

# ***THE GLIDING FEDERATION OF AUSTRALIA***



## **MANUAL OF STANDARD PROCEDURES**

### **PART 3**

### **AIRWORTHINESS**

## FOREWORD

All sports, all sciences, all arts have their own rules, their techniques, their methods and procedures. Gliding, which is at once a sport and an art and a science has amassed its own fund of these.

As for us, it is particularly vital that this accumulated knowledge be readily accessible to all. Equally vital, that it be acted upon by all.

Because in most fields, the man who does not know the ropes is merely a duffer at his game; but in gliding, he will be not merely a poor pilot - he stands a fair chance of being a dead pilot or an injured one.

I remember reading an article which set out to list various sports according to their inherent danger. The author rated gliding just above tiger-hunting.

An extreme view, perhaps. But gliding in its primitive or wild state can be a dangerous undertaking. What makes it the reasonable safe sport we know today is the ceaseless application of sound procedures. Let up on these, or fail to know them and gliding becomes dangerous.

This manual, in short, shows how to turn an inherently dangerous sport into one which sensible people can enjoy in reasonable safety.

It is also a manual on how to save time. For one thing, by consulting it you can avoid the need to invent gliding all over again, either as a whole or in detail.

It may prove, as well, a manual on how to save money, since it contains hints which, if followed, can prevent the wrecking of expensive gliders, or even of gliding clubs.

And although it is in effect a book of rules, it is really a text book on how to stay free. The Australian gliding movement enjoys a special freedom in the conduct of its affairs; it is one free sector of Australian aviation. It has won that freedom by showing that it can conduct its affairs safely, efficiently and responsibly. If we continue this, we stay free. If we make a mess of it, we get regulations.

With all of this, the manual is not dogmatic. It tells what we have learned so far. It is a conscious pooling of gliding knowledge, the distilled result of the whole experience of the whole gliding movement, some of it bought painfully indeed.

Yet it does not claim to be final or perfect. It has been made in such a way as to allow amendment or addition as between us we find better ways to do things.

This Edition of the Manual already shows this process at work. It has been carefully revised and, here and there, changes have been made. But the changes are surprisingly few, and this I think speaks well for the sound work of those who brought into being the first edition.

To keep your manual still as useful and up-to-date as it now is see that you insert future amendments in your own copy as they are issued.

For many years the GFA regarded the production of this manual as one of its most important projects. Actual experience has now confirmed just what a really impressive contribution to gliding this manual is.

In commending to you now this edition, I pay tribute to those whose freely given work and thought achieved this massive useful task - particularly Bob Muller, Jack Iggulden and Col Churches, who bore the brunt of this, and those GFA specialists who assisted in their particular fields.

This is the most thorough and comprehensive work on gliding procedures produced anywhere.

Use it well!

W.P. IGGULDEN,  
GFA PRESIDENT. (1951-1970)

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The attitude of the Federation to the regulating of gliding has always been to encourage and rely upon the self discipline of its clubs and organisations and individual glider pilots. It must be stressed, however, that gliding in Australia is subject to the Air Navigation Regulations (other than those for which exemptions have been granted to members of the Federation) and as the Federation has wide responsibilities to the Department of Aviation for the proper conduct of gliding, the Federation must impose certain basic Rules, Regulations and Recommendations which persons or organisations becoming members of the Federation must agree to accept.

The definitions of these Rules, Regulations and Recommendations are as follows:

**RULE** - An instruction which has originated from the accumulated experience and expertise of the Gliding movement in Australia and which has been drawn up by duly elected officials and/or committees of the GFA. Compliance with a GFA Rule is mandatory for every member of GFA.

**REGULATION** - An instruction that is, or has originated from, a Government Regulation and with which everyone is bound to comply.

**RECOMMENDATION** - An advice that has originated from the accumulated experience of the gliding movement in Australia, expressed by the duly elected officials and/or committees of GFA. Compliance with a GFA Recommendation is very desirable but is not mandatory for every member of GFA.

This Manual of Standard Procedures outlines the Rules, Regulations and Recommendations of the Gliding Federation of Australia.

## **INTRODUCTION**

### **ABOUT THIS MANUAL**

#### **BACKGROUND**

Since 1952 the Gliding Federation of Australia has enjoyed the freedom to self administer Airworthiness by working with the Civil Aviation Safety Authority, and its predecessors, under a system of Delegated Powers, Functions and Responsibilities. What started in 1952 with very limited terms has been progressively widened until, at the date of this manual, the Delegated Authority encompasses virtually all aspects of Airworthiness: Maintenance, Repair, Registration, Amateur Construction and Type Certification. The continual expansion of delegated responsibility has been due entirely to the efforts of all of those GFA members who worked hard to achieve and maintain a high standard of airworthiness, both practically on the gliding field and by development of a sound administrative system. The system concentrates on the accumulation and distribution of knowledge and experience, gained from day to day airworthiness activities.

#### **PURPOSE**

The GFA Manual of Standard Procedures Part 3 Airworthiness sets down the standard procedures to be followed when conducting airworthiness work. Those procedures have been determined as a result of the many years of experience within the GFA and as a result of the latest aeronautical knowledge and practice.

#### **REVISIONS**

The Chief Technical Officer Airworthiness issues amendments to this manual from time to time. Those amendments will be distributed to GFA affiliated clubs and organisations and notified in the Australian Gliding magazine. It is each GFA member's responsibility to keep his or her manual up to date and record the amendments on the page provided.

#### **DEFINITIONS**

Throughout this manual the term Sailplane means gliders and powered sailplanes either sustaining or self launching operated by members of the GFA.

## MANUAL ABBREVIATIONS

To simplify this manual the following abbreviations have been adopted:

AAF	Airworthiness Administration Fee
AD	Airworthiness Directive
AN	Airworthiness Advice Notice
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CAO	Civil Aviation Order
CAR	Civil Aviation Regulation
CASA	Civil Aviation Safety Authority
CRP	Carbon Reinforced Plastic.
CTOA	Chief Technical Officer Airworthiness
FRP	Fibre Reinforced Plastic
GFA	The Gliding Federation of Australia
GRP	Glass Reinforced Plastic
MAR	Mandatory Airworthiness Requirements
MOSP	Manual of Standard Procedures
MR	Maintenance Release
RTOA	Regional Technical Officer/Airworthiness
STOA	Senior Technical Officer Airworthiness
TOA	Technical Officer Airworthiness

## **AIRWORTHINESS RESPONSIBILITY**

The Chief Technical Officer Airworthiness is responsible to both the GFA and the Civil Aviation Safety Authority for the proper administration of sailplane airworthiness and the continuance of adequate airworthiness standards. This manual is prepared pursuant to Civil Aviation Regulations serving as a set of instructions from the Chief Technical Officer Airworthiness to all GFA members engaged in airworthiness activities.

This manual is written and prepared so that GFA members working in accordance with this manual will automatically comply with all Civil Aviation Regulations and Civil Aviation Orders that may be relevant to sailplane airworthiness. Accordingly, appropriately authorised GFA members are able to use any or all parts of this manual as their reference and authority for the certification of completed airworthiness work by log book or Maintenance Release entry.

## **MANUAL APPROVAL**

This edition of the Gliding Federation of Australia Manual of Standard Procedures, Part 3, Airworthiness, when incorporating all amendments listed in the List of Effective Sections, is approved pursuant to the Civil Aviation Regulations.

SIGNED:

DATE: 7 November, 1996

Chief Technical Officer Airworthiness.

**LIST OF EFFECTIVE SECTIONS**

<b>SECTION</b>	<b>ISSUE NUMBER</b>	<b>DATE OF ISSUE</b>
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All future amendments of Part 3 of the GFA MOSP will be done by reissuing the entire section affected.

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# **1. AIRWORTHINESS ADMINISTRATION**

## **1.1 THE ROLE OF THE GFA IN SAILPLANE AIRWORTHINESS**

The responsibility for the airworthiness and operation of all gliders and powered sailplanes ultimately lies with the Federal Government. The Civil Aviation Safety Authority (CASA) has been empowered by the government through the Civil Aviation Act and the Civil Aviation Regulations (CAR) to be responsible for all facets of civil aviation. The CASA then passes that responsibility for gliders and powered sailplanes to the GFA via a series of exemptions and delegations.

Civil Aviation Regulations are laws passed by the Federal Government concerning Civil Aviation.

Civil Aviation Orders (CAOs) are issued by the CASA and are the mechanism by which the CASA sets down detailed requirements.

Sailplanes which are operated outside the GFA will be administered by the CASA.

Implicit in membership of the GFA is acceptance of the GFA's rules and regulations which includes all airworthiness procedures and responsibilities.

### **1.1.1 THE CASA DELEGATION**

The delegation from the CASA to the GFA enables specified officers of the GFA to perform functions which would otherwise have to be performed by officers of the CASA.

The delegations cover aspects of sailplane airworthiness such as, but not limited to, sailplane registration, type approval, inspector authorisation and dissemination of airworthiness information.

The powers and functions provided by the Instruments of Delegation require GFA, its officers and members to also share that responsibility and act accordingly, or lose the privileges of the Delegations.

The terms of delegation are defined in the "Instruments of Delegation and Authorisation" presented in Section 11.

### **1.1.2 EXEMPTIONS FROM THE CIVIL AVIATION REGULATIONS**

Sailplanes are not generally exempted from the CARs. Those exemptions and concessions which have been negotiated are set out in CAO 95.4 and published in the GFA Operational Regulations. The delegating of authority discussed above does not provide any other form of CAR exemption.

### 1.1.3 SAILPLANE AIRWORTHINESS REQUIREMENTS

Civil Aviation Order 100.17, presented in Section 12 sets out the airworthiness requirements applicable to all sailplanes operated in Australia, whether they are administered by the GFA or not.

## 1.2 THE TECHNICAL COMMITTEE

The Technical Committee is responsible for making policy decisions about airworthiness. Where these decisions have effects outside the Airworthiness System, that decision will have to be ratified by the GFA Council.

The Technical Committee consists of:

- a. The Chairman of the Technical Committee.
- b. All RTOAs.
- c. The Convenor of the Design and Development Committee.
- d. The OSTIV representative on the Sailplane Development Panel.
- e. The Chief Technical Officer Airworthiness if not a paid employee.
- f. The Senior Technical Officer Airworthiness if not a paid employee.
- g. All Technical Officers Airworthiness if not paid employees.

## 1.3 THE DESIGN AND DEVELOPMENT (D & D) COMMITTEE

The Design and Development Committee provides detailed technical advice to the Technical Committee. The Technical Committee assigns projects to the D & D Committee from time to time and the D & D committee reports back to the Technical Committee

The D & D Committee will be involved in the ongoing review of the Design Specification of Amateur Built Sailplanes in preparation for their Type Approval.

The Design and Development Committee shall consist of:

- a. The Convenor of the Design and Development Committee.
- b. The Chief Technical Officer Airworthiness
- c. The Senior Technical Officer Airworthiness
- d. All Technical Officers Airworthiness
- e. Any other persons the Convenor feels can make a contribution to the current projects.

The Convenor of the Design and Development Committee shall be appointed by the Technical Committee.

## **1.4 AIRWORTHINESS ADMINISTRATION**

The GFAs Airworthiness Administration is decentralised as much as possible. Many functions are handled by gliding clubs, volunteer individuals and commercial workshops with assistance firstly from the State or Regional level and secondly from the Federal level.

Where anyone obtains Airworthiness Information which may be useful to other GFA members they should forward it to the GFA Secretariat.

### **1.4.1 RESPONSIBILITY AND ADMINISTRATION AT THE FEDERAL LEVEL**

There are four federal positions within the GFA airworthiness system. The positions of Chairman of the Technical Committee (CTC) and Chief Technical Officer Airworthiness (CTOA) must be filled to ensure that the GFA and CASA requirements for airworthiness are being properly fulfilled. The other positions may be filled or vacant depending on the existing requirements and available personnel however there shall always be a Qualified Engineer (preferably Aeronautical/Aerospace) available to perform day to day airworthiness functions.

#### ***1.4.1.1 CHAIRMAN OF THE TECHNICAL COMMITTEE***

The holder of this office is the airworthiness representative on the GFA executive and shall be a volunteer. This person is elected by the GFA Technical Committee and is the person responsible for the GFA airworthiness system. The CTC is available to advise other airworthiness office holders on matters of policy.

#### ***1.4.1.2 CHIEF TECHNICAL OFFICER AIRWORTHINESS***

The GFA Executive under direction from the GFA Council appoints the Chief Technical Officer Airworthiness (CTOA), who exercises the Powers delegated by the CASA and is responsible through the CTC to the GFA and directly to the CASA for the continuance of a high standard of airworthiness in all sailplanes operated by members or affiliates of the GFA.

A list of CTOA duties is in Section 10.

The CTOA position is an appointment and is not subject to annual election.

#### ***1.4.1.3 SENIOR TECHNICAL OFFICER AIRWORTHINESS***

The GFA Executive under direction from the GFA Council may appoint a Senior Technical Officer Airworthiness who is responsible to the CTOA. The power's of the STOA will be varied depending on the qualifications and experience of the

officer however it is expected that the STOA will hold most of the delegations which the CTOA holds.

The STOA position is an appointment and is not subject to annual election.

#### ***1.4.1.4 TECHNICAL OFFICER AIRWORTHINESS***

The GFA Executive under direction from the GFA Council may appoint one or more Technical Officers Airworthiness who reports to the CTOA.

The powers of any TOAs will be varied depending on the qualifications and experience of the officers.

The TOA position(s) are appointments and are not subject to annual election.

### **1.4.2 RESPONSIBILITY AND ADMINISTRATION AT REGIONAL LEVEL**

#### ***1.4.2.1 REGIONAL TECHNICAL OFFICER AIRWORTHINESS***

Each GFA Regional Committee nominates to the Chief Technical Officer Airworthiness for appointment, one or more Regional Technical Officers Airworthiness (RTOA) who are required to exercise some of the Powers of the GFA under the CASA Instrument of Delegation.

Persons holding the position of RTOA must not be involved in sailplane maintenance, inspection or repair for hire and reward.

A list of RTOA duties is in Section 10.

The appointment of RTOAs is ratified by the GFA Council on an annual basis.

Each RTOA is responsible to the CTOA for all airworthiness related matters and actions.

### **1.4.3 RESPONSIBILITY AND ADMINISTRATION AT CLUB LEVEL**

#### ***1.4.3.1 CLUB AIRWORTHINESS ADMINISTRATION OFFICER***

It is required that every gliding club (commercial gliding organisations are regarded as clubs in this respect) has an Airworthiness Administration Officer. This person is the nominated recipient of all relevant airworthiness information, including Airworthiness Directives and Notices for gliders which are registered to the club. This officer need not be a technically qualified person but must ensure that the information received is delivered to the authorised persons who maintain the sailplane(s) and that all necessary maintenance, inspections and repairs are carried out and that records of that work are kept.

The Club Airworthiness Administration Officer performs all the functions of the Certificate of Registration Holder (see section 3).

The Airworthiness Administration Officer duties are listed in Section 10.

#### ***1.4.3.2 PRIVATE OWNER RESPONSIBILITIES***

The Certificate of Registration Holder of a privately owned sailplane is the nominated person for receiving the all relevant airworthiness information and ensuring that all maintenance, inspections and repairs are carried out and proper records of that work kept. See section 3 for the responsibilities of the Certificate of Registration Holder.

### **1.5 GFA ADMINISTRATIVE CHARGES**

The GFA Council sets from time to time a range of charges for many Airworthiness Services, applicable to all sailplanes unless specifically exempted by Council vote. The GFA will not accept airworthiness or operational responsibility for sailplanes that have not had the relevant fees paid.

### **1.6 INSPECTOR - AUTHORISED PERSON INSURANCE**

GFA members holding Glider Inspector Certificates and Authorisations who perform voluntary non-commercial work are covered by a liability insurance scheme approved by the GFA Council. The scheme provides financial protection for costs arising from negligence while performing the functions of an Authorised Inspector. The terms of this insurance vary from year to year and are available from the GFA Secretary. Club Secretaries should, from time to time, ensure that valid and current insurance policies are in place to protect club officers including holders of Glider Inspector Certificates.

Persons who are engaged in work which is non-voluntary or commercial are not covered by the GFA liability insurances and are strongly advised to hold their own liability insurance cover. Persons who are doubtful about their coverage by the GFA liability insurances should contact the GFA insurance broker for clarification.

### **1.7 SAILPLANE IMPORTATION**

The GFA should be advised in advance that a sailplane is to be imported. This will give the GFA time to ensure that all relevant documentation has been obtained so that certification can occur as quickly as possible. (cf. section 4.)

### **1.8 GFA APPROVED ORGANISATIONS (AIRWORTHINESS)**

For a Body Corporate or Person to accept responsibility for airworthiness work and its certification it must apply to the GFA in writing, on the prescribed GFA form and agree to abide by the rules and Regulations of the GFA.

On receipt of the properly completed form and after confirmation that the workshop, storage and other facilities are appropriate for the work intended (see AN 108 for

workshop details), the CTOA will issue a Certificate of Approval to the organisation, setting out requirements and limitations.

The approved organisation may then carry out airworthiness work and its certification.

The Approval is renewable at 12 month intervals. The Approval may not be renewed if the CTOA considers that the organisation has failed to meet any or all of the terms of the Certificate of Approval.

## **2. AIRWORTHINESS DOCUMENTS AND INFORMATION**

### **2.1 GENERAL**

Before a sailplane can fly legally in Australia certain documents must exist to verify that the sailplane type is approved in Australia, the individual sailplane conforms with the type specification, that all relevant information is available and that the sailplane is in fact fit to fly.

The primary purpose of these documents is to communicate from one member to another the airworthiness status of a particular sailplane. This paperwork cannot be avoided however if its purpose is understood and it is used properly it provides a powerful system for ensuring that a particular sailplane is fit for flight.

### **2.2 CERTIFICATE OF REGISTRATION (C OF R)**

This document records the existence of the sailplane and who holds the Certificate of Registration. The Certificate of Registration Holder is the person or organisation who is responsible for the Airworthiness of the glider. The C of R holder fulfils this responsibility by ensuring that all necessary maintenance is performed.

All relevant Airworthiness Directives are sent to the C of R holder and so it is vital that the details on the Certificate of Registration are correct. See section 3 for further details.

### **2.3 CERTIFICATE OF TYPE APPROVAL**

The Certificate of Type Approval is the document which certifies that a particular type has been approved for operation within Australia.

This is fully discussed in Section 4 and is the basis for sailplane Types to operate in Australia. It is issued by the CTOA.

### **2.4 CERTIFICATE OF AIRWORTHINESS (C OF A)**

This document certifies that an individual sailplane complies with the original Type Certificate and with all Australian type requirements. The C of A lists the weight, balance, speed, manoeuvre limits, maintenance standards to be complied with and certifies that if operated inside those limits and maintained to the specified standards the sailplane is safe to fly.

The C of A does not attest to the day to day, detail airworthiness of the sailplane, that is the purpose of the Maintenance Release.

Certificates of Airworthiness are issued by persons who hold the appropriate delegation from the CASA.

### 2.4.1 PERIOD OF VALIDITY

All Certificates of Airworthiness issued by the GFA since 1993 have been issued for an indefinite period of time in line with Internationally recognised practice.

All sailplanes which have not had their C of A issued or reissued since that time will still have an expiry date on the Certificate. Periodic inspections and surveys are still required as per Section 6 but the date they fall due is now set down in an Airworthiness Directive and not by the expiring of the Certificate of Airworthiness. The procedures for renewing a Certificate of Airworthiness are set down in GFA AD 337.

### 2.4.2 CERTIFICATE OF AIRWORTHINESS CANCELLATION

A C of A may be cancelled or suspended as a result of major damage or where the sailplane is found to be in an unacceptable airworthiness condition. The certificate of airworthiness is automatically cancelled when a sailplane is deregistered.

Modification of a sailplane without appropriate design approval (see section 7) results in automatic suspension of the sailplanes certificate of airworthiness

## 2.5 EXPORT CERTIFICATE OF AIRWORTHINESS

### 2.5.1 SAILPLANES ENTERING AUSTRALIA

Production sailplanes imported from foreign countries must have an Export C of A or valid foreign C of A (see Section 4.8) provided by the country of export. That document is the guarantee that the sailplane meets the original Type Certification requirements set by its country of origin. This is the basis of issuing the Australian C of A once Australian requirements have also been met.

### 2.5.2 SAILPLANES LEAVING AUSTRALIA

Sailplanes exported from Australia may be required by the receiving country to have an Australian Export C of A. The inspection requirements for the issue of that certificate will be set by the CTOA on application by the exporter.

## 2.6 FORM 2

The GFA Form 2 provides a checklist to assist in performing an annual inspection (the Inspection Report) and a Maintenance Record which is returned to the RTOA after the Inspection. See section 6 for how to use this form.

## 2.7 MAINTENANCE RELEASE (MR)

On the gliding field, the Maintenance Release serves as the communication between the person(s) responsible for the sailplane's maintenance and the person(s) responsible for the sailplane's operation making it the key document in terms of flight safety.

The Maintenance Release is divided into 3 parts and also includes the Daily Inspection Record.

### 2.7.1 MAINTENANCE RELEASE - PART 1

Part 1 identifies the sailplane and records date of issue, date of expiry and that the evaluation flight has been completed. However its prime purpose is to record the Maintenance which must be performed while the maintenance release is in force.

The Maintenance Release ceases to be in force when maintenance to be performed falls due and has not been certified as completed by an appropriately rated inspector.

#### **IMPORTANT**

**When an inspector completes an item of recurring maintenance required on the MR, it is that inspector's responsibility to endorse the MR to show when that item is due to be repeated.**

### 2.7.2 MAINTENANCE RELEASE - PART 2

Where PART 1 controls the overall maintenance from one annual inspection to the next, Part 2 controls the aircraft from one pilot to the next, with provision to record Major Defects which prevent further flight and Minor Defects that do not represent an in flight safety hazard but need to be inspected for further deterioration at each Daily Inspection

#### *2.7.2.1 MAJOR DEFECTS.*

Major defects are faults which develop in a sailplane which are hazardous to flight. Once there is an uncleared Major Defect entry in the maintenance release the maintenance release ceases to be in force and the sailplane cannot be flown.

