Australian Government

Civil Aviation Safety Authority

Instrument Number: CASA.FSTD.0153 *File No: F16/586-1*

I, [redacted], Certificate Management Team Manager, Sydney Region, make this instrument:

(a) as authorised by CASA, under section 45.0 of the Civil Aviation Orders [***CAO***]; and

(b) as a delegate of CASA, under Part 61 of the Civil Aviation Safety Regulations 1998 [***CAR 1998***].

[redacted]
Certificate Management
Team Manager
Sydney Region

22 March 2016

Approval - Synthetic Trainer Certificate

1. Application

This instrument applies to the operation of an ELITE Airtrainer Model AT11 Category B Synthetic Trainer (Serial Number 11042) using software ELITE version 8.6 [*the* ***trainer***], by [redacted] (ARN 7[redacted]) [*the* ***operator***], at [redacted].

2. Approval

I approve the operator to operate the trainer as a category B synthetic trainer.

3. Conditions

This approval is subject to the conditions mentioned in the Schedule.

4. Expiry

This instrument remains in effect until the earlier of:

(a) the trainer being moved from the location at which it was assessed for this approval; or

(b) March 2017.

Sydney Region | Operations Division | GPO Box 2005 Canberra ACT 2601 | Telephone: 131-757 | e-mail: sydneyregion@casa.gov.au

Schedule to an approval granted under CAO 45.0 for a synthetic trainer

This schedule specifies the credits granted or use of a synthetic training device approved under CAO 45.0. For the credits specified, the synthetic trainer must be operated in accordance with the following conditions:

1. An Instructor authorised to conduct training in the activity must be present at the instructor station for the duration of the activity.
2. The synthetic trainer must be serviceable and approved for the purpose.
3. Training for the grant of a licence or rating must be conducted in accordance with the operators approved syllabus of training by an authorised instructor.

Note 1: credits for training in visual flight procedures are not approved.

Instrument rating recent experience

1.	Single pilot operations	61.875 (1)
2.	Instrument approach operations	61.685 (2) and 61.870 (2)
3.	2D instrument approach operations	61.685 (4) and 61.870 (4)
4.	3D instrument approach operations	61.685 (5) and 61.870 (5)
5.	Azimuth lateral guidance	61.685 (6) and 61.870 (6)
6.	Course Deviation Indicator (CDI) lateral guidance	61.685 (7) and 61.879 (7)

Note 3: Under CASR 61.685(3) and 61.870(3) a person must conduct at least 1 instrument approach operation in an aircraft of the same category within the previous 90 days to satisfy the recent experience requirements.

Part 4 – Type of instrument approach procedures

For 61.680 (4) and 61.860 (5), the following kind of instrument approach procedures can be demonstrated:

1. DGA
2. NDB
3. VOR and VOR/DME
4. LOC and LOC/DME
5. ILS
6. RNP APCH LNAV

[No additional details on this page below this line]

Approving officer's initials: _____

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CIVIL AVIATION SAFETY AUTHORITY AUSTRALIA

APPROVED SYNTHETIC TRAINER STANDARDS

Introduction

This form details the standards required for approved synthetic trainers.

These standards are set out as a checklist which can be used as the 'accreditation test guide'. The list is in two parts: *Part 1 - Physical Characteristics* and *Part 2 - Operating Characteristics*. Each part is further divided into sections under logical headings.

The form incorporates the requirements for all categories of synthetic trainer. The particular requirements for category B synthetic trainers are annotated with symbol (B). Category C synthetic trainers must meet all category B requirements, plus those annotated with the symbol (C).

Inspectors should be aware that the standards for switches and controls, other than flight controls, set out in Part 1 - Physical Characteristics is deliberately non-prescriptive. The word 'conventional', when applied to these items, should be taken in its broadest sense. The switches or avionics controls do not need to be 'realistic', they only need to be reasonably 'user friendly' and perform the functions required, thereby providing realistic cockpit management tasks.

