November 26

CASC FOR DUMMIES 2008

Simulator Flying has never been more relevant to the air cadet program than now. Learning how to fly on a simulator at an air cadet squadron provides experiential, hands-on, fun and age appropriate training that puts more “air” in air cadets.

Or the not so dumb! By LCol Steven Deschamps

CASC FOR DUMMIES

RULES OF THE AIR:
If you push the stick forward, the houses get bigger. If you pull the stick back, they get smaller. That is, unless you keep pulling the stick all the way back, then they get bigger again.

Foreword

Many have asked me how you run a simulator program. What do you need? How do you run the training program? This document is designed to be a guide for officers, sponsors or cadets themselves, on how to teach how to fly using simulator software. Throughout the document, I have hyperlinked all the reference material to the appropriate web pages on the internet. It is best to read this document on an internet connected computer.

About the Author

LCol Deschamps began his military career as an Air Cadet at 325 Squadron in Cornwall, Ontario, in 1969. As a Cadet, he was awarded the Lord Strathcona Medal of Excellence and attended both the Senior Leader's and Glider Pilot Course. He also attended Outward Bound Mountain and Leadership course in Keremeos, BC, and was awarded the cadet para-rescue wing. LCol Deschamps joined the Cadet Instructor List in 1974 and had a pivotal role in the overhaul of the Senior Leaders Course at Cold Lake, Alberta. He has served on the staff of CSTC Trenton, Eastern Region HQ, and RCIS (Prairie) and was Training Officer at 325 RC(Air)C S. He enrolled in the Canadian Armed Forces in 1979 as a pilot, graduated Top Candidate from Canadian Forces Officer Candidate School in Chilliwack, and was posted to St-Hubert (10 Tactical Air Group), CFB Portage La Prairie Manitoba and CFB Moose Jaw Saskatchewan. His last regular force posting was at NDHQ Ottawa in 1982 as a Public Affairs Officer.

After a number of years away from the system, LCol Deschamps re-joined the Cadet Instructor Cadre in 1992 as the Training Officer at 103 Thunderbird Squadron in North Vancouver. While at 103 Squadron, he pioneered the

creation of the Computerized Aircraft Simulation Centre that provides real pilot simulation to cadets. The CASC has become a model for other Air Cadet squadrons.

In 1996, LCol Deschamps became Commanding Officer of 103 Thunderbird Squadron and was promoted to the rank of Major 1 Jan 1998. He has also been the Commanding Officer for 858 Skookumchuk Squadron in Sechelt, BC and 848 Royal Roads Squadron in Victoria, BC. He was also the Exchange Officer for the International Air Cadet Exchange to Australia in 1993 and 1998.

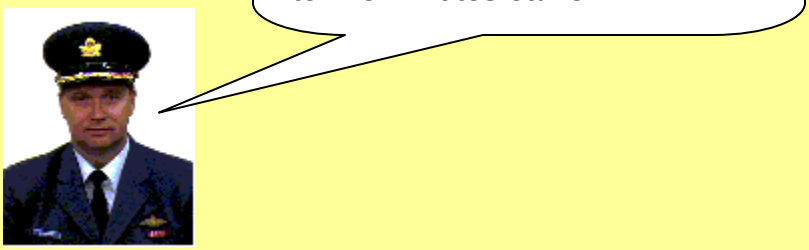
In February 1999, LCol Deschamps assumed the role of Staff Officer 2 Information Management of RCSU Pacific Headquarters at CFB Esquimalt. In that role, he was directly responsible for the implementation of information systems for cadets on the West Coast. LCol Deschamps was also a Co-Leader of the Electronic Action Team of the "Way Ahead Process", lead by National Defence Headquarters in the late 90s. The group was instrumental in developing the current e-mail, web and Cadet Administration System strategy for the Canadian Cadet Organization and planted the seeds for the creation of the cadet online administration system (Fortress).

LCol Deschamps was promoted to his current rank 1 May 2006 when he assumed command of Albert Head Air Cadet Summer Training Centre.

Outside of the Cadet program, LCol Deschamps has acted as Director of Public Affairs for Algonquin College in Ottawa, a spokesman and developer for IBM Canada (in the days of the first personal computers), and Vice President of OpenText Corporation, a global leader in Enterprise Content Management. He has also worked with BC Systems Corporation, directing the move for the provincial government from mainframes to personal computers in the 1980's.

He is a pilot, advanced scuba open water diver and volunteers in various capacities with the Air Cadet movement in BC. LCol Deschamps currently resides in Coal Harbour, Vancouver.

RULES OF THE AIR:
Every takeoff is optional.
Every Landing is mandatory



Introduction

1. The Computerized Aircraft Simulation Center (CASC) was developed in British Columbia (BC) to provide cadets with the opportunity to experience flying without having to leave the ground. The system incorporates the use of a flight simulator program (Microsoft Flight Simulator), flight console (control yoke and rudder pedals), a common personal computer (PC), and a series of comprehensive lessons, all designed to develop the cadet's skills and knowledge. CASC creates a "total flying environment" that mimics what a cadet would see and experience if he/she were to go to a local flying club to learn how to fly.

2. CASC is a mature program; it has been running in BC since 1992, mainly at the cadet local headquarters (LHQ) level. In addition, it is also being used at the Regional Gliding School as part of the training program for the "Introduction to Aviation Course", and at the Albert Head Air Cadet Summer Training Centre (ACSTC), where it is used as part of the mandatory training to supplement PO 498, "Experience the Air Element of the Canadian Cadet Movement". CASC pilot training is also offered as optional training at Albert Head.

Program Overview

3. The CASC program is a series of twenty lessons, culminating in a simulator flight test. Each lesson focuses on a specific aspect of flying (Aircraft Familiarization and Preparation for Flight, Taxiing, Attitudes and Movements, Straight and Level Flight etc.). Cadets normally work one-on-one with a qualified instructor (officer, civilian instructor or senior cadet) in one-hour sessions. Each lesson includes both a briefing, practice on the simulator, and a debriefing. Throughout the course, cadets are required to complete both flight plans and log books, and a Pilot Training Record is maintained on each student, as part of the on-going evaluation process. The CASC program flight test uses the same basic

standards as those experienced by power scholarship candidates during their summer training.

4. An interesting feature of the program is that the simulators can be configured to mimic the flight characteristics of the aircraft that cadets would see at a local flying club. The software can also present the cadets with the runway and taxi configurations for most airports in Canada; cadets can then become familiar not only with the aircraft with which they will eventually fly, but with the airport as well.

5. The computers can also be linked (using cables and routers) to allow more than one aircraft to operate together; cadets can then fly with other cadets and actually see the other aircraft while they are flying their own simulator. The computers can also be connected to the Internet, allowing real-time weather features to be incorporated into the flying experience.

Benefits

6. Anecdotal evidence from the squadrons in BC indicates improved aptitude and retention of flying skills when CASC graduates are undergoing actual flying training. Computers, flight simulators and cadets are a natural mix. CASC is best targeted at cadets in their first and second year, where it can help bolster the cadets' interest in both flying and the Air Cadet Program. Power Scholarship graduates are being targeted to train as simulator instructors. The adage, "If you want to learn something, teach it," is completely apropos; power pilots are often lost from the system because of the prohibitive economics of continuing their flying careers. CASC provides them with an outlet to put their skills to use in a practical way for the LHQ.

7. The cost of the equipment is not beyond the reach of most squadron sponsoring committees; often it is possible to approach local businesses to have them sponsor one of the CASC "aircraft simulators", at a cost of approximately $1500 per unit.

8. A CASC system can be used as a recruiting tool; because the system is relatively portable, it can be set up in a local mall and used as an attractive component of a recruiting display.

9. CASC helps put more “air” in the Air Cadet Program by simulating the entire flying process: cadets are required to “sign out” an aircraft, file a flight plan, complete a pre-flight briefing, do an aircraft walk-around, and pre-flight checks before they begin their actual flying lesson. CASC lessons follow the Transport Canada pattern for training pilots. A LHQ with CASC presents a more aviation-like atmosphere for their cadets. Often perceptions of simulators change at LHQ’s with CASC; more people are “walking the talk” and looking like aviators, and less people are walking around in field uniforms.

10. Unmanned aerial systems are a reality in the Canadian Air Force (e.g. CU-161 Sperwer). The skills learned in simulator flying are readily transferable to the demands of future, remote-pilot aviation.

Simulator Wing

12. A simulator wing has been created and awarded to air cadets in BC that have completed the program. The wing is modeled after the standard air cadet wing, with a gold “S” replacing the “G” or maple leaf. Having an award wing is a superb motivator for cadets, and yet another way of putting more “air” in the program. The existing badge is not yet an official badge of the air cadet program, although it has been made available to recognize cadets that have completed a simulator program, as outlined above, and who have completed the flight test required, by an accredited CASC instructor. Cadets must also have a minimum of 12 hours of simulation flying on C-172 aircraft, using the Microsoft Flight Simulator program set- up with yoke and rudder pedals, as per CASC standards. To-date, the wing has been authorized for wear in BC only on flight suits, and then only with the approval of a Commanding Officer.

Fifty questions, fifty answers!

RULES OF THE AIR:
It's always better to be down here wishing you were up there than up there wishing you were down here.

Q 1.What does CASC stand for?

Computerized **A**ircraft **S**imulation **C**entre. If I had not given my project an acronym way back when, no one in the military or the government would have taken it seriously. You can call it what you like.

Q 2.Where did it start?