If any member of GFA finds or suspects a fault with a sailplane which may be critical to flight safety or which they are unsure of, an entry should be made in the Major Defects section of Part 2.

#### **IMPORTANT**

**If it is unsure whether a defect is major or minor the defect should be recorded as a major defect as it is better to ground a safe sailplane than to allow an unsafe one to fly.**

To clear the defect an inspector rated for Annual Inspections must inspect the problem and either have the defect repaired or declare the sailplane safe and sign off the entry.

### 2.7.2.2 MINOR DEFECTS.

These are faults in a sailplane that are not hazardous to flight but which need to be inspected at each daily inspection for further deterioration.

As well as bringing the defect to the attention of each daily inspector recording minor defects also provides the next Annual Inspector with a record of known problems.

An Annual Inspector may elect to transfer an item to Part 1 to limit the amount of flying the aircraft does with the defect. Minor defect recording is "good housekeeping" and is to be encouraged.

### 2.7.3 MAINTENANCE RELEASE - PART 3

Obviously, from the foregoing the total time in service must be readily available at all times to allow the airworthiness status of the sailplane to be known. The hours flown and take offs made must be entered daily.

#### **CAUTION**

**Many errors are made entering and adding together hours and minutes on Part 3. Be aware that errors are likely and take the time to check the entries.**

Maintenance releases issued to Powered sailplanes have an additional insert (coloured blue) for recording engine hours. Engine hours must be entered daily.

### 2.7.4 DAILY INSPECTION RECORD (GFA FORM 1)

The daily inspection record is in the same booklet as the maintenance release. Whenever a daily inspection is performed the inspector should use the Daily Inspection Schedule as a guide plus any specific items in the Flight Manual to perform the Daily Inspection. The Inspector then Certifies that a Daily Inspection has been completed.

For full details for completing daily inspections see section 6.

## 2.8 PERMIT TO FLY

From time to time it is necessary to fly a sailplane that does not have a Certificate of Airworthiness, a Certificate of Registration or a Maintenance Release. In order to legally fly a sailplane which is missing one of these documents a Permit to Fly must be issued.

A Permit To Fly can only be issued by the GFA Officers who hold the appropriate delegation. The only GFA officers who may hold the necessary delegations are the CTOA, STOA, TOA or RTOA depending on the circumstances. Sailplane Inspectors may not issue Permits to Fly.

Permits to Fly may only be issued in accordance with the Civil Aviation Regulations. All Permits to Fly will clearly list the terms and limitations applicable to the allowed flight(s).

The Permit To Fly must be kept with the Maintenance Release in the sailplane at all times and a Daily Inspection must not be signed off without sighting the permit to ensure it has not expired.

Pilots flying the sailplane are strictly limited to the terms of the Permit to Fly. Disregarding the terms of a Permit to Fly is an offence under Civil Aviation Regulations.

## **2.9 THE LOGBOOK**

The certificate of registration holder is responsible for the existence and upkeep of suitable Log Books for each sailplane to record:

- a. Total time in service and number of landings made by the sailplane.
- b. Annual inspections, repairs and routine maintenance.
- c. The results of life extension surveys.
- d. Engine changes, propeller changes and component changes (where applicable).
- e. Incorporation and compliance with Airworthiness Directives.
- f. A record of modifications incorporated.
- g. A record of Weight and Balance.
- h. A history of components that are fatigue life limited.

Logbook entries must be certified by persons authorised for each category of work and signed by them as being responsible for that work and include their Inspectors Number and the date the work was completed.

The certificate holder must ensure the time in service and number of landings is entered at least monthly.

Loose leaf entries must be glued into the relevant section of the Log Book.

The preferred log book is the Glider and Powered Sailplane Log Book available from the GFA Secretariat.

## **2.10 AIRWORTHINESS DIRECTIVES (AD)**

When a defect in a sailplane is discovered which could affect the safety of other sailplanes the details of the defect along with a series of actions necessary to prevent the defect recurring or becoming dangerous are published as an Airworthiness Directive.

Flight and Maintenance Manual amendments these are also promulgated using Airworthiness Directives.

Airworthiness Directives are mandatory and come in two categories:

- GENERAL - Applicable to the majority of sailplanes.
- SPECIFIC - Applicable to only one or several types or models of sailplanes.

The actions required will be spelt out in each AD and may include, but are not limited to periodic inspection of the defect/part, replacement of the component or changed operating and maintenance procedures.

The qualifications of the persons who may complete the actions of the AD will be listed on each AD.

### 2.10.1 AIRWORTHINESS DIRECTIVE SCHEDULE

Sailplane inspectors need to know, when inspecting a sailplane, which Airworthiness Directives are applicable to the particular sailplane. The GFA therefore provides an Airworthiness Directive Schedule for each type which lists those ADs which are applicable to that type and a General Airworthiness Directive Schedule which lists those ADs which are generally applicable to all types.

Each AAF kit (see section 6.) contains the General AD Schedule as well as the Specific AD Schedule for the particular type. It is the Annual Inspectors responsibility to use these schedules to ensure that they have copies of all relevant Airworthiness Directives.

### 2.10.2 AIRWORTHINESS DIRECTIVES - CONCESSIONS

Where a sound case exists for an Airworthiness Directive to be varied, deferred or waived for a particular sailplane, the CTOA may issue a Letter of Concession to the owner or operator outlining applicable terms or limitations.

### 2.10.3 AIRWORTHINESS DIRECTIVES - DISTRIBUTION

Airworthiness Directives are distributed by mail to the Certificate of Registration Holder of affected sailplanes.

A record of those sailplanes, including the addresses to which the AD was sent, is kept in the Airworthiness Directive file for later reference in the event of any claim that the document was not received.

A notice of all Airworthiness Directive issued or re-issued, is published in "Australian Gliding" magazine to ensure that members are aware of the documents existence in case the distribution system fails.

Airworthiness Directives are also sent to all RTOAs, Workshops, the sailplane manufacturer, the CASA plus other distribution at the discretion of the CTOA. Full details of AD distribution is recorded in the Airworthiness Directive file.

A copy of any AD may be obtained from the GFA Secretariat on request.

## **2.11 AIRWORTHINESS ADVICE NOTICE (AN)**

An Airworthiness Advice Notice is used to distribute information which is not important enough for mandatory action, but has relevance to maintaining a high standard of airworthiness. ANs also provide Owners and operators with information on approved modifications, repairs, defects found etc.

Airworthiness Advice Notices come in two categories:

- GENERAL - Information relevant to gliding generally.
- SPECIFIC - Most sailplane types eligible for an Australian C of A have a dedicated Airworthiness Advice Notice which is used to distribute information that is useful when maintaining a particular sailplane type.

### **2.11.1 AIRWORTHINESS ADVICE NOTICES - DISTRIBUTION**

A copy of the specific AN for the type is include in each AAF kit distributed from the GFA Secretariat ensuring that the owner/operator gets a current issue at least annually. That AN is accompanied by a copy of the General Airworthiness Advice Notice Schedule which lists all General ANs. A copy of any AN may be obtained from the GFA Secretariat on request.

Periodically AN's are published in the "Australian Gliding" magazine.

## **2.12 MANUFACTURERS MANUALS**

The manufacturers manuals (Flight and Maintenance Manuals) are the primary source of maintenance information. Unless they are overridden by an Airworthiness Directive these manuals provide a source of approved maintenance procedures.

### **2.12.1 CARRIAGE OF FLIGHT MANUALS**

Sailplanes are exempt from carrying a Flight Manual during normal operations because all relevant information is provided by the placards required in Section 5.

## **2.13 BASIC SAILPLANE ENGINEERING**

Basic Sailplane Engineering is a book published by the GFA which provides the approved procedures for inspecting and repairing sailplanes where the sailplanes manuals are lacking on the subject. Copies of Basic Sailplane Engineering may be purchased from the GFA Secretariat.

The procedures in this manual reflect standard aeronautical practice and the accumulated airworthiness experience gained by the GFA over the years. All inspectors engaged in airworthiness work must ensure that they have the latest version of this manual available.

The priority of procedures is as follows

- a. Airworthiness directives are the primary source of procedures for inspecting and repairing gliders. Where an AD has been issued on a particular aspect of a sailplane the AD overrides the procedures in the aircraft manuals and in Basic Sailplane engineering.
- b. Where there are no AD's the manufacturers Flight and Maintenance manuals are the source of technical information for a particular type.
- c. Where the manuals do not cover an aspect of the sailplane the procedures in Basic Sailplane Engineering should be followed.
- d. If inspectors are still unsure then the RTOA or the CTOA should be contacted.

### **3. SAILPLANE REGISTRATION**

#### **3.1 GENERAL**

To ensure that the latest airworthiness information is available to the operators of sailplanes the GFA must record the information necessary to contact all sailplane operators in case an airworthiness problem is found which may affect other aircraft.

To achieve this the GFA uses the portion of the Aircraft Register which it maintains for the CASA. That portion of the Aircraft Register is called the Sailplane Register.

#### **3.2 SAILPLANE REGISTER**

All sailplanes operated by GFA members must be registered in the Sailplane Register.

The Sailplane Register is kept at the GFA Secretariat and is the volumes of Register of Australian Aircraft documents signed by appropriately delegated officers of the GFA.

Each Sailplane which is entered into the Sailplane Register will be allocated an individual File Number used only for that sailplane.

#### **3.3 REGISTRATION MARKS**

The CASA allocates to GFA blocks of three letter Registration Marks for use on sailplanes.

##### **3.3.1 RESERVATION OF REGISTRATION MARKS**

When a person intends to register a sailplane he/she may apply to have one of the Registration Marks which has been allocated to GFA but has not been assigned to a sailplane reserved for future use. The maximum period that GFA will reserve marks for is 12 months and it is the responsibility of the person who has reserved the marks to renew the reservation.

The CASA has other registration marks available and any person who wish to use these marks should contact CASA and have them allocated to the GFA. He/she may then reserve them through the GFA.

##### **3.3.2 CHANGE OF REGISTRATION MARKS**

If the Certificate Holder wishes to change the registration marks of a sailplane the following procedure should be followed:

- a. Reserve a new registration mark.
- b. Send to the GFA Secretariat a written request to change the registration marks together with the Certificate of Registration, the Certificate of Airworthiness, the Registration Plate and the appropriate fees.

- c. The C of A and the C of R will then be reissued with the new marks.
- d. Have the Maintenance Release altered to reflect the new marks by the same inspector who completed the last Annual Inspection.
- e. Remove the old registration marks and apply the new marks.
- f. Install a new Registration Plate.
- g. Complete a Log Book entry stating that the registration marks have been changed and quoting the old and new marks.

Note that from the time the certificates are sent to the GFA until the revised certificates are received and all the above items are completed the sailplane cannot be flown as its registration status is unclear.

### **3.4 INITIAL REGISTRATION**

To register a sailplane the applicant should obtain from the GFA Secretariat an Initial C of A kit by sending the appropriate fee with a letter or a copy of the regular AG advertisement requesting an initial C of A kit. This will contain:

- a. An application for registration.
- b. An application for Permit to Fly.
- c. All GFA AD's specific to the type.
- d. GFA AN 84 and GFA AN 85 plus any other AN's deemed appropriate by the CTOA.
- e. An Aircraft Log Book.
- f. An AAF Kit.

The application for registration should be completed and returned to the GFA Secretariat. Note that the Application for Registration must be completed correctly as much of the information is required to ensure compliance with the CAR'S.

When the sailplane has been imported the Certificate of Non-registration or De-registration must accompany the application for registration. See section 4.8 a.

Once a correctly completed application for registration has been received together with the certificate of non or de registration (if applicable) and the appropriate fee the GFA must register the sailplane.

### **3.5 CERTIFICATE OF REGISTRATION HOLDER**

The Certificate of Registration Holder is responsible under the Civil Aviation Regulations for ensuring that all required maintenance on the Sailplane is completed by appropriately qualified persons. This responsibility includes:

- a. Ensuring that Annual Inspections are completed at the appropriate time.
- b. Ensuring that all other inspections and surveys (20 yearlies, 3000 hour etc.) are completed.
- c. Ensuring that all Airworthiness Directives are complied with.
- d. Ensuring that the Log Book is kept up to date in accordance with Section 2.9.
- e. Completing any other tasks for which the C of R Holder is identified as being responsible for elsewhere in the GFA MOSP.

### **3.6 CHANGE OF NAME OR ADDRESS**

If the Certificate of Registration Holder or any person who holds a property interest in a sailplane changes their name or address then the Certificate of Registration Holder must notify the GFA Secretariat of the change, in writing and within 14 days of the Certificate Holder becoming aware of the change.

### **3.7 CHANGE OF PROPERTY INTEREST**

If there is any change of property interest then the Certificate of Registration Holder must notify the GFA Secretariat, on the appropriate form(s), within 14 Days of the change.

The forms for change or property interest may be obtained from the GFA Secretariat.

#### **3.7.1 CHANGE OF CERTIFICATE OF REGISTRATION HOLDER**

Where the change of interest also results in a change of Certificate of Registration Holder then the appropriate sections on the change of property interest forms must be completed.

### **3.8 CANCELLATION OF REGISTRATION**

Where a sailplane is lost, stolen, destroyed or permanently withdrawn from use the Certificate of Registration Holder must notify the GFA Secretariat, in writing within 14 days.

The notice must include the Certificate of Registration and set out the circumstances in which the loss, theft, destruction or withdrawal occurred.

### **3.9 LOSS OR DAMAGE TO THE CERTIFICATE OF REGISTRATION**

If the C of R is lost, stolen, destroyed or damaged so that particulars are no longer legible, the C of R Holder must notify the GFA Secretariat in writing of the circumstances of the loss, theft, destruction or damage within 14 days. If the certificate is damaged, the damaged certificate must accompany the notice.

### **3.10 DISPLAY OF REGISTRATION MARKS**

Registration Marks must be displayed in accordance with the requirements of Section 3 of the GFA Operation Regulations. This includes both internal and external marks.

GFA AN 84 has been prepared and if followed will ensure compliance with the GFA Operation Regulations in respect of sailplane markings.

## **4. SAILPLANE CERTIFICATION**

### **4.1 GENERAL**

Sailplanes must meet minimum standards of structural, mechanical and operational integrity. They must be acknowledged by being "Certified" by an Authority.

The GFA, under the CASA Delegation, is responsible for the Type Acceptance and Certification of all production and amateur built sailplanes entering service in Australia, operated by GFA members and affiliated organisations.

### **4.2 TERMINOLOGY**

Production sailplanes must be Type Approved in their country of origin, by that country's Civil Aviation Authority in accordance with acceptable Design Requirements.

Before sailplanes of a certain Type can be issued with a Certificate of Airworthiness in Australia that Type must be Type Approved by the GFA CTOA.

Once Type Approval is completed, any number of examples of that Type and subsequent models may then be certified for operation in Australia by the issue of Certificates of Airworthiness

This section outlines the GFA procedures and requirements for sailplane Type Approval and the issue of Certificates of Airworthiness.

### **4.3 TYPE APPROVAL DESIGN REQUIREMENTS**

All sailplanes must comply with recognised Design Standards which are listed in CAO 101.26. (Section 12). Deviations from those standards will be accepted, provided an equivalent standard of safety can be demonstrated. It is expected that all the additional requirements of CAO 101.26 will be met when processing sailplane certification.

### **4.4 AUSTRALIAN DESIGN REQUIREMENTS**

Most gliding nations have local requirements, derived from operational experience, which are applied before a sailplane is eligible for a Certificate of Airworthiness. Australia is no exception and from time to time the GFA Council and/or Technical Committee will request that sailplanes meet certain criteria before a C of A is issued. Those criteria are published in a series of GFA "Mandatory Airworthiness Requirement" (MAR) publications.

### **4.5 AUSTRALIAN COMMERCIAL SAILPLANE TYPE APPROVAL**

Sailplanes manufactured commercially in Australia will be Type Approved by the GFA under a joint arrangement between the CASA and the GFA to be negotiated for each specific project.

#### **4.6 AMATEUR BUILT TYPE ACCEPTANCE**

Type Acceptance of Amateur Built sailplanes is fully detailed in Section 8.

#### **4.7 TYPE APPROVAL OF FOREIGN BUILT SAILPLANES**

Foreign sailplane types having Type Approval in their country of origin, where that country is a member state of the International Civil Aviation Organisation (ICAO) will normally be eligible for Australian Type Approval.

Where the country of origin is not a member of ICAO, terms for Type Approval will need to be negotiated for each type with the CTOA.

Sailplanes which are not Type Approved in their country of origin will not be eligible for Type Approval in Australia.

The importer of a sailplane type, (new or second-hand), not previously Australian Type Approved will need to provide the CTOA with the following information at or before importing the sailplane: (ref. Section 1.6)

- a. A copy of the Certificate of Type Approval from the country of origin and a Type Data Sheet.
- b. Flight, Maintenance and Repair manuals approved in the country of origin, plus a parts catalogue if available.
- c. A set of construction drawings (including a 3 view drawing) sufficient to derive materials and detailed information for repair and maintenance work. In the case of FRP structures all lay-up diagrams must be supplied.
- d. A list of data and reports used by the original certifying authority for type certification.
- e. A list of non compliances with the Design Requirements used and any other non compliances with that country's Airworthiness Standards. This will usually be the Compliance Checklist.
- f. All Service Bulletins, Technical Notes etc. issued by the sailplane manufacturer in respect of the type.
- g. All Airworthiness Directives for the type from the country of origin Airworthiness Authority.
- h. A written statement from the manufacturer (if the manufacturer still exists) that all future Service Bulletins relevant to the type will be forwarded to the GFA.

All information supplied is held by GFA in strict confidence. A letter of Guarantee of Confidentiality can be provided by the CTOA. Manuals and data sheets must be provided in English.

#### 4.7.1 FIRST OF TYPE INSPECTION REQUIREMENTS

The known history of sailplanes originating both from the country of origin and the particular manufacturer, plus the above type data will allow the CTOA to decide on the degree of Type Inspection required and who is to perform it when the First of the Type arrives in Australia.

Most current sailplane manufacturers comply with GFA requirements on the production line (new sailplanes). Products from other manufacturers and old second-hand types may need far more attention.

Where there are novel features incorporated in a new type they may need specific investigation.

#### 4.7.2 CERTIFICATE OF TYPE APPROVAL ISSUE

On completion of the above, the CTOA will:

- a. Prepare, if required, an Airworthiness Directive outlining all Service Bulletins and/or modifications to be incorporated prior to the issue of a C of A for any examples of the Type imported.
- b. Amend the Flight and Maintenance manuals as required.
- c. Issue a Certificate of Type Approval specifying the terms under which an Australian Certificate of Airworthiness will be issued.
- d. Forward copies of the Certificate of Type Approval to CASA and the manufacturer.

### 4.8 CERTIFICATION OF IMPORTED SAILPLANES

Each sailplane imported into Australia (including the First of Type) must be accompanied by the following documentation and undergo an initial inspection in accordance with Section 4.8.1.

- a. A certificate of non-registration or de-registration from the country of export.
- b. An export certificate of airworthiness or a certificate of airworthiness from the country of export which is still current or expired less than 90 days before the date of application.
- c. A current weight and balance report including equipment list. If the aircraft is new then the manufacturer's weight and balance is acceptable. Used aircraft must be weighed in Australia.
- d. A list of modifications incorporated.
- e. Log book for used sailplanes or a Flight Test report for new sailplanes.

#### 4.8.1 INSPECTION AFTER IMPORTATION

Each sailplane must, after arrival and before first flight in Australia:

- a. Be inspected in accordance with GFA Form 2 by a GFA Inspector authorised for Annual Inspections. The inspection must include verification of incorporation of all modifications specified by the manufacturer.
- b. Have all outstanding GFA requirements incorporated including the minimum equipment, minimum placarding and cockpit control identification listed in Section 5 and compliance with the MARs.
- c. Have the Weight and Balance confirmed.
- d. Be Registered in accordance with Section 3.
- e. Have up to date Flight and Maintenance Manuals.

The inspector then lodges the application for Permit to Fly with the GFA Secretariat. If the information is in order, a Permit to Fly will be issued. In some cases a specific evaluation flight schedule will be issued with the permit (depending on the level of evaluation required).

On receipt of the Permit the Maintenance Release is issued with the expiry date of the permit entered on part 1 and one or more evaluation flights are completed in accordance with the evaluation flight schedules in Basic Sailplane Engineering and in accordance with any specific evaluation flight test schedules. An evaluation flight report must be forwarded to the CTOA along with a copy of the Form 2.

The evaluation pilot must be qualified in accordance with the GFA MOSP Part 2 Operations.

NOTE! When the Permit to Fly reaches its Expiry Date the Maintenance Release is suspended until a new Permit is obtained or a Certificate of Airworthiness issued.

#### 4.8.2 CERTIFICATE OF AIRWORTHINESS ISSUE

On completion of the above a Certificate of Airworthiness will be issued and forwarded to the Certificate of Registration Holder.

## 5. MINIMUM EQUIPMENT AND PLACARDING

### 5.1 MINIMUM EQUIPMENT

Each sailplane must have certain minimum equipment and that equipment must meet appropriate standards.

The minimum equipment is:

- a. One Air Speed Indicator calibrated in knots. The instrument must be able to indicate at least 20 knots above the manufacturer's Maximum Allowable Speed in Smooth Air ( $V_{NE}$ ). This ASI does not have to be colour coded unless the flight manual requires colour coding in which case the colour coding must match the flight manual specification. Where a colour coding is installed but is not required by the Flight or Maintenance Manuals it must comply with Section 5.5. The ASI must be in full view of the pilot in command.
- b. One Altimeter calibrated in feet.
- c. One approved four point harness for each pilot.
- d. An adequate canopy jettison system.
- e. A Clear View panel, operable with a gloved hand, on any side of the cockpit adjacent to each pilot, to allow vision at 45 degrees to the line of flight.
- f. The electrical system must have a two position Master Switch and fuses for each item of electrical equipment and a battery fuse. All switches should be installed so that moving the switch up turns the equipment on.
- g. One or two Tow Releases either Tost, Ottfur or Davies type located in accordance with GFA MAR 2 except self launching powered sailplanes which are not required to have any releases. Other types of Tow Releases must be individually Type Approved by the CTOA. Latch releases are not acceptable.
- h. All equipment specified in the original Type Certification documentation and the Flight and Maintenance manuals.

