Australian Government
Civil Aviation Safety Authority

SUMMARY OF PROPOSED CHANGE

Proposed amendments to Part 66 MOS - Modular licensing framework for aircraft maintenance engineers

Part 66 Manual of Standards and Part 147 Manual of Standards Amendment Instrument 2023 (No. 1)

Date	September 2023
Project number	MS 16/05
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Introduction

CASA is developing an alternate pathway for Part 66 of the *Civil Aviation Safety Regulations 1998* (CASR) aircraft engineer maintenance licence applicants. The proposed modular approach will allow prospective aircraft maintenance engineers to achieve earlier "modular" licensing outcomes, starting off with an initial licence that is limited in scope to suit the applicant's circumstances at the time, with the ability to expand the licence scope as time and circumstances permit, and the option of working toward a full category B1 (mechanical) or B2 (avionics) licence.

Contents

Reference material

Acronyms

The acronyms and abbreviations used in this Summary of proposed change (SPC) are listed in the table below.

Acronym	Description
AC	advisory circular
AEL	aircraft engineer licence
CAR	*Civil Aviation Regulations 1988*
CASA	Civil Aviation Safety Authority
CASR	*Civil Aviation Safety Regulations 1998*
MOS	Manual of Standards
MTO	Maintenance training organisation
SPC	summary of proposed change

References

Legislation

Legislation is available on the Federal Register of Legislation website https://www.legislation.gov.au/

Document	Title
Part 66 MOS	Part 66 Manual of Standards

Advisory material

CASA's advisory materials are available at https://www.casa.gov.au/publications-and-resources/guidance-materials

Document	Title
Guidance	Modular licence how does it work

Purpose and scope of the proposed amendments

Since the introduction of Part 66 of CASR, CASA has received submissions from industry stakeholders indicating that the Part 66 licence pathways are too inflexible, particularly in comparison to pathways for initial licence issue in the previous CAR 31 licensing system.

The “all or nothing” approach of Part 66 has been cited as a stumbling block for individuals, who either don’t have a strong interest in one of the aspects of a full Part 66 licence or who are unable to accumulate the necessary practical maintenance experience for all the required systems. The issue also affects people who hold foreign licences and are seeking to convert their foreign licence to an Australian licence.

These industry submissions generally suggest that a progressive, modular licensing structure should be developed to facilitate earlier and more achievable licensing outcomes with improved flexibility for licence applicants and businesses.

The aim of the proposed changes is to provide for faster, more flexible ‘initial’ licence outcomes (with limitations). The scope of the modular licensing framework will be limited using existing exclusions. This scope can be increased over time to achieve a full B1/B2 licence in a building block (modular) approach, by removing exclusions. Applicants will be able to use both self-study and Part 147 of CASR maintenance training organisation (MTO) training pathways.

We propose a 5-category approach framework similar to the previous Regulation 31 of the *Civil Aviation Regulation 1988* (CAR) structure, but with flexibility for more targeted exclusions against specific aircraft systems. This will be particularly useful in situations where the applicant cannot obtain practical experience. For example, pressurisation systems in remote areas.

We will use the existing Part 66 of CASR basic knowledge modules to ensure full compatibility with the existing Part 66 licence categories and subcategories.

The proposed framework

- will set eligibility requirements proportionate to the scope and range of maintenance to be performed
- will describe certification privileges based on the associated training/experience.

The Part 66 Manual of Standards (MOS) will provide for grant of Category B1 and Category B2 licences in the following subsets:

- Category B1 (Mechanical)
  - Airframes
    - aeroplane
    - rotorcraft.
  - Powerplants
    - turbine
    - piston.
  - Add-on extensions for propellers and electrical/instrument systems:

- Category B2 (Avionics)
  - electrical systems
  - instrument systems
  - radio systems.

Previous consultations

We have consulted with the Part 66 Technical Working Group (TWG) on the technical details of the proposed modular licensing structure. In December 2022 we published a Discussion paper on Part 66 modular licensing framework for aircraft maintenance engineers (DP 2218MS).

Respondents generally supported a modular licence structure based on existing Part 66 knowledge and experience requirements and using exclusions in order to expedite delivery of the intended benefits and outcomes.

Impact on industry

Part 66 examination topics will be specific to each modular outcome. This will result in a reduction of examination numbers for each basic knowledge module; however, examination standards will not be varied and at completion of a full B1 or B2 via the modular method, all relevant examinations will have been completed.

