



TRAINING STANDARDS

NIGHT RATING

Version 1.0



TRAINING STANDARDS

Night Rating

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TRAINING STANDARDS

Night Rating

OVERVIEW

All training flights in the pursuit of a night rating shall follow the requirements outlined in this manual, Canadian Aviation Regulations, Flight Training Manual and Flight Instructor Manual.

DEFINITION

CARS 101.01(1) – “The time between the end of evening civil twilight and the beginning of morning civil twilight”

Typically thought of as 25-30 minutes after the sun sets until 25-30 minutes prior to the sun rising. Also defined as when the center of the sun’s disc is 6° below the horizon until the sun’s disc rises to above 6° below the horizon.

TRAINING REQUIREMENTS

CARS 421.42

(a) Experience

An applicant for a night rating shall have acquired in aeroplanes a minimum of 20 hours of pilot flight time which shall include a minimum of:

(i) 10 hours of night flight time including a minimum of:

(A) 5 hours dual flight time, including 2 hours of cross-country flight time,

(B) 5 hours solo flight time, including 10 takeoffs, circuits and landings, and

(ii) 10 hours dual instrument time

(iii) Credit for a maximum of five hours of the 10 hours of dual instrument time may be given for instrument ground time,

(b) Skill

Within the 12 months preceding the date of application for a night rating, an applicant shall have successfully completed a qualifying flight under the supervision of a Transport Canada Inspector or a person qualified in accordance with subsection 425.21(4) by demonstrating the level of skill specified in the Flight Instructor Guide-Aeroplane.



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REQUIRED READING

Instructors should direct students to read exercise #25 in the Flight Training Manual. Additionally instructors should review exercise #25 Night Flying in the Flight Instructor Manual.

MEDICAL REQUIREMENTS

Ensure that your student does not have any restrictions on their Medical Certificate pertaining to night flying. It is not uncommon for some students to have restrictions due to colour deficiency.

FLIGHT DURATION

The flight duration of training flights is 1.2 hours (1 hour air)

FLIGHT LOGGING

Dual training flights where the student is *not* receiving instrument training shall be logged as DUAL NIGHT for the duration of the flight that took place during official night.

Dual training flights where the student *is* receiving instrument training shall be logged as DUAL DAY for the portion of the flight that the student was receiving the instrument training. The remainder of the flight time can be logged as DUAL NIGHT.

Solo training flights shall be logged as SOLO NIGHT for the duration of flight time that took place after official night, the remainder flight time if any shall be logged as SOLO DAY.

Flights that have a destination greater than 25 nautical miles from the departure aerodrome shall be considered cross country. The duration of flight time flown after official night shall be logged as NIGHT CROSS COUNTRY

COMMUNICATIONS

All radio communications shall be accordance with the Training Standards : Radio Communications Manual.

AIRCRAFT OPERATIONS

Reserved



PASSENGERS

No passengers are to be carried on night training flights.

CANADIAN AVIATION REGULATIONS

CURRENCY REQUIREMENTS

CARS 401.05(2)(b)(i)(b) – PIC must have completed 5 take off and landings within the last 6 months in order to carry passengers on board.

EQUIPMENT REQUIREMENTS

CARS 605.14 – 605.16

AIRCRAFT LIGHTING

- Must have functioning position and anti-collision lighting
- If carrying passengers you must have a functioning landing light (*a functioning landing light is not required on dual training flights, as student and instructor would be considered crew*)
- a means of illumination for all of the instruments used to operate the aircraft

FLIGHT INSTRUMENTS

- Referring to CARS 605.14, 605.16, and AIP RAC Annex you will note that basically all standard equipment is required to be installed and operational, this should include but not limited to the primary six flight instruments, as well as tachometer, compass, engine gauges, and fuel gauges.

PILOT EQUIPMENT

- Must carry a functioning Time Piece - *CARS 602.60.(1)(d)*
- Must carry a functioning Flash Light - *CARS 602.60.(1)(e)*

FUEL REQUIREMENTS

- Flight instructors must ensure that all students are briefed on the fuel requirements as per *CARS 602.88(3)(ii)*. This requires aircraft to land with 45 minutes of reserve fuel, calculated on fuel consumption at normal cruise power settings.