In the case of Powered Sailplanes the above items must be supplemented with:

- a. An engine tachometer.
- b. A carbon monoxide detector for engine installations fixed into the fuselage.
- c. A cylinder head temperature or water temperature gauge. (Not required if the powered sailplane type was originally Type Approved without, but strongly recommended).
- d. An oil pressure and temperature gauge if applicable.

- e. A fuel contents gauge or dip stick.
- f. Magnetic compass.
- g. Static earthing point for re-fuelling purposes.

## **5.2 LAUNCHING EQUIPMENT**

### **5.2.1 WEAK LINKS**

Launch cable Weak Links (see GFA MOSP Part 2 Operations) must be used in all forms of sailplane launch methods (except self launching) to ensure that the sailplane structure is not overloaded. GFA Airworthiness Advice Notice 75 details all aspects of Weak Link application and placarding.

### **5.2.2 LAUNCH CABLE ATTACHMENT RINGS**

The reliability of the launch cable release mechanisms depends on the use of the correct rings on the tow cable. The only acceptable Tow Rings for GFA operations are specified in GFA Airworthiness Advice Notice 75.

## **5.3 MINIMUM PLACARDING**

Because GFA policy is that the flight manual need not be carried, there must be a minimum level of cockpit placarding to ensure that operating limits are available to the pilot. These are:

- a. An airspeed limitation placard in knots IAS in full view of the pilot in command. The placard must list:
  - The never exceed speed
  - The maximum rough air speed
  - The maximum manoeuvring speed
  - The maximum aerotow speed
  - The maximum winch/autotow speed if approved winch/autotow launching.
- b. A pilot weight limitation placard showing the maximum and minimum pilot weights in kilograms for each seat, including removable ballast requirements where needed. For two seat sailplanes a placard showing the maximum and minimum pilot weights the rear seat for varying pilot weights on the front seat is highly recommended. A Sample placard is shown below.

<b>VH-XXX NORMAL CATEGORY</b>		
<b>Front kg</b>	<b>Rear Min.</b>	<b>Rear Max.</b>
45	95	110
50	75	110
55	60	110
60	40	110
65	20	110
70	0	110
75	0	110
80	0	110
85	0	105
90	0	100
95	0	95
100	0	90
105	0	85
110	0	60
<b>Minimum Solo 70 kg Maximum Solo 110 kg Max. Fuse Load 190 kg</b>		

- c. A wing water ballast limitations placard if waterballast is permitted.
- d. A fin water ballast limitations placard if fin ballast is fitted.
- e. Canopy jettison system operating placards.
- f. Cockpit placards as specified in the original Type Approval documentation, Flight and Maintenance manuals except that duplicate placards in non standard units need not be fitted.
- g. Where oxygen equipment is installed, a reducing  $V_{NE}$  with altitude placard.
- h. A weak link placard showing the correct weak links for aerotow and winch/autotow launching.
- i. For gliders which are approved for winch launching but which have had their belly hook removed a placard stating "Winch Launching Not Permitted".
- j. A placard stating "Cloud Flying Prohibited".

### 5.3.1 POWERED SAILPLANE PLACARDING

Powered sailplanes which are capable of self launching must have a placard which shows ground roll to lift off (short dry grass) and total distance to clear 50 feet under standard sea level conditions extrapolated to 5000 ft above sea level and 30 degrees Celsius, ambient temperature.

All Powered Sailplanes must also have a placard stating:

**NO SMOKING**

#### 5.3.1.1 POWERED SAILPLANE PLACARDING WHEN NOT OPERATED UNDER CAO 95.4.1

In addition to the placards required above, powered sailplanes require additional placarding as shown below:

**THIS POWERED SAILPLANE MUST BE OPERATED IN ACCORDANCE WITH THE PROVISIONS OF CAO 95.4 AND THE GFA OPERATIONAL REGULATIONS.**

Powered sailplanes which have not been certified as capable of self launching (power assisted sailplanes) must be placarded as follows:

**THIS POWER ASSISTED SAILPLANE MUST BE OPERATED IN ACCORDANCE WITH THE PROVISIONS OF CAO 95.4 AND THE GFA OPERATIONAL REGULATIONS.**

**TAKE OFFS USING ONLY INSTALLED ENGINE POWER ARE PROHIBITED.**

#### 5.3.1.2 POWERED SAILPLANE PLACARDING WHEN OPERATED UNDER CAO 95.4.1

In addition to the placards required above, powered sailplanes operated under CAO 95.4.1 (Charter Operations) require placarding as shown below in lieu of those in Section 5.3.1.1:

**THIS POWERED SAILPLANE MUST BE OPERATED IN ACCORDANCE WITH THE PROVISIONS OF CIVIL AVIATION ORDER 95.4 AND 95.4.1**

Powered sailplanes which have not been certified as capable of self launching (power assisted sailplanes) must be placarded as follows:

**THIS POWER ASSISTED SAILPLANE MUST BE OPERATED IN ACCORDANCE WITH THE PROVISIONS OF CIVIL AVIATION ORDER 95.4 AND 95.4.1.**

**TAKE OFFS USING ONLY INSTALLED ENGINE POWER ARE PROHIBITED.**

## 5.4 COCKPIT CONTROL IDENTIFICATION

### 5.4.1 COLOUR CODING

Traditionally all Sailplane Design Requirements have specified colour coding of the pilot's cockpit controls. The GFA colour code standard is:

Tow Release	Yellow
Dive Brake Control	Blue
Longitudinal Trimmer	Green
Canopy normal opening handle	White
Canopy jettison handle	Red

Other controls must be clearly marked but may not be yellow, blue, green, white or red.

### 5.4.2 CONTROL LABELLING

All cockpit controls, except the control column and rudder pedals, must be labelled with their function and their sense of operation. This labelling may be either pictorial or written. Where sample placards are not shown in gliders manuals then the samples shown in JAR 22 may be used.

## 5.5 ASI COLOUR CODING

It is permissible to have no colour coding of the ASI unless the Flight and Maintenance Manuals specify colour coding for the ASI then the ASI must be colour coded in accordance with those manuals.

Where a colour coded ASI is not required by the Flight or Maintenance Manuals and is fitted it must comply with the following.

- a. for  $V_{NE}$  a radial red line;
- b. for the upper caution range a yellow arc extending from  $V_{NE}$  to the allowable rough-air speed  $V_{RA}$ ;
- c. for the normal operating range, a green arc with the lower limit at  $1.1 V_{S1}$  at maximum weight with wing-flaps neutral and landing gear retracted and the upper limit at the rough-air speed  $V_{RA}$ ;
- d. for the wing-flap operating range, a white arc with the lower limit at the stall speed  $1.1 V_{S0}$  for maximum weight and the upper limit at the allowable wing-flaps extended speed  $V_{FE}$ ;
- e. for the best rate-of-climb speed  $V_Y$ , a blue I radial line (for powered sailplanes only).

## **6. SAILPLANE INSPECTION AND REPAIR**

### **6.1 INSPECTION - GENERAL**

Because sailplanes are mechanical devices they degrade over time and are occasionally damaged in accidents. The GFA has prepared a schedule of inspections to detect this damage before it reaches catastrophic proportions. The basis for all sailplane operations is that a Daily Inspection has been performed. Because many areas of a sailplane are not accessible during a Daily Inspection, it is also necessary to perform a more detailed inspection from time to time. These inspections take the form of Annual Inspections which are based on elapsed calendar time and Periodic Inspections which may be based on elapsed calendar time or sailplane time in service. At any time a Special Inspection may be necessary. These Special Inspections include inspections after heavy landings, inspections called for by AD's and any other inspections which may be deemed necessary.

#### **6.1.1 CLASSIFICATION OF CONSTRUCTION TYPES**

Because the skills required to inspect or repair a sailplane vary depending on the main construction materials inspections and repairs are categorised into the four main construction types as follows:

- Wood
- Metal
- FRP
- Steel Tube

### **6.2 DAILY INSPECTION**

Before each days' operation and after each rigging all sailplanes must receive a Daily Inspection in accordance with the procedures in the GFA Daily Inspector's Handbook. This inspection may only be performed by persons who are authorised as a Daily Inspector for that particular construction category or in the case of powered sailplanes, for that particular type.

When the Daily Inspection is completed the Inspector certifies so in the Daily Inspection Record (GFA Form 1) which is in the same booklet as the Maintenance Release.

### **6.3 INDEPENDENT INSPECTIONS**

An independent inspection is required each time a control circuit is reconnected. When performing the independent inspection, the inspector must check that all parts are correctly attached, that all controls have correct safety locking, that the controls move in the correct sense and that there is full and free movement.

The minimum qualification for performing Independent Inspections is a Daily Inspector Authorisation.

## **6.4 ANNUAL INSPECTIONS**

A sailplane cannot be flown unless an Annual Inspection has been certified within the last 12 months by a GFA Inspector rated as an Annual Inspector for the appropriate construction type or, in the case of Powered Sailplanes for the particular type.

The administrative procedures for completing an Annual Inspection are as follows:

1. Complete an Annual Inspection in accordance with the GFA Form 2, Basic Sailplane Engineering, the Manufacturers Manuals and any applicable Airworthiness Directives up to the Independent Control Check.
2. Have an Independent Inspection performed by a Daily Inspector. See 6.3
3. The inspector then certifies the Maintenance Release. See Section 6.4.1 for details of issuing Maintenance Releases
4. If necessary the sailplane may now be transported to the airfield and rigged in preparation for the evaluation flight.
5. A Daily Inspection must be performed and signed out in the Daily Inspection Record.
6. The sailplane receives an Evaluation Flight in accordance with the procedures in Basic Sailplane Engineering Section 3.5. An evaluation flight is carried out by an experienced and authorised person (see GFA MOSP Part 2 Operations) who must wear a currently repacked parachute. The completion of a satisfactory evaluation flight may require several launches.
7. If the flight is satisfactory the Evaluation Flight Report in the Maintenance Release is signed by the pilot and the sailplane returns to service. If defects are found they are recorded under Major or Minor Defects in the Maintenance release as appropriate. As with all Major Defects the sailplane cannot be flown until they are rectified and signed out by an Annual Inspector.
8. The Certificate Holder returns page 3 of the Form 2, Glider/Powered Sailplane Maintenance Record, to the RTOA.

A short, concise Logbook entry (ref. Basic Sailplane Engineering Sect 3) completes the Annual Inspection.

### **6.4.1 ISSUING OF MAINTENANCE RELEASES**

Part of the Annual Inspection is to issue a new Maintenance Release for the sailplane. When issuing a Maintenance Release the following items should be noted.

The date of issue of the Maintenance Release is the date the inspector signs the MR before the Evaluation Flight.

Date of expiry is a maximum of 12 months from the date of issue of the MR. An inspector may issue the Maintenance Release for a lesser period.

When issuing a Maintenance Release the inspector must ensure that all scheduled maintenance required by the Manufacturer's Manuals, Basic Sailplane Engineering, an AD or the Inspector to be done before the next Annual Inspection, is entered in Part 1 of the Maintenance Release.

#### ***6.4.1.1 MAINTENANCE RELEASE ISSUING AUTHORITY***

The following persons/organisation may issue maintenance releases in accordance with the procedures listed.

##### **6.4.1.1.1 GLIDING CLUBS**

Each Gliding Club is the Issuing Authority for MR's issued for sailplanes owned or operated by the club. The GFA Inspector, completing the Annual Inspection does that work as a servant of the club.

The Inspector signs the MR, the club issues the MR.

##### **6.4.1.1.2 PRIVATE OWNERS**

Where a Certificate Holder contracts with a GFA Annual Inspector, (working privately, not for hire and reward and not associated with an Approved Organisation) to complete an Annual Inspection, the Inspector signs the MR and the Certificate Holder issues the MR.

##### **6.4.1.1.3 APPROVED ORGANISATIONS**

Where a GFA Approved Organisation contracts to complete a Form 2 Inspection, the Organisation (Named on the Form 14 Agreement) is the Issuing Authority for the MR. The GFA Inspector completing the work signs the MR as an employee of the Organisation.

## **6.5 PERIODIC INSPECTIONS**

Some sailplanes, especially powered sailplanes, are subject to periodic inspections as well as the Daily and Annual Inspections listed above. The most common inspections are 25, 50, 100 hour inspections required by the Manufacturer or by an Airworthiness Directive. These inspections must be certified by Log Book and Maintenance Release entry. Unless the Airworthiness Directive specifies otherwise persons who certify for Periodic Inspections must be rated as an Annual Inspector for the appropriate construction type or, in the case of a powered sailplane for the particular type.

## **6.6 AIRWORTHINESS SURVEYS**

To ensure that those parts of the sailplane which are not normally inspected during Annual Inspections are still serviceable it is necessary to inspect each sailplane to ensure that detail components are still in good condition.

The GFA uses two types of inspection to ensure the long term airworthiness of all sailplanes.

All sailplanes are subject to Airworthiness Surveys in accordance with the procedures in GFA AD 337 except for FRP sailplanes which have an approved Life Extension Program which must be surveyed in accordance with that program.

## **6.7 SPECIAL INSPECTIONS**

### **6.7.1 FOLLOWING HEAVY LANDING**

If a sailplane is involved in a heavy landing or ground loop and there is no obvious damage the sailplane must be inspected for hidden damage by a Daily Inspector.

### **6.7.2 AS CALLED FOR IN AD'S**

From time to time an AD will be issued which requires inspections of some part of the sailplane. Each AD will specify which parts of the sailplane are to be inspected and who may perform the inspection.

### **6.7.3 IN OTHER CASES**

Special Inspections of individual sailplanes can be requested by the CTOA, STOA, TOA or RTOA. These inspections will normally be done in accordance with the procedures in GFA AD 337.

## **6.8 REPAIRS**

The repair of gliders is a specialist activity and may only be undertaken by persons with a repair authority applicable to the type of work. Repair categories are divided into Major and Minor repairs and according to the material being repaired.

Where there is more than one structural material used in a sailplane, such as a steel tube fuselage frame and wooden wings each major structural element of the sailplane is classified separately for repair purposes.

### **6.8.1 REPAIR DESIGN**

All repairs must be completed in accordance with a standard repair scheme or a series of standard repair schemes detailed in the various sections of Basic

Sailplane Engineering, its accepted references or the manufacturer's repair manual.

Repairs which cannot be completed using standard repair schemes require Design Approval. The repair Design Approval can be sought from the CTOA or a GFA or CASA Design Approval Authorised Person.

#### 6.8.2 STANDARD REPAIRS MINOR

Minor repairs are defined as repairs to structure which do not affect the structural integrity or flight handling of the sailplane even if they were left unrepaired (secondary structure) or as defined in the sailplane manufacturer's repair manual.

Examples: Wing tips: Skids: trailing edges:

Persons who certify for the completion of Minor Repairs must be rated for Minor Repairs in the relevant construction category.

#### 6.8.3 STANDARD REPAIRS MAJOR

Major repairs are defined as repairs to structure that is critical to structural integrity and/or flight handling of the sailplane. Damage which requires a major repair prevents operation of the sailplane until repairs are completed (primary structure). These repairs may require jiggging to ensure that correct structural geometry is maintained. The sailplane manufacturer may also define major damage in the repair manual.

Examples: Main spar: "D" nose: Rear fuselage:

Persons who certify for the completion of Major Repairs must be rated for Major Repairs in the relevant construction category.

#### 6.8.4 WOOD REPAIRS

The relevant sections of Basic Sailplane Engineering and the Manufactures Manuals details a wide range of standard inspection and repair methods for wooden structures and lists all other acceptable references for standard wood repair schemes.

Persons who certify for the completion of Wood Repairs must be rated for either Major or Minor Wood Repairs as appropriate.

#### 6.8.5 SHEET METAL REPAIRS

Standard Sheet Metal Repair schemes may be found in the latest edition of AC 43.13-1A Acceptable Methods Techniques and Practices or its successor and in the Manufacturers Manuals.

Persons who certify for the completion of Metal Repairs must be rated for either Major or Minor Metal Repairs as appropriate.

#### **6.8.6 FIBRE REINFORCED PLASTIC REPAIRS**

The relevant sections of Basic Sailplane Engineering and the Manufacturers Manuals details a wide range of standard inspection and repair methods for FRP structures and lists all other acceptable references for standard FRP repair schemes.

Persons who certify for the completion of FRP Repairs must be rated for either Major or Minor FRP Repairs as appropriate.

#### **6.8.7 METAL TUBE REPAIRS**

Metal Tube structures include frame or truss structures manufactured from steel or aluminium alloy tubing joined by welding, bolting or riveting. Components manufactured this way can be used as components in sailplanes built from Wood, FRP, or Sheet Metal.

Persons who certify for the completion of Metal Tube Repairs must be rated for either Major or Minor Metal Tube Repairs as appropriate.

Standard Metal Tube Repair schemes may be found in the latest edition of AC 43.13-1A Acceptable Methods Techniques and Practices or its successor and in the Manufacturers Manuals.

Approval to repair Metal Tube structures does not imply an authority to weld these structures.

### **6.9 WEIGHT AND BALANCE**

A sailplane must have its weight and balance status confirmed each time there is a change to the sailplane which changes its weight and balance. This may be done by either calculation or by reweighing the sailplane. All weight and balance work must be done in accordance with the procedures in Basic Sailplane Engineering.

Certification of a sailplanes weight and balance status may only be performed by persons rated for Weight and Balance.

### **6.10 MODIFICATIONS**

All modifications to a sailplane must have Approval either from the sailplane manufacturer, the GFA CTOA or a GFA or CASA Design Approval, Authorised Person. Where test flying forms part of the modification approval, the Sailplane's C of A is suspended requiring a Permit to Fly to be issued by the CTOA or other delegated persons accompanied by a flight test schedule where necessary.

The person who approves the Modification may determine the class of inspectors who may perform the modification.

### **6.11 WELDING**

All welding must be performed by persons authorised for that type of welding by the CASA. A release note must be obtained and glued in the Log Book.

### **6.12 NON DESTRUCTIVE INSPECTION (NDI)**

Non Destructive Inspections will be required from time to time according to an Airworthiness Directive which will specify the type of inspection required and the frequency of inspection. Annual Inspectors are permitted to perform Non Destructive Inspection by Red Dye Penetrant and by visual inspection.

All other forms of NDI must be done by a CASA authorised NDI organisation. The inspection Report must be glued in the log book.

### **6.13 DEFECT REPORTING**

Defect reporting is a vital part of the GFA Airworthiness system. All Major Defects which are found on a sailplane, which are not caused by accidental damage or by fair wear and tear, must be reported to either an RTOA or the CTOA. Other defects may be reported at the discretion of the inspector involved after taking into consideration the consequences of the defect not being found on another type.

Defect reports may be in any form but should include the following information as a minimum:

- a. Type.
- b. Serial Number.
- c. Registration Letters.
- d. The date the defect was found.
- e. The Total Time in Service of the part.
- f. The Total Launches.
- g. The location of the defect.
- h. A full description of the defect.

Where a Powered Sailplane is concerned the engine hours and propeller hours should also be included if relevant.

## **7. SAILPLANE INSPECTORS AND AUTHORISED PERSONS**

### **7.1 GENERAL**

Under the CASA Document of Delegation, appropriately skilled GFA members may be issued with a DA 1109 Glider Inspectors Certificate which allows them to certify that inspections, maintenance, repairs and other functions have been correctly completed. The holder of a DA 1109 Inspection Certificate carries CASA Delegation as shown in the Document of Delegation.

The holder of a DA 1109 Glider Inspectors Certificate, in any category, may only exercise the privileges of the Certificate whilst being a member of the GFA and only on sailplanes operated by members of the GFA.

#### **7.1.1 LAPSE OF MEMBERSHIP**

If a member holding an Glider Inspection Certificate allows his or her GFA membership to lapse, for any continuous period exceeding 24 months and then renews that membership, then before exercising the privileges of the Certificate the person must have the Certificate revalidated by the RTOA responsible for the member's club. The RTOA may set down terms under which the Certificate is revalidated.

It is the responsibility of any member who allows their membership to lapse for less than 24 months to ensure that they are aware of any procedures or requirements which may have changed while they were not a member.

#### **7.1.2 INSPECTOR REGISTER**

All DA 1109 Glider Inspection Certificate holders are registered in the GFA Inspector Register held at the GFA Secretariat. Each holder has a record card which keeps track of schools attended, relevant experience, qualifications and dates of upgrading of the Glider Inspection Certificate.

#### **7.1.3 AIRFRAME STRUCTURAL DIVISIONS**

For the purpose of grading and authorising Glider Inspectors, sailplane airframes are divided into 4 different structural categories according to their prime material of construction as shown in Section 6.1.1

#### 7.1.4 LICENSED AIRCRAFT MAINTENANCE ENGINEERS

CASA Licensed Aircraft Maintenance Engineers are not automatically authorised by the GFA for sailplane work. Each case must be considered individually and the applicant's overall experience and background assessed. There are sufficient differences between General Aviation and gliding to warrant attendance by a LAME at a minimum of at least one GFA Inspector school or a program of supervised work monitored by an experienced GFA Inspector, RTOA or TOA.

### 7.2 AIRWORTHINESS AUTHORISATION CANCELLATION

Where the CTOA, STOA, RTOA or TOA believes that the holder of a DA 1109 Glider Inspection Certificate or any other Airworthiness Authorisation has not exercised that authority with a sufficient degree of responsibility or high enough standards, that Glider Inspection Certificate or Authorisation may be suspended and then cancelled.

Whenever an authorisation is cancelled the following procedure must be followed.

- a. The authorisation is initially suspended for 28 days during which time the person concerned has the opportunity to show cause why the suspension should not be extended to cancellation. The CTOA must approve any suspension action by the STOA, TOA or an RTOA.
- b. Unless the inspector contests the cancellation the authority is cancelled at the end of 28 days. If the suspended Inspector contests the cancellation a review committee will be convened to examine the matter. The committee will be made up of the Regional President, the CTOA and a third experienced person plus other persons at the wish of the suspended Inspector.

### 7.3 INSPECTOR/AUTHORISED PERSONS CATEGORIES

Suitably skilled persons may be authorised in the following categories.