Note: A copy of this document, and those subsequently used in recurrent fidelity checks, must be retained permanently with the trainer.

Synthetic Trainer Details

Operator: [redacted] ARN: [redacted]

Make: ELITE AIRTRAINER

Model: AT-11 Serial Number: 11042

Software Name: Elite version 8.6 Version Number: 8.6

Hardware Specification: Saitek Pro Controls & Elite Avionics Panel 4000 Shoot Stick

Synthetic Trainer Operations Manual

STOM satisfactory in all respects Yes ☑ No ☐ Serial No 11042.

Inspector's Certification

This synthetic trainer *satisfies/does not satisfy FSD 2 standards.
*(*delete as required)*

Inspector's Name: Ilka [redacted]

Signature:

Date: 22/3/16

PART 1 - PHYSICAL CHARACTERISTICS

1.1 General

Located in a dedicated area free from obtrusive light, noise or vibration ..... Yes ☑ No ☐

Size and shape of the enclosure compatible with the cockpit environment ..... Yes ☑ No ☐

Computer hardware capacity meets the minimum specification required to operate the software (where appropriate) ..... Yes ☑ No ☐

A pilot/s instructor intercom is provided ..... Yes ☑ No ☐

1.2 Pilot Station/s

Checklists are readily available for normal, simulated emergency and REAL emergency procedures ..... Yes ☑ No ☐

Size, general appearance and layout resemble a conventional single or multi-engine aircraft, as appropriate ..... Yes ☑ No ☐

Panel, instrumentation, switches, controls and their layout resemble that of a conventional aircraft ..... Yes ☑ No ☐

(C) Hardware and sound system standards applicable to flight simulators set out in subsections 11.1 and 11.4 of FSD 1 ..... N/A ~~Yes ☐ No ☐~~

The representation and functioning of any electronic or cathode ray tube displays are realistic, stable, free from distortion or other distracting phenomena ..... Yes ☑ No ☐

All cockpit instruments, indicators, switches and controls can be viewed simultaneously ..... Yes ☑ No ☐

Instrument and cockpit lighting are adequate ..... Yes ☑ No ☐

Pilots' normal field of view excludes all but the cockpit environment and is free from distractions ..... Yes ☑ No ☐

(B) A conventional pilot/s radio transmit facility is available for simulated radio communication ..... Yes ☑ No ☐

Aeroplane synthetic trainer controls and their indicators include:

- Control column or control wheel ..... Yes ☑ No ☐
- Rudder pedals ..... Yes ☑ No ☐
- Wing flap selector and position indicator (where appropriate) ..... Yes ☑ No ☐
- Undercarriage selector and position indicating system (where appropriate) ..... Yes ☑ No ☐
- Throttle/power lever/s ..... Yes ☑ No ☐

- Propeller control/s (where appropriate) ..... Yes ☑ No ☐
- Elevator trim and position indicator ..... Yes ☑ No ☐
- Rudder trim and position indicator in multi-engine synthetic trainers ..... Yes ☑ No ☐

(B) • A stall warning device ..... Yes ☑ No ☐

(B) • Mixture control (where applicable) ..... Yes ☑ No ☐

(B) • Carburettor heat control (where applicable) ..... Yes ☑ No ☐

- Fuel tank selector (where applicable) ..... Yes ☑ No ☐
- Fuel quantity indicator/s ..... Yes ☑ No ☐

~~Helicopter synthetic trainer controls and their indicators include:~~ ~~Yes ☐ No ☐~~

- Cyclic pitch control stick ..... Yes ☐ No ☐
- Collective pitch control lever ..... Yes ☐ No ☐
- Tail rotor control pedals ..... Yes ☐ No ☐
- Throttle (where applicable) ..... Yes ☐ No ☐

(B) • Throttle/speed select lever/s (where applicable) ..... Yes ☐ No ☐

(B) • Mixture control (where applicable) ..... Yes ☐ No ☐

- Cyclic trim switch ..... Yes ☐ No ☐
- Control friction ..... Yes ☐ No ☐
- ~~Fuel quantity indicator~~ ..... ~~Yes ☐ No ☐~~

