FAE-2 Aerobatics — 1,500 ft AGL

1 Unit description

This unit describes the skills and knowledge required to design and plan an aerobatic routine and conduct aerobatics safely not below 1,500 ft AGL.

2 Elements and performance criteria

2.1 FAE-2.1 – Design an aerobatic routine

(a) design a sequence of aerobatic manoeuvres that meet a specified requirement, involve practical transitions between manoeuvres, and identify performance parameters that will ensure safe completion of all manoeuvres not below 1,500 ft AGL;

(b) identify performance parameters based on a combination of aircraft attitude, power setting, altitude and speed that provide go-no go guidance for safe completion of all manoeuvres not below 1,500 ft AGL within the physical limitations of the pilot and structural limitations of the aircraft.

2.2 FAE-2.2 – Plan an aerobatic performance

(a) identify the stakeholder requirements for the aerobatic sequence and formulate a plan to safely present the sequence, meeting the specified requirements;

(b) ensure any required aerobatic approvals are appropriate, valid and current;

(c) analyse prevailing and forecast weather and apply wind velocity, visibility and cloud base to ensure safe and accurate aerobatic performance;

(d) identify the 'aerobatic box' when appropriate, and plan manoeuvres to remain within the box;

(e) modify aerobatic performance if weather conditions cause (or controlling authority imposes) limitations, when appropriate;

(f) recall and apply the identified go-no go performance criteria to plan break-off manoeuvres at any point of the aerobatic sequence where performance criteria are not achievable;

(g) recall escape manoeuvres that could be required during the aerobatic sequence stating the go-no go criteria and detail the escape manoeuvres that will result in (return to) controlled flight not below 1,500 ft AGL.

2.3 FAE-2.3 – Conduct aerobatics not below 1,500 ft AGL

(a) complete a specified sequence of aerobatic manoeuvres in accordance with display plan in the specified time;

(b) ensure performance parameters required for safe completion of the manoeuvre are achieved prior to commencement of each manoeuvre;

(c) maintain orientation with display axis;

(d) manage the energy potential of the aircraft to ensure completion of manoeuvres and sequences of manoeuvres within aircraft structure and minimum height limits;

(e) recognise the failure to achieve performance parameters (energy requirement) to complete a manoeuvre and manage the aircraft to regain the manoeuvre energy potential;

(f) maintain height at or above a specified altitude not below 1,500 ft AGL.

3 Range of variables

(a) activities are performed in accordance with published procedures;

(b) day VFR;

(c) aerobatic aircraft;

(d) lateral and vertical limitations imposed on manoeuvring airspace.

4 Underpinning knowledge of the following:

(a) energy management as applied to aerobatic routines;

(b) the minimum height required to complete a pull through manoeuvre, remaining within the structural limits of the aircraft, from inverted flight at 80 kts in the aircraft type being flown;

(c) the minimum height required to recover from a spin in the aircraft type being flown;

(d) the recovery technique to regain physiological and aircraft control when disorientation is experienced;

(e) the 'g' limitations for the aircraft being flown;

(f) the rolling 'g' limitations for the aircraft being flown;

(g) maximum rate turn criteria;

(h) minimum radius turn criteria;

(i) the precautions that should be taken with regard to radius of turn when operating at a high-density altitude;

(j) factors that lead to increased density altitude.

FAE-3 Aerobatics — 1,000 ft AGL

1 Unit description

This unit describes the skills and knowledge required to design and plan an aerobatic routine and conduct aerobatics safely not below 1,000 ft AGL.

2 Elements and performance criteria

2.1 FAE-3.1 – Design an aerobatic routine

(a) design a sequence of aerobatic manoeuvres that meet a specified requirement, involve practical transitions between manoeuvres, and identify performance parameters that will ensure safe completion of all manoeuvres not below 1,000 ft AGL;

(b) identify performance parameters based on a combination of aircraft attitude, power setting, altitude and speed that provide go-no go guidance for safe completion of all manoeuvres not below 1,000 ft AGL within the physical limitations of the pilot and structural limitations of the aircraft.

2.2 FAE-3.2 – Plan an aerobatic performance

(a) identify the stakeholder requirements for the aerobatic sequence and formulate a plan to safely present the sequence, meeting the specified requirements;

(b) ensure any required aerobatic approvals are appropriate, valid and current;

(c) analyse prevailing and forecast weather and apply wind velocity, visibility and cloud base to ensure safe and accurate aerobatic performance;

(d) identify the 'aerobatic box' when appropriate, and plan manoeuvres to remain within the box;

(e) modify aerobatic performance if weather conditions cause (or controlling authority imposes) limitations, when appropriate;

(f) recall and apply the identified go-no go performance criteria to plan break-off manoeuvres at any point of the aerobatic sequence where performance criteria are not achievable;

(g) recall escape manoeuvres that could be required during the aerobatic sequence stating the go-no go criteria and detail the escape manoeuvres that will result in (return to) controlled flight not below 1,000 ft AGL.