The current minimum experience requirement of 5 years for grant of a B1.1 or B1.3 for an applicant who has not undertaken any formal technical training would be reduced to 2 years for a Category B1 airframe only licence, or 3 years for Category B1 airframe and powerplant licence.

Minimum experience requirements for grant of a B1.2 or B1.4 under the same conditions would be reduced from 3 years to 2 years for an airframe only licence, or 3 years for airframe and powerplant licence.

Minimum experience requirements for grant of a B2 licence under the same conditions will be reduced from 5 years for a full B2 to 2 years for the first modular licence and one year for each additional module.

Some additional costs will be associated with candidates submitting applications for each module. However, modular licences are an optional pathway and applicants may choose to proceed through to a full B1 or B2 licence under existing provisions.

Additionally, B2 modular licences will each incur an examination fee; however applicants can elect to take the full knowledge examination in one sitting.

Safety risk analysis

The safety risk is considered to be low. There are no changes to examination standards and experience standards are proportional to the licence scopes.

Regulation impact statement

To be advised.

Closing date for comment

CASA will consider all comments received as part of this consultation process and incorporate changes as appropriate. Comments on the Consultation draft - Part 66 Manual of Standards and Part 147 Manual of Standards Amendment Instrument 2023 (No. 1) should be submitted through the online response form by close of business 12 October 2023.

Appendix A

Modular licence, how does it work

A.1 Changes to aircraft engineer licensing

Part 66 of the ***Civil Aviation Safety Regulations 1998 (CASR)***

We are introducing flexible pathways for you to get your aircraft engineer licence (a Part 66 licence).

Our new pathway is a modular licensing structure, which allows you to:

- get a licence sooner (with limitations)
- add to the scope of your licence (remove the limitations) as you get more experience and, where applicable, pass further examinations.

A.2 Benefits to modular licensing

Modular licensing provides you with greater flexibility to:

- achieve an initial Part 66 licence in less time with fewer examinations
- gradually increase the scope of your licence as you get more experience and, where applicable, pass further examinations.

It is ideal if you:

- wish to specialise and remain within a certain licence scope
- do not have a strong interest in other aspects of the full category licence
- do not have access to work experience for all aspects of a full category licence

Maintenance organisations also have flexibility to expand the licence scope of their employees to meet the needs of the business.

A.3 Why we’re introducing modular licensing

Current Part 66 legislation is based on EASA (European Union Aviation Safety Agency) Part 66 legislation with an all-or-nothing approach.

You must complete all the requirements for the full scope of a Category B1 or Category B2 licence. This can be particularly difficult if you work in the general aviation sector. You may rarely, or in some cases never, have the opportunity to gain the necessary practical experience on some aircraft systems in your place of employment.

The modular licensing structure allows you to choose what you want to study from options such as airframes, powerplants, electrical, instrument or radio systems.

A.4 How modular licensing works

Once you have completed core examinations and experience, you can apply for a licence. We issue the licence with 'exclusions' listed on it that limit the scope of the privileges of your licence in line with your experience and completed examinations. If you wish, you can complete further examinations and gain further experience to have those 'exclusions' removed. (An exclusion precludes you from certifying for maintenance on aircraft systems that you have not been trained on.)

A.5 Category B licences

Currently the Part 66 category B1 licences have these sub-categories:

- B1.1 - turbine aeroplanes
- B1.2 - piston aeroplanes
- B1.3 - turbine helicopters
- B1.4 - piston helicopters.

Part 66 Category B2 licences do not have any subcategories (but do cover avionics systems).

In the modular licensing structure, you have the option of one or more of the following:

- Category B1 licence options:
  - B1.1 or B1.2 aeroplane airframes
  - B1.3 or B1.4 helicopter airframes
  - B1.2 or B1.4 powerplant piston engines
  - B1.1 or B1.3 powerplant turbine engines
  - electrical / instrument systems extension (privileges for B1 licence holders).
- Category B2 licence options:
  - electrical systems
  - instrument systems
  - radio systems.

A.6 B1 modular licences

A.6.1 Privileges and limitations

Your B1 modular licence privileges and limitations are shown in the table below.

Table 1: B1 privileges and limitations

Licence	Certification privileges	Limitations
B1.1 / B1.2 Aeroplanes - airframes only	Aeroplane mechanical and structural systems	Excludes powerplant, electrical and instrument systems
B1.3 / B1.4 Helicopters - airframes only	Helicopter mechanical and structural systems	
B1.2 / B1.4 Piston engines only	Piston powerplant components and systems	Excludes airframe, electrical and instrument systems.
B1.1 / B1.3 Turbine engines only	Turbine powerplant components and systems.	

