CFI Bootcamp
Flight Instructor Training

Using Technology

Sim vs Airplane
What to Use and What to Do First

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What we will cover

Basic simulator considerations

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Sim vs Airplane - What to Use and Do First

What we will cover

Simulator vs AATD and BATD

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Sim vs Airplane - What to Use and Do First

What we will cover

Letter of Authorization

U.S. Department of Transportation
Federal Aviation Administration

[redacted]

February 8, 2017

Mr. Mike Altman, CEO
Precision Flight Controls, Inc.
2341 White Rock Road, Suite 100
Rancho Cordova, CA 95742

Dear Mr. Altman:

The Federal Aviation Administration (FAA) last qualified and approved your airplane Precision Flight Controls, Inc. model DCX, DCX ProMotion, DCX MAX, and DCX MAX ProMotion as an Advanced Aviation Training Device (AATD) on October 6, 2014 in accordance with Title 14, Code of Federal Regulations (14 CFR) section 61.4(c).

Review of the revised Qualification and Approval Guide (QAG) dated January 27, 2017, and the functional evaluation conducted on January 27, 2016, validates the current standards and criteria for approval as provided in Advisory Circular (AC) 61-136A, *FAA Approval of Aviation Training Devices and Their Use for Training and Experience*. The Precision Flight Controls, Inc. model DCX MAX airplane AATD is authorized for use in satisfying the following sections of parts 61 and 141:

Precision Flight Controls, Inc. Model DCX MAX
Single and Multiengine Land
Advanced Aviation Training Device (AATD)

- § 61.51(b)(2) – Logbook entries;
- § 61.51 (b) – Logging training time;
- § 61.57(c) – Instrument experience;
- § 61.57(d)(2)(ii) – Instrument proficiency check, per the Instrument ACS;
- § 61.65(i) – Instrument rating, up to 20 hours;
- § 61.109(k)(1) – Private Pilot Certificate aeronautical experience: up to 2.5 hours;
- § 61.129(i)(1)(i) – Commercial Pilot Certificate: up to 50 hours;
- § 61.159(a)(4)(i) – Airline Transport Pilot Certificate: up to 25 hours; and
- § 141.41(b) – Approval for use under the part 141 appendixes as follows:
  - *Appendix B* – Up to 10% toward the total Private Pilot flight training time requirements;
  - *Appendix C* – Up to 40% toward the total Instrument flight training time requirements
  - *Appendix D* – Up to 10% toward the total Commercial Pilot flight training time requirements;

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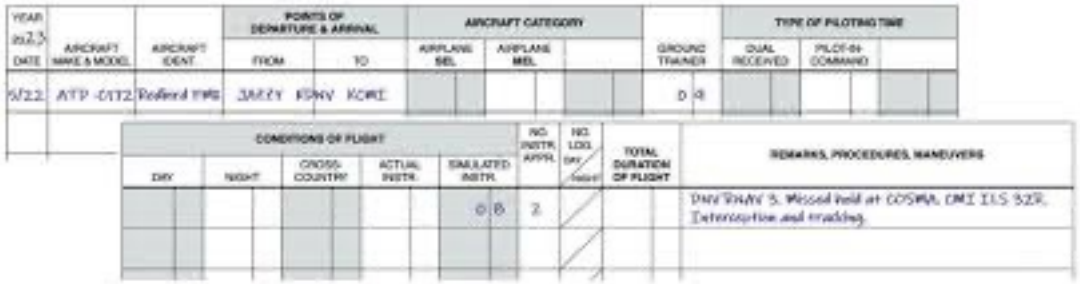
Sim vs Airplane - What to Use and Do First

What we will cover

Logging AATD time



YEAR 2023 DATE	AIRCRAFT MAKE & MODEL	AIRCRAFT IDENT	POINTS OF DEPARTURE & ARRIVAL FROM	TO	AIRCRAFT CATEGORY AIRPLANE SEL	AIRPLANE MEL		GROUND TRAINER	TYPE OF PILOTING TIME DUAL RECEIVED	PILOT-IN-COMMAND	
5/22	ATP -CITZ	Redford FMS	JAZZY	KDNV KCMI				0 9			

CONDITIONS OF FLIGHT DAY	NIGHT	CROSS-COUNTRY	ACTUAL INSTR.	SIMULATED INSTR.	NO. INSTR. APPR.	NO. LDG. DAY / NIGHT	TOTAL DURATION OF FLIGHT	REMARKS, PROCEDURES, MANEUVERS
				0 8	2	/		DNV RNAV 3. Missed hold at COSMA, CMI ILS 32R. Interception and tracking.
						/		

The Standard® Pilot Log. Graphic courtesy of Aviation Supplies & Academics, Inc.

