

Notification of the Department of Civil Aviation

On flight crew training program

By virtue of the authority vested in the Department of Civil Aviation under 7.3 of Clause 7.3 of the Regulation of the Civil Aviation Board Issue No. 78 announced on 4 January B.E. 2551 on the subject of flight crew member training programs where aircraft operators upon receiving an air operator permit shall set up a ground and flight training program to ensure that all flight crew member have adequate training to assume their assigned duties to the fullest extent. The training program shall be in accordance with the regulations of the Department of Civil Aviation (DCA) and shall be subject to certification from the DCA. Thus, the DCA has put in place guidance material for the establishment of an adequate flight crew training program as follows:

1. Repeal the regulations on “pilot training program” issued by the Flight Standards Bureau, Department of Civil Aviation declared on 2 July B.E. 2550.
2. In this announcement,
 - The “flight crew” means the pilot and flight engineer;
 - The “officer” means to the director of the Flight Standards Bureau (DCA) or any person assigned by the DCA;
3. The Flight Crew Training Program shall be composed of 8 sections as follow:
 - 3.1. The “initial training” means flight crew training program for the first aircraft type the airman intends to operate/first type rating on the pilot certificate.
 - 3.2. The “conversion/transition training” means flight crew training to change the type rating from one aircraft type to another (e.g. changing the type rating from B737-300 to A300-600 or B747-400).
 - 3.3. The “difference training” means flight crew training to change the type rating from one aircraft type to another within the same manufacturer (common type rating) with differences in

performance, weight, and configuration (e.g. changing from B757 to B767 type rating).

Appendix 1 provides an example of common type rating change.

- 3.4. The “upgrade training” means training for the change in position of the flight crew from co-pilot to pilot in command.
 - 3.5. The “requalification training” means flight crew training to re-qualify for a particular type rating on the pilot certificate within an absence period more than 6 months to less than 12 months.
 - 3.6. Recurrent training means flight crew training to go over and review training of the pilot certificate according to the 78th Civil Aviation Committee Regulation on Procedures for normal, abnormal, and emergency operations.
 - 3.7. Refresher training means flight crew training when formal training was disrupted and not completed.
 - 3.8. Right hand seat training for pilot in command means training for pilot in command to assume the position of co-pilot for type rating as assigned by a certified aircraft operator.
4. Training curriculum for the 6 types of training listed in paragraphs 3.1 to 3.6 shall include the following:
- 4.1. Airplane theory
 - 4.1.1. Aircraft systems shall include:
 - 4.1.1.1. General aircraft information;
 - 4.1.1.2. Power plants system;
 - 4.1.1.3. Electrical system;
 - 4.1.1.4. Hydraulic system;
 - 4.1.1.5. Fuel system;
 - 4.1.1.6. Pneumatic system (if applicable);
 - 4.1.1.7. Air conditioning and pressurization (if applicable);
 - 4.1.1.8. Flight control;
 - 4.1.1.9. Landing gear and brake systems (if applicable);
 - 4.1.1.10. Ice and rain protection (if applicable);
 - 4.1.1.11. Equipment and furnishing;

- 4.1.1.12. Navigation equipment;
- 4.1.1.13. Auto flight system (if applicable);
- 4.1.1.14. Flight instrument;
- 4.1.1.15. Communication equipment;
- 4.1.1.16. Warning system;
- 4.1.1.17. Fire protection system;
- 4.1.1.18. Oxygen system (if applicable);
- 4.1.1.19. Lighting;
- 4.1.1.20. Emergency equipment;
- 4.1.1.21. Auxiliary power unit (APU) (if applicable);
- 4.1.1.22. Other systems installed on that particular aircraft.

4.1.2. General subjects shall include:

- 4.1.2.1. Basic indoctrination;
- 4.1.2.2. Dispatch procedures;
- 4.1.2.3. Weight and balance procedures;
- 4.1.2.4. Adverse weather practices and procedures (e.g. icing, turbulence, heavy precipitation, thunderstorms with wind shear and microburst phenomena, low visibility, contaminated runways);
- 4.1.2.5. Aircraft performance in case of normal operation, abnormal operation, and emergency including the use of other related documents such as chart, tables, manual information, minimum equipment list (MEL), configuration deviation list (CDL), and special operational conditions;
- 4.1.2.6. Dangerous goods procedure and transportation;
- 4.1.2.7. Crew resource management and human performance, including threat and error management;
- 4.1.2.8. Preventive corrective action of sabotage and unlawful interference.

