

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP
GYROPLANE TYPE APPROVAL DATA SHEET (TADS)

NO: BG03 ISSUE: 14

- TYPE: Magni M16C
 Magni M16C (Modified to M22C)
- (1) MANUFACTURER: Magni Gyro Srl
 Besnate
 Varese
 21010
 Italy
- (2) UK IMPORTER AND DISTRIBUTOR: Magni Gyro UK
 Chiltern Air Park
 Ipsden
 Wallingford
 OXON
 OX10 6AS
 UK
- (3) CERTIFICATION: Magni M16C - BCAR Section T Issue 3
 Magni M16C (Modified to M22C) BCAR Section T Issue 3 (M16C basic aircraft) and BCAR Section T Issue 5 (M22 modifications)
- (4) DEFINITION OF BASIC STANDARD: M16C Type Design Build Standard 002-00-16C Issue F (Issue E & Mods No 027,030,034,061,065,074, 075,077,080)
 M16C (Modified to M22) Type Design Build Standard 002-00-22C M22C
- (5) COMPLIANCE WITH GYROPLANE DEFINITION:

MTOW	500kg
No. Seats	2
Permitted range of pilot weights	
Front Seat	60-120 kg
Rear Seat	120 kg max
Permitted total Occupant Weight:	215 kg (subject to fuelling)
Typical Empty Weight (ZFW)	285 kg (M16C) 280 kg (M16C (Modified to M22C))
ZFW +180 kg crew + 1 hr fuel (27 litres, 19 kg)	484 kg (M16C) 479 kg (M16C (Modified to M22C))
ZFW + 90 kg crew + full fuel (72ltrs, 52 kg) (M16C)	427 kg
ZFW + 90 kg crew + full fuel (72ltrs, 55 kg) (M16C (Modified to	425 kg

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M22C))	
Max ZFW at initial permit issue	301 kg (M16C) 296 kg (M16C (Modified to M22C))

(6) POWER PLANTS

Designation	M16C & M16C (Modified to M22C))
Engine Type	Rotax 914 UL
Reduction Gear	2.43:1
Exhaust System	Rotax stainless steel with after muffler
Intake System	Single intake filter and balance box
Propeller Type	MAGNI GYRO ECO GL170/3 ground adjustable composite propeller
Propeller Dia x Pitch	1.70m x 12° at 45° inwards from end of blade, with inclinometer against rear tail of aerofoil
Noise Type Cert No.	None Required
AAN Approving Configuration	AAN 28705 (M16C) AAN 29277 (M16C (Modified to M22C))

(7) ROTOR SYSTEM

Rotor system description	Single two blade fixed pitch teetering rotor of 28ft diameter.
AAN approving rotor system	AAN 28705 (M16C) AAN 29277 (M16C (Modified to M22C))

(8) MANDATORY LIMITATIONS:

MTOW	500kg
No. Seats	2
CG Limits (M16C)	
Horizontal CG	Fwd:1679 mm aft of datum Aft:1835 mm aft of datum
Vertical CG	Upper: 1026 mm above datum Lower: 959 mm above datum
CG Limits (M16C (Modified to M22C))	
Horizontal CG	Fwd: 1707 mm aft of datum Aft: 1874 mm aft of datum
Vertical CG	Upper: 1051 mm above datum Lower: 953 mm above datum

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CG Datum:

Horizontal cg: Fwd edge of main keel box section
 Vertical cg: Ground

Cockpit Loadings

Front Seat	Min	60 kg
	Max	120 kg
Rear Seat	Min	0 kg
	Max	120 kg
Total	Max	215 kg

Never Exceed Speed, V_{NE} 100 mph

Minimum Speed 40 mph

Prohibited Manoeuvres: Aerobatic manoeuvres are prohibited.
 Intentional spinning is prohibited.
 Manoeuvres involving a deliberate reduction in normal 'g' shall be avoided. Flight into known icing conditions is prohibited (not placarded). Maximum crosswind 25 kts.

Other Limitations

Day VMC only

This Gyroplane is hereby granted a permission to fly for the purposes of aerial work which consists of the giving of instruction in flying or the conducting of flying tests subject to the installation of any required instructional modifications and the Gyroplane being owned or operated under arrangements entered into by a flying club of which the person giving the instruction or conducting the test and the person receiving the instruction or undergoing the test are both members.