Bruce Artwick, created a company called subLogic and built the first program that started flight simulation on personal computers back in 1981. I started flying Flight Simulator the program on an IBM PC Jr back in 1984. Microsoft bought flight simulator software and made it one of the most popular gaming software for the personal computer. Today it retails for just under $80. I first started using Flight Simulator with cadets when I was training officer at 103 Thunderbird Squadron in North Vancouver in 1992. I found that I couldn't keep the second year cadets: the training program had very little in it for them. So I convinced the sponsors, and we "acquired" two Thrustmaster cockpits and two yokes and rudders pedals and set up four simulators. In no time, I was training cadets how to fly Cessna 172 and other cadets had graduated and moved on to flying F-16. The squadron went from 46 cadets to more than 100 in about two years.

Q 3. How to Set up CASC

So you're ready to get started. You need four basic things: a location, a computer, lesson plans and instructors. Look at the next few answers.

Q 4. What space do I need?

Space is always a problem for air cadet squadrons. When I first started out at 103 Thunderbird Squadron, I took the smallest room available, and improvised. With help from parents, we built four small enclosures to fit one simulator each, and placed the enclosures side by each. In a room no bigger than 8 feet by 8 feet, we are able to put six simulators in it. The room gets hot when you have too many people and all the computers on, so we put an old air conditioning unit in the only window and that helped lots.

The enclosures allowed each cadet to be separated from the other, which made it easier for them to concentrate and not be distracted by the other cadets flying. It also help set up a more "professional" atmosphere. By putting in floor lighting instead of using overhead lights, and goose neck lamps on clips (available from any store), you had a really "cool" environment. It didn't feel like a game room, it looked more like one of those fancy simulator environments you used to see at Air Canada, just smaller. It even sounded and smelled like the real thing.

The reality is if you don't have space, then don't worry about it. Improvise. If you have a laptop (or portable computer) that will run Flight Simulator, then you can set up anywhere.

Q 5 .What hardware do you need?

Flight simulator software is a game, and if you have kids at home, and watch them on their PSP or Nintendo Wii, you will know that gaming graphics are intense. That takes lots of processing power. People ask me, can I use these old donated computers? Well the answer is usually yes. Older computers will run older version of Flight Simulator, Like FS 2000 or FS 98, but they will be slow and will not likely be able to use the latest add on, and yokes and rudder pedals. Yokes and rudder pedals are essential. You really need the best and latest computers if you want to keep teenagers attention.

Computers today typically have Intel Dual QUAD processors or better. Look for a processor with highest clock speed (2.4 Mhz or better), and most amount of RAM (2- 4 DDR2 Gigabytes at least). Typically you need at least 60 gigabytes of hard disk but that's not a problem. Most new computers have 250GB or better of disk space. Make sure you have a decent graphic card with dedicated memory. For Flight SImulaotr X. usually, 128MB or better or RAM on the graphic card and of course a DVD drive to install the software. I bought a new ACER from Best Buy on sale for $699 to write this book and run Microsoft Flight Simulator X. It came with a 22" LCD Monitor and a NVidia GE FORCE 7700 graphic card, Intel Dual Core Q6600 2.4 GHZ processor, 320 GB hard Drive. It ran FS X right out of the box all for $699. Don't forget to buy some speakers or headset, sound is important.

Many laptops today are capable of running FS X. If the laptop won't run FSX, it probably will run FS 2004 (of FS9 as it's called in the industry). If you have that software and laptops are all you got, then look for FS 2004. You will need administrative rights on the computer to install flight simulator software and update planes etc. DND computers are locked down and they will not give you administrative rights to load flight simulator so forget it on the DND laptops that are provided.

Make sure you have either headsets or speakers for each of your computers. Sound is important for ATC and aircraft noise.

RULES OF THE AIR:
When in doubt, hold on to your altitude. No one has ever collided with the sky.

Q 6. What Program is used?

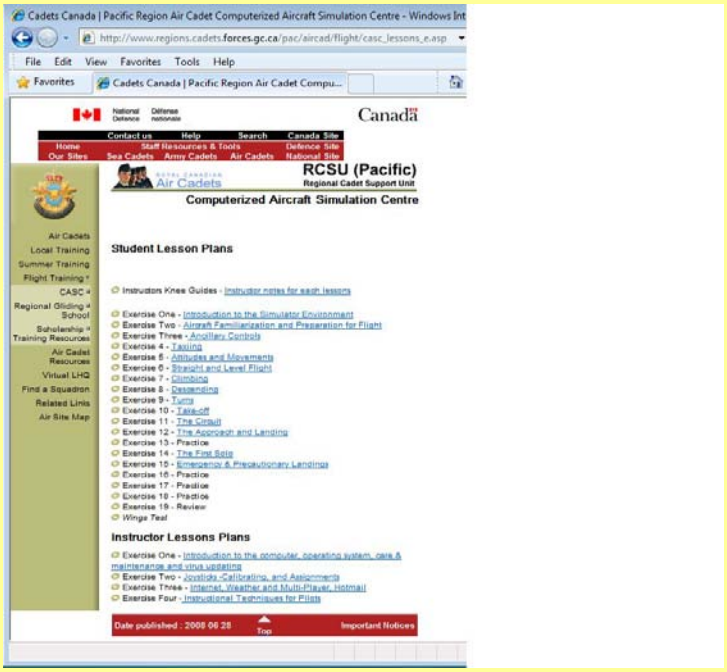
The trick is to use Microsoft Flight Simulator software. The latest edition is Flight Simulator X (which means the tenth edition). It came out in 2007 and has a few patches that make it work quite

well. MS FS have realistic flight models, that means, unlike other flight games, this one makes the planes fly like real planes. If you try to fly them like a game, you will crash all the time, Well that makes sense. You have to invest some time to learn how to fly. If you do, the software will give you realistic instruments and dynamics that mimic the very real planes and world. MS FSX also has one important new feature: a tow plane for gliders. Now you can use Flight Simulator software to teach towing techniques in gliders.

Older version will work well, like Flight Simulator 2004 (version 9). You can't buy it anymore, but if you have computers that still run MS XP and will run FS 2004, that's a very good world to be in. FS 2004 is older but very stable and there is a wealth of free add-ons (like airplanes and airports and scenery) you can get. FSX also has lots of free airplanes and airports, but most need newer computers.

Q 7. Where are the lesson plans to teach with?

Years ago, I took the Transport Canada Flight Instructor manual; the book used to train private pilots by instructors, took all the lesson plans, and wrote a plan for simulators based on their model. It didn't make sense to me to try to teach cadets stalls and spins, which is next to impossible to do on a simulator. So I broke it down to 20 Lessons. I took the same flow and sequence used in training real private pilots, created new lesson plans for each lessons tailored to simulators and published it all on the RCSU web site. You can find all the lesson plans there.



The most current URL or address is http: //www.regions.cadets.forces.gc.ca/pac/aircad/flight/casc_lessons_e.asp or go to http://www.regions.cadets.forces.gc.ca/pac/intro_e.asp ,| Air cadets | Flight Training | CASC |

Q 8. How do I teach how to fly in CASC?

If you are already trained as a pilot, and you know how to teach from what we have taught you in your Instructional Techniques classes at cadets, then all you need are the lesson plans . Follow the lesson plans in the sequence I have provided. Use the Instructor notes for each lesson as your aid memoire as you teach each lesson and check off the progress during the lesson on each teaching point you taught, scored 0-2 (0 not taught, 1 taught or demonstrated, 2 Student mastered)

C.A.S.C. Computerized Aircraft Simulation Center

FLIGHT PLAN

Date: _____ Lesson Plan: **1**

Student		
Rank	Surname	Given Name

Aircraft		
Make	Model	Registration

Routing		
Departure Aerodrome	Arrival Aerodrome	Via
Estimated Startup Time	Estimated Shutdown Time	Estimated Total Time

Miscellaneous		
Flight Rules ☐ VFR ☐ IFR	# of Persons on Board	PFDs Required? ☐ Yes ☐ No

Equipment on Board: ☐ ELT ☐ Fire Extinguisher ☐ VHF ☐ UHF ☐ Transponder

Comments

Authorization For Flight	
Student Signature	Instructor Signature

Instructor Use Only			
Actual Startup Time	Actual Shutdown Time	Actual Flight Time	
		PIC	Dual
Instr. Rank	Instr. Surname	Instr. Given Name	

LESSON PLAN 1

Introduction to the Simulator Environment

Objective: To introduce the student to the physical sensations and environment of simulated flight

0 = Not Taught
1 = Taught or demo'd
2 = Student Mastered

Teaching Point	Progress	Comments
Preflight		
Introduce student to flight simulator complex	0 1 2	
*Explain flight suits – location, purpose and routine	0 1 2	
*Explain flight plans – how to complete, where to file	0 1 2	
*Explain the log book - how to complete, where to file	0 1 2	
Explain the pilot training record - how to complete, where to file	0 1 2	
Identify online resources	0 1 2	
Review CASC booking procedures	0 1 2	
In-flight		
Complete a familiarization flight: • At local airport • Student in control • Bypass run-up • Day VFR conditions • Introduce radio calls • Enforce proper taxiing • *Allow student to land	0 1 2	
Post-flight		
Debrief – complete PTR and logbook, file flight plan	0 1 2	

Special Instructions

- * indicates a teaching point that is on the PTR specific to this lesson
- Answer all questions but do not formally instruct the student in this lesson
- Avoid going into detail which will confuse the student
- The student should be afforded to land the aircraft given the instructor has set the aircraft up.
- Emphasize that this is a new experience. Procedures which may seem very complicated at this time will become easier with continued exposure and use.
- Make sure that all appropriate forms, flight suits, log books etc are accessible and ready for the student.
- This exercise should be enjoyable and leave the student with a sense of accomplishment.