- Daily Inspections
- Replacement of Components
- Annual Inspections
- Surveys
- Standard Repairs (Minor)
- Standard Repairs (Major)
- Weight and Balance
- Daily Inspector Examiner

### 7.4 DAILY INSPECTORS

Daily Inspectors are permitted to perform Daily Inspections, inspect sailplanes after heavy landings and perform Independent Inspections following maintenance. Daily Inspectors may certify the following maintenance.

- Inflate Tyres

- Change tyres and tubes
- Secure removable ballast
- Clean out the fuselage
- Replace simple gap tapes (not on control surfaces)
- Polish canopies
- Remove or replace instruments other than the ASI and Altimeter where this does not affect the pitot static system.
- Remove or replace batteries, radios, and barographs.
- Minor lubrication.
- Change or amend placards under instruction.

#### 7.4.1 TRAINING

The training of Daily Inspectors should be in accordance with the Daily Inspectors Handbook.

The minimum age for being endorsed as a Daily Inspector is 15.

#### 7.4.2 EXAMINING FOR DAILY INSPECTOR ENDORSEMENTS

The potential Daily Inspector should contact a Daily Inspector Examiner who will test the candidate on both his/her theoretical and practical knowledge. Once a satisfactory standard has been demonstrated the Daily Inspector Examiner will endorse the Log Book of the new Inspector using the sticker supplied with the Daily Inspector's Handbook.

The Examiner will then fill in the Daily Inspection Authorisation Record and send it to the officer noted on the form.

For Powered sailplanes the member will receive a Daily Inspector Authorisation limited to an individual type of Powered Sailplane. See AN 59 for details.

### 7.5 REPLACEMENT OF COMPONENTS INSPECTORS

#### 7.5.1 TRAINING AND QUALIFICATION

The applicant must be a Daily Inspector. Training will normally be a combination of the candidates background outside gliding, mentor training within the club and participation in one or more GFA Basic Airworthiness Schools.

An assessment will be made by either an RTOA, TOA, STOA or CTOA and once a satisfactory standard has been reached the assessor will issue a DA 1109 Glider Inspection Certificate endorsed for Replacement of Components in the Airframe Types for which they have demonstrated competence.

The person who issues the authority will forward full details of the authority to the GFA Secretariat for recording in the Inspector Register.

### 7.5.2 ALLOWABLE INSPECTION WORK

Persons endorsed for Component Replacement may carry out all aspects of sailplane inspection with the following limitations:

- a. Where an ASI or Altimeter is replaced the connections of that instrument to the pitot-static systems must be checked by an Annual Inspector.
- b. If a control surface is removed and replaced then the Independent Inspection must be performed by an Annual Inspector.
- c. If a Flight Control Circuit is broken and reassembled (other than normal rigging and de-rigging) then the Independent Inspection must be performed by an Annual Inspector.
- d. They may not certify Annual Inspections.
- e. They may not certify Airworthiness Surveys.
- f. They may not certify Dye Penetrant Inspections.
- g. They may not certify control surfaces balance and mass.
- h. They may not certify weight and balance.
- i. They may not certify repairs.

### 7.5.3 RESPONSIBILITY AND CERTIFICATION

Component Replacement Inspectors are responsible for the quality of the work performed and components used. They will certify all work completed by signing a log book entry which details the work. Where that work has been the subject of Independent Inspection, the other Inspectors involved must also certify by log book entry.

## 7.6 ANNUAL INSPECTORS

### 7.6.1 TRAINING

The applicant must be a Daily Inspector and unless he/she can demonstrate special knowledge he/she must be a Replacement of Components Inspector. Training will normally be a combination of the candidates background outside gliding, Mentor Training with the club and participation in one or more GFA Inspectors Schools.

An assessment will be made by either an RTOA, TOA, STOA or CTOA and once a satisfactory standard has been reached the assessor will issue or update an existing DA 1109 Glider Inspection Certificate for Annual Inspections in the Airframe Types for which they have demonstrated competence. When candidates are assessed the GFA Glider Inspector Syllabus (section 10 of this part of the MOSP) will be used as a basis for granting ratings.

The person who issues the authority will forward full details of the authority to the GFA Secretariat for recording in the Inspector Register.

## **7.6.2 ALLOWABLE INSPECTION WORK**

Persons endorsed for Annual Inspections may carry out all aspects of sailplane inspection with the following limitations:

- a. They may not certify Airworthiness Surveys.
- b. They may not certify Weight and Balance
- c. They may not certify Repairs

All work must be performed in accordance with manufacturer's requirements and Basic Sailplane Engineering.

All persons who are rated for Annual Inspections are also automatically endorsed as a Daily Inspector Examiner regardless of whether this is marked on their DA 1109 Glider Inspectors Certificate or not.

## **7.6.3 RESPONSIBILITY AND CERTIFICATION**

The Annual Inspector is responsible for the quality of the work performed and components used. Annual Inspectors will certify all work completed by signing a log book entry which details the work. Where that work has been the subject of Independent Inspection, the other Inspectors involved must also certify by log book entry.

## **7.7 SURVEY INSPECTORS**

### **7.7.1 TRAINING AND QUALIFICATIONS**

The Airworthiness Survey authorisation is limited to persons who are already rated for Daily Inspection, Component Replacement, and Maintenance Release Issue. They are also expected to have a strong background in club airworthiness work, to have participation in one or more GFA Airworthiness Schools and to have participated in Airworthiness Surveys.

An assessment will be made by either an RTOA, TOA, STOA or CTOA and once a satisfactory standard has been reached the assessor will endorse the DA 1109 Glider Inspection Certificate of the candidate for Airworthiness Surveys in the Airframe Types for which they have demonstrated competence.

The person who issues the authority will forward full details of the authority to the GFA Secretariat for recording in the Inspector Register.

## **7.8 REPAIR AUTHORISATIONS**

Authorisation to certify repairs will be made according to construction type and according to whether the repair is Major or Minor.

### **7.8.1 TRAINING**

In order to be authorised to certify a particular type of repair the candidate must demonstrate competence to perform that type of work, an understanding of the airworthiness implications of the work, a knowledge of the correct materials handling procedures for the particular materials and a knowledge of the health and safety issues associated with the materials.

Where a GFA syllabus for repair of the particular construction materials exists then that will be the basis of the Authorisation.

An assessment will be made by either an RTOA, TOA, STOA or CTOA and once a satisfactory standard has been reached the assessor will issue or update an existing DA 1109 Glider Inspection Certificate for Major or Minor Repairs in the Airframe Types for which they have demonstrated competence.

The person who issues the authority will forward full details of the authority to the GFA Secretariat for recording in the Inspector Register.

## **7.9 WEIGHT AND BALANCE**

In order to be endorsed for Weight and Balance the candidate needs to demonstrate a good understanding of mathematics including moments and demonstrate an understanding of the physical aspects of weight changes to sailplanes.

### **7.9.1 TRAINING**

Occasionally the GFA will run Weight and Balance courses, however it is preferable for the applicant to work with either another Weight and Balance Authorised Person or an RTOA on a one on one basis until proficient, by completing a number of weight and balance exercises covering as wide a range of sailplane types and configurations as possible.

An assessment will be made by either the STOA or CTOA and once a satisfactory standard has been reached the assessor will issue or update an existing DA 1109 Glider Inspection Certificate for Weight and Balance.

The person who issues the authority will forward full details of the authority to the GFA Secretariat for recording in the Inspector Register.

#### **7.10 DAILY INSPECTOR EXAMINER**

As well as Annual Inspectors who are automatically Daily Inspector Examiners (ref 7.6.2) persons who hold a Replacement of Components Authorisation or who are Level 1 Instructors or higher may become Daily Inspector Examiners.

Eligible persons who wish to become Daily Inspector Examiners should obtain a recommendation from their Club Airworthiness Administration Officer and an assessment will be made by either an RTOA, TOA, STOA or CTOA. Once a satisfactory standard has been reached the assessor will issue or update an existing DA 1109 Glider Inspection Certificate for Daily Inspector Examiner for Airframe Types for which they have demonstrated competence.

The person who issues the authority will forward full details of the authority to the GFA Secretariat for recording in the Inspector Register.

#### **7.11 POWERED SAILPLANE AUTHORISATIONS**

Persons who have demonstrated sufficient skill may receive an endorsement to their DA 1109 for a single type of powered Sailplane.

Appropriately experienced inspectors can be granted authorities in one or more of the following categories:

- a. Four stroke engines.
- b. Two stroke engines.
- c. Fixed Pitch Propellers
- d. Variable Pitch Propellers
- e. Folding propellers
- f. Propulsion System Retraction Mechanisms.

### 7.11.1 TRAINING AND ASSESSMENT

Persons who will be assessed as Powered Sailplane inspectors will already be Annual Inspectors for normal Sailplanes or will have appropriate other experience and will also have experience in the type of engine for which the endorsement is sought. The basis for all assessments is the Powered Sailplane Engine and System Notes.

An assessment will be made by either an RTOA, TOA, STOA or CTOA and once a satisfactory standard has been reached the assessor will issue or update a Section 2 of an existing DA 1109 Glider Inspection Certificate for the endorsement which the candidate has demonstrated competence. For further Information refer to GFA AN 59.

The person who issues the authority will forward full details of the authority to the GFA Secretariat for recording in the Inspector Register.

### 7.11.2 RESPONSIBILITY AND CERTIFICATION

An Engine and Systems Inspector is responsible for the quality of the work undertaken (within their level of approval) on the Powered Sailplane and for ensuring that the serviceability and standard of any components used as replacement parts is acceptable. The inspector is responsible for ensuring that all systems linked to the engine operation e.g. Fuel, Heating, CO are checked after work on the engine or system and certified by an appropriate entry in the Logbook which must include a DA 1109 number.

This Inspector is expected to contribute to the GFA Airworthiness system by defect reporting and particularly commenting on procedures to improve the support and maintenance quality for Powered Sailplanes.

## 7.12 DESIGN APPROVAL AUTHORISATION

Persons who wish to hold a GFA Design Approval Authorisation will contact the CTOA who will deal directly with the CASA to have the authority issued. The person seeking Design Approval Authorisation will have to comply with all terms and conditions set down by the GFA and the CASA.

### 7.12.1 DESIGN ADVICE

To ensure continuity of standards and procedures any person holding a Design Approval Authorisation who intends to work on gliders must advise the CTOA of the start of all significant design projects. The CTOA may then set suitable terms of reference for each project including the amount of documentation to be lodged with the CTOA on the completion of each project.

### 7.12.2 APPROVED DOCUMENT RECORDS

Irrespective of the applicability of the above Design Advice criteria the Design Approval Authorised Person must provide the CTOA with a copy of all documentation relevant to the approval of repairs and modifications to sailplanes for inclusion in the sailplane records at the completion of each project.

### 7.12.3 RESPONSIBILITY AND CERTIFICATION

The Design Approval Authorised Person is responsible for the integrity of the design work approved and certifies that work by stamping and signing all drawings, engineering orders and similar documents. If that person considers that the engineering approved will only remain airworthy with adequate maintenance, then specific maintenance requirements must form part of the Design Approval documentation.

Detailed procedures covering the approval of designs is contained in GFA AN 122 which is the Design Approval Procedures Manual and is approved by the CASA.

## 7.13 DEFECT INVESTIGATION

Where necessary, the CTOA has the delegated power to authorise experienced Inspectors to carry out investigations into defects and matters arising from defects.

## 7.14 CASA APPROVED REPAIR WORKSHOPS

CASA approved organisations may perform the overhaul and repair of sailplane components within the scope of their CASA authorisation provided that specific GFA requirements in either MAR or AD form are met.

### 7.14.1 CERTIFICATION OF REPAIRS BY CASA APPROVED WORKSHOPS

When a CASA approved workshop is involved in the repair or overhaul of sailplane components the following procedure should be followed.

- a. The CASA Approved Organisation overhauls or repairs the component in accordance with an approved repair scheme using approved materials.
- b. On completion the part is certified in the same way as a component off a General Aviation aircraft would be certified. This is normally in the form of a log book entry with work sheet reference numbers.
- c. The reassembly of the sailplane is then certified by a GFA Annual Inspector.

It should be pointed out that the GFA Inspector is not taking responsibility for the repair only the correct reinstallation of the component. The responsibility for the quality of the repair rests with the CASA approved organisation.

## **8. AMATEUR BUILT SAILPLANES**

### **8.1 GENERAL**

The policy of the GFA has always been to assist and encourage any members who wish to construct a sailplane, either individually or as a group project. This activity not only provides education and recreation for the participants, but it benefits the Federation as a whole by increasing the training and skills of members, and results in economically priced sailplanes for members to fly.

#### **8.1.1 OVERALL RESPONSIBILITY**

The standard of airworthiness for sailplanes built on a "one-off" basis by amateurs, as distinct from commercial or factory-built aircraft, is exercised by the CTOA under the terms of CASA Delegations and Authorisations.

From past experience with amateur built gliders in Australia we know that, when they are properly designed and built, they may have very long service lives, with very few defects and operational problems. Current "homebuilders" have a responsibility to all future pilots of their sailplanes, that safety will not be jeopardised by poor design, materials or workmanship.

#### **8.1.2 CERTIFICATION AND OPERATION**

Upon completion and testing "Amateur Built" sailplanes may be issued with an Australian Certificate of Airworthiness. This puts them operationally at the same level as a fully Type Certificated factory built sailplane. To achieve that Certificate of Airworthiness it is expected that a high standard of design and construction will be maintained throughout each project.

#### **8.1.3 AMATEUR BUILT SAILPLANE REGISTER**

The CTOA keeps a register of amateur construction projects at the GFA Secretariat providing:

- a. Project identification and filing reference.
- b. Correspondence relating to each project and to each sailplane type.
- c. Distribution of defect reports, accident reports, Airworthiness Directives, Advice Notices and any other information which may be relevant to each project.

#### **8.1.4 CATEGORIES OF CONSTRUCTION**

There are a variety of ways that a sailplane can be Amateur Built:

- a. From a set of approved drawings, where at least one example of the type has previously been certified in Australia. (Note. If the "first of type" was a factory built import the GFA may require a full set of drawings and other data for reference purposes.)
- b. From a set of drawings, where the type has not yet been certificated in Australia. That makes the project first of type. In this case a complete set of documents, proving that the aircraft meets the Australian design standards (see below) will be required by the GFA. (Note. In the case of a new design from overseas there may be a number of projects under way in Australia. These will all be treated in the same way, except that only one copy of the data that is common to the type will be required by the GFA.)
- c. From a prefabricated kit in either of the above categories.
- d. The local design and construction of a complete new type of sailplane.

### 8.1.5 DESIGN STANDARDS

The basic standards for certification of gliders and powered sailplanes are contained in the Civil Aviation Orders Section 101.26. Copies of CAO 101.26 may be obtained from your local CASA office or from the GFA Secretariat.

The Australian Standards specify, in turn, accepted overseas design standards, such as the European Joint Airworthiness Requirements JAR 22, and other equivalent standards. These standards have to be purchased from the relevant authority in the country of origin.

The GFA Technical Committee has also specified certain Mandatory Airworthiness Requirements for new sailplanes, such as the installation of release systems and certain types of harness. There are also general Airworthiness Directives which apply equally to new sailplanes. Copies of AD's and MAR's are available from the GFA Secretariat.

#### *8.1.5.1 LOCAL DESIGN PROJECTS*

The CTOA should be notified at the inception of any new design project, so that the design standards are discussed and agreed before work commences. Special standards may be required if the design has novel and unusual design features. A formal written application and reply are necessary. This protects the applicant should the basic standards subsequently change before the aircraft is certificated.

### **8.1.5.2 FOREIGN EXPERIMENTAL AIRCRAFT**

In the case of an overseas design sailplane, where the type has not been certificated in the country of origin, and a number of the type have been operating safely for some time on a Permit to Fly or Experimental License, the GFA may accept evidence of this "demonstrated history of safe operation" as equivalent to formal type documents. This process is notified in CAO 100.18 and is similar to that followed for Amateur Built Aeroplanes except as notified in this section. The sailplane is also required to meet the basic requirements of CAO 101.26 and be equipped to GFA standards. Powered Sailplanes must meet the definition of a Powered Sailplane and have adequate performance.

### **8.1.6 CONSTRUCTION STANDARDS**

Construction shall comply with the type design specifications and drawings, except as otherwise approved by the CTOA, or an authorised person appointed by the CTOA. Construction shall comply with all GFA mandatory airworthiness requirements, Basic Sailplane Engineering and shall conform to good aeronautical practice. As noted previously, Basic Sailplane Engineering is available from the GFA Secretariat and is the primary reference relating to quality and procedures.

## **8.2 APPLICATION TO BUILD A SAILPLANE**

A member, or a group of members, intending to construct a sailplane, must submit to the CTOA:

- a. An application in writing for permission to manufacture one example of the particular sailplane type, the name of the club, group and/or the individuals concerned and their addresses, together with a summary of the skills and experience of the people named, the location of the workshop(s), tools and facilities available.
- b. A list of all the drawings, manuals, specifications to be used for construction and supporting data as follows:

### **8.2.1 PREVIOUSLY APPROVED TYPE**

When the sailplane is of a type that has already been assessed and approved in Australia, the applicant shall confirm in writing that the drawings, manuals and specifications are complete and current, with all designer originated changes included.

### 8.2.2 FIRST OF TYPE, LOCAL DESIGN.

The applicant shall nominate the standards and category requested, and provide a detailed type specification, together with proposals for the design, testing and documentation of the prototype. Any novel materials, processes and design features shall be fully described, together with the designers proposals for establishing their suitability for the intended purpose.

### 8.2.3 FIRST OF TYPE, FOREIGN CERTIFICATED DESIGN.

The intending builder shall provide one copy of all type data, as submitted to the country of origin at the time of certification. This type record may include any or all of the following:

- a. A copy of the Type Certificate.
- b. The Type Certificate Data Sheet.
- c. The sealed Drawing List and a copy of all drawings and approved changes.
- d. A Construction Manual, Parts Listing and materials specifications.
- e. Aircraft basic loads, stress and structural test reports.
- f. Type inspection and flight test reports.
- g. Flight Manual. Maintenance and Repair Manual.
- h. List of non-compliances.
- i. Copies of all Service Bulletins, and an undertaking from the Type Certificate holder that all future Service Bulletins will be sent to the GFA.
- j. Country of origin Airworthiness Directives.

One complete copy of documents submitted will be kept on file at the GFA Secretariat. This data is treated as commercial in confidence, and will not be divulged outside the Secretariat without the permission of the designer or manufacturer. This means that prospective builders will need to obtain their own copies of all the documents needed for construction and operation.

### 8.2.4 FIRST OF TYPE. SAFE HISTORY DESIGN.

Where the original sailplane is operating overseas on an experimental certificate or Permit to Fly, the intending builder should obtain a Designer's Statement and as much technical information as may be available.

The CTOA will require one copy of construction drawings and manuals, together with an undertaking from the designer to provide amendments and notification of any service difficulties, defects and accidents. (Note that all this information is treated as confidential within GFA.)

The intending builder should also obtain information on the satisfactory safe history of a number of sailplanes of type. This information provides the basis for the acceptance of the type in Australia in the Amateur-Built category, similar to the Type Approval of normal sailplanes.

In the case of a new design sailplane in this category, where this "safe history" information does not yet exist, builders may proceed with construction at their own risk and the GFA is under no obligation to continue at any stage. If local or overseas service experience indicates there are defects in the design, then the CTOA may withhold a Permit to Fly and/or Certificate of Airworthiness until the problem is fixed. The local builder must refer to the designer and/or kit manufacturer for a resolution of the problem. The GFA may offer advice, but has neither the expertise or resources to resolve complex technical problems.

### **8.3 GFA ACTIONS**

On receipt of the application and information listed above, the CTOA may:

- a. Review the detail design and construction methods, making note of any changes required to conform to GFA standards.
- b. Seek information from local and foreign authorities relating to the accident and incident record for the type.
- c. Provided no major problem exists, issue an "Approval to Manufacture".
- d. Notify the applicant, as soon as possible, of any changes required for Australian Certification. (Note: When the First of Type certification has been completed, any required changes will be notified in the form of an Airworthiness Directive.)
- e. Enter the project into the Homebuilder's register at the GFA Secretariat and allocate a project number, to be quoted in all correspondence. (Note: A VH-#### registration number will not be issued at this stage of the project. Formal registration will be required with the issue of the initial Permit to Fly.)
- f. Notify the relevant RTOA as to the details of the project and special requirements.

### **8.4 KIT INSPECTION**

Where the project is to be assembled from a pre-made kit of parts, the kit components must be inspected. Historically some sailplane kits have exhibited poor quality of materials and workmanship.

The CTOA will nominate who will carry out the inspection of a First of Type sailplane kit. That person will list any actions required as a result. eg. Non Destructive Inspections may be required of welded assemblies and other components.

The responsible RTOA will inspect subsequent kits.

## **8.5 SUPERVISION OF CONSTRUCTION**

Once the RTOA has been notified, by the CTOA, of the details of the project, the RTOA will:

- a. Arrange to inspect the workshop, to ensure that the tools and equipment, working and storage facilities are acceptable.
- b. Arrange for an appropriately rated GFA Inspector to provide advice and assistance to the builder, and be responsible for stage inspections. Where the builder is relatively unskilled, test pieces need to be made prior to any actual construction.
- c. Establish with the builder and inspector a sequence for construction and inspection. Each area of structure is to be inspected before it is closed up. Stage inspections are to be signed off in a Log Book or some similar record.

## **8.6 CONSTRUCTION CERTIFICATION**

At the completion of the project, prior to the first flight, the following are required:

**DESIGN:** The sailplane must conform to the type design documents, those listed as approved for the type, or otherwise accepted by the CTOA. Any modifications incorporated must conform to drawings approved by a CAR 35 design signatory and acceptable to the CTOA. (Note that many CAR 35 design signatories have limited experience with sailplanes. If the signatory is also a member of the GFA then this aspect is covered. In any event the CTOA will need to notify the design authority as to the particular requirements for certification of the modified sailplane.)

**CONSTRUCTION:** The builder must sign a "Construction Certification" that the sailplane has been built in accordance with the approved documents and from the specified materials. The builder will also have records of the required stage inspections.

