FIJI AERONAUTICAL INFORMATION CIRCULAR

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TRAINING PROGRAMS AND FLIGHT CREW MEMBER QUALIFICATIONS "DIFFERENCES TRAINING" ALL TRAINING CATEGORIES

1. Background

1.1 Due to differences in instrumentation and installed equipment, the skills and knowledge required to operate variation(s) of an aircraft type can differ. Due to technological advancements, the range of differences between variations of an aircraft type can be significant. Flight crew members trained on one variation of an aircraft type may require additional training to safely and efficiently operate other variation(s) of that aircraft type. As such, differences training must be based on an accurate analysis of the differences in design and manoeuvres of the aircraft involved.

2. Definitions / Abbreviations:

2.1 For the purpose of this AIC the following definitions apply:

Base Aircraft - An aircraft identified by the applicant and used as a reference to compare differences with another aircraft.

Difference Levels - Difference levels are formally determined levels of training methods or devices, checking methods, or currency methods that satisfy difference requirements between related aircraft. A range of five difference levels in order of increasing requirements, identified as A through E, are specified for training, checking, and currency purposes.

Flight crew member - means a licensed crew member charged with duties essential to the operation of the aircraft during a flight duty period.

FSTD - flight simulation training device, a flight simulator, which provides an accurate representation of the flight deck of a particular aircraft to the extent that mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of the flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated.

Master Difference Requirements (MDR) - MDRs are those requirements applicable to pilot training and qualifications that pertain to differences between related aircraft. MDRs are specified by the FSB in terms of the minimum difference levels. MDRs form the basis for an operator to develop their operator differences requirements (ODR).

Operator Difference Requirements (ODR) - If differences exist within an operator's fleet that affect pilot knowledge, skills, or abilities pertinent to systems or procedures, ODR tables provide a uniform means for operators to comprehensively manage differences or related aircraft differences training programs and provide a basis for FAA approval of mixed fleet flying.

3. Identification of Base Aircraft

3.1 To develop differences training, an operator must first identify a base aircraft and the variant(s) of the aircraft.

3.2 Base Aircraft.

The base aircraft is the aircraft or group of aircraft identified by the operator for use as a reference to compare differences with other aircraft within the operator's fleet. This comparison of differences between aircraft is for items that affect, or could affect, flight crew knowledge, skills, or abilities pertinent to flight safety. Operators identify base aircraft by the registration (such as "DQ-FJE"), the make, model, and series (M/M/S) (such as "A330-200"), and/or other classifications that can uniquely distinguish between the operator's different aircraft pertaining to the different configurations, handling characteristics, performance procedures, limitations, controls, instruments, indicators, systems, equipment, options, or modifications. A base aircraft may either be a single aircraft or a group of aircraft with the same features and may be changed at the discretion of the operator. Base aircraft are typically those aircraft within a fleet in which flight crew members are first trained, of which the operator has the greatest number, or which represent a target configuration for the operator to eventually use as a standard.

3.3 Variation(s) of the Aircraft Type.

A variation of the aircraft type is an aircraft or a group of aircraft with the same TC as the base aircraft. A variation of the aircraft type has the same features as the base aircraft. If the variation(s) of the aircraft type has pertinent differences from the base aircraft, a differences training is required. Pertinent differences are those that could affect flight safety. Typical pertinent differences are those relating to configuration, handling qualities, performance, procedures, limitations, controls, instruments, indicators, systems, equipment, options, or modifications. For example, a Boeing 737-200 ADV with a performance data computer system, Omega, SP-177 autopilot, dual cue flight director (FD), and auto land is a different variation than another Boeing 737-200 ADV with a single cue FD, SP-77 autopilot, and basic very high frequency omni-directional range station/distance measuring equipment (VOR/DME) navigation equipment. An operator may have a number of variations in addition to a base aircraft within a fleet.

4. Specific Situations Requiring Differences Training

4.1 For the purposes of this AIC:

- When an operator contracts for training from another party or conducts training in a leased flight simulation training device (FSTD) or aircraft with instrumentation or equipment different from the aircraft operated by the operator.

- When an operator generates a need for differences training by introducing a variation of an aircraft into an existing fleet that has pertinent differences from the base aircraft.
- When an operator generates a need for differences training by creating a variation with pertinent differences by modifying one or more aircraft in the fleet.
- When mergers and acquisitions generate the need for fleets to be merged in operations.

5. Degrees of Differences

5.1 Master Differences requirements are drafted by the manufacturer and certifying authorities, namely the FAA's Flight Standardization Board (FSB). The operator must ensure that the methods used to conduct differences training are appropriate to the degree of difference between the base aircraft and the variation(s). For the purposes of describing degrees of difference and for defining acceptable training and checking methods, five levels of differences have been defined; Levels A - E. These levels are compatible with those described in the manufacturer reports, but are discussed here primarily for guiding operators in selecting differences training where a report does not exist for the aircraft type.

5.2 Level A Differences.

Level A differences are those differences of which the flight crew member needs to be aware, but which have little effect on systems operations. For example, an engine starter on one variation has different time limits but does not have differences in controls, indicators, function, or procedures. Self-instruction methods, such as highlighted pages of operating manuals or training bulletins, are acceptable for these differences. For Level A differences, checking is not required.

5.3 Level B Differences.

Level B differences are those differences in systems, controls, and indicators that have only minor procedural differences. Level B differences are of great enough degree to require formal training in general operational subjects, aircraft systems, or both, but are not of great enough degree to require systems integration training. An example of a Level B difference is a fuel system with additional fuel tanks, pumps, and gauges. Procedural differences are limited to the operation of transfer valves and pumps while an aircraft is in cruise flight. Appropriate instructional methods for Level B differences include, but are not limited to, audio visual presentations, lectures, and computer-based instruction (CBI). A task or systems check for Level B differences must be conducted after training.

5.4 Level C Differences.

Level C differences are part task differences of flight crew member knowledge, skills, and/or abilities. Level C differences are those differences of great enough degree to require a systems integration training module but that are not of great enough degree to require actual flight. An example of a Level C difference is the installation of a flight management system (FMS) computer. Appropriate training devices in the systems integration module are dedicated systems trainers or Level 4 or higher FSTDs. Level C differences require a check following training. Appropriate devices are the same as for Level C training. Checking methods appropriate to Level C differences are demonstrations of skill in the procedures affected by the difference. In the case of the installation of an FMS computer, checking might consist of pre-flight programming of the computer and a demonstration of its use in navigation, climbs, and descents.

5.5 Level D Differences.

Level D differences are full task differences of flight crew member knowledge, skills, and/or abilities. Level D differences are those differences for which there is a requirement for flight training modules in a Level 6 or higher FSTD. When Level D differences exist between two aircraft, general operational subject modules, aircraft systems modules, and systems integration modules may be required. An example of a Level D difference is the installation of an electronically integrated flight instrumentation display. Aircraft operations using such a display are required to contain flight training in most phases of flight. Level D differences require a check following training. The check must be conducted using scenarios representing a real-time flight environment.

5.6 Level E Differences.

Level E differences are such significant full task differences that a “high fidelity” environment is required to attain or maintain knowledge, skills, or abilities. Level E differences are those differences for which there is a requirement for flight training, including landing events. An example of a Level E difference is the installation of a Short Take-off and Landing (STOL) kit on an aircraft, resulting in a very different flare and landing attitude. A Level C or D full flight simulator (FFS) or an aircraft is required for flight training in Level E differences. Checking for Level E differences requires a full proficiency check in a Level C or D FFS or an aircraft.

6. Methods for Accounting Differences

There are several acceptable methods that operators may use to account for differences.

6.1 Standardised Configurations.

The simplest and most traditional method for operators to use when dealing with differences is to avoid them by installing common instruments and equipment in each aircraft in the fleet.

6.2 Separate Fleets.

Some operators treat variations of an aircraft type as if they were different aircraft by developing separate curricula for each variation and by scheduling flight crew members to operate only those variations of the aircraft types on which they have been trained.

6.3. Integrated Training.

An operator can conduct differences training as an integral part of each of the six defined categories of training. For example, an initial equipment Boeing 737 ground training curriculum segment may include a training module which includes training on the power plant for the Boeing 737-NG and training on the power plant for the Boeing 737-MAX.

6.4 Separate Differences Curriculum Segments.

The operator may choose to limit instruction throughout a curriculum to one specific base aircraft and then conduct training as to the differences present in variation(s) of the aircraft type as a separate and distinct curriculum segment. For example, an operator might designate the NG-series aircraft as the base aircraft in a transition Boeing 737 second-in-command (SIC) curriculum. Ground, flight, and qualification curriculum segments would be based on this aircraft. At an appropriate point in the instruction, a distinct curriculum segment would be presented to cover differences in the MAX-series aircraft. This method is advantageous when the operator operates numerous variations of an aircraft type.

7. Recurrent Differences Training and Checking

When operators schedule flight crew members on multiple variations of an aircraft, some form of differences training must be included in the recurrent training curriculum. The amount and type of required training and checking depends on the degree of differences involved and the operator's circumstances. Level A differences should be reviewed within recurrent ground training curriculum segments. Level B differences require a task or systems check. Levels C, D, and E differences require some degree of proficiency checking in an FSTD or aircraft.

8. Seat-Dependent Training

Flight Crew operating aircraft from the left and right pilot seats are frequently confronted with special skill and training requirements. The differences in flight crew member duties and skill requirements vary from insignificant to highly significant in different makes and models of aircraft. For this reason, CAAF shall evaluate an operator's seat-dependent training requirements on a case-by-case basis. CAAF may require that operators use a differences evaluation (as described in this section) for making this determination.

Example of 'Differences Evaluation' Worksheet

BASE AIRCRAFT	VARIATION OF THE AIRCRAFT
Aircraft Systems Subject Areas	
Hydraulic System	
• Pumps	Pneumatic pump deleted; electric pump added
• Supply	No change
• System A Components	Yaw damper added
• System B Components	Deleted
• Ram Air Turbine	Electrical pump time
• Limitations	Yaw damper off below 100 feet
Electrical System	No change
Air Conditioning System	No change
Systems Integration Subject Areas	
Normal Procedures	
• Navigation System	Inertial New procedures
Non-Normal Procedures	
• Hydraulic Fluid Loss	No change
• Hydraulic Pump Failure	Different procedures
• Hydraulic Fluid Overheat	No change
• Electrical System	No change
Flight Training Manoeuvres and Procedures	
Normal Procedures	Different procedures
Prefight	Differences
No-Flap Approach	Different procedures
Loss of Pressurization	No change
One-Engine-Inoperative Approach	Different procedures