-USE THE REVERSE SIDE OF PAGE FOR MORE COMMENTS

C.A.S.C. Computerized Aircraft Simulation Center FLIGHT PLAN

Each of the lesson plans contains all the information you should teach in the one hour lesson. Typically one lesson lasts one hour: the cadet/student should arrive early, fill out their flight plan, dig out their log book, and Pilot Training Record and have it ready for the instructor at the start of the lesson. Each one hour lesson should consist of a pre-briefing of 5 minutes or so, the lesson which last about 45 to 50 minutes, and the de-briefing of 5-to-10 minutes depending on time.

Try to make the lesson simulate a real world flying lesson each time. It easy to provide additional realism by using your imagination. Make sure you have documents for the aircraft, and checklists. At Albert Head CASC, we asked the local flying club if we could photo copy the journey log, registration, radio license, weight and balance, Pilot Operating Handbook (which is available in the Flight Sim software as well) and put the lot in a folder marked with the aircraft registration besides the simulator. Each simulator had its own registration that we dymo taped on the monitor and yoke. Ie: C-FACY. We used registration from the aircraft at the local club, that way, if the cadets went flying in them on a real familiarizrion flight, they would appreciate the realism. If you don't have a flight club around invent some. Registration for aircraft in Canada always is five letters and always start with C-Fxxx or C-Gxxx. My favourite is my initials : C-FSPD. Use the initials of your officers or cadets if you don't have a local flying club to use real aircraft registration.

Each Lesson should involve starting –up the aircraft using the checklist like you would in a real aircraft, make sure you use radio procedures (act like the Air Traffic Controller if you can or use the software to simulate ATC), taxi according to procedures (once you have a clearance), turn on taxi lights, go to the run-up area and perform a run-up, and use the checklist for pre-take-off and landing.

You can find all the forms here.

Q 9. Where do I find instructors?

Any trained pilot who has been in the cadet program is a natural potential instructor for CASC. If you already know how to fly, teach it! Your cadets that just graduated from flying scholarship are perfect. The old adage, "if you want to learn something, teach it" is very a propos. Civilian pilots in your community, parents on your sponsoring committee, all make potential great simulator instructors. The beauty here is you can't crash, or break anything. So even if you're a rusty pilot, this is a great way to get back into flying without leaving the ground.

Q 10. What if I am not a pilot, can I learn to fly without an instructor?

RULES OF THE AIR:
You start with a bag full of luck and an empty bag of experience. The trick is to fill the bag of experience before you empty the bag of luck

The answer is yes. Flight Simulator has an extensive "virtual instructor" program. Rod Machado will take you through the lessons, one lesson at a time and you can learn to fly. Here is an excerpt from Flight Simulator X on Ron :

Machado is a professional speaker who travels across the United States and Europe delighting his listeners with upbeat and lively presentations. Machado truly loves mixing it up with the audience. His unusual talent for simplifying difficult topics and adding humour to make lessons memorable has made him a popular lecturer both within and outside of the aviation community. Machado's presentations include topics as diverse as Risk Assessment, Defensive Flying, and Handling In-Flight Emergencies. His non-aviation topics include Safety Awareness, Humour as a Communication Tool, and The Lost Art of Thinking, He is also known for his humorous, rapid-fire banquet presentations.

Machado boasts more than 30 years experience in aviation and has logged 8,000 hours of flight time the hard way: one CFI hour at a time. Since 1977, he has taught hundreds of flight instructor revalidation clinics and safety seminars, and in 1991 he was named the Western Region Flight Instructor of the Year. Machado holds all fixed-wing (powered) flight instructor ratings, as well as an airline transport pilot license. He's flown as a corporate pilot and has been a flight instructor since 1973.

For six years, Machado wrote and coanchored ABC's *Wide World of Flying*. He is AOPA's National CFI spokesman and a National Accident Prevention Counselor appointed by the FAA in Washington D.C. Machado is the flight instructor voice on Microsoft's *Flight Simulator*. He is the author of three books (*Rod Machado's Private Pilot Handbook*, *Rod Machado's Private Pilot Workbook*, and *Rod Machado's Instrument Pilot's Survival Manual*), four videos, and two audio cassette albums. You can read his monthly columns in *AOPA Pilot* magazine as well as in *AOPA Flight Training* magazine.

Machado's eclectic interests reflected his equally varied academic credentials. He holds a degree in Aviation Science and degrees in Psychology. A firm believer that those who don't take time to exercise have to take time to be sick. Machado gets his exercise from practicing and teaching martial arts. He holds black belts in the Korean disciplines of Tae Kwon Do and Hapkido, and has studied Gracie Jujitsu for 10 years. He also runs 20 miles a week (and claims it's uphill both ways).

To learn how to fly, start Flight Simulator X on your computer (make sure you have yokes and rudder pedals attached if you're going to learn how to fly) and from the main menu, click on Leaning Centre on the left menu and then click Lesson tabs. Just follow the lessons in sequence.

Of course you will not be a real world pilot and could not fly a real aircraft, but you will have built an enormous amount of skill.

Q 11. Can I become a CASC instructor?

Yes. A CASC instructor is anyone that can fly a simulator C-172 and who can teach someone how to fly a C-172 using the format set out on the web pages.

In addition, The RCSU(Pacific) SO2 Air is sponsoring a limited program to assist squadrons in training officers or cadets to CASC instructor status. If you have read this manual and still need some help, contact the RCSU and a current CASC instructor might be paired up with you to assist in kick starting your squadron into CASC.

Q 12. How much does it cost?

Learning how to fly at a real flying club will cost more than $15,000. On a simulator, it will only cost your time and effort. You can't crash or hurt yourself or the computer, so go ahead and try.

To set up a CASC, the cost for one computer is approximately $700. I bought a new ACER from Best Buy on sale for $699 to write this book and run Flight Sim X. It came with a 22" LCD Monitor and an NVidia GE FORCE 7700 graphic card, Intel Dual Core Q6600 2.4 GHZ processor, 320 GB hard Drive. It ran FS X right out of the box all for $699.

In addition, you need to add the yokes and rudder pedals. You can find these normally at any computer store. They typically cost $150 for the yoke and $150 for the rudder pedals. The best are the CH Products. We have been using them for years. They are cheap, sturdy, reliable and very programmable.. To make it easier to buy them, I asked the RCIS military kit shop to become a supplier and sell them at cost. Go to the RCIS kit shop web page for details. You can order them by phone using your VISA or MC, and they will be shipped to your home directly within a few days. They are cheaper that way too. Once you have the yokes and rudder pedals, go to website to see how to calibrate the buttons to meet the CASC standard.

You will also need the software. I recommend you buy Flight Simulator X Deluxe and buy Microsoft Flight Simulator X Acceleration Expansion Pack. The expansion pack will add the patches needed to make the software work great

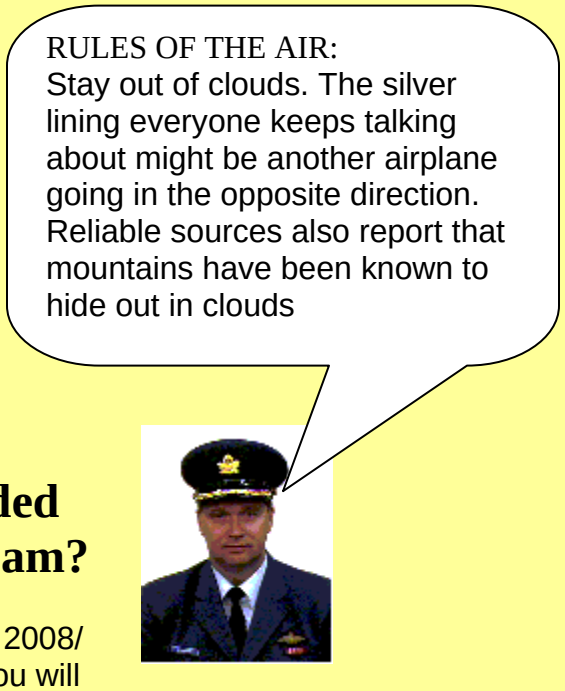
and will provide you with Canadian Forces aircraft like the Hornet and Cormorant in CF paint schemes. Flight Simulator X retails for approx $79.99 and the Acceleration Expansion Pack is approx $29.99. You can buy them online or at most computer stores.

If you have the room, I recommend you build enclosures for your simulators. Ask around for a local handy carpenter. You can build and paint an enclosure for approx $500. The enclosures can be painted however you like, but making them look attractive will allow you to be able to roll them into a local mall at recruiting time and now you have instant cadet “magnets”.

For details on how to build the enclosures, as well as the dimensions and pictures of the enclosures at Albert Head, consult this web page.

So how much each?

1.	Computer	$700
2.	Yokes and rudders	$279
3.	Software	$120
4.	Enclosures (optional)	$500
5.	TOTAL	$1599 each (not including taxes)



Q 13. If I don’t have DND CASC provided computers can I still run a CASC program?

The RCSU will provide CASC computers to squadrons in 2008/ early 2009. The computers will be DND configured and you will not have administrative permissions to change the Microsoft Flight Simulator X software. DND will provide a computer, LCD monitor, a set of rudder pedals and yokes and the software.

I have provided all the CF military aircraft to the IT folks in Victoria, but am not sure how these computers will turn out. Contact the RCSU(Pac) IT if you want one or are having problems.

These computers are better than nothing if you can’t afford one.

Because these computers are locked down with administrative controls, you will not be able to add any software or additional aircraft or scenery files.

I would recommend your sponsor buy you the computers you require for CASC if you can afford them. That way you can maintain control and add any packages you choose to.

Q 14. Is CASC only for learning how to fly?

No. Flight Simulator software is capable of loading any of the CF aircraft in current paint schemes, and many files exist on the internet to add airport including places like Cold Lake, Comox, Victoria Trenton, Bagotville Ottawa etc. What better experiential way to teach aircraft history than to take the cadet to each Wing or airport and show them the Squadron and the simulated aircraft.