**AIRWORTHINESS:** A GFA Inspector will carry out a "Form 2" inspection of the sailplane, to check that it meets normal standards. This will be certified by signing the Form 2 and starting a Log Book with this initial entry. Any non-conformance items are to be clearly stated on the Form 2. For example some placards may not be available until flight testing has been completed.

**WEIGHT AND BALANCE:** All new sailplanes must be weighed on completion. In addition the pilot(s) centre of gravity distance must be determined, plus the distances to all items of removable equipment and ballast from datum. For motor sailplanes the distance and capacity of fuel and oil tanks are also required.

## **8.7 GROUND TYPE INSPECTION**

All first of type Amateur-built sailplanes must be inspected by a person nominated by the CTOA. The check will include items such as the following:

1. Compliance with Mandatory Airworthiness Requirements. Ballast security, harness operation and nose releases.
2. Visibility from the cockpit. De-misting and clear vision.
3. Cockpit layout, reach and sense of controls. Colour coding. Control system friction, freelay and circuit stiffness.
4. Foreign body entry into control systems.
5. Pilot restraint harness, location of anchor points. Hazardous protuberances.
6. External wire pick up points, particularly at the tail.

The report of this inspection will be the basis for a type Airworthiness Directive.

## **8.8 TEST FLYING**

A Permit to Fly is required for the test of any newly completed sailplane, as the final check of airworthiness, before the aircraft is certified for normal operations.

The application must be accompanied by the certifications listed in 8.6 above, plus an Application for Registration with the appropriate fee.

The nature and extent of the tests required will be nominated by the CTOA, and will vary according to the project. (New design, first of type, etc.)

The test pilot must be approved in accordance with the GFA MOSP Part 2, OPERATIONS, and be fully briefed on the type and the test schedule.

### **8.8.1 TEST FLYING OF SAFE HISTORY DESIGNS.**

Unless there is information to the contrary, experimental sailplane designs from the USA may be considered to meet the design envelope and structural limits for the Normal category in FAR Part 23 and the Basic Glider Criteria Handbook. Flight testing should be carried out to meet the FAR 23 Normal category requirements. This includes a one turn spin and recovery test, and the sailplane is placarded against intentional spins.

### 8.8.2 TEST FLYING POWERED SAILPLANES.

In addition to the usual flight handling tests, powered sailplanes with self-launching capability must be shown to meet the JAR 22 minimum performance standards. Ground roll to lift off and distance to clear 50 feet is to be determined for standard sea-level conditions, with extrapolation to at least 5000 feet above sea level and 30° C ambient conditions.

## 8.9 FLIGHT MANUAL AND PLACARDS

Where there is a Flight Manual or Owners Manual issued by the designer, or the kit manufacturer, or the country of origin, this is accepted as the Australian Flight Manual, and is the basis for required placards. Where no such manual exists operating limitations are to be provided in the form of placards. Refer to the MOSP Part 3, Section 5.3.

In addition to the placards required in section 5.3 all amateur built sailplanes will contain the following placard:

**THIS AIRCRAFT HAS BEEN CERTIFICATED IN THE AMATEUR-BUILT CATEGORY**

If the sailplane has not been approved for any aerobatic manoeuvres then the following placard must also be installed:

**NO AEROBATIC MANOEUVRES (INCLUDING SPINS) PERMITTED**

## 8.10 MAINTENANCE MANUAL

Where no maintenance manual is available the Drawings and/or the Construction Manual are accepted as the basis of future maintenance and repair.

## 8.11 ISSUE OF A CERTIFICATE OF AIRWORTHINESS

On completion of all tests and inspections the CTOA will review all the data relevant to the sailplane type, and to the individual sailplane, including a type specification data sheet, Airworthiness Directives, and placarded limitations. When these are considered satisfactory a Certificate of Airworthiness will be issued.

## **9. GLIDER INSPECTOR SYLLABUS**

### **9.1 INTRODUCTION**

This section of the MOSP specifies the minimum skills and knowledge a potential Annual Inspector must demonstrate before they can be Authorised as an Annual Inspector.

#### **9.1.1 PRIOR QUALIFICATIONS**

Daily Inspection Authority and a pass in the Basic Theory and Basic Airworthiness parts of the GFA A, B & C Certificate examinations.

#### **9.1.2 REFERENCES**

GFA Manual of Standard Procedures Part 3 - Airworthiness and other references listed therein.

### **9.2 WORKSHOP PRACTICE**

List examples of good workshop practice in the following areas: personal safety, aircraft safety, housekeeping, workshop criteria.

Demonstrate accurate external and internal measurement using:- outside micrometer, telescopic gauge or inside calliper and vernier slide calliper.

### **9.3 RIGGING**

Demonstrate structural alignment check including:- diagonal measurement, wing incidence (including washout) and tailplane incidence, using spirit level, inclinometer, manometer, tape measure & incidence board (if applicable).

Demonstrate the method of obtaining control circuit freeplay limits when they are not given by the manufacturer.

Demonstrate control circuit rigging check including:- freeplay, deflection, stops, cable tension, friction, gap tape or seals, using steel rule, protractor, cable tensiometer and spring balance.

Trouble shoot and rectify a defective control circuit using steel rule, protractor, cable tensiometer and spring balance.

Describe the term control circuit stiffness.

Describe three faults which can occur in flight associated with control surface gap tape (or seals).

Demonstrate safety locking procedures including:- lock nuts, self locking nuts, tab washers, witness holes, split pins, lock wiring of nuts, bolts & turnbuckles.

State the requirements for the independent control inspection.

#### **9.4 CANOPIES**

List annual inspection requirements for glider canopies.

Demonstrate the stop drilling method for prevention canopy crack elongation.

#### **9.5 COCKPIT PLACARDS**

State the reason for cockpit placards.

State where cockpit placarding requirements are found.

Explain how cockpit loading placard values are verified.

State what action is necessary if loading placards cannot be verified.

#### **9.6 NUTS AND BOLTS**

From an assortment of fasteners select and identify:- Blank bolt and nut, DIN bolt and nut, AN (Mil Spec) bolt and nut, BSF (British Standard Fine) bolt and nut and BA (British Association) bolt and nut.

Explain the terms thread bearing and thread bound.

Describe correct bolting practice in relation to a bush type bearing assembly, a ball bearing assembly and a spherical bearing assembly.

State the minimum number of threads of which must protrude from a self locking nut for it to be considered in safety.

Describe the situation which would require the use of an AN 970 flat washer (penny washer).

Explain or demonstrate the punch locking method of safety locking a nut and bolt.

Demonstrate safety locking of two or more bolt heads using locking wire.

State precautions to be taken when dismantling and reassembling components secured by roll pins.

Demonstrate split pin usage.

#### **9.7 IN FLIGHT SAFETY**

Explain the difficulties that a pilot might encounter flying a glider with the following faults:- foreign objects, unsecured ballast, heavy controls, sharp protrusions in the cockpit.

## 9.8 STRUCTURE

(To be completed for the relevant type of construction material)

List the main structural parts of the wings, fuselage, fin, tailplane, aileron, flap, rudder, and elevator and state the type of load each part is intended to carry (ie tension, compression, bending and torsion).

State areas to be inspected and the type of damage expected after:- a heavy landing, ground loop, storage in wet conditions (rigged and derigged).

Demonstrate the wing bending frequency test and explain the reason for it. State when this test should be done.

State inspections methods used.

Explain the purpose of vent and drain holes and describe the areas where they would normally be found.

## 9.9 CONTROL CABLES

Identify British and American cable.

Identify Talurit and Nicopress system components.

Make up a control cable to a given length using the Nicopress system and components (either on an aircraft or demonstration aid).

Demonstrate the inspection procedure for a finished Nicopress splice on 1/8" control cable, including proof loading.

Demonstrate the method of checking for a hemp core.

Identify the following defects in a sample control cable:- corrosion, wear, fatigue.

Define the following terms in relation to aircraft control cable:- wire, strand, cable.

State the two purposes of a turnbuckle in a control circuit.

Adjust a cable control circuit to the prescribed tension (either on an aircraft or demonstration aid) with and without the aid of a cable tensiometer.

## 9.10 TOW RELEASE SYSTEM

Describe the features common to tow releases acceptable for use in gliders in Australia.

State the purpose of the angle pieces fitted to the fuselage skin (adjacent to the tow release) on some gliders and give critical dimensions.

List tow release system annual inspection requirements.

Explain the purpose of freeplay in cable operated tow release systems.

Explain why it may be necessary to test the over-centre adjustment of a tow release between periods set out in the relevant ADs.

Demonstrate the functional check after completion of work on a tow release system.

### **9.11 PITOT/STATIC SYSTEM**

State the annual inspection requirements for the pitot/static system.

State the minimum flight instruments and their calibration units.

State precautions to be taken when testing pitot/static system to avoid damage to flight instruments.

Demonstrate pitot system and static system leak check using either syringe or manometer and state serviceability.

Demonstrate calibration of ASI using the standard manometer and state serviceability.

Explain the meaning of the term position error and why it is necessary to ensure that the plumbing is connected to the certified pitot and static ports.

Demonstrate calibration of an altimeter using a Test altimeter.

Explain why it is not good practice to attempt to seal plumbing connections with any of the following:- silicone rubber sealant, lock wire, rubber elastator rings.

Explain the procedure for leak testing a variometer total energy system.

Sketch a typical glider plumbing system including altimeter, ASI, variometer, pitot and static ports and total energy compensation.

Explain the limits defined by colour coding sometimes fitted to the face of the ASI.

### **9.12 LUBRICATION AND BEARINGS**

Explain the purpose of lubrication.

State factors which influence the selection of a lubricant.

Describe the type of bearing which should not be lubricated and explain why.

Demonstrate the process of cleaning and lubricating a ball bearing and a spherical bearing.

Describe the process used to determine if bearing replacement is necessary.

Demonstrate bearing removal and fitting.

Explain the limitations of using Loctite for bearing retention.

Explain the reason for the use of large type washers on certain rod end and control hinge bearing mountings.

### **9.13 UNDERCARRIAGE**

State the annual inspection requirements for the undercarriage.

Describe how the over center locking principle is used on various types of retractable undercarriage systems.

### **9.14 NON DESTRUCTIVE INSPECTION (NDI)**

List NDI methods available and give examples of their use.

Demonstrate the Liquid Penetrant procedure.

Explain the limitations of the Red Dye Penetrant method.

### **9.15 ELECTRICAL SYSTEM**

List the necessary features of a glider electrical system.

Sketch a typical system incorporating these features.

Explain the method of selecting the correct size of cable and fuse/circuit breaker.

### **9.16 CORROSION**

Identify corrosion in steel and aluminium.

Nominate the treatment for prevention and rectification of corrosion.

### **9.17 FLUTTER**

Describe the flight condition known as flutter.

List the five areas of flutter prevention and the relevant precautions to be taken in each case.

### **9.18 HARNESS**

Explain the purpose of the pilot harness.

List annual inspection requirements for pilot harness and seat cushions.

### **9.19 OXYGEN**

Describe precautions to be taken when working with oxygen system components.

Describe the procedure to certify a glider with a dormant oxygen system as safe to fly.

Describe the procedure to return a dormant oxygen system to service.

## **9.20 MODIFICATIONS**

State how it is possible to determine whether an existing modification on a glider is approved or not.

Explain the process of having a modification approved.

State the weight limit of optional equipment (radio, battery, oxygen etc.) which may be fitted and certified by a GFA Inspector. Explain the mounting strength justification procedure.

## **9.21 FABRIC REPAIRS**

Demonstrate the fitting of a fabric patch repair (minor).

State overlap dimensions for various size patches.

Explain the compatibility of common fabric and finish systems.

## **9.22 WEIGHT AND BALANCE**

Explain the effect of adding or subtracting weight in various areas of the glider, including the effect of painting, repairs and re-fabricing.

Demonstrate control surface mass balance check including calculation of moments.

## **9.23 REPAIRS**

(to be completed for each relevant type of construction material)

Describe repair procedure including pertinent details/dimensions etc.

Explain how it is possible to verify that replacement parts are genuine.

Describe the procedure for obtaining approval to use non standard parts or non standard repair schemes.

## **9.24 ADMINISTRATION PAPERWORK**

Explain the purpose of the following documents:-

- Certificate of Registration (C of R)
- Certificate of Airworthiness (C of A)
- Permit to Fly
- Airworthiness Directive (AD)
- Airworthiness Advice Notice (AN)

- Aircraft Log Book
- Maintenance Release

Using the standard wording, fill out the following documents for a nominated glider type after an annual inspection:-

- Form 2 and Form 2C
- Maintenance release
- Log Book entry.

Explain the purpose of the Defect Report.

## **9.25 SPECIFIC INSPECTION REQUIREMENTS**

Demonstrate the following inspection procedures (including Maintenance Release and Log book entry if applicable) in accordance with the appropriate AD or AN:

- Water ballast leak check
- L'Hotellier coupling check
- Tow release inspection
- Structural inspection of FRP glider with cracked gelcoat
- Check glider for dangerous protuberances

Describe the purpose of the Twenty (etc.) year survey.

## **10. DUTY STATEMENTS FOR AIRWORTHINESS OFFICERS**

### **10.1 CLUB AIRWORTHINESS ADMINISTRATION OFFICER**

The tasks and responsibilities of an Airworthiness Administration Officer include:-

- To act as the club airworthiness contact for the RTOA.
- To receive ADs and ANs from the GFA for all club gliders, to ensure the ADs are implemented and that the ADs are available when required.
- To manage the airworthiness documentation for sailplanes under his/her control. This includes ensuring all necessary documents are available and up to date.
- To ensure that all logbooks are up to date and that all maintenance work and inspections are properly recorded and that the Glider/Powered Sailplane Maintenance Record is sent to the RTOA at the completion of the annual inspection.
- To liaise with club Operations to ensure that privately owned sailplanes operating from their site are airworthy, while being launched by the club.
- To help select suitable candidates for Inspectors Schools assisted by the Airworthiness Inspectors and the club committee and to make the appropriate recommendations to the RTOA.

### **10.2 REGIONAL TECHNICAL OFFICER AIRWORTHINESS**

The tasks and responsibilities of an RTOA include:-

- To exercise the delegations vested in him/her by the Civil Aviation Safety Authority or those parts of these delegations as determined by the CTOA from time to time.
- To visit each gliding club within the area at least once a year to ascertain that an adequate standard of aircraft maintenance and airworthiness record keeping are being maintained.
- To alert club Airworthiness Administrators, Club Committees or the managers of Commercial Gliding Organisations of any deficiencies in airworthiness standards or of any points of overload among Airworthiness Inspectors in the area.
- To ensure that an adequate standard of Daily Inspections and Daily Inspector training are being maintained.
- To promote airworthiness awareness, improved standards and advances in the airworthiness field.
- To carry out any airworthiness related investigations for the CTOA and, if required, to assist the Bureau of Air Safety.
- To plan and assist with the organisation of Regional Airworthiness Schools and Inspector Meetings, in cooperation with his/her Regional Committee and the GFA Secretariat.
- To keep a current list of Airworthiness Inspectors, Authorised persons and Club Airworthiness Administrators operating in his/her area. That should include a list of addresses and telephone numbers and a record of each inspector and authorised person's, authorisations.

- To attempt to acquire a good understanding of the ability and quality of each inspector in the area . He/she may appointment new inspectors and/or for the varying/review their qualifications.
- To maintain a list of sailplanes normally operating in the area, each with a file containing the current Glider/Powered Sailplane Maintenance Record and any correspondence relevant to that sailplane.
- To advise the CTOA on airworthiness surveys and coordinate life extension inspections.
- To assist with and advise on airworthiness problems within his/her area, within the limits of available time and ability.
- To keep track of and maintain any Regional Committee or GFA owned airworthiness equipment in his/her area.
- To cooperate with and assist the Regional Technical Officer Operations (RTO(Ops)) on matters of mutual and overlapping interest.
- To regularly report on his/her activities to the GFA Regional Committee and to the CTOA.
- To assist the GFA Regional Committee and the GFA in the formulation of the airworthiness component of any budgets.
- To communicate on airworthiness matters and to help formulate airworthiness policy through the GFA Technical Committee.

### **10.3 CHIEF TECHNICAL OFFICER AIRWORTHINESS**

The CTOA functions and responsibilities include:

- The maintenance of the Sailplane Register.
- The maintenance of a Glider Inspector/Authorised Person register.
- The maintenance of airworthiness records.
- Liaison with manufacturers, designers, overseas Aviation Authorities and the CASA.
- The issue of Certificates of Type Approval.
- The issue of Permission to Manufacture for homebuilt sailplanes.
- The issue of Certificates of Airworthiness for new and existing sailplane types.
- The issue of Airworthiness Directives and Advice Notices.
- Appointment of inspectors and RTOAs.
- Assisting RTOAs in their job functions.
- Design approval of repairs and modifications.
- Type Approval of components.
- Responsibility for Inspector training standards.
- Responsibility for Approved Organisation appointments and their airworthiness standards.
- Other functions as detailed in the various sections of the Manual of Standard Procedures.

## **11. DOCUMENTS OF DELEGATION AND AUTHORISATION**

Instruments of Delegation and Authorisation

CIVIL AVIATION AUTHORITY

AUSTRALIA

INSTRUMENT NUMBER: CEO 333/94

CIVIL AVIATION ACT 1988

CIVIL AVIATION REGULATIONS

INSTRUMENT OF DELEGATION AND AUTHORISATION

I, DOUGLAS JOHN ROSER, Chief Executive Officer of the Civil Aviation Authority:

- (1) under regulation 7 of the Civil Aviation Regulations (the Regulations), delegate to the person for the time being holding, occupying, or performing the duties of, the position of chief technical officer (airworthiness) with the Gliding Federation of Australia (GFA) the Authority's powers and functions in relation to gliders, power-assisted sailplanes and powered sailplanes under each provision of the Regulations set out in column 2 of an item in Schedule 1 subject to the limitations (if any) set out in column 3 of the item; and
- (2) under regulation 6 of the Regulations, on behalf of the Authority, appoint the person for the time being holding, occupying, or performing the duties of, the position of chief technical officer (airworthiness) with the GFA to be an authorised person in relation to gliders, power-assisted sailplanes and powered sailplanes for the purposes of each provision of the Regulations set out in column 2 of an item in Schedule 2 subject to the conditions (if any) set out in column 3 of the item.

## SCHEDULE 1

Column 1	Column 2	Column 3
Item No	Provision	Limitations
1	2A (3)	None
2	2A (4)	None
3	8 (3)	None
4	9	None
5	11	None
6	12	None
7	13 (1)	None
8	13B (1)	None
9	13F (1)	None
10	13I (4)	None
11	13L	None
12	13M	None
13	13N	None
14	13O	None
15	13P	None
16	13S (5)	None
17	14	None
18	16 (3)	None
19	16 (4)	May only refuse to reserve after consultation with the Manager, Information Section, Airworthiness Branch, Canberra
20	16A (2)	None

21	22 (2)	None
22	22A	None
23	22B	None
24	22C	None
25	22D	None
26	22E	None
27	25	None
28	26	None
29	28	None
30	30 (2A)	None
31	30 (3)	None
32	30A (3)	None
33	30B (1)	None
34	33B (1) (d)	Limited to the conduct of dye-penetrant testing
35	33B (1) (e)	None
36	34 (2)	None
37	37	None
38	38	None
39	42A	None
40	42ZC (6)	May only authorise a person: (a) for the purposes of paragraph 42ZC (4) (e); and (b) who, for the time being, holds, occupies, or performs the duties of, a position of glider inspector with the GFA
41	42ZG (1)	None
42	42ZT (2) (b)	None

43	43 (2)	None
44	44	None
45	45	None
46	50B (1)	None
47	50C (1)	None
48	139 (3)	None
49	235 (1)	None
50	235 (2)	None
51	235 (3)	None
52	235 (7)	None
53	301 (1)	None

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## SCHEDULE 2

Column 1	Column 2	Column 3
Item No	Provision	Limitations
1	24	None
2	42G (6)	May only authorise a person who has been trained and examined in accordance with procedures set out in the GFA Manual of Standard Procedures
3	42M (1)	None
4	42R (1)	None
5	42X (1)	None
6	42Y	None
7	42ZK (1)	None
8	42ZR (1)	May only consider applications for exemptions from, or variations to, documents issued by the GFA as applicable to regulation 42V
9	42ZS (1)	May only issue an exemption from, or a variation to, documents: <ul style="list-style-type: none"> <li>(a) issued by an officer of the GFA while the officer was: <ul style="list-style-type: none"> <li>(i) a delegate of the Authority; or</li> <li>(ii) an authorised person; and</li> </ul> </li> <li>(b) in accordance with procedures set out in the GFA Manual of Standard Procedures</li> </ul>
10	43A	None
11	50D	None
12	53	None
13	134 (1)	None

14	138 (1) (a)	None
15	138 (3)	None
16	302	None
17	305	None

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D J ROSER  
Chief Executive Officer  
1 Sep 1994

CIVIL AVIATION AUTHORITY  
AUSTRALIA

INSTRUMENT NUMBER: CEO 334/94

CIVIL AVIATION ACT 1988  
CIVIL AVIATION REGULATIONS

INSTRUMENT OF DELEGATION AND AUTHORISATION

I, DOUGLAS JOHN ROSER, Chief Executive Officer of the Civil Aviation Authority:

- (1) under regulation 7 of the Civil Aviation Regulations (the Regulations), delegate to the person for the time being holding, occupying, or performing the duties of, the position of senior technical officer (airworthiness) with the Gliding Federation of Australia (GFA) the Authority's powers and functions in relation to gliders, power-assisted sailplanes and powered sailplanes under each provision of the Regulations set out in column 2 of an item in Schedule 1 subject to the limitations (if any) set out in column 3 of the item; and
- (2) under regulation 6 of the Regulations, on behalf of the Authority, appoint the person for the time being holding, occupying, or performing the duties of, the position of senior technical officer (airworthiness) with the GFA to be an authorised person in relation to gliders, power-assisted sailplanes and powered sailplanes for the purposes of each provision of the Regulations set out in column 2 of an item in Schedule 2 subject to the conditions (if any) set out in column 3 of the item.

