

**Civil Aviation Authority
United Kingdom**



TYPE APPROVAL DATA SHEET

BG 05

for
M24C

Magni Gyro Limited

Magni Gyro Srl
Besnate
Varese
21010
Italy

Applicant's Design Organisation Approval Number DAI/9516/95

Model(s): M24C; M24C Plus
Revision: 15
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TABLE OF CONTENTS

1.	General	3
1.1.	Registered Office	3
1.2.	Primary Site.....	3
1.3.	Secondary Site.....	3
1.4.	Approved Configurations	3
1.4.1.	Powerplants	4
1.4.2.	Rotor System	4
1.5.	Required Instruments.....	4
1.5.1.	Required Instruments for Night VMC.....	5
2.	Certification Basis	6
2.1.	Equivalent Level of Safety Items.....	6
2.2.	Special Conditions	6
3.	Technical Characteristics and Operating Limitations	7
3.1.	Technical Characteristics.....	7
3.1.1.	General	7
3.1.2.	Fuel Capacity	7
3.1.3.	Permitted Fuels and Lubricants	7
3.1.4.	Dimensions	7
3.1.5.	Typical Weight.....	7
3.2.	Operating Limitations	8
3.2.1.	Maximum Number of Occupants	8
3.2.2.	Aerobatic Limitations.....	8
3.2.3.	Engine Limitations.....	8
3.2.4.	Air Speed Limitations	8
3.2.5.	Loading Limitations	9
3.2.6.	Other Limitations	9
4.	Pilots Notes, Maintenance Manuals References	10
4.1.	Approved Manuals	10
4.2.	Placards	10
5.	Notes	10
6.	Document Administration	11
6.1.	Document History	11
6.2.	Abbreviations & Definitions	12

1. General

The M24C is a two seat (side-by-side configuration) gyroplane with enclosed cockpit and tricycle undercarriage.

1.1. Registered Office

Magni Gyro Ltd.

253 Gray's Inn Road
London
WC1X 8QT
UK

Note: Mangi Gyro Ltd is a wholly owned subsidiary of Magni Gyro Srl.

1.2. Primary Site

Magni Gyro Srl.

Via Volpina 23
Besnate
Varese
21010
Italy

1.3. Secondary Site

Magni Gyro UK
Popham Airfield
Coxford Down
Winchester
SO21 3BD
UK

1.4. Approved Configurations

The basic standard for this aircraft is defined in Magni Gyro Srl. M24C Type Design Build Standard:

- For the M24C: 002-00-24C at Issue D as approved by AAN 29276 Issue 2,
- For the M24C Plus: 253-00-24C Issue A as approved by AAN 29276 Addendum 1, Issue 2,

or later approved version, plus approved modifications as described below:

- Addendum 1 [Add1]: (Mod. 125) Introduction of Rotax 915iS Engine variant (M24C)
- Addendum 2 [Add2]: (Mod. 151) Night VFR modification for M24C Plus

A list of approved minor modifications is available from the Magni Gyro UK website <https://www.magnigyro.co.uk/>.

Minor modifications applicable at release-to-service are listed on the Aircraft Statement of Conformity, referenced in the format: MGL-ASC-xxx.

1.4.1. Powerplants

The following Powerplants are approved:

Designation	M24C	M24C PLUS
Engine Type	Rotax 914UL	Rotax 915iS
Reduction Gear	2.43:1	2.54:1
Exhaust System	Stainless steel with after muffler	Stainless steel with after muffler
Intake System	Single intake filter, balance box	Single intake filter, fuel injected
Propeller Type	MAGNI GYRO ECO GL170/3 light ground adjustable composite propeller	DUC Hélices Inconel Flash-2 4-blade ground adjustable propeller
Propeller Dia x Pitch	1.70 m x 12°45' at tip of blade, with inclinometer against intrados of aerofoil	1.72 m x 17° at tip of blade, with inclinometer against intrados of aerofoil
Noise Type Cert No.	N/A	N/A
AAN approving configuration	AAN29276	AAN29276
Addendum	-	Add1

1.4.2. Rotor System

The following Rotor Systems are approved:

Rotor system description:	Single two blade fixed pitch teetering rotor of 28.2 ft (8.574m) diameter.
AAN approving rotor system:	AAN29276
Addendum:	-

1.5. Required Instruments

The following instruments are required to be installed with the applicable units stated.

