BFCL.130 BPL – Training course and experience requirements

Regulation (EU) 2020/357

Applicants for a BPL shall complete a training course at an ATO or a DTO. The course shall be tailored to the privileges sought and shall include:

1. theoretical knowledge as specified in point BFCL.135(a);

2. at least 16 hours of flight instruction in either hot-air balloons that represent group A of that class, or gas balloons, including at least:

    1. 12 hours of dual flight instruction;
    2. 10 inflations and 20 take-offs and landings; and
    3. One supervised solo flight with a flight time of at least 30 minutes.

AMC1 BFCL.130 BPL – Training course and experience requirements

ED Decision 2020/003/R

Theoretical knowledge instruction for the BPL

1. General

    The training should cover aspects related to non-technical skills in an integrated manner, takinginto account the particular risks associated with the licence and the activity. The theoretical knowledge instruction provided by the declared training organisation (DTO) or approved training organisation (ATO) should include a certain element of formal classroom work but may also include other methods of delivery — for example, interactive video, slide or tape presentation, computer-based training and other media distance-learning courses. The training organisation responsible for the training has to check whether all the appropriate elements of the training course of theoretical knowledge instruction have been completed to a satisfactory standard before recommending the applicant for the examination.

2. Syllabus

    The following table contains the syllabus for theoretical knowledge instruction for the BPL:

    Note: The content of Subjects 5 (Principles of flight), 6 (Operational procedures), 7 (Flight performance and planning), and 8 (Aircraft general knowledge, envelope and systems and emergency equipment) should contain aspects as relevant for the class of balloon used for the training, unless a certain element is specifically marked as relevant for one particular class only.

1.	**Air law and ATC procedures**
1.1.	International law: conventions, agreements and organisations
1.2.	Airworthiness of aircraft
1.3.	Aircraft nationality and registration marks
1.4.	Personnel licensing
1.5.	Rules of the air
1.6.	Procedures for air navigation: aircraft operations
1.7.	Air traffic regulations: airspace structure
1.8.	Air traffic services (ATS) and air traffic management (ATM)
1.9.	Aeronautical information services (AIS)
1.10.	Aerodromes, external take-off sites
1.11.	Search and rescue
1.12.	Security
1.13.	Accident reporting
1.14.	National law
2.	**Human performance**
2.1.	Human factors: basic concepts
2.2.	Basic aviation physiology and health maintenance
2.3.	Basic aviation psychology
2.4.	Use of oxygen
3.	**Meteorology**
3.1.	The atmosphere
3.2.	Wind
3.3.	Thermodynamics
3.4.	Clouds and fog
3.5.	Precipitation
3.6.	Air masses and fronts
3.7	Pressure systems
3.8.	Climatology
3.9.	Flight hazards
3.10.	Meteorological information
4.	**Communications**
4.1.	Definitions
4.2.	VFR communications
4.2.1	VFR communication at uncontrolled airfields
4.2.2.	VFR communication at controlled airfields
4.2.3.	VFR communication with ATC (en-route)
4.3.	General operating procedures
4.4.	Relevant weather information terms (VFR)
4.5.	Action required to be taken in case of communication failure
4.6.	Distress and urgency procedures
4.7.	General principles of VHF propagation and allocation of frequencies
5.	**Principles of flight**
5.1.	Principles of flight
5.2.	Aerostatics
5.3.	Loading limitations

1.	**Air law and ATC procedures**
5.4.	Operational limitations
6.	**Operational procedures**
6.1.	General requirements
6.2.	Special operational procedures and hazards (general aspects)
6.3.	Emergency procedures
7.	**Flight performance and planning**
7.1.	Mass
7.1.1.	Purpose of mass considerations
7.1.2.	Loading
7.2.	Performance
7.2.1.	Performance: general
7.3.	Flight planning and flight monitoring
7.3.1.	Flight planning: general
7.3.2.1.	Fuel planning (hot-air balloons only)
7.3.2.2.	Ballast planning (gas balloons only)
7.3.3.	Pre-flight preparation
7.3.4.	ICAO flight plan (ATS flight plan)
7.3.5.	Flight monitoring and in-flight re-planning
8.	**Aircraft general knowledge, envelope and systems and emergency equipement**
8.1.	System design, loads, stresses and maintenance
8.2.	Envelope
8.3.1.	Burner (hot-air balloon only)
8.3.2.	Basket
8.4.1	Fuel cylinders (hot-air balloons only)
8.4.2.	Lifting gas (gas balloons only)
8.5.	Ballast (gas balloons only)
8.6.	Fuel (hot-air balloons only)
8.7.	Instruments
8.8.	Emergency equipment
9.	**Navigation**
9.1.	General navigation
9.2.	Basics of navigation
9.3.	Magnetism and compasses
9.4.	Charts
9.5.	Dead reckoning navigation
9.6.	In-flight navigation
9.7.	Use of GNSS
9.8.	Use of ATS