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- Additionally flight instructors will ensure that all aircraft carry sufficient fuel for the intended flight and have 60 minutes reserve fuel based on normal consumption. This requirement is specified in the section 3 of the Company Rules & Regulations Manual.

PUBLICATION REQUIREMENTS

- Must have all current charts and publications for the intended flight, as well as any possible diversions – *CARS 602.60(1)(b)*

AIRFIELD REQUIREMENTS

- Airfields selected for the intention of taking off from or landing on must meet the requirements of CAR 602.40 and CARS 301.07. Review these regulations for specifics. The basic requirement is for there to be runway lighting, taxiway lighting, and illuminated wind indicators.

WEATHER MINIMA

- Flight instructors must ensure that all students are briefed on the weather minima as per CARS 602.14 and 602.15.
- Flight instructors must ensure that all students are briefed on the weather minima as specified in the section 4 of the Company Rules & Regulations Manual.

FLIGHT FOLLOWING

FLIGHT PLANS

- Must be filed and posted on the flight desk bulletin board. Contact number must be filed with the plan. The person that was used a contact person must be advised of this responsibility.

FLIGHT ITINERARY

- At times when flight training staff will be at attendance in the school a flight itinerary may be used in lieu of a flight plan.
- Must be posted on the flight desk bulletin board.

SUPERVISION

- Flight instructors that have signed out a training flight must remain on the premises until that training flight terminates.



AIR INSTRUCTION

TRAINING SEQUENCE

All training flights must be conducted as per the following sequence. The training sequence is designed to advance training in instrument flying as well as refresher and upgrade training in basic, upper air, and navigational skills prior to allowing students to fly solo at night.

Reminder to instructors: not all students enrolled in this course are coming directly from a recent private pilot training program. It is feasible that some students may have obtained their pilot licence a number of years ago, trained in another part of the country, or received their training prior to the current requirements for instrument training, therefore some of their skills may be lacking.

FLIGHT SEQUENCE

Dual Objective # 1 (*Introductory Night Flight*)

Instrument Objective # 1 (*Basic Instrument Review*)
Instrument Objective # 2 (*Basic Partial Panel*)
Instrument Objective # 3 (*Unusual Attitude Recoveries*)
Instrument Objective # 4 (*Radio Navigation : VOR*)
Instrument Objective # 5 (*Radio Navigation : ADF*)
Instrument Objective # 6 (*Radio Navigation : GPS*)

Dual Objective # 2 (*Upper Air Review*)
Dual Objective # 3 (*Local Circuits*)

Solo Objective # 1 (*Local Circuits*)
Solo Objective # 2 (*Local Circuits : Corners*)

Dual Objective # 4 (*Airport Tour*)

Solo Objective # 3 (*Airport Tour : Short*)

Dual Objective # 5 (*Long Cross Country*)

Solo Objective # 4 (*Airport Tour : Long*)



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DUAL INSTRUCTION

INSTRUMENT TRAINING

OBJECTIVE # 1 : BASIC INSTRUMENT REVIEW

Content

This objective shall consist of a review of basic full panel instrument flying, straight & level, climbs and descents, standard rate turns, level turns at various angles of bank, climbing and descending turns.

Standard

At the completion of this objective the student will have reached a level of skill equivalent to that upon completion of the private pilot program.

OBJECTIVE # 2 : BASIC PARTIAL PANEL

Content

Introduction to partial panel instrument flying. Failures are to be based on a simulated vacuum system failure affecting the attitude indicator and heading indicator. Exercises should include straight & level, climbs and descents to a specified altitude, timed turns to specified headings and climbing & descending turns to specified altitudes and headings.

Standard

At the completion of this objective the student will, while using a partial panel configuration, hold their altitude during level flight $\pm 100'$, be able to execute timed turns to within $\pm 15^\circ$ of the specified heading, and maintain altitude to within $\pm 100'$ of assigned altitude. The student should also be able to demonstrate climbing and descending turns while maintaining specified airspeeds, rate of descends and a standard rate turn.