## SCHEDULE 1

Column 1	Column 2	Column 3
Item No	Provision	Limitations
1	8 (3)	None
2	9	None
3	11	None
4	12	None
5	13 (1)	None
6	13B (1)	None
7	13F (1)	None
8	13I (4)	None
9	13L	None
10	13M	None
11	13N	None
12	13O	None
13	13P	None
14	13S (5)	None
15	14	None
16	16 (3)	None
17	16 (4)	May only refuse to reserve after consultation with the Manager, Information Section, Airworthiness Branch, Canberra
18	16A (2)	None
19	25	None
20	26	None

21	28	None
22	33B (1) (d)	Limited to the conduct of dye-penetrant testing
23	33B (1) (e)	None
24	38	None
25	42ZC (6)	May only authorise a person: (a) for the purposes of paragraph 42ZC (4) (e); and (b) who, for the time being, holds, occupies, or performs the duties of, a position of glider inspector with the GFA
26	45	None
27	50C (1)	None
28	139 (3)	None
29	235 (1)	None
30	235 (2)	None
31	235 (7)	None
32	301 (1)	None

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## SCHEDULE 2

Column 1	Column 2	Column 3
Item No	Provision	Limitations
1	24	May only issue a certificate of airworthiness for an aircraft of a type in respect of which a certificate has previously been issued
2	42G (6)	May only authorise a person who has been trained and examined in accordance with procedures set out in the GFA Manual of Standard Procedures
3	42X (1)	None
4	43A	None
5	50D	None
6	53	None
7	134 (1) (a), (b), (ba), (c), (d), (e), (f), (g), (h) and (i)	None
8	138 (1) (a)	None
9	138 (3)	None
10	302	None
11	305	None

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D J ROSER  
 Chief Executive Officer  
 1 Sep 1994

CIVIL AVIATION AUTHORITY  
AUSTRALIA

INSTRUMENT NUMBER: CEO 335/94

CIVIL AVIATION ACT 1988  
CIVIL AVIATION REGULATIONS

INSTRUMENT OF DELEGATION AND AUTHORISATION

I, DOUGLAS JOHN ROSER, Chief Executive Officer of the Civil Aviation Authority:

- (1) under regulation 7 of the Civil Aviation Regulations (the Regulations), delegate to each person for the time being holding, occupying, or performing the duties of, a position of regional technical officer (airworthiness) with the Gliding Federation of Australia (GFA) the Authority's powers and functions in relation to gliders, power-assisted sailplanes and powered sailplanes under each provision of the Regulations set out in column 2 of an item in Schedule 1 subject to the limitations (if any) set out in column 3 of the item; and
- (2) under regulation 6 of the Regulations, on behalf of the Authority, appoint each person for the time being holding, occupying, or performing the duties of, a position of regional technical officer (airworthiness) with the GFA to be an authorised person in relation to gliders, power-assisted sailplanes and powered sailplanes for the purposes of each provision of the Regulations set out in column 2 of an item in Schedule 2 subject to the conditions (if any) set out in column 3 of the item.

## SCHEDULE 1

Column 1	Column 2	Column 3
Item No	Provision	Limitations
1	25	None
2	26	None
3	33B (1) (d)	Limited to the conduct of dye-testing
4	42ZC (6)	May only authorise a person: (a) for the purposes of paragraph 42ZC (4) (e); and  (b) who, for the time being, holds, occupies, or performs the duties of, a position of glider inspector with the GFA
5	45	None
6	50C (1)	None
7	139 (3)	None
8	301 (1)	None

## SCHEDULE 2

Column 1	Column 2	Column 3
Item No	Provision	Limitations
1	24	May only renew a certificate of airworthiness
2	42G (6)	May only authorise a person who has been trained and examined in accordance with procedures set out in the GFA Manual of Standard Procedures
3	43A	None
4	47	None
5	48	None
6	49	None
7	50D	None
8	53	None
9	134 (1) (b)	May only give permission to carry out initial experiments or tests following manufacture of an aircraft:  (a) of a type for which a certificate of airworthiness has previously been issued; and  (b) for the purpose of issuing a certificate of airworthiness
10	134 (1) (d)	None
11	302	None
12	305	None

---

D J ROSER  
Chief Executive Officer  
1 Sep 1994

CIVIL AVIATION AUTHORITY  
AUSTRALIA

INSTRUMENT NUMBER: CEO 336/94

CIVIL AVIATION ACT 1988  
CIVIL AVIATION REGULATIONS

INSTRUMENT OF DELEGATION AND AUTHORISATION

I, DOUGLAS JOHN ROSER, Chief Executive Officer of the Civil Aviation Authority, under regulation 6 of the Regulations, on behalf of the Authority, appoint each person for the time being holding, occupying, or performing the duties of, a position of glider inspector with the Gliding Federation of Australia (GFA) to be an authorised person in relation to gliders, power-assisted sailplanes and powered sailplanes for the purposes of each provision of the Regulations set out in column 2 of an item in the Schedule subject to the conditions (if any) set out in column 3 of the item.

## SCHEDULE

---

Column 1	Column 2	Column 3
Item No	Provision	Limitations
1	42G (6)	May only authorise a person who has been trained and examined in accordance with procedures set out in the GFA Manual of Standard Procedures
2	47	None
3	48	None
4	49	None
5	134 (1) (b)	May only give permission for tests for the purpose of completion of maintenance before the issue of a maintenance release

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D J ROSER  
Chief Executive Officer  
1 Sep 1994

CIVIL AVIATION AUTHORITY  
AUSTRALIA

INSTRUMENT NUMBER: CEO 337/94

CIVIL AVIATION ACT 1988  
CIVIL AVIATION REGULATIONS

INSTRUMENT OF DELEGATION AND AUTHORISATION

I, DOUGLAS JOHN ROSER, Chief Executive Officer of the Civil Aviation Authority, under regulation 7 of the Civil Aviation Regulations (the Regulations), delegate to the person for the time being holding, occupying, or performing the duties of secretary with the Gliding Federation of Australia (GFA) the Authority's powers and functions in relation to gliders, power-assisted sailplanes and powered sailplanes under each provision of the Regulations set out in column 2 of an item in the Schedule subject to the limitations (if any) set out in column 3 of the item.

## SCHEDULE

Column 1	Column 2	Column 3
Item No	Provision	Limitations
1	8 (3)	None
2	9	None
3	11	None
4	12	None
5	13 (1)	None
6	13B (1)	None
7	13F (1)	May only exercise the power after consultation with the chief technical officer (airworthiness) or the senior technical officer (airworthiness) of the GFA
8	13I (4)	None
9	13L	None
10	13M	None
11	13N	None
12	13O	None
13	13P	May only suspend or cancel after consultation with the chief technical officer (airworthiness) or the senior technical officer (airworthiness) of the GFA
14	13S (5)	None
15	14	None
16	16 (3)	None

17	16 (4)	May only refuse to reserve after consultation with the chief technical officer (airworthiness) or the senior technical officer (airworthiness) of the GFA
18	301 (1))	None

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D J ROSER  
Chief Executive Officer  
1 Sep 1994

## **12. CIVIL AVIATION ORDERS**

This section contains each of the Civil Aviation Orders that are relevant to Sailplane Airworthiness the conditions and requirements of which are covered in this manual.

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COMMONWEALTH OF AUSTRALIA  
CIVIL AVIATION SAFETY AUTHORITY

CIVIL AVIATION ORDERS  
PART 95

SECTION 95.4  
Issue 4

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Amendment No. 85

Commencement Date: 10 January 1996

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Section 95.4, Issue 4, of the Civil Aviation Orders, titled "EXEMPTION FROM PROVISIONS OF THE CIVIL AVIATION REGULATIONS - GLIDERS, POWERED SAILPLANES AND POWER-ASSISTED SAILPLANES" was amended on 18 December 1995. The amendment was notified in the Commonwealth of Australia Gazette on 10 January 1996 and came into operation on that date.

The amendments have been incorporated into the existing text of section 95.4. To keep your Orders up to date please REPLACE existing pages 1 to 4 of section 95.4 with the attached replacement pages 1 to 4.

An explanation of the amendments is set out below.

#### AUTHORITY

Civil Aviation Orders are made by the Civil Aviation Safety Authority under the Civil Aviation Regulations.

#### EXPLANATORY NOTE

For many years gliding clubs have been issued an Air Operator's Certificate (AOC) which permits them to conduct charter operations which involve taking a single passenger in a 2-seater glider for "joy flights". CASA can see no reason why the clubs should not continue to do so. As charter operations are prescribed under regulation 206 of the Civil Aviation Regulations as being a commercial purpose for the purposes of subsection 27 (9) of the Civil Aviation Act 1988, an operator must hold an AOC to engage in these operations.

The existing section 95.4 of the CAOs does not adequately deal with the conditions applicable to charter operations by gliders (sailplanes, power-assisted sailplanes and powered sailplanes). To overcome this problem, section 95.4 has been amended to remove all reference to charter operations by gliders and a new CAO (section 95.4.1) has been issued to deal specifically with charter operations by gliders. The Gliding Federation of Australia has been consulted in the preparation of the amendments.

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COMMONWEALTH OF AUSTRALIA  
CIVIL AVIATION AUTHORITY

CIVIL AVIATION ORDERS  
PART 95

SECTION 95.4  
Issue 4

EXEMPTION FROM PROVISIONS  
OF THE CIVIL AVIATION REGULATIONS  
- GLIDERS, POWERED SAILPLANES  
AND POWER-ASSISTED SAILPLANES

EFFECTIVE: 1 June 1989

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#### SUB-SECTIONS

- |                   |                           |
|-------------------|---------------------------|
| 1 - Applicability | 3A - Licence not required |
| 2 - Definitions   | 4 - Conditions            |
| 3 - Exemptions    |                           |

#### 1 - APPLICABILITY

This Section of the Civil Aviation Orders applies to gliders, powered sailplanes and power-assisted sailplanes used for:

- (a) sporting and recreational purposes;
- (b) practical flight instruction conducted in accordance with GFA Operational Regulations.

#### 2 - DEFINITIONS

In this section -

"GFA" means the Gliding Federation of Australia, a Company Limited by Guarantee and incorporated under the Companies Ordinance of the Australian Capital Territory 1962.

"GFA Operational Regulations" means the regulations prepared by the GFA and approved by the General Manager, Standards Development of the Civil Aviation Authority, containing the procedures and instructions necessary to ensure that gliders, powered sailplanes and power-assisted sailplanes to which this Section applies comply with those Civil Aviation Regulations applicable to those aircraft, and with the conditions specified in Subsection 4 of this Order.

"Glider or sailplane" means a non-power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight;

"Power-assisted sailplane" means an aircraft meeting glider certification standards, fitted with auxiliary power insufficient to meet the take-off requirement specified for a powered sailplane and capable of only limited duration powered flight. The rate of climb of a power-assisted sailplane at the manufacturer's maximum take-off weight, under ISA conditions at sea level, shall not exceed 1 metre per second.

"Powered sailplane" means a powered aeroplane which meets the following limitations:

- (a) The design value of the ratio of the maximum mass (W), in kilograms, to the square of the wing span (b) in metres does not exceed 3 kg/m<sup>2</sup>.  
[W/b<sup>2</sup> = 3kg/m<sup>2</sup> maximum].
- (b) The minimum climb rate is 300 metres in 4 minutes.
- (c) The minimum sink rate does not exceed:
  - (i) 1.0 metre per second for single seat powered sailplane; or
  - (ii) 1.2 metres per second for a two seat powered sailplane.
- (d) The minimum glide slope at maximum landing mass with spoilers/dive brake fully extended must not exceed one in seven (1:7) at 1.3 V<sub>so</sub> (stall speed in landing configuration).
- (e) The maximum number of seats is two.

### 3 - EXEMPTIONS

In pursuance of the powers vested in it by Regulation 308 of the Civil Aviation Regulations, the Civil Aviation Authority hereby exempts aircraft to which this Section applies from compliance with the provisions of:

- (a) Regulations 16, 17 and 18;
- (b) Part 5 of the Regulations;
- (d) Sub-regulations (1), (2) and (3) of Regulation 83 in respect of VHF equipment;
- (e) Sub-regulation (1) of Regulation 92;
- (f) Paragraphs (a) and (e) of Sub-regulation (1) of Regulation 133;
- (g) Paragraph (d) of Sub-regulation (1) of Regulation 139;
- (h) Regulation 142 in respect of photographs taken to verify that the aircraft was flown to a predetermined point;
- (i) Sub-regulation (1) of Regulation 150 insofar as the dropping of towing and/or drag increasing devices is concerned;
- (j) Paragraph (a) of Sub-regulation (3) of Regulation 155: when beyond 2 nautical miles from a Government or licensed aerodrome, provided that the acrobatic flight takes place at a height of not lower than 1000 feet above the highest point of the terrain or any obstacle thereon within a radius of 600 metres of a line extending vertically below the aircraft; and when within 2 nautical miles of a Government or licensed aerodrome, provided that the acrobatic flight takes place not lower than 2000 feet above the aerodrome, unless the prior approval of an Assistant General Manager (Safety Regulation) or a Manager Flying Operations of the Civil Aviation Authority has been obtained;

- (k) Sub-regulation (3) of Regulation 162 only insofar as an aircraft to which this Section applies, which is overtaking a glider, powered sailplane or power-assisted sailplane engaged in ridge or hill soaring, shall pass between the ridge or hill and the overtaken aircraft and may alter its heading to the left for the purpose;
- (l) Sub-regulation (1) of Regulation 163 insofar as proximity in the air to another glider, powered sailplane, power-assisted sailplane or aeroplane which is being used to aero-tow a glider or power-assisted sailplane is concerned;
- (m) Paragraphs (d), (f) and (g) of Sub-regulation (1) of Regulation 166, provided that an aircraft operating in the circuit area of a Government or licensed aerodrome must, as far as practicable, make all turns in the established circuit direction;
- (n) Sub-regulation (3) of Regulation 173 provided that at all times whilst above flight level 200 the aircraft maintains the distance from cloud and flight visibility specified for flight between 5000 feet above sea level and flight level 200, and operates to the FULLSAR position reporting procedures specified in AIP;
- (o) Sub-regulation (2) of Regulation 207 insofar as the carriage of a gyroscopic turn and slip indicator and an outside air temperature indicator as prescribed in Civil Aviation Order 20.18 Appendix I is concerned;
- (p) Regulation 210 insofar as advertising of flying training to qualify for a pilot standard specified in the GFA Operational Regulations is concerned;
- (q) Regulation 213 provided that aircraft used in charter operations shall be maintained in accordance with the procedures specified in the GFA Operational Regulations;
- (r) Regulation 215;
- (s) Regulation 216;
- (t) Regulations 226, 227, 228 and 229 insofar as persons qualified or instructed in accordance with the GFA Operational Regulations are concerned;
- (u) Sub-regulation (1) of Regulation 243 in respect of operations in areas where the carriage of radio is not required by Civil Aviation Order 20.8; and
- (v) Regulation 246 in respect of aircraft being launched using external power sources;

and specifies the conditions set out in Sub-Section 4 of this Section as the conditions to be complied with by such aircraft.

### 3A - LICENCE NOT REQUIRED

3A.1 - For the purposes of paragraph 20AB(1)(b) of the Act, a person is authorised to perform a duty essential to the operation of an aircraft to which this section applies without holding a flight crew licence if he or she complies with the conditions set out in subsection 4.

3A.2 - In spite of paragraph 3A.1, a person must hold a flight radiotelephone operator licence if he or she makes airborne radio transmissions.

#### 4 - CONDITIONS

4.1 - An aircraft to which this Section applies shall not be operated except:

- (a) by an individual who is a member of the GFA, or an organisation which is affiliated with the GFA, or a person or organisation who has undertaken in writing to maintain and operate the aircraft in accordance with the standards of the GFA;
- (b) in accordance with the rules, orders, directions, standards and operational procedures contained in the GFA Operational Regulations and other applicable manuals and written directives of the GFA; and
- (c) by a pilot who is qualified in accordance with the standards specified in the GFA Operational Regulations and subject to the limitations which are specified in the GFA Operational Regulations as being appropriate to the qualification held by the pilot in command.

4.2 - An aircraft to which this Section applies shall not be operated under the Instrument Flight rules or at night.

4.3 - Gliders, powered sailplanes and power-assisted sailplanes participating in a gliding competition which has been approved in writing by an Assistant General Manager (Safety Regulation) or a Manager Flying Operations of the Civil Aviation Authority may, when within 5 kilometres of the finish line, descend below 500 feet above the ground whilst:

- (i) keeping the finish line in sight; and
- (ii) clearing all obstacles by at least 50 feet; and
- (iii) then land straight ahead across the finish line; or
- (iv) cross the finish line without descending lower than 50 feet above the ground or any obstacle thereon and with sufficient energy to complete a circuit prior to landing.

4.4 - Gliders, powered sailplanes and power-assisted sailplanes engaged in ridge or hill soaring may fly at a height below 500 feet above the ground, but no closer to terrain or any obstacles thereon than the distances specified in the GFA Operational Regulations.

4.5 - Except with permission in writing of the Group General Manager (Safety Regulation) of the Civil Aviation Authority and in accordance with any conditions specified in that permission to minimise hazard to other aircraft or persons or property on the ground or water, an aircraft to which this Section applies shall not be flown:

- (a) (i) over water beyond safe gliding distance from a suitable landing area; or
- (ii) in the case of a powered sailplane or power-assisted sailplane being operated under power beyond gliding range from land, unless the provisions relating to flight over water specified in AIP RAC/OPS are complied with;

- (b) for the purpose of dual instruction unless:
  - (i) the instruction is imparted by a person holding a valid instructor authorisation issued by the GFA; and
  - (ii) the type of instruction given is within the privileges and limitations specified in the GFA Operational Regulations as being appropriate to the authorisation held by the instructor; or
- (c) on private or charter passenger-carrying operations unless:
  - (i) the pilot is qualified in accordance with the specifications contained in the GFA Operational Regulations; and
  - (ii) the flight is conducted in accordance with the standards and procedures specified in the GFA Operational Regulations.

4.6 - Powered sailplanes and power-assisted sailplanes to which this Section applies shall carry engraved placards in the cockpit in full view from every control seat. These placards shall bear the words as follows:

- (i) in the case of a powered sailplane:

"THIS POWERED SAILPLANE MUST BE OPERATED IN ACCORDANCE WITH THE PROVISIONS OF CAO 95.4 AND THE GFA OPERATIONAL REGULATIONS"; or

- (ii) in the case of a power-assisted sailplane:

"1. THIS POWER-ASSISTED SAILPLANE MUST BE OPERATED IN ACCORDANCE WITH THE PROVISIONS OF CAO 95.4 AND THE GFA OPERATIONAL REGULATIONS.

2. TAKE-OFFS USING ONLY INSTALLED ENGINE POWER ARE PROHIBITED."

Note: Attention is directed to the fact that the exemptions granted by this Section do not confer on the operator of an aircraft to which this Section applies any rights as against the owner or occupier of any land on or over which the operations are conducted, nor prejudice in any way the rights or remedies which a person may have in respect of any injury to persons or damage to property caused directly or indirectly by the aircraft.

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COMMONWEALTH OF AUSTRALIA  
CIVIL AVIATION SAFETY AUTHORITY

CIVIL AVIATION ORDERS  
PART 95

SECTION 95.4.1  
Issue 1

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Amendment No. 84

Commencement Date: 22 December 1995

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Section 95.4.1, Issue 1, of the Civil Aviation Orders, titled "EXEMPTION FROM PROVISIONS OF THE CIVIL AVIATION REGULATIONS - GLIDERS ENGAGED IN CHARTER OPERATIONS" was issued on 18 December 1995. The order was notified in the Commonwealth of Australia Gazette on 22 December 1995 and came into operation on that date.

Attached is a copy of the new order. To keep your Orders up to date please INSERT pages 1 to 7 of section 95.4.1 after section 95.4.

An explanation of the order is set out below.

#### AUTHORITY

Civil Aviation Orders are made by the Civil Aviation Safety Authority under the Civil Aviation Regulations.

#### EXPLANATORY NOTE

For many years gliding clubs have been issued an Air Operator's Certificate (AOC) which permits them to conduct charter operations which involve taking a single passenger in a 2-seater glider for "joy flights". CASA can see no reason why the clubs should not continue to do so. As charter operations are prescribed under regulation 206 of the Civil Aviation Regulations as being a commercial purpose for the purposes of subsection 27 (9) of the Civil Aviation Act 1988, an operator must hold an AOC to engage in these operations.

The existing section 95.4 of the CAOs does not adequately deal with the conditions applicable to charter operations by gliders (sailplanes, power-assisted sailplanes and powered sailplanes). To overcome this problem, section 95.4 has been amended to remove all reference to charter operations by gliders and a new CAO (section 95.4.1) has been issued to deal specifically with charter operations by gliders. The Gliding Federation of Australia has been consulted in the preparation of the amendments.

COMMONWEALTH OF AUSTRALIA  
CIVIL AVIATION SAFETY AUTHORITY

CIVIL AVIATION ORDERS  
PART 95

SECTION 95.4.1  
Issue 1

EXEMPTION FROM PROVISIONS  
OF THE CIVIL AVIATION  
REGULATIONS - GLIDERS ENGAGED  
IN CHARTER OPERATIONS  
EFFECTIVE: 22 December 1995

#### SUBSECTIONS

- |   |  |
|---|--|
| 1 - Interpretation                        | 5 - Conditions applicable to the holder of a charter glider authorisation      |
| 2 - Exemption                             |  |
| 3 - Licence not required                  | 6 - Conditions applicable to the operator of charter glider flights Appendix 1 |
| 4 - Issue of charter glider authorisation |  |

#### 1 - INTERPRETATION

1.1 In this section, unless the contrary intention appears:

"CFI" means:

- (a) the operator's chief flying instructor; or
- (b) the operator's instructor panel chairperson;

"GFA" means the Gliding Federation of Australia (A.C.N. 008 560 263);

"glider" means:

- (a) a sailplane; or
- (b) a power-assisted sailplane; or
- (c) a powered sailplane,

"glider pilot" means a person who:

- (a) is a member of the GFA; and
- (b) holds a C gliding certificate issued by the GFA;

"level 2 GFA instructor" means a person who holds a level 2 instructor authorisation issued by the GFA;

"operator" means an incorporated gliding club which:

- (a) is affiliated with the GFA; and
- (b) engages in charter operations;

"power-assisted sailplane" has the same meaning as in section 95.4;

"powered sailplane" has the same meaning as in section 95.4;

"sailplane" has the same meaning as in section 95.4.