4.1.3. Aircraft systems integration training shall include:

4.1.3.1. Standard operating procedure (SOP), correct use of checklist and in according to standard of flight procedure training (FPT);

4.1.3.2. Flight planning, taking into consideration aircraft performance limitations, required fuel load, and weather report;

4.1.3.3. Weather radar;

4.1.3.4. Navigation systems;

4.1.3.5. Auto flight and flight director systems;

4.1.3.6. Cockpit familiarization;

4.1.3.7. Flight management system (FMS), procedures for reduced vertical separation minima (RVSM), required navigation performance (RNP), minimum navigation performance system (MNPS), extended range twin-engine aircraft operation (ETOPS), and instrument approach and landing system (ILS), including traffic collision avoidance system (TCAS).

4.1.4. Compulsory annual training of safety and emergency procedures shall include:

4.1.4.1. Emergency equipment and emergency procedure in any situation;

4.1.4.2. Wet drill, fire drill, door drill, and slide drill;

4.1.5. The minimum hours of theory class for the 6 types of airplane flight crew training listed in paragraph 3.1 to 3.6 shall consist of:

(a) For airplane requiring two or more man crew on the type certificate:

Subjects	Initial training (hours)	Conversion/transition training (hours)	Difference training (hours)	Upgrade training (hours)	Requalification training (hours)	Recurrent training (hours)
4.1.1	80	60	40	20	10	8
4.1.2	30	20	20	20	10	4
4.1.3	12	12	12	10	10	4
4.1.4	12	8	8	N/A	N/A	8 (training shall start after one year)

(b) For aircraft requiring one man crew on the type certificate or aircraft requiring one man crew on the type certificate but the Department of Civil Aviation requires two man crew:

Subjects	Initial training (hours)	Conversion/ transition training (hours)	Difference training (hours)	Requalification training (hours)	Recurrent training (hours)
4.1.1	32	16	12	8	8 (training for 4.1.4 shall start after one year)
4.1.2					
4.1.3					
4.1.4			N/A	N/A	

4.1.6. The classroom shall be equipped with learning tools such as white board, lesson plan, computer software program, projector, audiovisual presentations, aircraft operating manual, fight operations manual, and handouts. The class size shall not exceed 25 participants.

4.1.7. The theory test passing grade for subjects listed in 4.1.1, 4.1.2 and 4.1.3 shall be at least 70 percent. The theory test passing grade for subjects listed in 4.1.4 shall be at least 90 percent.

4.2. Helicopter Theory

4.2.1. Aircraft systems shall include the following subjects:

- 4.2.1.1. General aircraft information;
- 4.2.1.2. Power plants system;
- 4.2.1.3. Electrical system;
- 4.2.1.4. Hydraulic system;
- 4.2.1.5. Fuel system;
- 4.2.1.6. Pneumatic system (if applicable);
- 4.2.1.7. Flight control;
- 4.2.1.8. Landing gear and brake systems (if applicable);
- 4.2.1.9. Ice and rain protection (if applicable);
- 4.2.1.10. Equipment and furnishing;

- 4.2.1.11. Navigation equipment;
- 4.2.1.12. Auto flight system (if applicable);
- 4.2.1.13. Flight instrument;
- 4.2.1.14. Communication equipment;
- 4.2.1.15. Warning system;
- 4.2.1.16. Fire protection system;
- 4.2.1.17. Lighting;
- 4.2.1.18. Emergency equipment;
- 4.2.1.19. Weight and balance procedures;
- 4.2.1.20. Aircraft performance in case of normal operation, abnormal operation, and emergency including the use of other related documents such as chart, tables, manual information, minimum equipment list (MEL), configuration deviation list (CDL), and special operational conditions;
- 4.2.1.21. Other systems installed on that particular aircraft.

4.2.2. General subjects shall include:

- 4.2.2.1. Basic indoctrination;
- 4.2.2.2. Dispatch procedures;
- 4.2.2.3. Adverse weather practices procedures such as icing, turbulence, heavy precipitation, thunderstorms with wind shear and microburst phenomena, low visibility, contaminated runways;
- 4.2.2.4. Dangerous goods procedure and transportation;
- 4.2.2.5. Crew resource management and human performance, including threat and error management.

4.2.3. Aircraft systems integration training shall include:

- 4.2.3.1. Standard operating procedure (SOP), correct use of checklist and in accordance to standard of flight procedure training (FPT);
- 4.2.3.2. Flight planning, taking into consideration aircraft performance limitations, required fuel load, and weather report;

4.2.3.3. Weather radar (if applicable);

4.2.3.4. Navigation systems;

4.2.3.5. Auto flight and flight director systems (if applicable);

4.2.3.6. Cockpit familiarization;

4.2.3.7. Flight management system (FMS), procedures for reduced vertical separation minima (RVSM), and instrument approach and landing system (ILS), including traffic collision avoidance system (TCAS) (if applicable).