AMC2 BFCL.130 BPL – Training course and experience requirements

ED Decision 2020/003/R

Flight instruction for the BPL

1. Entry to training

   Before being accepted for training, an applicant should be informed that the appropriate medical certificate must be obtained before solo flying is permitted.

2. Flight instruction — general

   1. The BPL flight instruction syllabus should take into account the principles of threat and error management (TEM) and also cover:

      1. pre-flight operations, including load calculations, balloon inspection and servicing;
      2. crew and passenger briefings;
      3. inflation and crowd control;
      4. control of the balloon by external visual reference;
      5. take-off in different wind conditions;
      6. approach from low and high level;
      7. landings in different surface wind conditions;
      8. cross-country flying using visual reference and dead reckoning;
      9. emergency operations, including simulated balloon equipment malfunctions;
      10. compliance with air traffic services procedures and communication procedures;
      11. avoidance of nature protection areas; and
      12. landowner relations.

   2. Before allowing applicants to undertake their first solo flight, the FI should ensure that they can operate the required systems and equipment.

(c) Syllabus of flight instruction (hot-air balloon)

(1) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide; therefore, the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

(i) the applicant’s progress and ability;

- (ii) the weather conditions affecting the flight;
- (iii) the flight time available;
- (iv) the instructional technique considerations;
- (v) the local operating environment; and
- (vi) the applicability of the exercises to the balloon type.

(2) Each of the exercises requires the applicant to be aware of the need for as well as the principles of good airmanship and look-out, which should be emphasised at all times.

List of exercises

Exercise 1: Familiarisation with the balloon

- (i) characteristics of the balloon;
- (ii) the components or systems;
- (iii) refuelling of the cylinders;
- (iv) instruments and equipment; and
- (v) use of checklist(s) and procedures.

Exercise 2: Preparation for flight

- (i) documentation and equipment;
- (ii) weather forecast and actuals;
- **(iii) flight planning:**
  - (A) notices to airmen (NOTAMs);
  - (B) airspace structure;
  - (C) sensitive areas (for example, nature protection areas);
  - (D) expected track and distance;
  - (E) pre-flight picture; and
  - (F) possible landing fields.
- **(iv) launch field:**
  - (A) permission;
  - (B) field selection;
  - (C) behaviour; and
  - (D) adjacent fields; and
- (v) load calculations.

Exercise 3: Crew and passenger briefing

- (i) clothing;
- (ii) crew briefing; and
- (iii) passenger briefing.

Exercise 4: Assembly and layout

- (i) crowd control;
- (ii) rigging envelope, basket and burner;
- (iii) burner test;
- (iv) use of restraint line; and
- (v) pre-inflation checks.

Exercise 5: Inflation

- (i) crowd control;
- (ii) cold inflation;
- (iii) use of the inflation fan; and
- (iv) hot inflation.

Exercise 6: Take-off in different wind conditions

- (i) pre-take-off checks and briefings;
- (ii) heating for controlled climb;
- (iii) ‘hands off and hands on' procedure for ground crew;
- (iv) assessment of lift;
- (v) use of quick release;
- (vi) assessment of wind and obstacles;
- (vii) take-off in wind of different speeds, with and without shelter; and
- (viii) preparation for false lift.

Exercise 7: Climb to level flight

- (i) climbing with a predetermined rate of climb;
- (ii) look-out procedures;
- (iii) effect on envelope temperature;
- (iv) maximum rate of climb according to the manufacturer’s flight manual; and
- (v) levelling off at selected altitude.

Exercise 8: Level flight

- (i) maintaining level flight by:
  - (A) use of instruments only;
  - (B) use of visual references only; and
  - (C) all available means; and

- (ii) use of parachute and turning vents (if applicable).

