



Instrument Rating Flight Training Program

Privileges (CAR 401.47)

The holder of a licence endorsed with an instrument rating may exercise:
(a) the privileges of the licence under IFR in accordance with Part VI, Subpart 2, [Division VII](#) in respect of the group of aircraft endorsed on the licence; and
(b) the privileges accorded by a VFR OTT rating.

Requirements (421.47)

Minimum Age: 17

Medical Fitness: Transport Canada Medical category 3 or higher

Knowledge:

An applicant shall have obtained a minimum of 70% on the written examination Instrument Rating (INRAT) which shall include the following subjects:

- (i) *Canadian Aviation Regulations*;
- (ii) Instrument Flight Rules and Procedures;
- (iii) Meteorology;
- (iv) Instruments;
- (v) Radio and Radar systems; and
- (vi) Navigation.

Experience:

An applicant shall have completed a minimum of:

- (i) 50 hours of cross-country flight as pilot-in-command in aeroplanes or helicopters of which 10 hours must be in the appropriate category; and
- (ii) 40 hours of instrument time of which a maximum of 20 hours may be instrument ground time. The 40 hours instrument time shall include a minimum of:
 - (A) 5 hours of dual instrument flight time acquired from the holder of a flight instructor rating ,
 - (B) 5 hours in aeroplanes where the applicant is applying for a Group 1, 2 or 3 instrument rating or in helicopters where the applicant is applying for a Group 4 instrument rating,
 - (C) Fifteen (15) hours of dual instrument flight time provided by a qualified person as specified in [section 425.21\(9\)](#); and
 - (D) one dual cross-country flight under simulated or actual IMC conditions of a minimum of 100 nautical miles, the flight to be conducted in accordance with an IFR flight plan to include at, two different locations, an instrument approach to minima.

Skill

An applicant shall successfully complete:

- (i) a flight test in accordance with the *Flight Test Standards - Instrument Rating* (TP 9939E),

Weather Minimums

ceiling/flight visibility	Dual	Solo/Night Dual
Circuits	1000'/1 NM	1500'/3 NM
Practise Area	1000'/3 NM	2000'/6 NM
Cross Country	1000'/3 NM	2500'/6 NM
Maximum Cross Wind	15 knots	
Minimum Temperature	-25 C	

Minimum Fuel

dual/solo	Fuel Required
Circuits	Estimated time + 45 min reserve
Practise Area	Estimated time + 45 min reserve
Cross country	Fuel to destination + cont fuel for wx + 45 min res

Reporting of Defects

In the event that any defects or unservicabilities are found, the defects should be reported to KBM (345-5445 ex 279) and then recorded in the journey logbook

Securing Aircraft

When not in use, the aircraft is to be put in the hanger or tied down (wings and tail), control lock and pitot cover installed and engine plugs installed in the winter

