



HONG KONG AVIATION CLUB

Aeroplane Training

Volume 2

Copy No.

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The Hong Kong Aviation Club**


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(Giles Haybittle – Accountable Manager)

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Glossary of Abbreviations

AFI	Assistant Flight Instructor
CAD	Civil Aviation Department
DT	Differences Training
FI	Flight Instructor
HKAC	Hong Kong Aviation Club
POH	Pilots Operating Handbook
PPL	Private Pilots License



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SECTION 1

1.0 Differences Training (DT)

1.1 General

This section contains information, direction, and guidance to be used when a pilot intends to fly either a variation of a particular type or an aircraft from a different manufacturer both of which are prone to incorporate pertinent differences from the aircraft they are fluent in.

1.1.1 Background

Due to differences in instrumentation, installed equipment, starting procedure, engines and propulsion, the skills and knowledge required when changing aircraft can differ dramatically. These differences can be significant due to design and technological advancements.

1.2 Eligibility

There are two scenarios' where a pilot would require Differences Training.

1. PPL's that request training on Club aircraft other than the aircraft used for ab initio training and the PPL flight test must first reference the 'Differences Matrix' in Appendix 1 and then meet the criteria below in order to proceed. (See Note below)
2. A new member to the Club who joins with an existing pilot's license but cannot provide evidence of flying for at least 5 hours in the type of Club aircraft to be flown (the 5 hours must have been completed within the previous 13 months) must also comply with the Differences Matrix and criteria below.
 - Pilot must have logged 20 hours PIC to be eligible for C152 DT
 - Pilot must have logged 20 hours PIC to be eligible for initial C172 DT
 - Pilot must have logged 50 hours PIC to be eligible for C182 DT
 - Pilot must have logged 80 hours PIC to be eligible for Extra 300LP DT

Note: Unless Differences Training is completed as appropriate, a pilot is not permitted to operate aircraft types (within Group A) other than the types that have been used to complete ab initio training and pass the flight test.

1.3 Ground Training

Using Appendix 2 'Differences Training – Theoretical Knowledge & Flight' an authorised HKAC Flight Instructor will complete training that will include an overview of the new aircraft to be introduced and will highlight all notable differences that need to be understood and remembered.

Upon completion of this training the PPL will sit a closed book multiple choice written examination with a pass mark of 100%. Any deficiencies will be re-educated and the missed questions retaken until the PPL can demonstrate a good knowledge and understanding of all questions asked.



1.4 Pre-Flight Inspections & Calculations

A walk around of the aircraft will be completed by the AFI/FI and the PPL where all differences will be highlighted and explained. This will be followed by any differences in Weight & Balance and endurance calculations where the AFI/FI will provide different scenarios to ensure the PPL's understanding.

1.5 Flight Training

Once the Flight Instructor is satisfied the PPL can demonstrate a good understanding of the aircraft differences on the ground, he will then commence the flight training as per Appendix 2 which will include the following:

- Pre-start and after-start checks
- Pre-take off checks
- Take-offs, Landings, Circuits & Go-Arounds
- Full Load Check – Weight of aircraft, passengers, luggage and fuel reaches the maximum take-off weight and operated under atmospheric conditions permitted by the relevant Pilots Operating Handbook (POH)
- Any additional training necessary for that particular aircraft

1.6 Flight Time

The following flight training hours are to be used as a minimum when conducting the differences training and it is at the Flight Instructors discretion to increase these hours if deemed necessary.

- C152 – 5 hours including full load check
- C172 (Initial) – 5 hours including full load check
- C172N to C172R or C172S – 2 hours
- C182 – 5 hours including full load check
- Extra 300LP – 5 hours including full load check

1.7 Completion

Once the PPL has successfully completed the Theoretical Knowledge Training, has logged the minimum hours or as many hours needed to demonstrate competency in all manoeuvres, he/she will receive a log book entry to include the wording "Differences Training in '*type aircraft*' has been completed in accordance with HKAC Aeroplane Training Manual Volume 2, Section 1" and all Differences Training documents will be kept on the pilots file.



SECTION 2

2.0 Spinning

2.1 General

A spin is an aggravated stall that typically occurs from a full stall occurring with the aeroplane in a yawed state and results in the aeroplane following a downward corkscrew path.

AFI's & FI's are responsible for delivering spin avoidance training to Private Pilots and are therefore required to complete full spin training as defined in Cap448C under aerobatic manoeuvres.

2.2 Spinning Course Instructor

The Spin Training is to be given by an Instructor who can be an individual or member of a training organisation, either of which must be approved by CAD prior to the commencement of any training.

2.3 Aircraft Types

The Spin Training will be completed in each type of aircraft that the AFI/FI is responsible for completing instruction with the exception of Cessna aircraft as detailed below.

