



GLIDING NEW ZEALAND INCORPORATED

ADVISORY CIRCULAR
AC 3-15

OWNER/OPERATOR RESPONSIBILITY
FOR GLIDER MAINTENANCE

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1 Introduction

Typically, when you are flying a club glider, someone else looks after its maintenance and your involvement will usually be limited to just the Daily Inspection before flight, and maybe changing a battery or two.

However, when you buy and fly your own glider, you become its “operator”, and the responsibility for maintenance is suddenly yours! (Note that if you lease a glider for 28 days or longer, you legally become its operator – you don’t actually have to own it.)

The purpose of this Advisory Circular is to provide guidance to glider owner/operators, both private and club, on what their responsibility for maintenance entails.

(Not all of the following applies to microlight gliders – see MOAP for details.)

2 Your Maintenance Responsibilities as a Glider Owner/Operator

2.1 Documents required.

When you become an owner/operator of a glider, you need to ensure that you get the:

- Flight Manual, which should also contain the Airworthiness Certificate, the empty weight and balance data (CAA form 2173) and the avionics fit (CAA form 2129).
- TECH 19 DI Book & Technical Log (yellow-covered “DI-Book”), which also contains the Certificate of Release to Service (centre blue page).
- Glider maintenance logbook – check that it is up to date in terms of flights and maintenance work.
- Maintenance Manual.
- Maintenance work sheets and other records, such as completed checklists required by the glider Maintenance Programme (TECH 22) and the Review of Airworthiness (CAA 24066/06) etc.

Don’t forget the change of ownership, which must be advised to the CAA within 14 days of the transfer – this can be done by completing the form on the back of the Certificate of Registration or by completing a form CAA 24047/03 (from the CAA web site).

If in doubt about any of the above documents, consult a GNZ Engineer.

2.2 Pre-flight actions.

The pilot-in-command of a glider is responsible for ensuring that the glider is airworthy prior to flight, following the procedure set out in the GNZ Daily Inspection & Tech Log (yellow-covered “DI Book) and GNZ Advisory Circular AC 3-01 Glider Daily Inspection. The Release to Service (centre blue page) must be current, and no inspections overdue.

If there is any doubt about whether something discovered during inspection is a “minor fault” or a “major defect”, then consult a GNZ Engineer. (Reference the Instructions on page 1 of the DI Book.)

2.3 Post-flight actions.

The owner/operator of a glider is required to record the hours flown and the launches completed each day in the glider maintenance logbook. The launches are to be recorded separately as “aero” for aero-tow, “wire for winch or tow-car, or “self” as applicable. You can use the DI Book to record this information on a daily basis, and transfer it to the maintenance logbook periodically, say monthly.

2.4 ***Inspections after a wheel-up landing, heavy landing, ground loop or abnormal flight.***

Note the warning on the Release to Service (centre blue page of the DI Book):

“All heavy and wheel up landings, ground loops, and abnormal flight occurrences, invalidate this Release to Service and are to be reported to a GNZ engineer for inspection in accordance with GNZ TECH 22, Section 6, before further flight.”

This means what it says – it is not uncommon for serious structural damage to occur in these circumstances, and such damage may not be obvious from a cursory external examination.

2.5 ***Pilot maintenance – what you are allowed to do.***

There are some maintenance tasks that you are entitled to carry out yourself as owner/operator. These are detailed in the GNZ MOAP Appendix 3-C, reproduced here as Appendix 1. Everything else, including modifications and repairs can only be carried out by an appropriately rated GNZ Engineer (see Section 3 below.)

2.6 ***Planning for routine inspections.***

The required Maintenance Programme (TECH 22) specifies what needs to be done on a regular basis by a GNZ Engineer. It incorporates all of the manufacturer’s requirements out of the Maintenance Manual, plus GNZ and CAA requirements. It is YOUR responsibility to plan for these inspections and to arrange for them to be carried out – it is not your Engineer’s responsibility.

