

Theory Brief 7: Advanced Manoeuvres

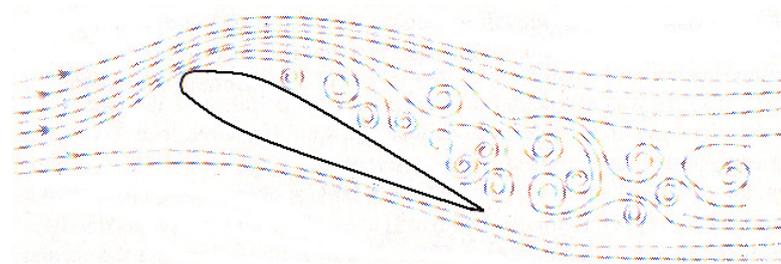
Aim:

“To introduce the student to advanced flight concepts, whilst consolidating knowledge and piloting skills, with a view to attaining the RAAus Pilot Certificate ”

Objectives: Advanced Stalls

1. To be aware of the consequences of an advanced stall and recognise the height lost during recovery.
2. To be able to recover from the advanced stall with minimal height loss.
3. To be able to recognise the approaching advanced stall so that it can be avoided, especially in potentially dangerous situations (circuits).

- An advanced stall occurs under high power settings and at higher IAS than the straight ahead stall practiced previously.
- This has the effect of introducing greater torque effect from the engine/propeller as it is turning at higher power settings.
- This can cause a rolling force, which will make a wing drop at the time of stalling. (Normally Left)



Recovery technique –

1. Ailerons must be centred to neutral,
2. Any turning effect is countered with opposite rudder,
3. Reduce back pressure on the control column to reduce the angle of attack.
4. Apply power. Once flying speed has been achieved, rearward pressure of the controls will arrest any descent and allow the establishment to straight and level flight.

Safety Checks

Prior to commencing stalling and/or steep turn exercises, we must ensure we have:

- | | |
|----------------------|--|
| H – Height, | Set a minimum safe altitude which we will not descend below during the stalling exercises. 2000' AGL. |
| A- Airframe, | Flaps are set (in required stage), check airframe condition ie. No icing, nothing damaged etc. |
| S- Select, | Identified a suitable emergency landing field in the event of an engine failure considering wind, obstacles etc |
| S - Security, | Harnesses secure, Aircraft secure, no loose objects. |
| E – Engine, | Check Engine Gauges are in the green and Electric Fuel Pump "ON". |
| L- Lookout, | Conduct a lookout clearing turn by: <ol style="list-style-type: none"> 1. Turning 90 from heading Left/Right and turning back to original heading or; 2. Turning 180 and maintain a full lookout in all directions |

ACRONYM – HASSEL

Height, Airframe, Select, Security, Engine, Lookout.



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Airmanship

Aircraft Limitations

AIRSPPEEDS

V _{NE}	140 kts	(Velocity Never Exceed)
V _{NO}	112 kts	(Never exceed unless in smooth air)
V _A	112 kts	(Full or abrupt control inputs may over stress airframe)
V _{FE}	84 Kts	(Velocity Flap Extension Max)
V _{SO}	45 kts	(Stall speed with full flaps)

Structural information

MANOEUVRES PERMITTED (RAAus)

The Jabiru J160 aircraft is not approved for aerobatic manoeuvres, or where the attitude will exceed an angle of 60 degrees. http://www.jabiru.net.au/Manuals/Pilot%20Operating%20Handbooks/J160-C_Section0-9_Rev3.pdf

Operations shall be limited to the normal flying manoeuvres, but may include straight and steady stalls and turns in which the angle of bank to the horizontal is 45° or less. All aerobatic manoeuvres including spins are prohibited

Manoeuvre Limits.
Stalls should only be practised from level flight.
All aerobatic manoeuvres including spins are prohibited.

Flight Load Factor Limits

Flap Position	Speed	Positive	Negative
UP	V _A	+ 3.8g	-1.9g
UP	V _{NE}	+ 3.8g	-1.9-g
DOWN	V _{FE}	+ 2.0g	0g

Table 2.9

Air Exercise : Advanced Stalls

Stall the aircraft with power at 2400 RPM.

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