Here are some examples of Microsoft Flight Simulator start up screen or splash screens to give you an idea of the variety and type of scenarios you can use Flight Simulator to teach Air Force stuff.

These screens are available directly from me if you want to customize your version of Flight Sim X . You can only use these splash screens if you are running a splash screen randomizer and your operating system is XP.

The New training program for Level I has a section 9, “Participate in CF Familiarization Activity”. Training Point 3 talks to “identify Wings/CF Bases”. The program also wants to teach the Phonetic Alphabet. The ATC menu in Flight Simulator calls out aircraft using the phonetic alphabet. You can easily make a game of out challenging the cadets to guess the aircraft registration before the computer “speaks” out the letters in Flight Simulator.

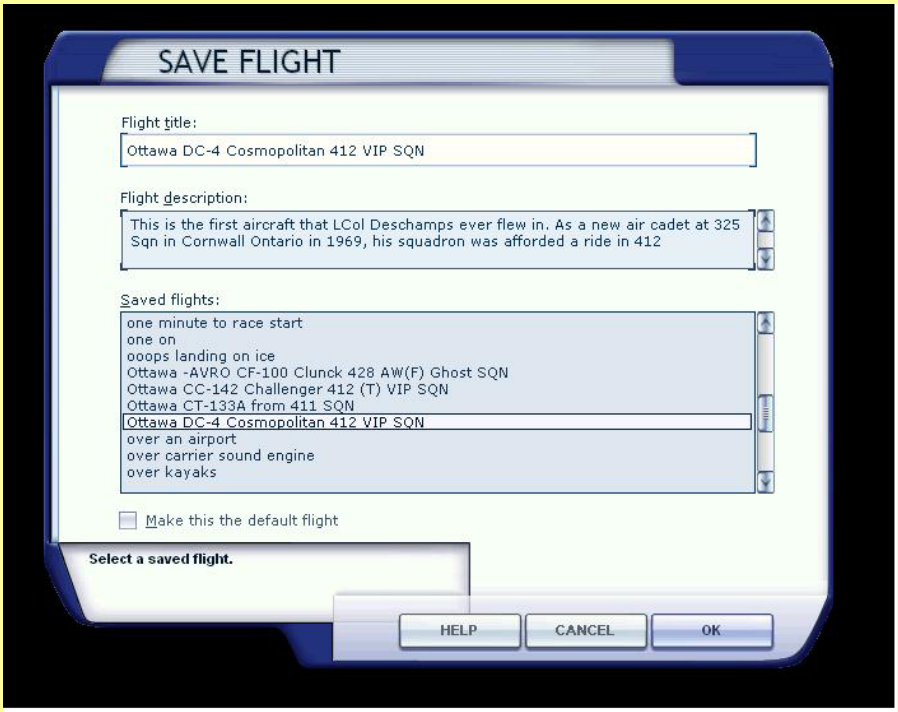
At Albert Head Air Cadet Summer Training Centre (ACSTC), CASC is used as part of the mandatory training to supplement PO 498, “Experience the Air Element of the Canadian Cadet Movement.

Here is a list of the aircraft and locations that you can use as a guide to set up some historical saved flights to use in aircraft familiarization. You will of course have to go and get the airports and the aircraft from the internet which is available typically from Flightsim.com. Free memberships are available from the various site by creating a user id. I would recommend you pay the fee for Flightsim.com. It’s cheap and well worth it.

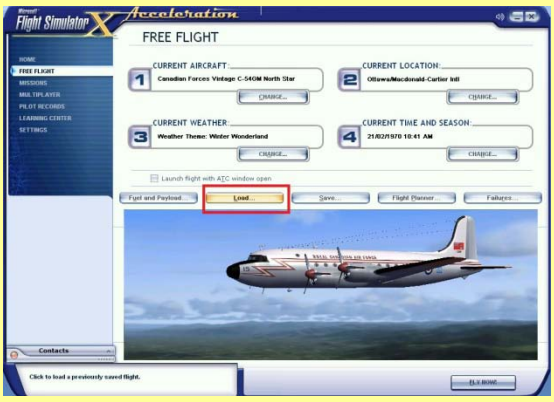
Flight Simulator10 Saved Flights

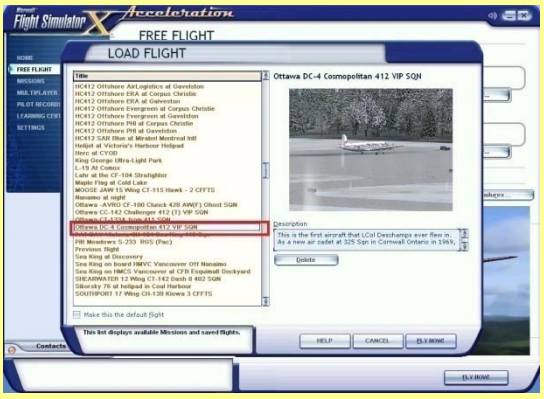
City/Airport	Wing	Aircraft	Unit	Current or Heritage Flight
Alert	8 Wing	CC-130 hercules	436 (T) Husky SQN	Current
Baden-Baden Germany	1 CAD	CF-86 Sabre	1 CAD	**Heritage**
Bagotville	3 Wing	CF-101 Voodoo	425 Allouette Squadron	Current
Boundary Bay	RCAF	RCAF Harvard	City Of vancovuer SQN	**Heritage**
Carrier Ops Nanaimo	4 Wing	CF-18	AETE off HMCS Vancouver (Nimitz class carrier)	Current
Cold lake	4 Wing	DC-3	Base Flight	**Heritage**
Cold lake	4 Wing	CF-5	409 Moose Squadron	**Heritage**
Cold Lake	4 Wing	CF-18	410 Operation Training Unit	Current
Comox	19 Wing	Cess 305 L-19	RGS (Pac)	current
Comox	19 Wing	CP-140 Aurorra	407 SQN	Current
Comox	19 Wing	CC-115 Buffalo	442 SQN	Current
Courtenay	RCAF	RCAF Chipmunk	Commonwealt Air Training Plan	**Heritage**
Gander	9 Wing	CH-146 Griffon	103 SAR SQN	Current
Goose Bay	5 Wing	C-17 Globemaster	437 SQN	Current
Greewood	14 Wing	CH-46 Labrador	413 SQN	**Heritage**
Greenwood	14 Wing	CH-149 Cormorant	413 SAR SQN	Current
Moose Jaw	15 Wing	CT-115 Hawk	2 CF Flying Training School (CFFTS)	Current
Ottawa	RACF	Canadiar North Star Cosı	412 VIP SQN	**Heritage**
Ottawa	RCAF	CT-133A Shooting Star	411 SQN	**Heritage**
Ottawa	RCAF	CF-100 Canuck	428 AW(F) Ghost SQN	**Heritage**
Ottawa		CC-142 Challenger	412 (T) VIP Sqn at 1 Hangar	Current
Pat Bay Victoria		CH-124 Sea King	443 SQN	Current
Pitt Meadows		SGS 2-33	RGS (Pac)	Current
Shearwater	12 Wing	CT-142 Dash -8	413 SQN	Current
Southport Portage la Prairie	17 Wing	CH-139 Kiowa	3 CFFTS	Current
Southport Portage la Prairie	17 Wing	Ct-134 Muskateer	3 CFFTS	**Heritage**
St-Hubert (Montreal)	CFB Montreal	DHC-3 Otter	10 Tactical Air Group (TAG)	**Heritage**
Toronto (Downsview)	AVRO	CF-105 AVRO Arrow		**Heritage**
Toronto (island Airport)		CT-114 Tutor	431 SQN Snowbirds	Current
Trenton	8 Wing	CC-150 Polaris	437 SQN	Current
Vancouver	ATG	CC-137 B 707	437 SQN	**Heritage**
Victoria		C-172	VFC Spot 30	Current
Whitehorse		CC-138 Twin Otter	440 SQN	Current
Winnipeg	17 Wing	CT-156 harvard II	3 CFFTS	Current

Once you have the appropriate aircraft loaded in flight simulator, just save the flight and add some interesting information in the info section. Remember to set a time and season, date and year appropriate to the flight before you save. Saving the flight will keep all the data saved in your saved flight section of Flight Simulator.



To open a saved flight just:





15. What level/age cadets should I target CASC for?

Flying is a skill that all age levels and ages enjoy on a simulator. I have found that 12 and 13 year old cadets are the most enthusiastic. They want to learn a skill instead of just theory about flying, and they don't like the idea that they have to wait until they are 16 before they can get a scholarship. Level one and two cadets are best suited for initial pilot training. Once they become a trained simulator pilot, which typically takes about six month to a year at the local Squadron, they can come back to CASC and start teaching others how to fly simulators.

Look at your newly graduated glider scholarship or flying scholarship cadets. They are already wearing wings and know how to fly. With a little guidance, you can turn them into instructors and they can teach younger cadets how to fly on simulators. Usually, these older cadets are pressed into teaching flying scholarship as well, so teaching in the simulators will keep them sharp. "If you want to learn something, teach it".

Q 16. How do you use the software

Microsoft Flight Simulator is a tool that you package a program around. Turn your location into a flying environment. Buy some surplus flight suits, and make your students get into flight gear when they are leaning how to fly on the simulator.

Q 17.What does a typical one hour session look like?

When you start a lesson, make sure that Flight Simulator X is started on the computer, and the C-172 you're going to teach with is parked, the engine turned off, and the parking brakes on. Use the local airport that you use for familiarization flight. No sense in teaching someone how to fly in Seattle (the installed default airport) when you live beside the airport in Sechelt.