4.2.4. Compulsory annual training of safety and emergency procedures shall include:

4.2.4.1. Emergency equipment and emergency procedure in any situation;

4.2.4.2. Wet drill, fire drill, and door drill (if applicable);

4.2.5. The minimum hours of theory class for the 6 types of helicopter flight crew training listed in paragraph 3.1 to 3.6 shall consist of:

(a) For helicopters requiring two or more man crew on the type certificate:

Subjects	Conversion/ transition training (hours)	Difference training (hours)	Upgrade training (hours)	Requalification training (hours)	Recurrent training (hours)
4.2.1	30	15	15	15	9
4.2.2	8	4	8	8	4
4.2.3	12	4	12	12	4
4.2.4	8	4	N/A	N/A	4 (training shall start after one year)

(b) For helicopters requiring one man crew on the type certificate or helicopters requiring one man crew on the type certificate but the Department of Civil Aviation requires a two man crew:

Subjects	Conversion/ transition training (hours)	Difference training (hours)	Upgrade training (hours)	Requalification training (hours)	Recurrent training (hours)
4.2.1	24	15	15	15	5
4.2.2	4	4	4	4	5
4.2.3	4	4	4	4	5
4.2.4	4	4	N/A	N/A	4 (training shall start after one year)

4.2.6. The training classroom shall be equipped with learning tools such as white board, lesson plan, computer software program, projector, audiovisual presentations, aircraft operating manual, flight operations manual, and handouts. The class size shall not exceed 25 participants.

4.2.7. The theory test passing grade for subjects listed in 4.2.1, 4.2.2, and 4.2.3 shall be at least 70 percent. The theory test passing grade for subjects listed in 4.2.4 shall be at least 90 percent.

4.3. Flight simulation

Flight simulation means training using flight procedures trainer (FPT) and flight simulation trainer (FST) that have been certified by the Department of Civil Aviation, as well as being an ICAO level II flight simulator (or at least equivalent to) for a particular aircraft type.

The flight simulation session shall only take place once the flight crew has accomplished the classroom training according to section 4.1 (for airplane) or section 4.2 (for helicopter). The curriculum for flight simulation shall be as follows:

4.3.1. Number of simulation hours:

- (a) For airplane requiring two or more man crew on the type certificate:

Family of aircraft	Initial training FPT / FST (Sessions)	Conversion/ transition training FPT / FST (Sessions)	Difference training FPT / FST (Sessions)	Upgrade training FPT / FST (Sessions)	Requalification training FPT / FST (Sessions)	Recurrent training FPT / FST (Sessions)
Turboprop	PIC – 5/7 CO – 5/7 F/E – 5/5	PIC – 5/7 CO – 5/7 F/E – 5/7	PIC – 2/2 CO – 2/2 F/E – 2/2	CO to PIC – 2/4 F/E to CO – 5/7	PIC – 2 CO – 2 F/E – 2	PIC – 1 CO – 1 F/E – 1
Turbojet / Turbofan	PIC – 7/8 CO – 7/8 F/E – 5/5	PIC – 5/7 CO – 5/7 F/E – 5/7	PIC – 2/2 CO – 2/2 F/E – 2/2	CO to PIC – 2/4 F/E to CO – 7/8	PIC – 2 CO – 2 F/E – 2	PIC – 1 CO – 1 F/E – 1

(b) For airplane requiring one man crew on the type certificate or airplane requiring one man crew on the type certificate but the Department of Civil Aviation requires a two man crew:

Family of aircraft	Rule of flight	Initial training FPT (Sessions)	Conversion/ transition training FPT (Sessions)	Upgrade training FPT (Sessions)	Requalification training FPT (Sessions)	Recurrent training FPT (Sessions)
Turboprop	IFR/VFR	PIC – 10 CO – 10	PIC – 8 CO – 8	CO to PIC – 8	PIC – 2 CO – 2	PIC – 2 CO – 2
Turbojet / Turbofan	VFR	PIC – 6 CO – 6	PIC – 6 CO – 6	CO to PIC – 5	PIC – 2 CO – 2	PIC – 1 CO – 1

Remarks: - PIC = Pilot in Command, CO = Second in command, F/E = Flight engineer
(with pilot certification), IFR = Instrument flight rule, VFR = Visual flight rule;
- FPT = Flight procedures trainer, FST = Flight simulation trainer;
- a session means 4 hours of simulations (2 hours as pilot flying and 2 hours as pilot not flying). This does not include an additional session dedicated for test.