For planning purposes and liaison with your GNZ Engineer, you need to know how often these inspections come around. To see when the next ones are due, check-out the Certificate of Release to Service (blue page in the centre of the DI book). The inspections are:

- (a) Annual inspection – every 12 months your Engineer needs to inspect the glider airframe, undercarriage, control systems, electrical system, instruments, placards etc, and also check the ELT (if fitted), first-aid kit, safety harness and tow release(s). The Engineer will carry out any remedial work required, but if the work is outside the scope of the Engineer’s approval, you will need to make alternative arrangements.
- (b) Supplemental inspection – generally speaking, this won’t apply to a privately owned glider unless it subject to high usage by a number of different pilots of varying skill levels. If applicable, the maximum validity period is 6 months or 200 hours time in service, whichever comes first.
- (c) Transponder and altimeter calibration (done together) is 24-monthly, and generally requires the services of an Avionics Engineer. If no transponder is fitted, the altimeter does not have to be calibrated.
- (d) Compass calibration (swing) is 48-monthly.
- (e) Oxygen cylinder hydrostatic testing by an approved testing laboratory is 10-yearly (unless the cylinder is more than 40 years old, in which case it is 5-yearly). Lightweight fibre-wrapped cylinders have to be tested every 5 years.
- (f) Seat belts normally have a 12-year life and tow releases 2,000 launches.
- (g) Reweighing may be required after extensive modifications and/or repairs, or repainting.

- (h) Modern FRP gliders typically have special fatigue inspections at 6,000 hours, and then shorter periods after that – consult the Maintenance Manual, as requirements vary.
- (i) If you operate a motor-glider, there will be engine and/or propeller checks that need to be done on an engine-hourly basis as well as calendar time – consult the Maintenance Manual.

2.7 ***Airworthiness Directives.***

Airworthiness Directives (ADs) are mandatory airworthiness requirements issued by the CAA. They specify modifications, inspections, conditions or limitations to be applied to the glider to correct an unsafe condition. CAA publishes a schedule of ADs on its web site monthly or, if a matter is urgent, an Emergency AD may be issued at any time, in which case all registered owners of the glider type will be notified directly.

ADs are available free and you can subscribe on the CAA web site to be notified by email when they are published. Go to: <https://www.caa.govt.nz/airworthiness-directives/>

It is YOUR responsibility to ensure that ADs are carried out, and if one is issued that is applicable to your glider, you will need to consult your GNZ Engineer regarding compliance.

2.8 ***Review of Airworthiness.***

If your glider is not used for hire or reward (which is usually the case), it and its records must undergo a review by the holder of an Inspection Authorisation Certificate (IA or IA-G) every 24 months. For convenience, this is most often done at the same time as the Annual Inspection above, but it doesn't have to be.

This review checks back through the last 24 months, and currently that:

- The glider conforms to the Type Certificate Data Sheet and has all the required instruments and equipment.
- All modifications and repairs have been correctly recorded, with the relevant “acceptable technical data” listed.
- All due maintenance on the TECH 22 has been correctly recorded and certified.
- All relevant ADs have been assessed, embodied as required, and properly recorded.
- Every major defect has been properly recorded and rectified, and the glider released to service.
- The weight and balance is properly controlled and documented.
- The Flight Manual and its supplements are current.

Finally, the review includes a general condition inspection of the glider.

Note: For gliders used for hire or reward, a review of airworthiness has to be done every 12 months.

3 **Liaison with your GNZ Engineer & Keeping Maintenance Records**

3.1 ***The GNZ Engineer system.***

A person issuing the Release to Service after maintenance on a glider is required to hold a current GNZ Engineer approval with the appropriate ratings, except where that maintenance is carried out by the owner/operator in accordance with Appendix 3-C of the GNZ MOAP (see Appendix 1).

The various levels of approval, material subdivisions and ratings etc are detailed in Appendix 3-D of the GNZ MOAP – but you don't need to know these details. Broadly

speaking, the Class 2 Engineer can do minor inspections, supplemental inspections and very minor field repairs; the Class 3 Engineer can do annual inspections plus minor modifications and repairs to acceptable technical data; but a Class 4 Engineer is needed for anything major.