- Airspeed Indicator (ASI): mph
- Altimeter: feet (mb subscale)
- Rotor RPM: RPM
- Engine RPM: RPM
- Compass: N/A
- Vertical Speed Indicator (VSI) (optional): Ft/min
- CHT/EGT: °C
- MAP: inHg

1.5.1. Required Instruments for Night VMC

For flying under night VFR, Mod. No. 151 (Add2) is applied, requiring the aircraft to be equipped with:

- LED landing light
- Heated pitot
- Cabin light
- Internal LED lights
- Position/navigation/strobe lights
- Tail position/strobe light protection
- Anticollision light
- Backlit Altimeter and Air Speed Indicator
- Backlit rotor rpm tachometer and compass
- Longer instrument panel eyelid
- Dedicated warning LED lights
- Dedicated breakers and switches panel
- Dedicated engine instrument panel with Dynon Avionics SV-HDX800 used as EMS
- Internal cabin static port system
- Portable torch for each crew member
- Strobe flashing protection
- Dynon screen protection
- Upper LED stripe protection

2. Certification Basis

The original Certification Basis for this aircraft was BCAR CAP 643 Section T Issue 3, dated August 2005.

2.1. Equivalent Level of Safety Items

Unless specifically identified, all Equivalent Level of Safety (ELOS) are applicable to the 914UL variant originally approved under AAN29276 and the 915iS variant (M24C PLUS) approved under Add1.

The following ELOS Items have been reviewed and accepted by the CAA:

- BCAR Section T issue 3:
 - T23 – Load Distribution Limits
CG/Thrust offset varies between +7.83 and 13.46 inches above CG.
 - T143 (b)(i) – Controllability and Manoeuvrability
Flight Testing to $1.11V_{NE}$ has been accepted rather than $1.15V_{NE}$.

2.2. Special Conditions

The following Special Conditions (SC) and/or Certification Review Items (CRI) apply:

- AAN 29276 SC1 Issue 3 – Fire Protection
SC closed 25 August 2010

3. Technical Characteristics and Operating Limitations

3.1. Technical Characteristics

3.1.1. General

- Gyroplane with nose gear wheel chassis
- Stainless steel welded airframe with glass/carbon fibre mouldings for tail planes, pilot enclosure, wheel spats, and seats.
- Two-seat side-by-side configuration
- Fixed front-tricycle landing gear
- Pneumatically operated trim, rotor brake and pre-rotator.
- Rotor head controlled with push-pull control cables
- Rudder controlled with cables
- Rudder and stabilizer surfaces made of CRP (carbon fibre)
- Dual control availability

3.1.2. Fuel Capacity

Total:	82 litres.
Unusable:	3.5 litres (at straight/level flight attitude)
Useable:	78.5 litres

Fuel specification as specified by BRP Rotax service instructions and Pilots Operating Handbook.

3.1.3. Permitted Fuels and Lubricants

Engine Oil Spec:	As specified by BRP Rotax service instructions
Gearbox oil spec:	N/A - Integral with engine
Fuel/Oil Mix:	N/A

3.1.4. Dimensions

Span:	1.8m (Not including Rotor)
Length:	4.4m (nose to tail, not including Rotor)
Height:	2.7m (not including Rotor)
Wing Area:	N/A

3.1.5. Typical Weight

Empty Weight (nominal):	
Rotax 914UL:	297 kg
Rotax 915iS:	315 kg [Add1]
Rotax 915iS with Night VFR:	317 kg [Add2]

3.2. Operating Limitations

The Aircraft must be operated in compliance with the following operating limitations.