(c) For helicopters requiring two or more man crew on the type certificate:

Rule of flight	Conversion/ transition training FPT / FST (Hours)	Upgrade training FPT / FST (Hours)	Requalification training FPT (Hours)	Recurrent training FPT (Hours)
IFR/VFR	PIC – 5/4.5 CO – 5/4.5	CO to PIC – 2/4	PIC – 4 CO – 4	PIC – 4 CO – 4
VFR	PIC – 5/4 CO – 5/4	CO to PIC – 2/4	PIC – 4 CO – 4	PIC – 4 CO – 4

(d) For helicopters requiring one man crew on the type certificate or helicopters requiring one man crew on the type certificate but the Department of Civil Aviation requires a two man crew:

Rule of flight	Conversion/ transition training FPT (Hours)	Upgrade training FPT (Hours)	Requalification training FPT (Hours)	Recurrent training FPT (Hours)
IFR/VFR	PIC – 8 CO – 8	CO to PIC – 8	PIC – 2 CO – 2	PIC – 2 CO – 2
VFR	PIC – 6 CO – 6	CO to PIC – 5	PIC – 2 CO – 2	PIC – 1 CO – 1

Remarks: - PIC = Pilot in Command, CO = Second in command, IFR = Instrument flight rule, VFR = Visual flight rule;
 - FPT = Flight procedures trainer, FST = Flight simulation trainer;
 - These hours do not include the 2-hour test. (The DCA will test skills of the flight crew with the flight simulator on the first observed training session or as appropriate.)

4.3.2. Criteria for flight simulation test

The Department of Civil Aviation or the designated check pilot will administer a flight simulator test using the criteria on to the checklist contained in Appendix 2 of this announcement.

4.3.3. In case there is no simulator for a particular aircraft type, the trainee shall train on an actual aircraft according to the requirements stated in paragraph 4.3.1 table (a) or (b) for airplane and table (c) or (d) for helicopter, followed by additional flight operations according to paragraph 4.4.2, followed by a flight test in accordance with requirements stated in 4.4.3.

4.4. School flight

4.4.1. Airplane

School flight will only take place once the trainee has passed or considered passes the flight simulation test according to paragraph 4.3.3. The school flight will take place with the supervision of a flight instructor – aircraft type rating, certified by the Department of Civil Aviation, with a minimum of 2 flights (first flight and second flight). Details of each flight are as follow:

(a) Aircraft type requiring two or more man crew on the type certificate

First flight shall include the following at the minimum:

- 1) Cockpit preparation, engine start, after start;
- 2) Taxi;
- 3) Normal takeoff;
- 4) Takeoff or T/G with engine fail (simulated) at V₂;
- 5) ILS approach (with or without FD) and T/G (all engine);
- 6) ILS approach (with or without FD) and T/G (1 engine simulated failure);
- 7) Visual circuit approach and T/G (all engine);
- 8) Visual circuit approach and T/G (1 engine simulated failure);
- 9) Go around (all engine);
- 10) Go around (1 engine simulated failure).

Second flight shall include the following at the minimum:

- 1) Cockpit preparation, engine start, after start;
- 2) Taxi;
- 3) Normal takeoff;

- 4) Takeoff or T/G with engine fail (simulated) at V2;
- 5) ILS approach (with or without FD) and T/G (all engine);
- 6) ILS approach (with or without FD) and T/G (1 engine simulated failure);
- 7) Visual circuit approach and T/G (all engine);
- 8) Visual circuit approach and T/G (1 engine simulated failure);
- 9) Go around (all engine);
- 10) Go around (1 engine simulated failure);
- 11) Non precision approach.

- (b) Airplane requiring one man crew on the type certificate or airplane requiring one man crew on the type certificate but the Department of Civil Aviation mandates a two man crew:

First flight shall include the following at the minimum:

- 1) Cockpit preparation, engine start, after start;
- 2) Taxi;
- 3) Normal takeoff;
- 4) Takeoff or T/G with engine fail (simulated) at V2;
- 5) ILS approach (with or without FD) and T/G (all engine)(if applicable);
- 6) ILS approach (with or without FD) and T/G (1 engine simulated failure)(if applicable);
- 7) Visual circuit approach and T/G (all engine);
- 8) Visual circuit approach and T/G (1 engine simulated failure);
- 9) Go around (all engine);
- 10) Go around (1 engine simulated failure).

Second flight shall include the following at the minimum:

- 1) Cockpit preparation, engine start, after start;
- 2) Taxi;
- 3) Normal takeoff;

- 4) Takeoff or T/G with engine fail (simulated) at V2;
- 5) ILS approach (with or without FD) and T/G (all engine)(if applicable);
- 6) ILS approach (with or without FD) and T/G (1 engine simulated failure)(if applicable);
- 7) Visual circuit approach and T/G (all engine);
- 8) Visual circuit approach and T/G (1 engine simulated failure);
- 9) Go around (all engine);
- 10) Go around (1 engine simulated failure);
- 11) Non precision approach (if applicable).