A.6.2 Basic knowledge — core subject module requirements

You must successfully complete at least:

- Eight examinations to qualify for an airframe-only licence
- Eight examinations to qualify for a powerplant-only licence

- Seven examinations to qualify for a turbine powerplant-only licence (for aircraft that do not have a propeller, such as turbofan aeroplanes).

The following table shows which subject modules apply to each B1 modular licence.

Table 2: B1 modular licence examination requirements

Subject modules	B1.1 / B1.2 aeroplane (airframe)	B1.3 / B1.4 helicopter (airframe)	B1.2 / B1.4 piston (powerplant)	B1.1 / B1.3 turbine (powerplant)
1. Mathematics	Yes	Yes	Yes	Yes
2. Physics	Yes	Yes	Yes	Yes
3. Electrical fundamentals	—	—	—	—
4. Electronic fundamentals	—	—	—	—
5. Digital techniques electronic instrument systems	—	—	—	—
6. Materials and hardware	Yes	Yes	Yes	Yes
7. Maintenance practices	Yes	Yes	Yes	Yes
8. Basic aerodynamics	Yes	Yes	—	—
9. Human factors	Yes	Yes	Yes	Yes
10. Aviation legislation	Yes	Yes	Yes	Yes
11A. Turbine aeroplane aerodynamics, structures and systems	Yes (B1.1)	—	—	—
11B. Piston aeroplane aerodynamics, structures and systems	Yes (B1.2)	—	—	—
12. Helicopter aerodynamics, structures and systems	—	Yes	—	—
15. Gas turbine engines	—	—	—	Yes
16. Piston engines	—	—	Yes	—
17. Propeller	—	—	Yes (B1.2)	Yes (B1.1) *

Note: * Optional for turbine powerplants in aircraft without propellers (such as turbofan aeroplanes)

A.6.3 Optional B1 extension examinations

Additional subjects may be undertaken to qualify for licence extensions. You may undertake these at the same time as the core examinations listed above or defer them until needed.

Table 3: B1 extension examinations

Subject modules	Electrical / instrument extension
3. Electrical fundamentals	Yes
4. Electronic fundamentals	Yes
5. Digital techniques electronic instrument systems	Yes

A.6.4 How exclusions work

Your modular licence may initially include many exclusions. As you gain further practical experience and pass more examinations, you can have these exclusions removed from your licence.

The following exclusions may be applied to a B1 modular licence:

- E1: Excluding electrical systems.
- E2: Excluding mechanical or structural.
- E3: Excluding powerplant systems.
- E4: Excluding electrical subsystems of mechanical, powerplant or structural systems.
- E5: Excluding instrument subsystems of mechanical, powerplant or structural systems.
- E6: Excluding avionic LRUs.
- E9: Excluding fabric surfaces.
- E10: Excluding wooden structures.
- E12: Excluding propellers.
- E13: Excluding hydraulics— ATA29.
- E14: Excluding vapor cycle air conditioning aspects of ATA21.
- E15: Excluding air conditioning aspects of ATA21.
- E16: Excluding pressurisation aspects of ATA21.
- E32: Excluding electrical systems in aircraft equipped with multi-generator powered systems.
- E33: Excluding supercharging systems.
- E35: Excluding pressurised structures.
- E36: Excluding carburettor systems.
- E37: Excluding fuel injection systems.
- E38: Excluding turbo supercharging systems.
- E39: Excluding airframe ice protection systems.
- E40: Excluding airframe fire protection systems.
- E41: Excluding oxygen systems.
- E42: Excluding landing gear retraction systems.
- E43: Excluding fabric other than flight controls.
- E44: Excluding wiring repairs.

A.7 B2 modular licences

A.7.1 Privileges and limitations

Your B2 modular licence privileges are shown in the table below.

Table 4: B2 privileges and limitations

Licence	Privileges	Limitations
B2 - Electrical Systems only	Electrical generation storage and distribution systems. Electrically powered aeronautical products such as starter motors, flap actuation systems etc.	Excludes instrument and radio systems.
B2 - Instrument systems only	Instrumentation systems	Excludes electrical and radio systems.
B2 - Radio systems only	Radio communication and navigation systems	Excludes electrical and instrument systems.

