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AERONAUTICAL CIRCULAR
CIVIL AVIATION AUTHORITY – MACAO, CHINA

SUBJECT:

TRAINING AND TESTING REQUIREMENTS FOR
FLIGHT CREW MEMBER AND FLIGHT OPERATIONS OFFICER

EFFECTIVE DATE:

01 April 2023

CANCELLATION:

AC/OPS/025R03

GENERAL:

The President of Civil Aviation Authority – Macao, China, in exercise of his power under Paragraph 89 of the Air Navigation Regulation of Macao (ANRM) and Article 35 of the Statutes of Civil Aviation Authority, approved by the Decree-Law 10/91/M, established this Aeronautical Circular (AC).

1 Introduction

As cited in paragraph 26(2) of the ANRM, the operator of a Macao registered aircraft shall not permit any person to be a member of the crew thereof during any flight for the purpose of commercial air transport (except a flight for the sole purpose of training persons to perform duties in aircraft) unless such person has had the training, experience, practice and periodical tests specified in Part B of the Ninth Schedule in respect of the duties which he/she is to perform and unless the operator is satisfied that such person is competent to perform his/her duties, and in particular to use the equipment provided in the aircraft for that purpose.

The primary purpose of this AC is to indicate the nature of the arrangements considered necessary to secure an adequate standard of compliance and to specify those tests which form part of the compliance, of which general principles and minimum contents of the Training Manual, along with flight crew and flight operations officer training and testing requirements are detailed in this AC.

2 Applicability

This AC is applicable to all Macao Air Operator Certificate holders.

3 Training Manual

3.1 It is statutory requirement in the ANRM that a training manual shall contain all such information and instructions as may be necessary to enable persons appointed by the operator to give or supervise the training, practice and periodical tests to perform their duties.

3.2 The training manual is regarded by AACM as the primary indication of the standards of training and testing likely to be achieved by the operator. It should give formal expression to the operator's training policy and requirements, together with adequate guidance to instructors and examiners. One copy must be submitted to AACM, together with any later amendments or additions.

3.3 In addition to the more general matters of policy, the following in particular must be included in the manual:

3.3.1 Operator's requirements in respect of qualifications, training and experience of training staff and a list of designated instructors and examiners;

3.3.2 The name and title of the person ultimately responsible for crew member training and testing and lines of reporting to and from that person's post;

3.3.3 A comprehensive statement of the duties and responsibilities of all training staff, which should include their names, the type of training and/or testing which they may conduct and the types of aircraft on which they are authorized;

3.3.4 Minimum standards of experience and qualification, and of initial and periodic training to be met by all aircraft flight crew for each type of aircraft used by the operator;

3.3.5 Detailed syllabi for both ground and flying training and specimen record forms in respect of all training and tests (including initial, recurrent, conversion, re-qualification) and the minimum hours/sectors necessary to meet flight training requirements and a list of the required competency tests and their frequency;

3.3.6 Training course information including delivery method, syllabus, duration, pre-requisites, instructor qualification, completion standard and, where appropriate, the use of specific training facilities for each course;

3.3.7 Arrangements for administering and recording the training and tests of all crew member;

3.3.8 Limitations on flying more than one type or variant;

3.3.9 Policy with regard to crewing together of crew members under training;

3.3.10 Training of pilots to act as relief crew occupying other than their normal crew positions;

3.3.11 Where appropriate, training and checking pilots' competence to operate flight engineer's panel;

3.3.12 Syllabus covering training requirements for promotion of co-pilot to Captain;

3.3.13 Checking of pilots in handling and non-handling duties;

3.3.14 Chain of command in an emergency, when training captain not occupying a pilot's seat;

3.3.15 Methods of simulating instrument flight conditions;

3.3.16 Methods of simulating engine failure and the form of words to be used;

3.3.17 Practice of abandoned take-off during training flights, normally a restriction to speeds not in excess of 50% of V_1;

3.3.18 Procedures for touch-and-go or stop-and-go landings with particular emphasis on division of duties, considerations of flap settings, runway length, brake cooling and terrain;