4.4.2. Helicopter

- (a) For helicopters requiring two or more man crew on the type certificate, a 2-hour flight is required for VFR (except for items 16) to 23)) and an additional 3-hour flight for IFR. The flight shall cover:
 - 1) Helicopter exterior visual inspection; location of each item and purpose of inspection
 - 2) Cockpit inspection
 - 3) Prior to starting engines, starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies
 - 4) Taxing/air taxing in compliance with air traffic control instructions or on inspection of an instructor
 - 5) Pre take off procedures
 - 6) Takeoffs (various profiles)
 - 7) Cross wind takeoff (if practicable)
 - 8) Takeoff at maximum takeoff mass (actual or simulated maximum takeoff)
 - 9) Takeoff with simulated, engine failure
 - 9.1) shortly before reaching TDP
 - 9.2) shortly after reaching TDP
 - 10) Climbing and descending turns to specified heading

- 11) Turns with 30 degrees bank, 180 degrees to 360 degrees left and right, by sole reference to instrument if equipped
- 12) Descent in auto-rotations
- 13) Autorotation landing or power recovery
- 14) IMC autorotation and power recovery
- 15) Go around or landing following simulated engine failure before LDP
- 16) Instrument takeoff: transition to instrument flight is immediately after being established in the climb. Adherence to departure and arrival routes and ATC instructions
- 17) Holding procedures
- 18) ILS-approaches down to CAT I decision height
 - 18.1) manually, without flight director
 - 18.2) manually, with flight director
 - 18.3) with coupled autopilot
- 19) NBD or VOR/LOC approach down to the minimum descent altitude/ MDA/H
- 20) Missed approach procedures
- 21) Go around after an ILS approach on reaching decision height
- 22) Other missed approach procedures
- 23) Go around with one engine inoperative
- 24) Normal and abnormal operations of following system and procedures:
 - 24.1) engine
 - 24.2) air conditioning (heating, ventilation)
 - 24.3) pilot/static system
 - 24.4) fuel system
 - 24.5) electrical system
 - 24.6) hydraulic system
 - 24.7) flight control and trim system
 - 24.8) anti and de-icing system

- 24.9) autopilot/flight director
 - 24.10) stability augmentation device weather radar, radio altimeter, transponder
 - 24.11) area navigation system
 - 24.12) landing gear system
 - 24.13) tail rotor control failure
 - 24.14) tail rotor loss
 - 24.15) radio, navigator equipment, instruments, light management system
 - 25) Abnormal and emergency procedures
 - 25.1) fire drills (including evacuation if applicable)
 - 25.2) smoke control and removal
 - 25.3) other emergency procedures as outlined in the appropriate flight manual
 - 25.4) engine failure, shut down and restart at safe altitude
 - 26) Use of optional equipment (if applicable)
- (b) For helicopters requiring one man crew on the type certificate or helicopters requiring one man crew on the type certificate but the Department of Civil Aviation requires a two man crew, a 2-hour flight is required for VFR (except for items 16) to 23)) and an additional 3-hour flight for IFR. The flight shall cover:
- 1) Helicopter exterior visual inspection; location of each item and purpose of inspection
 - 2) Cockpit inspection
 - 3) Prior to starting engines, starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies
 - 4) Taxing/air taxiing in compliance with air traffic control instructions or on inspection of an instructor
 - 5) Pre take off procedures
 - 6) Takeoffs (various profiles)
 - 7) Cross wind takeoff (if practicable)
 - 8) Takeoff at maximum takeoff mass (actual or simulated maximum takeoff)

- 9) Takeoff with simulated, engine failure
 - 9.1) shortly before reaching TDP
 - 9.2) shortly after reaching TDP
- 10) Climbing and descending turns to specified heading
- 11) Turns with 30 degrees bank, 180 degrees to 360 degrees left and right, by sole reference to instrument if equipped
- 12) Descent in auto-rotations
- 13) Autorotation landing or power recovery
- 14) IMC autorotation and power recovery
- 15) Go around or landing following simulated engine failure before LDP
- 16) Instrument takeoff: transition to instrument flight is immediately after being established in the climb. Adherence to departure and arrival routes and ATC instructions
- 17) Holding procedures
- 18) ILS-approaches down to CAT I decision height
 - 18.1) manually, without flight director
 - 18.2) manually, with flight director
 - 18.3) with coupled autopilot
- 19) NBD or VOR/LOC approach down to the minimum descent altitude/ MDA/H
- 20) Missed approach procedures
- 21) Go around after an ILS approach on reaching decision height
- 22) Other missed approach procedures
- 23) Go around with one engine inoperative
- 24) Normal and abnormal operations of following system and procedures:
 - 24.1) engine
 - 24.2) air conditioning (heating, ventilation)
 - 24.3) pilot/static system
 - 24.4) fuel system

- 24.5) electrical system
- 24.6) hydraulic system
- 24.7) flight control and trim system
- 24.8) anti and de-icing system
- 24.9) autopilot/flight director
- 24.10) stability augmentation device weather radar, radio altimeter, transponder
- 24.11) area navigation system
- 24.12) landing gear system
- 24.13) tail rotor control failure
- 24.14) tail rotor loss
- 24.15) radio, navigator equipment, instruments, light management system
- 25) Abnormal and emergency procedures
 - 25.1) fire drills (including evacuation if applicable)
 - 25.2) smoke control and removal
 - 25.3) other emergency procedures as outlined in the appropriate flight manual
 - 25.4) engine failure, shut down and restart at safe altitude
- 26) Use of optional equipment (if applicable)

