

	SAAA CONTROLLED DOCUMENT	
	Reference / Name	IPP7-001 Information Paper - Manned Multi-Rotor craft
	Revision No	0
	Revision Date	29 - 03 - 2020
	Owner	TACM

Information Paper

Manned Multi-Rotor craft

This information paper provides guidance to persons who wish to build a manned multi-rotor craft. Can it be an amateur-built experimental aircraft? What licence would you need?

1. INTRODUCTION:

CASA has known for some time that people are tinkering in their sheds with manned multi-rotor craft/drones, or wanting to import something ready to go from overseas. Things like these:



It wasn't until February 2020 that SAAA was contacted by a builder, wanting to know if such a thing could be registered with SAAA.



Registration:

Firstly, SAAA does not “register” any aircraft, of any sort. CASA does. They are VH marked. Yes, you could probably register such a craft as an amateur-built experimental with CASA as there are no design limitations or specifications for an experimental aircraft.

- Could they be registered with RAAus? No – RAAus are fixed wing and microlight only, operating to exemptions via Civil Aviation Orders.
- Could they be registered with ASRA (Sport Rotorcraft)? No – ASRA are gyroplanes, operating to exemptions via Civil Aviation Orders.
- Are they Hovercraft? No, by definition, they are not.
- Are they “ground effect” vehicles? Some might be – some might be capable of flight well outside ground effect. Generally speaking, ground effect vehicles (craft not capable of altitudes of more than a metre or so) are outside the scope of CASA.

The definition of “aircraft” from Civil Aviation Act 1988 tends to support that:

“Aircraft” means any machine or craft that can derive support in the atmosphere from the reactions of the air, other than the reactions of the air against the earth’s surface.

Experimental Certificates:

Would a manned multi-rotor craft be eligible to receive an amateur-built experimental certificate? On the face of it – perhaps. Remember – for an amateur-built experimental aircraft, there are no design criteria to meet. You can build anything you like, out of anything you like, and power it with anything you like. So why not a manned multi-rotor?

What’s the catch? It would have to meet **all** of the same criteria as a regular experimental would – be it aeroplane or helicopter. VH markings, EXPERIMENTAL marking, placards, day VFR instrumentation (airspeed, altimeter, compass, clock), documentation, maintenance manuals, pilot operating handbook, and so on. For something largely designed and built for mucking about in your back paddock (so to speak) – that sounds like a lot of phooey doesn’t it? Well you’re probably right, but the amateur-built experimental regulations are what they are, and when they were written over 20 years ago now, manned multi-rotor craft didn’t exist – nor did your hobby camera equipped radio controlled drone.

Pilot licence:

Here is where the real problem begins. You can’t fly one on a Pilot Licence – Aeroplane, Helicopter or Gyroplane. It’s not an aeroplane nor a helicopter nor a gyroplane. What licence do you need then? Currently, CASA does not have any licence that would permit a manned multi-rotor to be flown. ***Or do they.....?***

CASR Part 61 Regulations mention a “powered lift” category of aircraft.

CASR Definitions show that to be:

powered-lift aircraft means a power-driven heavier-than-air aircraft that derives its lift in flight:

(a) during vertical manoeuvring and low-speed flight - from:

(i) the reaction of air on one or more normally power-driven rotors on substantially vertical axes; or

(ii) engine thrust; and

(b) otherwise - chiefly from aerodynamic reactions on surfaces remaining fixed under given conditions of flight.



That all sounds like a manned multi-rotor territory to me.

What's the catch? Can I actually get one of those licences?

Well..... who knows? Here are the CASA requirements for such a licence:

CASR 61.555 Aeronautical experience requirements for grant of private pilot licences—powered-lift aircraft category

(1) An applicant for a private pilot licence with the powered-lift aircraft category rating must have at least 40 hours of aeronautical experience that includes:

- (a) at least 35 hours of flight time as a pilot; and
- (b) at least 30 hours of flight time as pilot of a powered-lift aircraft or helicopter; and
- (c) at least 20 hours of flight time as pilot of a powered-lift aircraft; and
- (d) at least 10 hours of solo flight time in a powered-lift aircraft; and
- (e) at least 5 hours of solo cross-country flight time in a powered-lift aircraft; and
- (f) at least 2 hours of dual instrument time; and
- (g) at least one hour of dual instrument flight time in a powered-lift aircraft.

(2) Any of the required aeronautical experience that is not completed as flight time as a pilot must be completed as:

- (a) simulated flight time in an approved flight simulation training device for the purpose; or
- (b) tethered flight time.

(3) The cross-country flight time required by paragraph (1)(e) must include a flight of at least 150 nautical miles during which a full-stop landing is made at each of 2 landing areas, other than the one from which the flight began.

So reading that closely, you must have powered-lift flight time logged to get a licence, but you can't legally fly a powered-lift aircraft without the licence! You can use a simulator - a CASA APPROVED simulator. Good luck finding one of those. Then, a cross country flight of 150 miles? That might take you about eighty days to complete at 15 knots and 20 minutes duration. Oh, and don't forget your mandatory 30 minutes of reserve fuel now required.

What does CASA Sport Aviation have to say on the topic of manned multi-rotor craft?

As at January 2020:

“We get an enquiry of this type at least once a week. There are so many people looking to import something from overseas, or develop something in Australia. CASA has no category for the operation of this type of vehicle, additionally there is no pilot license/endorsement that covers operation of this type of aircraft. It is not covered by any Experimental category, including amateur built experimental. The ONLY avenue available for development/operation of such an aircraft would be via CASA issued exemptions. You can always point them to us at CASA Sport Aviation.”

We imagine that this topic will evolve over time. Stay tuned for edition 002 of this Information Paper as more info comes to hand.