

SCHEDULE 9

(Regulation 100)

*Flight Engineer Licence Knowledge Requirements*

1. The applicant for a Flight Engineer Licence shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a Flight Engineer Licence, in at least the following areas:

*Air law*

- (a) rules and regulations relevant to the holder of a flight engineer licence; rules and regulations governing the operation of civil aircraft pertinent to the duties of a flight engineer;

*Aircraft general knowledge*

- (b) basic principles of powerplants, gas turbines and piston engines; characteristics of fuels, fuel systems including fuel control; lubricants and lubrication systems, afterburners and injection systems, function and operation of engine ignition and starter systems;
- (c) principles of operation, handling procedures and operating limitations of aircraft powerplants, effects of atmospheric conditions on engine performance;
- (d) airframes, flight controls, structures, wheel assemblies, brakes and anti-skid units, corrosion and fatigue life, identification of structural damage and defects;
- (e) ice and rain protection systems;
- (f) pressurization and air-conditioning systems, oxygen systems;
- (g) hydraulic and pneumatic systems;
- (h) basic electrical theory, electric systems (AC and DC), aircraft wiring systems, bonding and screening;
- (i) principles of operation of instruments, compasses, autopilots, radio communication equipment, radio and radar navigation aids, flight management systems, displays and avionics;
- (j) limitations of appropriate aircraft;
- (k) fire protection, detection, suppression and extinguishing systems;
- (l) use and serviceability checks of equipment and systems of appropriate aircraft;

*Flight performance, planning and loading*

- (m) effects of loading and mass distribution on aircraft handling, flight characteristics and performance, mass and balance calculations;
- (n) use and practical application of performance data including procedures for cruise control;

*Human performance*

- (o) human performance relevant to the flight engineer including principles of threat and error management;

*Operational procedures*

- (p) principles of maintenance, procedures for the maintenance of airworthiness, defect reporting, pre-flight inspections, precautionary procedures for fuelling and use of external power; installed equipment and cabin systems;
- (q) normal, abnormal and emergency procedures;
- (r) operational procedures for carriage of freight and dangerous goods;

*Principles of flight*

- (s) fundamentals of aerodynamics;

*Radiotelephony*

- (t) communication procedures and phraseology.

2. In addition to paragraph 1, the applicant should have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight engineer licence in at least the following subjects:

- (a) fundamentals of navigation; principles and operation of self-contained systems; and
- (b) operational aspects of meteorology.