4.4.3. Criteria for pilot check

The Department of Civil Aviation or the designated check pilot will test the flight crew on the following areas

- (a) For airplane requiring two or more man crew on the type certificate:
 - 1) Cockpit preparation, engine start, after start
 - 2) Taxi and Normal takeoff
 - 3) Takeoff or T/G with engine fail (simulated) at V2
 - 4) ILS approach (with or without FD) and T/G (all engine)
 - 5) ILS approach (with or without FD) and T/G (1 engine simulated failure)
 - 6) Visual circuit approach and T/G (all engine)
 - 7) Non precision approach and landing

- 8) Go around (1 or 2 engine simulated failure)
- (b) For airplane requiring one man crew on the type certificate or airplane requiring one man crew on the type certificate but the Department of Civil Aviation requires a two man crew:
- 1) Cockpit preparation, engine start, after start
 - 2) Taxi and Normal takeoff
 - 3) Takeoff or T/G with engine fail (simulated) at V₂
 - 4) ILS approach (with or without FD) and T/G (all engine)
 - 5) ILS approach (with or without FD) and T/G (1 engine simulated failure)
 - 6) Visual circuit approach and T/G (all engine)
 - 7) Non precision approach and landing
 - 8) Go around with 1 engine simulated failure (in case the aircraft has 2 engines)
 - 9) Go around

Remarks: T/G = Touch and go, FD = Flight director, V₂ = 1.2 x V_{stall}

- (c) For helicopters
- 1) Pre-flight preparations and checks
 - 2) Takeoff (various profiles)
 - 3) Landings (various profiles)
 - 4) Flight maneuvers and procedures
 - 5) Normal procedures
 - 6) Abnormal and emergency procedures
 - 7) Optional equipment (limitation, normal and emergency procedures)
 - Automatic flight control system (AFCS)
 - Electronic flight instrument system (EFIS)
 - External load
 - Other
 - 8) Instrument (in case of IFR)

- Normal procedures
- Takeoff
- Approaches
- Enroute
- Emergency procedures

4.5. Route training

4.5.1. Airplane

Route training shall only take place once the trainee has completed the school flight according to paragraph 4.4. A route instructor for pilot in command/co-pilot certified by the Department of Civil Aviation will supervise the route training for each training types with number of flights and the curriculum as follows:

Training Type	Two or more man crew	One man crew
	Number of flights	Number of flights
Initial training	60	10
Conversion/transition training	35	5
Difference training	20	5
Upgrade training	30	5

4.5.2. Helicopter

Route training shall only take place once the trainee has completed the school flight according to paragraph 4.4. A route instructor for pilot in command/co-pilot certified by the Department of Civil Aviation will supervise the route training for each training types as follows:

Training Type	Two or more man crew	One man crew
	Number of flights	Number of flights
Conversion/transition training	30	5
Difference training	15	5
Upgrade training	20	5

Remarks: - Two or more man crew refers to aircraft type requiring two or more pilots on the type certificate;

- One man crew refers to aircraft type requiring one pilot or aircraft or an aircraft type requiring one pilot on the type certificate but the DCA requires 2 pilots;

- for helicopters, each flight shall have a minimum flight time of 15 minutes.

Once the trainee has completed the route training according to his/her designated position (Pilot in command/co-pilot), s/he will be eligible to take the test administered by the Department of Civil Aviation or the designated check pilot. Once the trainee has passed the test according to the DCA’s requirements, the type rating will be transcribed onto the pilot certificate.

4.5.3. Criteria for the route training test

The Department of Civil Aviation or the designated check pilot will administer the route training test to the trainee using the checklist in Appendix 3 of this announcement.

5. Right hand seat training for pilot in command shall include 4-hour simulation for normal, abnormal, and emergency operations in VFR and IFR flights in accordance with paragraph 4.4.1 (a) at the right hand seat position (PF) and a test administered according to the checklist in Appendix 4 of this announcement.

6. Conditions

6.1. Failing to attend simulation sessions (FST) after completing the theory test over a one month period, but no longer than 6 months, the airman shall attend a refresher course which covers aircraft systems accordingly to paragraph 4.1 for airplane and paragraph 4.2 for helicopter, as well as passing another theory test before being eligible for FST sessions.