OBJECTIVE # 3 : UNUSUAL ATTITUDE RECOVERIES

Content

Review unusual attitude recoveries from both nose up and nose down attitudes while in wings level and banked attitudes using full panel configuration. Introduction to partial panel unusual recoveries as above, students should receive training in both nose up and nose down recoveries.

Standard

Students must demonstrate prompt recognition and the correct recovery from the unusual attitude upon command from the instructor. Instructors must ensure that student applies the correct control and power inputs for the presented attitude.



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OBJECTIVE # 4 : RADIO NAVIGATION : VOR

Content

Introduction to basic radio navigation using VOR's. Students shall be trained the on basic procedures for locating on a chart a VOR facility, identify its frequency and morse identifier, tune in station and check for its serviceability. Students should be given a ground briefing on basic VOR theory and associated errors. Students should be trained to determine their position relative to the station (what radial they are on). Students should also be trained on the correct procedures to track in to, and out from a specified radial. Additionally training shall be provided on assessing and correcting for drift.

Intercept angles (Cut Angle) shall be as follows: 90° for inbound tracks and 45° for outbound tracks.

Standard

Students must demonstrate correct tuning, identifying, and testing procedures for a specified station. Students must be able to correctly identify their position relative to a specified station. Students must promptly and correctly identify the correct heading and turn to the heading by the most efficient means to intercept the assigned radial using the correct intercept angle. Assigned altitude must be maintained $\pm 100'$, and only standard rate turns shall be used.

OBJECTIVE # 5 : RADIO NAVIGATION : ADF

Content

Introduction to basic radio navigation using NDB's. Students shall be trained on the basic procedures for locating on a chart an ADF station, identify its frequency and morse identifier, tune in station and check for its serviceability. Students should be given a ground briefing on basic ADF theory and associated errors. Students should be trained to determine their position relative to the station. Students should also be trained on the correct procedures to track in to, and out from on a specified track. Additionally training shall be provided on assessing and correcting for drift.

Intercept angles (Cut Angle) shall be as follows: 90° for inbound tracks and 45° for outbound tracks.

Standard

Students must demonstrate correct tuning, identifying, and testing procedures for a specified station. Students must be able to correctly identify their position relative to a specified station. Students must promptly and correctly identify the correct heading and turn to the heading by the most efficient means to intercept the assigned track using the correct intercept angle. Assigned altitude must be maintained $\pm 100'$, and only standard rate turns shall be used.



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OBJECTIVE # 6 : RADIO NAVIGATION : GPS

Content

Introduction to basic radio navigation using a GPS receiver. Students shall be trained in the basic procedures for selecting a waypoint, loading a flight plan and using the direct to feature. Students should be given a ground briefing on basic GPS theory and associated errors. Students should be trained to determine their position relative to a waypoint. Students should also be trained on the correct procedures to track in to, and out from on a specified track. Additionally training shall be provided on assessing and correcting for drift.

Intercept angles (Cut Angle) shall be as follows: 90° for inbound tracks and 45° for outbound tracks.

Standard

Students must demonstrate correct operation of a GPS. Students must be able to correctly identify their position relative to specified station. Students must promptly and correctly identify the correct heading and turn to the heading by the most efficient means to intercept the assigned track using the correct intercept angle. Assigned altitude must be maintained $\pm 100'$, and only standard rate turns shall be used.

DUAL INSTRUCTION

OBJECTIVE # 1 : NIGHT INTRODUCTORY FLIGHT

Content

Initial night flight giving the student an opportunity to experience flight at night prior to starting the instrument training. The flight should start with departure away from the airport pointing out features such as mountains, clouds, water and cities from a night perspective, returning back to airport for a few circuits just prior to termination of flight. Students should receive ground briefings on pilot and aircraft equipment requirements, weather and fuel requirements, maneuvering of aircraft on the ground at night on the ground.

Standard

None

OBJECTIVE # 2 : UPPER AIR REVIEW

Content

This objective shall be conducted at night. Review of the following air exercises shall be completed, Slow Flight (Clean and 20° flap configurations), Stalls (power on and power off), spiral recoveries, and 45° Steep turns.

Standard



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At the completion of this objective the student will have reached a level of skill equivalent to that upon completion of the private pilot program.