Exercise 9: Descent to level flight

- (i) descent with a predetermined rate of descent;
- (ii) fast descent;
- (iii) look-out procedures;
- (iv) maximum rate of descent according to the manufacturer’s flight manual;
- (v) use of parachute;
- (vi) parachute stall;
- (vii) cold descent; and
- (viii) levelling off at selected altitude.

Exercise 10A: Emergencies — systems

- (i) pilot light failure;
- (ii) burner failure, valve leaks, flame out and re-light;
- (iii) gas leaks;
- (iv) envelope over temperature;
- (v) envelope damage in-flight; and
- (vi) parachute or rapid deflation system failure.

Exercise 10B: Other emergencies

- (i) fire extinguisher;
- (ii) fire on ground;
- (iii) fire in the air;
- (iv) contact with electrical power lines;
- (v) obstacle avoidance; and
- (vi) escape drills, location and use of emergency equipment.

Exercise 11: Navigation

- (i) maps selection;
- (ii) plotting expected track;
- (iii) marking positions and time;
- (iv) calculation of distance, speed and fuel consumption;
- (v) ceiling limitations (ATC, weather and envelope temperature);
- (vi) planning ahead;
- (vii) monitoring of weather development and related decision-making/acting;
- (viii) monitoring of fuel consumption and envelope temperature;
- (ix) ATC liaison (if applicable);
- (x) communication with retrieve crew; and
- (xi) use of GNSS (if applicable).

Exercise 12: Fuel management

- (i) cylinder arrangement and burner systems;
- (ii) pilot light supply (vapour or liquid);
- (iii) use of master cylinders (if applicable);
- (iv) fuel requirement and expected fuel consumption;
- (v) fuel state and pressure;
- (vi) fuel reserves;
- (vii) cylinder contents gauge and change procedure; and
- (viii) use of cylinder manifolds.

Exercise 13: Approach from low level

- (i) pre-landing checks;
- (ii) passenger pre-landing briefing;

- (iii) selection of field;
- (iv) use of burner and parachute;
- (v) look-out procedures; and
- (vi) missed approach and fly on.

Exercise 14: Approach from high level

- (i) pre-landing checks;
- (ii) passenger pre-landing briefing;
- (iii) selection of field;
- (iv) rate of descent;
- (v) use of burner and parachute;
- (vi) look-out procedures; and
- (vii) missed approach and fly on.

Exercise 15: Operating at low level

- (i) use of burner, whisper burner and parachute;
- (ii) look-out procedures;
- (iii) avoidance of low-level obstacles;
- (iv) avoidance of sensitive areas and nature protection areas; and
- (v) landowner relations.

Exercise 16: Landing in different wind conditions

- (i) pre-landing checks;
- (ii) passenger pre-landing briefing;
- (iii) selection of field;
- (iv) turbulence (in the case of landings with high wind speed only);
- (v) use of burner and pilot lights;
- (vi) use of parachute (or other deflation system) and turning vents (if applicable);
- (vii) look-out procedures;
- (viii) dragging and deflation;
- (ix) landowner relations; and
- (x) airmanship.

Exercise 17: First solo flight

- (i) supervised flight preparation; and
- (ii) instructor’s briefing, observation of flight and de-briefing.

Note: Exercises 1 to 16 must have been completed and the student must have achieved a sufficient level of competence to safely perform a flight before undertaking the first solo flight.

(d) Syllabus of flight instruction (gas balloon)

(1) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide; therefore, the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

- (i) the applicant’s progress and ability;
- (ii) the weather conditions affecting the flight;
- (iii) the flight time available;
- (iv) the instructional technique considerations;
- (v) the local operating environment; and
- (vi) the applicability of the exercises to the balloon type.

(2) Each of the exercises involves the need for the pilot under training to be aware of the needs of good airmanship and look-out, which should be emphasised at all times.

(3) List of exercises

Exercise 1: Familiarisation with the balloon

- (i) characteristics of the balloon;
- (ii) the components or systems;
- (iii) instruments and equipment; and
- (iv) use of checklist(s) and procedures.

Exercise 2: Preparation for flight

- (i) documentation and equipment;
- (ii) weather forecast and actuals;
- **(iii) flight planning:**
  - (A) NOTAMs;
  - (B) airspace structure;
  - (C) sensitive areas (for example, nature protection areas);
  - (D) expected track and distance;
  - (E) pre-flight picture; and
  - (F) possible landing fields;
- **(iv) launch field:**
  - (A) permission;
  - (B) behaviour; and
  - (C) adjacent fields; and
- (v) load calculations.