Fuel Contents:

72 litres (69 litres useable) (M16C)

80 litres (77 litres useable) (M16C (Modified to M22C))

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Power Plant

Engine	Rotax 914UL
Max RPM	5800
Max Continuous RPM	5500
Max CT	120°C
Max EGT	950°C
Fuel Spec	MOGAS or AVGAS
Engine Oil Spec	Shell Advance Ultra 4
Gearbox Oil Spec	Integral with Engine
Fuel/Oil Mixture	N/A
Oil Pressure	Max: 7 bar Min: 1.5 bar Normal operating 2 – 5 bar
Oil Temperature	Max: 130°C Min: 50°C
Fuel Pressure	N/A

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(9) INSTRUMENTS REQUIRED:

ASI: Fitted	Altimeter: Fitted	Rotor RPM: Fitted	Engine RPM: Fitted	Compass: Fitted	VSI: Optional	CT: Fitted
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(10) CONTROL DEFLECTIONS:

Rotor Head – Roll: 16° Total	Rotor Head – Pitch: 19° Total	Rudder Deflection: Left: 40° ±5° Total Right: 45° ±5° Total
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(11) PILOTS NOTES, MAINTENANCE MANUALS REFERENCES:

11.1 Manuals approved for use with this aircraft:

M16C

Flight Manual 025-00-16C Issue H. Supplement:
Baggage Pod Installation Supplement: Strobe &
Position Lights Installation Supplement:
Electrical Load Analysis Supplement: Forward
Baggage Pod Installations Supplement: EMS
Kanardia installation Supplement: Kanardia
Nesis installation
Supplement: Garmin Aera 795 installation

Maintenance Manual 026-00-16C Issue B.

Maintenance Schedule 045-00-16C Issue I.

M16C (Modified to M22C)

(a) Flight Manual 025-00-22C Issue A.
Supplement: Strobe & Position Lights Installation
Supplement: EMS Kanardia installation
Supplement: Kanardia Nesis installation
Supplement: Garmin Aera 795 installation

(b) Maintenance Manual 026-00-16C Issue B.

(c) Maintenance Schedule 045-00-16C Issue I.

11.2 The following placards are to be fitted:

- (a) Engine RPM limits
- (b) Rotor RPM
- (c) Loading conditions (placard on instrument panel)
- (d) Fuel quantity & type (placard next to fuel filler)
- (e) All switches (engraved on switch or placard next to switch)
- (f) Occupant warning (placard on instrument panel)

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- (g) Limitations as per Permit to Fly (placard on instrument panel)
- (h) Engine CT limits (markings on instrument panel)
- (i) Compass deviation (placard next to compass)
- (j) Secondary control functions (placards)
- (k) Permanent & fireproof attachment of aircraft registration no. & aircraft serial no. (plate affixed on starboard side of the keel tube below the front control stick.)

See Appendix D for placards fitted as standard.

(12) **MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC:**

Rotax SB-914-047UL Change of measurement method from cylinder head temperature to coolant temperature for Rotax® Engine Type 912 and 914 (Series).

MPD 2017-001 Engine Cylinder Head – Inspection/Replacement, engine Re-identification.

Rotax SB-914-049UL R2 Specification/change of engine configuration and/or type plate for Rotax® Engine Type 912 and 914 (Series).

MagniGyro SB 021 Heat exchanger electrical grounding.

MagniGyro SB 023 Coolant pump connection clamps replacement.

MagniGyro SB 024 Coolant temperature markings (MagniGyro gyroplanes UK fleet).

MagniGyro SB 026 Inspection and/or replacement of the valve push rod assy, rocker arms left and right.

MagniGyro SB 027 Oil filter replacement.

See Appendix A for required modifications.