Thus, for most routine maintenance you need to engage a Class 3 or Class 4 GNZ Engineer. If your glider has major damage, you'll need a Class 4 Engineer. There is a list of GNZ Engineers on the web site at <http://gliding.co.nz/gliding-engineers>

If your Engineer also holds an Inspection Authorisation Certificate (IA-G), your Review of Airworthiness can be done at the same time as your Annual Inspection.

Remember, it is YOUR responsibility to keep track of what needs to be done and to communicate that clearly to your Engineer.

3.2 ***Keeping maintenance logbooks and work records.***

Maintenance work sheets and other records such as completed checklists required by the glider Maintenance Programme (TECH 22) and the Review of Airworthiness (CAA 24066/06) etc should be retained with the glider maintenance logbook. Also keep Release Notes for any replacement parts, as these provide traceability for them. You need to make these records available to your GNZ Engineer whenever maintenance work is required.

Maintenance logbooks must not be carried in the glider.

It is a legal requirement to keep maintenance records for at least 5 years after the work is carried out. Technical Logs (DI Books) must be kept for at least 12 months after the last entry.

If you transfer ownership of the glider, it is a legal requirement to transfer the maintenance records at the same time.

4 Maintenance Controller for Syndicates & Clubs

If your glider is owned/operated by a syndicate, all syndicate members are jointly responsible for its maintenance as above. To avoid confusion, it is advisable to nominate one member of the syndicate to assume this responsibility at any given time.

A GNZ club owning/operating more than one glider must designate a suitably experienced member to be "Maintenance Controller" for its fleet. The primary duty of the Maintenance Controller is to assist the club in fulfilling the owner/operator responsibilities set out in this AC. This will include responsibility for ensuring that all maintenance logbooks are kept up to date in terms of hours and launches, and for the monitoring of ADs.

Appendix 1 Owner/Operator Maintenance

The following maintenance may be carried out by owner/operators without holding a GNZ Engineer Approval, subject to their holding a current XCP certificate (reference GNZ MOAP, Appendix 3-C):

1. Items requiring a Release to Service Certificate in the TECH 19 DI & Tech Log Booklet

- (a) Removal and replacement of landing gear tyres or tailskid shoes.
- (b) Removal and replacement of brake pads.
- (c) Simple or temporary fabric patch repairs if –
 - (i) the repair is not applied to any flying control surface; and
 - (ii) the repair does not require the removal of any control surface or structural part; and
 - (iii) the repair does not involve restringing or rib stitching.
- (d) Restoration of damaged or worn decorative coatings and application of preservative or protective material to components, if the work does not involve –
 - (i) the removal or disassembly of any primary structure; or
 - (ii) the disturbance of any operating system; or
 - (iii) the restoration, preservation, or protection of a control surface; or
 - (iv) a significant repaint of the glider.
- (e) Simple or, temporary repairs to fairings or non-structural cover plates.
- (f) Completion of repetitive AD inspections between scheduled maintenance inspections if the AD states that a pilot may complete the inspection and no special tooling or special equipment is required.
- (g) Replacement of engine oil and pressure oil filters, and spark plugs.
- (h) Installed ELT inspection and test in accordance with Part 43 Appendix F.

2. Items not requiring a Release to Service Certificate

- (i) Greasing and lubrication that does not require disassembly other than de-rigging or removal of access panels or fairings.
- (j) Removal and replacement of fuses and lights.
- (k) Replenishment of hydraulic fluid in hydraulic reservoirs.
- (l) Installation or removal of role equipment if –
 - (i) the installation of the particular equipment has been approved; and
 - (ii) the approved aircraft flight manual incorporates the necessary information for safe operation with the equipment installed, including weight and balance data for each configuration.
 - (iii) the applicable information for the installation and removal of the equipment is immediately available; and
 - (iv) no special tooling, special equipment, or subsequent inspection is required.
- (m) Removal and replacement of glider batteries.
- (n) Performance of routine maintenance that is intended by the glider manufacturer to be performed by a pilot provided no special tooling or equipment is required.
- (o) Removal and replacement of oxygen cylinders, or replenishment of oxygen cylinders in situ. (Note that decanting of bulk compressed oxygen into glider cylinders is potentially hazardous and requires appropriate training.)