#### 2 - EXEMPTION

2.1 - Subject to paragraph 2.2, a glider engaged in charter operations, or a person who is in, on, or otherwise associated with the operation of, a glider engaged in charter operations, is exempt:

- (a) from compliance with the following provisions of the Civil Aviation Regulations:
  - (i) regulations 16, 17 and 18;
  - (ii) Part 5;
  - (iii) paragraphs 133 (1) (a) and (e);
  - (iv) paragraph 139 (1) (d);

- (v) regulations 213 and 216; and
- (b) from compliance with subregulations 83 (1), (2) and (3) of the Civil Aviation Regulations in relation to the use of VHF equipment; and
- (c) from compliance with subregulation 150 (1) of the Civil Aviation Regulations in relation to the dropping of towing or drag increasing devices; and
- (d) from compliance with paragraph 155 (3) (a) of the Civil Aviation Regulations on condition that:
  - (i) if the acrobatic flight takes place more than 2 miles from a licensed aerodrome - the flight does not take place at a height of less than 1,000 feet above the highest point of the terrain or of any obstacle on the terrain within a radius of 600 metres of a line extending vertically below the aircraft; and
  - (ii) if the acrobatic flight takes place at 2 miles or less from a licensed aerodrome - the flight does not take place at a height of less than 2,000 feet above the aerodrome; and
- (e) from compliance with paragraph 157 (1) (b) when a glider is engaged in ridge or hill soaring; and
- (f) from compliance with subregulation 162 (3) of the Civil Aviation Regulations to the extent that, if a glider is overtaking another glider engaged in ridge or hill soaring, the overtaking glider:
  - (i) must pass between the ridge or hill and the overtaken glider; and
  - (ii) may, if necessary, alter its heading to the left to do so; and
- (g) from compliance with paragraphs 166 (1) (d), (f) and (g) of the Civil Aviation Regulations on condition that a glider operating in the circuit area of a licensed aerodrome must, as far as practicable, make all turns in the established circuit direction; and
- (h) from compliance with subregulation 207 (2) of the Civil Aviation Regulations in relation to the carriage of:
  - (i) a gyroscopic turn and slip indicator; and
  - (ii) an outside air temperature indicator; and
- (i) from compliance with regulations 226, 227 and 229 of the Civil Aviation Regulations in relation to a person who:
  - (i) holds qualifications issued by the GFA; or
  - (ii) has been appropriately instructed by a person who holds qualifications issued by the GFA; and
- (j) from compliance with subregulation 243 (1) of the Civil Aviation Regulations except when the glider is operating:
  - (i) in controlled airspace; or
  - (ii) in an area known as a mandatory broadcast zone; or
  - (iii) within an area known as the common traffic advisory frequency area around an aerodrome which is used for regular public transport operations; and
- (k) from compliance with regulation 246 of the Civil Aviation Regulations in relation to a glider which is launched using an external power source.

2.2 - The exemptions are subject to the condition that the remaining

provisions of this Order are complied with.

2.3 - Paragraph 2.1 does not apply to a person in, on, or otherwise associated with the operation of, an aircraft that is towing a glider.

3 - LICENCE NOT REQUIRED

3.1 - For the purposes of paragraph 20AB (1) (b) of the Act (Flying aircraft without a licence etc.), a person is authorised to perform any duty essential to the operation of a glider without holding a flight crew licence, except making airborne radio transmissions on aeronautical HF frequencies.

4 - ISSUE OF CHARTER GLIDER AUTHORISATION

4.1 - A person must not pilot a glider engaged in charter operations unless he or she:

- (a) holds a charter glider authorisation issued by a CFI that certifies that the person meets the requirements set out in Appendix 1; and
- (b) the charter glider authorisation has not stopped having effect under paragraph 4.4.

4.2 - A charter glider authorisation must be entered in the glider pilot's log book.

4.3 - A charter glider authorisation has effect for the period, not exceeding 2 years and 5 months, stated in it.

4.4 - A charter glider authorisation stops having effect:

- (a) if the authorisation is suspended by a CFI; or
- (b) if the pilot ceases to meet the requirements of Appendix 1; or
- (c) at the end of the period stated in it;

whichever happens first.

4.5 - A charter glider authorisation must not be renewed unless the glider pilot has satisfactorily completed a flight test conducted by a level 2 GFA instructor.

5 - CONDITIONS APPLICABLE TO THE HOLDER OF A CHARTER GLIDER AUTHORISATION

5.1 - The holder of a charter glider authorisation must not operate a glider unless, in the 3 months preceding the charter flight, he or she has been at the controls of a glider of the kind undertaking the flight for at least 3 take-offs and 3 landings.

5.2 - The holder of a charter glider authorisation must not operate a glider under I.F.R. or at night.

5.3 - The holder of a charter glider authorisation who is flying a glider engaged in ridge or hill soaring must not fly at a height of less than 100 feet if within 100 metres of a person, a building, or a public road.

5.4 - The holder of a charter glider authorisation must not fly a glider over water beyond a safe gliding distance from a suitable landing area.

5.5 - The holder of a charter glider authorisation:

- (a) must plan a charter operation so as to land at the place from which it departed; and
- (b) in the case of a power-assisted sailplane or a powered sailplane - must have the aircraft's engine in operation during all times that the aircraft is out of gliding range of the aerodrome from which it took off; and
- (c) except in an emergency - must not land a glider anywhere except the aerodrome from which it took off.

5.6 - The holder of a charter glider authorisation must not undertake a charter flight as pilot in command of a glider:

- (a) less than 24 hours after he or she has donated blood; or
- (b) if he or she is temporarily unfit due to taking medication; or
- (c) if he or she is temporarily unfit due to illness or injury; or
- (d) if he or she becomes aware that he or she may have, or be subject to, diabetes, epilepsy, fits, recurrent fainting, giddiness, blackouts, high blood pressure or heart disease.

5.7 - If an illness or injury referred to in subparagraph 5.6 (c) persists for more than 30 days, the holder of the charter pilot authorisation must not undertake a charter flight as pilot in command until the holder has been certified fit to do so by a medical practitioner.

5.8 - Despite subparagraph 5.6 (d), the holder of a charter glider authorisation may undertake a charter flight as pilot in command if a medical practitioner certifies that he or she is fit to do so.

5.9 - If the holder of a charter glider authorisation suffers severe head injuries, the holder must not exercise the privileges of the authorisation until he or she has been certified fit to do so by a medical practitioner.

5.10 - If the holder of a charter glider authorisation customarily wears sight correction spectacles, the holder must have a spare set of spectacles readily accessible during a glider flight.

## 6 - CONDITIONS APPLICABLE TO THE OPERATOR OF CHARTER GLIDER FLIGHTS

6.1 - The operator of a power-assisted sailplane that is engaged in charter operations must ensure that it has engraved placards bearing the following words in the cockpit in full view of, and legible from, each seat:

- "1. THIS POWER-ASSISTED SAILPLANE MUST BE OPERATED IN ACCORDANCE WITH THE PROVISIONS OF CIVIL AVIATION ORDER 95.4 AND 95.4.1.
- 2. TAKE-OFFS USING ONLY INSTALLED ENGINE POWER ARE PROHIBITED."

6.2 - The operator of a powered sailplane that is engaged in charter operations must ensure that it has engraved placards bearing the following words in the cockpit in full view of, and legible from, each seat:

"THIS POWERED SAILPLANE MUST BE OPERATED IN ACCORDANCE WITH THE PROVISIONS OF CIVIL AVIATION ORDER 95.4 AND 95.4.1."

6.3 - An operator must ensure that:

- (a) each of its glider pilots who engage in charter operations holds a charter glider authorisation; and
- (b) each other person who assists with the charter operations is appropriately trained and qualified to give the assistance.

6.4 - An operator must ensure that, before each charter flight, each glider passenger:

- (a) receives a safety briefing; and
- (b) is clearly instructed that he or she must not manipulate or interfere with the glider's controls.

6.5 - The operator of a glider that is engaged in charter operations must ensure that:

- (a) the glider carries a fire extinguisher; and
- (b) the glider carries a first aid kit.

6.6 - Subparagraph 6.5 (a) does not apply:

- (a) to a sailplane without an electrical system, or
- (b) to a sailplane with an electrical system if the electrical system:
  - (i) has a master switch; and
  - (ii) is protected by a fuse near the battery.

6.7 - Subparagraph 6.5 (b) does not apply to a sailplane if the operator's ground personnel who are engaged in launching the sailplane have ready access to a first-aid kit.

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MAKING DATE: 18 December 1995  
GAZETTAL DATE: 22 December 1995  
COMMENCEMENT DATE: 22 December 1995

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APPENDIX 1

QUALIFICATIONS FOR THE ISSUE OF A CHARTER GLIDER  
AUTHORISATION TO A GLIDER PILOT

1. A glider pilot must have at least 60 hours of gliding experience, of which at least 5 hours must be as pilot in command of a 2 seat glider with both seats occupied.
  2. A glider pilot must demonstrate competence in the following flight sequences:
    - (a) a normal launch and release or, in the case of a powered sailplane, normal take-off;
    - (b) recognising, and recovering from, stalls and spins induced by the examiner;
    - (c) the practical application of flight rules and procedures;
    - (d) flying a normal circuit without reference to an altimeter;
    - (e) flying a normal circuit without reference to an airspeed indicator;
    - (f) the applicable emergency procedures during launch, or take-off, and in flight.
  3. When carrying out the sequences required under clause 2, the glider pilot:
    - (a) may be required to sit in either seat of the glider; and
    - (b) must complete all sequences without:
      - (i) fault in lookout or handling technique; or
      - (ii) harsh use of the controls.
  4. A glider pilot must hold an authorisation issued by the GFA that permits the pilot to carry out daily inspections on the type of glider used in charter operations.
  5. A glider pilot must hold:
    - (a) a class 2 medical certificate; or
    - (b) a medical certificate issued by a medical practitioner which certifies that the pilot is not suffering from any medical condition that would make him or her unfit to fly a glider in charter operations.
-

**CAO 100.17 ADMINISTRATION AND PROCEDURE - GLIDERS AND POWERED SAILPLANES**

COMMONWEALTH OF AUSTRALIA  
DEPARTMENT OF AVIATION

AIR NAVIGATION ORDERS  
PART 100

SECTION 100.17  
Issue 2

ADMINISTRATION AND PROCEDURE -  
GLIDERS AND POWERED SAILPLANES

EFFECTIVE: Forthwith

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SUB-SECTIONS

- |                                   |   |
|-----------------------------------|---|
| 1 - Applicability                 | 5 - Certificate of airworthiness        |
| 2 - Definitions and abbreviations | 6 - Validation of foreign certificate   |
| 3 - Categories                    | 7 - Export certificate of airworthiness |
| 4 - Survey                        | 8 - Maintenance                         |

1 - APPLICABILITY

This Section of Air Navigation Orders specifies the procedures to be followed under:

- (a) Air Navigation Regulation 29, to obtain the issue, renewal or validation of a certificate of airworthiness in respect of an Australian glider or powered sailplane, in one or more of the following categories: normal; utility; and acrobatic;
- (b) Air Navigation Regulation 33, to obtain the issue of an export C of A; and
- (c) Air Navigation Regulation 43, for the maintenance of Australian gliders and powered sailplanes.

Note 1: The Secretary has delegated, to persons occupying specified positions in the GFA, certain of his powers under the Air Navigation Regulations relating to the registration and airworthiness of gliders and powered sailplanes operated by members of the GFA and its affiliated clubs and associations. Members' applications for registration and for the issue of a certificate of airworthiness (other than under paragraph 5.1) should therefore be made to the GFA.

Note 2: Amateur-built category gliders and powered sailplanes and developmental category aircraft have different procedures specified in Sections 100.18 and 101.31 respectively.

Note 3: Air Navigation Orders Section 95.4 exempts gliders and powered sailplanes from compliance with certain of the Air Navigation Regulations, subject to conditions specified.

2 - DEFINITIONS AND ABBREVIATIONS

Terms and abbreviations used in this Section shall have the following meanings:

'Applicable design standards' means the design standards specified in Section 101.26 except that -

- (a) for an aircraft of the same type and model as one previously given an Australian C of A they may be the design standards applied to the previous aircraft; or
- (b) for an aircraft of the same type but a different model from one previously given an Australian C of A they may be the design standards applied to the previous aircraft plus -
  - (i) in respect of the differences in design between the models - such additional design standards as are found by the Secretary to be necessary to maintain the level of safety intended by the earlier design standards; and
  - (ii) such other additional design standards as are specified in Section 101.26;

'C of A' means certificate of airworthiness;

'Contracting State' means a country, other than Australia, that is a party to the Chicago Convention on International Civil Aviation;

'GFA' means the Gliding Federation of Australia;

'Glider inspector certificate' means a certificate issued on Form DA 1109 by a delegated officer of the GFA pursuant to the Air Navigation Orders, authorising the holder to certify for the completion of maintenance on a glider or powered sailplane to the extent indicated on the form;

'Maintenance authority' means a maintenance authority (Form DA 822) issued pursuant to Section 100.24, authorising the holder to certify for the completion of maintenance on an aircraft to the extent indicated on the form;

'Model' in relation to aircraft, means a particular version of an aircraft type, such as would be distinguished from another version of the same type by a change of sufficient effect on the weight, balance, structural strength, operational characteristics, or other characteristics as would require a separate entry on the type certificate, identifying and approving the particular version as distinct from the identification and approval of other versions;

'Powered sailplane' means an aeroplane defined as such in Section 101.26;

'Secretary' means the Secretary to the Department of Aviation or any person to whom he has delegated his authority in the matter concerned; and

'Type' in relation to aircraft, means a design and make of aircraft and, where applicable, shall refer to a group of essentially similar aircraft which, although possibly existing in different models, stem from a common basic design.

## 3 - CATEGORIES

C's of A for gliders and powered sailplanes will be issued in one or more of the following categories:

- (a) normal;
- (b) utility;
- (c) acrobatic;
- (d) amateur-built;
- (e) developmental; and
- (f) special.

Note 1: Airworthiness administration and procedures for issue of a C of A in the amateur-built category and the developmental category are specified in Sections 100.18 and 101.31 respectively.

Note 2: An aircraft maybe issued with a C of A in the special category if it is not eligible in one of the other categories and if the Secretary considers that issue of the certificate would be warranted by special characteristics of the aircraft or by special purposes for which the aircraft may be used.

## 4 - SURVEY

4.1 - The aircraft shall be made available to the Secretary for survey at suitable locations, times and for such periods as he considers necessary prior to certification.

4.2 - Where requested by the Secretary the applicant shall prepare the aircraft to permit access to its structure, control systems, equipment and installations and shall perform such checks and tests as the Secretary requires.

## 5 - CERTIFICATE OF AIRWORTHINESS

5.1 - application for:

- (a) the issue of a C of A to the first specimen of a type and model of powered sailplane in Australian territory;
- (b) the issue of a C of A to the first specimen of a type and model of a glider, not subject to the control of the GFA, in Australian territory; and
- (c) the issue or renewal of a C of A, for a glider or a powered sailplane not subject to the control of the GFA,

shall be made on Form DA 12 through a regional office of the Department.

5.2 - Application for the issue or renewal of a C of A other than as specified in paragraph 5.1 may be made to the appropriate Regional Technical Officer (Airworthiness) of the GFA.

5.3 - An applicant for the issue of a C of A shall:

- (a) make available for inspection the log books or equivalent maintenance records for the aircraft;

- (b) except where otherwise approved furnish:
  - (i) the certifications, documents and other evidence specified in paragraphs 5.4 and subsequent of this sub-section;
  - (ii) a weight and balance report for the aircraft; and
  - (iii) for a powered sailplane - two copies of the flight manual prepared ready for approval by the Secretary or the authorised person. One copy will be issued with the C of A and the other copy will be retained by the Secretary.
- (c) furnish, for a powered sailplane a Form DA 186B, or for a glider a GFA Form 2, certifying that the aircraft to which it relates:
  - (i) conforms to the applicable requirements specified in Section 101.0;
  - (ii) complies with all applicable Airworthiness Directives issued by the Secretary and the GFA and a record of each directive so complied with is entered in the aircraft log book or other approved record; and
  - (iii) is, as far as can reasonably be determined from inspection, fit to fly having regard to the requirements, procedures and limitations specified in the flight manual or on the C of A, and to the requirements for maintenance of the aircraft; and
- (d) the certification specified in paragraph 5.3(c) shall be made by, or on behalf of:
  - (i) an organisation approved by the Secretary for the maintenance of aircraft; or
  - (ii) a person approved for the purpose by the GFA.

Note: For powered sailplanes, the person referred to in paragraph 5.3(d)(ii) may normally be the holder of a valid GFA Glider Inspector Certificate, rated for the type of airframe structure, and who holds a certification for each of the categories with equipment installed in the aircraft.

#### 5.4 - New Aircraft of Australian Manufacture

- (1) A certificate of type approval is required to be in force in respect of a type and model of aircraft manufactured in Australia before a C of A in a category other than developmental, amateur-built or special is issued in respect of such an aircraft, except that this requirement does not apply where an aircraft of the same type has previously been issued with a C of A in a category other than developmental, amateur-built or special without such a certificate of type approval being in force.
- (2) The aircraft manufacturer shall furnish a certification, in accordance with the provisions of paragraph 4.2 of Section 100.4, that the aircraft conforms with its type design.

#### 5.5 - Imported Aircraft

For an imported aircraft there shall be furnished:

- (a) a current export C of A for export to Australia, or an equivalent document;

- (b) unless covered by the above export C of A or an equivalent document - a current certification from the aircraft manufacturer, or from a person (or organisation) with appropriate approval for aircraft maintenance, stating that all applicable Airworthiness Directives or equivalent requirements issued by the country of manufacture have been complied with;
- (c) where the aircraft is the first of a particular type and model to be certificated in Australia - evidence that the aircraft conforms with the applicable design standards;

Note. This evidence will normally consist of the documents and data specified in Section 101.26 and the certification required by paragraph 5.3(c) (i) for compliance with the requirements of Section 101.0.

- (d) where the imported aircraft is of original Australian manufacture - a current certification from the aircraft manufacturer, a person (or organisation) with appropriate approval for aircraft maintenance, or another acceptably qualified person (or organisation), that any modification or repairs to the aircraft affecting the type design, incorporated after its manufacture comply with the applicable design standards and any approved variations applicable thereto; and
- (e) where the aircraft is the first to be certificated in Australia containing a particular modification approved under a supplemental type certificate, or equivalent modification from a Contracting State:
  - (i) evidence that the aircraft as modified conforms with the applicable design standards; and
  - (ii) a copy of the substantiating data required by or submitted to the airworthiness authority which approved the design of the modification.

#### 5.6 - Used Aircraft

For a used aircraft, regardless of origin, there shall be available to the Secretary the following data from its service history:

- (a) total hours and flights, as appropriate, of the airframe and of all life-limited components of the aircraft;
- (b) past operational uses of the aircraft e.g. aerobatics, cloud flying;
- (c) record of all major structural and life-limited component changes; and
- (d) record of all major structural repairs, including the nature of the damage in each case, e.g. corrosion, cracking, lightning strikes, accidental damage, etc.

### 6 - VALIDATION OF A FOREIGN CERTIFICATE

6.1 - Application for validation of a C of A issued by a Contracting State should be made on Form DA 1639 to a regional office of the Department.

Note: Validation does not eliminate any of the requirements of sub-section 5. In particular the export C of A is the most important item and therefore compliance with C of A requirements should be checked before commencing a delivery flight.

6.2 - The C of A validation Form DA 1647, signed by the Secretary or his delegate, shall be attached to the C of A which is being validated.

Note 1: The Secretary may validate an export C of A for an aircraft issued by a Contracting State if it is intended to fly the aircraft to Australia as an Australian aircraft. Where a Contracting State does not issue an export C of A, the Secretary may validate a C of A in a standard category for such an intended flight.

Note 2: an export C of A will not be validated unless:

- (a) it certifies compliance with either the applicable design standards or with the minimum requirements for the issue of a standard C of A adopted in pursuance of the Convention and with such variations of those requirements as the Secretary may approve; and
- (b) it was issued within 90 days and within 50 hours flight time of the date of application for validation.

Note 3: A validation will be issued for a period normally sufficient only for the aircraft to be flown to Australia to be issued with a C of A in accordance with sub-section 5 of this Section.

Note 4: A C of A in a standard category will not be validated unless:

- (a) it is current at the time of application for validation as evidenced by a statement to this effect from the appropriate authority of the Contracting State;
- (b) there is in force a maintenance release or equivalent document; and
- (c) the period of validity of these documents covers the proposed flight to Australia.

Note 5: Sometimes equipment installed in an exporting country to meet Australian requirements may not be approved by the exporting country for its own aircraft. The Secretary's agreement to the installation may then be required before the export C of A will be issued. The applicant should request the manufacturer (or exporter) to obtain the Secretary's agreement in writing for all such items in ample time.

## 7 - EXPORT CERTIFICATE OF AIRWORTHINESS

7.1 - An application for the issue of an export C of A for an aircraft shall be made through a regional office of the Department on Form DA 1689.

Note 1: An export C of A is not a C of A for the purposes of the Air Navigation Regulations.

Note 2: An export C of A is the usual means whereby the airworthiness authority of an exporting country assures the airworthiness authority of the importing country as to the airworthiness of the aircraft concerned.

Note 3: An Australian export C of A will certify only to the eligibility of the aircraft to receive an Australian C of A in a particular category and unless specifically endorsed will not certify compliance with the airworthiness requirements of the importing country.

Note 4: The Secretary does not require that an aircraft being exported from Australia be issued with an export C of A.

7.2 - To qualify an aircraft for issue of an export C of A the relevant procedures specified in sub-section 5 and in paragraph 7.3 following shall be observed and the aircraft made available for survey by the Secretary.