(13) **MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT:**

Minimum performance at max take-off weight: 625 fpm at 60 mph

		<u>Issue History</u>
<u>Issue No.</u>	<u>Date</u>	<u>Reason and Signatory</u>
1	21/05/2009	Initial Issue J Barratt
2	13/11/2009	Mandatory and optional modifications added under Appendices A & B. J Barratt

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3	29/06/2010	<p>Updated Type Design Build Standard included under section 4, rear seat minimum weight corrected under section 8D, mandatory and optional modifications listings updated under Appendices A & B and occupant warning placard (front seat) and rotor limits placard added.</p> <p>J Barratt</p>
4	16/07/2010	<p>Section 6 Propeller designation corrected. Section 9 Required Instruments corrected to show the VSI as optional.</p> <p>J Barratt</p>
5	13/01/2011	<p>Reference to approved maintenance schedule added under section 11.1c). Approved issue status of manuals included under section 11.1. Modification Listing under Appendix B updated.</p> <p>J Barratt</p>
6	19/05/2011	<p>Addition of limitation for gyroplane training under section 8H. Updated modifications listing under Appendix B.</p> <p>J Barratt</p>
7	01/08/2011	<p>Maintenance Manual and Maintenance Schedule updated under sections 11.1b) and 11.1c).</p> <p>J Barratt</p>
8	23/06/2015	<p>Manufacturer address. Flight Manual and Maintenance Schedule Issue. Flight Manual supplements. Service Bulletins list. Optional Modification list. Pilot Checklist placard.</p>
9	18/02/2016	<p>Manufacturer address corrected. UK importer and distributor corrected. Propeller type corrected. Optional Modifications list updated.</p>

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10	08/09/2017	Type Design Build Standard updated to Issue F. Power Plant max CT instead of max CHT. Flight Manual Issue and Supplement updated. Placards fitted updated. Mandatory Modifications/Service Bulletins/ Airworthiness Directives updated. Mandatory and approved optional modifications updated.
11	09/02/2018	Mandatory Modifications/Service Bulletins/ Airworthiness Directives updated. Approved optional modifications updated.
12	16/03/2018	Flight manuals supplement list updated. Approved optional modifications list updated.
13	14/07/2018	Flight manuals supplement list updated. Approved optional modifications list updated
14	01/06/2019	Addition of M16C (Modified to M22C) A.L. Bines

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Illustration of Aircraft – Photographs – M16C



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Illustration of Aircraft – Photographs (M16C (Modified to M22C))



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APPENDIX A – MANDATORY MODIFICATIONS

M16C only	
Modification Reference	Description
MOD 016	Replacement Bolts (included in Type Design Build Standard 002-00-16C issue E)
MOD 019	Fuel Line Replacement (included in Type Design Build Standard 002-00-16C issue E)
MOD 101	Coolant temperature markings on Rotax engines

There are no mandatory modifications for the M16C (Modified to M22C)

APPENDIX B – APPROVED OPTIONAL MODIFICATIONS

Modification Reference	Description	Flight Manual Supplement
MOD 002	Lynx VHF Antenna	
MOD 003	Funkwerk ATR500 Radio	025-00-16C/003
MOD 004	Garmin 296 & RAM Mount	
MOD 005	SAF Oil Drain	
MOD 006	MicroAir M760 Radio	025-00-16C/003
MOD 007	Trig TT21 Transponder	025-00-16C/003
MOD 008	AirGizmo Mount	
MOD 009	Baggage Pod	025-00-16C/001
MOD 010	Map Pocket	
MOD 011	Strobe & Positioning Lights	025-00-16C/002
MOD 012	Intercom	025-00-16C/003
MOD 014	12V Power Socket	025-00-16C/003
MOD 017	Instructors Pack	
MOD 022	Switch Guards	
MOD 028*	Fwd starboard baggage pod	025-00-16C/004
MOD 029*	Forward port baggage pod	025-00-16C/004
MOD 031	Spinner	
MOD 032	Semperit fuel lines	
MOD 035	Instructors Pack	
MOD 037	Funkwerk ATR833 radio	
MOD 071	MGL Avionics ASX-2 altimeter and airspeed indicator	
MOD 072	Trig TY91 VHF radio installation	
MOD 073	Strobe navigation & position lights installation	
MOD 081	USB power connectors	
MOD 084	Digital voltmeter	
MOD 089	Rotor head titanium spacer	
MOD 104	EMS Kanardia installation	025-00-16C/006
MOD 106	Wheel pant support without spacer	
MOD 109	EMS Kanardia installation-Retrofit	025-00-16C/006

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MOD 112	Kanardia Combo installation	
MOD 113	Rear EMS Kanardia installation	
MOD 114	Front USB power supply installation	
MOD 115	Garmin G5 Efis installation	
MOD 116	Kanardia Nesis installation	025-00-16C/007
MOD 117	Rotor hub-bar fairing	025-00-16C/008
MOD 119	Garmin Aera 795 installation	025-00-16C/009
MOD 120	Rotor hub-bar eccentric bushing	

* M16C only

** M16C (Modified to M22C) only

APPENDIX C – WEIGHING INFORMATION

N/A Aircraft to be weighed by manufacturer.