- 6.2. Failing to attend simulation sessions (FST) after completing the theory test over a period of 6 months, the trainee shall complete the classroom training of that particular aircraft before being eligible for FST sessions.
- 6.3. Failing to attend school flight after completing FST sessions over a one month period, but no longer than 3 months, the trainee shall attend a refresher course which covers aircraft systems accordingly to paragraph 4.1 for airplane and paragraph 4.2 for helicopter. The trainee shall pass another theory test and train for 1 session for airplane and 2 hours for helicopter, in addition to passing a test as required (1 session) for airplane and 2-hour test for helicopter to be eligible for further practical training.
- 6.4. Failing to attend school flight after completing FST sessions over a period of three months, but no longer than six months, the trainee shall undergo refresher training. The refresher course shall cover aircraft systems according to paragraph 4.1 for airplane and paragraph 4.2 for helicopter. The trainee shall pass the theory test as required and undergo 2 sessions for airplane and 4 hours for helicopter, in addition to passing a test as required (1 session) for airplane and 2-hour test for helicopter to be eligible for further practical training.
- 6.5. Failing to attend school flight after completing FST sessions over a period of six months, the trainee will have to restart the training program all over again, starting from theory to be eligible for further practical training.
- 6.6. Failing to attend the route training after completing the school flight over a one month period, but no longer than three months, the trainee shall undergo a refresher course, covering aircraft systems according to paragraph 4.1 for airplane and paragraph 4.2 for helicopter. The trainee shall pass the theory test as required, undergo 1 session for airplane and 2 hours for helicopter, in addition to passing a test (1 session) to be eligible for route training.
- 6.7. Failing to attend the route training after completing the school flight over a period of three months, but no longer than six months, the flight crew shall undergo a refresher course covering aircraft systems according to paragraph 4.2.1, pass the theory test as required, and undergo 2 sessions for airplane and 2 hours for helicopter, in addition to passing a test (1 session) for airplane and 2-hour test for helicopter to be eligible for route training.

- 6.8. Failing to attend the route training after completing the school flight over a period of six months, the flight crew shall undergo a refresher course covering aircraft systems according to paragraph 4.1 for airplane and 4.2 for helicopter, pass the theory test as required, and undergo 3 sessions, in addition to passing a test (1 session) for airplane and 2-hour test for helicopter, and pass a school flight test (1 session) to be eligible for route training.
- 6.9. Failing to attend the route training after completing the school flight over one year period, the flight crew shall start the full training program from the beginning.
- 6.10. Failing to fly for 3 to 6 months after receiving a type rating in the pilot certificate, the flight crew shall attend 1 FST session for airplane and 2 hours for helicopter, and pass the required test (1 session for airplane and 2-hour test for helicopter).
- 6.11. Failing to fly for over a period of 6 months after receiving a type rating in the pilot certificate, the flight crew shall undergo requalification training.
- 6.12. Failing to fly for over a year period after receiving a type rating in the pilot certificate, the flight man shall start the full training program from the beginning.
- 6.13. An applicant, who temporarily drops out at any time during the training according to parts 4.1 to 4.5, shall immediately inform the DCA and resume training within 30 days from the last day of training. The applicant shall restart the training part that s/he has not completed otherwise.
7. Flight instructor for all training parts 4.1 to 4.5 shall be certificated by the DCA and shall operate according to the requirements of the DCA.
8. Certified aircraft operator shall have the flight crew training program approved by the officer. The aircraft operator shall submit, for certification, training plan, including detailed test procedures, and other documents required by the DCA at least 30 working days before the start of the program. An approved flight crew training program by the officer is a part of flight crew training manual of the certified aircraft operator.

The DCA will not grant type rating if the training does not comply with the DCA approved training program or the instructor is not certificated by the DCA.
9. Certified aircraft operator shall improve and update its flight crew training program to constantly keep current with the International Civil Aviation Organization (ICAO) safety standard or better. All

amended training plans must be submitted for approvals by the DCA at least 15 working days before the new training program can commence.

10. This announcement comes into force ninety days after the date of announcement.

Given on the 30th of July B.E. 2551

Mr. Chaisakdi Angkasuwan

Director General of the Department of Civil Aviation

Appendix 1

Example of the “common type rating”

Difference training refers to aircrew training in order to change common type rating for an aircraft produced from the same manufacturer, but with difference in performance, weight, and configuration.

