

The CIX VFR Club	Flight Training Notes	Exercise 31
For Simulation Purposes only. Not to be used for real World flight	SINGLE ENGINED AIRCRAFT TRAINING SYLLABUS	Issue 1.2 23/04/10

1 INTRODUCTION

One of the limitations of Flight Simulator is that it isn't very good at teaching you to learn to fly. The inbuilt flying lessons are good as far as they go, but if you make a mistake in a lesson, the subsequent instructions become nonsensical. In lesson 2 - turning, try turning right when Rod Machado asks you to turn left, and you'll see what I mean!

With the advent of FSNET, <http://www.gates-to.net> a computer programme and internet server system pilots can, for the first time, fly together in one aircraft. One pilot is designated as "Pilot flying" and the other can operate all the other controls except the yoke and pedals, or can simply watch on screen as his co-pilot flies "his" aircraft.

This has had profound influence on the Club training programme, and flying lessons are now much more realistic. The instructor can demonstrate a manoeuvre while the student watches, then the student can try it while the instructor guides him or her. Just like the real world in fact.

Typically a real world flying student takes around 60-70 hours of flying instruction, plus ground study, to obtain his private pilot's licence. In Flight Simulator, this can be reduced to around 7 to 10 hours. There is no need for the ground study before being allowed to fly – you can fly now and learn the finer points of Aviation law later – in fact much of Aviation law isn't even relevant. And fundamentally of course – if you get it wrong and crash – it simply doesn't matter – in spite of the dedicated simulator pilot's natural wish not to.

2 PREPARING FOR TRAINING

2.1 Take it Seriously, but not too Seriously

Flight Simulator is a hobby – we do it for fun. We will be serious about our training, but we will have fun too. Otherwise what is the point? At the end of the course, you will be able to fly an aircraft in flight simulator, and know how it flies, and what to do when it doesn't want to. This type of flying is much more satisfying than simply pressing buttons on an autopilot.

2.2 Essential pre-course reading.

Read the Club's Training Manual, Exercises 1, 2, 3, 4a & 4b before starting training. All training material is available on the Training page of the Club web site.

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3 THE SYLLABUS

3.1 Exercise 1 – The Aircraft on The Ground

3.1.1 Flight Simulator Requirements

- Yoke, or Joystick, Pedals or not, Aircraft models & scenery.

3.1.2 Aircraft Components

- Fuselage, wings, tailplane, engine etc.

3.1.3 External Controls

- Ailerons, Elevators, Rudders, Trim tabs, and what they do.

3.1.4 Aircraft Performance

- The reference (V) speeds, operating limits and “book” performance speeds and what they mean.

3.2 Exercise 2 – Preparation for Flight

3.2.1 Setting the Altimeter

- QNH, QFE, The Kollsman Scale.

3.2.2 Pre-Flight Checks

- Checklists – before start, starting and after start.
- After flight

3.2.3 Taxying

- How to taxi in Flight Simulator – surprisingly tricky.
- Vital Actions before take off.

3.2.4 After Flight Checks

- Checklists – before shutdown, and after shutdown.

3.2.5 Refuelling

- The different ways available in Flight Simulator.

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3.3 Exercise 3 - The Aircraft in Flight

Revise Club Training Manual Exercises 4a & 4b. Read Exercise 4c. All training material is available on the Training page of the Club web site.

3.3.1 Theory Briefing

The four forces of flight: Lift versus mass; Power versus drag

Effect of controls

Secondary effect of controls

Attitude flying

3.3.2 Flying

Pre-take off preparations

Supervised take off

Straight and level flight

Trimming

Attitude, attitude, attitude

3.4 Lesson 2

Read Club Training Manual Exercise 12. All training material is available on the Training page of the Club web site.

3.4.1 Theory Briefing

Planning – staying ahead of the aircraft

Power plus attitude equals performance

Power-Attitude-Trim (PAT) always, except...

Attitude-Power-Trim (APT) the exception

3.4.2 Flying

Climb

Descent

Leveling out from a climb

The take off in detail

Leveling out from a descent.

3.5 Lesson 3

3.5.1 Theory Briefing

Turns - when lift does not balance mass

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It's not like a boat - a rudder is not enough

The standard turn

The rate one turn

3.5.2 Flying

Balance in a turn – the rudder and the turn & slip instrument

Standard turns to left and right

Rate one turns to left and right

3.6 Lesson 4

3.6.1 Theory Briefing

Climbing turns

Descending turns

Low and slow turns

Use of flaps

3.6.2 Flying

Climbing turns

Descending turns

Slow turns

Setting and retracting flaps

3.7 Lesson 5

3.7.1 Theory Briefing

The limits of flight – slow flight; full speed

The white, green and yellow arcs on the Airspeed Indicator

The stall – with and without flap

The approach to land

3.7.2 Flying

Slow flight – with and without flap

Full power – straight and level

Changes of attitude

Stalls – with and without flap, – with and without power

Practicing a steady descent at approach speed at altitude

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Flying an approach

Power controls descent, pitch controls airspeed

3.8 Lesson 6

3.8.1 Reading

Revise Club Training Manual Exercises 12 & 13a. All training material is available on the Training page of the Club web site.

3.8.2 Theory Briefing

The standard circuit

Preparation for landing

Standard powered approach

The Round out and landing

The go-around

The Glide Approach

The flapless approach

Engine failure after take off (EFATO)

3.8.3 Flying

Standard circuits

Going around

The Glide Approach

The flapless approach

Simulated engine failure in the circuit

3.9 Lesson 7

3.9.1 Reading

Read Club Training Manual Exercises 16 & 17. All training material is available on the Training page of the Club web site.

3.9.2 Theory Briefing

Preparation for cross-country flight

- Flight planning
- Charts
- Weather
- Aircraft – fuel, oil and other checks

En route navigation – dead reckoning

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Aviate, Navigate, Communicate

Practice Forced Landing

Joining the Circuit

Diversion

3.9.3 Flying

Fly a prepared cross country

Practice forced landing en route

Join overhead at a destination airfield

Diverting – plan the diversion **and** fly the aircraft

3.10 Lesson 8

3.10.1 Reading

The Club Radiotelephony Manual.

Uing Squawkbox 3

Using FSInn V1.0

The Airborne Flight Plan

All are available for download from the Training page of the Club wb site

3.10.2 Theory Briefing

Connecting to VATSIM

Using the radio

- Taxying out
- Taking off
- En route
- The Airborne Flight Plan
- Emergencies
- Approach to an Air Traffic Control Zone
- Joining the Circuit
- Approach and landing
- Taxying to parking & shutdown.

3.10.3 Flying

Fly a prepared cross-country flight using radio. The flight will be conducted solo, with the instructor monitoring the flight via Servinfo or other tool.

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4 **SUCCESS**

When have completed your solo cross country under VATSIM ATC control, you can congratulate yourself on having completed one of the most comprehensive flight training programmes in the world of Microsoft Flight Simulator, and we, the Club, hope you will enjoy the hobby so much more than previously.