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VFR Navigation Progress Test Guide

AEROPLANE

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VFR NAVIGATION PROGRESS TEST GUIDE

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This reference sets out the skill requirements for the VFR navigation progress test required for students enrolled in CPL(A) or CPL(A)/IR integrated commercial pilot training courses.

The goal of the flight test is to ensure that the candidate has all the required skills to plan and execute a cross-country flight safely.

The VFR navigation progress test is conducted by check instructors appointed by the flight training unit in accordance with the requirements for an integrated course.

For more information, visit our web site at www.tc.gc.ca/aviation/general/fltrain/index.htm

Également disponible en français

General

Scope of the Progress Test

The VFR navigation progress test consists of the planning, preparation, and completion of a cross-country flight of at least 120 nautical miles which shall include 1 full stop landing at an intermediate destination. If possible, the intermediate destination shall be in a different class of airspace other than the point of departure. Although aeroplane performances and weight and balance are not tested as separate exercises, it is expected that the candidate will use all the applicable performance data as well as all the approved operating procedures required for a cross-country flight.

Prerequisite to the Progress Test

The VFR navigation progress test completes a phase in the CPL(A) and CPL(A)/IR integrated course. In order to be admitted to the progress test, the candidate shall have completed all the required dual and solo flight lessons. It is not a training flight but an evaluation at the end of a training phase in an integrated course.

A view limiting device must be provided to complete part D, Lost Procedures.

Re-test

Any item failed on the VFR navigation progress test, shall require a complete re-test.

Marking the Test

The "Performance Criteria" section of each exercise outlines the marking criteria. These criteria assume no unusual circumstances as well as operation and configuration of the aeroplane in accordance with the manufacturer's recommended procedures in the Pilot's Operating Handbook/Aircraft Flight Manual or other approved data. Consideration shall be given to unavoidable deviations from the published criteria due to weather, traffic or other situations beyond the reasonable control of the candidate. To avoid the need to compensate for such situations, the test should be conducted under normal conditions whenever possible.

Failure to maintain proper lookout shall be disqualifying

Any one of the following will result in an assessment of fail for that exercise:

- aim of exercise not completed;
- acceptable level of practical knowledge not demonstrated;
- failure to take prompt corrective action when tolerances stated in the performance criteria are exceeded;
- repeatedly exceeding tolerances stated in the performance criteria;
- aim of exercise completed but at expense of using unsafe airmanship and/or handling errors;
- any action or lack of action by the candidate that requires corrective intervention by the check instructor to maintain safe flight.

Record Keeping

Certification that the student has met the skill requirements of the VFR navigation progress test as well as the admission letter will be kept on the training record for the student. The training record shall be retained for one regulatory audit cycle.

Airmanship

The candidate's airmanship will be assessed with other factors in determining the assessment for each item. Items such as look-out for other aircraft, use of cockpit check lists, consideration for other aircraft on the ground and in the air, choice of run-up areas, choice of runways and clearing the engine during prolonged glides will be assessed. The candidate will be expected to demonstrate good airmanship and complete accurate checks on a continuing basis.

Crew Resource Management

Crew resource management refers to the effective use of all available resources, including working with such groups as dispatchers, other crew members, maintenance personnel, and air traffic controllers. CRM is a set of skill competencies that must be evident in all tasks in the VFR navigation progress test. Indicators of these competencies can be found in four main areas: problem solving and decision-making, situational awareness, communication, and workload management.

Problem Solving and Decision Making

- anticipates problems far enough in advance to avoid crisis reaction
- uses effective decision-making process
- makes appropriate inquiries
- prioritizes tasks to gain maximum information input for decisions
- makes effective use of all available resources to make decisions
- considers "downstream" consequences of decision being considered

Situational Awareness

- actively monitors weather, aircraft systems, instruments, ATC communications
- avoids "tunnel vision" - awareness that factors such as stress can reduce vigilance
- stays ahead of the aircraft in preparing for expected or contingency situations
- remains alert to detect subtle changes in the environment

Communication

- provides thorough briefings
- asks for information and advice
- communicates decisions clearly
- asserts one's position appropriately

Workload Management

- organizes cockpit resources well
- recognizes overload in self
- eliminates distractions during high workload situations
- maintains ability to adapt during high workload situations

Progress Test Exercises

EX. 23 PILOT NAVIGATION

A. Pre-Flight Planning Procedures

Aim

To determine that the candidate can effectively and efficiently plan and prepare for a cross-country flight.

Description

The candidate will be requested to plan a cross-country flight of at least 120 nautical miles which shall include 1 full stop landing at an intermediate destination. If possible, the intermediate destination should be in a different class of airspace other than the point of departure. The candidate will treat the check instructor as a fare paying customer.

Note: The cross-country flight will be assigned in advance. The candidate is expected to complete all the preparation, including weight and balance, for the flight in order to be ready for a departure time that would permit reaching the destination at the requested time.