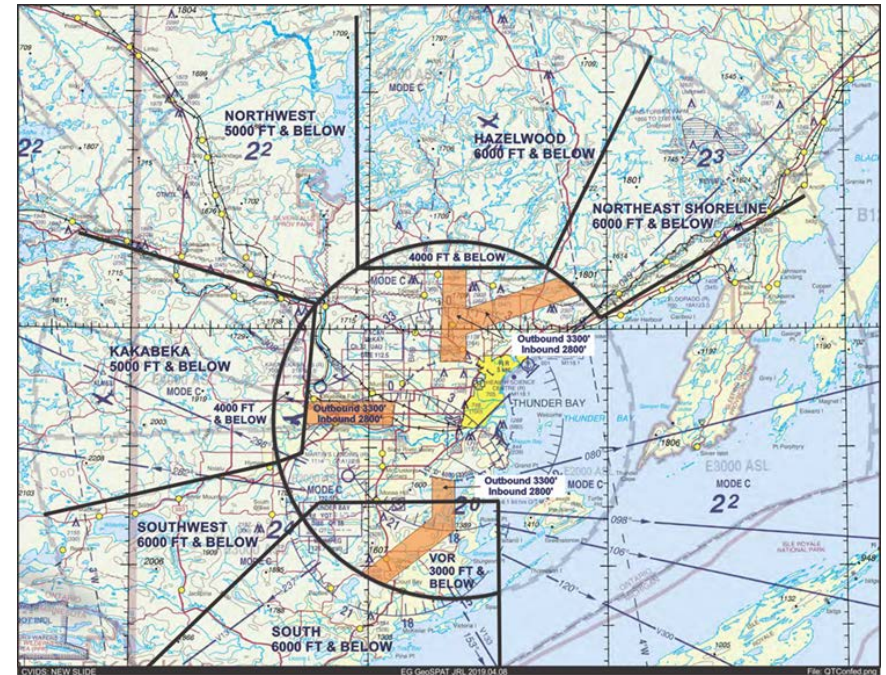
Emergencies

In the event of an emergency or unscheduled landing, contact Flight Service (866-WX BRIEF), and KBM (345-5445 ex 279). **DO NOT ATTEMPT TO TAKEOFF BEFORE SPEAKING WITH A REPRESENTATIVE OF KBM.** If contact cannot be made for whatever reason and immediate assistance is required, switch the Emergency Locator Transmitter to "ON". If non-emergency assistance is required, but not immediate (you are stuck at an abandoned aerodrome and cannot contact anyone, switch the ELT to ON for 90 minutes, then OFF for 90 minutes and repeat until help arrives.

Other Measures

Due to the cold temperatures in the north, always dress as if you had to spend the night outdoors.

Practise Area's



Instrument Rating Flight Syllabus

#	Lesson	Dual	Inst	Total	Total Inst
1	Instrument Flight Review	1.5	1.3	1.5	1.3
2	Partial Panel Review	1.5	1.3	3.0	2.6
3	Navaid Review	1.5	1.3	4.5	3.9
4	Non Precision Approach	1.5	1.3	6.0	5.2
5	ILS Approach	1.5	1.3	7.5	6.5
6	GPS Approach	1.5	1.3	9.0	7.8
7	Full Procedure Approaches	1.5	1.3	10.5	9.1
8	Full Procedure Approaches	1.5	1.3	12.0	10.4
9	Circling	1.5	1.3	13.5	11.7
10	Holds	1.5	1.3	15.0	13.0
11	Holds and Approaches	1.5	1.3	16.5	14.3
12	IFR Cross Country	3.0	2.8	19.5	17.1
13	Pre Flight Test	1.5	1.3	20.0	18.4
14	Review	1.8	1.6	21.8	20.0

Lesson 1 Instrument Flight Review

Date: _____

Instructor: _____

Dual 1.5h

Inst 1.3h

Aim: To review full panel instrument flight manoeuvres covered during the commercial pilot training.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Instrument Checks				*	
Straight and Level Flight	*			*	
Turns	*			*	
Climbs at airspeed	*			*	
Climb at rate of climb	*			*	
Climbs combined	*			*	
Decent at airspeed	*			*	
Decent at rate of climb	*			*	
Decent combined	*			*	
Climbs and Turns	*			*	
Descents and Turns	*			*	

Post-Flight Debriefing:

Lesson 2 Partial Panel Review

Date: _____ Instructor: _____ Dual 1.5h
Inst 1.3h

Aim: To review partial panel instrument flight manoeuvres covered during the commercial pilot training.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Gyro Failure	*			*	
ASI Failure	*			*	
T/C Failure	*			*	

Post-Flight Debriefing:

Lesson 3 Navaid Review

Date: _____ Instructor: _____ Dual 1.5h
Inst 1.3h

Aim: To review VOR, ADF and GPS intercepting and tracking.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Full Panel Inst Flight	*			*	
Partial Panel Inst Flight	*			*	
Tracking VOR radial	*			*	
Intercepting VOR radial	*			*	
Tracking GPS track	*			*	
Intercepting GPS track	*			*	
Tracking NDB bearing	*			*	
Intercept NDB bearing	*			*	
Straight In NDB Apprch		*			

Post-Flight Debriefing:

Lesson 4 Non Precision Approach (Straight In)

Date: _____ Instructor: _____ Dual 1.5h
Inst 1.3h

Aim: To teach the student to conduct a non-precision approach by combining tracking and altitude changes.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Reading Approach Plates					
Cockpit Inst Checks	*		*		
Full Panel Inst Flight					/3
Partial Panel Inst Flight					/3
Intercepting VOR radial					/3
Intercepting GPS track					/3
Intercept NDB bearing					/3
Straight In NDB Apprch	*		*		
Straight In LOC Apprch	*		*		
Straight In ILS Apprch		*			
Missed Approach	*		*		