3.3.19 Syllabus covering engineering perspective including MEL/CDL, technical log, airworthiness defects;

3.3.20 Proper flight crew coordination and training in all types of emergency and abnormal situations or procedures caused by engine, airframe or systems malfunctions, fire or other abnormalities;

3.3.21 Instructions and guidance on how Predictive and Low Level Windshear initial and recurrent training should be conducted, with emphasis on the positive action required to minimize the effect of these conditions if encountered during take-off, on the approach and landing. Advice must also be given on the avoidance of these conditions;

3.3.22 Limitations on training and testing in the course of flights for the purpose of commercial air transport. Not particularly that the simulation of instrument flight conditions and of emergencies affecting the flight characteristics of the aircraft is prohibited in the course of flights for the commercial air transport of passengers;

3.3.23 Instructions covering retesting and retraining after unsatisfactory performance or periods of non flying due to illness or other causes;

3.3.24 The use of full flight simulators, other training devices and a list of approved representative training devices;

3.3.25 Special equipment training: FMS, INS, EGPWS, ACAS etc; (ACAS II training guidelines for pilot are contained in Macao Aeronautical Circular – AC/OPS/021 – "Airborne Collision Avoidance System (ACAS) Operational Procedures and Training Requirements")

3.3.26 Human Factors (HF) including threat and error management (TEM) and Crew Resource Management (CRM) training;

3.3.27 Safety Management System training;

3.3.28 Instructions and procedures covering pilot incapacitation and the roles of all crew members;

3.3.29 Aviation security training;

3.3.30 Guidance on the carriage of dangerous goods in accordance with the requirement of Macao Aeronautical Circular – AC/OPS/005 – "Transport of Dangerous Goods by Air";

3.3.31 Prevent of runway incursion in accordance with the current edition of the ICAO Manual on the Prevention of Runway Incursions (ICAO Doc 9870);

3.3.32 Upset prevention and recovery training (Not applicable to helicopter operations);

Note: Guidance on the development of Upset prevention and recovery training is contained in ICAO Procedures for Air Navigation Services – Training (PANS-TRG, ICAO Doc 9868) and Manual on Aeroplane Upset Prevention and Recovery (ICAO Doc 10011).

3.3.33 Training in knowledge and skills related to visual and instrument flight procedures for the intended area of operation and charting.

3.4 The training manual and program shall be established in the flight safety documents system principle.

Note: Guidance on the development and organization of a flight safety documents system is contained in Macao Aeronautical Circular – AC/OPS/003 – "Flight Safety Document System".

4 Training and Testing Staff

4.1 A person, whose qualifications and experience are agreed by AACM to be suitable, must be designated to take general and overall charge of arrangements for the training and testing of aircraft flight crews. This person's name, authority, responsibilities and reporting routes must be clearly defined in the operations manual.

4.2 Under the control of the person in charge of training, the operator will need to appoint examiners and instructors to conduct periodical tests and give the practical training, as necessary, to satisfy the requirements of the ANRM. The number of training staff employed is expected to be consistent with the operator's task and their qualifications and experience are expected to reflect the role and types of aircraft used.

4.3 It is important that examiners and instructors are experienced and qualified for their task, and operators are to ensure that they are adequately trained in teaching and examining techniques. Where it is intended that they will carry out tests required under the 8th and the 9th schedule of the ANRM in an approved flight simulator, they themselves must be duly approved by AACM for that purpose.

4.4 Exceptionally, operators may need to use the services of manufacturers' pilots or flight engineers or those from foreign operators for flight training, testing and route Line Flying Under Supervision (LFUS). Such training staff must be familiar with the operations manual and the training manual of the operator to whom they are temporarily attached. The operator must obtain certified copies of duty and rest period records for the 28 days prior to the crew members being rostered for duty; appropriate flight/duty records must be maintained for the period that the crews are assigned to the operator. As a general rule, a Macao license or a temporary validation of a foreign license will have to be obtained. AACM will specify requirements in individual cases. When such pilots or flight engineers are used for training they must be properly licensed and authorized to conduct initial type rating, instrument rating renewals and competency checks. To conduct Line Flying Under Supervision, pilots are required to hold full company command qualification for commercial air transport flights and to meet all the 9th Schedule of the ANRM competency check requirements.

