Flight Crew Competency Based Training Framework
Fixed-Wing Transport Category Operations

Version 1, May 2015
1. Introduction

Prescriptive stipulation of minimum hour requirements for flight crew has been a common practice used by clients and insurers alike in the aviation industry as a measure of flight crew competence. The underlying assumption being flight time experience accrued equated to a commensurate level of competence. Unfortunately this approach does not recognise quality of flight time, knowledge and practical experience gained by the flight crew member in their individual circumstances. Simply put, the blind spot in focusing on prescriptive minimum hours is that the type and quality of flying hour is not considered. An individual who has logged thousands of hours in one location, on one aircraft type and in the same role is not automatically a ‘better pilot' when compared to an individual with the half the flight time, but with rich and varied flight operations experience across a variety of aircraft types, roles and responsibilities.

One of the ongoing difficulties facing aircraft operators today is being able to recruit and progress qualified flight crew members through to command positions in a planned and structured manner. This is particularly true where client companies or insurers set industry accepted minimum experience criteria that do not provide adequate opportunity for career progression from Co-Pilot to Captain. In periods of airline expansion the charter operators who provide the pool of eligible recruits are quite often forced to fill the void with flight crew who meet the minimum hour requirements on paper rather than focus on individuals who have demonstrated the appropriate levels of competency for promotion.

While some regulatory bodies and the airlines industry in general have developed and implemented a competency based training system, the same cannot be said for the sector focused on providing support to the charter industry.

2. Purpose

The purpose of this paper is to provide a framework for competency based training that can be used in lieu of mandating a minimum number of flying hours. The framework must be presented in a format that is clear, objective and easily auditable that will in turn provide the necessary assurance for client companies.

3. Competency Based Training (CBT)

An industry accepted CBT program will remove prescriptive stipulation of minimum number of hours and replace it with a structured approach designed to develop and progress individual flight crew members primarily based on competency. Based on historical experience, there will still necessarily need to be some form of measure of time-related experience both for entry into and exit from a CBT program. However, an added focus on competency provides the mechanism to move beyond a one-dimensional approach of simply looking at flying hours alone. An acceptable CBT program must be systematic in its approach with evidence of:

- Training for a licence, rating or endorsement conducted to approved standards;
- A training program that is clearly documented in a logical, effective and relevant manner;
- All results correctly and comprehensively recorded;
- Assessments that are rigorous, standardised and measured against approved standards;
- Training that is validated by summative tests.
4. 8 Elements of CBT Framework

An approved CBT framework must, at a minimum, comprise of 8 key elements that each are clearly identified, documented and able to be sampled during an audit process. These elements are:

4.1 Selection Process

The aircraft operator’s CBT System shall have a documented selection process for all flight crew that involves representatives from both the Training Department and Flight Operations and their documented sign-off and approval. The selection process will include the Head of Check and Training (HOCT) and the Chief Pilot, or their nominated delegates and should incorporate some form of simulator evaluation. Selected candidates for the CBT program will meet or exceed the following requirements:

- Class 1 Medical
- 1500 hours total time
- 500 hours multi-engine time
- 100 hours Command time
- Commercial Aeroplane Licence
- Multi-Engine Instrument Rating

Accepting candidates that do not meet the aforementioned requirements can be accommodated but must be on the basis of a pre-CBT simulator session assessed as meeting an acceptable standard. The focus of the assessment should be on whether the candidate possesses necessary flying skills and learning aptitude for CBT program entry. Such an assessment should include progressively more involved sequences to be flown rather than a straightforward assessment of instrument approach flying skills.

4.2 Flight Crew Category System

The Aircraft Operator will have a Category system (or similar) that provides the framework for flight crew progression. Appendix 1 outlines suggested minimum requirements for such a system. In assessing the competencies the focus should be on achieving the published syllabus requirements to a satisfactory standard, not just on accruing hours on type. Consequently the required competencies may be achieved in less than prescriptive hour requirements if only short sectors are flown (e.g. short haul vs long haul operations) allowing an individual greater opportunity and exposure to the skills required for progression. The structure of the CBT program should recognise this if appropriate for the route structure being flown.

A key component of any CBT system is in the successful attainment of competencies associated with instrument flying, and all supporting modes of automation. It is expected that any candidate for a CBT program will already hold a Multi-Engine Instrument Rating as it is a core competency requirement for the role. However, the focus of the CBT is not on just simply ‘box ticking’ specific instrument approaches to a required standard, it is on the employment of instrument flying skills throughout the range of operational scenarios, both normal and abnormal, that the flight crew member is likely to face in the operational environment.