Make sure you are in Full Screen mode (press Alt + Enter on your keyboard)

RULES OF THE AIR:
Always try to keep the number of landings you make equal to the number of takeoffs you've made

So the cadet should arrive for their lesson 10 minutes before their lesson is set to

begin. They should get into a flight suit (if you have them), get their log book, PTR and flight plan from your files folders that you have available to the cadets. After the first introduction flight (lesson plan 1) the cadets should be able to sort their paper work out and have the log book ready, PTR ready and lesson plan ready in their hands to present to their instructor to begin the lesson.

Follow this format for each lesson:

Instructor: Have the appropriate lesson reviewed from the lesson plans .

1. Check the student has their flight suit on,
2. Review student log book to see what lesson they are at and that your prepared to teach that lesson
3. Check the PTR and previous lesson to review student's progress and discuss any problem in the past lesson in light of answering any questions.

4. Go to the Simulator and sit the student down, making sure documents, and checklist are ready and the software is turned on and ready and parked at the appropriate airport.
5. Get the student to use the checklist and start with 1. Pre flight Inspection
6. Make sure the student checks the documents on board (your fake folder) and review what essential documents must be on board. Your flying scholarship students will know. *(See question 40 in this manual)* For the fire extinguisher, use the view buttons' and point to the place in between the seats and explain that is where the extinguisher is located. If you have a real fire extinguisher in the room, use that as substitute.
7. Get the cadet to do a walk around and talk you through what you would look for. It's like a rental car, start at one point and walk around looking for damage or broken equipment. Use the outside view and view hat to rotate around the aircraft. Use the + and – buttons to zoom in and out.

Conducting the walk-around

8. Once the walk around is complete, start the “2. Start Check” from the checklist. This will get the engine started.
9. Next is the “3.Post start” check list. Just get the student to perform the functions. To get the ATIS, (Automatic Terminal Information System), click ~ on the keyboard, or select the left trigger button on the yoke (if you preset the buttons correctly).This will bring up the ATC dialogue box and then you can point with your mouse of just select the number from the menu.

10. Gets a clearance to taxi using the ATC Menu and then taxi over to the active runway. Be sure to make sure you taxi no faster than you can walk beside the aircraft.
11. Perform the run-up checklist, then taxi over to the threshold, or hold short point of the active airport and then request take-off from the ATC menu again.
12. For each lesson, you should try and get the student to taxi, use checklist, do a run-up if time allows, use the ATC for taxi, take-off and landing clearances, and perform a landing. Consult the lesson plans for what particular teaching points you want to teach for that lessons once the student gets the aircraft airborne.
13. Once the cadet lands or the simulator portion of the one hour lesson is finished, usually at the 50 minute mark from when you began, reset the flight

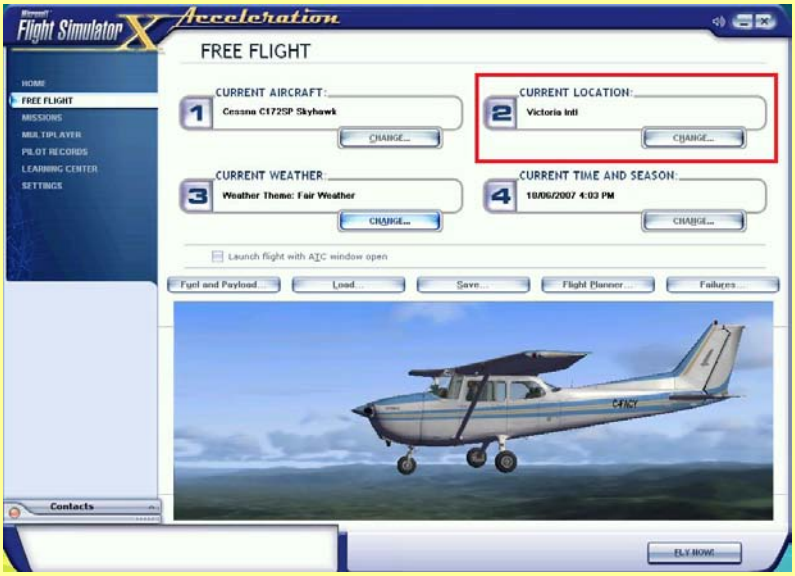
for the next student, get the current student out of the simulator, and go and de-brief and fill in the log book and PTR and lesson plan for this lesson. Make sure your cadets leave their paperwork at the quadroon or they are bound to lose it!

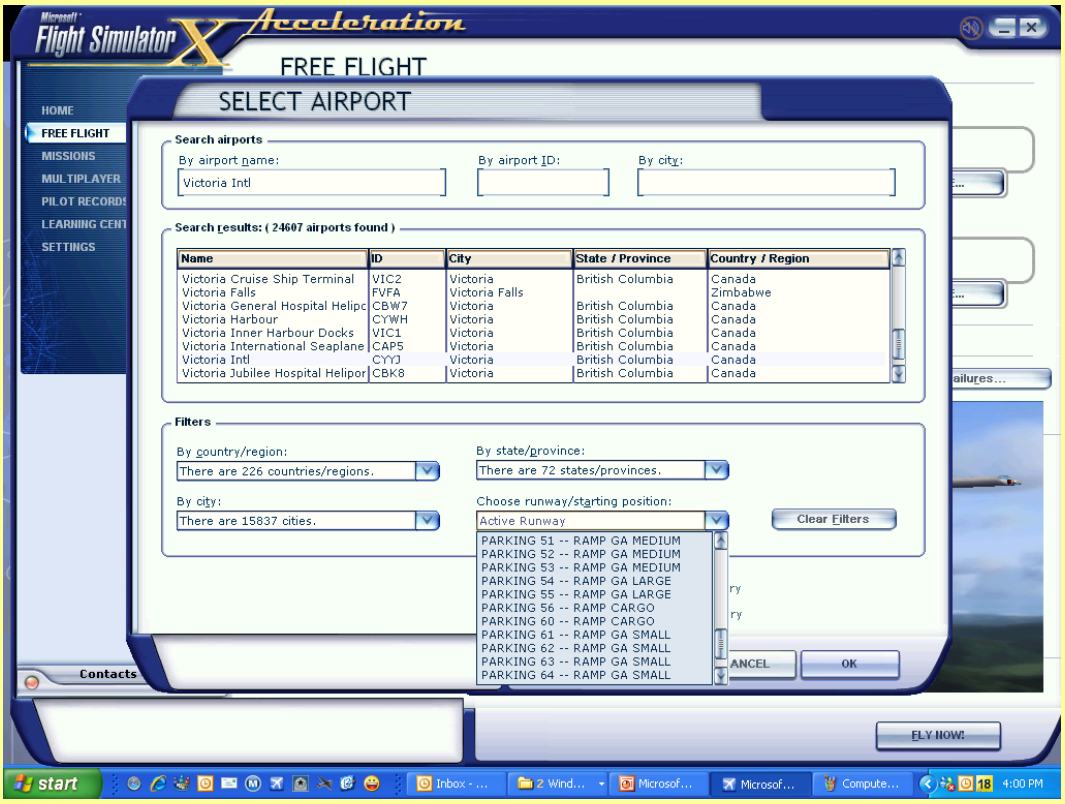
Q 18.How do you book cadets to train to fly?

CASC should be conducted on other than your mandatory training night. One way to set up booking procedures is to arrange a clip board near your CASC. On mandatory training night, the CASC coordinator finds out when the room is available and what instructors are available on what night and puts up a sign-up sheet, where the cadet can pencil in their name beside an instructor for a one hour block on a certain night. That way you never have more students than instructors, and the cadets can pick the night they are free or their favourite instructor is available. They should only do one hour lesson a week as a rule of thumb.

Q 19. How do I select the airport I want to use?

To change airports select item # 2 from the main menu and follow the dialogue boxes





Q 20. What plane should I use to learn how to fly?

You should only train students on one aircraft: the Cessna 172. This is one of the most common trainer aircraft in the world, and is the most used aircraft by the flying clubs for flying scholarships.

Q 21. What aircraft can I fly?

Once you have learned to fly, then try helicopters, transport or fighter aircraft.

Q 22.Where can I get more planes for my program?

Microsoft Flight Simulator has a big following of enthusiasts. There are literally thousands of aircraft and add-on pieces for flight simulator available from all kinds of sites on the web. Some you must pay for, most are free. Here is a few

sites you should check out.:

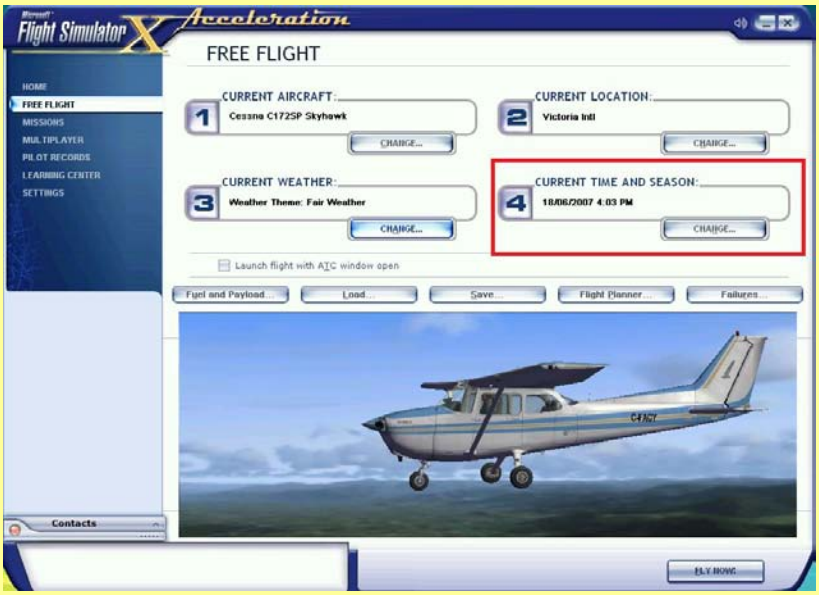
Bookmarks

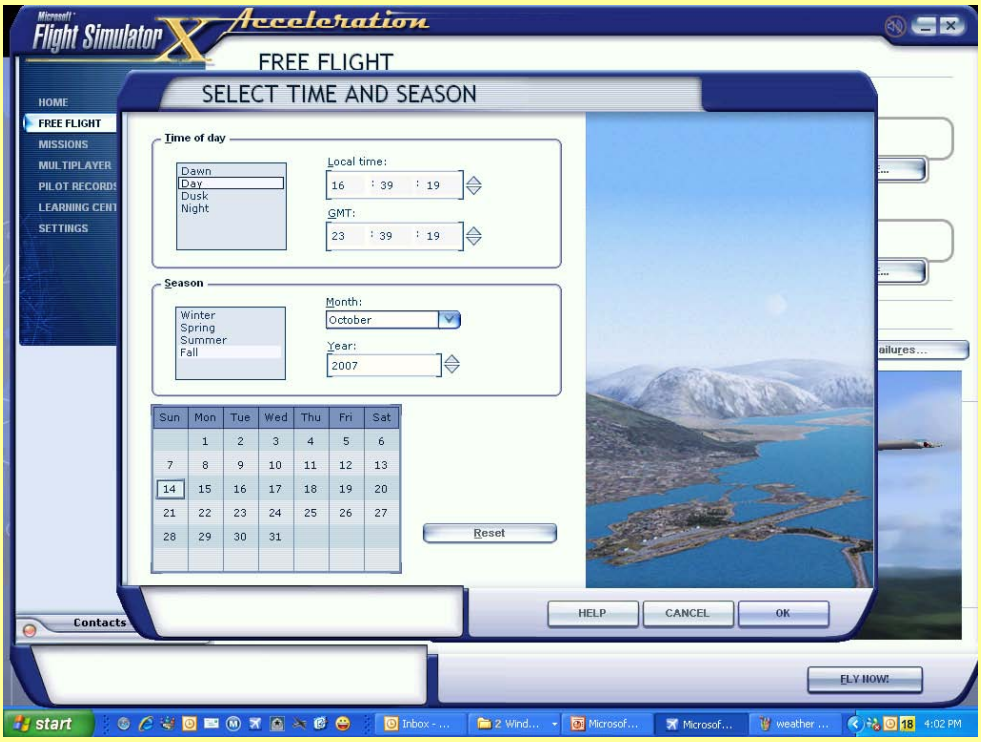
AVSIM Library
Flight Simulator History - Start
FlightSim.Com - World's #1 Flight Simulator Site For Downloads, Files, News, Reviews, Add-ons
FS2004 CF Downloadable Aircraft
FSAddon Publishing
FSAlliance - Quality AI Traffic Downloads for Flight Simulator
Helicopter Simulation and Helicopter Training
Home Microsoft Flight Simulator -
LiveATC.Net - Bringing Live Air Traffic Control to the Internet
Military Ftr Jets DL
simFlight.com
Vancouver Landings
World of AI

The best sites for the most comprehensive set of free files is Flightsim.com or AVSIM.com

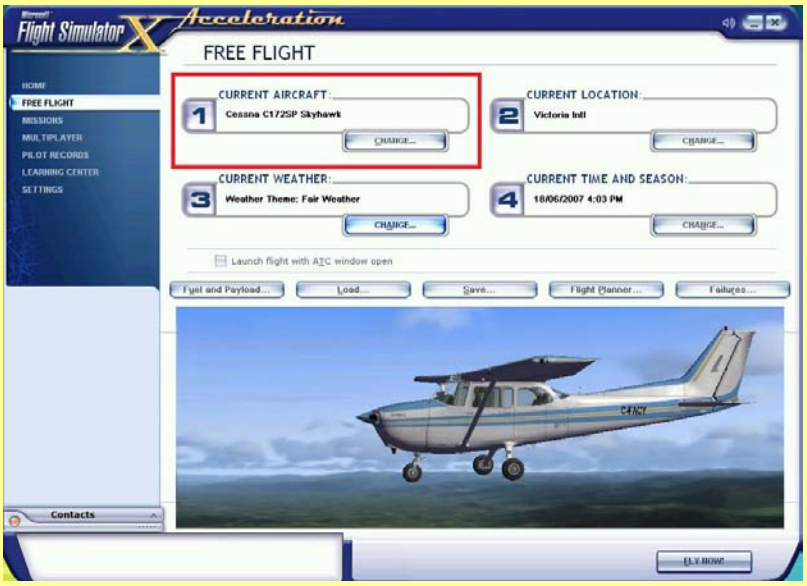
Q 23.How do you change the time? Season? Date? Weather?

To change the time, season, year select item # 4 from the main menu and follow the dialogue boxes





To change aircraft, select menu number 1 and follow the dialogue boxes



Q 24. If I don’t know how to fly, can I still teach someone else how to fly in CASC?

It’s pretty hard to teach something you don’t know. The trick is, you don’t want to teach someone some bad habits that could spill over into their real flying career someday.

Use the online instructor in flight simulator to learn how to fly. Ask the local flying club pilots to show you what a circuit looks like at your local flying club, either in a real plane, or on a simulator. Or better still ask a pilot to show you how to fly on your simulator. Make sure you doing things the way they are supposed to be done in a real plane before you try to teach someone else simulator flying.

Q 25. Is CASC good for Flying Scholarship?

I think every cadet that goes to flying scholarship should have to go through a full CASC program at their squadron. By learning and practicing all the fundamentals on a simulator, a flying scholarship candidate is better prepared for the real learning experience in the real world. Skills like learning to read the cockpits instruments on a C-172, knowing how to use checklists, the radio work, taxiing procedures, procedures for slow flying, short field and soft field take-off and landings are easily done over and over on a simulator. In fact, many real world pilots report that simulators are harder to fly because you don’t get all the sensory input you do in the real world. So if you can master flying a C-172 in the simulator world, the real world is easier.

Q 26. Are there any first solo certificates?

Yes, this is where your imagination and ingenuity comes in. In Flight Simulator, there are a few Certificates that you can earn from learning how to fly using the program. Use these certificates or make your own and award them to your cadets when they do their first solo, or complete the program. You can find these certificates in the UIRES sub directory of FSX.

RULES OF THE AIR:
A "good" landing is one from which you can walk away. A "great" landing is one after which they can use the plane again

Q 27. Do I really need a CASC instructor, or can the cadets learn by themselves?

Learning to fly is a difficult skill. It is always best if you can structure your environment around a flying school as I have outlined in this book.

But face it, there will be places where there are no pilots around to show you, and you may not have time to learn how to fly on the simulator in order to teach others.

If you have the environment, a room or place, have the simulator, or maybe two, find a cadet/ officer or civilian instructor who can volunteer to take charge. Make sure simulating occurs under the supervision of an authorized adult. Give them this book, and tell them to set up the program like it's outlined here. When a cadet gets to the point where they are ready to be flight tested, find a local pilot in the community to come in and "flight test" them. Show them this book as a guide or send them to the internet and let them read up on CASC.

Q 28. Are there online flying instructors to help?

Yes use the Learning Centre in Flight Simulator X. You can progress from student pilot, to private pilot , to Commercial pilot and Airline Transport Pilot. See question 10 in this book on how use the Learning Centre.

Q 29. How many hours will it take to learn how to fly and qualify for Simulator wings?

Experience has taught me that the magic number seems to be twelve hours minimum. It takes at least twelve hours to get someone to the point where they can properly fly a Cessna 172 in the simulator environment using all the procedures. Each time the cadet is at a simulator with the engine running, they are building time for their log book. The bottom line, if there is not at least a minimum of twelve hours logged in the students log book, they are NOT ready for a flight test or cannot pass the CASC wing test.

Q 30. How many lessons does it take?

There are 20 lessons (each of one hour duration) outlined in the program. If you are starting from scratch, with no simulator experience, and no flying training, it will take you twenty or more lessons. Fourteen of those are structured one hour lessons, four are practice lessons, one is a review lesson and one is a flight test.

In some student cases, you will find it ok to combine a few lesson in one (like climbing and descending together in one lesson), or you may have to repeat a lesson over if a cadets is having trouble. It doesn't matter, re-do as many lessons as necessary. Each time the cadet is at a simulator with the engine running, they are building time for their log book. The bottom line is, if there is not at least a minimum of twelve hours logged in the students log book, they are NOT ready for a flight test or cannot pass the CASC wing test.

Q 31.What if the cadet has some experience already on simulators, is there credit for that?

Yes, experience counts. In lesson plan one, the cadet is introduced to the simulator environment. This is when you give them their log book sheet to maintain and explain how to fill it out. The first line in the log book is "previous experience". Record whatever time they have with simulators on their own here. Of course not all the time they "played with a simulator" is valid.

I use the following rules of thumb to determine how much credit to give a cadet with previous simulator experience.

I ask: how much time have you spent (in hours) on simulators in the last six months. This sometime takes a little prompting. Ask them as well how many hours a day? How many days a week? How many weeks? Let say they come up with 50 hours. I ask them how much of that was on C-172, that usually is much less. Let say the cadets says;" three hours on C-172".

I give them 1/10 of their total hours (10%) and ½ (50%) of their C-172 hours. So in our example, the cadet figures they have 50 total hours, with three of that on C-172, so

a) 50 total hours of experience X 10% = **5 hours**
b) 3 hours of C-172 X 50% = **1.5 Hours**
c) So the total previous experience would be 5 + 1.5 hours, or **6.5 hours**. I would enter 6.5 as PIC (Pilot in Command) in the first line of their log book. That means they start out with a little more than half of the hours needed to meet the minimum qualifying hours.