1.3 Instructor Station

Checklists are readily available for normal and REAL emergency procedures ..... Yes ☑ No ☐

Instructor's console and controls are outside the pilots' field of view ..... Yes ☑ No ☐

The instructor's location is suitable to maintain surveillance of the pilot, the trainer's instruments and switches and the flight path display ..... Yes ☑ No ☐

The instructor can impose the effect of omni-directional wind on the trainer's flight path, with selectable increments of at least 30° in direction and 5 knots in speed up to at least 30 knots ..... Yes ☑ No ☐

A method of creating at least three levels of in-flight turbulence is provided ..... Yes ☑ No ☐

A flight path display is provided, in azimuth and elevation, relative to the navigation aid/s ..... Yes ☑ No ☐

The flight path display provides a record of the simulated flight path for student debrief ..... Yes ☑ No ☐

(B) The flight path display plots in relation to a representative current Australian radio navigation chart ..... Yes ☑ No ☐

(B) A system is provided for the instructor to distinguish between pilot/s intercom communication and simulated radio transmissions ..... Yes ☑ No ☐

1.4 Instrument Systems

Instrument presentation, markings and layout are 'conventional'... Yes ☑ No ☐

Basic operational instruments available include:

	Instrument	Minimum Range	
	• ASI	Appropriate, marked in knots	Yes ☑ No ☐
	• Altimeter	0 - 9 999 feet adjustable sub-scale in HPA	Yes ☑ No ☐
	• Compass	360°	Yes ☑ No ☐
	• Clock	Hours, minutes and seconds.....	Yes ☑ No ☐
	• VSI, for helicopters, IVSI	±1200 fpm	Yes ☑ No ☐
	• AI	Pitch +20,° -10° Roll ±60° for helicopters, a 5-inch display.....	Yes ☑ No ☐
(B)	• DG	360° adjustable heading bug.....	Yes ☑ No ☐
	• T & S/Turn Coordinator Slip only where extra AI is fitted. Slip only for helicopters	±Rate one	Yes ☑ No ☐
	• VSI	±2000 fpm	Yes ☑ No ☐

The following engine instruments with representative markings, including limitations, are fitted:

- Tachometer/propeller/rotor speed ..... Yes ☑ No ☐
- Manifold pressure/torque(where applicable)..... Yes ☑ No ☐
- Oil pressure..... Yes ☑ No ☐

1.5 Radio Navigation Systems

Instrument presentation, markings, layout, controls and frequency selection are 'conventional' ..... Yes ☑ No ☐

ADF or VOR is available for pilot navigation. ..... Yes ☑ No ☐

(B) Navigation aid frequency bands are conventional and tunable by the pilot/s ..... Yes ☑ No ☐

(B) Station identification morse code audio is pilot selectable for each aid and simultaneously available to the pilot/s and instructor ..... Yes ☑ No ☐

(B) Radio navigation stations available are representative of a current Australian radio navigation chart providing realistic instrument navigation exercises ..... Yes ☑ No ☐

(B) Each aid can be 'failed' from the instructor station ..... Yes ☑ No ☐

(B) Radio navigation aid capability to the following specifications is available: ..... Yes ☑ No ☐

Navigation Aid	Ground Stations (minimum)	Accuracy	
ADF	Three	Track ± 8° Origin ± 2nm	Yes ☑ No ☐
VOR	Three	Track ± 6° Origin ± 2nm	Yes ☑ No ☐
DME or GPS, indicator/s must provide both distance and rate of change of distance	DME - Three	Distance & Speed ± 10% Origin ± 2nm	Yes ☑ No ☐
LLZ	One, plus an omni directional aid for orientation and to intercept final	Track ± 0.5° Origin ± 1nm	Yes ☑ No ☐
Glideslope	One, associated with LLZ LOC	Slope ± 0.5% Origin ± 1nm	Yes ☑ No ☐
Marker Beacon	Outer and middle, associated with LLZ LOC	Satisfactory.....	Yes ☑ No ☐