Cessna's – Although there are different Cessna Aircraft within the HKAC fleet, an AFI/FI is only required to complete the Spin Training in one type (C152, C172, C182) to be eligible to teach spin avoidance in all three.

Additional training will be conducted for tail wheel aircraft.

The details of the training can be found in Appendix 3 & 3A.

2.4 Certificate & Validity Period

On successful completion, a certificate (Appendix 4) will be issued with the following validity periods:

AFI – Spin Training Certificate will be valid for 13 months

FI – Spin Training Certificate will be valid for 25 months

2.5 Spin Training Area

Any training involving spinning will be strictly confined to the aerobatic area illustrated on the Hong Kong Aeronautical Map (Appendix 5) that spans across Mirs Bay and Tolo. All spin maneuvers must be initiated at sufficient height in order to recover by 3,000'AGL.



APPENDIX 1

Differences Training (DT) – Matrix

Additional Type PPL CoT Taken	C182 (B-HHF)	C172 (HPL/LUV/LUW)	C172 (B-HIG)	C152 (B-HPA/LOW)	EXTRA 300LP (B-LUC)
Aircraft	Differences Training	Differences Training	Differences Training	Differences Training	Differences Training
C182P (B-HHF)	N/A	✓	✓	✓	✓
C172N (B-HIG)	✓	✓	N/A	✓	✓
C172R (B-HPL/LUV)	✓	N/A	✓	✓	✓
C172S (B-LUW)	✓	N/A	✓	✓	✓
C152 (B-HPA/LOW)	✓	✓	✓	N/A	✓
EXTRA 300LP (B-LUC)	✓	✓	✓	✓	N/A



APPENDIX 2

Differences Training – Theoretical Knowledge & Flight

Pilot Name (Under Training): _____

License Number: _____

Date/Time: _____

Aircraft Type: _____ Aircraft Registration: _____

Ground Review and Pre-flight Preparation

- Complete Ground Briefing
- Complete multiple choice written test
- Complete Aircraft Pre-Flight Inspection
- Complete Weight & Balance
- Complete Endurance Calculations

Written Test Paper

- Closed book multiple choice test paper (Pass mark 100%)

Airport Operations

- Aircraft pre-start and after-start checks
- Radio communication
- Pre-take-off check/EFATO brief included

Take-offs, Landings, Circuit and Go-Arounds

- Normal take-off, climb and departure to UCARA
- Straight & Level
- Climbing & Descending
- Turning; Level, Climbing & Descending
- Advanced Turning – up to and including 45° Bank
- Slow Flight/Stalling
- Spin Avoidance
- Emergencies including Fires & Engine Failures (PFL)
- Instrument Flight (Minimum 15minutes) Including 'Escape from IMC' (*N/A for Extra 300LP)
- Recovery from Unusual Attitudes
- Normal VHSK Return & Landing

Circuits

- Standard Circuit (Powered Approach)
- Short Field Take Off and Landing
- Without Flaps
- Glide Approach
- Engine Failure After Take Off (EFATO)
- Engine Failure from Overhead (2,000ft)
- Baulked landings or go-arounds



Full Load Check

Weight & Balance (Max. weight)

Minimum Three Circuits of:

- Standard (All Standard landings in the Extra 300LP will be Flapless)
- Flapless
- Glide Approach

- EFATO)

Additional for Cessna 182 only N/A

Cowl Flaps Operation: (N/A for Extra 300LP)

- Take Off/Climbing
- Cruise
- Descent
- Landing

Additional for Cessna 182 and Extra 300LP only N/A

Constant Speed Propeller Operation:

- Take Off
- Climbing
- Cruise
- Landing

Extra 300LP – training must include a minimum of 20 take-offs and landings to a full stop as per the OM 5.5.12.3

20 Take-offs and Landings

***Check each box for every item complete**

Instructor Comments



Instructor Recommendations

Flight Time _____

Flight Instructor Name (Conducting the Training): _____

Flight Instructor Signature (Conducting the Training): _____



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APPENDIX 3

Flight Instructor Spinning Training – Cessna Aircraft

Aim:

- To recognise both incipient and full spins.
- To recover from incipient and full spins with minimum height loss.

TEM: **H** - Height sufficient to recover by 3000ft agl.
A - Airframe clean (flaps up), Utility weight and C of G.
S - Security of crew in position to exercise full control, no loose articles, doors and window closed and secure.
E - Engine Ts & Ps normal, Fuel Both and balanced, Carb heat as required.
L - Clear of Active airfields, Built up areas, Controlled airspace, Cloud, Danger areas.
L - Lookout turn 360°. Good horizon all around, not above a monochromatic surface.
Safety brief.