Examples of aircraft type produced by the same manufacturer are as follow:

1. Boeing Company:

- B727-100, B727-200
- B737-200, B737-300, B737-400
- B757, B767
- B777-200, B777-300
- B747-100, B747-200, B747-300
- B747-400, B747-800
- MD80 series, MD90

2. Airbus Company:

- A300, A310
- A318, A319, A320, A321
- A330, A340, A350

3. Embraer:

- ERJ135, ERJ140, ERJ145

Appendix 2

Checklist for pilot flight simulation test



DEPARTMENT OF CIVIL AVIATION
PILOT FLIGHT DEMONSTRATION

TYPE RATING /SCHOOL FLIGHT/ PROFICIENCY /QUALIFICATION CHECK			
Name of Airm'n:		Licence No.	Date of Check:
Employed By:		Location:	Aircraft Type / Simulator:
Inspector's Name/ No:		Type of Check:	Block Time:
FLIGHT MANEUVERS GRADE (S = Satisfactory ; SS = Satisfactory with briefing; U = Unsatisfactory ; N = Not Observed; NA = Not Applicable)			
A. PRE-FLIGHT		SIMULATOR	AIRCRAFT
1.	Equipment Examination/Performance and Limitation (Oral or written)		
2.	Pre-flight Inspection		
3.	Taxing		
4.	Powerplant Checks (Engine start / after start)		
B. TAKEOFFS		SIMULATOR	AIRCRAFT
5.	Normal Takeoff		
6.	Instrument (Low visibility takeoff in Simulator RVFR <400M)		
7.	Crosswind / Wind Shear		
8.	Takeoff or Touch and Go with Simulated Powerplant Failure at V2		
9.	Reject Takeoff (Simulator only)		
C. INSTRUMENT PROCEDURES		SIMULATOR	AIRCRAFT
10.	Area Departure		
11.	Holding		
12.	Area Arrival		
13.	Precision Approaches (ILS/ with or without FD / Touch and Go all engines)		
14.	Non precision Approaches & Landing		
15.	Circling Approaches		
16.	Mixed Approaches (GA all engines / GA one engine failure)		
17.	Use of Auto Pilot, Flight Director		
D. INFLIGHT MANEUVERS		SIMULATOR	AIRCRAFT
18.	Steep Turns		
19.	Approaches to Stalls and Recovery		
20.	Specific Flight Characteristics/ (TCAS / ACAS)		
21.	Powerplant Failure		
E. LANDINGS		SIMULATOR	AIRCRAFT
22.	Visual circuit /Touch and Go (All Engines / One engine failure)		
23.	From Precision and Non precision Approach (1-eng Inop. / with or without FD / GA)		
24.	Crosswind / Wind Shear		
25.	With Simulated Powerplant(s) Failure		
26.	Rejected Landing		
27.	From Circling Approach		
28.	ILS Approach CAT, I II, III (GA / one engine failure)		
F. OTHERS		SIMULATOR	AIRCRAFT
29.	Normal and Non-normal Procedures (RNP / P-RNAV / RVSM / ETOPS)		
30.	Emergency Procedures		
31.	CRM		


REMARKS OR COMMENTS:

1. The flight instructor was observed to have conducted the flight check in a professional and safe manner. The flight instructor was observed to have provided clear and concise instructions to the pilot throughout the flight. The flight instructor was observed to have maintained a professional and courteous attitude throughout the flight. The flight instructor was observed to have provided a thorough debriefing of the flight to the pilot. The flight instructor was observed to have provided a thorough explanation of the flight check results to the pilot. The flight instructor was observed to have provided a thorough explanation of the flight check results to the pilot. The flight instructor was observed to have provided a thorough explanation of the flight check results to the pilot.

RESULT OF CHECK	<input type="checkbox"/> SATISFACTORY	FLIGHT OPERATIONS INSPECTOR/ DESIGNATED CHECK PILOT:
	<input type="checkbox"/> UNSATISFACTORY	CHECK AIRMEN:

Appendix 3

Checklist for airman route and qualification test


 DEPARTMENT OF CIVIL AVIATION
 MINISTRY OF TRANSPORT THAILAND
AIRMAN ROUTE AND QUALIFICATION CHECK

NAME OF AIRMAN		DATE OF CHECK		
EMPLOYED BY		AIRCRAFT TYPE		
INSTRUCTOR PILOT		ROUTE		
INSPECTOR NAME		BLOCK TIME		
	S	U	S	U
I PREFLIGHT - FLIGHT PLANNING, - METEOROLOGY - DEPARTURE AIRPORT - CLEARANCES - FLIGHT RELEASE - DOCUMENTS II AIRCRAFT HANDLING - CHECKS - TAXIING - TAKE OFF - CLIMB - SID COMPLIANCE - ALTITUDE AWARENESS - DESCENT & CHECK - LANDING			III EN-ROUTE - CLEARANCES - NAV. & FACILITIES - COMMUNICATION - METEOROLOGY - MEA, - A/C ALTITUDE IV APPROACH & LANDING - COM/NAV (LANDING AIRPORT) - CLEARANCE TO DESCENT - USE OF STAR - USE OF APP. CHART - ILS. APPROACH - VOR, ADF - HOLDING - NORMAL - CROSS WIND	
REMARKS/COMMENTS :-				
RESULT OF CHECK	<input type="checkbox"/> SATISFACTORY <input type="checkbox"/> UNSATISFACTORY		INSPECTOR SIGNATURE	