PART 2 - OPERATING CHARACTERISTICS

2.1 Effects of Controls - Aeroplanes

Flight Controls

- **Elevator:**
  - Operation and effect are conventional ..... Yes ☑ No ☐
  - Control forces acceptable ..... Yes ☑ No ☐
- **Ailerons:**
  - Operation and primary effect are conventional ..... Yes ☑ No ☐
  - Secondary effect is conventional ..... Yes ☑ No ☐
  - Control forces acceptable ..... Yes ☑ No ☐
- **Rudder:**
  - Operation and primary effect are conventional ..... Yes ☑ No ☐
  - Secondary effect is conventional ..... Yes ☑ No ☐
  - Control forces acceptable ..... Yes ☑ No ☐
- **Wing Flap (where appropriate):**
  - Operation and indication are conventional ..... Yes ☑ No ☐
  - Effect on performance is conventional ..... Yes ☑ No ☐
- **Undercarriage (where appropriate):**
  - Operation and indication are conventional ..... Yes ☑ No ☐
  - Effect on performance is conventional ..... Yes ☑ No ☐
- Throttle/Power lever/s operation, indication and effects are conventional ..... Yes ☑ No ☐
- Propeller control/s operation, indication and effects are conventional ..... Yes ☑ No ☐
- Mixture control/s operation, indication and effects are conventional ..... Yes ☑ No ☐
- Carburettor heat control/s operation, indication and effects are conventional ..... Yes ☑ No ☐
- **Trim/s:**
  - Operation and indication are conventional ..... Yes ☑ No ☐
  - Effective in all configurations, speeds and power settings ..... Yes ☑ No ☐
  - Any other controls operation, indication and effects are conventional ..... Yes ☑ No ☐

2.2 Effects of Controls - Helicopters

Flight controls

- **Cyclic:**
  - ~~Operation and effect are conventional~~ ..... Yes ☐ No ☐
  - Control forces minimal ..... Yes ☐ No ☐
- **Collective/(throttle where appropriate):**
  - Operation and primary effect are conventional ..... Yes ☐ No ☐
  - Secondary effect (yaw) is conventional ..... Yes ☐ No ☐
  - Control forces acceptable ..... Yes ☐ No ☐
- **Tail rotor pedals:**
  - Operation and primary effect are conventional ..... Yes ☐ No ☐
  - Secondary effect (roll) is conventional ..... Yes ☐ No ☐
  - Control forces minimal ..... Yes ☐ No ☐
- **Undercarriage (where appropriate):**
  - Operation and indication are conventional ..... Yes ☐ No ☐
  - Effect on performance is conventional ..... Yes ☐ No ☐
- **Mixture control/speed select lever/s (as appropriate):**
  - Operation, indication and effects are conventional ..... Yes ☐ No ☐
- Cyclic trim operation and effect are conventional ..... Yes ☐ No ☐
- ~~Any other controls operation, indication and effects are conventional~~ ..... Yes ☐ No ☐

2.3 Instrument Systems

The accuracy of the following instruments is adequate, they respond realistically to control inputs and, where appropriate, all changes in configuration, speed and power within the attitude limits of the trainer.

- ASI ..... Yes ☑ No ☐
- Altimeter ..... Yes ☑ No ☐
- Compass ..... Yes ☑ No ☐
- Clock ..... Yes ☑ No ☐
- VSI ..... Yes ☑ No ☐
- AI ..... Yes ☑ No ☐
- DG ..... Yes ☑ No ☐
- T & S or Turn Coordinator ..... Yes ☑ No ☐

2.4 Handling - Aeroplanes

Performance in climb, cruise and descent is conventionally related to power and attitude ..... Yes ☑ No ☐

Total drag is accurately represented with a realistic minimum drag speed (it may be necessary to plot speed/power relationship in level flight) ..... Yes ☑ No ☐

