# TB-20 Differences Training Course – VFR Pilots

## The aim of the course

The aim of the VFR TB20 differences training is to provide ground and flight instruction to a trainee already holding a pilot's licence, so that they may act as a pilot on the TB-20 aircraft in VMC conditions under Visual Flight Rules.

**FCL.710 Class and type ratings — variants**

(a) In order to extend his/her privileges to another variant of aircraft within one class rating, the pilot shall undertake differences or familiarisation training

(b) …

(c) The differences training shall be entered in the pilot’s logbook or equivalent record and signed by the instructor as appropriate.

##  Pre-Entry Requirements

All trainees must be in possession either of an EASA or JAR-FCL pilot's licence, or an appropriately validated foreign licence, together with the relevant current medical certificate, before any training can be carried out.

## Training Syllabi

### Theoretical Knowledge Training

The ground-training syllabus provides the trainee to gain a thorough understanding of the operation including function of the abnormal and emergency operation of all aircraft systems. The training includes systems essential to the operation of the aircraft.

Training includes self study and instructor led training on the following subjects:

* Aircraft Dimensions
* Engine including engine leaning and temperature management
* Fuel system
* Ice protection
* Hydraulic system
* Landing gear
* Flight controls
* Electrical Power supply
* Flight instruments, communication and navigation equipment, auto
* pilot
* Cockpit, cabin and cargo compartment
* Emergency procedures and equipment operation
* Limitations (general, engine, system and MEL)
* Performance flight planning and monitoring
* Load and balance and servicing
* Normal and Non-normal procedures
* Scan flow patterns
* Normal and Non-normal checklist items
* Differences of a retractable gear aircraft
* Differences of a variable pitched propeller

### Air Exercises

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| **Exercise: Lesson 1**  |
| **Aim:**  | To familiarise the trainee with the normal pre and post flight cockpit procedures, aircraft general handling, approach and landing  |
| **Airmanship/Briefing:**  | Aircraft Flight Manual, Cockpit Scans and Flows, Steep turns, Stalling characteristics,  |
| **Duration:**  | 1:30  |
| **Exercise:**  | **Pre-flight procedures:** Aircraft exterior visual inspection & cockpit inspection AvionicsPowerplant StartTaxiing including pre-departure checks Pre take-off checklist Performance calculations Take-off and DeparturePropeller RPM / Engine power combinationsNormal take-off, climbing at Vx/Vy Turns onto heading Level off **Inflight Manoeuvres:** Steep turns (360° left and right at 45° bank)Handling using autopilot and flight director (if applicable) Simulated forced landing without power (not below 500 ft. AGL)**Stalls and recovery:**Clean stallApproach to stall in descending turn with bank with approach configuration and powerApproach to stall in landing configuration and power Approach to stall, climbing turn with take-off flap and climb power**Approach and landing:**Engine temperature / shock cooling managementNormal & flapless circuitsTyres / braking**Post-flight procedures:**After landing proceduresParkingEngine shutdownSecuring Documentation / time recording |

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| **Exercise: Lesson 2**  |
| **Aim:**  | To develop proficiency with the pre and post flight procedures, approach and landings. To gain familiarity with handling non-normal malfunctions, and recovery from unusual attitudes. To allow the trainee to practise manoeuvres required  |
| **Airmanship/Briefing:**  | AFM/POH, simulated engine failure, Hydraulic and Fuel system malfunctions, checklist use, recoveries, RTO. Correct RTF in emergencies  |
| **Duration:**  | 1:30  |
| **Exercise:**  | **Pre-flight procedures:** Performance calculationsAbnormal engine starts (hot, flooded)Engine fire during startTake-off and DepartureCrosswind take-offRejected take-off-touch drillsSimulated engine failure after take-off **Inflight Manoeuvres and malfunctions** Aircraft and Personal Emergency Equipment**Abnormal & Emergency Malfunctions:** Hydraulic system failure - alternate gear extension Fuel tank balancing & pump failureFlap failureAlternator failure**Approach and landing:**Visual flapless approach and landing Go-around from minimum height Cross wind landing and circuits **Post-flight procedures:** Uncontrollable engine fire on the groundAfter landing procedures ParkingEngine shutdown Securing  |

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| **Exercise: Lesson 3** |
| **Aim:**  | To develop proficiency with all procedures learned to date in a “real life” example. To allow the trainee to practise manoeuvres required  |
| **Airmanship/Briefing:**  | AFM/POH, Route, Nav, Radio plan  |
| **Duration:**  | 2:00  |
| **Exercise:**  | **Two flight legs (out and back) as follows****Pre-flight procedures:** Performance calculationsAbnormal engine starts (hot, flooded)Take-off and Departure**Inflight Manoeuvres and malfunctions** VFR navigation exercise to include: 1. Flight plan, dead reckoning and map reading
2. Maintenance of altitude, heading and speed
3. Orientation, timing and revision of ETAs
4. Use of radio navigation aids (if applicable)
5. Flight management (flight log, routine checks including fuel, systems and icing)
6. Use of autopilot on heading. Climbing and descending
7. ATC liaison - Compliance, R/T procedure
8. Descent / speed planning
9. Landing at a different destination airport

**Approach and landing:**Normal landing **Post-flight procedures:** After landing procedures ParkingEngine shutdown Securing  |
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## Course Completion

Before being permitted to fly the aircraft solo, the student must have

* Completed all of the flight exercises to a satisfactory standard as detailed in the individual lesson plans
* Demonstrated the ability to:
	+ Operate the aeroplane within its limitations;
	+ Complete all manoeuvres with smoothness and accuracy;
	+ Exercise good judgement and airmanship;
	+ Apply aeronautical knowledge; and
	+ Maintain control of the aeroplane at all times in such a manner that the successful outcome of a procedure or manoeuvre is always assured
* Completed at least the 5 hours of flight training in the aircraft
* Received a recommendation for solo flight from an instructor or experienced TB20 pilot (min 50 hours TB20 PIC)

## License Endorsement

On completion of the differences training course the following shall be entered into the trainee’s logbook:

Differences training (RU, VP, TB20) has been completed in accordance with Part.FCL.710.

Signed Instructor
Date
Name of Instructor
Licence number