A.7.2 B2 basic knowledge — core subject module requirements

You must successfully complete 10 examinations plus applicable (but not all) topics from module 13 (aircraft structures and systems).

The following table shows which subject modules apply to each B2 modular licence.

Table 5: B2 modular licence examination requirements

Subject modules	B2 electrical systems only	B2 instrument systems only	B2 radio systems only
1. Mathematics	Yes	Yes	Yes
2. Physics	Yes	Yes	Yes
3. Electrical fundamentals	Yes	Yes	Yes
4. Electronic fundamentals	Yes	Yes	Yes
5. Digital techniques electronic instrument systems	Yes	Yes	Yes
6. Materials and hardware	Yes	Yes	Yes
7. Maintenance practices	Yes	Yes	Yes
8. Basic aerodynamics	Yes	Yes	Yes
9. Human factors	Yes	Yes	Yes
10. Aviation legislation	Yes	Yes	Yes
11A. Turbine aeroplane aerodynamics, structures and systems	—	—	—

Subject modules	**B2 electrical systems only**	**B2 instrument systems only**	**B2 radio systems only**
11B. Piston aeroplane aerodynamics, structures, and systems	—	—	—
12. Helicopter aerodynamics, structures, and systems	—	—	—
13. Aircraft structures and systems			
Topic 13.1 Theory of flight	Yes	Yes	Yes
Topic 13.2 Structures-general concepts	Yes	Yes	Yes
Topic 13.3 Autopilots (ATA22)	—	Yes	—
Topic 13.4 Communication and navigation (ATA23/34)	—	Yes	Yes
Topic 13.5 Electrical power (ATA24)	Yes	—	—
Topic.13.6 Equipment and furnishings (ATA25)	Yes	—	—
Topic 13.7 Flight controls (ATA27)	Yes	Yes	—
Topic 13.8 Instruments (ATA31)	—	Yes	—
Topic 13.9 Lights (ATA33)	Yes	—	—
Topic 13.10 On-board maintenance systems (ATA45)	Yes	—	—
Topic 13.11 Air-conditioning and cabin pressurisation (ATA21)	Yes	—	—
Topic 13.12 Fire protection (ATA26)	Yes	—	—
Topic 13.13 Fuel systems (ATA 28)	Yes	—	—
Topic 13.14 Hydraulic power (ATA (29)	Yes	—	—
Topic 13.15 Ice and rain protection (ATA30)	Yes	—	—
Topic 13.16 Landing gear (ATA32)	Yes	—	—
Topic 13.17 Oxygen (ATA35)		Yes	—
Topic 13.18 Pneumatic / vacuum (ATA36)	Yes	—	—
Topic 13.19 Water/waste (ATA38)	Yes	—	—
Topic 13.20 Integrated modular avionics (ATA 42)	—	Yes	Yes
Topic 13.21 Cabin systems (ATA 44)	—	Yes	Yes
Topic 13.22 Information systems (ATA 46)	—	Yes	Yes
14. Propulsion — avionic systems	—	Yes	—

A.7.3 How exclusions work

Your modular licence may initially include many exclusions. As you gain further practical experience and pass more examinations, you can have these exclusions removed from your licence.

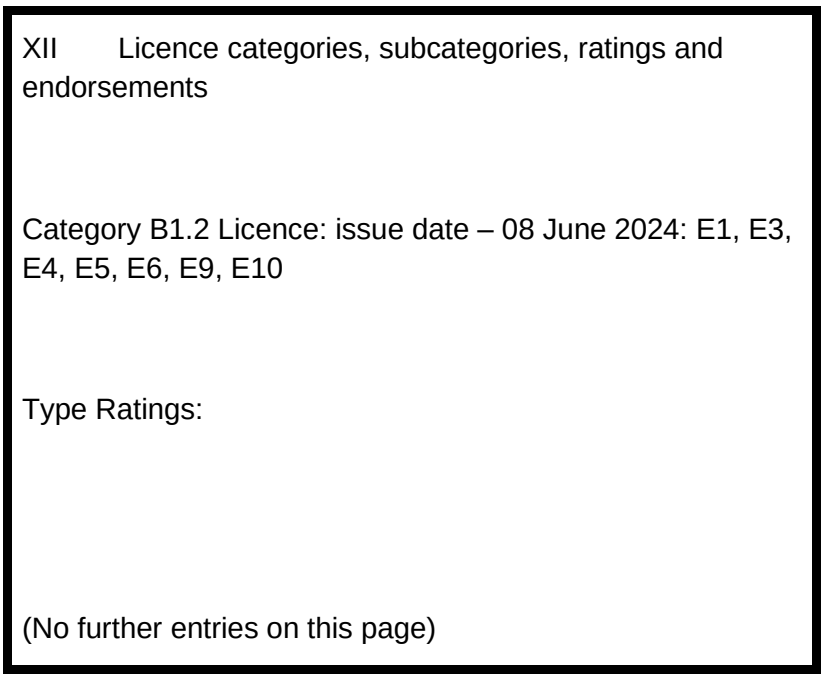
The following exclusions may be applied to a B2 modular licence:

- E1: Excluding electrical systems.
- E4: Excluding electrical subsystems of mechanical, powerplant or structural systems
- E5: Excluding instrument subsystems of mechanical, powerplant or structural systems.
- E6: Excluding avionic LRUs.
- E7: Excluding instrument aspects of avionic systems - ATA 22, 27, 31, 34 and 42.
- E8: Excluding radio aspects of avionic systems - ATA 23, 34, 42 and 44.
- E11: Excluding audio CVR systems.
- E18: Excluding ADF systems.
- E19: Excluding VOR systems.
- E20: Excluding ILS systems.
- E21: Excluding weather radar systems.
- E22: Excluding ATC transponder systems.
- E23: Excluding radar altimeter systems.
- E24: Excluding DME systems.
- E25: Excluding doppler systems.
- E26: Excluding satellite navigation systems.
- E27: Excluding autopilots.
- E28: Excluding multi-axis autopilots.
- E29: Excluding remote indicating compass systems.
- E30: Excluding Inertial navigation and reference systems.
- E31: Excluding pressurisation systems.
- E32: Excluding electrical systems in aircraft equipped with multi-generator powered systems.
- E34: Excluding digital systems.
- E44: Excluding wiring repairs.

A.8 What does a modular licence look like?

A modular licence looks much the same as a full licence. Your licence identifies the category or subcategory of licence you hold, and the range of exclusions applied to your licence.

Figure 1: Example of a B1.2 airframe-only licence

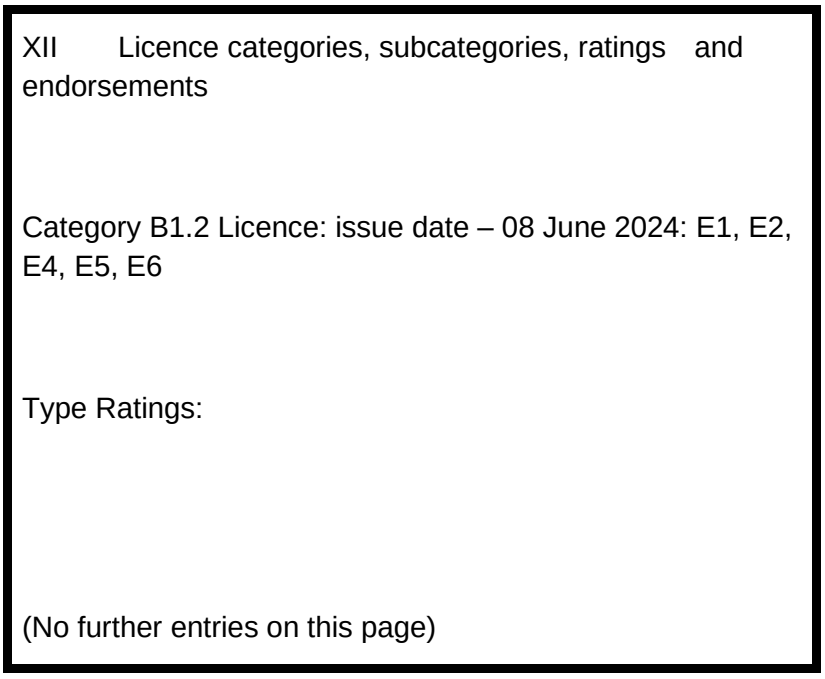

XII Licence categories, subcategories, ratings and endorsements

Category B1.2 Licence: issue date – 08 June 2024: E1, E3, E4, E5, E6, E9, E10

Type Ratings:

(No further entries on this page)

Figure 2: Example of a B1.2 piston powerplant-only licence


XII Licence categories, subcategories, ratings and endorsements

Category B1.2 Licence: issue date – 08 June 2024: E1, E2, E4, E5, E6

Type Ratings:

(No further entries on this page)

Figure 3: Example of a B2 electrical-only licence

XII Licence categories, subcategories, ratings and endorsements

Category B2 Licence: issue date – 08 June 2024: E5, E7, E8

Type Ratings:

(No further entries on this page)

A.9 What does modular licensing look like in the real world?