4.3 Assessment for Progression

The Aircraft Operator will have a Training and Checking Manual that will include the following documented requirements:

- A syllabus that reflects each stage along with aim, objective and outcomes for each training element
- Minimum competencies required for each level of progression
- Ground school training programs and examination requirements
• Airborne training programs and examination requirements
• Simulator training programs and examination requirements
• Category Upgrade checking forms
• Proficiency Check and Line Check forms
• Competencies, training and standardisation requirements for Training and Checking staff

Each candidate undergoing progression using a CBT system will have a comprehensive training file, identifying each stage of progression with all the necessary endorsements and approvals from the HOCT and the Chief Pilot. The training file forms one key component of the audit trail for the CBT program.

4.4 Use of Simulators

Use of a regulatory approved full motion simulator is a minimum mandatory requirement for the conduct of a CBT program. While a type-specific full motion flight simulator provides the required level of realism and therefore the most realistic training, other flight training devices may be used to supplement the training where appropriate (e.g. computer based training for familiarisation with the Flight Management System).

The following minimum requirements must be in place to support a CBT program:

• Line Oriented Flight Training (LOFT) and Crew Resource Management (CRM) developed by and/or endorsed by the Aircraft Operator must form part of the syllabus.
• CRM is to be assessed during all simulator training sessions.
• Aircraft Operator’s own Simulator Flying Instructors/Examiners (SFI/SFEs) are to be used for both LOFT exercises and during any assessments for category upgrade.
• Localised experience and evidence-based scenarios are to be considered for development of LOFT exercises.

4.5 Training and Checking Manual Inclusions

The aircraft operator’s Training and Checking Manual will include a description and aims of the CBT program including means by which aircraft operator Type Rating Instructor (TRI) or Type Rating Examiner (TRE) standardisation is achieved.

In addition to the use of simulation, thorough and documented Line and Proficiency Checks must be conducted and the candidate assessed for continued progression on each training element. A panel comprising at least one TRI/TRE and Chief Pilot (or delegate) must jointly approve each stage of progression.

Training and recommendations for advancement will only be conducted by TRI/TREs as delegated by the National Aviation Authority in their Instrument of Approval and Delegation. Line Training may also be conducted by Line Training Captains (LTC) nominated by the HOCT in accordance with the requirements specified in the Training and Checking Manual.

4.6 Instrument and Night Flying

A core focus on instrument flying skills must be established maintained throughout the entire CBT program. The CBT must place an emphasis on instrument and night operations being treated as one and the same. Instrument flying skills are critical for all operations, and the CBT design will include a need for high levels of proficiency with the aircraft type’s automation and backup modes of aircraft operation. The aptitude and ability of a candidate’s ability to fly under the Instrument Flight Rules for day/night and manage all modes of automation in normal and abnormal operations must be clearly documented with relevant endorsements and approvals throughout progression towards Command.
4.7 Lateral Recruitment

Circumstances will commonly arise when the experience level of an applicant exceeds the entry-level requirements as outlined in 4.1. For example:

- a piston engine pilot may have substantial multi-engine, multi-crew experience, but no turbine time or operational IFR experience,
- a pilot may have substantial Flight Management System (FMS) experience but no time on type, or
- a type rated an experienced captain without any recent experience.

Such cases require development of tailored CBT program that suit the individual’s circumstances, while still meeting the intent of the category system.

The process by which an aircraft operator assesses the prior experience and develops specific programs must be documented and provide consistent guidance that supports shortening the category framework.

4.8 Command Upgrade

At the culmination of the program, the Command Upgrade check must incorporate the following elements:

- ground training that addresses:
  - the technical aspects of the aircraft,
  - aviation law and command authority,
  - crew and passenger management,
  - airmanship,
  - situational awareness,
  - commercial and client specific requirements, and
  - all qualities that combine to make a good Aircraft Captain.

- a Proficiency Check (conducted in the simulator) with a focus on in-flight emergency management of the aircraft;

- a series of Line Checks (conducted in the aircraft) associated with operational management of routine flights;

5. Conclusion

The development of an industry agreed Competency Based Training framework provides the catalyst for Operators to choose to move away from the prescriptive approach historically used to recruit and promote flight crew to command positions. The incorporation of a robust CBT program will provide transparency into the operator’s training regime and allow the necessary auditable assurance demanded by all clients of the industry.

Appendix 1  CBT PROGRAM OVERVIEW
Appendix 2  CBT PROGRAM AUDIT PROTOCOL – to be issued
<table>
<thead>
<tr>
<th>Pilot Category</th>
<th>Overview</th>
<th>Suggested Training Requirements &amp; Outcomes</th>
<th>Suggested Duration</th>
<th>Competencies</th>
</tr>
</thead>
</table>
| E              | Entry phase. The candidate is not yet type rated and may not necessarily have multi-crew or practical IFR experience. | 1. Completed pre-CBT simulator evaluation.  
2. Technical Ground School.  
3. All aircraft systems and flying training are to be conducted on either the aircraft, or combination of aircraft and simulator.  
4. Instrument rating conducted on type.  
5. CRM training.  
7. Operator Proficiency Check: clearance to progress to Cat D. | 1. Defined sequences with simplified aircraft configurations and power settings.  
2. Technical ground school program (includes FMS training if applicable) + initial flying training with TRI/TRE, including initial aircraft endorsement. Technical, operational, Flight Manual review, Operations Manual review, Dangerous Goods awareness.  
3. Approximately 35 hours instrument time with TRI/TRE (may all be in simulator). Defined training syllabus – normally 7 to 8 simulator sessions of 4 hours plus final assessment.  
4. Conducted in the simulator  
5. CRM  
6. Emergency Procedures  
7. Minimum of two (2) hours, with TRI/TRE. May be conducted in simulator. | Candidate must hold as a minimum: a CPL (A) licence with 1500 hours total time, 500 multi-engine hours, 100 hours command time and ATPL theory at commencement.  
On completion, the candidate will have a type rating and Instrument rating, together with any additional legislative or contractual requirements. |
| D              | Line training phase commences. | 1. Line operations. Exposure to a representative sample of routes and instrument approaches as both Pilot Flying (PF) and Pilot Not Flying (PNF). Shall include night flying.  
2. Discussions with LTC to include abnormal and emergency operations and performance related issues.  
3. Line Check: clearance to progress to Cat C. | 1. Focus on routine operations including exposure to a representative sample of routes and instrument approaches from copilot seat. A minimum of 3 of each type of instrument approach shall be flown as both PF and PNF. Minimum of 20 sectors with LTC. A sector shall be regarded as a flight between the departure and destination airfields, where all normal checklists are employed.  
2. Normally conducted in cruise flight, but may be accomplished 1:1 with trainee and LTC in classroom environment.  
3. With TRI/TRE. 4 sectors, involving both administrative and flying duties as PF and PNF. | Consistent, safe handling.  
Clear to line as a competent copilot. |
| C | Supervised consolidation flying. | 1. Supervised line flying.  
2. Line Check: clearance to progress to Cat B. | 1. Right hand seat flying only with LTC to syllabus defined minimum criteria. Must cover all normal, abnormal and emergency considerations and include client specific requirements. Recommended minimum time 200 hours.  
2. With TRI/TRE. 4 sectors, involving both administrative and flying duties as PF and PNF. | Perform copilot duties with minimal supervision.  
Sound application and understanding of all normal and emergency operations. |
| B | Copilot line flying phase. | 1. Line flying with indirect supervision.  
2. Will include 6-month simulator Proficiency Check.  
3. Category A Upgrade Check: clearance to progress to ICUS phase. | 1. 500 hours or six months on type (assumes flight hours accrued at 1 000 hours per annum): may be crewed with line captains. During this phase, the line captain is to possess at least 500 in command on the aircraft type.  
2. 2 x 4 hour simulator sessions covering training elements and the equivalent of IRR. Conducted by TRI/TRE.  
3. With TRI/TRE. Will include both line and simulator flying. | Consistent, safe handling in all operational conditions.  
High level of theoretical and technical knowledge.  
Manages complex emergencies.  
Employs CRM skillset throughout. |
| A | Command Endorsement phase. | 1. Command Upgrade course consisting of the following minimum elements: Legal aspects of Command, Regulatory Requirements, Aircraft performance, Supervision of crew (on and off duty), Technical Ground School refresher, Command CRM, Leadership and Interpersonal Skills required for command, Effective communication, Supervision of flying by First Officers and Effective decision making.  
2. LHS flying in simulator. All sessions with designated ICUS training captain.  
3. Command upgrade assessment: clearance to progress to command phase. | 1. Conducted by Head of Check and Training or delegate.  
2. Minimum of 5 x 4 hour sessions covering all aspects of aircraft operation in normal and emergency operations.  
3. With TRI/TRE: conducted in a simulator. | Candidate must possess ATPL (A) theory subjects.  
Command standard in normal and emergency theory, skill and multi-crew procedures. |
| Command Upgrade | Command upgrade phase. | Command Upgrade. Suggested requirements:  
1. Not less than 50 sectors on type.  
2. Minimum of 40 hours of ICUS line flying.  
3. Line check (aircraft) | 1. Time must be accrued in aircraft. May consist of time as co-pilot and ICUS.  
2. Flown with ICUS training captain as both PF and PNF. Must include consideration of co-pilot supervision throughout the range of flight operations.  
3. Line check with TRE.  
| Command standard in normal and emergency theory, skill and multi-crew procedures.  
Successfully completed all Training and Checking Manual competencies.  
Completed all instrument rating requirements, including recency, to command standard. |