5 Training and Examining Staff Qualifications

5.1 ***Flight Crew Licenses***

5.1.1 Flight tests for the initial issue or renewal of aircraft ratings and renewal of instrument ratings may only be conducted by examiners so authorized by AACM. Applicants for appointment

as authorized examiners must be sponsored by their employer. Any authority becomes invalid the moment the examiner leaves the sponsor's employment.

5.1.2 The applicant for appointment as an authorized examiner shall hold an appropriate license and rating with a valid medical certificate.

5.1.3 Prior to granting authorized status as an authorized examiner, AACM must be satisfied that the applicant is a fit person to hold the authorization and qualified to do so by reason of his/her knowledge, experience competence and skill.

5.1.4 In assessing the above criteria, the applicant's previous conduct will be taken into consideration. The applicant must meet certain experience level, have completed the approved course and have satisfactorily conducted a test whilst observed by AACM.

5.1.5 An authorized examiner (simulator) must be qualified on type under the provisions of the ANRM. His/her ability to perform the functions while occupying the co-pilot's seat must be checked and recorded by the operator. Similarly, Flight Engineer Examiners must be qualified to act as Flight Engineer on the aircraft type for which they are conducting a rating test.

5.1.6 An examiner's authority will be valid for two years.

5.1.7 AACM will renew an examiner's authority at the appropriate period. In the event that a satisfactory standard is not achieved, then the examiner's authority will be revoked. Further assessment for re-appointment may be made after further training, agreed between his/her company and AACM has been undertaken.

5.2 ***Commercial Air Transport***

5.2.1 An operator is responsible for ensuring that all persons have the training, experience and practice and have undergone the periodical tests specified in Part B of the 9th Schedule to the ANRM, before acting as crew members on any flight for the purpose of commercial air transport. The operator is responsible for appointing suitably qualified personnel to conduct such training and testing.

5.2.2 In practice, the 8th Schedule to the ANRM for renewal of instrument and type Ratings are normally integrated with the operator's bi-annual competency checks ("Proficiency checks"). It will be appreciated, therefore, that it is advantageous to the operator to train and subsequently nominate pilots or flight engineers from within the company as Authorized Examiners and Instructors. The following appointment and subsequent career progression is recommended for training and check personnel:

(a) Line Training Captain

(b) Instructor – Simulator

(c) Examiner – Simulator

(d) Examiner – Simulator & Aircraft

5.3 ***Line Training Captain***

5.3.1 The role of the line training captain is vitally important in a balanced training regime. Much of the responsibility for the standardization of operating procedures and for sound flight deck management will depend on the observations and analytical skills of the line training captains. The importance of line training and testing cannot be over emphasized and the caliber of the staff should reflect this. Specific responsibility may include sectors operated under supervision following type conversion, final line checks and annual line checks.

5.3.2 A line training captain must be qualified by reasons of his/her knowledge, experience, competence and skill. He/she shall hold an appropriate license and rating with valid medical certificate. He/she must have a minimum experience of 500 hours as the pilot-in-command of the type of aircraft. His/her ability to perform the functions of a commander while occupying the co-pilot's seat must be trained, checked and recorded. The appointment of training captain must be agreed by AACM.

5.4 ***Instructor – Simulator***

5.4.1 The duties of an Instructor – Simulator include the conduct of simulator training exercises during initial type conversion including low visibility operations and any other training in the simulator that may be required according to the training programs.

5.4.2 Prior to appointment, an Instructor – Simulator must complete an approved course in instructional techniques, and also induction training in his/her duties. He/she will require to be observed by AACM while conducting the 9th Schedule to the ANRM training items prior to appointment as an approved person.

5.5 ***Examiner – Simulator***

5.5.1 Persons nominated to be an Examiner – Simulator must complete an approved course in instructional and examining techniques, and also induction training in their duties. They will then be observed by AACM while conducting simulator tests for the 8th and the 9th Schedule to the ANRM prior to appointment as approved Authorized Examiners (Simulator).

