MWC/0006	Steerable tailwheel
171/MWC/0007	Auxiliary fuel pump
171/MWC/0008	Aluminium trailing edges
171/MWC/0009	Wheels and axles

Details of the above are available via the designer or the MW Club.

12. Special Inspection Points

- Refer to Rotax installation manual and Rotax installation checklist (available from Skydrive and LAA) for details of Rotax installation requirements, as drawings of aircraft do not include comprehensive engine installation details.
- With fan-cooled Rotax engined versions, corrosion of fan belt pulleys must be avoided as this causes very rapid drive belt wear and has been a common source of in-flight drive belt failure, leading to engine seizure through overheating.
- As with other low-cost microlights, you may find MW aircraft stored in less than ideal conditions, in which case you should be particularly wary of corrosion, fabric damage, rodent attack etc. Maintenance of the airframe is otherwise typical of a fabric-covered wood and metal airframe. Watch out for corrosion of tubing and on any unprotected aluminium parts, and loosening of rivets. Be wary of any signs of loosening or detachment of the bonded joints between wing and tail ribs and spars. Pay particular attention to short-lived items such as non-aeronautical fuel pipes, which will most likely need regular replacement.
- Many MW aircraft on the LAA fleet are over ten years old and are likely to be due for recovering - especially those which have been tied down outside, or those which have no proper UV blocker applied. Problems with premature loss of fabric strength were experienced on one MWs covered with 'Aerolene' - a one time popular fabric for this sort of application. A 'Bettsometer' can be used to check the fabric strength whilst doing minimal damage.

13. Operating Limitations and Placards

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:

Aerobatic Limitations

- Intentional spinning is prohibited
- Aerobatic manoeuvres are prohibited

Loading Limitations

- Maximum Total weight Authorised: 600 Lbs
- CG Range: 10.5 inches to 15.0 inches aft of datum.
- Datum Point is: leading edge of wing

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Engine Limitations

Maximum Engine RPM: 6800

Airspeed Limitations

Maximum Indicated Airspeed: 100 KIAS

Other Limitations

The aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited.

Additional Placard

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

14. Additional Engine Limitations/Placards

With Rotax 503 engine: Max CHT: 250C (normal 180-220C) max difference 20C
Max EGT: 650C (normal 460-580C) max difference 25C

With Rotax 582 engine: Max CHT: 150C (normal 110-130C) max difference 10C
Max EGT: 650C (normal 500-620C) max difference 25C

15. Maximum Permitted Empty Weight

<u>Model</u>	<u>Engine</u>	<u>Weight Max Gross</u>	<u>Weight Max Empty</u>
MW7	Rotax 503	600 Lbs	430 Lbs with full fuel
MW7	Rotax 532	600 Lbs	430 Lbs with full fuel
MW7	Rotax 582	600 Lbs	430 Lbs with full fuel

16. Special Test Flying Issues

If Rotax engine fitted, Rotax two-stroke flight test schedule to be completed.

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With low-mounted fuel tank and high-mounted engine, the fuel pump on these aircraft has to raise the fuel through a considerable height and this can lead to fuel starvation or vapour-lock problems if the fuel system is not operating at maximum efficiency. Problems can be minimised by close attention to avoiding air-leaks in fuel pipe and pipe connections, cleanliness of filters, minimising restrictions to fuel flow and proper maintenance of pulse pump and pulse pump vacuum line.

Due to the lack of fixed fin or keel area on these aircraft, directional stability is low and care is required to maintain balanced flight at all times.

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17. Control surface deflections

Ailerons	Up: TBD
	Down: TBD
Elevators	Up: TBD
	Down: TBD
Rudder	Left TBD
	Right TBD
Flap	Down N/A
Elevator tab	Up and down TBD

Approved:



F.R. Donaldson
Chief Engineer

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