2.3 FAE-3.3 – Conduct aerobatics above 1,000 ft AGL

(a) complete a specified sequence of aerobatic manoeuvres in accordance with display plan in the specified time;

(b) ensure performance parameters required for safe completion of the manoeuvre are achieved prior to commencement of each manoeuvre;

(c) maintain orientation with display axis;

(d) manage the energy potential of the aircraft to ensure completion of manoeuvres and sequences of manoeuvres within aircraft structure and minimum height limits;

(e) recognise the failure to achieve performance parameters (energy requirement) to complete a manoeuvre and manage the aircraft to regain the manoeuvre energy potential;

(f) maintain height at or above a specified altitude not below 1,000 ft AGL.

3 Range of variables

(a) activities are performed in accordance with published procedures;

(b) day VFR;

(c) aerobatic aircraft;

(d) lateral and vertical limitations imposed on manoeuvring airspace.

4 Underpinning knowledge of the following:

(a) energy management as applied to aerobatic routines;

(b) the minimum height required to complete a pull through manoeuvre, remaining within the structural limits of the aircraft, from inverted flight at 80 kts in the aircraft type being flown;

(c) the minimum height required to recover from a spin in the aircraft type being flown;

(d) the recovery technique to regain physiological and aircraft control when disorientation is experienced;

(e) the 'g' limitations for the aircraft being flown;

(f) the rolling 'g' limitations for the aircraft being flown;

(g) maximum rate turn criteria;

(h) minimum radius turn criteria;

(i) the precautions that should be taken with regard to radius of turn when operating at a high-density altitude;

(j) factors that lead to increased density altitude.

FAE-4 Aerobatics — 500 ft AGL

1 Unit description

This unit describes the skills and knowledge required to design an aerobatic sequence, plan an aerobatic performance and conduct aerobatics safely not below 500 ft AGL.

2 Elements and performance criteria

2.1 FAE-4.1 – Design an aerobatic routine

(a) design a sequence of aerobatic manoeuvres that meet a specified requirement, involve practical transitions between manoeuvres and identify performance parameters that will ensure safe completion of all manoeuvres not below 500 ft AGL;

(b) identify performance parameters based on a combination of aircraft attitude, power setting, altitude and speed that provide go-no go guidance for safe completion of all manoeuvres not below 500 ft AGL within the physical limitations of the pilot and structural limitations of the aircraft.

2.2 FAE-4.2 – Plan an aerobatic performance

(a) identify the stakeholder requirements for the aerobatic sequence and formulate a plan to safely present the sequence, meeting the specified requirements;

(b) ensure any required aerobatic approvals are appropriate, valid and current;

(c) analyse prevailing and forecast weather and apply wind velocity, visibility and cloud base to ensure safe and accurate aerobatic performance;

(d) demonstrate her or his ability to safely modify aerobatic performance if weather conditions cause, or controlling authority imposes, limitations (when appropriate);

(e) plan a safe aerobatic display using manoeuvres applicable to a prescribed or actual limited cloud base (plan a 'flat' or 'low' show);

(f) recall and apply the identified go-no go performance parameters to plan break-off manoeuvres at any point of the aerobatic sequence where performance criteria are not achieved;

(g) recall escape manoeuvres that could be required during the aerobatic sequence stating the go-no go criteria and detail the escape manoeuvres that will result in (return to) controlled flight not below 500 ft AGL.

2.3 FAE-4.3 – Conduct aerobatics not below 500 ft AGL

(a) complete a specified sequence of aerobatic manoeuvres in accordance with display plan in the specified time;

(b) ensure performance parameters required for safe completion of the manoeuvre are achieved prior to commencement of each manoeuvre;

(c) maintain orientation with display axis;

(d) manage the energy potential of the aircraft to ensure completion of manoeuvres and sequences of manoeuvres within aircraft structure and minimum height limits;

(e) recognise the failure to achieve performance parameters (energy requirement) to complete a manoeuvre and manage the aircraft to regain the manoeuvre energy potential;

(f) maintain height at or above a specified altitude not below 500 ft AGL;

(g) demonstrate safe behaviour.

3 Range of variables

(a) activities are performed in accordance with published procedures;

(b) day VFR.

4 Underpinning aeronautical knowledge of the following:

(a) energy management as applied to aerobatic routines;

(b) the minimum height required to complete a pull through manoeuvre, remaining within the structural limits of the aircraft, from inverted flight at 80 kts in the aircraft type being flown;

(c) minimum height required to recover from a spin in the aircraft type being flown;

(d) recovery technique to regain physiological and aircraft control when disorientation is experienced;

(e) 'g' limitations for the aircraft being flown;

(f) rolling 'g' limitations for the aircraft being flown;

(g) Beggs-Mueller emergency spin recovery technique;

(h) maximum rate turn criteria;

(i) minimum radius turn criteria;

(j) precautions that should be taken with regard to radius of turn when operating at a high-density altitude;

(k) factors that lead to increased density altitude;

(l) potential danger associated with conducting aerobatics at 500 ft AGL over unfamiliar terrain.