Performance Criteria

The candidate will:

- provide a departure time;
- brief the passenger as far as appropriate clothing, maximum baggage allowed or any other information relevant to the flight;
- use appropriate and current aeronautical charts and other current flight publications, extract and record pertinent information;
- properly identify airspace, obstructions, and terrain features;
- select a safe and efficient route;
- retrieve and interpret weather information and NOTAM appropriate for the intended flight;
- select the most favourable appropriate altitudes, considering weather conditions and equipment limitations;
- neatly and accurately prepare a navigation chart;
- neatly and accurately complete a navigation log;
- accurately prepare weight and balance computations for the departures and landings
- demonstrate that the weights and center of gravity are within acceptable limits;
- determine the appropriate departure procedure;
- obtain pertinent operational information about the en route and destination airports;
- determine the acceptability of the departure and destination runways under existing or forecast conditions;
- accurately calculate headings, estimated ground speed, fuel requirements, and time en route;
- make a competent “go/no-go” decision based on available weather information;
- ensure that flight authorization is confirmed and encompasses the requirements of the proposed flight in accordance with the applicable operational control system;

- determine the impact on aeroplane operations of unserviceabilities or equipment configuration changes for the proposed flight;
- accurately complete and file a VFR flight plan;
- organize and arrange material and equipment in a manner that makes the items readily available.

B. Departure Procedure

Aim

To determine that the candidate can perform an organized and efficient departure.

Description

The candidate will depart on the cross-country flight as planned.

Performance Criteria

The candidate will:

- note take-off time;
- use an organized and efficient procedure to intercept the pre-planned track;
- comply with all departure clearances and instructions;
- activate the flight plan with ATS;
- set the heading indicator by reference to the magnetic compass or other acceptable means;
- confirm departure angle;
- note set heading time;
- estimate the time of arrival for the first turning point or destination;
- complete appropriate checklists.

C. En Route Procedure

Aim

To determine that the candidate can effectively apply systematic navigation techniques.

Description

After setting heading, the flight will continue as planned.

Performance Criteria

The candidate will:

- maintain the pre-calculated airspeed, cruising altitude, and headings; (+/- 10 knots, +/- 100 feet, +/- 10°);
- navigate by means of dead reckoning rather than pilotage;
- orient the chart in the direction of flight;
- determine the position of the aircraft within 15 minutes from the time of setting heading;
- verify position by using a “map to ground” technique;
- correct for, and record, the differences between groundspeed and heading calculations and those determined en route;

- demonstrate an organized method that would:
 - correct any existing track error
 - maintain the aircraft position within 1 nautical mile of the planned route
 - confirm or revise, as appropriate, the ETA for the first destination
 - confirm fuel requirements
- advise appropriate flight following of the revised ETA;
- arrive at the first destination within 3 minutes of last revised ETA.

D. Lost Procedures

Aim

To determine that the candidate can apply effective procedures when uncertain of position.

Description

The candidate is required to demonstrate the procedures to be used when uncertain of one's position. The check instructor will require the candidate to descend to an altitude of approximately 1,000 feet AGL and maintain a heading for ten minutes while using a suitable view-limiting device. After this time, the device will be removed and the candidate will respond.

Performance Criteria

The candidate will:

- maintain the original or appropriate heading;
- draw a circle of uncertainty;
- apply a map reading technique of "watch to ground"
- use available navigation aids or contact an appropriate facility for assistance;
- take a course of action to return to the en route track, once position is established and confirmed;
- select a power setting and altitude appropriate for the situation.

E. Diversion to an Alternate

Aim

To determine that the candidate can perform the required in-flight planning and carry out a diversion to an alternate destination.

Description

When requested by the check instructor, the candidate shall demonstrate ability to select a suitable alternate destination that is within the actual or simulated fuel range of the aeroplane. The candidate shall carry out a diversion towards the selected destination, or in the interest of flight test efficiency, towards another destination selected by the check instructor.

When practicable, a part or all of the diversion should be conducted at approximately 500 feet above ground or a minimum safe altitude.

The candidate's ability to proceed to an alternate using mental dead reckoning will be assessed. Rulers, protractors, computers, or radio navigation aids shall not be used for this procedure.

The diversion will be continued until at least the stage where the aeroplane is established on the proposed track to the alternate in a manner that will ensure arrival at the destination.

Performance Criteria

The candidate will:

- identify and record present position;
- select an appropriate alternate airport and route;
- identify highest Maximum Elevation Figure (MEF) for selected route;
- determine a minimum safe altitude;
- select an aircraft configuration and airspeed appropriate for the actual or simulated conditions;
- estimate initial heading, groundspeed, arrival time, and fuel consumption to the alternate destination;
- divert toward the alternate destination promptly;
- maintain the selected airspeed (+/- 10 knots), selected altitude (+/- 100 feet), and required headings (+/- 10°);
- provide an estimated time of arrival that is sufficiently accurate to ensure that the diversion can be conducted as planned;
- amend the flight plan with ATS

Ex. 29 Emergency Procedures/Malfunctions

Aim

To determine that the candidate can react promptly and correctly to systems malfunctions with potential to affect the outcome of the cross-country.

Description

The check instructor will assess the candidate's knowledge of systems malfunctions or abnormal conditions. Assessment may be carried out during any portion of the progress test.

Performance Criteria

Assessment will be based on the candidate's ability to analyze the situation and take appropriate action, including diverting to an appropriate alternate, following the applicable checklists or procedures, for two of the following simulated malfunctions:

- partial power loss
- rough engine operation or overheat
- loss of oil pressure
- fuel starvation
- electrical fire
- vacuum system failure
- pitot or static blockage
- cabin fire
- icing
- electrical malfunctions
- landing gear malfunctions
- flap failure
- door opening in flight
- emergency descent
- any other emergency unique to the aeroplane flown