APPENDIX D – STANDARD PLACARDS

(Copied from Flight Manual)

In conformity with BCAR Section T the following placards and markings are installed:

M16C

- a. All cockpit controls are clearly marked as to their function and method of operation.
- b. Fuel and oil filler openings are clearly marked, together with the grade or type required. Fuel tank capacity is also clearly marked:



M-16 C Tandem Trainer
Max Usable Fuel: 69lt
Minimum Grade of Fuel to be Used :
MON 85 RON 95 UNLEADED FUEL
for 100L AVGAS use check Rotax Manual



M-16 C Tandem Trainer
Oil used in this aircraft:
Shell ADVANCE ULTRA
4T 15W – 50 Fully Synthetic

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c. Loading conditions are clearly marked.




M-16 C TANDEM TRAINER

Max Indicated Airspeed (Vne)	100mph	Mauw.....	500 Kg
Min speed for power-on flight.....	40mph	Max cockpit loading (including fuel).....	215 Kg
Empty Weight.....	285 Kg	Min solo pilot weight.....	60 Kg
		CG Limits.....	(refer to flight manual)

AEROBATIC MANOEUVERS ARE PROHIBITED. MANOEUVERS INVOLVING DELIBERATE REDUCTION IN NORMAL "G" SHALL BE AVOIDED. THE AIRCRAFT SHALL BE FLOWN BY DAY VMC ONLY.

d. Engine limitations are clearly marked:




M-16 C Tandem Trainer
Engine Parameters

	Min	Norm	Max
Temperature (°C)			
OIL	50	90-110	130
CT	50	90-110	120
EGT		750-850	950
Oil Press (0,1 x bar)			
	15	20-50	70
Max Engine RPM	5800		
Max Continuous RPM ..	5500		

e. Other placards fitted:

Occupant warning (front seat):



**AEROBATIC MANOEUVRES
ARE PROHIBITED.
MANOEUVRES INVOLVING
DELIBERATE REDUCTION IN
NORMAL "G" SHALL BE
AVOIDED.
OCCUPANT WARNING:
THIS GYROPLANE HAS NOT
BEEN CERTIFIED TO AN
INTERNATIONAL
REQUIREMENT.
THE AIRCRAFT SHALL BE
FLOWN BY DAY VMC ONLY.
SMOKING ON BOARD THIS
AIRCRAFT IS PROHIBITED.**

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Occupant warning (rear seat):



M-16 C TandemTrainer

OCCUPANT WARNING

***This Gyroplane has
not been certified to
an international
requirement.***

***Smoking is prohibited
on board this aircraft.***

Additional placards on the front instrument panel:

ROTOR LIMITS

Min RPM for Take Off 150

Max RPM550

START-UP		M16
1-	CHECK STICK RETAINER IS APPLIED	
2-	HELMET/SEAT BELTS: FASTENED	
3-	CONTROL STICK: FORWARD	
4-	BREAKERS: ON	
5-	THROTTLE: IDLE POSITION	
6-	CHOKE: ON (if the engine is cold!)	
7-	MASTER: ON	
8-	KEY: BOTH	
9-	TEST AUX PUMP: ON/ OFF	
10-	MAIN PUMP: ON	
11-	SHOUT: "CLEAR PROPI!"	
12-	HOLD BRAKES ON	
13-	STARTER	
14-	CHOKE: OFF	
15-	START TAXIING: TEST BRAKES	
BEFORE TAKE-OFF		
1-	CHOKE: OFF	
2-	BREAKERS: ON	
3-	MASTER: ON	
4-	HOLD BRAKES	
5-	TEST MAGNETOS	
6-	KEY: BOTH	
7-	PUMPS: ON	
8-	LIGHT: ON	
9-	MINIMUM TEMPERATURES: OK	
10-	TRIM : OFF (green light)	
11-	HELMET/ SEAT BELTS: FASTENED	
12-	SET ALTIMETER	
13-	ROTOR BRAKE: OFF	
14-	PARKING BRAKE: ON	
15-	REMOVE STICK RETAINER AND HOLD STICK FULLY FORWARDS	
16-	RELEASE PARKING BRAKE	