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What we will cover

Technology Limitations

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What we will cover

Using a Sim for VFR Ratings

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Sim vs Airplane - What to Use and Do First

What we will cover

Using a Sim for IFR

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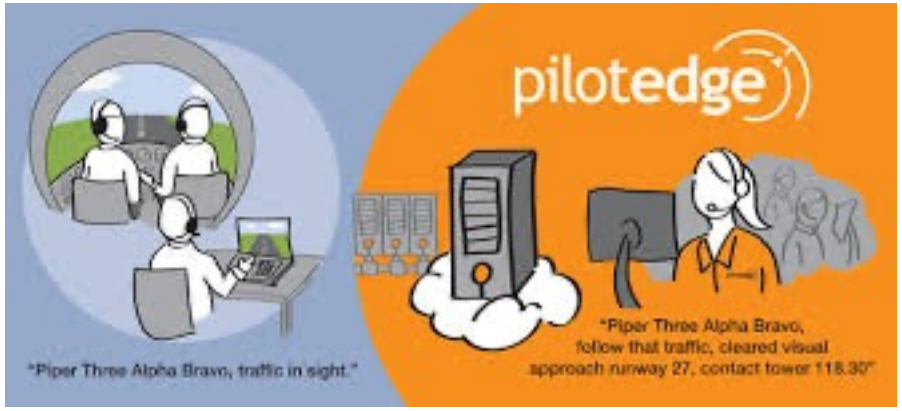
What we will cover

Making Simulation More Realistic



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What we will cover

Instructors that Avoid Simulation

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What we will cover

iPad apps that really work that save pilots and make CFIs money

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What we will cover

Do Home Simulators Help?

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Basic Simulator Considerations

Cost
Fidelity
Hours that count toward a rating or endorsement

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Basic Simulator Considerations

Aerodynamic Modeling
Graphics and display perspectives
Modeling Momentum

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Simulators, AATDs, and BATDs

All are Flight Simulation Training Devices (FSTD)
FAR Part 60 regulates their approvals and uses
Full Motion Flight Simulators – Only available for type ratings and certain planes

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Simulators, AATDs, and BATDs

BATD – Basic Aviation Training Device – Can log up to 10 hours
AATD – Advanced Aviation Training Device – Can log up to 20 hours IFR/50 Comm
Almost all Flight Training Devices in Flight Schools are AATDs

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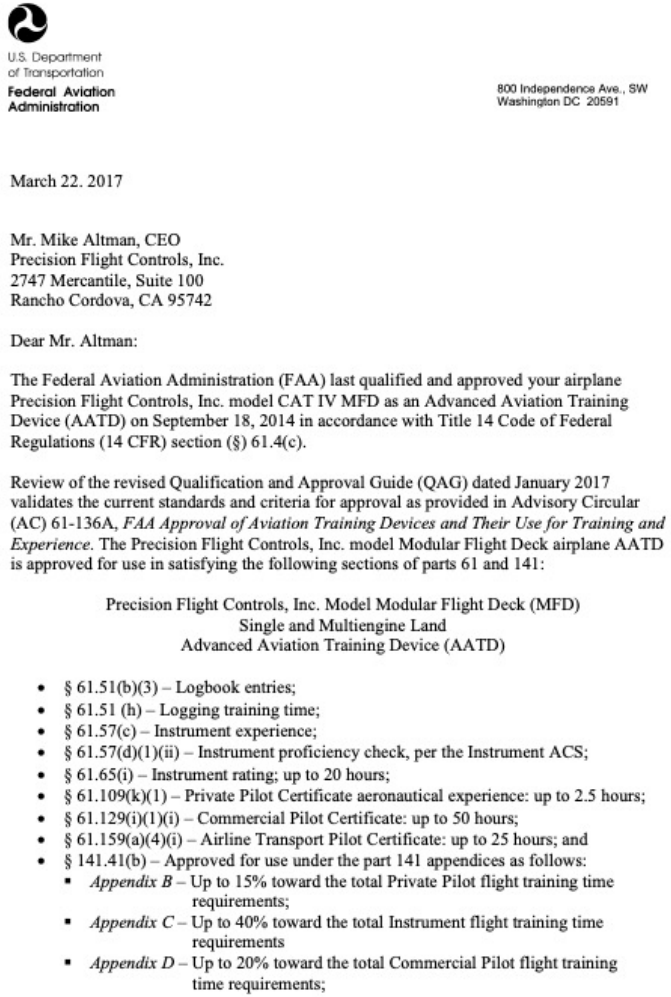
Sim vs Airplane - What to Use and Do First

