

FAE-6 Formation flying — aeroplane

1 Unit description

This unit describes the skills and knowledge required to safely fly an aeroplane in formation, plan a formation flight, brief all participants and lead a formation.

2 Elements and performance criteria

2.1 FAE-6.1 – Fly echelon formation

- (a) maintain the specified echelon right and left formation stations while remaining in the lateral plane of the lead aircraft during all manoeuvres and phases of flight;
- (b) balance aircraft;
- (c) apply standard clear and concise radiotelephony phraseology to ensure precise advice to formation lead and other formation aircraft;
- (d) perform pairs take-off;
- (e) perform pairs stream take-off and join up;
- (f) apply specified procedures and hand signals (non-verbal) for take-off;
- (g) maintain the specified echelon position during take-off.

2.2 FAE-6.2 – Fly line astern formation

- (a) maintain the specified line astern formation station while remaining stepped down parallel to the lateral plane of the lead aircraft during all manoeuvres and phases of flight;
- (b) maintain wings parallel to lead aircraft;
- (c) balance aircraft.

2.3 FAE-6.3 – Perform station changes

Manoeuvre the aeroplane safely to specified alternative formation stations during all phases of flight in the briefed sequence, while remaining clear of all other formation aircraft.

2.4 FAE-6.4 – Perform manoeuvres in echelon and line astern

- (a) straight and level at various airspeeds
- (b) level turns at various airspeeds
- (c) climbing:
 - (i) straight;
 - (ii) turning;
- (d) descending at various speeds:
 - (i) straight;
 - (ii) turning;
- (e) flight in various aircraft configurations:
 - (i) straight and level;
 - (ii) turning and level;
 - (iii) descending in straight flight;
 - (iv) descending and turning;
- (f) perform break and rejoin:
 - (i) recognise loss of contact with formation or any other requirement to break away and implement a decision to break away from the formation;
 - (ii) break away from formation lead by creating positive track and height separation with the remaining formation aircraft;
 - (iii) notify formation leader of break away;

- (iv) maintain track and height separation until cleared by formation leader to rejoin the formation;
 - (v) regain visual contact with leader;
 - (vi) transmit rejoin intentions;
 - (vii) maintain vertical separation with the remaining formation aircraft;
 - (viii) establish and manage overtaking speed while maintaining vertical separation;
- (g) establish a flight path that will ensure the aircraft will pass behind and below the formation in the event of a join-up overshoot:
 - (i) position the aircraft into the recognised formation position;
- (h) perform circuit and stream landing:
 - (i) conduct formation break into the circuit;
 - (ii) maintain separation with other formation aircraft;
 - (iii) manage wake turbulence;
 - (iv) land in turn;
- (i) perform formation landing:
 - (i) maintain formation position and
 - (A) carry out pre-landing checks;
 - (B) configure aircraft on leader's call;
 - (C) land aircraft;
 - (ii) after landing, ensure horizontal and lateral separation is established;
 - (iii) after clearing runway establish formation taxiing position;
 - (iv) conduct after-landing checks;
- (j) perform formation overshoot:
 - (i) maintain formation position;
 - (ii) configure aircraft on instructions from leader;
 - (iii) complete after take-off checks.

2.5 FAE-6.5 – Plan a formation flight

- (a) identify the task requirements for the flight;
- (b) arrange crews, briefing venue and time, and coordinate aircraft availability;
- (c) analyse the tasks to be achieved and determine the manoeuvres and formations that ensure safe achievement of the task;
- (d) plan flight route to allow task achievement in the time available and within performance capabilities of the flight, while complying with all air traffic, area limitations and navigation requirements;
- (e) plan actions in the event of abnormal or emergency situations involving the formation.

2.6 FAE-6.6 – Brief and de-brief formation pilots

- (a) explain and confirm the ground and flight manoeuvres to be conducted;
- (b) explain and confirm timings, route(s), speeds and altitudes to be flown;
- (c) identify and nominate deputy leader and explain and confirm responsibilities;
- (d) explain and confirm communication procedures, in-flight minimum fuel, abnormal and emergency procedures and method of return for landing;
- (e) identify achievements and any faults or errors that occurred during the formation flight and provides guidance and feedback to other formation members during the post-flight de-brief.

2.7 FAE-6.7 – Lead a formation flight

- (a) manoeuvre lead aircraft using controlled corrective action to ensure a stable platform for pilots flying in formation stations;

- (b) manoeuvre the formation safely anticipating and allowing for formation size, proximity to obstructions, terrain, airspace limitations, weather conditions and air traffic, while ensuring compliance with regulatory requirements;
- (c) direct and control the formation using precise standard radio phraseology, hand and other signal procedures;
- (d) manage lost contact procedures in accordance with standard operating procedures;
- (e) monitor formation member's flight performances and reacts appropriately to any problems.

2.8 FAE-6.8 – Manage abnormal and emergency situations during formation flight

- (a) control aircraft and formation when leading;
- (b) manage abnormal or emergency situations in accordance with standard operating procedures or AFM and POH, both as flight leader and as pilot in command of a non-lead aircraft.

3 Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) day VFR;
- (c) two or more aircraft.

4 Underpinning knowledge of the following:

- (a) left and right echelon positions for the aeroplane being flown;
- (b) the reference points that are used to achieve a specified formation position;
- (c) line astern position for the aeroplane being flown;
- (d) how to manoeuvre from echelon to line astern;
- (e) how to manoeuvre from echelon right to echelon left;
- (f) how to manoeuvre from line astern to echelon;
- (g) the verbal and non-verbal signals for:
 - (i) commence take off roll;
 - (ii) position changes;
 - (iii) radio receiver failure;
 - (iv) radio transmitter failure;
- (h) lost contact procedure;
- (i) formation rejoin procedures.