Q 32. What if I am already a pilot, how do I use this program to teach cadets?

Great, you already know how to fly. Study this manual and you will get the basics of things. Because you know how to fly already, all you need is the lesson plans.

Q 33. Can I learn at home?

Yes. You can do this program anywhere you have a computer that will run Flight Simulator X, and the appropriate yoke and rudder pedals.

You can encourage cadets to practice on their home simulator if they have all the right equipment. Trying to learn to fly without the yokes and rudders is an exercise in futility.

Be careful that cadets that are try to learn at home are not picking up bad flying habits. Make sure you have regular check rides with a CASC instructor to make sure they are learning correct procedures.

RULES OF THE AIR:
Good judgment comes from experience. Unfortunately, the experience usually comes from bad judgment

Q 34. What is a log book?

All pilots record their “engine time” in a log book. Many licensing qualifications require a certain amount of logged hours to achieve a qualification, so pilots are careful to log every hour.

Log book time in the simulator world (much like in real world flying), is divided into two types of times and are logged in separate columns.

‘PIC or Instructor time ‘is time you log as the person, and only person flying the plane.

Co-Pilot / Student time is logged every time you fly the plane under the direct supervision of a qualified CASC pilot/instructor.

Time is logged from the time the aircraft engine is turned on in the simulator until the time the aircraft engines are turned off at the conclusion of the flight.

Time is logged in tenths of an hour.

1 hour (60 minutes) = 1.0 Hours
45 minutes = .75 hour (45/60)
30 minutes = .5 hour (30/60)
15 minutes = .25 Hour (15/60)

So for instance one hour and 30 minutes is logged as 1.5 hours

Just divide the number of minutes flown by 60 to get the number you log.

Q 35. Why do we file flight plans and how do we do that?

A pilot should file a flight plan or a flight itinerary (or notification) when they go flying. It’s a smart idea. It’s used to alert search and rescue if you become overdue. In the CASC world, to get students wise to filing flight plans, I insist that a cadet fill out a flight plan each time they use the simulator. The flight plan gets them used to the idea and becomes a good reference file on their progress after they have completed their flying.

Here is an example

RULES OF THE AIR:
In the ongoing battle between objects made of aluminum going hundreds of miles per hour and the ground going zero miles per hour, the ground has yet to lose

FLIGHT PLAN

Date: _____ Lesson Plan: **1**

Student		
Rank	Surname	Given Name

Aircraft		
Make	Model	Registration

Routing		
Departure Aerodrome	Arrival Aerodrome	Via
Estimated Startup Time	Estimated Shutdown Time	Estimated Total Time

Miscellaneous		
Flight Rules ☐ VFR ☐ IFR	# of Persons on Board	PFDs Required? ☐ Yes ☐ No
Equipment on Board: ☐ ELT ☐ Fire Extinguisher ☐ VHF ☐ UHF ☐ Transponder		

Comments

Authorization For Flight	
Student Signature	Instructor Signature

Instructor Use Only			
Actual Startup Time	Actual Shutdown Time	Actual Flight Time	
		PIC	Dual
Instr. Rank	Instr. Surname	Instr. Given Name	

FLIGHT PLAN

Objective: To introduce the student to the physical sensations and environment of simulated flight	**0** = Not Taught **1** = Taught or demo'd **2** = Student Mastered

Teaching Point	Progress	Comments
Preflight		
Introduce student to flight simulator complex	0 1 2	
*Explain flight suits – location, purpose and routine	0 1 2	
*Explain flight plans – how to complete, where to file	0 1 2	
*Explain the log book - how to complete, where to file	0 1 2	
Explain the pilot training record - how to complete, where to file	0 1 2	
Identify online resources	0 1 2	
Review CASC booking procedures	0 1 2	
In-flight		
Complete a familiarization flight: • At local airport • Student in control • Bypass run-up • Day VFR conditions • Introduce radio calls • Enforce proper taxiing • *Allow student to land	0 1 2	
Post-flight		
Debrief – complete PTR and logbook, file flight plan	0 1 2	

Special Instructions

- * indicates a teaching point that is on the PTR specific to this lesson
- Answer all questions but do not formally instruct the student in this lesson
- Avoid going into detail which will confuse the student
- The student should be afforded to land the aircraft given the instructor has set the aircraft up.
- Emphasize that this is a new experience. Procedures which may seem very complicated at this time will become easier with continued exposure and use.
- Make sure that all appropriate forms, flight suits, log books etc are accessible and ready for the student.
- This exercise should be enjoyable and leave the student with a sense of accomplishment.

-USE THE REVERSE SIDE OF PAGE FOR MORE COMMENTS

You as the instructor fill out this page for the student. It serves as a record of what got taught and what did not. Just circle the correct number of each teaching point. Circle 0 if the subject was not taught, 1 if it was taught or you demonstrated it, and 2 if the students has mastered the skill.

Q 36. What airport do I select to use for teaching my cadets?

You should always select the airport that is closest to you. Set that airport up, with a C-172, engines off, as your “default” flight. Ask yourself, what airport do the cadets go to for a familiarization flight. Once you select an airport, stick with it. Don’t change airports each lesson! Let the student become use to the airport orientation and the local geography.

If you do not have any idea what airport to use, I would suggest you use Victoria International Airport. The main runway is an east west 09-27 orientation and therefore all circuit turns are 90 degree turns to cardinal points. This makes it easier to remember.

Q 37. What weather do I set up for teaching?

The beauty of using flight simulator is that weather is always fine. You should always teach your students to fly in clear, daytime weather. Once they are pilot qualified, you can introduce them to nasty snow or rain or night flying. If your computer is connected to the internet, select weather and ask for real world weather updates. The software will go to the internet, collect real live weather conditions from the weather station closest to your selected airport and set that weather up in flight simulator.

Q 38. I don't know anything about radio procedures, how will that work?

Flight Simulator has a built in air traffic controller. So don't worry. You don't have to know anything about being an AT controller. Just hit ~ on the keyboard in flight simulator and the ATC menu will pop up. Make sure you have sound turned on and speakers attached to your computer.

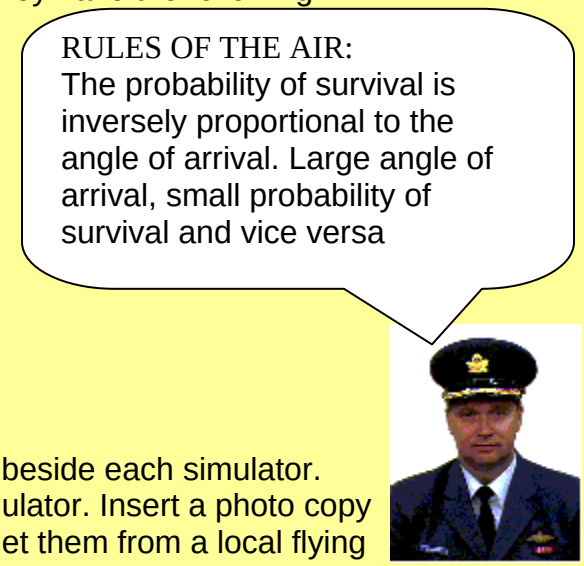
Q 39. Where do I get the check lists for C-172? Why do we use them?

Checklist are used because people forget. Things suddenly get rushed, and oops, you forgot to put the wheels down! It is a good practice to get the cadets used to procedures, and the procedures are spelled out in the checklists.

Q 40. What about the documents on-board a real aircraft, aren't you suppose to check those in pre-flight? How do you simulate that?

Canadian Air Regulations require that a pilot ensure they have the following documents when they go flying:

1. Student/Pilot License
2. Radio/telephone Operators Certificate
3. Aircraft radio License
4. Certificate of Airworthiness
5. Annual Airworthiness Information report
6. Certificate of Registration
7. Aircraft Journey Log
8. Intercept Orders and Procedures
9. Liability Insurance.



In order to simulate this, take a file folder and place it beside each simulator. Label the file folder with aircraft registration of the simulator. Insert a photo copy of an original of each of these documents if you can get them from a local flying club, or just make a sheet a paper with the title of each of these documents. That way the cadet start to memorize this information and it becomes a routine before flying as it should be in the real world.

RULES OF THE AIR:
You know you've landed with the wheels up if it takes full power to taxi to the ramp

Q 41. How do I keep track of a student's progress. What is a Pilot Training Record?

The Pilot Training Record (PTR) is a document that tracks the progressive ability of the student as they undergo simulator flying training. Each critical lesson has one column in the PTR. After each lesson, record the progress for that lesson in the appropriate lessons column. You will note that every lesson has a block to record the students progress on the four critical areas of flying: Take-off, Circuits, Landings and Radio Procedures. For each lesson, assess the student on these areas: 0 for not taught, 1 for taught or demonstrated, or 2 for mastered. By the time the student gets to lesson plan 15, there should only be 2 in the column for these four critical areas in their final lesson plans, or the student isn't ready for testing.

In each column of a lesson plan, there are white boxes to enter the score for the teaching points associated with that lesson. You should fill in these boxes immediately after a lesson. Don't forget to fill out the white boxes at the top of the lesson plan each time as well.

Q 42. Do I have to have the same instructor for all my lessons?

Some squadrons will have a number of people who will be qualified CASC instructors. It is always best to learn from the same instructor, but it is not absolutely necessary.

Because each lesson is sequenced to build skill, you want to make sure you follow the lesson plans in order. However, you can change instructor as you go. Each time you go for a lesson, you will have your log book, past lesson plans and your PTR to allow your instructor to know where you are in your training and how you are doing. So you can just continue from where you are with whoever has been assigned to instruct you.

