RECREATIONAL AVIATION AUSTRALIA

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Recreational Aviation Australia
Unit 3/1 Pirie Street
PO Box 1265
FYSHWICK ACT 2609

Phone: 02 6280 4700
Web: www.raaus.com.au
Email: tech@raaus.com.au

AMENDMENT RECORD SHEET

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01/2024	2 December 2024	All	Jared Smith

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ABBREVIATIONS AND DEFINITIONS

This Section contains Abbreviations and Definitions used in this Manual. Where an abbreviation of limited use is used it will be defined in the associated Section. Abbreviations and definitions listed in the RAAus Flight Operations Manual may be repeated here for ease of reference or when they have a different meaning e.g. AD may mean Airworthiness Directive or Aerodrome.

ABBREVIATIONS

ABA	Amateur Built Aircraft
ABI	Amateur Built Inspector (RAAus)
AC	Advisory Circular (CASA or FAA)
AD	Airworthiness Directive Issued by CASA or an overseas National Airworthiness Authority
AFM	Aircraft Flight Manual
AHAM	Assistant Head of Airworthiness and Maintenance
A-LWA	Amateur Built Lightweight Aeroplane
AN	Airworthiness Notices issued by RAAus
AP	Authorised Person – holds a CASA Instrument of Appointment to perform certain specified airworthiness functions
APVD-P	Approved Person – An RAAus Maintenance Authority holder of the level specified within the particular Technical Manual section or subsection
ASTM	ASTM International (formally the American Society for Testing and Materials), referred to in AC 21-42 *(current version)* Appendix A who issue standards such as the Standard Practice for Continued Operational Safety Monitoring of a Light Sport Aircraft.
BCAR-S	British Civil Airworthiness Requirements – Small Light Aeroplanes
CAA	Civil Aviation Authority UK
CAAP	Civil Aviation Advisory Publication
CAO	Civil Aviation Order
CAR	Civil Aviation Regulations 1988
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations 1998
CoA	Certificate of Airworthiness
C-LWA	Certified Lightweight Aeroplane
SCoA	Special Certificate of Airworthiness
CG	Centre of Gravity
CoR	Certificate of Registration
CoTA	Certificate of Type Acceptance (issued by RAAus)
ENG	Engine
E-LSA	Experimental Light Sport Aircraft
E-LWA	Experimental Light Weight Aeroplane
FAA	Federal Aviation Administration (USA)
FOT	First of Type
HAM	Head of Airworthiness and Maintenance
ICAO	International Civil Aviation Organisation

LAME	Licensed Aircraft Maintenance Engineer (Part 66) LM
LSA	Light Sport Aircraft
LWA	Light Weight Aeroplane
MA	Maintenance Authorisation/Authority MARAP
MARAP	Modification And Repair Approval Process
MOS	Manual of Standards (CASA)
MR	Maintenance Release
MTOW	Maximum Take-off Weight
NAA	National Airworthiness Authority. This is the authorised regulatory body responsible for the administration of aircraft standards and certification of an ICAO Contracting State
OM or FOM	Flight Operations Manual
PFFI	Pre Flight-Final Inspection (a TECH Form)
POH	Pilot's Operating Handbook
PM	Pilot Maintenance
RACR	Recreational Aircraft Condition Report (a TECH Form)
RAAus	Recreational Aviation Australia Ltd.
SAFA	Sports Aviation Federation of Australia
SB	Service/Safety Bulletin - Airworthiness document issued by an aircraft or component manufacturer
SI	Service/Safety Instruction - Airworthiness document issued by an aircraft or component manufacturer
SFP	Special Flight Permit
TA	Type approval
TAC	Type Acceptance Certificate issued by CASA
TCDS	Type Certificate Data Sheet
TC	Type Certificate
TIS	Time-in-service
TTIS	Total-time-in-service
UL	Ultralight Aircraft (not LSA or E-LSA)
W&B	Weight and Balance

DEFINITIONS

Aircraft Maintenance Schedule For the purposes of this Technical Manual, a schedule that sets out what maintenance should be carried out on an aircraft and when it should be carried out that has been issued by:

a) the manufacturer of the aircraft; or

b) the aircraft kit manufacturer; or

c) the builder of an amateur built aircraft; or

d) in the absence of (a), (b) or (c), RAAus; or

For a Type Certified Aircraft:

a) CASA Schedule 5; or

b) any other schedule approved by CASA for the purpose.

Aircraft registration

Within this manual, a reference to registered, registering or registration in relation to an aircraft means, unless otherwise stated, an aircraft that has been listed with RAAus and issued with a registration number and a certificate of registration by RAAus.

Listed Aircraft

For the purposes of this manual listed aircraft has the same meaning as aircraft registration

Lightweight Aeroplane

Means an aeroplane (other than a light sport aircraft or ultralight aeroplane) as defined by CASA in CAO 95.55

Maintenance Certification

Maintenance Certification is the action of signing the aircraft maintenance record by a suitably qualified person indicating that the maintenance has been done in accordance with the aircraft maintenance schedule, approved data and the RAAus Technical Manual.

Maintenance Release

Records the current airworthiness status of a LW RAAus registered aircraft. It is part of the aircraft's maintenance documentation and is a technical record of all flying time, landings, daily inspections, oil uplifts and maintenance defects recorded for the aircraft from the time the aircraft is returned to service until it expires or is cancelled so that the next person who intends to fly the aircraft can be aware of any outstanding maintenance items or time limitations that will impact the intended flight.

Major Defect

A major defect is described in CASA regulation 51A as a defect:

a) that has caused, or that could cause, a primary structural failure in an aircraft; or

b) that has caused, or that could cause, a control system failure in an aircraft; or

c) that has caused, or that could cause, an engine structural failure in an aircraft; or

d) caused by, that has caused, or that could cause, fire in an aircraft.

Maintenance Controller

A person nominated by the Certificate of Registration Holder or the Registered Operator of a RAAus listed aircraft and approved by RAAus to control the continuing airworthiness of an aircraft on behalf of the operator to perform the following functions:

a) the control and documentation of all maintenance carried out on the aircraft, either scheduled or unscheduled; and

b) the investigation and reporting of all defects in the aircraft that come to the attention of the aircraft's maintainer.

Minimum Height Rules – populous areas and public gatherings (CASR 91.265)
The PIC must not fly an aeroplane over a populous area or public gathering below 1,000 ft above the highest feature or obstacle within a horizontal radius of 600 m of the point on the ground or water immediately below the aeroplane. Refer also to CAO 95:55 para 9.1 (i), CAO 95:32 para 8.1(i) and CAO 95:10 para 10.1(g)

Minimum Height Rules – other areas (CASR 91.267)
When flying over an area that is not a populous area or public gathering (91.265), the PIC must not fly an aircraft below 500 ft above the highest feature or obstacle within a horizontal radius of 300 m of the point on the ground or water immediately below the aircraft.

Minor Defect
A defect that is not a major defect.

Private Operation or Privately Operated *(source CASA Dictionary Part 1)*
Operation of a recreational aircraft is a private operation if the operation is not one of the following:

a) an operation that is required to be conducted under the authority of a CASA issued AOC or an aerial work certificate; or
b) Part 141 or 142 flight training activity (within the meaning of CASR Part 141 and 142); or
c) an adventure flight (within the meaning of CASR Part 132).

Recognised Foreign Countries & other agencies
Under CASR 21.010B, CASA recognised Type Certificates, Supplemental type certificates and acceptance of design modifications, or repairs to aircraft, aircraft engines, propellers, or appliances from the following countries: Canada, New Zealand, France, Federal Republic of Germany, Netherlands, United Kingdom, USA.

In this manual, RAAus recognises Type Certificates, Supplemental type certificates and acceptance of design modifications, or repairs to aircraft, aircraft engines, propellers or appliances issued by CASA or accepted by CASA under CASR 21.010B. A reference to the national aviation authority of a recognised country includes a reference to the European Aviation Safety Agency (EASA).

Recognised Standard Parts
Lists of commercially available parts which do not require separate substantiation where such substantiation is required. The designer/manufacturer of the part is responsible for specifying the purpose intended for the part.

Recognised Standard
Any Australian or international aircraft, aircraft equipment, aircraft operational, and airworthiness standard acceptable to CASA

Registered Operator
If the Registration Holder of a RAAus aircraft is the operator of the aircraft, they are the Registered Operator of the aircraft. However, the Registration Holder may apply to RAAus to appoint another person as the Registered Operator with responsibility for the continuing airworthiness of the aircraft to ensure adequate control is achieved in all matters affecting the maintenance of the aircraft. e.g., the CFI of an FTS where the aircraft is used by the FTS for the delivery of flight training. Registered Operators are required to ensure that aircraft being used in a FTS are maintained in accordance with the manufacturer's requirements and the applicable sections of this TM and that they are in a condition for safe operation.

RAAus Technical Manual

The RAAus Technical manual means a manual acceptable to CASA that is issued by RAAus and contains:

a) RAAus technical and airworthiness procedures,

b) References to relevant RAAus Policies,

c) Airworthiness, design, and maintenance requirements in accordance with CASR Part 103, CAO 95.10, 95.32, and 95.55,

d) Any aeronautical practices, test procedures and processes, in respect of aeroplanes registered with RAAus, Aircraft Registration processes,

e) The responsibilities of a Registered Owner, a Registered Operator, a Maintenance Controller, the pilot in command and a RAAus authorised maintainer,

f) The duties and responsibilities of the HAM and AHAM.

SECTION 1.1 TECHNICAL POLICY

Civil Aviation Orders (CAO) 95.10, 95.32 and 95.55 require that all Recreational Aircraft technical activities be specified in the Recreational Aviation Australia Ltd. (RAAus) Technical Manual, which contains RAAus Technical Policies and Procedures.

In the complementary RAAus Constitutional Rules, each member of the company shall be subject to all the obligations pursuant to the Constitution & Rules. This Technical Manual forms one of those obligations. For these reasons, Recreational Aircraft operators, maintainers and all other persons associated therewith are to comply with the requirements of this Manual.

The activities of RAAus are met, in part, by compliance with the RAAus Exposition, the Flight Operations Manual, the Safety Management Manual and the Technical Manual, all of which are published and amended following acceptance by the Civil Aviation Safety Authority. RAAus administers the content of the Exposition, Safety Management Manual, Flight Operations Manual and the Technical Manual. The Flight Operations Manual contains the procedures and instructions necessary to ensure the safe operation of aeroplanes registered with RAAus. The Technical Manual contains airworthiness, design, and maintenance information as well as aeronautical practices, test procedures and processes in respect of aircraft registered with the RAAus.

Owners of Recreational Aircraft are responsible for ensuring compliance with the requirements of this manual are met and maintained. Registration of an aircraft by RAAus is not in itself a certification that the aircraft is airworthy. Similarly, the requirements for operation of Recreational Aircraft are prescribed by the provisions of the Flight Operations Manual, the Technical Manual, and other applicable Regulations. Pilots in Command of Recreational Aircraft are responsible for the operation of these aircraft in accordance with the requirements provided for in the Pilots Operating Handbook, the RAAus Flight Operations and Technical Manuals, and other applicable Regulations as amended from time to time.

This Manual and its supplements, and annexes are the recognised documents for the control of Recreational Aircraft technical activities and are available on the RAAus website.

If printed, members should keep their Technical Manual in a suitable folder. Alternatively, the manuals may be stored electronically for ease of reference. When printed or saved electronically this Manual becomes an uncontrolled document.

Recreational aircraft technical activities which may be undertaken by members include design, development, manufacture, repair, modification, and overhaul. This manual provides RAAus guidance for the conduct of those activities. This manual will contain airworthiness, maintenance and technical policy and procedures relevant to Recreational Aircraft operations.

RAAus is the sole authority regarding the interpretation of all or part of this manual and RAAus' interpretation is final. Also refer to RAAus Exposition Subsection 3.3.5 DECISION MAKING (INCLUDING AVIATION SAFETY).

SECTION 2.1 STATEMENT OF DUTIES AND RESPONSIBILITIES - HEAD OF AIRWORTHINESS AND MAINTENANCE

The Head of Airworthiness and Maintenance (HAM) is responsible to the Accountable Manager for the following duties and responsibilities:

a) Preparation, implementation, and development of recommendations on aeronautical engineering, aircraft manufacture and maintenance, relevant legislation, and quality control policy on behalf of or for the RAAus Board.

b) Preparation and oversight of changes to the RAAus Technical Manual, RAAus Airworthiness Notices, Safety Bulletins and other technical documentation and correspondence.

c) Oversight of the accreditation system for the conduct of aircraft maintenance by RAAus members.

d) Monitor technical trends in recreational aviation in Australia and overseas.

e) Monitor the standard of recreational aviation engineering and maintenance throughout Australia and overseas to advise the RAAus Board on acceptable aeronautical standards and practice.

f) Oversight of technical functions between RAAus, other aviation and engineering organisations, and the Civil Aviation Safety Authority (CASA).

g) Exercise delegations and authorisations issued by CASA and RAAus in accordance with the requirements of the RAAus Part 149 Exposition, this Tech Manual, the Occurrence and Complaints Management Manual, the Certificate of Airworthiness Manual and any other manual published by RAAus from time to time.

h) Investigate breaches of technical policy and implement remedial action or recommendations for appropriate action to the RAAus Board.

i) Manage and provide technical advice and recommendations to the RAAus Board and RAAus members relating to the findings of accidents and incidents and their investigation.

j) Develop, implement, and monitor an appropriate and practicable technical training system for RAAus members.

k) Advise on flight test schedules and limitations associated with amateur and factory-built aircraft, and maintenance activities.

l) Develop and maintain a technical library of aircraft data for which the RAAus has responsibility and other material where the retention of such material would be in the interests of RAAus members.

m) Represent RAAus at meetings, conferences, forums, and exhibitions as directed by the Accountable Manager.

n) Action all RAAus Board directives promptly and maintain regular contact with the Accountable Manager.

o) In the case of a breach of the procedures and/or regulations set out in this manual, or amendments to this manual, or the relevant CAOs, and with reasonable cause to determine there is a potential threat to aviation safety, the HAM may immediately suspend a maintenance authority and/or RAAus aircraft registration. Immediately following a suspension and in accordance with the RAAus Occurrence and Complaints Handling Manual a Complaints Officer will implement the RAAus Occurrence and Complaints Handling Manual processes to investigate further.

The HAM may consider for approval, any matter not covered at all, or adequately, within this manual in accordance with the Management of Change Manual. Anything not covered by this TM, or any item that does not align with regulatory requirements, may require consultation with CASA before an approval- is given. Such approvals may result in amendments to this manual where deemed appropriate and of benefit to RAAus and its members.

Note: In the event that the HAM is required to make a decision outside of his/her expertise, the HAM will consult with a relevant subject matter expert (SME) and/or the RAAus Airworthiness and Maintenance Panel (AMP) for advice.

SECTION 2.2 STATEMENT OF DUTIES AND RESPONSIBILITIES – ASSISTANT HEAD OF AIRWORTHINESS AND MAINTENANCE

The Assistant Head of Airworthiness and Maintenance (AHAM) is responsible to the HAM for the following duties and responsibilities:

a) Assist the HAM in the preparation, implementation, and development of recommendations on aeronautical engineering, aircraft manufacture and maintenance, relevant legislation, and quality control policy on behalf of or for the RAAus Board.

b) Assist the HAM in the preparation and oversight of changes to the RAAus Technical Manual, RAAus Airworthiness Notices, Safety Bulletins and other technical documentation and correspondence.

c) Assist the HAM in the oversight of the accreditation system for the conduct of aircraft maintenance by RAAus members.

d) Assist the HAM in monitoring technical trends in recreational aviation in Australia and overseas.

e) Assist the HAM in monitoring the standard of recreational aviation engineering and maintenance throughout Australia and overseas to advise the RAAus Board on acceptable aeronautical requirements and practice.

f) Assist the HAM in investigations of breaches of technical policy.

g) Assist the HAM in developing, implementing, and monitoring an appropriate and practicable technical training system for RAAus members.

h) In consultation with the HAM, advise on flight test schedules and limitations associated with amateur and factory-built aircraft, and maintenance activities.

i) Assist the HAM in developing and maintaining a technical library of aircraft data for which the RAAus has responsibility and other material where the retention of such material would be in the interests of RAAus members.

j) Issue on behalf of the HAM, aircraft registration certificates.

k) Suspend on behalf of the HAM, aircraft registration certificates.

l) Issue on behalf of the HAM, Permit to fly (TEST) and Permit to fly (ONGOING).

m) If delegated by CASA, issue on behalf of RAAus a replacement certificate of airworthiness or a replacement special CoA (including an experimental certificate) in accordance with the procedures in the RAAus Certificate of Airworthiness Manual.

n) Issue on behalf of the HAM, Modification and Repair Approvals.

o) Issue on behalf of the HAM, Maintenance Authorities.

p) Suspend on behalf of the HAM, Maintenance Authorities.

SECTION 3.1 AMATEUR BUILT AND KIT BUILT AIRCRAFT (NON E-LSA) EXCLUDING LIGHTWEIGHT AEROPLANES

(Low momentum recreational aeroplanes, weight shift controlled aeroplanes, & powered parachutes, three-axis recreational aeroplanes)

3.1.1 INTRODUCTION

The definition of an RAAus Amateur Built Aircraft is an aircraft that is built by an individual or group of individuals, for educational and/or recreational purposes, where the major portion of the aircraft was completed by the builder/s. Evidence of the build is to be supplied to RAAus in the form of a builder's log.

A builder's log records the details of the aircraft's construction. For an amateur built aircraft to be listed with RAAus, a log must be provided which contains details such as the date of the work, the work performed, any assistance received, the hours worked for that session, details of any stage inspections conducted, any other pertinent information. Sufficient photographs should be taken during construction to support the builder's log.

Members intending to build and register an Amateur Built Aircraft with RAAus should obtain a copy of ***FAA AC 43.13-1B Acceptable Methods, Techniques and Practices – Aircraft Inspection and Repair*** available from the FAA website www.faa.gov and at various aviation suppliers or bookstores.

The document contains valuable advice regarding not only inspection and repair, but practical information for constructors of aircraft.

The design of an Amateur Built Aircraft under this Section need not be of an approved design or be constructed from aviation grade materials. The aircraft can be of any origin, including an existing amateur built aircraft that has been modified or altered in some manner, but remains within the weight and stall speed requirements set out in CAO 95.10, 95.32 or 95.55 and complies with all relevant and current Advisory Circulars, kit manufacturer's bulletins and RAAus Airworthiness Notices. The choice of aircraft type and model, including engine(s), is at the discretion of the builder.

Two seat aircraft which comply with the requirements of this section may also be eligible to be used for the purpose of training the builder (or each person in a group of builders) for the issue of a Pilot Certificate. Such aircraft must have satisfactorily completed all required flight testing and a **Permit to Fly – Ongoing** must have been issued.

3.1.2 IMPLEMENTATION

At the concept stage, builders should contact RAAus to check with RAAus, if a chosen kit or design has been previously accepted under the provisions of CAO 101.28

If the chosen kit/design has not been previously accepted, then the builder will be required to establish that the kit/ design complies with the major portion rule. If it complies, construction of the aircraft may commence. RAAus should be advised of the commencement of construction (to minimise the possibility of problems at a later stage) using **TECH FORM 001 – NOTICE OF INTENTION TO BUILD AMATEUR BUILT AIRCRAFT**.

It is required that an RAAus registration number be applied for using TECH FORM 011 – REGISTRATION NUMBER ALLOCATION. See the current schedule of fees payable. Having a registration number allocated to a project greatly assists RAAus office functions, and opening of an aircraft file, etc.

NOTE: This is a registration number allocation only and is not in itself permission to fly the aircraft.

All RAAus Amateur Built Aircraft registered in accordance with this Section will bear the registration numbers as described in Section 5.1 of this manual.

3.1.3 STAGE INSPECTIONS

To provide assurance of appropriate processes and construction techniques during the build process, a minimum of three staged build inspections should be carried out by an RAAus L1 (approved by the HAM on evidence of having previously constructed an amateur built aircraft), L2 or L4 maintainer. These staged build inspections of the aircraft should be conducted at key points of the construction of the aircraft, including, but not limited to, prior to closing of structures, engine installation, painting, rigging of primary flight controls and or wings, etc. Once each build inspection is complete, advice of completion is to be supplied by the stage inspector to RAAus using **Tech Form 002 - Stage Inspection Amateur Built Aircraft** within 14 days. The form is retained in the aircraft file at RAAus. Recording of the build inspection should also be entered in the aircraft builder's log.

The completion of these inspections does **NOT** guarantee the airworthiness or integrity of the aircraft, or its systems, but is simply an independent inspection. If build inspections are not completed as recommended, the absence of independent build inspection reports may adversely impact the issuing of a permit to fly (how-so-ever-named) by RAAus. It is in the interests of the builder to ensure that proper access for inspection purposes is provided for during the construction phase. Provision of access panels or inspection rings after the aircraft has been completed could require extensive alterations to be made at a later date.

A builder's logbook of the build, including photographs, etc, must be maintained for the entire project. The builder's logbook will be reviewed by the independent Inspector to assess the construction of the project, the detail of work carried out by the builder, and any work carried out on behalf of the builder by a third party (for example, specialised welding, painting.)

Where a partially completed project is obtained, the builder/s must also obtain from the seller their builder's logbook. Where no builder's logbook is available, the data obtained during the three independent inspections listed in subsection 2.4 above will be used to verify the construction process.

3.1.4 EQUIPMENT REQUIREMENTS

Equipment requirements for an RAAus aircraft are:

a) The aircraft must have a fireproof data plate (i.e. stainless steel) with the aircraft serial and registration numbers engraved/ etched that identifies the aircraft, attached to the airframe. A photo of this data plate is to be supplied to RAAus as part of the registration and re-registration process.

b) As a minimum, engine monitoring instruments appropriate for the installed engine, Airspeed Indicator, Altimeter, Magnetic Compass.

c) Seat belts shall be fitted to each seating position. Commercially available automotive or aviation seat belts are acceptable providing they have a minimum of three points of attachment. Lap belts only are not acceptable.

d) Markings are required on each flight and engine instrument indicating the safe operating range for that aircraft. The safe operating ranges must also be contained in the aircraft logbook or flight manual as appropriate and can be obtained from the kit or plans designer and validated by flight testing

e) Cockpit warning placard/label(s) must be affixed to each aircraft in a place where it is conspicuous to and can easily be read by each occupant seated in the aircraft. The required placards/labels are detailed in Section 9 of this manual.

f) If the aircraft is fitted with a retractable undercarriage, then there must be a system, visible to the pilot in command, to indicate when the wheels are up and locked and when the wheels are down and locked.

3.1.5 WEIGHT AND BALANCE

The W&B of an aircraft is a critical factor in the airworthiness and the safe operation of an aircraft.

Refer to Section 10 of this Manual for details.

3.1.6 PRE-FLIGHT FINAL INSPECTION

An RAAus L4 Amateur Built Inspector must supervise the owner's final inspection of the aircraft prior to applying for a Permit to Fly. This inspection will include a basic review of the weighing and weight & balance calculations for the Centre of Gravity (CG) limits, general appearance and quality of construction, compliance with all current and relevant Advisory Circulars, kit manufacturer's Service Bulletins, Airworthiness Directives, and any RAAus Airworthiness Notices (ANs). The builder is required to check off all the applicable items listed in **TECH FORM 007 - PRE FLIGHT FINAL INSPECTION.**

3.1.7 PERMITS TO FLY

Issue 4 of this Technical Manual brought in the Special Flight Permit scheme for Amateur Built aircraft. A special flight permit will be issued as either a Permit to Fly – Test Flying or a Permit to Fly – On-going. Refer to Section 14.1 Special Flight Permits.

The builder must complete and submit **TECH FORM 031 – APPLICATION FOR PERMIT TO FLY – TEST FLYING** to the HAM. The HAM or AHAM will issue a **Permit to Fly – Test Flying (Tech Form 032)** for the purpose of test flying the aircraft to establish satisfactory and safe operation.

The PIC must comply with the conditions stated in the permit to fly. Below is an example of the conditions that are likely to be applied to a test flying permit to fly:

a) All flights are to be conducted under the day Visual Flight Rules (VFR).
b) Flight overpopulous areas are not permitted.
c) Flight Test area is within 25nm of _____ airfield (or other area as described).
d) The minimum flight test hours to be flown are: _____hours.
e) No passengers or other flight crew are permitted.
f) Aircraft is to be flight tested in accordance with the nominated test schedule named as: _____
g) Aircraft is to be maintained and operated in accordance with the aircraft and engine operating manuals, instructions, and limitations (where available) at all times.
h) Aircraft may only be flown by the following nominated pilots _____
i) This Permit to Fly must be carried in the aircraft at all times.
j) A daily maintenance record must be completed for each flight during flight testing
k) Other conditions (as listed by the HAM) _____

3.1.8 TEST FLYING HOURS

Aircraft of known or proven design, fitted with a commercially available aircraft engine and propeller combination will require a minimum of 25 hours of flight testing. All other aircraft will require a minimum of 40 hours of flight testing.