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- a. All cockpit controls are clearly marked as to their function and method of operation.
- b. Fuel and oil filler openings are clearly marked, together with the grade or type required.
Fuel tank capacity is also clearly marked:



M-22 C

Max Usable Fuel: 77lt

Minimum Grade of Fuel to be Used :
MON 85 RON 95 UNLEADED FUEL
For 100L AVGAS use check Rotax Manual



M-22 C

Oil used in this aircraft:
Shell ADVANCE ULTRA
4T 15W – 50 Fully Synthetic

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- c. Loading conditions are clearly marked.

 M-22 C			
Max Indicated Airspeed (V _{NE})	100mph	MAUW.....	500 Kg
Min speed for power-on flight.....	40mph	Max cockpit loading (including fuel).....	215 Kg
Empty Weight.....	280 Kg	Min solo pilot weight.....	60 Kg
		CG Limits.....	(refer to flight manual)
<p align="center">AEROBATIC MANOEUVRES ARE PROHIBITED. MANOEUVRES INVOLVING DELIBERATE REDUCTION IN NORMAL "G" SHALL BE AVOIDED. THE AIRCRAFT SHALL BE FLOWN BY DAY VMC ONLY.</p>			

- d. Engine limitations are clearly marked:

Engine Parameters			
Temperature (°C)			
	Min	Norm	Max
OIL	50	90-110	130
CT	50	90-110	120
EGT		750-850	950
OIL PRESS (0,1x bar)			
	15	20-50	70
Max Engine RPM.....	5800		
Max continuous RPM.....	5500		
Max MAP (5 min)	39,9 InHg		
Max Map (continuous)...	35,4 InHg		

- e. Other placards fitted:

Occupant warning (front seat):



**AEROBATIC MANOEUVRES ARE PROHIBITED.
 MANOEUVRES INVOLVING DELIBERATE REDUCTION IN NORMAL "G" SHALL BE AVOIDED.
 OCCUPANT WARNING:
 THIS GYROPLANE HAS NOT BEEN CERTIFIED TO AN INTERNATIONAL REQUIREMENT.
 THE AIRCRAFT SHALL BE FLOWN BY DAY VMC ONLY.
 SMOKING ON BOARD THIS AIRCRAFT IS PROHIBITED.**

Occupant warning (rear seat):



M-22 C

OCCUPANT WARNING
This Gyroplane has not been

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*certified to an international
requirement.
Smoking is prohibited on board
this aircraft.*

Additional placards on the front instrument panel:



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<u>START-UP</u>		M22C
1-	CHECK STICK RETAINER IS APPLIED	
2-	HELMET/SEAT BELTS: FASTENED	
3-	CONTROL STICK: FORWARD	
4-	BREAKERS: ON	
5-	THROTTLE: IDLE POSITION	
6-	CHOKE: ON (if the engine is cold!)	
7-	MASTER: ON	
8-	KEY: BOTH	
9-	TEST AUX PUMP: ON/ OFF	
10-	MAIN PUMP: ON	
11-	SHOUT: "CLEAR PROP!"	
12-	HOLD BRAKES ON	
13-	STARTER	
14-	CHOKE: OFF	
15-	START TAXIING: TEST BRAKES	
<u>BEFORE TAKE-OFF</u>		
1-	CHOKE: OFF	
2-	BREAKERS: ON	
3-	MASTER: ON	
4-	HOLD BRAKES	
5-	TEST MAGNETOS	
6-	KEY: BOTH	
7-	PUMPS: ON	
8-	LIGHT: ON	
9-	MINIMUM TEMPERATURES: OK	
10-	TRIM : OFF (green light)	
11-	HELMET/ SEAT BELTS: FASTENED	
12-	SET ALTIMETER	
13-	ROTOR BRAKE: OFF	
14-	PARKING BRAKE: ON	
15-	REMOVE STICK RETAINER AND HOLD STICK FULLY FORWARDS	
16-	RELEASE PARKING BRAKE	