



GLIDING NEW ZEALAND INCORPORATED

ADVISORY CIRCULAR
AC 2-06

AEROBATIC FLIGHT IN GLIDERS

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1 Introduction

The Civil Aviation Rules (CAR) for aerobatic flight also apply to gliders:

- CAR Part 91.701 Aerobatic flight and 91.703 Aviation events
- CAR Part 61, Subpart L – Aerobatic Flight Rating.

However, the director has granted Exemption 16/EXE/15 to these Rules under Section 37(2) of the Civil Aviation Act 1990 in respect of the various heights down to which aerobatic flight in a glider may be conducted. The height limits specified in this Advisory Circular reflect the exemption.

Under its CAR Part 149 Aviation Recreation Organisation Certificate, GNZ is authorised to administer aerobatic flight training, assessments, and aerobatic ratings; and also to assess competence for aerobatic/low level approvals. The purpose of this Advisory Circular is to summarise the CAA requirements and to expand on the GNZ MOAP requirements and administration procedures.

2 Requirement for a Part 61 Aerobatic Flight Rating (AFR) for Gliders

The following table summarises the height limits and associated AFR and Instructor requirements for aerobatics in gliders, as modified by Exemption 16/EXE/15 (heights are above the surface):

General Solo	With Passenger (See Note 1)	With Student (Instructional)	Solo Display at Aviation Events
AFR Level 1 2,000ft & above	AFR Level 2 2,000ft & above	Aero Instructor 1,000ft & above	AFR Level 3 1,000ft & above
AFR Level 2 1,000ft & above	AFR Level 3 1,500ft & above		
Not permitted below 1,000ft	Not permitted below 1,500ft	Advanced Aero Instructor 500ft & above	AFR Level 4 Defined Low level Approval not less than 200ft & above

Note 1: Passenger means a person carried other than for the purpose of undergoing or giving instruction in the control of the aircraft (reference CAR Part 1 definitions). A passenger carried shall be a GNZ club member but not a Trial Flight participant.

Note 2: Spinning may be conducted down to a height of 1,000ft without holding an AFR.

3 Issue of Aerobic Flight Rating (AFR) for Gliders

3.1 GNZ MOAP Section 2-3 Glider Aerobic Rating

Section 2-3 paragraph 16 of the GNZ MOAP sets out the basic GNZ requirements for the issue of a Part 61 AFR for gliders. This involves completion of a ground course, and an aerobic flight course (which may include solo practice and consolidation under direct supervision of an aerobic instructor). Full competency in spinning must be demonstrated for all AFR levels. An XCP is required and the minimum additional experience requirements are set out in the following table.

AFR Level	Minimum Aerobic Experience	Privileges
1	Ground & flight training courses for aerobatics per Appendix 4	+ve G aerobatics solo above 2,000ft
2	As for AFR Level 1 + further dual aerobatics instruction as required to establish competency, followed by 10 solo aerobatic flights under supervision	+ve G aerobatics solo 1,000ft & above +ve G aerobatics w pax 2,000ft & above
3	As for AFR Level 2 + extension of ground aerobatic course to cover display flying per Appendix 4 + further dual aerobatics instruction as required to establish competency, followed by 10 solo aerobatic flights under supervision	Approved manoeuvres solo 1,000ft & above Approved manoeuvres w pax 1,500ft & above
4	As for AFR Level 3 + further dual aerobatics to establish competency, followed by 10 solo aerobatic flights under supervision	Defined Low level Approval solo at Aviation Events not less than 200ft & above

The AFR and Level shall be issued by entry in the pilot's logbook, signed and dated by the aerobic instructor for Levels 1 to 3; or NOO on the recommendation of an Advanced Aero Instructor for Level 4. An AFR must not be exercised unless competency has been demonstrated within the previous 24 months. **Appendices 1 & 2** contain pro forma endorsements (or wording) that must be used.

3.2 Aerobic Ratings issued by other organisations

Some flight training organisations certificated under CAR Part 141, or other organisations certificated under CAR Part 149 (eg Warbirds) may be authorised to administer aerobatics ratings pursuant to CAR Part 61. However, aerobatic ratings issued by these organisations will invariably relate to powered aircraft and do not automatically translate to gliders operated under GNZ's CAR Part 149 certificate and in accordance with Exemption 16/EXE/15. In such cases, GNZ AFRs will be issued by the NOO, who will consider each application on its merits.

4 Flight Instructor Requirements for Glider Aerobatics

The syllabus of training for teaching aerobatics is stated in Section 2-4 paragraph 12 of the GNZ MOAP. In addition, the minimum flight instructor requirements are:

- Hold a B Category Glider Instructor rating, and
- For the relevant aerobatic certification category, have the experience set out in the following table.

Certification Category	Minimum Aerobatic Experience	Aerobatic Instructing Privilege
Aero	AFR Level 3 + further dual aerobatics instruction by an Advanced Aero instructor as required to establish competency, followed by 30 solo aerobatic flights	Teach aerobatics above 1,000ft Issue AFR Levels 1 to 3
Advanced Aero	AFR Level 4 + further dual aerobatics instruction by an Advanced Aero instructor as required to establish competency, followed by 40 solo aerobatic flights	Teach aerobatics above 500ft Issue AFR Levels 1 to 3 Recommend AFR Level 4 or Aerobatic Instructor Rating to NOO

Note 3: “Aerobatic flight” is defined in CAR Part 1. In the context of Sections 3 & 4 above, “aerobatic flights” are flights during which at least 8 manoeuvres of the kind defined in CAR Part Aerobatic flight are conducted per flight. (This is based on doing aerobatic manoeuvres in a glider from 3000ft down to 1,000ft at an average height loss of 250ft per manoeuvre.)