5.5.2 An Examiner – Simulator shall have flight experience:

- For airplanes 1000 hours of command in multi-engine jets and 500 hours on the type of aircraft as the pilot-in-command.
- For helicopters 1000 hours of command in multi-engine helicopters and 500 hours on the type of aircraft as the pilot-in-command.
- Previous qualification and experience as instructor in other types of aircraft may be considered to reduce the minimum experience on the type of aircraft on which the instruction is given.

5.6 ***Examiner – Simulator & Aircraft***

5.6.1 Persons nominated to be an Examiner – Simulator & Aircraft must complete induction training in their duties. For the initial appointment as an Examiner – Simulator & Aircraft and on each subsequent type change, they must be observed by AACM while conducting tests in an aircraft for the issue of aircraft ratings prior to appointment as Authorized Examiners (Aircraft) for that type. AACM will observe the examiner operating from both control seats.

5.6.2 An Examiner – Simulator & Aircraft shall have flight experience:

- For airplanes 1000 hours of command in multi-engine jets and 500 hours on the type of aircraft as the pilot-in-command.
- For helicopters 1000 hours of command in multi-engine helicopters and 500 hours on the type of aircraft as the pilot-in-command.

5.7 ***Validity of Appointments***

5.7.1 Approved persons will normally be appointed by AACM for a period of 2 years, but may be subject to review at more frequent intervals. Operators are responsible for ensuring that the competence of training staff appointed by them to discharge the operator's responsibilities under the 9th Schedule to the ANRM is kept under regular review.

5.7.2 In order to maintain delegated authority, an authorized examiner is required to conduct a minimum of 10 tests during each and every 12-month period. Authorized Examiners must advise AACM if they are unable to meet these minimum requirements.

5.7.3 Authorized Examiners who fly two aircraft types that are classified for mixed fleet flying (MFF) are required to be observed by AACM on each type for the grant and renewal of MFF Authorized Examiner authorization.

5.8 ***Supervision of Examiners***

5.8.1 The procedures to be followed and standards to be applied by authorized examiners are set out in "Guidance for Authorized Examiners". AACM will observe the conduct of tests by Authorized Examiners, and of crew training generally, during the currency of an Air Operator Certificate. The purpose of these inspections is to ensure that training and testing is in compliance with the operator's training manual and within the terms and conditions of the appointment of AACM Authorized Examiners.

6 Recurrent Training and Checking

6.1 ***General***

6.1.1 Line checks, route and aerodrome competency and recent experience requirements are intended to ensure the crew member's ability to operate efficiently under normal conditions, whereas other checks and emergency and safety equipment training are primarily intended to prepare the crew member for abnormal/emergency procedures.

6.1.2 The line check is normally performed in the aircraft. All other training and checking should be performed in the aircraft or an approved flight simulator or, in the case of emergency and safety equipment training, in a representative training device. The type of equipment used for training and checking should be representative of the instrumentation, equipment and layout of the aircraft type operated by the flight crew member.

6.1.3 The line check is considered a particularly important factor in the development, maintenance and refinement of high operating standards, and can provide the operator with a valuable indication of the usefulness of his training policy and methods. Line checks are a test of a flight crew member's ability to perform a complete line operation satisfactorily, including pre-flight, taxi operations and active runway identification, and post-flight procedures and use of the equipment provided, and an opportunity for an overall assessment of his ability to perform the duties required as specified in the operations manual. The route chosen should be such as to give adequate representation of the scope of a pilot's normal operations. When weather conditions preclude a manual landing, an automatic landing is acceptable. The line check is not intended to determined competence on any particular route.

6.1.4 In addition to the above duties, flight crew members should be assessed on their crew resource management skills. The Captain, or co-pilot acting as the Captain, should also demonstrate his/her ability to "manage" the operation and take appropriate command decisions. When assessing crew resource management skills, the examiner should occupy an observer's seat.

6.1.5 When a flight simulator is used for proficiency training and checking, the opportunity should be taken, where possible, to use Line Orientated Flight Training (LOFT). Proficiency

training and checking for flight engineers should, where practicable, take place at the same time a pilot is undergoing proficiency training and checking.

6.1.6 Emergency and safety equipment training should, as far as is practicable, take place in conjunction with cabin crew undergoing similar training, with emphasis on co-ordinated procedures and two-way communication between the flight deck and the cabin.

