

CHAPTER 37

OPERATION ON MORE THAN ONE TYPE OR VARIANT

1.0 PURPOSE

This chapter provides guidance and procedures to Inspectors to determine differences or similarities existing within aircraft grouping before approving or rejecting operations on more than one type or variant.

2.0 Reference Regulations

Nig. CARs 8.4.1.16

3.0 Applicability

Applicable to operators and individuals holding Nigeria licenses requesting authorization to operate on more than one type or variant. Applicable to operations of aircraft of same operator.

3.1 Terminology

The terms used in the context of the operation of more than one type or variant have the following meaning:

- (1) Base aircraft means an aircraft used as a reference to compare differences with another aircraft.
- (2) Variant means an aircraft or a group of aircraft within the same Pilot or Cabin Crew type rating that has differences to the base aircraft requiring difference training or familiarisation training.
- (3) Credit means the recognition of training, checking or recent experience based on commonalities between aircraft. For substantiation of the credits ODR tables or other appropriate documentation for comparison of the relevant aircraft characteristics may be provided.
- (4) Operator Difference Requirements (ODRs) mean a formal description of differences between types or variants flown by a particular operator.

3.2 Philosophy

- 3.2.1 The concept of operating more than one type or variant depends upon the experience, knowledge and ability of the operator and the crew concerned.
- 3.2.2 The first consideration is whether or not aircraft types or variants are sufficiently similar to allow the safe operation of both.
- 3.2.3 The second consideration is whether or not the types or variants are sufficiently similar for the training, checking and recent experience. All training, checking and recent experience requirements should be completed independently for each type or variant.

3.3 Methodology – Use of Operator Difference Requirement (ODR) Tables

- 3.3.1 Before assigning Flight Crew or Cabin Crew members to operate more than one type or variant of aircraft, the operator should conduct a detailed evaluation of the differences or similarities of the aircraft concerned in order to establish appropriate procedures or operational restrictions. This evaluation should take into account of the following:

- (i) the level of technology;
- (ii) operational procedures; and
- (iii) handling characteristics.

3.3.2 The methodology described below should be used as a means of evaluating aeroplane differences and similarities to justify the operation of more than one type or variant, and when credit is sought.

3.3.3 ODR tables

3.3.3.1 Before requiring flight crew members to operate more than one type or variant, operators should first nominate one aircraft as the base aircraft from which to show differences with the second aircraft type or variant, the 'difference aircraft', in terms of technology (systems), procedures, pilot handling and aircraft management. These differences, known as operator difference requirements (ODR), preferably presented in tabular format, constitute part of the justification for operating more than one type or variant and also the basis for the associated differences/familiarisation or reduced type rating training for the flight crew.

3.3.4 The ODR tables should be presented as follows:

GENERAL OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: BASE AIRCRAFT:				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
General	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
GENERAL	Range ETOPs Certified	No	Yes		CBT					
DIMENSIONS	Configuration per AFM, FCOM	Yes	No		CBT					



SYSTEM OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: BASE AIRCRAFT:				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
System	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
21 – AIR CONDITIONING	CONTROLS AND INDICATORS: - Panel layout	No	Yes							
21 – AIR CONDITIONING	PACKS: - Switch type - Automatically controlled - Reset switch for both packs	No	Yes		CBT					

MANEUVER OPERATOR DIFFERENCES REQUIREMENTS TABLE										
DIFFERENCE AIRCRAFT: BASE AIRCRAFT:				COMPLIANCE METHOD						
				TRAINING					CHKG/CURR	
Manoeuvre	Differences	Flt char	Proc chg	A	B	C	D	E	FLT CHK	REC EXP
Exterior Preflight	Minor differences	No	No							
Preflight	Differences due to systems, ECL	No	Yes		CBT	FTD				
Normal takeoff	FBW handling vs Conventional; AFDS TAKEOFF: - Autothrottle engagement FMA indications	No	Yes		CBT			FFS		

3.3.5 Compilation of ODR Tables

3.3.5.1 ODR 1: General

The general characteristics of the candidate aircraft are compared with the base aircraft with regard to:

- (A) general dimensions and aircraft design (number and type of rotors, wingspan or category);
- (B) flight deck general design;
- (C) cabin layout;
- (D) engines (number, type and position);
- (E) limitations (flight envelope).

3.3.5.2 ODR 2: Systems

Consideration is given to differences in design between the candidate aircraft and the base aircraft. For this comparison the Air Transport Association (ATA) 100 index is used. This index establishes a system and subsystem classification and then an analysis performed for each index item with respect to the main architectural, functional and operations elements, including controls and indications on the systems control panel.

3.3.5.3 ODR 3: Manoeuvres

Operational differences encompass normal, abnormal and emergency situations and include any change in aircraft handling and flight management. It is necessary to establish a list of operational items for consideration on which an analysis of differences can be made.

The operational analysis should take the following into account:

- (A) flight deck dimensions (size, cut-off angle and pilot eye height);
- (B) differences in controls (design, shape, location and function);
- (C) additional or altered function (flight controls) in normal or abnormal conditions;
- (D) handling qualities (including inertia) in normal and in abnormal configurations;
- (E) aircraft performance in specific manoeuvres;
- (F) aircraft status following failure;
- (G) management (e.g. ECAM, EICAS, navaid selection, automatic checklists).

3.3.5.4 Once the differences for ODR 1, ODR 2 and ODR 3 have been established, the consequences of differences evaluated in terms of flight characteristics (FLT CHAR) and change of procedures (PROC CHNG) should be entered into the appropriate columns.

3.3.5.5 Difference Levels - crew training, checking and currency

- (A) The final stage of an operator’s proposal to operate more than one type or variant is to establish crew training, checking and currency requirements. This may be established by applying the coded difference levels from the Table at paragraph 3.3.5.7 to the compliance method column of the ODR Tables.
- (B) Differences items identified in the ODR tables as impacting flight characteristics, or procedures, should be analysed in the corresponding ATA section of the ODR manoeuvres. Normal, abnormal and emergency situations should be addressed accordingly.

3.3.5.6 Difference Levels

3.3.5.6.1 Difference levels — General

3.3.5.6.2 Difference levels are used to identify the extent of difference between a base and a candidate aircraft with reference to the elements described in the ODR tables. These levels are proportionate to the differences between a base and a candidate aircraft. A range of five difference levels in order of increasing requirements, identified as A through E, are each specified for training, checking, and currency.

3.3.5.6.3 Difference levels apply when a difference with the potential to affect flight safety exists between a base and a candidate aircraft. Differences may also affect the knowledge, skills, or abilities required from a pilot. If no differences exist, or if differences exist but do not affect flight safety, or if differences exist but do not affect knowledge, skills, or abilities, then difference levels are neither assigned nor applicable to pilot qualification. When difference levels apply, each level is based on a scale of differences related to design features, systems, or manoeuvres. In assessing the effects of differences, both flight characteristics and procedures are considered since flight characteristics address handling qualities and performance, while procedures include normal, non-normal and emergency items.

3.3.5.6.4 Levels for training, checking, and currency are assigned independently, but are linked depending on the differences between a base and candidate aircraft. Training at level E usually identifies that the candidate aircraft is a different type to the base aircraft.

3.3.5.7 Difference levels are summarised in the table below regarding training, checking, and currency.

DIFFERENCE LEVEL	TRAINING	CHECKING	CURRENCY
A	Self-instruction	Not applicable or integrated with next proficiency check	Not applicable
B	Aided instruction	Task or system check	Self-review
C	System devices	Partial proficiency check using qualified device	Designated system
D	Manoeuvre Training Devices ¹ or aircraft to accomplish specific manoeuvres	Partial proficiency check using qualified device ¹	Designated manoeuvre(s) ¹
E	FSTDs ² or aircraft	Proficiency check using FSTDs ² or aircraft	As per regulation, using FSTDs ² or aircraft

Footnote (1):

- *Aeroplane: FTD Level 2, or FFS, or aeroplane*
- *Helicopter: FTD Level 2 and 3, or FFS, or helicopter*

Footnote (2):

- *Aeroplane: FFS Level C or D, or aeroplane*
- *Helicopter: FSTD'S having dual qualification: FFS Level B and FTD Level 3, or FFS Level C or D, or helicopter*

Training Levels A and B require familiarisation training, levels C and D require differences training. Training Level E means that differences are such that type rating training is required.

3.3.5.8 Difference level — Training

3.3.5.8.1 The training differences levels specified represent the minimum requirements. Devices associated with a higher difference level may be used to satisfy a training differences requirement.

3.3.5.9 Level A training

3.3.5.9.1 Level A differences training is applicable to aircraft with differences that can adequately be addressed through self-instruction. Level A training represents a knowledge requirement such that once appropriate information is provided, understanding and compliance can be assumed to be demonstrated.

3.3.5.9.2 Training needs not covered by level A training may require level B training, or higher, depending on the outcome of the evaluations described in the aircraft evaluation process.

3.3.5.10 Level B training

3.3.5.10.1 Level B differences training is applicable to aircraft with system or procedure differences that can adequately be addressed through aided instruction.

3.3.5.10.2 At level B aided instruction it is appropriate to ensure pilot understanding, emphasise issues, provide a standardised method of presentation of material, or to aid retention of material following training.

3.3.5.11 Level C training

3.3.5.11.1 Level C differences training can only be accomplished through the use of devices capable of systems training.

3.3.5.11.2 Level C differences training is applicable to variants having 'part task' differences that affect skills or abilities as well as knowledge. Training objectives focus on mastering individual systems, procedures, or tasks, as opposed to performing highly integrated flight operations and manoeuvres in 'real time'. Level C may also require self-instruction or aided instruction of a pilot but cannot be adequately addressed by a knowledge requirement alone. Training devices are required to supplement instruction to ensure attainment or retention of pilot skills and abilities to accomplish the more complex tasks, usually related to operation of particular aircraft systems.

3.3.5.11.3 The minimum acceptable training media for level C is interactive computer-based training, cockpit systems simulators, cockpit procedure trainers, part task trainers [such as Inertial Navigation System (INS), Flight Management System (FMS), or Traffic Collision Avoidance System (TCAS) trainers], or similar devices.

3.3.5.12 Level D training

3.3.5.12.1 Level D differences training can only be accomplished with devices capable of performing flight manoeuvres and addressing full task differences affecting knowledge, skills, or abilities.

3.3.5.12.2 Devices capable of flight manoeuvres address full task performance in a dynamic 'real time' environment and enable integration of knowledge, skills and abilities in a simulated flight environment, involving combinations of operationally oriented tasks and realistic task loading for each relevant phase of flight. At level D, knowledge and skills to complete necessary normal, non-normal and emergency procedures are fully addressed for each variant.

3.3.5.12.3 Level D differences training requires mastery of interrelated skills that cannot be adequately addressed by separate acquisition of a series of knowledge areas or skills that are interrelated. However, the differences are not so significant, that a full type rating training course is required. If demonstration of interrelationships between the systems was important, the use of a series of separate devices for systems training would not suffice. Training for level D differences requires a training device that has accurate, high-fidelity integration of systems and controls and realistic instrument indications. Level D training may also require manoeuvre visual cues, motion cues, dynamics, control loading or specific environmental conditions. Weather phenomena such as low visibility operations or wind shear may or may not be incorporated. Where simplified or generic characteristics of an aircraft type are used in devices to satisfy level D difference training, significant negative training cannot occur as a result of the simplification.

3.3.5.12.4 Appropriate devices, satisfying level D differences training range from those where relevant elements of aircraft flight manoeuvring, performance, and handling qualities are incorporated. The use of a Manoeuvre Training Device or aircraft is limited for the conduct of specific manoeuvres or handling differences, or for specific equipment or procedures.

3.3.5.13 Level E training

3.3.5.13.1 Level E differences training is applicable to candidate aircraft having such a significant 'full task' difference that a full type rating training course or a type rating training course with credit for previous experience on similar aircraft types is required to meet the training objectives.

3.3.5.13.2 The training requires a 'high fidelity' environment to attain or maintain knowledge, skills, or abilities that can only be satisfied by the use of FSTDs or the aircraft itself. Level E training, if done in an aircraft, should be modified for safety reasons where manoeuvres can result in a high degree of risk.

3.3.5.13.3 When level E differences training is assigned, suitable credit or constraints may be applied for knowledge, skills or abilities related to other pertinent aircraft types and specifies the relevant subjects, procedures or manoeuvres.

3.3.5.14 Difference level — Checking

3.3.5.14.1 Differences checking addresses any pertinent pilot testing or checking. Initial and recurrent checking levels are the same unless otherwise specified. It may be possible to satisfactorily accomplish recurrent checking objectives in devices not meeting initial checking requirements. In such instances the applicant may propose for revalidation checks the use of certain devices not meeting the initial check requirements.

3.3.5.15 Level A checking

3.3.5.15.1 Level A differences checking indicates that no check related to differences is required at the time of differences training. However, a pilot is responsible for knowledge of each variant flown.

3.3.5.16 Level B checking

3.3.5.16.1 Level B differences checking indicates that a 'task' or 'systems' check is required following initial and recurring training.

3.3.5.17 Level C checking

3.3.5.17.1 Level C differences checking requires a partial check using a suitable qualified device. A partial check is conducted relative to particular manoeuvres or systems.

3.3.5.18 Level D checking

3.3.5.18.1 Level D differences checking indicates that a partial proficiency check is required following both initial and recurrent training. In conducting the partial proficiency check, manoeuvres common to each variant may be credited and need not be repeated. The partial proficiency check covers the specified particular manoeuvres, systems, or devices. Level D checking is performed using scenarios representing a 'real time' flight environment and uses qualified devices permitted for level D training or higher.

3.3.5.19 Level E checking

3.3.5.19.1 Level E differences checking requires that a full proficiency check be conducted in FSTDs or in an aircraft, following both initial and recurrent training. If appropriate, alternating Level E checking between relevant aircraft is possible and credit may be defined for procedures or manoeuvres based on commonality.

Assignment of level E checking requirements alone, or in conjunction with level E currency, does not necessarily result in assignment of a separate type rating.

3.3.5.20 Difference level — Currency

3.3.5.20.1 Differences currency addresses any currency and re-currency levels. Initial and recurrent currency levels are the same unless otherwise specified.

3.3.5.21 Level A currency

3.3.5.21.1 Level A currency is common to each aircraft and does not require separate tracking. Maintenance of currency in any aircraft suffices for any other variant within the same type rating.

3.3.5.22 Level B currency

3.3.5.22.1 Level B currency is 'knowledge-related' currency, typically achieved through self-review by individual pilots.

3.3.5.23 Level C currency

(A) Level C currency is applicable to one or more designated systems or procedures and relates to both skill and knowledge requirements. When level C currency applies, any pertinent lower-level currency is also to be addressed.

(B) Re-establishing level C currency

When currency is lost, it may be re-established by completing required items using a device equal to or higher than that specified for level C training and checking.

3.3.5.24 Level D currency

(A) Level D currency is related to designated manoeuvres and addresses knowledge and skills required for performing aircraft control tasks in real time with integrated use of associated systems and procedures. Level D currency may also address certain differences in flight characteristics including performance of any required manoeuvres and related normal, non-normal and emergency procedures. When level D is necessary, any pertinent lower-level currency is also to be addressed.

(B) Re-establishing level D currency

When currency is lost, currency may be re-established by completing pertinent manoeuvres using a device equal to or higher than that specified for level D differences training and checking.

3.3.5.25 Level E currency

3.3.5.25.1 Level E currency requires that recent experience requirements and operational requirements be complied with in each aircraft separately. Level E currency may also specify other system, procedure, or manoeuvre currency item(s) necessary for safe operations and requires procedures or manoeuvres to be accomplished in FSTDs or in an aircraft. Provisions are applied in a way which addresses the required system or manoeuvre experience.

3.3.5.25.2 When level E is assigned between aircraft of common characteristics, credit may be permitted. Assignment of level E currency requirements does not automatically lead to a determination on same or separate type rating. Level E currency is tracked by a means that is acceptable to the competent authority.

3.3.5.26 Re-establishing level E currency

3.3.5.26.1 When currency is lost, currency may be re-established by completing pertinent manoeuvres using a device specified for level E differences training and checking.

3.3.5.27 Competency regarding non-normal and emergency procedures — Currency

3.3.5.27.1 Competency for non-normal and emergency manoeuvres or procedures is generally addressed by checking requirements. Particular non-normal and emergency manoeuvres or procedures may not be considered mandatory for checking or training. In this situation it may be necessary to periodically practice or demonstrate those manoeuvres or procedures specifying currency requirements for those manoeuvres or procedures.

4.0 Cabin Crew Specific Requirements

- 4.1 A Cabin Crew member shall not be assigned to operate on more than three aircraft types or variant. Cabin Crew shall not operate on more than one (1) aircraft type or variant during any flight duty period. Approval to operate three aircraft types or variants **MUST** be obtained from the Authority and at least two of the aircraft types or variants shall meet the following similarity requirements:
- 1) safety and emergency equipment and type-specific normal and emergency procedures are similar; and
 - 2) non-type-specific normal and emergency procedures are identical.
- 4.2 For the purpose of ensuring 4.4.1 above and for Cabin Crew training and qualifications, the operator shall, in addition to the methodology mentioned in 3.3.1, determine:
- 1) each aircraft as a type or a variant taking into account, where available, the relevant elements defined in the mandatory part of the operational suitability data established in accordance with the Regulations and aircraft operating manuals for the relevant aircraft type or variant;
 - 2) variants of an aircraft type to be different types if they are not similar in the following aspects:
 - (i) emergency exit operation;
 - (ii) location and type of portable safety and emergency equipment; and
 - (iii) type-specific emergency procedures.
 - 3) all portable safety and emergency equipment is stowed in the same, or in exceptional circumstances, in substantially the same location;
 - 4) all portable safety and emergency equipment requires the same method of operation;
 - 5) portable safety and emergency equipment includes:
 - (i) fire-fighting equipment;
 - (ii) protective breathing equipment (PBE);
 - (iii) oxygen equipment;
 - (iv) crew lifejackets;
- 4.3 The type-specific emergency procedures to be considered shall include at least the following:
- (i) land and water evacuation;
 - (ii) in-flight fire;
 - (iii) non-pressurisation, slow and sudden decompression; and
 - (iv) pilot incapacitation.
- 4.4 When determining similarity of doors/exits in the absence of operational suitability data for the relevant aircraft type(s) or variant(s), the following factors shall be assessed, except for self-help exits, such as type III and type IV exits, that need not be included in the assessment:
- (i) door/exit arming and disarming;
 - (ii) direction of movement of the operating handle;
 - (iii) direction of door/exit opening;
 - (iv) power assist mechanisms; and
 - (v) assisting evacuation means.



- 4.5 **Safety Briefing for Cabin Crew When Changing Aircraft Type or Variant after a Flight Duty Period.** The Cabin Crew safety briefing shall include a representative sample of type-specific normal and emergency procedures and safety and emergency equipment applicable to the actual aircraft to be operated for the subsequent flight duty period.
- 4.6 Training on those types and variants must be captured in the Cabin Crew Manual as well as Cabin Crew Training Manual. Cabin Crew must have passed a competency check before endorsing types in their Cabin Crew License.