Q 43. Do I have to follow the lesson plans in order?

Yes. The lesson plans follow the pattern that Transport Canada has laid out for real world private pilots and each lesson builds new skills.

Q 44.What if a student pilot misses several weeks of training?

No problem. The training system is designed to allow a student to pick up where they left off. Your log book, past lesson plans and pilot training record will show your instructor what lessons you have done and how many hours you have. You can just continue to learn from where you left off. A few review periods might be in order to get you back into the groove.

Q 45. How do I get my wings in CASC?

The existing badge is not yet an official badge of the air cadet program, although it has been made available to recognize cadets that have completed a simulator program, as outlined above, and who have completed the flight test required, by an accredited CASC instructor. Cadets must also have a minimum of 12 hours of simulation flying on C-172 aircraft, using the Microsoft Flight Simulator program set- up with yoke and rudder pedals, as per CASC standards. To-date, the wing has been authorized for wear in BC only on flight suits, and then only with the approval of a Commanding Officer.

You can order a pair of simulator wings from the RCIS kit shop.

Q 46. How do I certify my CASC centre?

In order to create a standard, you should make sure you are teaching cadets properly. To check out whether you are doing everything according to the standard, go to the RCSU CASC web site and check out the certification form. If you follow that, you will have a good idea if you're doing things right.

Q 47. Can I give the flight test to my own students?

Yes, if you think you can stay objective. The better way is to let another qualified CASC pilot test your student. If you don't have another qualified CASC instructor, ask a real world pilot to test your students for you. You want to remain objective. Otherwise, do it yourself.

Q 48. How does a flight test work?

The flight test is designed to test all the skills necessary to fly a C-172. You should schedule a two hour block to test a student, and you should never, unless in a pinch, test your own students.

Use the CASC Simulator Flight Test form to record the results from the test.

In the flight test, the following skills will be assessed and graded.

1	A. Documents and Airworthiness Knowledge		(1) (2) (3) (4) (5)
	B. Pre-flight Inspection		(1) (2) (3) (4) (5)
	C. Engine Start/Run-up/Check List		(1) (2) (3) (4) (5)
	D. Taxing		(1) (2) (3) (4) (5)
2	Level Flight		(1) (2) (3) (4) (5)
3	Turns		(1) (2) (3) (4) (5)
4	***Take off		(1) (2) (3) (4) (5)
5	***Circuit		(1) (2) (3) (4) (5)
6	***Landing		(1) (2) (3) (4) (5)
7	***Emergency Procedures Knowledge		(1) (2) (3) (4) (5)
8	***Radio Communications Knowledge		(1) (2) (3) (4) (5)

Section 1 is worth 20 marks, five each for **Documents and Airworthiness Knowledge**, **Pre-flight Inspection**, **Engine Start-up/Run-up/ and use of Checklist**, and **Taxiing**.

Section 2 is worth five points on **Level Flight**

Section 3 is worth five points on **Turns** in the air. This includes steep turns

Section 4 is worth five points on the **Take-off**. You will note it must be passed in order to pass the test (***) . This makes sense, how can you pass a test if the student can do everything else well, but not execute a proper take-off. You will be assesses on a normal take-off and one more type of take-off (short field or soft field).

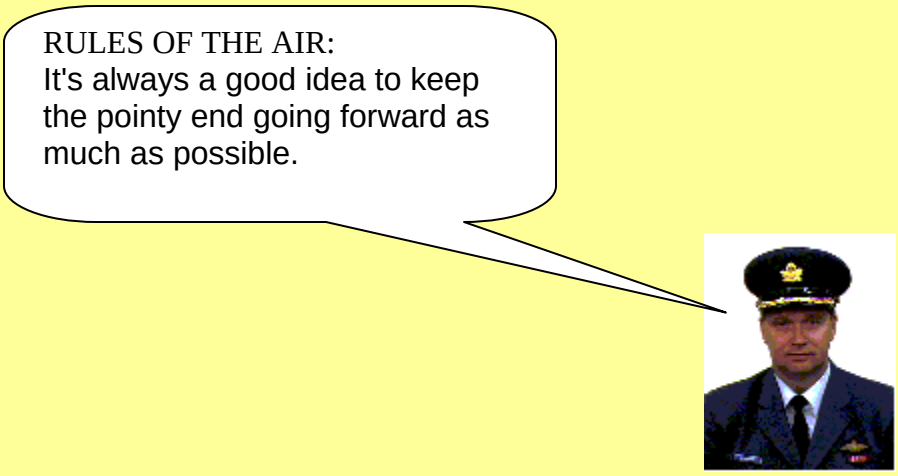
Section 5 is worth five points on the **Circuit**. You will note it must be passed in order to pass the test (***) . This makes sense, how can you pass a test if the student can do everything else well, but not execute a proper circuit.

Section 6 is worth five points on the **Landing**. You will note it must be passed in order to pass the test (***) . This makes sense, how can you pass a test if the student can do everything else well, but not execute a landing. You will be assesses on a normal landing and one more type of landing (short field or soft field).

Section 7 is worth five points on the **Emergency Procedures**. You will note it must be passed in order to pass the test (***) . This makes sense, how can you pass a test if the student can do everything else well, but not execute proper emergency procedures. The emergency procedures you test are : a) engine failure on take-off, b) Emergency Landing, c) Pre-cautionary Landing.

Section 8 is worth five points on the **Radio Procedures**. You will note it must be passed in order to pass the test (***) . This makes sense, how can you pass a test if the student can do everything else well, but not execute proper radio procedure. You can allow the student to use the ATC Menu in flight simulator. You will look to make sure proper clearances are made before **Taxiing**, before **take-off**, and before **landing**, and within the circuit.

The easiest way to mark the flight test is to strike off a mark in the appropriate area when an error is made by the student, and make a note beside it for later in the de-brief. If a student has 2 or more marks in an area left, they passed that area. They must have a minimum of 30 or more marks (on a possible perfect score of 55) to pass and they must have at least 2 marks (a pass) in the four critical area. (***)



CASC - Simulator Flight Test Report

NAME OF APPLICANT Cadet Iama Cadet					FLYING TIME DUAL 7	SOLO 7
NAME OF INSTRUCTOR RECOMMENDING FLIGHT TEST Albert Head CSTC					DATE	
NAME OF EXAMINER LCol Deschamps					DAY 22	MONTH Nov
						YEAR 2008
FLIGHT TRAINING UNIT AH						
LOCATION OF FLIGHT TEST AH						
SIMULATOR TYPE MS X		REGISTRATION	CF-ACY		BREIFING POINTS/QUESTIONS tested at Victoria airport, no question before flight test	
TEST CATEGORY		BASIC	(✓)			
		ADVANCED	( )			
		INSTRUCTOR	( )			

	EXERCISE			MARK	REMARKS
1	A. Documents and Airworthiness Knowledge		(1) (2) (3) (4) (5✓)	4	Forgot what flaps are for
	B. Pre-flight Inspection		(1) (2) (3) (4✓) (5✓)	3	missed looking at inside of cowling
	C. Engine Start/Run-up/Check List		(1) (2) (3✓) (4✓) (5✓)	2	missed three items
	D. Taxing		(1) (2) (3) (4✓) (5✓)	3	taxxing too fast, forgot to look before turning
2	Level Flight		(1) (2) (3) (4) (5✓)	4	
3	Turns		(1✓) (2✓) (3) (4) (5✓)	1	steep turns not 45 degrees, failed turns but still passes test as this is not a critical area
4	***Take off		(1) (2) (3) (4✓) (5✓)	3	rotated at 70 knots
5	***Circuit		(1) (2) (3) (4) (5✓)	2	
6	***Landing		(1) (2) (3) (4✓) (5✓)	3	
7	***Emergency Procedures Knowledge		(1) (2) (3) (4✓) (5✓)	3	
8	***Radio Communications Knowledge		(1) (2✓) (3✓) (4✓) (5✓)	2	

FINAL ASSESMENT		MARK REQ'D= 30	PASSED	FAILED	TOTAL MARK 30	WEATHER CONDITIONS Clear, CAVOK
*** Must pass or fail		BASIC	(✓)	( )		(SIMULATED)
		ADVANCED				
		INSTRUCTOR				

EXAMINER'S SIGNATURE

Q 49. My cadet has passed the flight test, how do I get the wings? Can they wear the wings on their cadet uniform? Can they wear the wings on their cadet uniform?

The existing badge is not yet an official badge of the air cadet program, although it has been made available to recognize cadets that have completed a simulator program, as outlined above, and who have completed the flight test required, by an accredited CASC instructor. Cadets must also have a minimum of 12 hours of simulation flying on C-172 aircraft, using the Microsoft Flight Simulator program set- up with yoke and rudder pedals, as per CASC standards. To-date, the wing has been authorized for wear in BC only on flight suits, and then only with the approval of a Commanding Officer.

You can order a pair of simulator wings from the RCIS kit shop.

Q 50. Do I need to record their graduation in Fortress?

Yes. Fortress will soon have the ability to record CASC participation.

Conclusion

There are no hard and fast rules about what you undertake to do if you want to run a simulator program at your Squadron. This book is an excellent guide, and if we all follow the "standards" set out, it means that any cadet that learns how to fly on a simulator in one squadron, will know what they are doing at another. The program does rely on the instructors enforcing a standard of seriousness. Allowing the cadets to do their training on anything but a Cessna 172, network the computers and fly into each other, and skim the corners in the procedures, doesn't teach anyone anything. Cadets need to be able to act professionally and earnestly, just as they would if they were an actual pilot with real responsibilities.

More than half the squadrons in BC are running a simulator program, and they are providing a great advantage to their cadets, particularly if those cadets go on to flying scholarships.

Get your feet wet, have fun and enjoy the world of simulator pilot training.