Letter of Authorization

All must be approved for specific tasks listed on the letter by FAR reference
Have an expiration date
Must be valid when conducting training towards a rating or endorsement or currency



U.S. Department of Transportation
Federal Aviation Administration

800 Independence Ave., SW
Washington DC 20591

March 22. 2017

Mr. Mike Altman, CEO
Precision Flight Controls, Inc.
2747 Mercantile, Suite 100
Rancho Cordova, CA 95742

Dear Mr. Altman:

The Federal Aviation Administration (FAA) last qualified and approved your airplane Precision Flight Controls, Inc. model CAT IV MFD as an Advanced Aviation Training Device (AATD) on September 18, 2014 in accordance with Title 14 Code of Federal Regulations (14 CFR) section (§) 61.4(c).

Review of the revised Qualification and Approval Guide (QAG) dated January 2017 validates the current standards and criteria for approval as provided in Advisory Circular (AC) 61-136A, *FAA Approval of Aviation Training Devices and Their Use for Training and Experience*. The Precision Flight Controls, Inc. model Modular Flight Deck airplane AATD is approved for use in satisfying the following sections of parts 61 and 141:

Precision Flight Controls, Inc. Model Modular Flight Deck (MFD)
Single and Multiengine Land
Advanced Aviation Training Device (AATD)

- § 61.51(b)(3) – Logbook entries;
- § 61.51 (h) – Logging training time;
- § 61.57(c) – Instrument experience;
- § 61.57(d)(1)(ii) – Instrument proficiency check, per the Instrument ACS;
- § 61.65(i) – Instrument rating; up to 20 hours;
- § 61.109(k)(1) – Private Pilot Certificate aeronautical experience: up to 2.5 hours;
- § 61.129(i)(1)(i) – Commercial Pilot Certificate: up to 50 hours;
- § 61.159(a)(4)(i) – Airline Transport Pilot Certificate: up to 25 hours; and
- § 141.41(b) – Approved for use under the part 141 appendices as follows:
  - *Appendix B* – Up to 15% toward the total Private Pilot flight training time requirements;
  - *Appendix C* – Up to 40% toward the total Instrument flight training time requirements
  - *Appendix D* – Up to 20% toward the total Commercial Pilot flight training time requirements;

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Logging Sim Time

Must log the serial number of the AATD
Point of departure and destination are always the physical location of the AATD
Can only log simulated instrument time, dual received and total time
CFII can't log any time when giving instruction in a FSTD

YEAR 2023 DATE	AIRCRAFT MAKE & MODEL	AIRCRAFT IDENT.	POINTS OF DEPARTURE & ARRIVAL FROM	TO	AIRCRAFT CATEGORY AIRPLANE SEL	AIRPLANE MEL		GROUND TRAINER	TYPE OF PILOTING TIME DUAL RECEIVED	PILOT-IN-COMMAND	
5/22	ATD-C172	Redbird FMX	JAZZY	KDNV KCMI				0 9			

CONDITIONS OF FLIGHT DAY	NIGHT	CROSS-COUNTRY	ACTUAL INSTR.	SIMULATED INSTR.	NO. INSTR. APPR.	NO. LDG. DAY / NIGHT	TOTAL DURATION OF FLIGHT	REMARKS, PROCEDURES, MANEUVERS
				0 8	2			DNV RNAV 3. Missed hold at COSMA. CMI ILS 32R. Interception and tracking.