3.2.1. Maximum Number of Occupants

Maximum number of occupants authorised to be carried (including crew): Two

The minimum flight crew is: One pilot

3.2.2. Aerobatic Limitations

Aerobic manoeuvres are prohibited.

Manoeuvres involving a deliberate reduction in normal 'g' shall be avoided.

Maximum bank angle 60 degrees.

3.2.3. Engine Limitations

Engine	914UL	915iS
Max RPM (5 minutes)	5800	5800
Max RPM (Continuous)	5500	5500
Max CHT or	135°C	N/A
Max Coolant Temperature (SB024 installed)	120°C	120°C
Max EGT	950°C	950°C
Oil Pressure	Max: 7 bar Min: 1.5 bar Nominal: 2-5 bar	Max: 7 bar Min: 1.5 bar Nominal: 2-5 bar
Oil Temperature	Max: 130°C Min: 50°C	Max: 130°C Min: 50°C
Fuel Pressure	N/A	N/A
Manifold Pressure	Take-Off: 39.9 inHG Max Continuous: 35.4 inHg	51 inHg (managed by the ECU)

3.2.4. Air Speed Limitations

Maximum airspeed (V_{NE}): 100 mph IAS

Minimum Speed: 30mph¹

¹ It is not possible to maintain straight and level flight under 30 mph. Below 30mph, the aircraft will enter a controlled descent.

3.2.5. Loading Limitations

Maximum Total Weight Authorised:	500 kg [914UL]
	535 kg [915iS – Add1]
Maximum Empty Weight:	301 kg [914UL]
	320 kg [915iS – Add1, Add2]
Maximum Occupant Weight left seat:	120 kg
Minimum Occupant Weight left seat:	60 kg
Maximum Occupant Weight right seat:	120 kg
Minimum Occupant Weight right seat:	0 kg
Maximum Total Occupant Weight:	203 kg [914UL]
	220 kg [915iS – Add1]
	218 kg [915iS Night VFR Add2]

Left seat occupant under 60kg must add ballast.

The following CG limits apply:

Horizontal CG:

FWD:	1409mm aft of the datum
AFT:	1589mm aft of the datum [914UL]
AFT:	1608mm aft of the datum [915iS – Add1]

The CG Datum is defined as the Nose Landing Gear strut axis.

Vertical CG:

Upper:	688mm above the datum [914UL]
Upper:	750mm above the datum [915iS – Add1]
Lower:	518mm above the datum

The CG Datum is defined as the Keel beam upper surface.

3.2.6. Other Limitations

Smoking in the aircraft is prohibited.

Aircraft to be flown solo from the Left-Hand seat only.

Altitude Limit:	10,000ft [914UL]
	12,000ft [915iS – Add1]

Flight in icing conditions is prohibited.

Flight in strong gusty winds or wind velocities of more than 45mph (40 kts) is prohibited.

The Aircraft shall be flown by day in Visual Meteorological Conditions only.

OR

The Aircraft shall be flown by day or night in Visual Meteorological Conditions only [Add2].

4. Pilots Notes, Maintenance Manuals References

4.1. Approved Manuals

The following Manuals are approved for use with this aircraft (see <https://www.magnigyro.co.uk/>):

- (a) Flight Manual approved for use with this aircraft is:
 - i. 025-00-24C Issue D dated September 2010 [914UL]
 - ii. 227-00-24C M24C Plus issue B dated 18th December 2019 [915iS – Add1]
 - iii. 363-00-24C M24C Plus with Night VFR issue A.02 dated 29th June 2023 [915iS with night VFR – Add2]
- (b) Maintenance manual approved for use with this aircraft is:
 - i. 026-00-24C Issue B dated 27 September 2010
 - ii. 215-00-24C Plus issue C dated 12th May 2023
- (c) Maintenance schedule approved for use with this aircraft are:
 - i. 045-00-24C Issue D dated September 2010
 - ii. 237-00-24C Plus Issue B dated 18th July 2023

or later revisions of the above listed document(s) approved/accepted under the CAA system.