Note: The procedures of sub-section 5 that normally would be relevant are those of paragraphs 5.3(a) and (c), and 5.6 according to their individual applicabilities. However, an aircraft for which an Australian C of A had never been issued would be subject also to paragraph 5.3(b) and, if imported, to paragraph 5.5.

7.3 - Except for an aircraft which:

- (a) has been maintained in accordance with an approved system of maintenance which does not require the aircraft to undergo a major inspection as defined in Section 100.5.1, or
- (b) is a new aircraft,

there shall be furnished to the Secretary current certifications from an organisation with appropriate approval for aircraft maintenance stating that the aircraft has undergone a major inspection in accordance with Section 100.5.1 within the eight weeks preceding the date on which the Secretary is to issue the export C of A.

7.4 - The certifications referred to in paragraphs 7.2 and 7.3 shall be accompanied by details of any design standards or other requirements with which the aircraft does not comply and for which the Secretary has agreed to waive compliance.

7.5 - An export C of A will be endorsed with the certification category for which compliance has been established and with any requirements with which the aircraft does not comply and for which the Secretary has agreed to waive compliance. The certificate will also be endorsed, if requested, with any additional requirements for which compliance has been established.

Note: An export C of A may be endorsed with appropriate conditions. Typical conditions may relate to removal of temporary ferry flight installations or to removal of corrosion inhibiting materials.

## 8 - MAINTENANCE

8.1 - A glider or powered sailplane which is operated by a person (or organisation) who is a member of the GFA or of an affiliated club or association or is so affiliated, and which has been placed under the control of the GFA and/or an affiliated club or association, shall be maintained and its maintenance certified in accordance with the standards and procedures specified and directed by the officials of the GFA appropriately delegated by the Secretary.

8.2 - A glider operated by a person (or organisation) who is not a member of the GFA or of an affiliated club or association, or is not so affiliated, shall be maintained in accordance with a system and schedule approved by the Secretary.

8.3 - A powered sailplane operated by a person (or organisation) who is not a member of the GFA or of an affiliated club or association, or is not so affiliated, shall be maintained in accordance with Sections 100.5.0 and 100.5.1.

Approval Date: 1 November 1982  
(Reprinted March 1985)

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**CAO 101.26 GLIDER AND POWERED SAILPLANE - CERTIFICATION  
REQUIREMENTS**

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COMMONWEALTH OF AUSTRALIA  
DEPARTMENT OF AVIATION

AIR NAVIGATION ORDERS  
PART 101

SECTION 101.26  
Issue 1

AIRCRAFT CERTIFICATION REQUIREMENTS -  
GLIDERS AND POWERED SAILPLANES

EFFECTIVE: Forthwith

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THIS SECTION TO BE READ IN CONJUNCTION WITH SECTION 101.0
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#### SUB-SECTIONS

- |                                   |                      |
|-----------------------------------|----------------------|
| 1 - Applicability                 | 3 - Design standards |
| 2 - Definitions and abbreviations | 4 - Documents        |

#### 1 - APPLICABILITY

This Section of Air Navigation Orders specifies design standards to be complied with and documents to be furnished to the Secretary, under Air Navigation Regulations 26, 27 and 29, for the airworthiness certification of gliders and powered sailplanes, as defined in sub-section 2, in the normal, utility, acrobatic and amateur-built categories.

Note 1: ANO Section 100.17 specifies procedures for the issue of an Australian certificate of airworthiness in the normal, utility and acrobatic categories, in respect of an Australian glider or powered sailplane. ANO Section 100.18 specifies procedures to be followed to obtain approval to manufacture an aircraft and to obtain a certificate of airworthiness for it in the amateur-built category.

Note 2: Certification in the amateur built category is limited to aircraft where significant portions of such have been constructed for educational or recreational purposes by an individual or group of individuals resident in Australia or Australian territory.

Note 3: An aircraft constructed for educational or recreational purposes by an individual or group of individuals prior to their taking up residence in Australia or Australian territory may be eligible for amateur-built certification if acceptable evidence is presented concerning its construction as an amateur-built aircraft.

## 2 - DEFINITIONS AND ABBREVIATIONS

Terms and abbreviations used in this Section are defined in ANO Section 101.0 and as follows:

'GFA' means the Gliding Federation of Australia;

'glider' means a non-power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight;

'JAR' means the Joint Airworthiness Requirements, agreed in common by the civil airworthiness authorities of several European countries;

'LBA' means the Luftfahrt-Bundesamt of the Federal Republic of Germany;

'LFSM' means the Airworthiness Requirements for Sailplanes and Powered Sailplanes, issued by the LBA;

'OSTIV' means the Organisation Scientifique et Technique Internationale du Vol a Voile, van Halewijplein 37, VOORBURG, The Netherlands;

'powered sailplane' means an aeroplane that meets the following criteria:

- (a) maximum take-off weight - not more than 850 kg;
- (b) take-off gradient of climb - not less than 7 per cent at sea level ISA conditions, at maximum take-off weight
- (c) minimum sink rate - not greater than 300 feet per minute at sea level, ISA conditions, with the engine(s) inoperative at maximum take-off weight; and
- (d) maximum seating - two persons.

## 3 - DESIGN STANDARDS

## 3.1 - Special conditions

If the Secretary finds that the design standards specified in this sub-section do not provide adequate or appropriate safeguards against particular features or characteristics of an aircraft, he may issue such special conditions, which add to or vary the design standards for that aircraft, as he finds necessary to restore a level of safety equivalent to that otherwise established in the design standards.

## 3.2 - Basic requirements and equivalent safety

- (1) The design standards that follow shall be met, as applicable, unless the Secretary has determined on the basis of evidence submitted that any item not complied with is compensated for by factors which provide an equivalent level of safety.
- (2) Imported gliders and powered sailplanes
  - (a) JAR Part 22, BCAR Section E OSTIV, LFSM or those of the FAR, against which compliance was required for original type certification by the competent authority in the State of manufacture; and

- (b) the applicable requirements specified in ANO Section 101.0 and in paragraphs 3.15 and subsequent of this sub-section.

Note: An intending purchaser of an aircraft of a type whose certification was to a basic code other than those specified above should consult the Secretary as to the acceptability of that code.

(3) Gliders and powered sailplanes of Australian manufacture

- (a) Unless otherwise approved by the Secretary, JAR Part 22, BCAR Section E, OSTIV or LFSM; and
- (b) the applicable requirements specified in ANO Section 101.0 and in paragraphs 3.15 and subsequent of this sub-section.

PERFORMANCE

3.15 - Speeds

(1) Stalling speed

In demonstrating compliance with the performance standards of this Section the speed  $V_s$  shall have the following meaning:

- (a)  $V_s$  is the stalling speed or minimum steady flight speed, in knots CAS, with:
  - (i) centre of gravity in the most unfavourable position within the allowable range;
  - (ii) aircraft weight and configuration appropriate to the required condition; and
  - (iii) for powered sailplanes only - engine shut down and the propeller in the take-off position; and
- (b)  $V_s$  shall be established by flight test in accordance with the procedures specified in paragraph 3.40.

3.18 - Take-off distance (powered sailplanes only)

(1) The take-off distance shall be the distance required to reach a screen height of 50 feet from a standing start on a short dry grass runway surface with:

- (a) engine operating within take-off power limitations;
- (b) landing gear extended;
- (c) wing flaps in the take off position; and
- (d) the aircraft reaching the screen height at a speed not less than  $1.2V_s$ .

(2) Take-off distances established in accordance with this paragraph shall be factored by 1.15 and scheduled in the aircraft flight manual for the following conditions:

- (a) maximum take-off weight;
- (b) all pressure altitudes from sea level to 5000 feet;
- (c) all ambient temperatures from ISA-10°C to at least ISA+30°C;
- (d) all wind components from a headwind component of 20 knots to a tailwind component of 5 knots; and
- (e) runway slopes of 2 per cent uphill to 2 per cent downhill.

Note: In scheduling take-off distance account is to be taken for 50 per cent of reported headwind components and 150 per cent of reported tailwind components.

### 3.21 - Take-off climb (powered sailplanes only)

The steady gradient of climb shall not be less than 7 per cent at sea level pressure altitude and temperature of 15°C when established under the following conditions:

- (a) weight equal to the maximum take-off weight;
- (b) climb speed equal to the take-off safety speed;
- (c) landing gear extended;
- (d) wing flaps in the take-off position; and
- (e) engine operating within take-off power limitations.

### 3.30 - Glide angle

In the normal landing configuration and with the airbrakes fully extended the angle of glide at a speed of 1.3Vs shall not be flatter than one in seven.

## FLIGHT HANDLING

### 3.38 - Wings level stall

- (1) It shall be possible to produce and correct roll and yaw by unreversed use of the rolling and directional controls up to the point at which the aircraft stalls.
- (2) The wings level stalling characteristics shall be demonstrated in flight as follows:

The aircraft speed shall be reduced with the elevator control until the speed is slightly above the stalling speed, then the elevator control shall be pulled back so that the rate of speed reduction does not exceed one knot per second until the stall is reached, as shown by an uncontrollable downward pitching motion, or until the control reaches the stop. Normal use of the elevator control and engine power (powered sailplanes) for recovery is allowed after the pitching motion has unmistakably developed.

- (3) During the recovery part of the manoeuvre it shall be possible to prevent more than 15 degrees of roll or yaw by the normal use of controls.
- (4) Compliance with the requirements of this paragraph shall be shown for the following conditions:
  - (a) all possible configurations of airbrakes, wing flaps and landing gear;
  - (b) all centre of gravity positions within the allowable range;
  - (c) engine power off and 75 per cent of maximum continuous power or thrust (powered sailplanes only); and
  - (d) trimmed at 1.5 Vs or at the minimum trim speed, whichever is higher.

## 3.41 - Turning flight stalls

(1) Turning flight stalls shall be demonstrated by flight test as follows:

- (a) The aircraft shall be established and maintained in a coordinated 30 degree banked turn from which the speed is reduced by steadily and progressively tightening the turn with the elevator control at a rate of speed reduction not in excess of one knot per second until the aircraft is stalled or until the elevator reaches the stops; and
- (b) when the stall has fully developed, or the elevator control has reached the stops, it shall be possible to regain level flight without:
  - (i) excessive loss of altitude;
  - (ii) undue pitchup;
  - (iii) uncontrollable tendency to spin; and
  - (iv) exceeding 60 degrees of roll in either direction from the established 30 degree bank.

(2) Compliance with sub-paragraph (1) above shall be shown for the following conditions:

- (a) all possible configurations of airbrakes, wing flaps and landing gear;
- (b) all centre of gravity positions within the allowable range;
- (c) power off and 75 per cent of maximum continuous power (powered sailplanes only); and
- (d) trimmed at 1.5Vs or at the minimum trim speed whichever is higher.

## 3.42 - Stall warning

- (1) There shall be a clear and distinctive stall warning with the airbrakes, wing flaps and landing gear in any normal position, both in straight and in turning flight.
- (2) The stall warning may be furnished either through the inherent aerodynamic qualities of the sailplane (e.g. buffeting) or by a device that will give clearly distinguishable indications.
- (3) The stall warning shall begin at a speed between 1.05 Vs and 1.1 Vs and shall continue until the stall occurs.
- (4) A sailplane which does not give warning of the approach of the stall may, however, be acceptable provided that when a stall occurs from straight flight:
  - (a) it is possible to produce the correct roll by using the ailerons, the rudder being held neutral; and
  - (b) no appreciable wing dropping occurs when both ailerons and rudder are held neutral.

## STRUCTURE

## 3.61 - Fatigue evaluation

The applicant shall demonstrate that the possibility of disastrous fatigue failure of the primary structure is extremely remote under the action of the repeated loads of variable magnitude expected in service.

## 3.62 - Flutter

- (1) The aircraft as a whole or any combination of its components which could be capable of experiencing flutter shall be demonstrated to be free from flutter and divergence at all weights, speeds and altitudes within the design speed range up to VD. Freedom from flutter may be demonstrated:
  - (a) for aircraft of conventional lay-out and construction - by compliance with the flutter requirements of BCAR Section E or equivalent simplified flutter criteria acceptable to the Secretary; or
  - (b) by performing acceptable ground resonance tests and an acceptable rational flutter analysis indicating freedom from flutter and divergence up to 1.2 VD; or by performing acceptable ground resonance tests and acceptable flight flutter tests up to VD.
- (2) The support and surrounding structure of balance weights fitted to control surfaces shall be designed for the following limit accelerations: 24 g acting normally to the plane of the control surface, 12 g acting forward and rearward, and 12 g acting parallel to the control surface axis.

## DESIGN AND CONSTRUCTION

## 3.63 - Plastics and fibre-reinforced plastics

Plastic, composite and fibre-reinforced structural components shall be manufactured in accordance with specifications acceptable to the Secretary.

Note: The following standards issued by the LBA are acceptable:

- (a) 'standards for structural substantiation of sailplane parts consisting of glass fibre-reinforced plastics' dated March 1965 or later; and
- (b) 'standards for processing of glass fibre-reinforced plastics for aircraft structures'.

## 3.64 - Wooden aircraft

Where the integrity of the primary structure of a glider or a powered sailplane depends on glued wooden joints, those joints shall not be made with acid catalysed phenolics and/or urea formaldehyde glues.

## 3.67 - Landing gear position indication

A powered sailplane with a retractable landing gear that is operated other than manually shall have means to indicate to the pilot when the wheel(s) are secured in the extreme positions.

## 3.75 - Seats, belts and harnesses

The seats and restraints shall be designed to withstand the emergency load factors specified below. An additional factor of 1.33 shall apply to the fittings transferring the emergency loads to the airframe. The emergency ultimate load factors acting separately are:

- 9 g forward;
- 4.5 g upward;
- 3.0 g sideward;
- 4.5 g downward.

## 3.104 - Fire protection - smoking

Where smoking is to be permitted in personnel compartments:

- (a) fuel tanks shall be isolated from them by means of vapour and fuel proof enclosures;
- (b) cockpit lining and furnishing materials shall be at least flame resistant; and
- (c) self-contained ash trays shall be provided.

## POWERPLANT

## 3.109 - Powerplant installation

- (1) The installation of the engine, propeller and all associated powerplant systems and controls shall be such as to permit the certificated power output to be achieved and maintained over the range of normal operating conditions without exceeding any of the prescribed engine limitations.
- (2) The design of the powerplant installations, systems and controls shall be such as to minimise the risk of serious in-flight hazards both under normal conditions and under reasonably foreseeable fault conditions.

Note 1: Examples of such in-flight hazards include fire, mechanical failure of a type which may result in secondary damage to critical structure or aircraft control systems, and release of noxious gases, liquids or vapours in the cockpit.

Note 2: In addition to the LBA and OSTIV codes the following are considered acceptable codes for the above purpose:

- JAR Part 22 Sub-part E;
  - BCAR, Sub-section K5 'Powerplant Installations';
  - FAR Part 23, Sub-part E 'Powerplant'; and
  - FAA 'Basic Glider Criteria Handbook' (1962 or later revision).
- (3) When an engine is located behind the pilot's compartment the engine support and engine accessory supports shall be designed to withstand the emergency alighting load factors specified in paragraph 3.75. With the engine located behind or above the pilot's seat, an ultimate inertia load of 15g in the forward direction shall be assumed, overriding the case of paragraph 3.75.

## 3.113 - Engines and propellers

- (1) Each engine, including any additional shafting, gearing or other components connecting it with a propeller, and each propeller, shall be:
  - (a) type certificated or similarly approved for use in aircraft by a Member State of the International Civil Aviation Organisation in accordance with an appropriate national code of requirements acceptable to the Secretary, or
  - (b) for a powered sailplane to be certificated in the amateur-built category - otherwise accepted by the Secretary as providing adequate levels of safety and reliability for the intended application.

Note 1: The relevant engine requirements issued for powered sailplanes by the LBA are acceptable to the Secretary as an appropriate national code of requirements for compliance with sub-paragraph (1) (a) above.

Note 2: Evidence of compliance with paragraph 5.2 of OSTIV 'Airworthiness Requirements for Sailplanes' (September 1971 or later revision) or with the engine test specifications contained in Chapter 6 of FAA 'Basic Glider Criteria Handbook' (1962 or later revision) would normally be regarded as an acceptable basis for the approval referred to in sub-paragraph (1) (b) above.

## OPERATING LIMITATIONS AND INFORMATION

## 3.22 - Operating limitations

Operating limitations shall be established and shall be approved by the Secretary.

## 3.232 - Markings and placards

- (1) The aircraft shall contain those markings and placards specified in this paragraph together with any additional information, instrument markings and placards that may be required for safe operation.
- (2) Each marking and placard shall be displayed in a conspicuous and appropriate position and shall not be easily erased, disfigured or obscured.
- (3) Where airspeed limitations are marked on airspeed indicators, the limitations in terms of indicated airspeed shall be marked in accordance with the following code:
  - (a) for the never exceed speed VNE - a red radial line;
  - (b) for the normal operating range - a green arc with the lower limit at the value of  $V_s$  corresponding to the maximum take-off weight and wing flaps retracted and the upper limit at the maximum structural cruising speed (normal operating limit speed) VNO;
  - (c) for the caution range - a yellow arc extending from VNO to VNE; and
  - (d) for the flap operating range - a white arc with the lower limit at the value of  $V_s$  at the maximum landing weight and corresponding to the landing configuration and the upper limit at the wing flap extended speed VFE.

- (4) There shall be an airspeed placard in clear view of the pilot and as close as practicable to the airspeed indicator. This placard shall list in terms of indicated airspeed:

- (a) maximum landing gear operating speed;
- (b) maximum aerotow speed; and
- (c) maximum winch launch speed.

If the airspeed indicator is not marked in accordance with the requirements of sub-paragraph (3), the following additional information shall also be placarded:

- (d) never exceed speed;
- (e) maximum structural cruising speed; and
- (f) maximum flap operating speed.

- (5) Where powerplant limitations are marked on the powerplant instruments, the limitations shall be marked in accordance with the following:

- (a) for each maximum, and, if applicable, minimum, safe operating limit - a red radial line;
- (b) for each normal operating range - a green arc not extending beyond the maximum and minimum continuous safe operating limits;
- (c) for each precautionary range - a yellow arc; and
- (d) for each engine speed range that is restricted - a red arc.

- (6) If the powerplant instruments in a powered sailplane are not marked in accordance with the requirements of sub-paragraph (5), the essential powerplant operating limitations shall be suitably placarded adjacent to the powerplant instruments.

- (7) A placard stating the maximum crosswind component shall be placed in clear view of the pilot.

- (8) Each cockpit control, other than primary flight controls, shall be plainly marked as to its function and method of operation. Handles of control levers shall be coloured as follows:

- (a) tow release - yellow;
- (b) airbrake lever - blue;
- (c) trim lever - green;
- (d) canopy opening - white, or red if combined with canopy jettison;
- (e) canopy jettison - red; and
- (f) other controls - other than yellow, blue, green, red or white.

- (9) Unless simple and obvious opening means are provided, markings shall be placed on both inside and outside of each exit door, hatch, or canopy, indicating the position of the opening handles with the locks fully engaged, and essential operating instructions for normal and emergency use.

- (10) For powered sailplanes the fuel grade and the usable capacity of each fuel tank shall be marked adjacent to the fuel filler cap. Fuel tank selector valves shall be clearly marked as to their method of operation.

- (11) For powered sailplanes the oil grade and the oil tank capacity shall be marked adjacent to the oil filler cap.

- (12) Where water ballast tanks are installed the maximum permitted water ballast load for each tank shall be marked on or adjacent to the filler cap for each tank. Any operational restrictions on the carriage of water ballast shall be placarded in the cockpit.
- (13) The certificate of airworthiness category shall be stated on a cockpit placard. Where that category is the amateur-built category, the placard shall read: 'THIS AIRCRAFT HAS BEEN CERTIFICATED IN THE AMATEUR-BUILT CATEGORY'. For those aircraft not approved for acrobatic flight there shall be a placard in full view of the pilot stating - 'NO AEROBATIC MANOEUVRES INCLUDING SPINS APPROVED'. For those aircraft approved for acrobatic flight there shall be a placard in full view of the pilot stating the approved acrobatic manoeuvres and the recommended entry speed for each.
- (14) Each baggage or ballast compartment shall have a placard stating any limitation on the loading of that compartment.
- (15) Any loading rules necessary to ensure that for all conditions of operation the aircraft weight and centre of gravity will remain within approved limits shall be provided in the form of a cockpit placard.

### 3.234 - Flight manual

The flight manual for a powered sailplane shall contain all mandatory operating limitations and procedures, information on performance, handling and loading and any additional information required for safe operation because of unusual design, operating or handling characteristics of the powered sailplane.

## 4 - DOCUMENTS

### 4.1 - General

The Secretary shall be supplied with a copy of each of the documents and data listed in paragraphs 4.2 to 4.4 inclusive. They shall be in the English language and either in document form or an acceptable microformat.

Note: Design data contained in manufacturer's documents will be treated as confidential information and will not be communicated to other persons without the written permission of the manufacturer concerned.

### 4.2 - Design data

The required design data for an imported aircraft is listed here, but the data required for an aircraft of Australian manufacture will be specified by the Secretary in determining the suitability of the design for the issue of a certificate of type approval under ANO Section 100.3:

- (a) type certificate and type certificate data sheet or equivalent documents issued by the competent authority in the State of manufacture;
- (b) three-view general assembly drawings and station diagrams of major structural components;

- (c) list of type design data, including reports. required by the competent authority in the State of manufacture;
- (d) documents justifying, to the satisfaction of the above competent authority, the airworthiness of the aircraft in respect of any non-compliance with the airworthiness standards of the type certificate and in respect of any special conditions applied either by the above competent authority or by the Secretary; and
- (e) manufacturer's materials and process specifications.

#### 4.3 - Service documents

All current field service documents and advices to operators which contain modifications or changes or which establish or change inspection in respect of the aircraft together with statements from the manufacturers, undertaking to supply to the Secretary copies of all subsequent documents of that type.

#### 4.4 - Manuals

- (a) manufacturers' maintenance manual;
- (b) manufacturers' data identifying the parts of the aircraft and equipment; and
- (c) flight manual or handbook of operation approved by the competent authority of the State manufacturer.

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