Exercise 3: Crew and passenger briefing

- (i) clothing;

- (ii) crew briefing; and
- (iii) passenger briefing.

Exercise 4: Assembly and layout

- (i) crowd control;
- (ii) rigging envelope and basket (balloon with net);
- (iii) rigging envelope and basket (netless balloon); and
- (iv) ballast check.

Exercise 5: Inflation

- (i) crowd control;
- (ii) inflation procedure according to the manufacturer’s flight manual; and
- (iii) avoidance of electrostatic discharge.

Exercise 6: Take-off in different wind conditions

- (i) pre-take-off checks and briefings;
- (ii) preparation for controlled climb;
- (iii) ‘hands off and hands on’ procedure for ground crew;
- (iv) assessment of wind and obstacles;
- (v) take-off in wind of different speeds, with and without shelter; and
- (vi) preparation for false lift.

Exercise 7: Climb to level flight

- (i) climb with a predetermined rate of climb;
- (ii) look-out procedures;
- (iii) maximum rate of climb according to the manufacturer’s flight manual; and
- (iv) levelling off at selected altitude.

Exercise 8: Level flight

- (i) maintaining level flight by:
  - (A) use of instruments only;
  - (B) use of visual references only; and
  - (C) all available means; and

- (ii) use of parachute or valve

Exercise 9: Descent to level flight

- (i) descent with a predetermined rate of descent;
- (ii) fast descent;

- (iii) look-out procedures;
- (iv) maximum rate of descent according to the manufacturer’s flight manual;
- (v) use of parachute or valve; and
- (vi) levelling off at selected altitude.

Exercise 10: Emergencies

- (i) closed appendix during take-off and climb;
- (ii) envelope damage in-flight;
- (iii) parachute or valve failure;
- (iv) contact with electrical power lines;
- (v) obstacle avoidance; and
- (vi) escape drills, location and use of emergency equipment.

Exercise 11: Navigation

- (i) map selection;
- (ii) plotting expected track;
- (iii) marking positions and time;
- (iv) calculation of distance, speed and ballast consumption;
- (v) ceiling limitations (ATC, weather and ballast);
- (vi) planning ahead;
- (vii) monitoring of weather development and acting so;
- (viii) monitoring of ballast consumption;
- (ix) ATC liaison (if applicable);
- (x) communication with retrieve crew; and
- (xi) use of GNSS (if applicable).

Exercise 12: Ballast management

- (i) minimum ballast;
- (ii) arrangement and securing of ballast;
- (iii) ballast requirement and expected ballast consumption; and
- (iv) ballast reserves.

Exercise 13: Approach from low level

- (i) pre-landing checks;
- (ii) passenger pre-landing checks;
- (iii) selection of field;
- (iv) use of ballast and parachute or valve;
- (v) use of trail rope (if applicable);
- (vi) look-out procedures; and
- (vii) missed approach and fly on.

Exercise 14: Approach from high level

- (i) pre-landing checks;
- (ii) passenger pre-landing checks;
- (iii) selection of field;
- (iv) rate of descent;
- (v) use of ballast and parachute or valve;
- (vi) use of trail rope (if applicable);
- (vii) look-out procedures; and
- (viii) missed approach and fly on.

Exercise 15: Operating at low level

- (i) use of ballast and parachute or valve;
- (ii) look-out procedures;
- (iii) avoidance of low-level obstacles;
- (iv) avoidance of sensitive areas and nature protection areas; and
- (v) landowner relations.

Exercise 16: Landing in different wind conditions

- (i) pre-landing checks;
- (ii) passenger pre-landing briefing;
- (iii) selection of field;
- (iv) turbulence (in the case of landings with high wind speed only);
- (v) use of ballast and parachute or valve;
- (vi) look-out procedures;
- (vii) use of rip panel;
- (viii) dragging;
- (ix) deflation;
- (x) avoidance of electrostatic discharge; and
- (xi) landowner relations.

Exercise 17: First solo flight

- (i) supervised flight preparation; and
- (ii) instructor’s briefing, observation of flight and de-briefing.

Note: Exercises 1 to 16 have to be completed and the student must have achieved a sufficient level of competence to safely perform a flight before undertaking the first solo flight.

→ BFCL.135