The following figure shows how an individual can use this system to get their modular licence sooner and to build on this as their career and interests develop.

Figure 4: Modular licensing for Toni

The following figure shows how you can take your career along different paths depending on your interests and work experience.

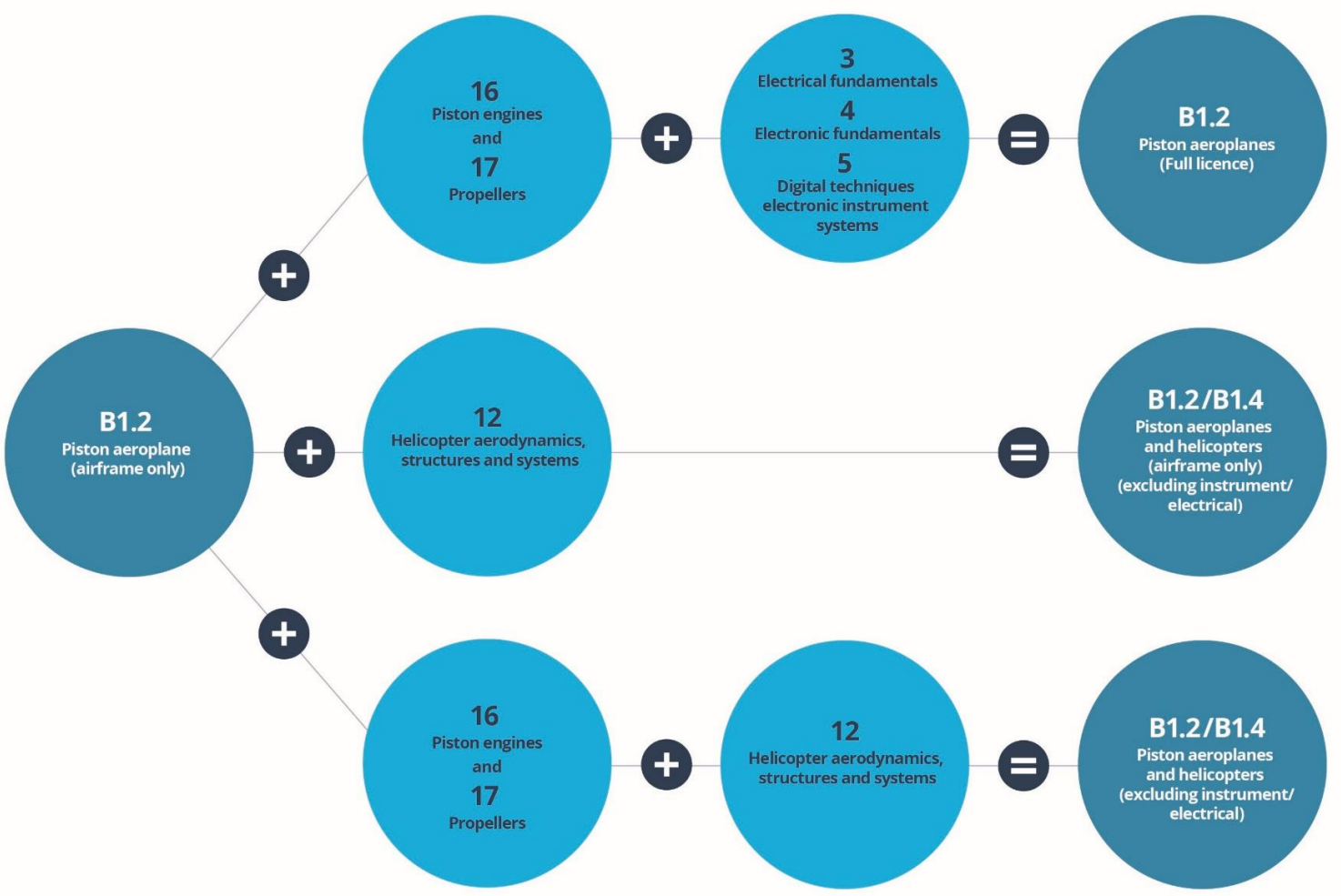


Figure 5: Modular licensing – different career paths