6.2 ***Periodic Competency Trainings and Tests***

6.2.1 The following is a list of periodic competency training and tests which cover all the requirements laid down in the 8th and the 9th Schedule to the ANRM, the results of which must be recorded on the approved operator's forms:

(a) Proficiency check (includes the aircraft rating and instrument rating);

(b) Line check;

(c) Instrument approach-to-land proficiency check, including low visibility operations procedures where applicable;

(d) Captain's route and aerodrome competence;

(e) Emergency and safety equipment training;

(f) Crew Resource Management (CRM) training.

6.3 ***Proficiency Check***

6.3.1 Although the Proficiency Check (PC) is a test, it provides an opportunity for exercising emergency drills which rarely arise in normal operations. The statutory the 8th and the 9th Schedule to the ANRM requirement is that pilots shall be tested and their continued competence be verified and certified. The PC is to be undertaken in an approved flight simulator and each PC shall include renewal of the aircraft and instrument ratings.

6.3.2 The scope of the practice and check may be divided into three main categories, as follows:

(a) Emergency maneuvers in Instrument Meteorological Conditions (IMC) which must be carried on each bi-annual check:

(i) A take-off with engine failure between V_1 and V_2 or as soon as safety considerations permit. When the check is carried out in an aircraft, instrument flight conditions should be simulated as soon as possible after becoming airborne;

(ii) A precision instrument approach to minima with one engine inoperative, followed by a missed approach;

(iii) Landing with one engine inoperative;

(iv) Where the emergency drills require action by the non-handling pilot, the check must also cover knowledge of such drills;

(v) A rejected take-off (initiated at a speed no greater than 50% of V1 when conducted in an aircraft).

Note: When engine out maneuvers are carried out in an aircraft, the engine failure must be simulated.

(b) Selected items from the following list should be covered on each PC, ensuring that all items are covered and recorded at least within a three year period:

(i) Engine fire;

(ii) Engine or propeller overspeed;

(iii) Fuselage fire (pilot operated extinguishing system);

(iv) Emergency operation of landing gear and flap;

(v) Pressurization failure;

(vi) Fuel jettison;

(vii) Low fuel contents;

(viii) Engine relight/restart;

(ix) Hydraulic failures;

(x) Electrical failures;

(xi) Engine and engine control malfunction;

(xii) Action following EGPWS and ACAS warning;

(xiii) Action following predictive and winshear warning.

Note: ACAS training for flight crew shall be established in accordance with Macao Aeronautical Circular – AC/OPS/021 – "Airborne Collision Avoidance System (ACAS) Operational Procedures and Training Requirements".

(c) A supplementary questionnaire on the technical matters and operating procedures which, although not falling within the category of emergencies, are matters on which pilots should be tested at regular intervals. Typical items to be covered include:

(i) Recognition and diagnosis of aircraft system faults for which there are no set drills;

(ii) Radio failure procedures;

(iii) Use of operations manuals including route guides;

(iv) Familiarity with latest amendments to operations manuals, and latest issues of information circular and instructions to air crews;

(v) Loading instructions;

(vi) Knowledge of internal and external check lists;

(vii) Aircraft equipment such as Flight Management System (FMS), navigation systems, EGPWS, flight directors, weather radar etc;

(viii) Noise abatement procedures;

(ix) Precautions for winter operations, anti-icing procedures and operations from contaminated runways;

(x) Engine failure during stages of flight other than on take-off, especially critical states such as during noise abatement, during a Standard Instrument Departure (SID) or flight over high ground or on during the approach;

(xi) Wind shear recognition and avoidance.

Note: On most of the larger modern aircraft the list of items that might usefully be discussed is likely to be extensive and operators may prefer to deal with only a selection of items on a particular proficiency check. In this event, a plan of items to be covered should be drawn up to ensure that all are dealt with over a three year period and records should be maintained accordingly. Some items may equally well be covered in the course of the line check. Advantage should also be taken of the opportunity to give pilots experience in the simulator of such are rare occurrences as windshear, flapless landings and all engines out landings.