Test flying shall be undertaken in accordance with the **RAAus Flight Test Guide for Amateur Built Aircraft**.

NO PASSENGER MAY BE FLOWN IN THE AIRCRAFT
UNTIL SUCH TIME AS THE HEAD OF AIRWORTHINESS AND MAINTENANCE HAS ISSUED THE PERMIT TO FLY - ONGOING.

3.1.9 ACTION REQUIRED OF THE BUILDER AT THE COMPLETION OF THE FLIGHT TEST PERIOD

Upon satisfactory completion of the test flying phase, and to be eligible to receive full RAAus registration, **TECH FORM 008 – APPLICATION FOR PERMIT TO FLY – ONGOING** is to be forwarded to the HAM or AHAM. Once received, the HAM or AHAM will review to confirm:

a) Problems or defects found during flight testing are documented and were corrected
b) The flight test schedule has been completed (minimum of six pages of the schedule to be supplied)
c) Daily maintenance record completed during flight testing
d) Logbook statement entered, signed, and dated as per statement on TECH Form 008

On verification of the above, the HAM or AHAM will issue a **Permit to fly – Ongoing** (Tech Form 033) and full registration for the aircraft.

3.1.10 EXISTING AIRCRAFT

Any Amateur Built aircraft previously registered with RAAus, CASA, or imported from an ICAO state may be eligible for operation as an Amateur Built Aircraft with RAAus provided that the aircraft:

a) was, in the country of origin issued with a certificate of airworthiness, or a permit to fly, or an equivalent document listing the aircraft as an amateur built experimental; and
b) meets the criteria of CAO 95.10, 95.32 or 95.55.

The HAM may require that the aircraft to conduct a test flying phase on a Permit to fly – Test Flying before moving to a Permit to fly – Ongoing, if any significant repairs or changes have been made, if engine and/or propeller have been changed since it last flew.

SECTION 3.2 FACTORY BUILT TYPE CERTIFIED or TYPE ACCEPTED AIRCRAFT

(weight shift controlled aeroplanes, & powered parachutes, recreational aeroplanes)

3.2.1 INTRODUCTION

CAO 95.32 provides for the operation of certain single or 2 place weight shift-controlled aeroplanes and powered parachutes.

CAO 95.55 provides for the operation of certain single or 2 place recreational aeroplanes.

3.2.2 REGISTRATION

An RAAus registration number must be applied for, using **TECH FORM 011 – REGISTRATION NUMBER ALLOCATION**

See the current schedule of fees payable.

NOTE: this is a registration number allocation only and is not in itself a permission to fly the aircraft.

All RAAus Aircraft registered in accordance with this Section will bear the registration numbers as described in Section 5.1 of this manual.

Apply for registration using **TECH FORM 004**

3.2.3 CERTIFICATE OF REGISTRATION REQUIREMENTS

Documentation:

a) Evidence that the aircraft indeed meets the requirements of the relevant CAO.
b) current weight and balance data must be supplied, refer to Section 10 of this Manual.
c) An Aircraft Flight Manual, Pilot's Operating Handbook, or operating instructions and limitations placarded in the aircraft in view of the pilot, is required.
d) An Aircraft Maintenance Manual (by whatever name) is required.
e) All new aircraft are to have been manufacturer test flown and some evidence of this is required.
f) TECH FORM 087 to be supplied confirming the aircraft's compliance to the TCDS.

3.2.4 PERMIT TO FLY

Upon registration, the HAM will assess the documentation supplied by the applicant against the requirements listed in section 3.1 above. Upon meeting the requirements, the HAM will then issue a Permit to Fly using TECH FORM 034 – PERMIT TO FLY TYPE CERTIFIED (or accepted) AIRCRAFT

SECTION 3.3 LIGHT SPORT AIRCRAFT (LSA)

3.3.1 INTRODUCTION

This Section details applications for registration of a Light Sport Aircraft (LSA) that complies with the provisions of either CAO 95.32 or 95.55.

Owners of LSA must also familiarise themselves with all requirements detailed in CASR 1998 Part 21 and CASA Advisory Circulars AC 21.41(n) and AC 21.42(n). (where (n) = latest edition). Owners and operators of LSA must familiarise themselves with the requirements of CASR Part 91, regulations 91.895 Light sport aircraft - operators and 91.900 Light sport aircraft – pilots, CASR Part 103."

3.3.2 SPECIAL CERTIFICATE OF AIRWORTHINESS

This certificate is for Production LSA. These aircraft may be used for private operations, flying training and if so equipped and approved by CASA, glider towing (see CAAP 149-1). The Special Certificate of Airworthiness remains valid while the aircraft remains registered and provided the manufacturer continues to exist and continues to provide continuing airworthiness requirements, the aircraft is maintained and or repaired in accordance with the requirements of the manufacturer, and the aircraft has not been modified unless approved by the manufacturer.

Special Certificates of Airworthiness can only be issued by a CASA Authorised Person, or CASA. No RAAus maintenance authority holder is eligible to issue such certificates unless they hold a CASA Instrument of Appointment to issue such certificates.

For registration, RAAus must be satisfied that the aircraft complies with the requirements and conditions of acceptance under the LSA criteria as described in AC 21.41(n) and AC 21.42(n). (where (n) = latest edition)

Owners of LSA aircraft must apply for a registration number using **TECH FORM 011**. Upon allocation of a registration number and fixing the registration number to the aircraft in accordance with the requirements of Section 5.1, full registration can be applied for using **TECH FORM 010**.

SECTION 3.4 EXPERIMENTAL LIGHT SPORT AIRCRAFT (E-LSA)

3.4.1 INTRODUCTION

This Section details applications for registration of an Experimental Light Sport Aircraft (E-LSA) that complies with the provisions of either CAO 95.32 or 95.55.

Owners of E-LSA must familiarise themselves with all requirements detailed in CASR 1998 Part 21 and CASA Advisory Circulars AC 21.41(n) and AC 21.42(n). (where (n) = latest edition)

3.4.2 EXPERIMENTAL CERTIFICATES

Experimental certificates are available for the following aircraft:

a) ***Kit built LSA*** – Before an experimental certificate for a LSA can be issued, the manufacturer must have produced a production aircraft of the same model issued with a Special Certificate of Airworthiness. These aircraft can only be used for private purposes.

b) ***Non-Compliant Production LSA*** – The experimental certificate provides a means for aircraft that no longer comply with the requirements of the Special CoA for LSA. These aircraft can only be used for private purposes. There are circumstances where this could arise such as the production aircraft has been modified without the manufacturer's approval or has not been maintained in accordance with the manufacturer's requirements. Other circumstances may be that the manufacturer has gone out of business and no suitable persons or organisations have taken over the continuing airworthiness functions for the aircraft, or the aircraft no longer meets the LSA requirements. The aircraft must still meet the base definition of LSA within Australian regulations.

Experimental Certificates can only be issued by a CASA Authorised Person, or CASA. No RAAus maintenance authority holder is eligible to issue such certificates unless they hold a CASA Instrument of Appointment to issue such certificates.

For registration, RAAus must be satisfied that the aircraft complies with the requirements and conditions of acceptance under the E-LSA criteria as described in AC 21.41(n) and AC 21.42(n) (where (n) = latest edition)

Owners of E-LSA aircraft must apply for a registration number using **TECH FORM 011**. Upon allocation of a registration number and fixing the registration number to the aircraft in accordance with the requirements of Section 5.1, full registration can be applied for using **TECH FORM 010**.

SECTION 4.1 CAO 95.10 AEROPLANE – OWN DESIGNS

4.1.1 INTRODUCTION

CAO 95.10 permits the operation of a privately built single place low momentum recreational aeroplane designed, built, and owned by 1 to 4 persons. The aircraft must meet the criteria specified within CAO 95.10. All sections of TECH FORM 025 application for registration and the aircraft data sheet TECH FORM 085 must be completed before the aircraft will be accepted for registration. RAAus must be satisfied that the aircraft complies with the weight and wing loading requirements of the CAO.

4.1.2 DESIGN AND CONSTRUCTION

RAAus sets no design criteria. Builders are free to design as they wish and build using any materials they wish.

4.1.3 SAFETY EQUIPMENT

A seat belt set of commercially available automotive, or aviation shoulder harness type shall be fitted that has a minimum of three points of attachment that complies with the requirements of ASTM F2245-20 Standard Specification for Design and Performance of Light Sport Airplane.

4.1.4 EMPTY WEIGHT

The empty weight of each individual aircraft must be determined in accordance with Section 10 of this manual.

4.1.5 MAXIMUM TAKE OFF WEIGHT (MTOW)

Is the sum of the empty weight, actual pilot weight, fuel capacity in Kg and payload allowance that must not exceed MTOW of 300kg, and result in a calculated wing loading of less than 30kg per sqm.

4.1.6 FUEL CAPACITY

Maximum fuel that can be carried at the commencement of a flight will be determined by the size of the fuel tank and the MTOW less the empty weight, the provision for pilot weight, and any payload allowance. If the fuel tank capacity nominated in accordance with section 5 above is less than the physical fuel tank capacity, the volume and level of the nominated fuel capacity must be permanently marked on the fuel tank and on any visible means of determining the quantity of fuel in the tank. In all cases at the commencement of a flight the usable fuel required for a flight must be the sum of taxi fuel, trip fuel, destination alternate fuel and fixed reserve (e.g. VFR small aeroplane, 30 minutes).

4.1.7 WEIGHT CERTIFICATION

On application for registration, a person permitted under Section 10 of this manual must complete and sign the weight verification TECH FORM 083.

4.1.8 IMAGES

Images showing the left, and right-hand side fuselage registration markings must be submitted with each registration application. Refer to section 5.1 for registration marking size and location.

4.1.9 PLACARDS

It is a requirement that the warning placard as described in Section 9.1 para 1.3 be affixed to the aircraft in such a way that it is clearly visible and legible to any person occupying a cockpit seat.

SECTION 4.2 CAO 95.10 AEROPLANE – APPROVED KITS

4.2.1 INTRODUCTION

CAO 95.10 permits construction of a privately built single place low momentum recreational aeroplane from an approved kit.

CAO 95.10 defines approved kits for construction of an aeroplane in this category, which are summarised as follows:

a) the kit was manufactured by the holder of a certificate of approval for the kit; or
b) the kit was manufactured by an approval given by CASA; or
c) the kit was exported to Australia with a certificate, acceptable to CASA, that relates to the airworthiness of the design; or
d) RAAus or SAFA have issued a certificate for the kit.

4.2.2 DESIGN AND CONSTRUCTION REQUIREMENTS

RAAus sets no design requirements. Kit manufacturers are free to design as they wish and supply any materials they wish.

Performance and Handling. The manner in which all controls are used shall be determined and recorded in sufficient detail to establish that the flight characteristics are able to be repeated by pilots of average ability. Stall speed and maximum speed demonstrations are to be conducted in accordance with the method outlined in the RAAus or CASA Flight Test Guide.

4.2.3 SAFETY EQUIPMENT REQUIREMENTS

A seat belt set of commercially available automotive, or aviation shoulder harness type shall be provided that has a minimum of three points of attachment.

4.2.4 SALE OF APPROVED KITS

A manufacturer or agent must not sell a CAO 95.10 aircraft kit until that kit has been approved in writing by RAAus, or has an approval as detailed in para 1.2 above.

Each kit offered for sale is to include all the following items:

a) a copy of the RAAus (or other) kit approval
b) an assembly manual or building instructions
c) a Flight Manual or Pilots Operating Handbook
d) a maintenance manual
e) a parts list or catalogue

4.2.5 ACCEPTANCE OF A KIT TO BE BASED ON A HISTORY OF SAFE OPERATION

Any person may apply to RAAus for acceptance of a CAO 95.10 aircraft kit.

Approval of a kit for a CAO 95.10 low momentum recreational aeroplane type must be based on a demonstrated history of safe operation of that type.

For all aircraft, satisfactory history of operation of one prototype plus at least one identical version for periods of 100 flight hours each is an acceptable basis to apply for approval of the kit for the aircraft type. The applicant is responsible for providing evidence to RAAus of a history of safe operation for the type.

4.2.6 CONSIDERATIONS

The history of safe operation of an aircraft type already operating overseas must include an analysis of:

a) published flight test reports.

b) incident and accident reports attributed to an aircraft related issue.

c) defect reports. Significant defects are to be documented, repair schemes developed by the manufacturer and incorporated into the kit.

Substantiation of flying hours - flying hours to be used for substantiating a history of safe operation are to be formally documented:

a) when the aircraft type is of overseas origin evidence that the required number of aircraft have flown the required number of hours is also to be documented; and

b) the Australian agent or representative is responsible for the provision of certified statements from owners/builders overseas attesting to the number of flying hours accrued on examples of the aircraft.

Performance and handling must be such that:

a) the aeroplane conforms to the requirements specified in the RAAus or CASA Flight Test Guide for assessment of Amateur-Built Aircraft accepted under an ABAA, or an equivalent overseas document accepted by RAAus; and

b) a qualified pilot of average ability should have no difficulty in controlling the aircraft at all times.

4.2.7 APPLICANT PROCEDURE

The applicant shall arrange to present a sample of the aircraft kit for which approval is sought, to the RAAus HAM, or an L4 approved by the HAM.

Documentation Required - an applicant seeking acceptance of a kit shall provide the following data to the RAAus HAM;

a) a detailed description of the aircraft including specification of its engine(s) and propeller(s);

b) a statement specifying the design standard to which the aircraft model was structurally tested, and the conditions and limitations during such testing, including the applied loads report and a report of the static testing undertaken; and

c) a report of the flight tests undertaken. These should follow the format given in the RAAus Flight Test Guide; and

d) a statement detailing operational limitations applicable to the aircraft type, including as a minimum:

   i. empty weight and maximum take-off weight; and

   ii. centre of gravity range and loading data; and

   iii. stalling speeds, maximum manoeuvre speed, never exceed speed, flap and undercarriage extension speeds (if applicable); and

   iv. drawings showing the general arrangement of the aircraft type and its sub- assemblies, which clearly define the material specifications, dimensions, rigging details, control surface deflections, tolerances, standard parts used and finish; and

   v. assembly or building instructions; and

   vi. a maintenance manual if provided by the kit manufacturer; and

   vii. a parts list or catalogue, preferably illustrated; and

   viii. a flight manual or pilots operating handbook if provided by the kit manufacturer; and

   ix. the aircraft kit manufacturers name and contact details.

4.2.8 EVALUATION

The RAAus HAM will evaluate the kit contents, data, drawings and statements to confirm;

a) the kit aircraft has been designed, manufactured or certified to carry no more than one person; and

b) the kit aircraft has a maximum take-off weight not exceeding 300Kg except in accordance with CAO 95.10 para 5.1 (a); and

c) the kit aircraft has a wing loading not exceeding 30 Kilograms per square metre at its max take-off weight

If the evaluation is found to be satisfactory, the RAAus HAM must issue a certificate (or the like) which indicates that the kit is accepted for RAAus registration and operation.

The issue of the certificate will allow kits to be produced for sale provided they precisely replicate the aircraft for which the acceptance was given.

Any changes to the kit will require contact with the HAM to ascertain whether those changes are major or minor in nature. Major changes will require a fresh application for an approval certificate. Minor changes can be addressed by way of a Service Bulletin, revised plans, or updated parts list etc from the kit Manufacturer.

If the kit evaluation is found to be unsatisfactory due to some technical reason, (for example, the aircraft would surely exceed the max take- off weight permitted under CAO 95.10) no approval certificate can be issued, however the aircraft may still be eligible for RAAus registration and operation as a CAO 95.55 amateur-built aircraft.

SECTION 4.3 CAO 95.10 AEROPLANE – SET OF DRAWINGS OR DATA PACKAGE (PLANS)

4.3.1 INTRODUCTION

CAO 95.10 permits construction of a privately built single place low momentum recreational aeroplane from a set of drawings or data package.

No approval of a set of drawings or data package is required; however, approval of a set of drawings or data package is available from RAAus.

4.3.2 DESIGN AND CONSTRUCTION

RAAus sets no design criteria. Designers are free to design as they wish and specify any materials they wish.

4.3.3 SAFETY EQUIPMENT

A seat belt set of commercially available automotive, or aviation shoulder harness type shall be fitted that has a minimum of three points of attachment. Points of attachment should be such that a reasonable person/pilot would have confidence in them.

4.3.4 SALE OF DRAWINGS (PLANS)

A person may sell sets of drawings or data package for a CAO 95.10 aircraft without RAAus approval, however, RAAus may issue such an approval if a person applies.

Any approval by RAAus will detail what documents the approval covers, for example, the issue number (or the like) of the drawings, any building manual included, any operating instructions included, any maintenance instructions included.

4.3.5 APPROVAL OF A SET OF DRAWINGS OR DATA PACKAGE TO BE BASED ON A HISTORY OF SAFE OPERATION.

Approval of a set of drawings or data package for a CAO 95.10 low momentum recreational aeroplane type must be based on a demonstrated history of safe operation of that type.

Any person may apply to RAAus for approval of a CAO 95.10 aircraft set of drawings or data package.

For all aircraft, satisfactory history of operation of one prototype plus at least one identical version for periods of 100 flight hours each is an acceptable basis to apply for approval of the kit for the aircraft type. The applicant is responsible for providing evidence to RAAus of a history of safe operation for the type.

4.3.6 CONSIDERATIONS

The history of safe operation of an aircraft type already operating overseas must include an analysis of:

a) published flight test reports.

b) incident and accident reports attributed to an aircraft related issue.

c) defect reports. Significant defects are to be documented, repair schemes developed by the manufacturer and incorporated into the kit.

Substantiation of flying hours - flying hours to be used for substantiating a history of safe operation are to be formally documented:

a) when the aircraft type is of overseas origin evidence that the required number of aircraft have flown the required number of hours is also to be documented; and

b) the Australian agent or representative is responsible for the provision of certified statements from owners/builders overseas attesting to the number of flying hours accrued on examples of the aircraft.

Performance and handling - must be such that:

a) the aeroplane conforms to the requirements specified in the RAAus or CASA Flight Test Guide for assessment of Amateur-Built Aircraft accepted under an ABAA, or an equivalent overseas document accepted by RAAus; and

b) a qualified pilot of average ability should have no difficulty in controlling the aircraft at all times.

4.3.7 APPLICANT PROCEDURE

The applicant shall arrange to present a set of the drawings or data package for which approval is sought to the RAAus HAM.

Documentation Required - an applicant seeking approval of a set of drawings or data package must provide the following data to the RAAus HAM:

a) a detailed description of the aircraft including specification of its engine(s) and propeller(s);

b) a statement specifying the design standard to which the aircraft model was structurally tested, and the conditions and limitations during such testing, including the applied loads report and a report of the static testing undertaken; and

c) a report of the flight tests undertaken. These should follow the format given in the RAAus Flight Test Guide; and

d) a statement detailing operational limitations applicable to the aircraft type, including as a minimum:

   i. empty weight and maximum take-off weight; and

   ii. centre of gravity range and loading data; and

   iii. stalling speeds, maximum manoeuvre speed, never exceed speed, flap and undercarriage extension speeds (if applicable); and

   iv. drawings showing the general arrangement of the aircraft type and its sub- assemblies, which clearly define the material specifications, dimensions, rigging details, control surface deflections, tolerances, standard parts used and finish; and

   v. assembly or building instructions, if available; and

   vi. a materials list, if available; and

   vii. a flight manual or pilots operating handbook, if available and

   viii. the aircraft designers name and contact details, if available.

4.3.8 EVALUATION

The RAAus HAM will evaluate the set of drawings or data package for conformance with CAO 95.10.

If the evaluation is found to be satisfactory, the RAAus HAM may issue a certificate (or the like) which indicates that the set of the drawings or data package is approved.

The issue of an approval certificate for a set of drawings or data package has no bearing on the ability of a person to sell a set of drawings or a data package without approval.

To retain approval, any changes to an approved set of the drawings or data package will require contact with the HAM to ascertain whether those changes are major or minor in nature. Major changes will require a fresh application for an approval certificate. Minor changes can be addressed by way of a Service Bulletin, revised plans, or updated parts list etc from the designer.

If the set of drawings or data package evaluation is found to be unsatisfactory due to some technical reason, (for example, the aircraft would surely exceed the max take-off weight permitted under CAO 95.10) no approval certificate can be issued, however the aircraft may be eligible for RAAus registration and operation as a CAO 95.55 amateur-built aircraft.

SECTION 5.1 AIRCRAFT REGISTRATION

5.1.1 INTRODUCTION

This section describes the following matters:

a) Registration forms
b) Registration number allocation
c) New registrations
d) Designed Seating Configuration
e) Renewal of registration
f) Transfer of registration
g) Cancellation of aircraft registration
h) Transfer of aircraft from VH and other registers
i) Transfer from LSA to E-LSA
j) Transfer from Group A to Group G
k) Registration markings

5.1.2 FORMS

The applicable forms for all registration matters are:

a) Tech Form 004 – Aircraft Registration Application – NON LSA
b) Tech Form 010 – Aircraft Registration Application – LSA
c) Tech Form 011 – Registration number allocation
d) Tech Form 013 – Recreational aircraft condition report
e) Tech Form 026 – Transfer of RAAus Registration
f) Tech Form 028 – Damage/un-airworthy aircraft acquisition
g) Tech Form 029 – Application for the Cancellation of Aircraft Registration
h) Tech Form 087 - Factory Built Aircraft compliance checklist
i) Tech Form 101G – Lightweight Aeroplane Registration
j) Tech Form 102G – VH to RAAus Lightweight Aeroplane Registration and Replacement Certificate of Airworthiness

5.1.3 REGISTRATION NUMBER RESERVATION

The process of registration for all RAAus listed aircraft begins with an application for the reservation of an RAAus aircraft registration number.

All RAAus aircraft must have a registration number allocated and fixed to the aircraft prior to being registered. There is a fee that must be paid for the reservation of aircraft registration number. See the current RAAus schedule of fees. Use **TECH Form 011 – Registration number allocation.**

The reservation of an aircraft registration number, and the fixing of the registration number to the sides of an aircraft does not permit an aircraft to be flown.

5.1.4 NEW REGISTRATIONS

Following the reservation of a registration number, an aircraft must be registered (listed on the RAAus aircraft register) and issued with a Certificate of Airworthiness or a Permit to fly (how so ever named) before first flight.

For registration use either Tech Form 004 for non LSA, or Tech Form 010 for LSA, or Tech Form 101G for LWA. There is a fee that must be paid for aircraft registration. See the current RAAus schedule of fees.

5.1.5 REGISTRATION OF A LIGHTWEIGHT AEROPLANE (LWA)

Applying for Group G LWA registration process commences by applying to reserve a RAAus registration number which requires the payment of a fee, and a process of self-assessment of the aeroplane's eligibility for registration as a Group G lightweight aeroplane by the proposed registration holder using TECH FORM 101G for all aircraft or TECH FORM 102G for VH registered aircraft that are eligible for a replacement CoA.

All information and supporting documentation required by the relevant registration application form are essential criteria for processing the registration application form and must be provided at the time of application for RAAus to process an application in accordance with the requirements of this manual.

For applications using Form 102G, RAAus will issue the aircraft with a certificate of registration prior to the Delegate processing a replacement CoA.

5.1.6 RECORDED OWNERSHIP

When RAAus has not been advised of change of ownership of an aircraft for some reason (e.g. a deceased estate situation), and a subsequent person seeks to effect a change of ownership sometime later, RAAus will accept a statutory declaration outlining the circumstances of the aircraft and the reasons for the delay in transferring the ownership and registration of the aircraft, and begin processing the transfer of registration in accordance with paragraph 7 of this section.

5.1.7 RENEWAL OF REGISTRATION

Approximately six weeks before an aircraft registration expires, RAAus sends out renewal information to the registered owner. Following the date of registration expiry, if registration has not been renewed with RAAus, a letter will be issued advising that the aircraft registration has expired, and the aircraft must not be flown until the registration fee has been paid.

Note: The act of deregistering an aircraft by RAAus will result in the aircraft being removed from the RAAus aircraft register and the allocated registration number will be made available for allocation to another aircraft. This is different to the registered owner allowing an aircraft's registration to lapse or remain unpaid for a period of time beyond the expiry date. Refer to subsection 11.

Regardless of para 6.1, it is the registered owner of the aircraft who is responsible for managing and renewing their aircraft registration by payment of the prescribed fee by the due date.

RAAus may at any time request further information based on changes made to the aircraft, data presented, photographic confirmation of warning placards and registration markings.

Total hours flown and total landings must be supplied at each registration renewal.