Airex:

- Revision of Stall (with minimal wing drop) and Recovery with minimum height loss.
- Revision of Stall (with wing drop not < 45°) and Recovery with minimum height loss.
- Spin academic entry to incipient stage (Up to 180° of Yaw or 360° of Roll)
- Spin academic entry to developed spin.
- Incipient Spin from Stall in a climbing turn with full power.
- Incipient Spin from Stall in a steep level turn.
- Incipient Spin from Stall in configuration for turn from base to final.
- Recoveries from extreme attitudes.

Recovery from Stall with wing drop: Rudder to prevent further yaw, Full power (if nose not too low) and Control yoke Centrally Forward to unstall wings. Ailerons to level the wings and Ease Out of the Dive. Do not exceed VNO.

Recovery from Incipient Spins with Rotation or Full Spins

P: Power to Idle.

A: Ailerons Neutral.

R: Rudder fully applied to oppose Turn CoOrdinator / Indicator.

E: Elevator - Move Control yoke briskly Forward to break the stall (Fully forward if necessary with aft C of G).

When the Rotation stops, Centralise the Rudder, Level the wings and Ease Out of the Dive.

Remember that the Spinning training is for the benefit of the Flight Instructor and NOT for the student pilot.

The student pilot is to be trained in SPIN AVOIDANCE.

Because a Spin is a Stall accompanied by Yaw, Avoidance is "DON'T STALL". That is

"DO NOT MOVE THE CONTROL YOKE TOO FAR AFT"



APPENDIX 3A

Flight Instructor Spinning Training – Extra 300LP

Aim:

- To recognise both incipient and full spins.
- To recover from incipient and full spins with minimum height loss.

TEM: H - Height sufficient to recover by 3000ft agl.

A - Airframe clean – Max allowed take-off weight and C of G:

- Acrobatic category (1 seat)
- 820kg (1808lbs) and below
- Forward CG 67.1cm (26.4”), rear CG 84.1cm (33.1”)

- Acrobatic category (2 seats)
- 870kg (1918lbs) and below
- Forward CG 67.1cm (26.4”), rear CG 84.1cm (33.1”)

S - Security of crew in position to exercise full control, no loose articles, canopy latched and secure

E - Engine Ts & Ps normal, wing tanks must be empty for acrobatics – use of ACRO & Center tank with Aux Fuel 'ON'

L - Clear of Active airfields, Built up areas, Controlled airspace, Cloud, Danger areas.

L - Lookout turn 360°. Good horizon all around, not above a monochromatic surface.
Mark a landmark feature on heading before commencing spin. Safety brief.

Airex:

- Revision of Stall (with minimal wing drop) and Recovery with minimum height loss.
- Revision of Stall (with wing drop not < 45°) and Recovery with minimum height loss.
- Spin academic entry to incipient stage (Up to 180° of Yaw or 360° of Roll)
- Spin academic entry to developed spin.
- Incipient Spin from Stall in a climbing turn with full power.
- Incipient Spin from Stall in a steep level turn.
- Incipient Spin from Stall in configuration for turn from base to final.
- Recoveries from extreme attitudes.

Recovery from Stall with wing drop: Rudder to prevent further yaw, Full power (if nose not too low) and Control yoke Centrally Forward to unstall wings. Ailerons to level the wings and Ease Out of the Dive. Do not exceed VNO.

Recovery from Incipient Spins with Rotation or Full Spins

P: Power to Idle.

A: Ailerons Neutral.

R: Rudder fully applied to oppose Turn Coordinator / Indicator.

E: Elevator - Move Stick briskly Forward to break the stall (Fully forward if necessary with aft C of G).



When the Rotation stops, Centralise the Rudder, Level the wings and Ease Out of the Dive.

Remember that the Spinning training is for the benefit of the Flight Instructor and NOT for the student pilot.

The student pilot is to be trained in SPIN AVOIDANCE.

Because a Spin is a Stall accompanied by Yaw, Avoidance is "DON'T STALL". That is

"DO NOT MOVE THE CONTROL YOKE TOO FAR AFT"



APPENDIX 4

Spin Training – Certificate of Completion

AFI/FI Name: _____

License Number: _____

Aircraft Type Flown:

Cessna 152 Instructor Name: _____

Cessna 172 Instructor Signature: _____

Date: ___/___/___ Expiry Date: ___/___/___

*Only one model of Cessna is required.

*Spinning to any degree is prohibited in the Cessna 182 as written in the Manufacturers Pilots Operating Handbook

Extra 300LP Instructor Name: _____

Instructor Signature: _____

Date: ___/___/___ Expiry Date: ___/___/___

Other: Instructor Name: _____

Instructor Signature: _____

Date: ___/___/___ Expiry Date: ___/___/___

This is to certify that all Spin Training has been carried out in accordance with HKAC Aeroplane Training Manual Volume 2, Section 2.

Validity Period

AFI – Spin Training Certificate will be valid for 13 months

FI – Spin Training Certificate will be valid for 25 months



APPENDIX 5

Hong Kong Aeronautical Map