OBJECTIVE # 3 : LOCAL CIRCUITS

Content

Dual instruction on standard circuits at the local home aerodrome. Instruction on maintaining a correct glide path by use of the PAPI or VASIS. Taxi instruction of correct speed and taxiway markings.

Standard

The student shall demonstrate a satisfactory knowledge of night requirements of the pilot and aircraft by way of verbal questions and answers. The student shall be able to maintain orientation to the airport and the circuit. The student shall be able to take off and land with minimal assistance of the instructor.

OBJECTIVE # 4 : AIRPORT TOUR

Content

Dual cross country flight to the local airports via the following routing CYNJ – CYPK/CYPK – CYCW/CYCW – CYXX/CYXX – CYNJ. A few circuits should be flown at each of the airports. The time spent on route shall be used to conduct briefings on physiological effects of flying at night, night vision, optical illusions, hypoxia, black hole effect, etc. Additionally a ground briefing shall be conducted as a review of MF/ATF procedures, as well as a review of the procedures of the airports (specifically night procedures if any).

Standard

Upon completion of this objective the student shall be able to satisfactorily navigate the lower Fraser Valley with minimal assistance of the instructor. The student will also be able to correctly enter and exit the required control zones and airspace as required. The student shall demonstrate correct radio communication skills.

OBJECTIVE # 5 : LONG CROSS COUNTRY

Content

Dual cross country flight to Victoria (CYYJ) and Nanaimo (CYCD) via the following routing. CYNJ V495 CYYJ/CYYJ AP A16 CYCD/CYCD A16 WC CYNJ. Full stop landings shall be completed at both Victoria and Nanaimo. The intent of the requirement for landings at Victoria and Nanaimo is to taxi clear of the runway to allow for the student to receive experience in ground maneuvering the aircraft at larger airports at night.



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The weather and altitude for this flight shall be in accordance with the requirements of the Flight Safety & Regulations manual.

Standard

Upon completion of this objective the student shall be able to satisfactorily navigate the lower mainland and southern Vancouver Island with minimal assistance of the instructor. The student will also be able to correctly enter and exit the required control zones and airspace as required. The student shall demonstrate the ability to safely taxi the aircraft off the runway to the apron and back to the active runway with minimal input from the instructor. The student shall demonstrate correct radio communication skills.

OBJECTIVE # 6 : EMERGENCY PROCEDURES

Content

The student shall be subjected to various emergency situations while in flight. These should include but not limited to engine failure, engine fire, electrical fire, alternator failure, vacuum pump failure, radio failure, landing light failure, panel light failure.

This objective should be incorporated into the dual instruction flights.

Standard

Upon completion of this objective the student shall be able to satisfactorily apply the correct procedures to the simulated emergency from both memory and the checklists as required.

SOLO PRACTISE

OBJECTIVE # 1 : LOCAL CIRCUITS

Content

First solo flight shall consist of circuits at the local airport. This flight should be at least one hour in duration. When possible this flight should be conducted with calm winds.

Standard

Prior to moving on to the next objective the student should complete a minimum of one hour of circuits at the local airport.

OBJECTIVE # 2 : LOCAL CIRCUITS : CORNERS

Content

Second solo flight in the circuit at the local airport. Duration the course of this flight the student should leave the circuit and depart the control zone to both Fort Langley and Aldergrove. This flight should be at least one hour in duration.



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Standard

Prior to moving on to the next objective the student should complete a minimum of one hour of circuits at the local airport.

OBJECTIVE # 3 : AIRPORT TOUR : SHORT

Content

Solo cross country flight to the local airports via the following routing CYNJ – CYXX/CYXX – CYNJ. Three circuits should be flown at each of the airports.

Standard

At the completion of this objective the student should have been able to tour the local airports with minimal difficulty.

OBJECTIVE # 4 : AIRPORT TOUR : LONG

Content

Final solo flight in the night rating program. The student shall conduct a cross country flight to the local airports via the following routing CYNJ – CYPK/CYPK – CYCW/CYCW – CYXX/CYXX – CYNJ. One circuit should be flown at each of the airports.

Standard

At the completion of this objective the student should have been able to tour the local airports with minimal difficulty.

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