The Standard® Pilot Log. Graphic courtesy of Aviation Supplies & Academics, Inc.

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Technology Limitations

Aerodynamic Modeling – Poor at low speeds
Graphics and Display Perspectives – Poor near the ground
Stick force per G – Sometimes just a spring
Field of view – Most are limited to around 60-80° - Need 135°

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Using a Sim for VFR Ratings

No arguments about the benefits of procedural training
Easy to save money by learning/performing the procedural parts of training
More difficult to save money by learning/performing tactile skills
Part 141 schools can log 15% of course flight time of AATD training toward a Private Pilot Rating

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Using a Sim for IFR Ratings and Experience

20 hours can be logged toward the Instrument Rating – Part 61
The first 20 hours – Do everything in the AATD
What can be done is on the Letter of Authorization (LOA)
When training a procedure, Freeze altitude, etc. or use AP

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Using a Sim for IFR Ratings and Experience

Teach AP use First! – Model of Behavior – Gives student time to see it done correctly
Common complaint – The sim is more sensitive than the airplane
Use iPad apps instead in many cases when it's procedural

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Using iPad apps instead of an AATD

Don’t need to book it or pay for the time using it
Good for VOR/Bearing pointer/HSI tracking/training
Good for wind, DME arcs and holding procedures

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Using iPad apps instead of an AATD

NavTrainer is great for VOR/Bearing Pointer/HSI

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Using iPad apps instead of an AATD

Simionic G1000 PFD is great for G1000 training – Especially if you purchase the bezel from them

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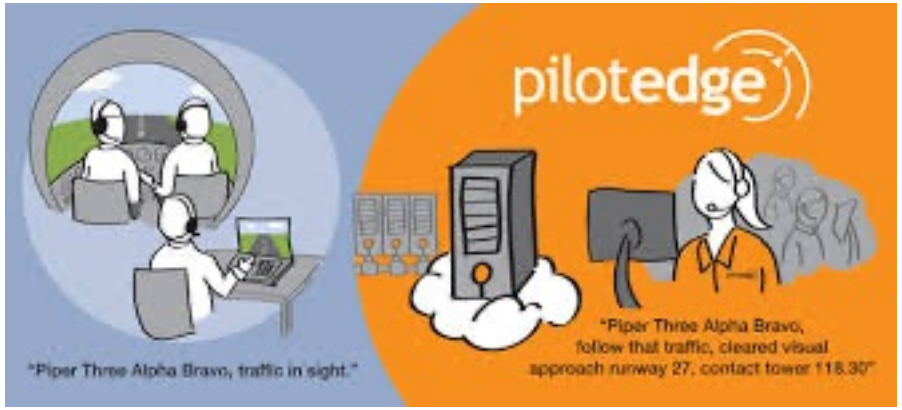
Making Simulation More Realistic

Use PilotEdge for ATC simulation – Only certain locations are used
Use ForeFlight with the AATD if there is a GPS output from the AATD
Does motion really matter? Not really. The graphics and controls are most important



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Instructors Who Avoid Sims

CFIIs aren't logging any flight time when using a sim/AATD – No WIFM
Instructors building time typically avoid using them even though they are available
You can waste a lot of money not using an AATD

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Fixes for more Sim time

If you are at a 141 school, see that sim time is in the syllabus (not optional)
Find a dedicated Sim instructor/facility (location dependent)
Find a CFII that is not building time

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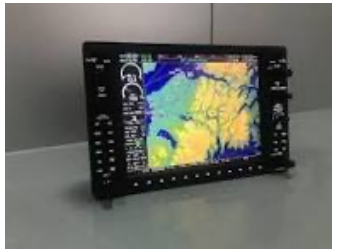
Sim vs Airplane - What to Use and Do First

iPad apps that really work – A tour of these apps now

NavTrainer – Pilot's Café - $10
Hold Trainer – Pilot's Café - $10
G1000 PFD – Simbionic - $20
GTN 750/650 trainer – Garmin - $25

Simionic Bezel for G1000 - $700



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Do home simulators help?

Very much – YES
X-Plane
Microsoft Flight Simulator

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