Post-Flight Debriefing:

Lesson 5 ILS Approach

Date: _____ Instructor: _____ Dual 1.5h
Inst 1.3h

Aim: To teach the student how to conduct a precision ILS approach.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Straight In NDB Apprch				*	
Straight In LOC Apprch				*	
Straight In BC Apprch	*		*		
Straight In ILS Apprch	*		*		
RNAV Apprch		*			
Missed Approach				*	

Post-Flight Debriefing:

Lesson 6 RNAV Approach

Date: _____ Instructor: _____ Dual 1.5h
Inst 1.3h

Aim: To teach the student how to conduct a RNAV approach.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Straight In NDB Apprch				*	
Straight In LOC Apprch				*	
Straight In BC Apprch				*	
Straight In ILS Apprch				*	
RNAV Apprch	*		*		
Glideslope Failure	*		*		

Post-Flight Debriefing:

Lesson 7 Full Procedure Approach

Date: _____ Instructor: _____ Dual 1.5h
Inst 1.3h

Aim: To teach the student full procedure instrument approaches.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Straight In NDB Apprch					3/
Straight In LOC Apprch					3/
Straight In BC Apprch					3/
Straight In ILS Apprch					3/
RNAV Apprch					3/
Full Proc ILS Apprch	*	*	*		
Full Proc NDB Apprch	*	*	*		
Full Proc LOC Apprch	*	*	*		
Full Proc BC Apprch	*	*	*		
Gyro Failure				*	

Post-Flight Debriefing:

Lesson 8 Full Procedure Approach

Date: _____ Instructor: _____ Dual 1.5h
Inst 1.3h

Aim: To perfect full procedure instrument approaches.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
RNAV Apprch				*	
Full Proc ILS Apprch				*	
Full Proc NDB Apprch				*	
Full Proc LOC Apprch				*	
Full Proc BC Apprch				*	
ASI Failure				*	

Post-Flight Debriefing:

Lesson 9 Circling

Date: _____ Instructor: _____ Dual 1.5h
Inst 1.3h

Aim: To teach the student how to circle to land.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
RNAV Apprch				*	
Full Proc ILS Apprch				*	
Full Proc NDB Apprch				*	
Full Proc LOC Apprch				*	
Full Proc BC Apprch				*	
Circling	*	*	*		

Post-Flight Debriefing:

Lesson 10 Holds

Date: _____ Instructor: _____

Dual 1.5h
Inst 1.3h

Aim: To teach the student holding procedures.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Holds	*	*	*		

Post-Flight Debriefing:

Lesson 11 Holds and Approaches

Date: _____ Instructor: _____

Dual 1.5h
Inst 1.3h

Aim: To combine and review all exercises taught so far.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
RNAV Apprch				*	
Full Proc ILS Apprch				*	
Full Proc NDB Apprch				*	
Full Proc LOC Apprch				*	
Full Proc BC Apprch				*	
Circling				*	
Holds				*	

Post-Flight Debriefing:

Lesson 12 IFR Cross Country

Date: _____ Instructor: _____

Dual 3.0h
Inst 2.8h

Aim: To conduct an IFR cross country flight.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Pre Flight Preparation	*		*		
Departure Procedures	*		*		
Enroute Navigation	*		*		
Arrival Procedures	*		*		
Approaches				*	

Post-Flight Debriefing:

Lesson 13 Pre-Flight Test

Date: _____ Instructor: _____

Dual 1.5h
Inst 1.3h

Aim: To ensure the student is ready for an instrument rating flight test.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate
Pre Flight Planning					3/
IFR Operational Know.					3/
ATC Clearance					3/
Departure					3/
Enroute					3/
Arrival					3/
Holding					3/
Precision Approach					3/
Non Precision Apprch					3/
RNAV Approach					3/
Missed Approach					3/
Transition to Landing					3/
Engine Failure					3/
Emergency Procedure					3/

Post-Flight Debriefing:

Lesson 14 Review

Date: _____ Instructor: _____

Dual 1.8h

Inst 1.6h

Aim: To brush up on any week area's.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate

Post-Flight Debriefing:**Lesson 15 Instrument Rating Flight Test**

Date: _____ Instructor: _____

Aim: To complete the commercial flight test.**Post-Flight Debriefing:**

Extra Lesson _____

Date: _____ Instructor: _____ Dual _____

Aim: To allow a student to achieve satisfactory results in one or more exercises to be able to proceed to the next lesson with adequate skills.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate

Post-Flight Debriefing:

Extra Lesson _____

Date: _____ Instructor: _____ Dual _____

Aim: To allow a student to achieve satisfactory results in one or more exercises to be able to proceed to the next lesson with adequate skills.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate

Post-Flight Debriefing:

Extra Lesson _____

Date: _____ Instructor: _____ Dual _____

Aim: To allow a student to achieve satisfactory results in one or more exercises to be able to proceed to the next lesson with adequate skills.

Exercise	PGI	Demonstration	Student Performance	Review	Evaluate

Post-Flight Debriefing:

1 Pre Flight

Procedure

Weather: you must review weather information for departure, enroute, destination and alternate airports.

- Look at METAR's, TAF's, GFA, sigmet, NOTAM's, F/D's

Flight Planning: you must conduct an IFR flight log and plan

- This is the same as the VFR, but airways and air routes are included
- You must also plan for the alternate route

Cockpit Checks: you must ensure all instruments and nav aids are serviceable.

- Check pitot/static, compass and gyro instruments as for VFR
- Set ILS to dept return, VOR and NDB to departure airdrome
- Tune and ident VOR's, and NDB's and ensure function

2 IFR Operational Knowledge

- You must be sufficiently knowledgeable about IFR operations to conduct a safe IFR flight.
- Know how to read weather, LO and CAP charts
- Basically, know everything on the INRAT study and reference guide.

3 ATC Clearances

- Need IFR clearance whenever in controlled airspace (this includes class E!!)
- Read back all IFR clearances
- For departure clearances, only need to read back SID, runway, transponder code

4 Departure

Background Theory

- Used to standardize the flow of departure traffic to enroute sector
- Standard Instrument Departures (SID) can be RNAV or pilot navigation
- Most common SID is runway heading to certain altitude
- Busy airports (ATL) or mountainous airports (CYLW) have RNAV SID's

Procedure

- Follow instructions on the departure plate
- If RNAV equipped, load SID into GPS and track CDI

5 Enroute

Background Theory

- Remember how to track VOR, NDB and RNAV tracks

Procedure

- Remember how to track VOR, NDB and RNAV tracks
- Check fuel over each waypoint
- Make position report if required

6 Arrival

Background Theory

- Some airports have Standard Terminal Arrival Routes (STAR's)
- Follow STAR's if cleared
- Clearance for a STAR only is a route clearance; you still need an altitude clearance from ATC to follow STAR altitudes
- Program GPS for STAR

Procedure

- Plan approach early, use AABC

A ATIS

A Approach

- Tune and identify nav aids
- Set track bars
- Program GPS and check RAIM

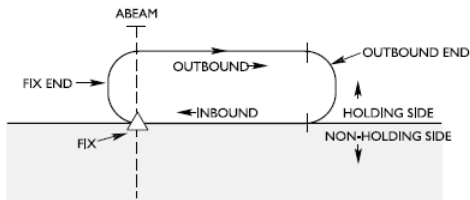
B Brief the approach

C Checklist - complete the descent and/or before landing checklist

7 Holding

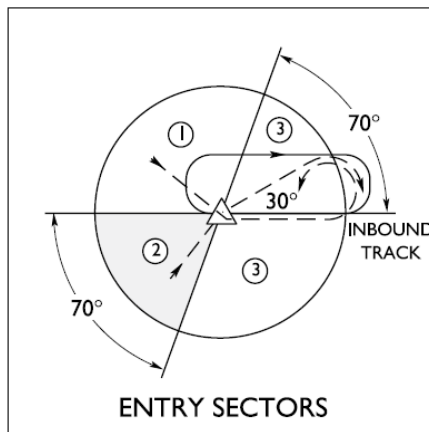
Background Theory

- Used for a variety of reasons - usually ATC has too much traffic to handle
- Usually 1 minute inbound, adjust outbound leg to achieve inbound time
- Entry may be teardrop, direct, or parallel