Payment of a renewal fee must accompany each renewal request. See the current schedule of fees.

For a RAAus listed aircraft with a Certificate of Airworthiness, or Experimental Certificate, or a Permit to Fly, it is vitally important that the aircraft registration does not lapse. Such a certificate or permit stops being in force if the aircraft is not registered with RAAus.

NOTE: It is an offence against the Civil Aviation Act to fly an aircraft without a valid CoA (how-so-ever named), or a RAAus Permit to fly.

5.1.8 TRANSFER OF RAAUS REGISTRATION

Before a new registration certificate will be issued by RAAus, **TECH FORM 026 – TRANSFER OF RAAUS REGISTRATION** must be completed and submitted for the specific aircraft, along with a Recreational Aircraft Condition Report (RACR), including photos showing registration markings on the appropriate surfaces of the aircraft.

For aircraft other than a LWA TECH FORM 013 – RECREATIONAL AIRCRAFT CONDITION REPORT is to be completed by an unrestricted Level 2 Maintenance Authority Holder or a L2 that has the equivalent endorsements for the type of aircraft the report is to be prepared for, (or a LAME **by prior arrangement** with the RAAus HAM) and outlines the condition of the aircraft at the time of the inspection. The RACR form is valid for a period of thirty days. A new inspection and completed RACR (Tech Form 013) is required each time the aircraft is sold. Photographs showing all registration marks on the appropriate surfaces of the aircraft must also accompany Tech Form 013. Printed photographs must be signed and dated on the back. Emailed photographs are accepted as sent.

RAAus will review the forms and information received. If any of the documents are not completed correctly or are missing information, correct photographs etc., the transfer of registration will be delayed until such time as the outstanding items are resolved.

Payment of the prescribed fee must be received by RAAus before a transfer of registration will be processed. See the current schedule of fees.

Once all the documents are found acceptable, RAAus will issue a registration certificate to the new owner.

NOTE: A registration certificate is not proof of ownership. RAAus processes the transfer of an aircraft's registration in good faith based upon information supplied. This does not mean that RAAus has formed a view or endorsed any claim as to legal title of an aircraft. Falsifying documents and providing misleading information is an offence against this Tech Manual and the RAAus Rules and may result in disciplinary and/or enforcement action.

For transfer of a damaged/un-airworthy aircraft as (or to be) "unregistered", complete **TECH FORM 028 – DAMAGED/UN- AIRWORTHY AIRCRAFT ACQUISITION**. The aircraft cannot be flown until such time as the aircraft is registered, inspected and processed by RAAus. This requirement does not apply to a LWA.

5.1.9 TRANSFER FROM VH AND OTHER REGISTERS

RAAus is able to register and permit the operation of various certified and non-certified aircraft up to a MTOW of 760 kg that were:

a) built under an Amateur Built Aircraft Approval/Acceptance (ABAA); or
b) built as Amateur Built - Experimental (ABE) in Australia or overseas; or
c) operated as a General Aviation registered aircraft in Australia or overseas; or
d) operated in another sport aircraft class or category in Australia or overseas.

For an aircraft to be eligible for RAAus registration/operation, it must comply with the relevant CAO.

REGISTERING PROCEDURES

Owners of such aircraft who wish to register and operate their aircraft with RAAus must:

a) De-register the aircraft with whichever organisation it is currently registered with and receive written confirmation of deregistration (also refer to Section 8.2.2(a) below).
b) Remove from sight, the previous registration marks displayed on the aircraft.
c) Have an RAAus registration number allocated **TECH FORM 011 - REGISTRATION NUMBER ALLOCATION.**
d) Re-paint or otherwise install/affix the RAAus registration number on the aircraft as per paragraph 10 of this section.

e) Register the aircraft with RAAus using:
    a) **TECH FORM 004 – REGISTRATION APPLICATION (non LSA);** or
    b) **TECH FORM 010 – REGISTRATION APPLICATION (LSA)** (as applicable) or
    c) **TECH FORM 025** (**AMATEUR BUILT TRANSFER FORM)** (as applicable); or
    d) **LIGHTWEIGHT AEROPLANES – SEE SECTION 15**

f) Supply copies of:
    i. The previous registering organisation's de-registration advice. (For other than a VH registered LWA, if the previous registering organisation's de-registration advice is not available, a Statutory Declaration declaring that the aircraft is not currently registered anywhere else will suffice.); and
    ii. Previous Certificate of Airworthiness, Experimental Certificate (or other similar document) for the aircraft; and
    iii. Most recent Maintenance Release if previously VH registered or evidence of annual inspection within previous 12 months; and
    iv. Supply contents page of Flight Manual or Pilot's Operating Handbook; and
    v. Current Weight and Balance report; and
    vi. Supply contents page of Maintenance Schedule/Manual (by whatever name).

Note: Documents must be in English – Civil Aviation Legislation requires aircraft and maintenance documents to be in English. Documents that are not in English must be accompanied by a certified English language translation.

For factory-built aircraft (non LSA):

a) Follow the procedures detailed in Section 3.2 of this manual.
b) For a new or first of type aircraft in Australia, follow the First of Type procedures of Section 8.1 of this manual; or:

For LSA or E-LSA aircraft:

a) Apply to a CASA Authorised Person for a Special Certificate of Airworthiness or an Experimental Certificate and forward RAAus the following documents:
    i. Special Certificate of Airworthiness; and
    ii. CASA form 681 Light Sport Aircraft Statement of Compliance; and
    iii. Manufacturers weight and balance report specific to the aircraft serial number, verified by a CASA Weight Control Authority as required by CAO 100.7; and
    iv. Manufacturer's flight test report.

5.1.10 TRANSFER FROM LSA TO E-LSA

If a Light Sport Aircraft (LSA) transfers from operating on a Special Certificate of Airworthiness to operating on an Experimental Certificate, the aircraft must have:

a) The additional "E" prefix mark applied, as outlined in paragraph 10.3 of this section; and
b) A new Experimental Certificate issued by a CASA Authorised Person; and
c) send photographs of all new marks attached to the aircraft and a copy of the new Experimental Certificate to RAAus within 7 days from the date the E-CoA is issued, for inclusion in the RAAus aircraft file.
d) the aircraft must be eligible to transfer from SCoA to Experimental, refer section 3.4

5.1.11 REGISTRATION MARKINGS

Arabic numeral registration markings must be affixed to each aircraft in the following format:

Prefix (**two** digits) (or E two digits if E-LSA)	Hyphen –	**Registration Number** (**four** digits)

The registration prefix numerals of recreational aircraft are assigned as follows:

PREFIX	**TYPE**	**CAO CLASS**
E24	NON-COMPLIANT EXPERIMENTAL LSA	95.32 or 95.55
E23	NON-COMPLIANT EXPERIMENTAL LSA	95.32 or 95.55
10	AMATEUR BUILT	95.10
17	KIT BUILT EXPERIMENTAL LSA	95.32 or 95.55
18	AMATEUR BUILT W/S & PPC	95.32
19	AMATEUR BUILT	95.55
23	LSA	95.32 or 95.55
24	FACTORY BUILT TYPE ACCEPTED	95.55
25	EARLY ULTRALIGHT AEROPLANES (1985 ERA)	95.25 (SUPERCEDED)
26	RESERVED	95.55
28	EARLY AMATEUR BUILT	101.28
29	LIGHTWEIGHT AEROPLANE (Amateur Built)	95.55
32	FACTORY BUILT WEIGHT SHIFT OR POWER PARACHUTE	95.32 W/S or PPC (including LSA)
34	LIGHTWEIGHT AEROPLANE (Manufactured)	95.55
55	FACTORY BUILT AEROPLANE	101.55 (non LSA)

REQUIRED MARKS

In the case of a CAO 95.10 or 95.55 fixed wing aircraft

a) On vertical surfaces:
   i. Both sides of the fuselage of the aircraft, between trailing edge of wing and leading edge of tailplane; or
   ii. Both sides of the vertical tail surfaces of the aircraft – or outside surfaces in the case of multiple surfaces (e.g. twin fins); and as parallel as possible to the longitudinal axis of the aircraft.
   iii. Under Wings, not required, however, is permissible under port wing or across the span of both wings, with top edge forward.

In the case of a CAO 95.10 or CAO 95.32 weight shift controlled or powered parachute

a) On vertical surfaces:
   i. On any location on the side of the main structure
b) Under sail/canopy:
   i. not required, however, is permissible.

For all aircraft:

a) Characteristics of numerals required:
    i. Height – all equal. Minimum 150mm. If 150mm is not physically able to fit on the aircraft structure, as large as practicable. (Must have written approval from the HAM.)
    ii. Font – solid ("outline" or "hollow" not permitted)
    iii. Colour – must contrast with background sufficiently to be easily read.
    iv. Slanting – permitted, not greater than 20 degrees.
    v. Shadowing – permitted.
b) Additional mark for aircraft operating on an Experimental Certificate (E-LSA): An "E" prefix letter ahead of the normal registration numbers. Examples:
    i. E24-1234

Changing marks from "old" to "new"
Aircraft owners wishing to switch from "previously required" registration marks to "currently required" (from Issue 4 of this manual) registration marks may do so, using TECH FORM 086, providing photographs of all new marks are sent to RAAus office within 7 days of changing, for inclusion in the aircraft file. A covering letter should be included.

Registration marks for Historical Replicas
Owners of aircraft which have been built as an historical replica may apply to the HAM for an approval to display historical markings in lieu of the requirements as outlined in section 10.3 above. The approval is for aircraft which display historically accurate military liveries and marks, which must be relevant to the aircraft type in question.

An approval will not be granted to a regular sport aircraft merely painted up to resemble an historic aircraft.

An application shall be in writing, and include a current colour photograph or photographs clearly showing the livery and marks carried by the aircraft concerned, or a colour diagram showing the intended livery and marks to be carried by the aircraft concerned, Country of origin, Military service and serial number and other identification marks carried, photographs of the aircraft to be registered by RAAus, details of the areas in which the aircraft is to be used or displayed, plus any other supporting information.

An approval issued by the HAM will be in writing and will include conditions upon which the aircraft markings are to be displayed including:

a) A requirement for the aircraft's registration mark to be clearly displayed within the cabin or cockpit, or on another location on the airframe as negotiated. (for example, under the tailplane).
b) Locations where the aircraft may be operated without displaying the normal registration marks
c) Whether the approval is transferable to a new owner with the aircraft.
d) Whether the approval expires on a given date, or by other reason.

5.1.12 CANCELLATION OR SUSPENSION OF AIRCRAFT REGISTRATION

RAAus may cancel or suspend the registration of a RAAus listed aircraft if;

a) requested to do so in writing by the registration holder, or an authorised representative of the registration holder; or
b) the aircraft registration fee is not paid by the registration holder by the due date or within a period of time determined by RAAus; or
c) if the aircraft is destroyed; or
d) because of RAAus or CASA enforcement action relating to the continuing airworthiness of the aircraft.

An aircraft which has had its certificate of registration suspended or cancelled by virtue of non-compliance with the requirements of this Tech Manual or the CASR's must not be flown during the period of the suspension or cancellation of the registration, as:

a) the aircraft loses its status of a "listed aircraft," as defined in the Civil Aviation Regulations, by virtue of the cancellation of its Certificate of Registration; and

b) the Certificate of Airworthiness (however named) is, as a result, is taken not to be in force.

FLYING UNREGISTERED AIRCRAFT

Flying an unregistered aircraft is an offence against CASR 200.030 and the requirements of this RAAus Tech Manual.

SECTION 6.1 AIRCRAFT MODIFICATIONS (EXCLUDING LIGHTWEIGHT AEROPLANES)

WARNING: An unapproved major modification to a RAAus registered aeroplane will render the aircraft's special certificate of airworthiness, permit to fly, RAAus Registration and any other approval null and void. Additionally, operation of an aircraft with an unapproved modification would be in breach of the relevant CAO.

REFERENCES

a) CASR Part 21

b) CASA Advisory Circular AC 21-08v2.0 Approval of modification and repair designs under Subpart 21.M

c) CASA Advisory Circular AC 21-12 v1.0 Classification of design changes

DEFINITIONS FOR THIS SECTION

Modification: A change in the physical characteristics of an aircraft, or an aeronautical product fitted to an aircraft, accomplished either by a change in production specifications or by alteration of items already produced which is not a repair.

Major Change: A change that is not a minor change. (AC21-12v1.0)

Minor Change: A change that has no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of an aircraft, aircraft engine or propeller. (AC21-12v1.0)

Modification/Repair: An approval granted by a CASA or a CASA approved person under regulation 21.435 or 21.

Design Approval: 437

6.1.1 AIRCRAFT TYPES TO WHICH THIS SECTION APPLIES

RAAus amateur built and type accepted aircraft types that operate in accordance with the requirements of CAO 95.32 & 95.55

For production LSA (RAAus "23" and some legacy "24" prefix registered aircraft) issued with a special certificate of airworthiness under regulation 21.186, the aircraft may only be modified if the manufacturer authorises the modification. All modifications should be made in accordance with the LSA requirements applicable to the aircraft. A manufacturer must also approve a modification that has been assessed and found acceptable by a Subpart 21M authorised person Modifications that are not authorised by the manufacturer will result in the the Special Certificate of Airworthiness issued under regulation 21.181(4)(c). Also refer to CAO 95.32 4 and CAO 95.55 4). being no longer in force.

NOTE: An LSA that has been modified without approval by the manufacturer may be eligible for the issue of an experimental certificate under regulation 21.191(k).

6.1.2 MODIFICATIONS

Modifications are classified as **minor**, or **major**.

A ***minor change*** is one that has no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of an aircraft, aircraft engine or propeller. **All other changes are *major changes*.**

6.1.3 MODIFICATION – Origins

Modifications (both mandatory and discretionary) may originate by Service Bulletin (SB), Supplemental Type Certificate (STC), Airworthiness Notice or Service Instruction from:

a) aircraft manufacturer; or
b) engine or propeller manufacturer; or
c) aircraft kit manufacturer; or
d) aircraft plans designer; or
e) CASA Airworthiness Directive

Modifications may also be "***owner or other third party initiated***" - meaning, a modification that has been designed, manufactured, and installed by the owner or a third party with the owner's approval.

6.1.4 APPROVAL OF MODIFICATIONS

Modifications to an aircraft, other than those initiated by a source listed in paragraph 3.1 above require approval by CASA, a CASA approved person prior to first flight. (CAO 95.55, 7.1 (iv) refers)

Sub-sections 5 to 10 describe the approval processes for owner or third party-initiated modifications to certified aircraft or an amateur built aircraft where the owner is not the builder of the aircraft (51% major portion rule).

The owner/operator of the aircraft or aeronautical product is responsible for the airworthiness of the aircraft or product. This includes ensuring that any modification has been approved and is compatible with the configuration of the aircraft, that the conditions of any approval have been complied with, that the airworthiness records for the aircraft or product are up to date, and for reporting major defects to RAAus associated with the modification.

The applicant (Owner or the CoR holder is responsible for showing that the proposed modification complies with the applicable airworthiness requirements. This involves providing all data and documents for the design to the approver and carrying out the necessary tests.

6.1.5 WHO MAY PERFORM MODIFICATION WORK

Holders of an RAAus Maintenance Authority appropriate to the Group and class of operation (private / flying training / hire) may perform modification work. See Section 11.1.3.2 and Section 11.2.2 of this Technical Manual.

The maintainer (the person who carries out the modification) is responsible for ensuring the modification has been approved, is carried out in accordance with the associated maintenance data, and for updating maintenance data and maintenance records for the aircraft or the aeronautical product. (refer to 6.6.1).

If the maintainer becomes aware that the modification would make the aircraft unsafe or the product unfit for use, then the maintainer cannot certify for the modification when fitted.

Aircraft, component, and equipment manufacturers may perform manufacturer authorised/ mandated modification work to their aircraft and/or aviation components fitted to an aircraft. Where a component or equipment manufacturer is required to endorse an aircraft for return to service on completion of a modification the work must be signed off by a L2 or higher maintenance authority holder. (Refer Section 6.6.)

6.1.6 RECORDING OF MODIFICATION WORK

Work performed on an aircraft, or an aircraft component must be recorded in the aircraft, the aircraft engine, or the propeller maintenance logbook. The entry or entries must detail the work completed, who the work was completed by including the approved person's full name, signature, membership and/or CASA license number, maintenance authority level and the date. A copy of (or specific reference to) any aircraft, component, or

equipment manufacturer's instructions e.g. Service Bulletin, Service Instruction, Airworthiness Direction, or work standard e.g. FAA AC43-13- *(current issue)* must also be included.

6.1.7 MODIFICATIONS TO AMATEUR BUILT AIRCRAFT

The owner of an amateur-built aircraft (who is not the aircraft builder - refer to sub-section 5.1) may incorporate an owner initiated major modification.

Further flight is not permitted once work on the modification has commenced until a RAAus L4 or other authorised person has examined the aircraft, provided the RAAus HAM with a recommendation in relation to acceptance of the workmanship completed and the fit for purpose of the design and manufacture of the modification and the RAAus HAM has approved the modification in writing.

The recommendation to the HAM for approval of the aircraft for further flight must be signed by the L4 or other authorised person and be accompanied by a completed RAAus Tech Form 19 and all supporting documentation.

The L4 or other authorised person recommendation may specify that:

a) the modification is acceptable with no further test flying; or

b) the modification is acceptable, with more uneventful ground testing or test flying (hours or period to be specified) prior to final acceptance; or

c) the modification is NOT recommended supported by a statement of reasons why the modification has not been recommended for acceptance.

The HAM will notify the acceptance or otherwise of the modifications to the applicant in writing. If the modification/s is not accepted the HAM will provide the applicant with a statement of reason why the modification is not accepted.

6.1.8 MODIFICATIONS TO FACTORY BUILT LSA WEIGHT SHIFT CONTROLLED AEROPLANES, POWERED PARACHUTES and AEROPLANES

CASA regulations prohibit a Light Sport Aircraft (LSA) with a Special Certificate of Airworthiness to be modified using an owner generated modification under any circumstances.

Modifications of any kind that have not been approved by the aircraft manufacturer will render the aircraft's Special Certificate of Airworthiness as taken to not be in force, until such time that the modification has been approved OR in the case of no approval being given, until the SCoA is cancelled and an Experimental Certificate issued if appropriate. see CASR 21.181(4)(c).

The aircraft may be registered by RAAus as an Experimental LSA (E-LSA) however, depending on the modification, who has done it and what they have done, may render the aircraft unairworthy for the issue of a CoA (how so-ever called), including experimental. Refer to subsection 9 below.

Further flight is not permitted until the modifications referenced at subsection 8.2 are approved or an Experimental Certificate of Airworthiness has been issued by a CASA or a CASA authorised person.

6.1.9 WHAT MUST THE AIRCRAFT OWNER DO?

The owner must:

a) Surrender the Special Certificate of Airworthiness to RAAus, CASA or a CASA Authorised Person; and

b) Apply to CASA or a CASA Authorised Person for the issue of an Experimental Certificate of Airworthiness (E-LSA), advising of the modification made or proposed to be made; and

c) affix a prominent "EXPERIMENTAL" placard as detailed in Section 9.1 of this manual; and affix the passenger

warning placard required by CAO 95.32 or CAO 95.55; and

d) apply to RAAus for a registration change to E-LSA aircraft using Tech Form 10; and

e) affix the “E” prefix letter to the aircraft registration markings.

6.1.10 MODIFICATIONS TO E-LSA AEROPLANES, E-LSA WEIGHT SHIFT CONTROLLED AEROPLANES and E-LSA POWERED PARACHUTES

Experimental Light Sport Aircraft (E-LSA) operating on an Experimental Certificate of Airworthiness which are undergoing or about to undergo owner initiated major modifications, must advise CASA or a CASA Authorised Person for assessment of the modification and issue of a new Special Certificate of Airworthiness.

Kit Built E-LSA aircraft CASR 21.191(j) – require manufacturer approved modifications – unapproved modifications can be applied, but aircraft will need to be transferred to non- conforming production E-LSA.

Non-conforming production E-LSA aircraft CASR 21.191(k) – do not require manufacturer approved modifications.

The owner must:

a) notify RAAus, and CASA or a CASA Authorised Person (preferably the authorised person who issued the Experimental LSA Certificate); and

b) advise the nature and details of the modification/s; and

c) apply for a revised Experimental Certificate to be issued with an updated Annex of operating conditions and limitations (if any). Additional test flying may be required by CASA or CASA authorised person as one of the revised operating conditions.

SECTION 6.2 MODIFICATION AND REPAIR APPROVAL PROCESS (MARAP)

MODIFICATIONS TO FACTORY BUILT / TYPE CERTIFIED OR ACCEPTED WEIGHT SHIFT CONTROLLED AEROPLANES AND POWERED PARACHUTES CAO 95.32 (NON-LSA / E-LSA)

MODIFICATIONS TO FACTORY BUILT / TYPE CERTIFIED OR ACCEPTED AIRCRAFT CAO 95.55 (NON-LSA / E-LSA) EXCLUDING LIGHTWEIGHT AEROPLANES

6.2.1 INTRODUCTION

The Modification and Repair Approval Process (MARAP) is for the consideration and possible approval of modifications or repairs to a non LSA/E-LSA factory-built aircraft, for which a type certificate, a certificate of type approval, or an equivalent document has been issued by CASA, another national airworthiness authority (*NAA*) or a competent issuing authority. The proposed modifications or repairs are not:

a) manufacturer approved; or

b) supported by Supplemental Type Certificate; or

c) supported by a CASR engineering review process.

The Modification and Repair Approval Process may be used for approving:

a) an engine model and type change

b) a propeller type change

c) an airframe change

d) an equipment change

e) a repair scheme

f) (This list is not exhaustive)

While a CASR 21.M authorised person may not be authorised to approve a modification under their design approval due to the certification basis of the aircraft, RAAus acknowledges that such a person has the necessary knowledge, experience, and qualifications to assess proposed modifications or repairs for these aircraft and make a determination as to the suitability of the proposal.

6.2.2 PROCESS

The RAAus member (applicant) is to:

a) Complete RAAus **TECH FORM 014 – APPLICATION FOR MODIFICATION OR REPAIR, FACTORY BUILT AIRCRAFT (NON LSA/E-LSA)** and provide any relevant supporting information. *(Note: further information may be requested by the HAM or Subpart 21.M Approved Person after application has been received)*

b) A Recreational Aircraft Condition Report (RACR) must be supplied with Tech Form 014 indicating the status of the aircraft prior to any modifications or repairs being carried out.

The RAAus HAM will:

a) Review the application.

b) Seek advice from an appropriate CASA Subpart 21.M Authorised Person (or persons) as to the suitability or applicability of the proposed modification or repair.

c) The HAM or the Subpart 21.M Authorised Person (or persons) may then request additional information be supplied by the applicant to enable adequate assessment of the modification or repair.

d) After the assessment, the HAM will advise the CEO of the outcome of which may be to:

e) Issue an approval; or

f) Refuse to issue an approval. Any refusal will be in writing and will explain the reasons for refusal. (RAAus will not approve any modification without the support and acceptance of an appropriate CASA Subpart 21.M Authorised Person.)

The CASA Subpart 21.M Authorised Person assessment process:

a) They will review the proposal against the relevant requirements and follow all processes as outlined in the CASA approved procedures for assessing modifications or repairs. The exception being that all references to CASA in their manual should be read as referring to RAAus for the purposes of this process.

b) The CASA Subpart 21.M Authorised Person is not required to formally approve the modification themselves. The intent is for them to provide a review of the information supplied by the applicant and offer a recommendation as to whether the proposed modifications appear sound. They are not expected to redesign the modification or repair – it will be assessed on the information provided by the applicant and will be assessed as acceptable, or not.

c) Once the CASA 21.M Authorised Person has assessed the design, they will provide the RAAus HAM with a written recommendation as to whether the modification or repair should be accepted.

Once the information is received, assessed, and approved in accordance with the procedures as outlined in paragraph 1.6 of this section, an Experimental Certificate may be required. Refer to CASR 21.191 (a) or (b). This must be sought from a CASA Authorised Person. The Experimental Certificate will assist the HAM and CASA Subpart 21.M Authorised Person(s) with validation of the proposed modification or repair. The maximum duration of the Experimental Certificate will not exceed 12 months. The Experimental Certificate will provide any specific operational and maintenance requirements for the duration of the EC (Experimental Certificate), such as, but not limited to:

a) The specific conditions operationally permitted for the aircraft; and

b) If the aircraft is restricted to single seat operations; and

c) If the aircraft is restricted to location of operations (not over populous areas); and

d) If the aircraft is restricted from operations in CTA; and

e) If there are any additional maintenance requirements.

6.2.3 FURTHER ASSESSMENT AND APPROVAL PROCESS IF INITIAL APPLICATION REFUSED

If RAAus does not approve a proposed modification, the aircraft owner will be advised of this, including an explanation of why, and the owner may freely choose to engage the professional services of a Subpart 21.M Authorised Person for assistance with a revised proposal. The applicant may then re-apply and submit any revised proposal for assessment.

6.2.4 FORMS

TECH FORM 014 – MODIFICATION AND REPAIR APPROVAL REQUEST is the form to be used by the member/applicant and forwarded with any supporting documentation to the RAAus HAM for consideration.

6.2.5 UPON COMPLETION OF TESTING

Upon satisfactory completion of flight testing in accordance with the Experimental Certificate conditions issued, the aircraft owner must:

a) advise the HAM in writing that the required flight testing has been satisfactorily completed; and

b) supply copies of flight testing records or reports (if any), together with a copy of logbook entry regarding the modification or repair; and

c) request finalisation of the MARAP process for the aircraft.

When received, reviewed, and found to have met the objectives of the MARAP (para 1.2 of this section), the HAM will issue a MARAP Certificate formally accepting the modification or repair, and the aircraft may resume normal ongoing operations. The modifications will determine if any additional conditions are required or not. The MARAP Certificate will form part of the aircraft's records and must be kept with the aircraft logbook. For significant engine or propeller changes, a copy of the MARAP Certificate must also be retained within the aircraft's Flight Manual or Pilot Operating Handbook, along with any revised or additional operating instructions.

The Experimental Certificate issued for the flight testing will need to be surrendered (if it has not already naturally expired by date) to the CASA Authorised Person who issued the certificate, together with a covering letter detailing the reason for the return of the certificate, (completion of flight testing and finalisation of this process) and as a courtesy, advice about the flight testing undertaken. The Authorised Person will advise CASA of the cessation of the Experimental Certificate

6.2.6 SUBSEQUENT AIRCRAFT

Owners of other identical aircraft wishing to incorporate a modification or repair already approved, will be able to obtain the MARAP package from RAAus and then incorporate that modification or repair to their own aircraft. A fee may be payable. See the RAAus Schedule of Fees. Flight testing may not be required however, a post modification test flight(s) may be required to verify any operational changes at the HAM's discretion.

RAAus will make known all available MARAP Certificates approved under the MARAP process, so that members may consider incorporating such modifications or repairs.

SECTION 7.1 AIRCRAFT REPAIRS

7.1.1 INTRODUCTION

This section describes the following matters:

a) Repairs to CAO 95.10, 95.32 & 95.55 amateur built aircraft

b) Repairs to CAO 95.32 & 95.55 factory built aircraft (non-LSA)

c) Repairs to CAO 95.32 & 95.55 aircraft (LSA)

d) Repairs to CAO 95.32 & 95.55 aircraft (E-LSA)

7.1.2 GENERAL

The repair of aeronautical structures or systems requires specialist advice for what to do and good workmanship practices to complete the repair. Specialist advice may be available from the manufacturer or from a qualified and experienced professional (for example, L2, L4, a CASA approved welder or a CASR Part 21 subpart M approved person).

The extent of repairs may be defined in manufacturers or designer's repair manuals. However, where this is not the case and the repair is designed to return the structure or system to its originally specified state, FAA AC 43.13-1B Acceptable Methods, Techniques and Practices – Aircraft Inspection and Repair can be used (except for LSA) as authoritative repair method reference.

Where the repair does not return the structure or system to its originally specified state, then this may be classified as a modification. Refer to Section 6.1 of this manual.

7.1.3 MAJOR REPAIR CLASSIFICATION

A major repair is a repair that might appreciably affect mass, balance, structural strength, performance, power-plant operation, flight characteristics, or other qualities affecting airworthiness. A repair in this category requires some form of engineering analysis or assessment. The applicant must evaluate the technical merit of a repair design proposal and establish a clear understanding of the intended or consequential effect on the affected product. For example, it may not be appropriate to approve a repair that is purposely designed to be much stronger than the structure being repaired because the effect may be an undesirable change in the original structural load distribution. Refer also to subsections 6.1 and 6.2 above.

Airframe

Repairs to the following parts of an airframe and repairs of the following types, involving the strengthening, reinforcing, splicing, and manufacturing of primary structural members or their replacement, when replacement is by fabrication such as riveting or welding, are major repairs (this list is not exhaustive).

a) Box beams.

b) Monocoque or semi-monocoque wings or control surfaces.

c) Wing stringers or chord members.

d) Spars.

e) Spar flanges.

f) Members of truss-type beams.

g) Thin sheet webs of beams.

h) Keel and chine members of boat hulls or floats.

i) Corrugated sheet compression members which act as flange material of wings or tail surfaces.

j) Wing main ribs and compression members.

k) Wing or tail surface brace struts.
l) Engine mounts.
m) Fuselage longerons.
n) Members of the side truss, horizontal truss, or bulkheads.
o) Main seat support braces and brackets.
p) Landing gear brace struts.
q) Axles and wheel rims.
r) Parts of the control system such as control columns, pedals, shafts, brackets, or horns.
s) Repairs involving the substitution of material.
t) The repair of damaged areas in metal or plywood stressed covering exceeding six inches in any direction.
u) The repair of portions of skin sheets by making additional seams.
v) The splicing of skin sheets.
w) The repair of three or more adjacent wing or control surface ribs or the leading edge of wings and control surfaces, between such adjacent ribs.
x) Repair of fabric covering involving an area greater than that required to repair two adjacent ribs.
y) Replacement of fabric on fabric covered parts such as wings, fuselages, stabilizers, and control surfaces.
z) Repairing of integral fuel tanks and oil tanks.

Power plant
Repairs of the following parts of an engine and repairs of the following types, are major repairs: (this list is not exhaustive).

a) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with an integral supercharger.
b) Separation or disassembly of a crankcase or crankshaft of a reciprocating engine equipped with other than spur-type propeller reduction gearing.
c) Special repairs to structural engine parts by welding, plating, metalizing, or other methods.

Propeller
Repairs of the following types are major repairs: (this list is not exhaustive)

a) Repairing or machining of steel hubs.
b) Shortening of blades.
c) Replacement of outer laminations on fixed pitch wood propellers.
d) Repairing elongated bolt holes in the hub of fixed pitch wood propellers.
e) Inlay work on wood blades.
f) Repairs to composite blades.
g) Replacement of tip fabric.
h) Replacement of plastic covering.
i) Repair of propeller governors.
j) Overhaul of controllable pitch propellers.
k) Repairs to deep dents, cuts, scars, nicks, etc., and straightening of aluminium blades.
l) The repair or replacement of internal elements of blades.

7.1.4 REPAIRS TO AMATEUR BUILT AIRCRAFT (Excluding E-LSA and Group G Lightweight aeroplanes) CAO 95.10, 95.32 & 95.55

Repairs to privately operated amateur built aircraft, excluding E-LSA and Group G Lightweight aeroplanes (LWA) may be conducted by the holder of a Level One Maintenance Authority (or higher), using firstly, the kit manufacturer or designer's repair procedures, or secondarily, in accordance with repair methods and techniques detailed in **FAA AC 43.13-1B Acceptable Methods, Techniques and Practices – Aircraft Inspection and Repair**.

Appropriate maintenance logbook entries must be made detailing the work performed, who performed it, their name, signature, membership number, maintenance authority level and the date. A copy of (or specific reference to) any aircraft or equipment manufacturer's approval document must also be included.

Any repairs which affect the weight and balance of the aircraft (see Notes below) must be carried out in accordance with Section 10 of this manual.

NOTES:

a) If the empty weight has changed by more than 0.5% of the MTOW; or

b) If the empty weight CG has changed by more than 2% of the maximum permissible centre of gravity range or 5 mm, whichever is the greater.

c) A repair **IS NOT** a modification.

7.1.5 REPAIRS TO FACTORY BUILT AIRCRAFT - NON LSA (excluding Group G Lightweight aeroplanes) CAO 95.32 & CAO 95.55

Repairs to privately operated aircraft, excluding Group G Lightweight aeroplanes may be conducted by the holder of a Level One Maintenance Authority (or higher), using firstly, the manufacturer or designer's repair procedures, or secondarily, in accordance with repair methods and techniques detailed in FAA AC43.13-1B.

Repairs to aircraft used for hire and/or flying training must be undertaken by a person holding an RAAus Level Two or higher Maintenance Authority, using firstly, the aircraft manufacturer or designer's repair procedures, or secondarily, in accordance with repair methods and techniques detailed in FAA AC43.13-1B.

Appropriate maintenance logbook entries must be made detailing the work performed, who performed it, their name, signature, membership number, maintenance authority level, or licence category and number, and the date. A copy of (or specific reference to) any aircraft or equipment manufacturer's approval document must also be included.

Any repairs to RAAus aircraft which may affect the weight and balance of the aircraft (see Note below) must be carried out in accordance with Section 10 of this manual.

NOTES:

a) If the empty weight has changed by more than 0.5% of the MTOW; or

b) If the empty weight CG has changed by more than 2% of the maximum permissible centre of gravity range or 5 mm, whichever is the greater.

c) A repair **IS NOT** a modification.

Any repairs to be performed outside of manufacturer or designer's approvals must be done in accordance with the MODIFICATION AND REPAIR APPROVAL PROCESS (MARAP) described in Section 6.1 of this manual or the modification has been approved by:

a) CASA or an authorised person, under CASR Part 21 subpart M, as the provision was in force from time to time before its repeal; or

b) CASA, under regulation 21.435 of CASR; or

c) an authorised person or approved design organisation, under regulation 21.437 of CASR.

7.1.6 REPAIRS TO LIGHT SPORT AIRCRAFT (LSA) CAO 95.32 & 95.55

For a Light Sport Aircraft to remain operating on a Special Certificate of Airworthiness, all repairs must be in accordance with the manufacturer's approved repair procedures and this manual.

Repairs to privately operated aircraft may be conducted only by persons stipulated by the manufacturer and this manual.

Repairs to aircraft used for hire and/or flying training may be conducted only by persons stipulated by the manufacturer and this manual.

Appropriate maintenance logbook entries must be made detailing the work performed, who performed it, their name, signature, membership number, maintenance authority level and the date. A copy of (or specific reference to) the aircraft manufacturer's approval document must also be included.

An RAAus registered LSA must be weighed, and a W&B report produced after major repairs have been carried out to the aircraft as approved by the manufacturer including the painting of the aircraft, that may affect the W&B of the aircraft in accordance with Section 10 of this manual.

Any repairs **not approved** by the aircraft manufacturer will render the Special Certificate of Airworthiness not to be in force (refer to CASR 21.181(4). If those repairs are to be conducted, an Experimental Certificate must be sought from a CASA or a CASA Authorised Person before further flight is conducted. The aircraft can no longer be used for flight training or hire.

7.1.7 REPAIRS TO EXPERIMENTAL LIGHT SPORT AIRCRAFT (E-LSA) CAO 95.32 & 95.55

For kit built LSA Aircraft, all repairs must be done in accordance with the manufacturers approved repair procedures.

Non-conforming production E-LSA aircraft:

All repairs should be performed in accordance with the aircraft manufacturer's approved repair procedures. Where the manufacturer no longer supports the aircraft, and CASA has not assigned an organisation to oversight continued airworthiness, then E-LSA aircraft should have repairs carried out in accordance with FAA AC 43.13 Acceptable Methods for Aircraft Construction and Repair.

Appropriate maintenance logbook entries must be made detailing the work performed, who performed it, their name, signature, membership number, maintenance authority level and the date. A copy of (or specific reference to) any aircraft or equipment manufacturer's approval document must also be included.

An RAAus registered E-LSA must be weighed, and a W&B report produced after major repairs have been carried out to the aircraft including the painting of the aircraft, that may affect the W&B of the aircraft in accordance with Section 10 of this manual.

Where the repair does not return the structure or system to its originally specified state, the aircraft will be deemed to have been modified. The aircraft owner must now contact CASA or an Authorised Person to discuss the need for the issue of an amended Experimental Certificate before further flights are undertaken. If no amended Experimental CoA is required to be issued by CASA or an Authorised Person, a written copy of that notification from CASA or the Authorised Person must be stored with or entered in the aircraft logbook.

7.1.8 REPAIRS TO LIGHTWEIGHT AEROPLANES

A lightweight aeroplane must be maintained in accordance with Part 4A of CAR. Part 4A of Civil Aviation Regulations (CAR) sets out when CASA can give directions relating to the maintenance of Australian aircraft and who can conduct maintenance. Refer to Section 15.8 for details.

SECTION 8.1 FIRST OF TYPE ACCEPTANCE

CAO 95.55 FACTORY BUILT AIRCRAFT (non-LSA) EXCLUDING LIGHTWEIGHT AEROPLANES

8.1.1 INTRODUCTION

CAO 95.55 also permits the operation of an aircraft that is factory built and:

a) has a Type Certificate or equivalent document issued by CASA or another National Airworthiness Authority (NAA) from overseas; and

b) has a Production Certificate or equivalent document permitting the manufacture of aeroplanes, issued by CASA or another National Airworthiness Authority (NAA) from overseas; and

c) meets the maximum weight, minimum useful load, stall speed and other specifications detailed in the CAO.

8.1.2 TYPE ACCEPTANCE

EXISTING ACCEPTED AIRCRAFT:

RAAus has numerous aircraft flying and can readily advise if a particular type and model has already been accepted. If so accepted, no assessment is required, and the aircraft may proceed directly to FULL registration.

FIRST OF TYPE (in Australia) AIRCRAFT:

RAAus must be satisfied that all aspects within CAO 95.55 are met for any new aircraft types coming on to the RAAus register.

Applications for "first of type' acceptance by RAAus can be made by individuals, aircraft import agents, or the aircraft manufacturer. It is recommended that the application is made, and the proposed aircraft is found to be acceptable, or not, before bringing any new aircraft into the country.

RAAus is not responsible for an aircraft that is imported into Australia and subsequently found not to comply with the certification basis, i.e. does not comply with the Type Certificate or Type Certificate Data Sheet.

NOTE: RAAus accepts no liability for any aircraft brought into Australia that is found to be not compliant with Australian regulatory requirements.

8.1.3 APPLICATION FORM

TECH FORM 081 – APPLICATION FOR FIRST OF TYPE ACCEPTANCE must be lodged with the HAM.

8.1.4 CRITERIA TO BE MET

The following documents comprise the main part of the application:

a) Type Certificate (or equivalent document, associated TCDS and any other supporting documentation) issued by CASA, another National Airworthiness Authority (NAA) or a competent issuing authority (accepted by CASA) is to be supplied. This document provides the details of the certification basis for the aircraft. It is signed and issued by a delegate of the NAA of the country of origin.

b) Production Certificate (or equivalent document) issued by CASA, or another National Airworthiness Authority (NAA) is to be supplied. This document states conditions under which the aircraft may be manufactured and offered for sale. The document provides an organisation with an aircraft manufacturing approval.

c) Continuing support information. This document describes the ongoing support from the aircraft manufacturer, Australian representative (if any), factory website for service bulletins etc.

d) Payload / minimum useful load calculation as described in the CAO.

8.1.5 ASSESSMENT

The HAM or AHAM shall review the application for first of type acceptance.

If the application and attached documentation supports First of Type acceptance by RAAus, the HAM or AHAM will validate through a document review of information in accordance with the checklist listed on TECH FORM 081 that the aircraft complies with the CAO, then issue such an acceptance in writing.

If the application and attached documentation does not support First of Type acceptance by RAAus, the HAM will either; seek further evidence if it is believed to be a resolvable matter, or; advise the applicant that the aircraft does not meet the required criteria for First of Type acceptance by RAAus, and the reasons thereof.

8.1.6 FEES

See the current schedule of fees for First of Type Assessment.

8.1.7 ACCEPTED TYPES

Aircraft issued with an RAAus Certificate of Type Acceptance (Tech Form 082) will be added to the RAAus list of accepted types and made available to members upon request.

SECTION 9.1 COCKPIT WARNING PLACARDS/LABELS

Cockpit warning placard/label(s) must be affixed to each aircraft. They must be of sufficient size and displayed inside the aircraft in a way that is conspicuous to and can be easily read by each occupant while seated in the aircraft.

Various versions of the required cockpit warning placard/labels are available from RAAus, or they may be made up by other means.

9.1.1 CAO 95.10 AIRCRAFT

WARNING
THIS AIRCRAFT HAS BEEN CONSTRUCTED UNDER THE PROVISIONS OF CAO 95.10. THE CIVIL AVIATION SAFETY AUTHORITY (CASA) AND RECREATIONAL AVIATION AUSTRALIA (RAAus) DO NOT GUARANTEE THE AIRWORTHINESS OF THIS AIRCRAFT. PILOTS OPERATE THIS AIRCRAFT AT THEIR OWN RISK.

9.1.2 CAO 95.32 and CAO 95.55 AIRCRAFT (non-LSA and Amateur built <600Kg)

WARNING
THIS AIRCRAFT IS NOT REQUIRED TO COMPLY WITH THE SAFETY REGULATIONS FOR STANDARD AIRCRAFT. PERSONS FLY IN THIS AIRCRAFT AT THEIR OWN RISK.

Additionally:
A weight limit placard must be affixed to each aircraft.
The maximum take-off weight specified must be the lesser of either;

a) the aircraft certified max weight, or
b) the max weight for the aircraft type as specified within CAOs 95.10, 95.32 or 95.55

WARNING
THIS AIRCRAFT IS LIMITED TO A MAXIMUM TAKE-OFF WEIGHT OF _____ KG

9.1.3 CAO 95.32 and CAO 95.55 LSA AIRCRAFT

Excluding non-compliant (no longer compliant) LSA Aircraft and kit- built LSA Aircraft

THIS AIRCRAFT WAS MANUFACTURED IN ACCORDANCE WITH LIGHT SPORT AIRCRAFT AIRWORTHINESS STANDARDS AND DOES NOT CONFORM TO STANDARD CATEGORY AIRWORTHINESS REQUIREMENTS

9.1.4 CAO 95.32 and CAO 95.55 E-LSA AIRCRAFT

Non-compliant (no longer compliant) LSA Aircraft, kit built LSA Aircraft and amateur LWA

WARNING
PERSONS FLY IN THIS AIRCRAFT AT THEIR OWN RISK. THIS AIRCRAFT IS NOT OPERATED TO THE SAME SAFETY STANDARD AS A NORMAL COMMERCIAL PASSENGER FLIGHT. CASA DOES NOT SET AIRWORTHINESS REQUIREMENTS FOR EXPERIMENTAL AIRCRAFT

Additionally:
A placard bearing the word EXPERIMENTAL must be affixed to each amateur LWA and E-LSA aircraft.

EXPERIMENTAL

The placard must be written in capital letters not less than 50mm high but not more than 150mm high.

The placard must be:

a) on the outside of the aircraft near each entrance to the cabin or cockpit; **or**

b) in the case of an aircraft that is entered by opening the canopy - on the outside of each side of the aircraft, immediately below the cockpit coaming; **or**

c) inside the cockpit, in a position where it will alert the pilot and passenger; **and**

d) visible to pilot and passenger as the aircraft is entered.

SECTION 10.1 AIRCRAFT WEIGHT AND BALANCE (W&B)

10.1.1 INTRODUCTION

The requirements of CAO 100.7 apply to all RAAus registered aircraft.
Subsection 1(c) of CAO 100.7 will apply to RAAus registered aircraft when procedures are accepted or approved by CASA for the aircraft.

10.1.2 FORMS

TECH FORM 006 WEIGHT & BALANCE REPORT – FIXED WING AIRCRAFT must be supplied with all new aircraft registration applications, and where aircraft have been modified or repaired and a re-weigh has become necessary.

10.1.3 VERIFICATION

The HAM may require for any aircraft at any point in time, to have its empty weight verified, at the aircraft's normal location, or otherwise as agreed. This may be required where doubt exists as to the accuracy of a declared weight, or as part of a random survey of aircraft. RAAus will bear the cost of any such verification. Aircraft owners will be afforded due notice and should work with the HAM to arrange a suitable time and place.

The HAM will liaise with a suitable person to conduct the weighing activity.

SECTION 11.1 MAINTENANCE POLICY OTHER THAN GROUP G AEROPLANES

11.1.1 INTRODUCTION

RAAus is responsible for specifying the maintenance requirements for aircraft registered with RAAus. This section details the extent of maintenance that can be conducted by owners, pilots, and other persons on recreational aircraft operated in accordance with CAO's 95.10, 95.32 and 95.55.

Maintenance includes all those actions which are carried out on a recreational aircraft to ensure the aircraft is fit for flight and includes inspection, adjustment, repair, the incorporation of modifications, and the recording and retention of comprehensive maintenance documents detailing all maintenance completed. Maintenance excludes the design or redesign of modifications. The pilot-in-command of a recreational aircraft must ensure that the aircraft is fit for flight, currently registered, and correctly maintained before each flight.

This section defines maintenance responsibilities for owner/operated recreational aircraft and aircraft used for hire and/or flight training. The method by which suitable persons are authorised by RAAus to conduct maintenance is also contained in this RAAus Technical Manual.

Unless specifically stated in this manual, all maintenance must be carried out in accordance with the engine and airframe manufacturer's maintenance documentation such as manuals, periodic maintenance checklist, published Service Bulletins, Airworthiness Directives, and Safety Directives for factory-built aircraft.

NOTE: A lightweight aeroplane must be maintained in accordance with Part 4A of CAR. Only appropriately qualified Part 66 license holders may carry out maintenance on a Lightweight aeroplane unless an individual has been authorised under CASA instrument 18/22 (or updated instrument). Refer to Section 12.8 and subsection 15.1.8.

For an aircraft that does not have a manufacturer published periodic maintenance checklist e.g. ABE aircraft, the builder may use the CASA published periodic maintenance checklist for guidance in the development of an aircraft specific maintenance check list. Refer also to subsection 11.1, 2.2.

11.1.2 FATIGUE MANAGEMENT BY MAINTAINERS

RAAus maintainers must not perform maintenance activities whilst their performance is adversely affected by fatigue, stress, or ill health. The effects of fatigue, stress, high workload, family commitments and maintaining a suitable health standard form part of an effective fatigue management process. Regulatory requirements focus on these factors in the commercial aviation sector however, fatigue is the general term RAAus uses to describe physical and/or mental weariness (impairment) that affects judgement, and which extends beyond normal tiredness.

RAAus has published and clearly defined a member's personal accountabilities and responsibilities when conducting maintenance tasks which also includes the assembling of a trailerable aircraft prior to flight, and the conduct of an aircraft daily or pre-flight inspection.

RAAus participants are required to be conversant with and use the I.M.S.A.F.E. aeromedical self-assessment tool whilst engaged in maintenance activities. This self-assessment tool is as equally pertinent for use by maintainers as it is for pilots.

11.1.3 ELEMENTS OF MAINTENANCE

Elements of maintenance are:

a) what to do; and

b) when to do it; and

c) how to do it; and

d) who can do it; and

e) documenting the maintenance completed at (a) to (d); and

f) returning the aircraft to service.

What maintenance to conduct and when to do it is contained in the manufacturer's product support manuals. Where this is not the case, the inspection schedules in CASA Schedule 5 should be used as a guide for privately operated aircraft. Reference may also be made to CAAP 42B-1.

Maintenance of aircraft used for hire and/or flying training must be conducted in accordance with the manufacturer's requirements. Where there are no manufacturers requirements, then the aircraft must be maintained in accordance with a System of Maintenance or Maintenance Schedule approved by an NAA for the aircraft. E.g. CASA Schedule 5 or a CASA approved schedule of maintenance. All such maintenance must be performed by suitably trained, experienced and accredited persons holding an RAAus Level 2 or higher Maintenance Authority.

The Use of an Hours and Maintenance Release (MR) RESERVED

On completion of annual periodic maintenance and completion of aircraft logbook entries, the maintainer must issue a release of service document for the aircraft in relation to the maintenance, that is in a form approved by RAAus and complies with CASA regulations.

RAAus recommends the use of a Maintenance Release (how-so-ever-named) be used to facilitate compliance with this requirement. A MR if used should be placed in the aircraft when the aircraft is returned to service. A MR must record:

a) **Aircraft Details**
   i. Aircraft make and model.
   ii. Aircraft registration number.
   iii. Aircraft registration expiry date.
   iv. MR expiry date or expiry at hours in service.

b) **Authorised Person Issuing the MR**
   i. Name, signature, and member number of person issuing the MR.

c) **Maintenance**
   i. Time, date, and place that the MR was issued.
   ii. Type of operation (Private or Flying Training).
   iii. Scheduled maintenance required while the MR is valid.
   iv. Date or time in service (TTIS) when maintenance is required.
   v. Certification that maintenance required has been completed.
   vi. The date that maintenance required has been completed.

d) **Daily Inspection Certification**
   i. Date, Signature, maintenance authorisation held and member number.

e) **Aircraft time-in-service**
   i. Flight Time.
   ii. Progressive Total for flight time.

f) **Landings Totals**
   i. Columns for number of landings, oil added for each flight.

Guidance for maintainers and pilots on the issuing and use of a RAAus maintenance release (MR) is published in an RAAus Recreational Aviation Advisory Publication (RAAP) and published on the RAAus website.

11.1.4 MAINTENANCE POLICY

Owner Operated Aircraft
Maintenance of owner operated aircraft, not being used for flight training, or private hire is the responsibility of the registered owner/operator. An appropriate maintenance schedule must exist for the aircraft. The selection of appropriate maintenance schedules and the qualifications and experience of persons to complete the maintenance is the responsibility of the registered owner. The maintenance schedule should be that provided by the aircraft/ kit/engine/component manufacturers. When an aircraft does not already have an available periodic maintenance schedule, the maintenance schedule in CASA Schedule 5 shall be used. Reference may also be made to CAAP 42B-1.

Having completed any maintenance on an aircraft, the authorised person who conducted the maintenance is to immediately detail the actions carried out in the aircraft maintenance logbook in accordance with Section 12.5 of this manual.

After an owner-operated aircraft that is not being used for flight training or private hire has been rebuilt after major damage or wear, engine strip and rebuild or any maintenance activity which could affect flight safety, that aircraft must be flown on a solo check flight. Successful completion of this check flight is to be recorded in the aircraft logbook and signed for by the pilot who conducted the check flight before any other operation of the aircraft, or a passenger is carried in the aircraft.

Competence to carry out work.
An individual that has completed the mandatory RAAus L1 or higher training process and has the appropriate qualifications and experience to carry out maintenance on an aircraft, other than a Group G aeroplane, or aeronautical product may carry out the maintenance in accordance with the manufacturer's schedule and checklists to ensure the continuing airworthiness of the aircraft.

Maintenance authority holders are responsible for ensuring they are familiar with and can satisfactorily comply with any manufacturer's instructions regarding the maintenance before undertaking any of the tasks identified.

It is recommended that owner-pilots undertake training and work under supervision of an L2 or higher qualified maintainer until they have the underpinning knowledge required to maintain their aircraft in an airworthy condition. Where doubt exists, the owner must consult an RAAus Level 2 or a LAME for advice. Engine or airframe maintenance training courses may also be undertaken and accepted by the RAAus HAM e.g. Rotax 912 Familiarisation, Service, Line Maintenance and Heavy Maintenance Course.

The HAM may request copies of aircraft and maintainer logbooks for the purposes of assessing the standard of compliance with all required RAAus and manufacturer stipulated requirements. Should there be reasonable cause to determine there is a potential threat to safety, the HAM may immediately suspend a maintenance authority and/or aircraft registration. Immediately following a suspension and in accordance with the RAAus Occurrence and Complaints Handling Manual a Complaints Officer will implement the RAAus Occurrence and Complaints Handling Manual processes to investigate further.

Aircraft used for Flying Training or Hire
Factory produced aircraft may be offered for flying training or for hire. Under such an arrangement (usually referred to as Cross Hiring) the FTS or CFI will become the registered operator of the aircraft. Such factory-built aircraft are to be wholly maintained by a Level 2 or higher Maintenance Authority holder. The daily inspections may be completed by a RAAus RPC holder endorsed for the Group of aircraft that is to be operated.

At the completion of any maintenance on a recreational aircraft, details of the work carried out must be immediately entered into the aircraft logbook, the entry signed by the maintainer who must include their name in block letters, RAAus number and the date of the entry.

If any maintenance is carried out on the aircraft including the primary flight control systems involving disconnection, adjustment or modification, an independent inspection of the primary flight control systems or items is mandatory before the aircraft is returned to service. Successful completion of this independent inspection is to be recorded in the aircraft maintenance logbook and signed for by the RPC holders or maintainers who conducted the inspection. An independent inspection may be carried out by an RAAus L1, L2, L3, L4, or RAAus Pilot Certificate holder familiar with the aircraft make and model. Any person unable to comply with this independent inspection due to the non-availability of an independent person to inspect the aircraft, must contact the HAM for advice.

If an aircraft that is eligible to be used for flight training or private hire has been previously maintained at any time by an L1, that aircraft may not be used for flying training or hire until a Level 2 Maintenance Authority holder has inspected the aircraft and is satisfied that the aircraft complies with the original certification, is correctly maintained, is in an airworthy condition, including modifications, and overhauled components, check that the aircraft meets continuing airworthiness requirements (i.e. all ANs, SBs etc have been completed, time life components are in date etc) and TECH Form 013 has been completed and they record that inspection in the aircraft logbook. Tech Form 013 is to be retained with the aircraft maintenance records.

A Maintenance Controller may be nominated and advised to RAAus via Tech Form 003 - Nomination of Maintenance Controller. To be accepted by RAAus as a maintenance controller a person must know and understand the requirements of this manual and the Regulations in relation to the maintenance of a RAAus listed aircraft. This person is responsible for ensuring that all required maintenance on aircraft used for flight training has been carried out by an L2 or higher maintenance authority holder.

The person nominated may be:

a) the registered operator of the aircraft; or
b) the organisation's regular L2 or higher maintainer (whether directly attached to the flight training organisation or not) or;
c) a member of staff of the flight training organisation, or;
d) the owner of the aircraft.

Aircraft Owned by more than One Person
Where more than one person within a company or a group who own a recreational aircraft that is not used for hire and reward, one of the persons must be appointed by the owners as the maintenance controller to be responsible for and to ensure that all required maintenance on that aircraft is carried out.

The person appointed as the maintenance controller must be listed in the aircraft maintenance logbook. That person is responsible to ensure that all maintenance carried out on the aircraft is listed in the aircraft logbook by the maintainer and after that entry the name and signature of the maintainer indicating that all of the stated maintenance has been conducted in accordance with the aircraft manufacturer's requirements and the RAAus Technical Manual, in addition to all ADs, ANs, SBs and advisories.

11.1.5 CRITICAL MAINTENANCE

RAAus defect and incident reports indicate that engine controls, engine accessories, propellers and flight controls deserve special maintenance attention. These components and systems must all be secured by positive safety devices and must be checked by an independent person after maintenance and duly signed for in the aircraft logbook. This inspection may be carried out by an RAAus L1, L2, L3, L4, or RAAus Pilot Certificate holder who is familiar with the aircraft make and model.

11.1.6 MAINTENANCE TASKS AND AUTHORITIES REQUIRED

This table is not exhaustive and is subordinate in all manner to the elements detailed in subsection 11.1.3 of this Manual. An aircraft owner may engage an RAAus authorised and competent Level 2 or higher maintainer to advise, check, or carry out any maintenance of their aircraft.

NOTE: Any maintenance task on a LSA must be conducted by a person nominated by the manufacturer within the maintenance manuals for the aircraft.

MAINTENANCE TASK	MAINTENANCE AUTHORITY REQUIRED (Other than Group G aircraft)		
	PRIVATE OPERATIONS AMATEUR BUILT	PRIVATE OPERATIONS FACTORY BUILT	HIRE &/OR FLYING TRAINING
Pre-flight Final Inspection (FORM 007)	Builder with L4 observing	Not Applicable	Not Applicable
Daily Inspection	RPC Holder	RPC Holder	RPC Holder (not student) or Instructor
Pre-flight inspection (“walk-around”)	RPC Holder	RPC Holder	RPC Holder or Instructor (including students under supervision)
Pilot Maintenance	RPC Holder or L1, L2, L4	RPC Holder or L1, L2, L4	RPC Holder, L2 or L4
Scheduled Maintenance	L1, L2, L4	L1, L2, L4	L2 or L4
Periodic Inspection	L1, L2, L4	L1, L2, L4	L2 or L4
Taxi an aircraft	RESERVED	RESERVED	RESERVED
Repairs	L1, L2, L4	L1, L2, L4	L2 or L4
Modifications	Refer to Section 6.1 of Technical Manual	Refer to Section 6.1 of Technical Manual	Refer to Section 6.1 of Technical Manual
RAAus or manufacturer Airworthiness Notices	L1, L2, L4	L1, L2, L4	L2, L4
Heavy landing inspection	L1, L2, L4	L1, L2, L4	L2, L4
Component overhaul	L1, L2, L4	L1, L2, L4	L2, L4
Component replacement	L1, L2, L4	L1, L2, L4	L2, L4
Welded repairs	L1, L2, L4	CASA Welding Authority holders	CASA Welding Authority holders
Weight and Balance activities	CASA WCO	CASA WCO	CASA WCO

SECTION 11.2 AUTHORISATION OF PERSONS TO PERFORM & CERTIFY FOR MAINTENANCE

11.2.1 INTRODUCTION

Aircraft operated in accordance with CAO's 95.10, 95.32 and 95.55 are exempt from certain Civil Aviation Regulations listed in those orders. RAAus has responsibility for authorising suitably qualified and experienced individuals to perform & certify for maintenance on recreational aircraft.

Any maintenance task on an LSA aircraft, with the exception of specialist maintenance functions listed in subsection 2.2 and 2.3, must be conducted by a person appropriately authorised by RAAus that has the knowledge and competency nominated within the maintenance manuals for the aircraft by the manufacturer.

For the requirements for the performance & recording of maintenance on Group G LWA refer to Section 15 of the manual.

11.2.2 RAAus MAINTENANCE AUTHORITIES

Five levels of RAAus Maintenance Authorisations exist. To exercise any of these privileges except for certain specialist maintenance activities listed in 2.2 and 2.3 below, a current membership of RAAus must be retained.

Pilot Maintenance (LM): Pilot Certificate holders. Perform and record basic maintenance tasks listed in Section 12.7 of this manual (similar to the CASA Schedule 8 pilot permitted items). Pilots are reminded that they need to be competent to carry out the tasks.

Level One (L1): Pilot Certificate holders. Perform and record maintenance activities carried out only on their own aircraft, excluding a Group G aircraft, which are not used for hire and/or flying training. Completion of the RAAus online Level 1 training course is required.

Level Two (L2): L2 privileges may be issued as RESTRICTED (in terms of the work they can perform) or UNRESTRICTED. Refer to para 3.3 for entry requirements. Perform and record maintenance activities on privately owned and operated aircraft, and aircraft used for hire and/ or flying training, excluding a Group G aircraft.

Level Four (L4) ABI (Amateur-Built inspector): Persons holding Level 2 accreditation, and a LAME Licence or holding an appointment via CASA Instrument. L4 privileges are that of an L2 and include amateur built aircraft pre-flight inspections.

The HAM may make a determination for persons who do not fulfil the requirements. The HAM will apply to CASA for consideration. See paragraph 3.5 for further details. CASA will make the final decision on whether to issue the applicant with an ABI Approval.

Specially qualified CASA Part 66 Licensed Aircraft Maintenance Engineer (LAME) engaged specifically for the purposes of:

a) parachute and deployment system maintenance on aviation recovery devices (ARDs) fitted to RAAus aircraft; or

b) inspecting and/or repairing aircraft composite structures and components; or

c) installing, inspecting and/or repairing or testing aircraft pitot-static systems; or

d) installing, inspecting and/or repairing or testing aircraft pressure altimeters, air data computers and automatic altitude reporting equipment; or

e) installing, inspecting and/or repairing or testing airspeed indicators, fuel quantity gauges, inflight adjustable propeller systems, ATC transponders, engine monitoring systems, and auto pilot systems.

A qualified CASA Part 11 Authorised Person specifically engaged for the purposes of:

a) aircraft weighing (CASA Weight Control Authority holder); and
b) aircraft welding (CASA Aircraft Welding Authority holder); and
c) non-destructive testing (CASA NDT Authority holder).

11.2.3 ISSUE AND RETENTION OF MAINTENANCE AUTHORITIES

PILOT MAINTENANCE (PM)
A RPC holder is automatically authorised to conduct Pilot Maintenance subject to the conditions outlined within section 12.7 of this manual.

LEVEL ONE (L1) Maintenance Authority
Pilot Certificate holders (non-student) may be issued with an L1 Maintenance Authority following successful completion of the RAAus training and assessment available through the L1 Maintainer Training and Assessment Site within the RAAus website. A membership lapse, of more than 2 years will require the re-validation of the maintenance authority by undertaking the course again.

See Section 11.3 of this manual for more information.

Evidence of completion of a SAFA Engine & Airframe course (as applicable for weight shift aircraft) and the SAAA maintenance procedures course is acceptable to RAAus for Level 1 accreditation.

LEVEL TWO (L2) Maintenance Authority
L2 may be applied for via TECH FORM 015 – L2 APPLICATION and may be issued based on qualifications and experience of the applicant. L2 privileges are valid for two years and are subject to renewal via TECH FORM 012 – LEVEL 2 re-appointment. To renew these privileges, an L2 must conduct at least two annual or 100 hourly inspections or a combination within a two-year period.

Applicants that cannot satisfy the L2 maintenance authority renewal requirements will not have their authority reinstated and will be advised by RAAus in writing.

If an applicant cannot satisfy the renewal requirements of 3.3.1 due to extenuating circumstances, the applicant may apply to the HAM for an L2 renewal approval by providing at least six months maintenance activities through the supply of the applicant's Level 2 Maintenance Authority Diary.

The holder of an expired L2 maintenance authority that is within 24 months from the date of expiry may apply to the HAM for reinstatement of a L2 maintenance authority by supplying evidence to the HAM of completing at least one annual inspection or at least one 100 hourly, supervised by a current L2 within the preceding six months of application. Beyond 24 months post expiry the applicant will need to reapply for an L2 maintenance authority as per 3.3.1

A person holding a valid LAME license may apply for and be issued with a perpetual L2 maintenance authority, subject to continued validity of the CASA LAME license. No L2 renewal is required whilst holding a valid LAME license.

If a member's LAME license is suspended or cancelled, they must notify RAAus within 7 days and will be required to renew their L2 as per section 3.3.1.

RESTRICTED Level Two - holders are restricted to perform certain types of maintenance only. Restrictions are recorded in the RAAus database and are advised to the L2 in the L2 appointment document.

These restrictions may include, but are not limited to:

a) line maintenance only
b) specific types of aircraft only
c) specific types of construction only
d) specific engines only

All L2 must maintain a log of aircraft maintenance and other aircraft technical work undertaken. Such a log is to state:

a) the registration number of the aircraft on which work was completed; and
b) a description of the work completed; and
c) the date work was completed.

The **L2 Maintainers Diary** excel spreadsheet available through the RAAus website satisfies this requirement.

The HAM may at any time request copies of logbooks or maintenance records to conduct a desktop audit.

Level 2 maintenance accreditation categories are:

LM	Allows line maintenance as defined in Section 12.7
SM	Allows scheduled maintenance plus Recreational Aircraft Condition Reports on specified aircraft types.
SMR	Allows scheduled maintenance, Recreational Aircraft Condition Reports, and minor repairs on specified aircraft types.
UL	Allows unlimited maintenance, repair, and Recreational Aircraft Condition Reports on specified aircraft types.

Aircraft types:

W	Wood and fabric
RT	Rag and tube
M	Metal
C	Composite
AT	All aircraft types

Individual type(s) as specified (e.g., **JABIRU**, **TECNAM** etc.)

Systems:

E	Engine
A	Airframe
AV	Avionics/Electrics
FP/GAIFP	Propellers. Fixed Pitch, ground adjustable-inflight adjustable

For example, a Level 2 approved to carry out scheduled maintenance on metal and composite airframes, but not engines, would be accredited L2, SM, M, C, A

Minimum requirements for the issue of Level 2 maintenance categories:

LM – Demonstrated reason i.e. Instructor at flying school, supported byTwo referees attesting to the applicant's ability to carry out the tasks listed at section 12.7.

SM – Demonstrated two years practical maintenance experience through supply of a schedule of experience recommended by LAME/ unrestricted L2; or demonstrated one year practical maintenance experience and supply of a tertiary maintenance qualification or relevant trade.

SMR – Demonstrated three years of practical maintenance experience through supply of a schedule of experience recommended by LAME/ unrestricted L2; or demonstrated two years of practical maintenance experience and supply of a tertiary maintenance qualification or relevant trade.

UL – Demonstrated four years of practical maintenance experience through supply of a schedule of experience recommended by LAME/ unrestricted L2; or demonstrated three years practical maintenance experience and supply of a tertiary maintenance qualification or relevant trade.

Aircraft types and systems will be awarded based on the supply of evidence of qualification and/or experience such as:

a) Aircraft fabrication and construction.
b) Tertiary maintenance qualifications.
c) Defence Force qualifications.
d) International Part 66 equivalent qualifications from an ICAO contracting state.
e) Trade or an equivalent in a relevant field.
f) Supply of a schedule of experience.

LEVEL THREE (L3) Maintenance Authority (Reserved)

LEVEL FOUR (L4) Maintenance Authority

A Level Four ABI Authority may be applied for by a L2 who meets the minimum criteria in Subsection 11.6.2. TECH FORM 016 - L4 APPLICATION must be completed and submitted with all supporting documentation and the RAAus application fee.

L4 appointment is perpetual, (subject to retaining a Level 2 Maintenance Authority) unless surrendered by the holder or cancelled by the HAM. Refer to Subsection 11.6.3.
NOTE: A RAAus L4 ABI approval does not confer the authority to undertake maintenance of a LWA (Group G) unless the holder of the L4 also holds a relevant CASA issued Part 66 LAME license.

The HAM may make a determination for persons who do not fulfil the above requirements. This application must be based on a specific local need where the services of other L4 (ABI) are not available within a reasonable distance. The applicant must demonstrate at least four years recreational aircraft maintenance experience for the HAM to submit their application to CASA for consideration. CASA will make the final decision on whether to issue the applicant with an ABI Approval in the form of an instrument that will name the individual.

11.2.4 MAINTENANCE AUTHORITY RESTRICTION, SUSPENSION, CANCELLATION, NON-ISSUE.

The RAAus HAM may restrict, suspend, or cancel a Maintenance Authority, or not issue an authority, based on the information provided in an application, or discovered during an investigation into poor maintenance related practices, breaches of the Technical Manual, withholding of information, or breaches of CASA Regulations. Appeals may be heard in accordance with the RAAus occurrence and complaints handling process.

SECTION 11.3 CRITERIA FOR ASSESSMENT FOR LEVEL ONE (L1) MAINTENANCE AUTHORITY

11.3.1 INTRODUCTION

To qualify for a Level 1 (L1) Maintenance Authority, members must successfully complete the RAAus assessment available through the L1 Maintainer Training and Assessment Site within the RAAus website, or via an alternately arranged paper-based assessment.

A training package is available, consisting of a self-paced course utilising a range of resources, which include: a study guide, an FAA Publication providing maintainers with guidance on how to complete various maintenance and inspection tasks, a link to the CASA airworthiness directives (ADs) webpage and a links to other relevant resources. Annex A within this section, describes the basic elements of the training package.

Upon successful completion of the assessment, results advice will be sent to the member and will have the L1 authorisation added to their Pilot Certificate at the next renewal. In the interim, the results advice may be used as evidence of having satisfactorily completed the course.

Persons completing this training package are expected to:

a) Complete the Study Guide; and

b) Review the guidance material provided; and

c) Complete the on-line assessment (50 multi-choice questions, 80% pass mark); and

d) Provide feedback on the training and assessment package.

11.3.2 RECORD OF EXPERIENCE

It is suggested that L1's maintain a separate record of their maintenance experience, listing aircraft type(s) and work performed. This may be useful if a L1 wishes to apply for an L2 maintenance authority at a later date, or, to assist with any audits that the HAM may request.

ANNEX A - Level 1 Maintenance Syllabus

Element 1: Paperwork requirements

Code: PW

1.1. Assessment of paperwork required

- Understanding of maintenance rules
- Appropriate entries into logbooks outlining work completed.
- Completion of worksheets related to the task undertaken
- Work carried out IAW manufacturer schedule or appropriate equivalent
- Work carried out with regard to Type Certified, LSA or Amateur Built categories
- Defect reporting requirements
- Confirm maintenance cycle due
- Confirm outstanding or recurring AD's/SB's
- Issuing a RAAus Tech Form 121 – Maintenance Release (MR) or another RAAus recognised release to service document including the use of a CASA maintenance release

Element 2: Undercarriage

Code: UC

2.1. Landing gear assessment

- Removal or installation of landing gear tyres
- Repair of pneumatic tubes of landing gear tyres
- Servicing of landing gear wheel bearings
- Servicing of brake systems
- Servicing of undercarriage structure including tail wheels

Element 3: Engine compartment

Code: EN

3.1. Engine compartment

- Replacement, cleaning or setting of gaps of spark plugs
- Replacement of batteries
- Changing oil filters or air filters
- Changing or replenishment of engine oil
- Completion of manufacturer ANs, SBs and ADs
- Work carried out IAW manufacturer schedule or appropriate equivalent
- Understanding of maintenance rules
- Appropriate entries into logbooks outlining work completed.
- Completion of worksheets related to the task undertaken

Element 4: Line maintenance

Code: LM

4.1. Line maintenance

- Replacement of defective safety wiring or spilt pins
- Replacement of side windows
- Replacement of seats
- Repairs to upholstery or decorative furnishings inside the cockpit
- Replacement of seat belts or harnesses
- Replacement or repair of signs and markings
- Replacement of bulbs, reflectors, glasses, lenses, and lights
- Lubrication of components
- Replenishment of hydraulic fluid
- Application of preservative or protective materials

Element 5: Glider tow hooks

Code: GT

3.1. Glider tow hooks

- Removal or replacement of glider tow hooks (excludes overhaul of tow hooks or servicing, replacement of springs and load testing)

Element 6: Flight control system

Code: FC

6.1. Flight control inspection

- Carrying out an inspection of a flight control system that has been assembled, adjusted, repaired, modified, or replaced

Element 7: Airframe

Code: AF

7.1

- Inspect IAW manufacturer's instructions
- Hazard identification
- Reporting of discrepancies via the OMS

Element 8: Propeller

Code: PR

8.1

- Inspect IAW propeller manufacturer's instructions
- Tracking and fitment
- Balancing
- Replace or repair IAW propeller manufacturer's instructions

Element 9: Timber Structures

Code: TS

9.1

- Inspect IAW with manufacturer's instructions
- Inspect timber structures IAW FAA AC43.13-1b Chapter 1 Section 3

Element 10: Composite Structures

Code: CS

10.1

- Inspect composite structures IAW manufacturer's instructions
- Hazard identification
- Safety equipment

Element 11: Fabric Covering

Code: FC

11.1

- Inspect fabric covering IAW manufacturer's specifications
- Inspect fabric covering IAW FAA AC43.13-1b Chapter 2 Section 3
- Inspection using a Bettsometer instrument
- Hazard identification

Safety equipment

SECTION 11.4 CRITERIA FOR ASSESSMENT FOR LEVEL TWO (L2) MAINTENANCE AUTHORITY

11.4.1 INTRODUCTION

L2s are the RAAus equivalent of Licensed Aircraft Maintenance Engineers and accept a high degree of responsibility for the maintenance and serviceability of RAAus aircraft;

Technical maintenance is a combination of manual dexterity, knowledge pertinent to the application of that skill, the manufacturer's data, access to, and the appropriate use of tools and knowledge of the appropriate legislation;

The HAM assesses applicants for this authority and determines if the applicant meets the minimum experience and skills necessary to qualify.

L2 minimum qualification and experience requirements:

a) Completion of L1 Maintenance Authority Assessment; and

b) One of the following:

   i. LAME license; or

   ii. Two years demonstrated history of aircraft maintenance experience, and has demonstrated competence in conducting at least two annual inspections or 100 hourly inspections or a combination supervised by a current L2; or

   iii. Person holding a relevant trade certificate or experience and has demonstrated competence in conducting at least one annual inspection or a 100 hourly inspection supervised by a current L2.

NOTE: for 2 and 3 above, maintenance is to be conducted on the category of aircraft being applied for, with the annual or 100 hourly maintenance activities supervised by a current L2.

To acknowledge the wealth of technical skills held by RAAus members, evidence of prior learning and experience may be considered.

The HAM's determination may be disputed in accordance with the occurrence and complaints handling manual.

11.4.2 THE PROCESS

To apply for a Level Two Maintenance Authority a person must:

a) be an RAAus member; and

b) apply using TECH FORM 015 – LEVEL TWO MAINTENANCE AUTHORITY APPLICATION; and

c) detail formal technical training and qualifications in the technical trades, or recognition of prior experience; and.

d) attach copies of relevant trade certificates, or other associated documentation for the consideration of Recognition of Prior Learning; and

e) detail experience in all relevant trades; or other experience; and

f) where qualifications have only marginal relevance to aviation maintenance a connection should, if possible be established; and

g) Unless the applicant is a current CASA LAME working on GA aircraft, provide two peer recommendations.

Experience of work conducted on RAAus registered aircraft or like aircraft is preferred.

List in detail all work performed on RAAus (or like) aircraft, noting the nature of the work done and the aircraft types involved. More, rather than less detail should be included, and the work conducted should be substantiated, if possible.

To assist RAAus in assessing an applicant, the written recommendation of two peers is required. The peers must recommend to RAAus that the applicant has the experience and qualifications to be granted an L2 Authority; and

The recommendation may be from;

a) two current unrestricted L2 holders that have held their approval for at least one year; or
b) one unrestricted L2 holder that has held their approval for at least one year, and a LAME.

11.4.3 RESTRICTED LEVEL 2 APPROVAL

An L2 Maintenance Authority may be unlimited or may be restricted to permitting the applicant to work on, for example:

a) specific components, (eg electrical, engines)
b) specific types of aircraft,
c) line maintenance

The application form allows an applicant to specify if they wish to have the authority restricted to specific aircraft types or specific components.

This restriction is generally imposed when the assessment of an L2 applicant indicates that the person does not have enough maintenance experience on recreational aircraft and would require supervision for more complex tasks, or if the applicant chooses to be restricted to certain maintenance activities.

Restricted Level 2 approval holders may conduct maintenance beyond the limitations imposed upon them subject to:

a) supervision by an unrestricted Level 2; or
b) supervision by a Level 3 or Level 4; and
c) the work is countersigned by the supervisor; and
d) a log of experience is kept, countersigned by the supervisor, if the Restricted Level 2 wishes to apply later for unrestricted authority.

Restricted Level 2 authority holders may apply to the HAM to have their restrictions lifted, along with submission of their log of experience.

SECTION 11.5 APPOINTMENT OF LEVEL THREE (L3) MAINTENANCE AUTHORITY (RESERVED)

SECTION 11.6 CRITERIA FOR ASSESSMENT FOR LEVEL FOUR (L4) AMATEUR BUILT INSPECTOR

11.6.1 INTRODUCTION

Members who are a CASA LAME (or equivalent acceptable to RAAus) may apply for a Level 4 Amateur Built Inspector (ABI) Authorisation. The applicant for a L4 Authorisation must hold a Level 2 Maintenance Authorisation prior to making the application, or co-incident with it if the applicant holds a Part 66 licence.

If there is a need for a L4 ABI in a particular area, but none is available, application can be made by a RAAus member who is an experienced L2. Before an application in this instance can be assessed, the applicant must show a definite need - i.e., there are no L4s within a reasonable distance. They must show full justification (including all appropriate documentation) and references from local RAAus member(s) holding a position of authority (i.e., President or CFI of a Recreational aircraft flying club/FTS) as to why they should be considered. In such a case, the applicant may be approved by RAAus.

11.6.2 CRITERIA FOR ASSESSMENT

An applicant for the issue of a Level Four ABI Authority must:

a) Be a current financial member of RAAus; and

b) Hold a CASA relevant CASR Part 66 LAME license; or

c) Have held an unrestricted Level 2 Maintenance Authority for a minimum of four years and completed a minimum of two Level 2 MA renewals; and

d) Demonstrate knowledge of amateur-built aircraft construction, knowledge of test flying procedures, knowledge of CASA CoA and CASA/RAAus aircraft registration requirements; and

e) Demonstrate geographic isolation or lack of reasonable access to an existing, suitably experienced RAAus L4.

11.6.3 LEVEL 4 ABI AUTHORITY VALIDITY

A Level 4 ABI Authority is issued in perpetuity but L4 privileges can only be exercised while the L4 authorisation holder is a financial (FMEM or NMEM) RAAus member and holds a current Level 2 Maintenance Authority.

11.6.4 CONFLICT OF INTEREST

A RAAus L4 ABI is not permitted to observe/participate in a Pre-Flight Final Inspection (Tech Form 007) on any aircraft that they have a financial interest in, regardless of how minor that interest is, as this may be considered a real or a perceived conflict of interest.

11.6.5 THE PROCESS

To apply for a Level Four ABI Authority a person must:

a) be an RAAus member; and

b) apply using TECH FORM 016 – LEVEL FOUR AMATUER BUILT INSPECTOR AUTHORITY APPLICATION.

The HAM will review the application and advise the applicant of the outcome.

SECTION 12.1 DAILY and PRE-FLIGHT INSPECTIONS

12.1.1 DAILY AND PRE-FLIGHT INSPECTIONS

A daily inspection must be carried out and recorded prior to the first flight of each day. Pilots must also record aircraft time-in-service (hours), landings and oil uptake and any other details as required by the aircraft's system of maintenance. The daily flight record (e.g., the RAAus Hours and Maintenance Record) if used is part of the aircraft's maintenance records. For subsequent flights, the pilot in command must carry out a pre-flight inspection or carry out another daily inspection should it be deemed necessary. A pre-flight inspection is not recorded on the aircraft's MR or HMR.

The Maintenance Release (MR) (however named), if used, will also assist with the recording of the current airworthiness status of the aircraft. The MR is designed to inform the PIC, registered operator, maintenance controller and maintainer of the recent past maintenance history, and the flying time (and days) available before the next required maintenance action. Refer to Section 11.1.1.

The pilot in command must ensure before flight that the aircraft to be operated is registered with RAAus, registration is current, the aircraft is airworthy and is not carrying a defect that would impact on the safety of the intended flight and the time before expiry of the available time in service is adequate for the intended flight or flights.

TECH FORM 121 Hours and Maintenance Record (HMR), available on the RAAus website, presents a simple means of recording the above information however, members may use another format or form e.g., CASA Maintenance Release Form 918 (MR), or any other CASA or RAAus accepted document, if the required information is recorded. The Maintenance Release when used, must be available to each pilot for inspection prior to each flight of the day.

12.1.2 OWNER AND PILOT RESPONSIBILITIES

The pilot in command is responsible for performing and recording the completion of a daily inspection; and

Before each flight, complete whatever pre-flight inspection is called for by the manufacturer or RAAus, or for an ABA, that the pilot in command considers necessary.

Daily and pre-flight inspections may be carried out on RAAus aircraft by:

a) a recreational pilot certificate holder; or

b) a student pilot under the supervision of an instructor. The instructor remains responsible and is the person who is accountable for and must record the daily inspection mentioned in subsection 12.1.1.

SECTION 12.2 INSPECTION AFTER RE-ASSEMBLY

12.2.1 APPLICABILITY

This section applies to all aircraft that have been re-assembled after:

a) purchase from new (including LSA and factory built)

b) road or other transport

c) a period of disassembly e.g. for hangaring or trailering.

NOTE: (b) and (c) do not apply to for aircraft that normally and routinely have some degree of assembly prior to daily flying e.g. an aircraft with foldable wings for storage or an aircraft that is routinely disassembled for transporting however, for compliance with the requirements of this TM, disassembly and reassembling must be recorded in the aircraft logbook or if used, on the aircraft Maintenance Release (MR).

12.2.2 PRIVATELY OPERATED AIRCRAFT

Disassembly of an aircraft must be performed by the registered owner or registered operator of the aircraft who holds a Level 1 maintenance authority, or higher Maintenance Authority holder to ensure no damage occurs.

The Disassembly is to be recorded in the aircraft maintenance logbook.

Re-assembly of an aircraft must be performed by the registered owner or registered operator of the aircraft who holds a Level 1 maintenance authority or higher Maintenance Authority holder with experience on type.

An independent post-assembling inspection must be conducted to ensure that all assemblies and associated systems have been correctly fitted, connected and routed.

An independent duplicate inspection of engine, propeller and flight controls must be conducted by a RPC or higher Maintenance Authority holder with experience on type.

The re-assembly must be recorded in an aircraft maintenance logbook.

The independent, duplicate inspection of engine, propeller and flight controls must be recorded in the aircraft maintenance logbook, detailing who conducted the inspections.

12.2.3 AIRCRAFT USED FOR HIRE AND/OR FLYING TRAINING

Disassembly of an aeroplane operated for hire and/or flying training must be performed by, or under the direct supervision of, an unrestricted L2 or higher Maintenance Authority holder experienced on type to ensure no damage occurs.

The disassembly is to be recorded in the aircraft maintenance logbook.

Re-assembling of an aeroplane to be operated for hire and/or flying training must be performed by, or under the direct supervision of, a L2 or higher Maintenance Authority holder with experience on type, to ensure that all assemblies and associated systems have been correctly fitted, connected, secured and routed;

The applicable manufacturer's re-assembly instructions are to be followed.

A duplicate inspection of flight controls is required and may be performed by an RPC holder or higher Maintenance Authority holder with experience on type.

The re-assembly is to be recorded in the aircraft maintenance logbook.

The independent duplicate inspection of flight controls must be recorded in the aircraft maintenance logbook, detailing who conducted the inspections.

SECTION 12.3 INSPECTION AFTER A HEAVY LANDING, ABNORMAL FLIGHT LOAD, OR LIGHTNING STRIKE

Useful reference:
CASA CAAP 42L-1(n) Inspection of aircraft after abnormal flight loads, heavy landing, or lightning strike.

12.3.1 INTRODUCTION

Aircraft are designed to withstand flight and landing loads within specified limits. If design limits are exceeded the structural integrity of the aircraft structure may be jeopardised and safety could be impaired. Any report, or evidence on the aircraft which suggests that the design limits have been exceeded or equipment has been damaged, including damage by lightning strike, must be listed in the aircraft's MR and the maintenance logbook, followed by a careful inspection appropriate to the nature of the occurrence and in accordance with the aircraft manufacturer's inspection requirements, approved data (if any), CASA CAAP 42L-01v *(current)* and this Tech Manual.

It is not possible to detail every inspection procedure to be used because of the wide variation in aircraft structure and the loads exerted on those structures. Manufacturer's manuals and inspection requirements should be used if available. Should any doubt exist regarding serviceability, the structure / component must be disassembled and inspected for damage.

Inspections may be carried out by Maintenance Authority holders appropriate to the aircraft type and use.

12.3.2 ALIGNMENT AND GEOMETRY CHECKS

In instances where the airframe has been exposed to unusually high loading, either in flight or during landing, or transportation, or storm damage while tied down, structural distortion may have occurred. There may not be visual evidence of structural distortion such as skin wrinkling, cracking of paint at the joints of structural members or loose rivets.

When there is no visual evidence of structural distortion an alignment and geometry checks should be carried out.

If the aircraft has been damaged by impact with an object e.g. ground handling, misalignment and distortion of the structure may have occurred in areas remote from the initial impact point in addition to the damage which may or may not be visible at the point of impact.

The control and structural integrity of an aircraft is dependent on the correct alignment of its separate components, not only in themselves but in their relationship and connection to one another.

Misalignment may result in the imposition of stresses of such magnitude that a premature structural failure could occur and accordingly, it is essential that alignment is checked. These alignment checks are in addition to the normal inspection of all airframe components for structural integrity, engine and propellor security.

Where a manufacturer's schedule exists for the conduct of a heavy landing inspection, that schedule must be followed. Where such a schedule is not available, guidance provided in the RAAus RAAP specific to a heavy landing inspection should be referenced.

The heavy landing inspection or excessive in-flight loading inspection is to be recorded in the aircraft maintenance logbook along with the name, signature, date and RAAus membership number of the person inspecting.

12.3.3 REPORT THE EVENT

SUBMIT AN OCCURRENCE REPORT using the RAAus Occurrence Management System (OMS) at https://reporting.raaus.com.au

12.3.4 MAINTENANCE RELEASE (IF USED) AND MAINTENANCE LOGBOOK

a) Record the event, in detail

b) If obviously damaged or suspected damage, record the event and suspected damage in the MR and aircraft logbook,

c) ground the aircraft immediately and placard as such.

d) Seek expert advice and assistance if required;

e) Arrange for repair/replacement of damaged components;

f) Record repairs and other rectification work including the record of any flight test conducted in the aircraft logbook;

g) Clear the entry in the aircraft MR to return the aircraft to service.

SECTION 12.4 INSTRUMENT & TRANSPONDER CHECKS

12.4.1 AIRCRAFT OPERATING IN CONTROLLED AIRSPACE (CTA) – CLASS C, D, E,

Aircraft that are permitted to fly in Controlled Airspace (CTA) as detailed in provisions of CAO 95.10, 95.32 or 95.55, must have their instruments maintained in accordance with the provisions of CAO 100.5. The checks must be conducted by a CASA approved person with specialised calibrated equipment and appropriate licence ratings.

Compass "swinging" is not mandatory; however, CASA AWB 34-008 provides good advice. A compass deviation card should be fitted following any compass checking.

Compliance with the required checks must be recorded in the aircraft logbook and if used the aircraft MR.

12.4.2 AIRCRAFT OPERATING ONLY OUTSIDE CONTROLLED AIRSPACE (OCTA) – CLASS G

a) Altimeters must be checked every 2 years against a currently certified altimeter (a LAMEs test equipment) or other appropriate test equipment (e.g. a water manometer and scale, or a wide area augmentation system (WAAS) compatible GPS) and must not deviate by more than +/- 100 feet, up to the maximum normally expected operating altitude of the aircraft.

b) Airspeed indicators must be checked every 2 years against a manometer or against a GPS using test runs in opposite directions; and airspeed indications shall not vary by +/- 5kts; and

c) Aircraft with more than one ASI must not have variations between the instruments of more than +/- 5kts.

d) Pitot and static systems must be checked for leaks every 2 years using a device capable of holding pressure for a minimum of 2 minutes without loss of pressure.

e) Compass "swinging" is not mandatory; however, CASA AWB 34-008 provides good advice. A compass deviation card should be fitted following any compass checking.

f) Fuel gauge calibration/checking must be performed every 2 years.

g) Compliance with the required checks must be recorded in the aircraft logbook, signed and dated.

12.4.3 TRANSPONDERS

A transponder fitted to a RAAus aircraft must be maintained and checked in accordance with CAO 100.5. Mode S transponders require an ICAO 24-bit aircraft address allocated by the CASA Aircraft Register at aircraftregistrar@casa.gov.au. The request for a 24-bit aircraft address must include the registration number, manufacturer, model and serial number of the aircraft and the name of the registration holder. The code will be provided by CASA in a return email.

The transponder calibration check must be conducted by a CASA approved person with specialised calibrated equipment and appropriate licence ratings every two years. A record of the completed CAO 100.5 checks must be recorded in the aircraft maintenance logbook. As a reminder of when the next transponder check is due, it is good aviation practice to record the due date of the next transponder check in the maintenance required section aircraft's MR if used. The transponder check due date should be carried forward each time a new MR is issued for the aircraft.

12.4.4 DISTRESS BEACONS (EPIRB, ELT or PLB)

As a minimum all aircraft, other than single seat aircraft and a powered parachute must be fitted with automatic ELT or carry a survival ELT/PLB. This requirement does not apply if an aircraft is not flown more than 50 NM from its place of departure. Refer to CASR Part 91 MOS Division 26.12 Emergency locator transmitters for further information. The serviceability of an automatic ELT or ELT/PLB must be checked periodically in accordance with the manufacturer's instructions.

All 406MHz Distress Beacons (EPIRB, ELT or PLB) must be registered with the Australian Maritime Safety Authority (AMSA).

Registration lasts two years. See http://beacons.amsa.gov.au/ Batteries must be checked to be within date (ie: not expired).

NOTES:

1. Old distress beacons on 121.5 MHz can no longer be detected via satellite and are no longer permitted to be used.
2. In accordance with RAAus safety culture it is recommended that all aircraft carry a ELT/PLB.

SECTION 12.5 AIRCRAFT MAINTENANCE LOGBOOK AND OTHER MAINTENANCE RECORDS

12.5.1 LOGBOOKS

An Aircraft Maintenance Logbook will usually be provided by the aircraft or aircraft kit manufacturer. Alternatively, an aircraft maintenance logbook is available from RAAus or CASA. Home-grown aircraft logbooks may also be used.

As a minimum the aircraft maintenance logbook must contain:

a) Aircraft Identification. Registration Number and Specifications page.

b) A logbook statement identifying the system of maintenance to be used when maintaining the aircraft.

c) Maintenance Record pages.

d) Modification and Components Record.

e) Summary of Empty Weight Changes.

f) Summary of Airworthiness Directive/Service Bulletin/Service Direction/Notices pages, applicable to the aircraft, engine, propellor and other accessories.

The following information must be entered as soon as possible after the maintenance event:

a) The maintenance carried out and the standard it complies with, for example "… carried out in accordance with the Evektor Sportstar maintenance manual."

b) The date the maintenance was conducted

c) The airframe/engine hours at which time the maintenance was conducted

d) Parts used

e) Modifications made

f) Components changed

g) Action taken with respect to Special inspections, Service Bulletins, Airworthiness Directions, and the results of those inspections.

12.5.2 ENTRIES

All entries in any aircraft logbook are to include:

a) the date the work was completed; and

b) a list of all work completed; and

c) the name of the person who completed the work (in block letters), their Maintenance Authority Level and their signature. If not a RAAus member, the entry must be countersigned by the aircraft owner/ operator.

See section 12.6.1 for further guidance.

12.5.3 LOSS OF AIRCRAFT MAINTENANCE LOGBOOK(s)

Circumstances may arise where a logbook is lost or destroyed. In such a case, the aircraft owner must:

a) notify the HAM as soon as it is known that the logbook has been lost or destroyed, and

b) Prepare a new logbook clearly marked "REPLACEMENT", and

c) Inside the cover (or in another location near the front of the logbook) detail the circumstances leading to the raising of the replacement book (i.e. loss or destruction of the original), and

d) Complete all known and discoverable details regarding the aircraft's history. Details might be found in other records or receipts retained, work performed by an RAAus L2, the RAAus aircraft file, expired MRs

etc. Where insufficient history can be found, a Statutory Declaration may be useful, attesting to the current maintenance status of the aircraft recalled and that the current and continuing airworthiness requirements are up to date and being met.

NOTE: The replacement logbook must be maintained such that each page of the logbook is sequentially numbered and bound or held together in such a way that the page is protected from inadvertent misplacement, loss or removal.

Circumstances may also arise where the loss of all aircraft maintenance records is unrecoverable. In such a case, the aircraft owner must, in addition to the requirements listed in 3.1 (a) to (d) above:

a) reconstruct them by establishing the total time in service of the airframe. This can be done by reference to other records that reflect the time in service; research of records maintained by repair facilities and reference to records maintained by individual service providers or maintainers, etc.

b) When these things have been done and the record is still incomplete, the owner/operator may make a Statutory Declaration (logbook statement) notarised by a Justice of the Peace in the new logbook describing the loss and establishing the time in service based on the research and the best estimate of time in service.

c) The status of applicable SBs and ADs and airframe time in service will require a detailed inspection by an RAAus authorised maintenance person to establish that the applicable manufacture SBs, applicable ADs and the replacement of time lifed components have been complied with. This inspection must be performed by or supervised by an RAAus Independent L2 or higher maintainer and the findings must be recorded using RAAus Tech Form 013 – Recreational Aircraft Condition Report (All Aircraft). The aircraft inspection and validation process may also require the CoR holder to engage the services of a CASA authorised subpart 21 M person.

This process may result in considerable time, expense, and in some instances, might require the SBs or ADs to be performed again and the aircraft being reweighed to establish compliance. Other items such as the status of life-limited parts, time since last overhaul, current inspection status, and current list of major alterations, will also present problems.

The loss of an aircraft's maintenance records is troublesome, costly and time consuming. Safekeeping of the aircraft's maintenance records is an integral part of a good recordkeeping system and the responsibility of the CoR holder.

12.5.4 AIRCRAFT SALE

If the aircraft is sold all aircraft maintenance documents including current and expired MRs if used, aircraft logbook and other technical drawings and data forms part of that sale and must be handed over to the new owner.

In the event that the engine or propeller is removed and sold, engine or propeller logbooks (if existing separately) or full copies of the aircraft logbook must be supplied to the new owner.

12.5.5 OTHER MAINTENANCE RECORDS

If any other document is available regarding a particular maintenance matter, (such as a repair certificate or release note, a certificate of compliance for aircraft instrument or transponder checks, a MARAP approval or a manufacturer Letter of Approval etc.) that document is part of the maintenance records and must be retained with the maintenance logbook. The document or documents must be affixed to the relevant page of the logbook concerning the maintenance matter in such a way that the document is protected from inadvertent misplacement, loss or removal.

The RAAus MR if used and any other form of Daily Flight Record also forms part of the maintenance records and must be retained. Refer to Section 11.1 Maintenance Policy, subsection 2.4.

L2 and L4 Maintenance Authority holders must keep their maintenance logbooks and all paperwork actioned, for a period of at least 5 years. Originals of documents (eg pre-flight inspections) should be kept, and only copies need to be sent to RAAus office as required.

12.5.6 LOGBOOK STATEMENTS FOR AMATEUR BUILT AIRCRAFT

Certain statements should be made when you commence filling out a brand new Logbook. These are primarily to "introduce" this new aircraft to the world, to explain briefly on how it came to be, what it's fitted with, to outline what has been done to it in preparation for its new working life as an aircraft, and to specify what requirements or specifications it must be maintained to.

Some basic suggestions (in no particular order) are shown on the following pages. You could copy and cut out these blocks from this document, fill them out and paste them into your logbook.

Introductory statement

"I hereby certify that the Amateur Built aircraft registered number _____ identified as a with serial number_____, has been manufactured in accordance with good aeronautical practices and complies with the drawings, instructions and specifications supplied as kit number/plans set number_____"

Construction commenced_____/_____/_____ and was completed on_____/_____/_____
Builder Name _____
Signed_____RAAus_____Date_____/_____/
_____

Chosen Maintenance Program:
Each aircraft must have a maintenance program identified in the aircraft logbook.

Airworthiness Notice, Service Bulletin, Service Letter etc Compliances:
List all the specific items identified as applicable to your aircraft and complied with thus far.

Engine Fitment:

Engine installation carried out in accordance with the relevant construction manuals, drawingsand using good aeronautical practices.

MAKE_____MODEL _____

SERIAL No_____ NEW MANUFACTURED DATE_____/_____/____

T.S.N_____ If Part Life: T.S.O _____

Signed_____ Date_____/_____/_____

Inspection of cable operated control systems carried out for correct installation, full and freetravel, correct sense and the locking of all systems.

Initial Inspection by _____

Signed_____RAAus_____Date_____/_____/_____

Independent Inspection by _____

Signed_____RAAus_____Date_____/_____/_____

Propeller Fitment:

Propeller installation carried out using the prescribed manuals, drawings and using goodaeronautical practices, IAW with _____

MAKE_____ MODEL _____

SERIAL No_____ MFG DATE _____

T.S.N_____ If Part Life: T.S.O _____

Signed_____RAAus_____Date_____/_____/_____

Instrument Fitment:

Compass calibration carried out IAW AWB 34-008

at _____ on_____/_____/_____

Results:

030	060	090	120	150	180	210	240	270	300	330	360

Signed_____RAAus_____Date_____/_____/_____

Harnesses:

Safety Harnesses fitted in accordance with the appropriate aircraft construction manual,drawings, and good aeronautical practices.

MAKE_____ MODEL _____

SERIAL No _____

Signed_____RAAus_____Date_____/_____/_____

Weight and Balance:

Aircraft weight and balance carried out IAW Technical Manual Section 10.The full reports are.

located in _____

Signed_____RAAus_____Date_____/_____/_____

Fuel System:

Fuel quantity calibrations. One chart required for each tank.

Name of this tank: _____

Total capacity of this tank, including unusable fuel is_____litres

Quantity of unusable fuel in this tank when the gauge reads ZERO or EMPTY is_____litres

Major Graduations On G gauge								
Measured quantity of useable fuel (litres)								

Signed_____RAAus_____Date_____/_____/_____

Electrical System:

Electrical system installation carried out in accordance with the appropriate aircraft constructionmanuals, drawings, FAA AC 43-13-1B chapter 11 and good aeronautical practices.

A copy of the aircraft circuit diagram is located in: _____

Signed_____RAAus_____Date_____/_____/_____

Flight Controls Inspection:

Flight control systems (pitch, roll, yaw) inspection carried out to ensure construction has been carried out in accordance with the appropriate construction manuals, drawings and good aeronautical practices.

Results:
(for all deflections, note whether in degrees, inches or mm)

PORT AILERON	UP	DOWN
STBD AILERON	UP	DOWN
PORT FLAP	UP	DOWN
STBD FLAP	UP	DOWN
PORT ELEVATOR	UP	DOWN
STBD ELEVATOR	UP	DOWN
RUDDER	LEFT	RIGHT

Add additional sections for any flight control trims available.

Inspection of control systems carried out for correct installation, full and free travel, correct sense, and the locking of all systems.

Initial Inspection by _____

Signed_____RAAus_____Date_____/_____/_____

Independent Inspection by _____

Signed_____RAAus_____Date_____/_____/_____

Some examples of the wording of Logbook entries:
Making logbook entries does not need to be complicated. Here are some basic rules for success:Logbook entries should:

a) Describe what was done and why (no need to skimp on detail either)
"Worn spark plugs replaced following rough running."

b) Describe any significant parts fitted (by number)
"8 new correctly gapped NGK D9EA spark plugs fitted."

c) Describe the Maintenance Data used (by name, section, chapter etc.)
IAW Section 66 of Jabiru Maintenance Manual 2200 engine"

d) Include your name, the date, your signature, your RAAus number:IVA FASTPLAIN 4/5/2015. Iva Fastplain RAAus 654321.

e) Describe by what authority you have done this work:
"RAAus Level 1 Maintainer."

General advice is to:

a) Include too much information rather than not enough.

b) Specify precisely what you have done, the TTIS of the aircraft or component on the dayyou performed the work.

c) Specify to what Service Manual or bulletin (etc) your work is addressing.

d) Specify when any time-lifed components require replacing.

e) Specify on the daily flight record (Tech Form 121) when the next inspection or service is due to be performed.

A well written and comprehensive record of maintenance is required and will remove doubt about when it was that a required inspection or service was last performed.

The Certificate of Registration (COR) holder (unless a Maintenance Controller has been appointed for a flying school aircraft) is legally responsible for the record keeping and scheduled maintenance of your aircraft, regardless of whether you do the work yourself or you have a RAAus accredited L2 do it.

12.5.7 DIRECTIONS RELATING TO AIRCRAFT MAINTENANCE RECORDS

RAAus may, for the purpose of ensuring compliance with the requirements of this Technical Manual, give directions in relation to an aircraft listed with RAAus with respect to:

a) the retention and transfer of aircraft maintenance records and parts of aircraft maintenance records; and the making and keeping of copies of aircraft maintenance records and parts of aircraft maintenance records, and

b) delete or strike an entry from an aircraft maintenance logbook.

A person required by subsection 12.6 of this TM (including by a direction under subsection 7.1) to keep or retain a maintenance record must make the maintenance record available for inspection by RAAus, CASA, or an authorised person at the request of RAAus, CASA or the authorised person.

SECTION 12.6 PISTON ENGINE CONTINUING AIRWORTHINESS REQUIREMENTS

12.6.1 INTRODUCTION

The following is the minimum required by RAAus to show that an adequate and reasonable inspection has been carried out to track the performance of an engine.

Although RAAus recommends that the engine manufacturers' overhaul schedules be followed, "On Condition" operations may be an option, unless the manufacturer specifically excludes it.

12.6.2 DEFINITIONS – FOR THE PURPOSES OF THIS SECTION

Airworthy - an aircraft engine, including its component parts, is generally defined as Airworthy when it:

a) remains as originally manufactured, or incorporates factory approved modifications; and/or

b) is overhauled at the manufacturer's specified times; and

c) is overhauled IAW the manufacturer's specifications; and

d) remains in a condition for safe operation

"On-condition" maintenance means an inspection/functional check that determines an item's performance and may result in the removal of an item before it fails in service. **It is not a philosophy of fit until failure or fit and forget.**

"On-condition" operation is not available for LSA unless the manufacturer states otherwise.

12.6.3 APPLICABILITY

Piston engines and those components necessary for the operation of the engine installed in aeroplanes and maintained in accordance with the manufacturer's schedules.

This section is not applicable to compression-ignition (diesel) piston engines using fuels other than Avgas or Mogas, or electric battery powered motors.

12.6.4 REQUIREMENTS FOR ALL AIRCRAFT

To ensure the continuing airworthiness of the engine, and those components necessary for the operation of the engine:

a) the requirements of normal servicing, in accordance with the manufacturers schedule; is to be undertaken; and

b) the requirements in Annex A & B for four stroke engines must be followed; or

c) the requirements in Annex C for two stroke engines must be followed; and

d) operating the engine "on condition" is permitted unless the manufacturer specifically excludes it.

12.6.5 REQUIREMENTS FOR AIRCRAFT USED FOR HIRE AND/OR FLYING TRAINING

Maintenance on aircraft identified in this Subsection must conducted by an appropriately accredited RAAus L2 and the aircraft weighed in accordance with the requirements of Section 10 Weight and Balance before being released to service for flight training or private hire.

Moving an aircraft from "Privately Operated" to "For Hire and/or Flying Training":

Any Factory Built 95.32 or 95.55 Aircraft which has been operating privately with an "on condition" engine, must have that engine overhauled or replaced prior to that aircraft being used for hire and/or flying training. The replacement engine must be either:

a) A factory new engine

b) A factory (or factory accredited over-hauler) overhauled engine and has a completed RACR (Recreational

Aircraft Condition Report - Tech Form 13) inspection done by an RAAus L2.

12.6.6 RECORD OF CONDITION

TECH FORM 023 – 4 STROKE PISTON ENGINE CONDITION REPORT or TECH FORM 024 – 2 STROKE PISTON ENGINE CONDITION REPORT is to be completed for all engines completing this process and affixed in the aircraft maintenance logbook.

ANNEX A - FOUR-STROKE PISTON ENGINE CONDITION CHECK

REQUIREMENT 1 – AT EACH PERIODIC INSPECTION:

a) Carry out an engine performance run to determine the engine performance.

b) For turbocharged / supercharged engines, the output parameters shall be adjusted in accordance with manufacturer's data.

c) Record engine and aircraft details and parameters achieved during the engine run on **TECH FORM 023 – 4 STROKE PISTON ENGINE CONDITION REPORT.**

d) All completed forms shall become part of the engine maintenance record.

e) For the purposes of this subsection:

   i. where possible, maximum RPM is to be attained with the aircraft stationary; or

   ii. where the aircraft manufacturer details in approved maintenance data that maximum RPM can only be achieved during take-off or climb, or the aircraft type does not permit maximum RPM to be safely obtained whilst the aircraft is stationary, an entry on the aircraft Maintenance Record sheet by the pilot in command of the maximum RPM during the last flight prior to the periodic engine inspection is acceptable data.

f) Engine run parameters to be recorded include:

   i. Take-off power shall be:

      - for a fixed pitch propeller aircraft - static RPM.
      - for a constant speed propeller, normally aspirated engine aircraft, take-off powershall be maximum RPM at a manifold pressure, not less than 2" of static manifoldpressure, or at full fine pitch for variable pitch propellers.
      - for a turbocharged/supercharged engine aircraft, take-off power shall be maximumRPM at the manifold pressure, or pitch setting as detailed in the aircraft flight manual.

   ii. With the engine at operating temperature:

      - oil pressure at idle and at take-off power; and
      - oil temperature at idle and at take-off power; and
      - cylinder head or exhaust gas temperature, if fitted, at take-off power; and
      - fuel pressure/flow at take-off power if fitted; and
      - ambient temperature and location altitude.

REQUIREMENT 2 - AT INTERVALS NOT EXCEEDING 100 HOURS.

a) Carry out a cylinder leak check in accordance with:

   i. The procedure(s) published by the engine manufacturer; or

   ii. In accordance with Annex B – Four Stroke Piston Engine Cylinder Leak Check, where data from the engine manufacturer is not available.

b) Record the results of each cylinder leak check and / or inspection on **TECH FORM 023 – 4 STROKE PISTON ENGINE CONDITION REPORT**

REQUIREMENT 3 - AT INTERVALS AS PUBLISHED BY THE ENGINE MANUFACTURER:

a) Oil change

   i. Replace the engine oil and engine oil filter.

b) Engine oil filter, visible oil pressure indicators and screen inspection - At each oil change and oil filter replacement, if applicable:

   i. All engine oil and engine oil filter replacements, including those carried out in the period between the aircraft periodic inspections, shall include inspecting the engine oil pressure filter, oil pressure screen, if fitted; and

   ii. If applicable, inspecting the oil suction screen, for evidence of metallic particles, shavings, or flakes; and

   iii. If metallic particles or shavings are discovered, take corrective action, where necessary.

c) Engine oil uplifts - At each oil addition and at each aircraft periodic inspection:

   i. Record all oil uplifts; and

   ii. Review oil usage records and take corrective actions, where necessary.

   iii. For the purposes of Subsection 3.3.1 Oil uplifts are oil that is added to the engine between servicing; and

   iv. The amount of oil added is to be recorded on Tech Form 121 Daily Flight Record.

REQUIREMENT 4 – REVIEW DATA

a) In order to assess the engine condition, review all data recorded in requirements 1, 2 and 3 of this Annex; and

b) Engines that fail the condition check required by this Annex, (such as, but not limited to: poor leakdown result, poor compression, poor performance, rough running) are to be repaired or overhauled prior to further use.

c) Only airworthy engines are to be placed in service.

ANNEX B - FOUR-STROKE PISTON ENGINE CYLINDER LEAK CHECK

INTRODUCTION

To effectively monitor the continuing airworthiness of a piston engine in service, certain maintenance actions should be carried out to establish the condition of the engine.

Those maintenance actions should not only establish the condition of the engine at the time of the maintenance, but also establish a level of trend monitoring.

The trends can then be used to plan maintenance in a pro-active manner, rather than in a reactive manner.

A prime factor in piston engine trend monitoring is the cylinder leak check. A cylinder leak check should be carried out at specified intervals to establish and monitor the condition of the engine cylinders.

The procedure should not only establish the rate of cylinder leakage but also the source of the leakage. For example, whilst a level of dynamic leakage past the piston rings may be acceptable, any static leakage past a valve seat or from the head to barrel joint renders that cylinder unserviceable.

The cylinder leak check, using the differential pressure test method, must be carried out:

a) For aircraft used only in private operations – by the owner (holding a Level 1 Maintenance Authority) or a Level 2 Maintenance Authority holder.

b) For aircraft used for hire or flying training - by a Level 2 Maintenance Authority holder.

LEAK RATES ACCEPTABLE

Manufacturer published data for acceptable tolerances for static engine leak limitations must be observed. Notwithstanding this statement of requirement, static leaks are not permitted from the cylinder barrel, cylinder barrel to head joint, cylinder head, or the inlet and exhaust valve to seat seals.

In the absence of engine manufacturer data differential leak rates of less than 25% are acceptable.

A differential leak rate of more than 25% will require maintenance action. The maintenance required is:

a) Better than $\frac{50}{80}$: the engine may continue in service subject to recording the results of the cylinder leak check in the maintenance logbook and listing as maintenance required; and

b) oil consumption shall be monitored in accordance with approved maintenance data at intervals not to exceed 50hrs time in service; and

c) a cylinder leak check shall be carried out at intervals not to exceed 50 hours' time in service until rectification of the excessive differential leak rate is carried out.

d) A differential leak rate of less than $\frac{50}{80}$ requires rectification before further flight is permitted.

ANNEX C - TWO-STROKE PISTON ENGINE CONDITION CHECK

REQUIREMENT 1 – AT EACH PERIODIC INSPECTION

a) Carry out an engine performance run to determine the engine performance.

b) Record engine and aircraft details and parameters achieved during the engine run on **TECH FORM 024 – 2 STROKE PISTON ENGINE CONDITION REPORT**

c) All completed forms shall become part of the engine maintenance record.

d) For the purposes of this subsection:

   i. where possible, maximum RPM is to be attained with the aircraft stationary; or

   ii. where the aircraft manufacturer details in approved maintenance data that maximum RPM can only be achieved during take-off or climb, or the aircraft type does not permit maximum RPM to be safely obtained whilst the aircraft is stationary, an entry on the aircraft maintenance release by the pilot in command of the maximum RPM during the last flight prior to the periodic engine inspection is acceptable data.

e) Engine run parameters to be recorded include:

   i. Take-off power shall be:

      - for a fixed pitch propeller aircraft - static RPM.

   ii. With the engine at operating temperature:

      - cylinder head or exhaust gas temperature at take-off power;
      - fuel pressure/flow (where fitted) at take-off power;
      - ambient temperature and location altitude.

REQUIREMENT 2 – REVIEW DATA

a) To assess the engine condition, review all data recorded in Requirement 1 of this Annex; and

b) Engines that fail the condition check required by this Annex, following defect rectifications in accordance with the manufacturers' recommendations, are to be overhauled; and

c) Only airworthy engines are to be placed in service.

SECTION 12.7 PILOT MAINTENANCE

12.7.1 DEFINITION OF PILOT MAINTENANCE

For the purposes of this manual, pilot maintenance means maintenance mentioned in Part 1 of Schedule 8 of Civil Aviation Regulations (CAR), less items 19 and 25 which do not apply to RAAus listed aircraft.

12.7.2 WHO CAN DO PILOT MAINTENANCE?

A financial member with a current recreational pilot certificate issued by RAAus *for the aircraft group* that is listed (registered) with RAAus, or an appropriately authorised RAAus L2 or higher maintainer, or an appropriately licenced CASA LAME is permitted to conduct pilot maintenance specified in Part 1 of Schedule 8 of CAR, other than items 19 and 25 of the schedule.

NOTE: Such pilot maintenance may only be conducted if the owner or registered operator of the RAAus registered lightweight aeroplane has given permission to conduct the maintenance. CAR Part 4A applies to lightweight aeroplanes, any other maintenance not provided for by Part 1 of Schedule 8 must be performed by an appropriately licensed aircraft engineer or, if applicable, in accordance with instrument CASA 18/22.

12.7.3 GENERAL COMPETENCY RULE

The person carrying out maintenance is responsible for ensuring they are competent and can comply with, the manufacturer's instructions regarding maintenance before undertaking any of the tasks listed below. RAAus strongly recommends guidance be sought by pilots from a relevant RAAus L2 or higher qualified maintainer; or a CASA Part 66 licence holder on the correct aircraft maintenance practices and procedures to be used.

NOTE: The general competency rule applies to all RAAus maintainers and RPC holders.

12.7.4 USE OF CALIBRATED TOOLS

If a tool is to be used that requires calibration, it is the responsibility of the person using the tool to ensure that the tool is within its calibration tolerance and test period. Calibration ensures the accuracy of tools, such as torque wrenches, used to maintain aircraft and aeronautical products.

12.7.5 RECORDING MAINTENANCE

Periodic maintenance that falls due between the date an aircraft is returned to service and the date or TIS that a time lifed component or accessory fitted to an aircraft will expire. This information must be recorded in the aircraft maintenance logbook. A MR, if used, may also be used to record this information for the benefit of maintainers, registered operators and the PIC in the "Maintenance Required" column of the aircraft MR. Upon completion of maintenance, the person performing the maintenance is responsible for recording all relevant details and making the appropriate certifications, as required by this Tech Manual in the aircraft maintenance logbook and the "Complied with, entered & certified in Aircraft Logbook" column of the maintenance release if used. The aircraft cannot be returned to service until both maintenance records are updated by the responsible person.

12.7.6 ACTIVITIES COVERED BY THE DEFINITION OF PILOT MAINTENANCE

Provided it does not alter or require a change or disassembly of the primary structure of the aircraft pilot maintenance refers to the:

a) Removal or installation of landing gear tyres

b) Repair of pneumatic tubes of landing gear tyres

c) Servicing of landing gear wheel bearings

d) Replacement of defective safety wiring or split pins

e) Replacement of side windows

f) Replacement of seats

g) Repairs to upholstery or decorative furnishings inside the cockpit

h) Replacement of seat belts or harnesses

i) Replacement or repair of signs and markings

j) Replacement of bulbs, reflectors, glasses, lenses and lights

k) Replacement, cleaning, or setting gaps of, spark plugs

l) Replacement of batteries

m) Changing oil filters or air filters

n) Changing engine oil

o) Lubrication of components

p) Changing hydraulic fluid

q) Changing engine coolant

r) Application of preservative or protective materials

s) Removal or replacement of glider tow hooks

t) Carrying out a duplicate inspection of a flight control system that has been assembled, adjusted, repaired, modified or replaced

u) Carrying out a daily inspection on an aircraft

(CASA Schedule 8 – Pilot Permitted Maintenance – as amended. Refer also to 12.7 para 3)

NOTE: It is recommended that unscheduled pilot maintenance such as some of the items listed above be listed on and certified in the "Complied with, entered & certified in Aircraft Logbook" column of the MR if used.

SECTION 12.8 ANNUAL AND PERIODIC MAINTENANCE

12.8.1 INTRODUCTION

Aircraft require periodic maintenance or inspection in accordance with a maintenance schedule determined by the aircraft, engine and propeller manufacturer, by the holder of an appropriate RAAus maintenance authority.

For an aircraft used solely for private operations this will be a RAAus L1 or higher maintenance authority holder experienced on the aircraft type. For an aircraft operated for hire and/or flying training an appropriate L2 or higher maintenance authority holder.

12.8.2 MAINTENANCE SCHEDULE (by whatever name)

Some manufacturer's schedules may make no mention of an annual or 100hrly inspection. The Annual or 100 hourly TIS inspection are to be completed if the aircraft maintenance schedule makes no mention of such an inspection.

For other than aircraft used for flying training or hire, if no manufacturer's schedule (or other approved Schedule; CASA Schedule 5 for example) is available, one should be obtained or prepared. Acceptable schedules can either be based on, or developed from:

a) CAAP 42B-1(n) CASA MAINTENANCE SCHEDULE

b) Appendix 1 of FAA AC 90-89A AMATEUR-BUILT AIRCRAFT AND ULTRALIGHT FLIGHT TESTING HANDBOOK

c) Aircraft TYPE groups may also have a suitable maintenance schedule available.

Maintenance schedules must contain instructions for the maintenance of airframe, engine, propeller and fitted equipment.

12.8.3 RECORD KEEPING

Upon completion of the periodic inspection, an aircraft logbook entry must be made which records the inspection event, the RAAus member number and name of the person who performed it, their signature, their maintenance authority level, and the date. The entry must be legible and include a comprehensive description of any significant works carried out, repairs made, parts replaced etc. A new MR, if used may require issuing, or the unexpired MR will require updating by recording the maintenance performed in the appropriate section of the MR to return the aircraft to service.

NOTE: General Inspection Guidance for a simple two-stroke aircraft – CASA Schedule 5 may suit more complex types with a four-stroke engine. Reference may also be made to CAAP 42B-1.

SECTION 13.1 DEFECT REPORTING AND AIRWORTHINESS NOTICES (ALL GROUPS)

13.1.1 INTRODUCTION

Defects develop in aircraft and these need to be corrected to ensure continued safe operation.

Repair of the defective item, even to an as new standard, may not prevent recurrence of the defect.

RAAus and CASA collect and use defect reports as a means of identifying trends in the design and maintenance reliability of aircraft and aircraft components. CASA and RAAus use and maintain their own data bases for this purpose. Advice of defects found, and action taken can assist fellow recreational pilots.

This section will:

a) define a defect; and

b) seek reports on defects found; and

c) describe Airworthiness Notices and outline the administrative procedures that relate to defects and Airworthiness Notices.

13.1.2 DEFINITIONS

A defect is any fault in the design and construction of an aircraft, the function or qualitative characteristic of an item fitted to an aircraft which differs from the manufacturer's specification, the drawing or recognised standard of good workmanship for that item other than that classified as fair wear and tear within manufacturer's limits.

When a defect is found or where a maintenance schedule or flight manual is deficient, then a defect report must also be submitted.

13.1.3 PURPOSE OF REPORTING A DEFECT

The purpose of a Defect Report is to:

a) permit the assessment of reports by RAAus to detect trends in the RAAus aircraft fleet and aeronautical products.

b) permit timely airworthiness and safety oversight of RAAus listed aircraft.

c) provide feedback to members, other affected ASAO's, CASA, aircraft manufacturers and the recreational aircraft industry to promote aircraft and product improvement.

d) to inform improvement in design, manufacturing, and maintenance standards of recreational aircraft.

13.1.4 WHO IS RESPONSIBLE FOR SUBMITTING A DEFECT REPORT

a) the aircraft owner.

b) the registered aircraft operator.

c) the pilot in command.

d) the hirer.

e) the maintainer.

13.1.5 DEFECT REPORT

Reports are collected by RAAus and maintained in a database. It is of benefit to both RAAus and the recreational aviation sector that information reported is accurate and relevant.

Also, Part 4B of CAR states that those who own, operate or maintain Australian aircraft must advise CASA of the existence of any:

a) major defect related to an aircraft
b) defect discovered while complying with an AD or a direction given by CASA
c) defect in an aircraft or an aircraft component that if installed in an aircraft would affect its safety or result in a danger to person or property.

This obligation for defect reporting, with respect to a LWA aircraft transferred from the VH register to RAAus remains extant for Part 4B of CAR, even though the aircraft has been listed with RAAus.

Defect information may be:

a) obtained to provide reliability statistics and trend monitoring of aircraft, engines, propellers, systems and components.
b) shared with CASA other regulatory authorities and manufacturers.
c) used as a basis for development or review of an Airworthiness Notice (AN).
d) used for the development of other advisory publications, such as Airworthiness Bulletins and educational material.
e) used for other appropriate safety purposes.

NOTE: An Airworthiness Notice is a notice issued by the HAM to RAAus aircraft owners / operators and other interested persons, advising them of a known defect or deficiency and rectification action.

RAAus and CASA does not provide a written response for each defect report that is received and does not investigate in every case. Nonetheless, RAAus in accordance with CASR 103.125 requires operators and maintainers to submit safety related defect reports and will contact the affected parties if more information is required.

13.1.6 EXAMPLES OF REPORTABLE DEFECTS

Listed below are some representative examples of reportable defects. The list is not exhaustive and may vary depending on the type of aircraft and aircraft systems. In all cases the person responsible for reporting defects must assess the safety effect of the defect in relation to the aircraft and operation. If the safety assessment shows the defect is not a major defect or is not required elsewhere in this manual to be reported, then a defect report is not required. If there is any doubt about whether a defect is a reportable defect, seek advice from the HAM or AHAM:

a) fire, smoke, toxic or noxious fumes inside the aircraft.
b) an engine exhaust system failure which causes damage during flight to the engine, adjacent structure, equipment, or parts.
c) contained or uncontained engine failure.
d) in-flight commanded or uncommanded engine shutdown.
e) inability to feather or unfeather a propeller, to shut-down an engine or to control thrust, or inflight propeller loss.
f) serious malfunction of flight controls.
g) fuel system malfunction affecting fuel supply and distribution.
h) significant contamination or leakage of fuel, oil, or other fluids.
i) landing gear failing to extend or retract, or uncommanded opening or closing of landing gear doors during flight.
j) brake system defects that result in inability or reduction in ability to brake when the aircraft is in motion on the ground (e.g., the defect results in braking performance significantly below expected minimum performance limits).

k) serious cracks or corrosion in the primary aircraft structure.

l) separation of any part of an aircraft, which may become a hazard to the aircraft or persons.

m) failures in digital computer-based equipment and systems, categorised as critical or essential would cause or contribute to a failure of a system function resulting in a hazardous condition for the aircraft.

13.1.7 WHEN TO SUBMIT A DEFECT REPORT

All items fitted to or associated with an RAAus aircraft operation that exhibit faults which meet the definition in Subsection 5 are to have defect reports prepared;

Any member can submit a defect report, which must be submitted to RAAus through the Occurrence Management System, or relevantly through the CASA Defect Reporting System (DRS) for a LWA.

13.1.8 CONTENT OF DEFECT REPORTS

The following information is included in the report:

a) Aircraft registration,

b) make, model and serial number.

c) The component and/or location of the item on the aircraft is to be specified;

d) Name and description of the defect (include sketches and photographs if possible);

e) History of use of the item including age, hours operated, conditions of use and of storage;

f) Item's manufacturer;

g) What corrective action was taken; and

h) Any recommended inspection, replacement, or repair actions for other operators.

13.1.9 DEFECT REPORT AND AIRWORTHINESS NOTICE ADMINISTRATIVE PROCEDURES

Once the defect report is submitted through the Occurrence Management System the originator will be sent a confirmation of receipt advice.

Defect reports will be given a reference number for the originators record and all reports will be reviewed by the RAAus HAM.

Every defect report will be reviewed by the RAAus HAM and one or more of the following actions may be taken:

a) A summary of the defect and its outcome are made available on the RAAus website within the member portal.

b) An Airworthiness Notice will be prepared. Samples are available on the RAAus website www.raa.asn.au under Safety – Technical – Airworthiness. Due to the wide nature of possible subjects, individual Airworthiness Notice format may vary but will generally follow the format of Topic – Background Discussion – Action Required. Airworthiness Notices may be published in "Sport Pilot" magazine. Depending on the significance of the defect, copies of Airworthiness Notices may also be forwarded by the HAM to all RAAus registered owners of the aircraft type by mail or via email.

c) The rectification action specified in the AD, AN or SB is to be undertaken or arranged to be undertaken by aircraft owners by an appropriately authorised person within the period specified in the AD, AN or SB.

d) For LSA Aircraft, each owner/ operator shall be responsible for notifying the manufacturer of any safety of flight issue or significant service difficulty upon discovery.

e) Aircraft and aircraft component manufacturers may be advised of the defect or deficiency and requested to undertake rectification action and advise all known owners of the affected aircraft or component.

SECTION 13.2 IMMEDIATELY REPORTABLE MATTER (IRM) AND ROUTINE REPORTABLE MATTER – TSI Act (2003)

13.2.1 NOTIFICATIONS

The TSI Act (2003) sets the requirements for the notification of an **Immediately Reportable Matter (IRM)** and a **Routine Reportable Matter (RRM)** by a responsible person. This section sets out the requirements of RAAus as a CASA Part 149 approved ASAO, and the RAAus authorised maintainer of a RAAus listed aircraft. For the purposes of this Section a responsible person is:

a) the aircraft owner.

b) the aircraft operator.

c) the pilot in command.

d) the hirer.

e) the maintainer.

Notification of an **Immediately Reportable Matter (IRM)** must be made via phone to RAAus as soon as reasonably practicable, and in writing within 72 hours.

A **Routinely Reportable Matter (RRM)** must be notified in writing to RAAus within 72 hours of the occurrence. The RAAus online Occurrence Management System (OMS) must be used for this purpose.

RAAus members will fulfil their reporting obligations under the TSI Act (2003) and to RAAus by submitting an online report via the RAAus website using the Occurrence Management System (OMS). A report submitted via the RAAus OMS will be automatically forwarded to the ATSB.

Further guidance for RAAus members about **IRM** and **RRM** responsibilities, reportable matters, follow up and investigation processes, along with analysis and information sharing is provided in **RAAP 2 – Reporting Requirements**

NOTE: A maintainer need not submit a report if they have reasonable grounds to believe another responsible person has already reported the occurrence.

SECTION 14.1 SPECIAL FLIGHT PERMITS

14.1.1 PURPOSE

A CASA Special Flight Permit can be issued for an aircraft that needs to be flown to a base where repairs, alternations or maintenance is to be performed, but for some reason is not at that time permitted to – for example, the aircraft has not had an annual inspection conducted, or the aircraft is subject to an immediate airworthiness notice or directive which cannot be rectified at its current location.

Special Flight Permits can only be issued by a person so authorised by CASA. The RAAus HAM may have the required CASA authorisation, or the CASA website lists other industry authorised persons. Fees may apply.

Search the CASA website for Airworthiness delegates and authorised persons then look at the CASR 21.200 delegates.

The permit may be issued provided the aircraft can reasonably be expected to be capable of safe flight for the intended purpose. The permit will have operational conditions and limitations imposed and are normally for one flight only.

14.1.2 PROCEDURE

Make initial contact with your chosen Authorised Person to discuss your need for a Special Flight Permit. Ask about their fees payable. Discuss whether a “window of opportunity” needs to be included, to allow for weather delays.

CASA Form 725 is the correct application form to complete and supply to your chosen Authorised Person. Expect that the Authorised Person will require various information to be supplied in order that they may fully consider your application.

14.1.3 FLIGHT

Only when the Special Flight Permit is received can the aircraft be flown to the nominated base for repairs, alteration or maintenance. All operational conditions and limitations must be strictly adhered to for the flight.

SECTION 15.1 LIGHTWEIGHT AEROPLANES

15.1.1 INTRODUCTION

CAO 95.55 provides for the operation of certain production, experimental amateur built lightweight aeroplanes registered by RAAus.

15.1.2 CRITERIA

A lightweight aeroplane is an aeroplane (other than a light sport aircraft or ultralight aeroplane):

a) that is a single-place or two-place aeroplane; and

b) that has a single engine and a single propeller; and

c) that has a maximum take-off weight:

   i. if it is not equipped to operate on water — greater than 600 kilograms but not exceeding 760 kilograms; or

   ii. if it is equipped to operate on water — greater than 650 kilograms but not exceeding 760 kilograms; and

d) for which:

   i. a certificate of airworthiness is in force under regulation 21.176 of CASR; or

   ii. in the case of an amateur-built or kit-built aeroplane — an experimental certificate is in force under regulation 21.195A of CASR.

15.1.3 AIRCRAFT REGISTRATION PROCESS

Apply to RAAus to reserve a RAAus registration number using TECH FORM 11. See also Section 5.1 (4.2) and the current RAAus schedule of fees.

RAAus will allocate a registration number when TECH FORM 011/23 Reservation of Aircraft Registration Number is completed and signed by the applicant and submitted to RAAus for processing together with the appropriate fee.

Note: this is a registration number allocation only and is not in itself registration of the aircraft or a permit to fly the aircraft.

All RAAus Aircraft listed in accordance with this Section will bear the registration numbers as described in Section 5.1 of this manual.

The allocation and reservation of an RAAus aircraft registration number is the first step in the process of applying for the registration of a RAAus aircraft and if necessary the issue of an initial or replacement Certificate of Airworthiness or a Permit to fly. Refer to the RAAus Group G CoA Matrix at the end of this section for further guidance.

15.1.4 CERTIFICATE OF REGISTRATION REQUIREMENTS

Eligibility

The first step in applying for a Group G aeroplane's registration requires the applicant to complete an application for the reservation of a RAAus registration number and then carry out a process of self-determination of the aeroplane's eligibility for registration as a Group G lightweight aeroplane using TECH FORM 101G for non-VH registered LWA or TECH FORM 102G for currently registered VH LWA. The application forms assist the aeroplane owner to self-determine eligibility. All criteria in TECH Form 101G and 102G are essential and must be met to

proceed with an application for aircraft registration. This first step is a fundamental requirement in the process and will be validated by RAAus at the time of receiving a complete application for registration.

Documentation to be supplied for registration:

a) Evidence that the aircraft meets the requirements of CAO 95.55.
b) Image of the aircraft data plate

For a currently VH registered Lightweight aeroplane with a Standard CoA or an Experimental Certificate you must supply legible copies of:

a) CASA issued Standard CoA or Experimental Certificate; and
b) CASA deregistration Certificate; and
c) Current W&B report; and
d) Maintenance Logbook statement identifying the standard to which the aeroplane has been maintained. e.g., CASA schedule 5; and
e) Current maintenance release; and
f) Images of registration markings fixed to the aeroplane; and
g) Image of the MTOW placard

15.1.5 FIRST OF TYPE ACCEPTANCE

CAO 95.55 permits the operation of a factory-built aircraft which:

a) has a Type Certificate or equivalent document issued by CASA or another National Airworthiness Authority (NAA) from overseas; and
b) has a Production Certificate or equivalent document permitting the manufacture of aeroplanes, issued by CASA or another National Airworthiness Authority (NAA) from overseas; and
c) meets the maximum weight, and other specifications detailed in the CAO.

RAAus must be satisfied that all aspects within CAO 95.55 are met for any new aircraft types coming on to the RAAus register.

RAAus shall accept no liability for any aircraft brought into Australia and subsequently found to be not compliant with the provisions of CAO 95.55.

First of type in Group G will require that CASA issue a Type Certificate or Type acceptance Certificate before it is eligible for RAAus registration.

15.1.6 AMATEUR BUILT OR KIT BUILT AIRCRAFT – NEW BUILDS

The definition of an RAAus Amateur Built Aircraft or kit built aircraft is an aircraft that has been or is being built by an individual or group of individuals, for educational and or recreational purposes, and the major portion of the aircraft has been completed by the builder/s. Evidence is to be supplied in the form of a builder's log.

A builder's log records the details of the aircraft's construction. A log should contain matters such as the date of the work, the work performed, any assistance received, the hours worked for that session, details of any stage inspections conducted, any other pertinent information. Sufficient photographs should be taken during construction to support the builder's log.

Members intending to build and register an Amateur Built Aircraft or kit built aircraft with RAAus should obtain a copy of FAA AC 43.13-1B Acceptable Methods, Techniques and Practices – Aircraft Inspection and Repair available from the FAA website www.faa.gov and at various aviation suppliers or bookstores.

The document contains valuable advice regarding not only inspection and repair as the title suggests, but practical

information for constructors of aircraft.

The design of an Amateur Built Aircraft under this Section need not be of an approved design or be constructed from aviation grade materials. The aircraft can be of any origin, including an existing amateur built aircraft that has been modified or altered in some manner, but remains within the weight and stall speed requirements set out in CAO 95.55 and complies with all relevant and current Advisory Circulars, kit manufacturer's bulletins and RAAus Airworthiness Notices. Essentially the choice of aircraft type and model, including engine(s), is at the discretion of the builder.

Two seat aircraft which comply with the requirements of this section may also be eligible to be used for the purpose of training the builder (or each person in a group of builders) for the issue of a Pilot Certificate.

15.1.7 DETERMINATION OF MAXIMUM TAKEOFF WEIGHT (MTOW) FOR AMATEUR BUILT AIRCRAFT

DEFINITIONS SPECIFIC TO THIS SECTION:

Adult means a person who has turned 16.

Adult Weight for purposes of aircraft weight is 86kg for each aircraft seat, or as defined by CASA in the Part 21 MOS (Prescribed Standard Weights) for the purposes of paragraph 121.440(2)(c) of CASR.

Manufacturer's Empty Weight (MEW) (also referred to as the approved aircraft standard empty weight) is the empty weight of the aircraft "as built" and includes the weight of the structure, power plant, propeller, furnishings, installations, instruments, systems, and other equipment that are considered an integral part of the aircraft before additional operator items are added for operation. For clarity this is the aircraft's standard basic dry weight upon which all other weight and balance calculations, standard specifications and aircraft performance are based by the plan's designer or the aircraft manufacturer.

Aircraft Functionality means the aircraft must be capable of conducting a flight with all seats occupied (using a minimum of Adult Weight or actual weight of the POB if the actual weight is greater than Adult Weight), and carry sufficient fuel for a minimum of 1 hrs flight duration plus legal reserves at a weight at take-off not exceeding 760kg.

15.1.8 CERTIFICATE OF AIRWORTHINESS

See the RAAus Group G aircraft registration matrix at the end of this section for required application which is dependent on the certification basis and current registration status. **All LWA registered with RAAus require a CASA issued certificate of airworthiness or experimental certificate as applicable to operate. This is in addition to a registration certificate.**

15.1.9 MAINTENANCE

A lightweight aeroplane must be maintained in accordance with CAR 4 to 4D. Part 4A of Civil Aviation Regulations (CAR) sets out when CASA can give directions relating to the maintenance of Australian aircraft. This includes:

a) what maintenance is required to be carried out on class A and B aircraft
b) provisions about maintenance schedules and systems of maintenance
c) provisions as to how maintenance is to be carried out including the installation and use of aircraft components.

Only appropriately qualified Part 66 licence holders may carry out maintenance on an amateur built lightweight aeroplane unless an individual has been authorised under CASA instrument 18/22 (or updated instrument)

CASA 18/22 — Maintenance (certain amateur-built, kit-built and light sport aircraft) Instrument 2019 authorises certain persons involved in the fabrication or assembly of certain amateur-built and kit-built aircraft to carry out

maintenance on such aircraft in Australian territory, and to perform certain functions in respect of maintenance of such aircraft, subject to conditions.

15.1.10 REPAIRS AND MODIFICATIONS

A person must not operate a type certificated lightweight aeroplane that has been repaired or modified unless the repair or modification has been approved by:

a) CASA or an authorised person under sub regulation 35 (1) of CAR as the provision was in force from time to time before its repeal; or

b) CASA, under regulation 21.435 of CASR; or

c) an authorised person or approved design organisation under regulation 21.437 of CASR

15.1.11 PILOT MAINTENANCE

Provided it does not alter or require a change or disassembly of the primary structure of the aircraft, pilot maintenance for a LWA is defined as:

a) Removal or installation of landing gear tyres
b) Repair of pneumatic tubes of landing gear tyres
c) Servicing of landing gear wheel bearings
d) Replacement of defective safety wiring or split pins
e) Replacement of side windows
f) Replacement of seats
g) Repairs to upholstery or decorative furnishings inside the cockpit
h) Replacement of seat belts or harnesses
i) Replacement or repair of signs and markings
j) Replacement of bulbs, reflectors, glasses, lenses and lights
k) Replacement, cleaning, or setting gaps of, spark plugs
l) Replacement of batteries
m) Changing oil filters or air filters
n) Changing engine oil or fuel
o) Lubrication of components
p) Replenishment of hydraulic fluid
q) Application of preservative or protective materials
r) Removal or replacement of glider tow hooks
s) Carrying out a duplicate inspection of a flight control system that has been assembled, adjusted, repaired, modified or replaced
t) Carrying out a daily inspection on an aircraft

Who can do pilot maintenance on a Lightweight Aeroplane?

The holder of a RAAus pilot certificate endorsed for the operation of a lightweight aeroplane or a CASA Part 66 LAME.

The person carrying out pilot maintenance is responsible for ensuring they are familiar with, and can satisfactorily comply with, any manufacturer's instructions regarding the maintenance before undertaking any of the tasks identified. RAAus strongly recommends guidance should be sought by pilots from a relevant CASA Part 66 licence holder on the correct aircraft maintenance practices and procedures.

If tooling is to be used that requires calibration, it is the responsibility of the person using the tooling to ensure that the tooling is within its calibration tolerance and test period. Calibration ensures the accuracy of tools, such as torque wrenches, used to maintain aircraft and aeronautical products.

Upon completion of maintenance, the pilot performing the maintenance is responsible as the person carrying out that maintenance to record all relevant details and make the appropriate certifications, as required by this TM in the aircraft's logbook or, if appropriate, on the aeroplane maintenance release.

15.1.12 DEFECT REPORTING (Refer also to Section 13.1)
RAAus uses defect reports as a means of identifying trends in design and maintenance reliability for the benefit of aviation safety. Reports are collected by RAAus and maintained in a database. It is of benefit to both RAAus and the recreational aviation sector that information reported is accurate and relevant.

For a lightweight aircraft a defect must be reported by the aircraft maintainer or the aircraft owner, if the owner is not the aircraft maintainer, in accordance with the requirements of Section 13.1 of this manual. In all cases the responsibility for ensuring a defect report is submitted to RAAus is with the aircraft owner.

15.1.13 IMMEDIATELY REPORTABLE MATTER (IRM) AND ROUTINE REPORTABLE MATTER – TSI Act (2003

An Immediately Reportable Matter (IRM) for a lightweight aircraft, must be made via phone to RAAus as soon as reasonably practicable, and in writing within 72 hours in accordance with the requirements of Section 13.2 of this manual.

A Routinely Reportable Matter (RRM) for a lightweight aircraft must be notified in writing to RAAus within 72 hours of the occurrencein accordance with the requirements of Section 13.2 of this manual.

RAAus online Occurrence Management System (OMS) must be used for this purpose.

GROUP G CoA MATRIX EXPERIMENTAL

Amateur built Aircraft (ABE) – issued with a Special CoA Experimental Certificate (EC) under CASR 21.195A to be operated as a Group G aircraft and listed with RAAus.

How is the aircraft Certified, registered and operated now?	**RAAus TECH FORM 011 (Reservation of aircraft number)**	**Apply for / and or seek de-registration confirmation from current/ former state of registration - (Required at the time new markings are placed on the aircraft- Consider completing at time of Special CoA application)**	**RAAus TECH FORM 101G (Application for Group G registration for Amateur built)**	**Confirm Airworthiness status of aircraft**	**CASA form 718 (application for Special CoA PHASE 1) CASA form 727 (Amateur built eligibility statement)**	**CASA form 718 (application for Special CoA PHASE 2 ongoing)**	**RAAus TECH Form 102G Replacement CoA transfer from Part 47 VH registration to RAAus Listing.**
New ABE aircraft not previously operated or registered	**STEP 1** Complete this form for RAAus Reservation Number **only**	*New aircraft should not be registered / listed anywhere*.	**STEP 2** Apply for RAAus registration / Listing (**Note:** CASR 21.192 states that a registration holder or the owner of an aircraft that is listed with a Part 103 ASAO is	**STEP 3** Aircraft is required to be airworthy for the issue of an EC. All current maintenance requirements must be met and the logbook for the aircraft must be completed. The aircraft must be ready and eligible	**STEP 4** Using CASA form 718 apply to CASA or a CASA authorised person (AP) for the issue of an EC. CASA form 727 will also need to be completed declaring amateur built	**STEP 5** **Once Test flying has been completed**: Apply to CASA or an AP using CASA form 718 to apply for an EC for Phase 2, ongoing operations.	*Not required new EC.*

			eligible to apply for an EC)	for the issue of a Maintenance Release (or equivalent)	eligibility. The issue of this EC for **PHASE 1** will permit test flying only. (**Note**: A Maintenance Release or equivalent return to service document must be issued prior to any operations).		
Current ABE Listed with RAAus in **group A** wishing to operate at Group G weights. (eg, Jabiru 230)	**STEP 1** Apply to RAAus for re-allocation of registration (new prefix)	*Already operating with RAAus, Registration prefix will need to be changed on aircraft*.	**STEP 2** Apply for RAAus Listing with new prefix to registration attached to aircraft.	**STEP 3** Aircraft must meet current airworthiness requirements and be eligible for operation or continued operation if currently operating. Any outstanding maintenance requirements must be met and the aircraft must be airworthy prior to the issue of an EC.	**STEP 4** Contact CASA or an authorised person to determine if your ABE requires flight testing to operate at a higher MTOW. If flight testing is required use CASA form 718 to apply to CASA or an AP for the issue of an EC. CASA Form 727 may also be required to	**STEP 5** Once test flying has been completed (if required), Apply to CASA or an AP using CASA form 718 for an EC for PHASE 2 ongoing operations	*Not required new EC*

					declare amateur built eligibility). The issue of a **PHASE 1** EC will permit test flying only.		
ABE aircraft Foreign Registered imported into Australia that was operating in the foreign country until export. *(Note, these aircraft will not be issued with an Export CoA as they are not type certified).*	**STEP 1** Apply to RAAus for a reservation number as Group G ABE.	**STEP 2** Apply for or obtain deregistration from state of registration. Obtain evidence of deregistration from the state of registration to permit the aircraft to be Listed with RAAus.	**STEP 3** Apply for Full RAAus listing with new registration details applied to aircraft. Any former registration marks to be removed.	**STEP 4** Reassembly and maintenance release inspection conducted on aircraft. Any outstanding maintenance requirements must be met and aircraft must be airworthy and eligible to be issued with maintenance release.	***NOTE:*** *Phase 1 EC not required if aircraft has completed test flying and has previously been issued an Experimental Certificate as an Amateur built aircraft.*	**STEP 5** Using CASA form 718 apply to CASA or an AP for the issue of an EC for PHASE 2 ongoing operations. **(Note**: A Maintenance Release or equivalent return to service document must be issued prior to any operations)	*Not required new EC*
Current VH registered ABE operating with a current EC issued for the purpose of	**STEP 1** Apply to RAAus for a reservation number as a Group G ABE.	**STEP 2** Apply to **CASA using form 026** to deregister the aircraft from CASA.	**Not required. Apply for registration and replacement CoA using TECH form 102G**	***Note:*** *this will be established by the completion of RAAus Form 102G. Refer STEP 3.*	***NOTE:*** *Phase 1 EC not required unless aircraft has been modified and further flight*	*Not required as aircraft already has EC*	**STEP 3** Complete RAAus TECH form 102G to register and have a replacement EC

21.191(g) operating an amateur built aircraft and **has a current and valid Maintenance Release.**		Deregistration letter will be provided to the owner for confirmation of deregistration.			*testing is required. If Phase 1 CoA is issued then new can only be done by CASA or an AP. Once Phase 1 complete then Phase 2 will need to be issued by CASA or AP.*		issued to reflect new RAAus Listing.
Current VH registered ABE with an EC issued under CASR 21.195A for the purpose of 21.191(g) **but does not have a Current and valid Maintenance Release.**	**STEP 1** Apply to RAAus for a reservation number as a Group G ABE	**STEP 2** Apply to **CASA using form 026** to deregister the aircraft from CASA. Deregistration letter will be provided to the owner for confirmation of deregistration .	**Not required. Apply for registration and replacement CoA using TECH form 102G**	**STEP 3.** If the aircraft does not have a current Maintenance release, a full maintenance release inspection must be carried out and be eligible for the issue of a Maintenance Release. The logbooks must be completed and signed and the aircraft considered airworthy.	***NOTE:*** *Phase 1 EC not required unless aircraft has been modified and further flight testing is required. If Phase 1 CoA is issued then new can only be done by CASA or an AP. Once Phase 1 complete then Phase 2 will need to be issued by CASA or AP*	*Not required as aircraft already has EC.*	**STEP 4** Complete RAAus TECH form 102G to register and have a replacement EC issued to reflect new RAAus Listing

GROUP G CoA MATRIX – TYPE CERTIFIED AIRCRAFT

Type Certified aircraft issued (or eligible to be issued) a Certificate of Airworthiness (CoA) under CASR 21.176 and to be operated as a Group G aircraft & Listed with RAAus.

How is the aircraft Certified, registered and operated now	**RAAus TECH FORM 011 (Aircraft Registration Number allocation)**	**Apply for / and or seek de-registration confirmation from current/ former state of registration**	**RAAus TECH FORM 101G (application for Group G registration)**	**Confirm Airworthiness status of aircraft**	**CASA form 717 (application for Standard CoA to be issued under CASR 21.176)**	**RAAus TECH Form 102G Replacement CoA transfer from Part 47 VH registration to RAAus Listing.**
Currently operating in Group A with a limitation on MTOW to 600kg, but that is certified with a MTOW in excess of 600kg.	**STEP 1** Apply to RAAus for reservation number as a Group G type certified aircraft	*Already operating with RAAus, Registration prefix will need to be changed on aircraft*.	**STEP 2** Apply for RAAus listing with new registration details applied to aircraft. Any former registration marks to be removed	**STEP 3** Maintenance inspection will need to be conducted on aircraft to ensure it conforms and meets the certification basis and the requirements of the relevant Type Certificate (TC) and Type Certificate Data Sheet (TCDS). **Guidance to carry out this process is contained in CASA Advisory Circular AC 21.02 v 2.2 Section 12.**	**STEP 4** Using CASA form 717 apply to CASA or an AP for the issue of a Standard CoA and provide all documentation and evidence required by CASA or the AP	*Not required as new Standard CoA required to be issued.*

Currently VH registered with a current CoA but **does not have current Maintenance Release.**	**STEP 1** Apply to RAAus for a reservation number as a Group G type certified aircraft	**STEP 2** Apply to **CASA using form 026** to deregister the aircraft from CASA. Deregistration letter will be provided to the owner for confirmation of deregistration	**Not required. Apply for registration and replacement CoA using TECH form 102G**	**STEP 3** Maintenance inspection will need to be conducted on aircraft to ensure it conforms and meets the certification basis and the requirements of the relevant Type Certificate (TC) and Type Certificate Data Sheet (TCDS). Aircraft logbooks must be completed and aircraft in airworthy condition and eligible for issue of a Maintenance Release.	*Not required if the aircraft has a current CoA.*	**STEP 4** Complete RAAus TECH form 102G to register and have a replacement CoA issued to reflect new RAAus Listing
Currently VH registered with Current CoA **and current and valid Maintenance Release.**	**STEP 1** Apply to RAAus for a reservation number as a Group G type certified aircraft	**STEP 2** Apply to **CASA using form 026** to deregister the aircraft from CASA. Deregistration letter will be provided to the owner for confirmation of deregistration	**Not required. Apply for registration and replacement CoA using TECH form 102G**	*Not Required if the aircraft has a current maintenance release with no outstanding maintenance requirements listed on the Maintenance Release.* *NOTE: Maintenance release will need to be amended to reflect new RAAus listing.*	*Not required if the aircraft has a current CoA.*	**STEP 3** Complete RAAus TECH form 102G to register aircraft with RAAus and have a replacement CoA issued to reflect new RAAus Listing

Type certified foreign registered aircraft imported into Australia. With or without Export CoA issued by foreign State of registration. ***NOTE: The aircraft must be eligible for a CoA issued under 21.176. The certification basis must be recognised by CASA for the issue of a Standard CoA*.**	**STEP 1** Apply to RAAus for a reservation number as a Group G type certified aircraft	**STEP 2** Apply for or obtain deregistration from state of registration. Obtain evidence of deregistration from the state of registration to permit the aircraft to be Listed with RAAus	**STEP 3** Apply for Full RAAus listing with new registration details applied to aircraft. Any former registration marks to be removed	**STEP 4** Full maintenance release and airworthiness inspection to be conducted by CASA approved maintenance organisation to ensure aircraft is airworthy and meets airworthiness requirements (for example AD compliance check). Aircraft to be assessed and checked against TC and TCDS to ensure compliance with certification basis. Logbooks to be completed and certified. Aircraft must be eligible for the issue of a Maintenance Release.	**STEP 5** Using CASA form 717 apply to CASA or an AP for the issue of a Standard CoA and provide all documentation and evidence required by CASA or the AP	*Not required as full new CoA process to be carried out and new CoA issued.*

END OF DOCUMENT

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