Longitudinal, directional, lateral and dutch roll stability is adequate Yes ☑ No ☐

Representative increase in elevator back pressure and corresponding decrease in speed during level turns ..... Yes ☑ No ☐

Slip/skid and effect of rudder while turning is conventional ..... Yes ☑ No ☐

Turns at high speed, including spiral dive effects are conventional ..... Yes ☑ No ☐

Stalling, with or without power, and stall in a turn is conventional ..... Yes ☑ No ☐

Unusual attitude recovery realistic (within the attitude limits of the trainer) ..... Yes ☑ No ☐

Note: If software limitations limit normal indication of any flight instrument to a limited range of pitch and/or bank, those limits become the limits of the trainer unless the trainer limits are less. A normal indication is one which an observer would expect to see in an aircraft conducting the same manoeuvre.

Indications, effects and procedures for simulated systems failures are conventional.. Yes ☑ No ☐

(B) Effectiveness of flight controls varies with IAS ..... Yes ☑ No ☐

(B) Stalling is aerodynamically simulated and dependent on angle of attack, flap setting or configuration; stall warning is operative ..... Yes ☑ No ☐

(B) Power available decreases conventionally (where appropriate) with increasing altitude ..... Yes ☑ No ☐

(B) Cruise IAS decreases conventionally (where appropriate) with increasing altitude.... Yes ☑ No ☐

(C) Performance and flight characteristics which essentially simulate that of the specific aeroplane ..... N/A Yes ☐ ~~No~~ ☐

2.5 Handling - Helicopters

~~Performance in climb, cruise and descent is conventionally related to collective~~ pitch, power and attitude ..... Yes ☐ No ☐

Total power requirement is accurately represented with a realistic minimum power speed ..... Yes ☐ No ☐

Helicopter stability characteristics are adequately represented ..... Yes ☐ No ☐

Representative back stick and corresponding speed reduction in level turns ..... Yes ☐ No ☐

Slip/skid and effect of yaw control while turning is conventional ..... Yes ☐ No ☐

Unusual attitude recovery realistic ..... Yes ☐ No ☐

Indications, effects and procedures for simulated systems failures are conventional.. Yes ☐ No ☐

(B) Flare effect on rotor RPM during descent is adequately represented ..... Yes ☐ No ☐

(B) Power available decreases conventionally with increasing altitude ..... Yes ☐ No ☐

(B) Cruise IAS decreases conventionally with increasing altitude ..... Yes ☐ No ☐

(C) Performance and flight characteristics essentially represent those of the specific helicopter ..... Yes ☐ No ☐

2.6 Radio Navigation systems

	Inter-relationship between indicated air speed, heading, ground speed and track made good is accurate	Yes ☑	No ☐
	Effect of selected wind velocities is accurate	Yes ☑	No ☐
	All aids meet accuracy requirements, *see Part 1*	Yes ☑	No ☐
	ADF needle sensitivity, overhead, tracking and fail indication are conventional	Yes ☑	No ☐
	VOR needle sensitivity, overhead, TO/FR, tracking and fail indication are conventional	Yes ☑	No ☐
	Flight path recorder accurately reflects ground speed and track made good from aid/s	Yes ☑	No ☐
(B)	Indicated tracks and distances between ground stations corresponds to same route on radio navigation chart	Yes ☑	No ☐
(B)	DME or GPS sensitivity, time/distance equation, overhead and fail indication are conventional	Yes ☑	No ☐
(B)	LLZ needle sensitivity, tracking and fail indication are conventional ...LOC...	Yes ☑	No ☐
(B)	Glideslope needle sensitivity, tracking and fail indication are conventional	Yes ☑	No ☐
(B)	Glideslope relationship to altitude, DME or GPS and marker beacon/s are accurate	Yes ☑	No ☐
(B)	The flight path display is accurate to ±5 degrees for tracking and ± 10% in distance flown.	Yes ☑	No ☐