Procedure

- Plan entry early
- Brief hold and ensure you are turning the right way
- Sector 1 - parallel, Sector 2 - offset, Sector 3 - direct



8a Non-Precision Approach

Background Theory

- NPA gives lateral guidance only (no vertical guidance)
- Can be LOC, LOC(BC), VOR, NDB, RNAV, or combination

Procedure

- Most approaches are vectored to a straight in, however you may need to do a full procedure approach with a procedure turn
- Fly towards IAF (usually same as FAF)
- Entry to approach is similar to hold entry, but entry can be direct, racetrack, modified racetrack or hockey stick
- Outbound is usually 2 minutes for race track or 1 min outbound+45sec on angle for modified racetrack or hockey stick
- Every time you pass a fix, do "5 T's"

Time - start time

Turn - rate 1 turn to desired heading

Track - set HSI track to desired track

Throttle - set power to desired setting and descend if necessary

Talk - call ATC if needed

- Continue descents to altitudes as depicted on charts
- Be configured (flaps, gear, etc) prior to FAF
- At FAF, begin rapid descent to MDA
- Continue to Missed Approach Point (MAP)

8b ILS Approach

Background Theory

- Consists of LOC signal giving lateral guidance ($0.5^\circ/\text{dot}$) + glide slope (0.7° from centre to end)
- Usually need ADF, DME or radar vectors to get on LOC

Procedure

- Commence approach same as full procedure NPA
- Intercept LOC below GS
- Continue following LOC and GS to DH
- If no visual at DH, immediate MA must be done

8c RNAV Approach

Background Theory

- RNAV approach usually based on GPS signals
- GPS uses triangulation from satellites to give 3D position
- Need 4 satellites for 3D position
- Random Anonymous Integrity Monitoring (RAIM) ensures integrity of satellite signal
- Most approaches are NPA

Procedure

- Program GPS approach
- Continue GPS approach following lateral guidance and fly altitudes as depicted
- Must have approach mode armed no later than crossing the FAF
- If approach not armed, there is insufficient precision on CDI and missed approach must be conducted

9 Missed Approach

Background Theory

- Sometime you see the runway at minimums, sometimes you don't
- Also, out may be out of position

Procedure

- Apply full power
- Raise nose
- Clean up airplane (flaps up, gear up)
- Follow procedure on approach plate
- Advise ATC

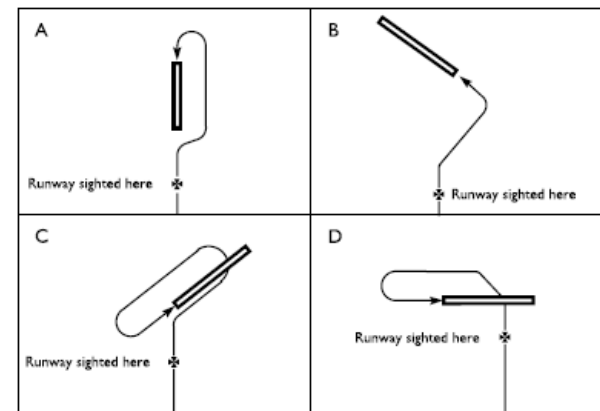
10 Transition to Landing (Circling)

Background Theory

- If runway is 30° off from final course, or MDA is too high above the HAT, the approach requires circling
- Approach designated with a letter ie NDB X
- During circling procedure, you must remain within designated circling distance (A 1.3NM, B 1.5NM, C 1.7NM, D 2.3NM)

Procedure

- Descend to **circling MDA**
- Start circling procedure
- There is no fixed circling procedure, examples are shown, but PDM prevails
- Don't descend until turning final
- If you lose ground contact, start a missed approach, turn to the center of the airport and conduct the MA for the approach you just did (not for the landing runway)



11 Emergency Procedures

Background Theory

- FLY THE AIRPLANE FIRST
- Determine what emergency you have
- Take appropriate action (checklists)
- Notify ATC

Procedure

- Follow procedures as listed in POH
- For gyro failures, you will have to time your turns (30 sec/90 °)
- For pitot static failures, you may need to improvise - you can use GPS for rudimentary altitude
- For ASI failure, just fly known attitudes and power settings