Note 4: Each “aerobatic flight” needs to be logged as such so as to count towards an eventual higher AFR level and/or certification category of an Aerobatic Instructor Rating.

Note 5: AFRs at Level 4 and all Aerobatic Instructor Ratings are issued only by the NOO, using the pro forma at Appendix 2 or Appendix 3 respectively.

5 Legacy Aerobatic Ratings

Transitional arrangements were in place until 30 June 2018. [§]

[§] a) Aerobatic instructor ratings:

In order to retain the existing core of experienced glider aerobatic instructors, before 30 June 2018 the NOO will assess an applicant’s previous experience and issue a new aerobatic instructor rating by entry in their pilot’s logbook in either the Aero or Advanced Aero category as appropriate. These will be recorded as such in the GNZ central database.

b) Pilot AFRs:

Glider pilots who hold a current aerobatic rating shall not exercise the privileges of the AC/exemption until they have made application and been assessed for the issue of a new AFR in accordance with this AC. Such issue shall be by logbook entry using Appendix 1 or 2 as appropriate.

c) After 30 June 2018, these transitional arrangements cease and applicants for AFRs and/or aerobatic instructor approvals will need to provide clear logbook evidence of the necessary number of aerobatic flights and course participation as set out in Sections 3 & 4 above.

Appendix 1 Pilot Logbook Entry - AFR Levels 1 to 3 Issue or Certification of Continued Competency

This is to certify that _____ has satisfied the requirements of Civil Aviation Rule Part 61 for the issue of an Aerobatic Flight Rating, or has demonstrated competency to continue exercising the associated privileges and limitations, as follows:

Privileges and limitations:

Level 1	Positive G solo aerobatics 2,000ft & above.
Level 2	Positive G Solo aerobatics 1,000 ft & above. Positive G aerobatics carrying a passenger 2,000ft & above
Level 3	Approved aerobatic manoeuvres solo 1,000 ft & above. Approved aerobatic manoeuvres carrying a passenger 1,500 ft & above Solo aerobatics display at Aviation Events 1,000 ft & above

(Clearly cross out rows above as appropriate)

Manoeuvres approved (may only be exercised within glider Flight Manual limitations)					
Basic	Chandelle	Wingover	Loop	Stall Turn	Lazy Eight
Advanced	Inverted Flight	Barrel Roll	Aileron Roll	Flick Roll	½ Cuban

(Clearly cross out manoeuvres above not approved)

Expiry date (24 month) ____/____/____

GNZ Aerobatic Flight Instructor Certification Category # _____ :

Name _____ Signature _____

Date ____/____/____

Aerobatic or Advanced Aerobatic

Appendix 2 Pilot Logbook Entry - AFR Level 4
Issue or Re-issue on Demonstration of Continued Competency

This is to certify that _____ has satisfied the requirements of Civil Aviation Rule Part 61 for the issue of an Aerobatic Flight Rating Level 4, or has demonstrated competency to continue exercising the associated privileges and limitations, as follows:

Level 4 Privileges & Limitations:

1. Aerobatics carrying a passenger 1,500 ft & above
2. Solo display aerobatics at Aviation Events down to _____ ft above the surface
3. All manoeuvres within glider Flight Manual limitations may be carried out.

GNZ Advanced Aerobatic Flight Instructor: Name _____

Signature _____ Date ____/____/____

AFR Level 4 Issued/Re-issued with the Privileges & Limitations as above:

Expiry date (24 month) ____/____/____

GNZ National Operations Officer (NOO): Name _____

Signature _____ Date ____/____/____

Appendix 3 Recommendation for Issue of Aerobatic Instructor Approval

This form is to accompany an OPS 07 Application to the NOO for Issue or Upgrade of Instructor Rating. #

This is to certify that _____ has satisfied the requirements of Civil Aviation Rule Part 61 and GNZ AC 2-06 for the issue of an Aerobatic Instructor Approval and I hereby recommend issue with the Certification Category as follows:

Aero Advanced Aero

GNZ Advanced Aerobatic Flight Instructor: Name _____

Signature _____ Date ____/____/____

Upon issue or upgrade of the Aerobatic Instructor Approval, the NOO will record the Certification Category in the GNZ central database.

Appendix 4 Ground and Flight Training Courses for Aerobatics

Syllabus

- Rules pertaining to glider aerobatics
- Glider limitations
- Human G tolerance
- Glider preparation
- Unusual attitudes / recovery
- Wingover
- Chandelle
- Loop
- Stall turn
- Half roll
- Barrel roll
- Aileron roll
- ½ Cuban
- Inverted flight
- Sequences

Display Flying

- Rules pertaining to display flying, including Aviation Events
- Pilot Fitness
- Altitude awareness
- Site / manoeuvre sequence planning
- Energy management