4.2. Placards

Placards to be installed in accordance with the applicable Flight Manual:

- 025-00-24C [914UL]
- 227-00-24C M24C Plus [915iS – Add1]
- 363-00-24C M24C Plus with Night VFR [915iS with night VFR – Add2]

The following placards are mandatory:

- a) Smoking in the aircraft is prohibited.
- b) Occupant Warning: This aircraft has not been certificated to an International Requirement
- c) Limitations as per Permit to Fly
- d) Permanent & fireproof attachment of aircraft registration no & aircraft serial no. (plate affixed to instrument panel)

5. Notes

None

6. Document Administration

6.1. Document History

Issue No.	Date.	Changes
1	04/10/2010	Initial Issue
2	04/03/2011	Updated Type Design Build Standard report under section 4, reference to MPD 2011-001 under section 12 and updated modifications listing under Appendices A and B.
3	19/05/2011	Addition of limitation for gyroplane training under section 8H. Section 11.1a) Flight Manual status updated.
4	01/08/2011	Maintenance Manual and Maintenance Schedule updated under sections 11.1b) and 11.1c).
5	28/10/2011	Flight Manual, Maintenance Manual and Maintenance Schedule updated under section 11.1.
6	24/06/2015	Manufacturer address. Flight Manual and Maintenance Schedule Issue. Service Bulletins list. Optional Modification list. Pilot Checklist placard.
7	10/02/2016	Manufacturer's address corrected. UK importer and distributor corrected. Propeller type corrected. Optional Modification list updated.
8	09/06/2016	Power Plant max CT instead of max CHT. Flight Manual Issue updated. Optional Modification list updated.
9	23/03/2017	Type Design Build Standard updated to Issue F. Engine Oil Spec updated. Section 11.2) updated. Mandatory Modifications/Service Bulletins/ Airworthiness Directives updated. Mandatory and approved optional modifications updated. Standard placards updated.
10	14/12/2017	Mandatory Modifications/Service Bulletins/ Airworthiness Directives updated. Approved optional modifications updated.
11	12/11/2018	Service Bulletins list updated. Pilot notes CT updated. Approved optional modifications list updated.
12	03/05/2019	Mandatory Modifications/Service Bulletins/ Airworthiness Directives now listed by cross reference. Instructions for Continued Airworthiness now referencing latest approved revision
13	31/01/2020	Release of 915iS modification (AAN 29276 Addendum 1, Mod. No. 125)
14	25/07/2023	Release of Night VFR modification for M24C Plus (AAN 29276 Addendum 2, Mod. No. 151)
15	See Date of Issue	Document format update Standardisation of terminology across TADS and AANs

6.2. Abbreviations & Definitions

Term	Definition
[]	Addendums noted in square brackets are modifications which may be listed or removed on Permit to Fly limitations as per aircraft configuration.
AAN	Airworthiness Approval Note – Original approving document for type
Add(x)	Addendum to AAN
ASI	Air Speed Indicator
CHT	Cylinder Head Temperature
CRI	Certification Review Item
CT	Coolant Temperature
EFD	Electronic Flight Display
EGT	Exhaust Gas Temperature
ELOS	Equivalent Level of Safety
IAS	Indicated Air Speed
MAP	Manifold Pressure
MTOW	Maximum Take Off Weight
MTWA	Maximum Total Weight Authorised
N/A	Not Applicable
PFD	Primary Flight Display
RPM	Revolutions per Minute
SC	Special Condition
V_B	Design speed for maximum gust intensity
V_{MIN}	Minimum Airspeed
V_{NE}	Never Exceed Speed
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions