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.