6.4 ***Line Check***

6.4.1 The annual line check is not intended to determine competence on any particular route. The requirement is for a test of ability to perform satisfactorily a complete line operation from start to finish, including pre-flight, taxi operations and active runway identification, and post-flight procedures and use of the equipment provided. The route chosen should be such as to give adequate representation of the scope of a pilot's normal operations. The line check is considered a particularly important factor in the development, maintenance and refinement of high operating standards and can provide the operator with a valuable indication of efficacy of his training policy and methods.

6.4.2 The operator has a statutory obligation to check that his pilots are competent to perform their duties. If it is company policy that both pilots may carry out either the handling or the non-handling duties, both Captains and co-pilots should be checked in both roles. Captains who also operate as co-pilots must be checked in both left and right hand seats.

6.4.3 In addition to the above duties, the flight crew should be assessed in Crew Resource Management (CRM) techniques, including command decision making. This is most readily achieved if the examiner occupies the jump seat.

6.4.4 When line checks are carried out on sectors which terminate away from base, the operator should allow for the possibility that on subsequent sectors the examiner may have to act as substitute for either the Captain or co-pilot. The examiner should therefore be fully qualified to operate at any crew station over which he/she acts in an examining capacity.

6.4.5 If a pilot does not fulfill the annual line check requirement or fails a line check, he/she may not operate on a commercial air transport flight except 'under supervision' until he/she is again fully qualified. All such supervised flying, and the line check required for requalification, requires a training captain to be at the controls.

6.5 ***Instrument Approach Proficiency***

6.5.1 A further separate requirement to be met in respect of the Captain and co-pilot is that they must have been tested as to their proficiency in using instrument approach systems of the type in use at the aerodrome of intended landing and any alternate aerodrome; this will also include Low Visibility Operations (LVO) procedures, where applicable. The tests may be carried out in a flight simulator approved for the purpose. The instrument approach to land tests (non-LVO) may also be carried out in flight in actual or simulated IMC.

6.5.2 To comply with this requirement, operators may find it convenient to ensure that Captains and co-pilots are tested on their proficiency to carry out instrument approach procedures using all the pilot interpreted aids provided in the aircraft they operate. A separate test or record to cover the requirement may not be necessary, as it is possible to meet the regulation in the course of the bi-annual Proficiency Check by the inclusion of an NDB, VOR, LOC only or ILS back beam approach.

6.5.3 On suitable aircraft types where electronic instrumentation allows portrayal of both the NDB and the VOR angular deviation as either a needle or a beam bar presentation, the requirement for VOR and NDB can be combined and satisfied on conversion, provided the pilot has been tested performing one non-precision approach using a beam bar, and another using the needle.

6.5.4 The Constant Descent Final Approach (CDFA) is the preferred method for conducting a non-precision instrument approach. This technique should be utilized whenever possible in high performance transport aircraft as it is conducive to a stabilized approach and landing.

6.6 ***Captain's Area, Route and Aerodrome Competence***

6.6.1 An operator must ensure that the pilot designated as Captain of an aircraft has demonstrated to the operator's satisfaction adequate knowledge of the area, route to be flown and of the aerodromes (including alternates), facilities and procedures to be used. The period of validity of the route and aerodrome competence qualification is 13 months. However, the qualification may be re-validated during that period by operating on the route or to the aerodrome concerned.

6.6.2 Area and route competence training should include knowledge of:

(a) Terrain and minimum safe altitudes;

(b) Seasonal meteorological conditions;

(c) Meteorological, communication and air traffic control facilities, services and procedures;

(d) Navigational facilities associated with the intended route of flights;

(e) Search and rescue procedures.

6.6.3 Depending on the complexity of the area and route, as assessed by the operator, the following methods of familiarization may be used:

(a) For the less complex routes, familiarization by self briefing with route documentation or by means of programmed instruction; and

(b) For the more complex routes, in addition to (a) above, in flight familiarization as a co-pilot, observer or Captain under supervision, or familiarization in an approved flight simulator using a data base appropriate to the proposed route.

6.6.4 The operations manual should specify a method of categorization of aerodromes and specify the qualification requirements for each of these categories. If the least demanding aerodromes are Category A, Category B and C should be applied to progressively more demanding aerodromes. The operations manual should specify the parameters which qualify an aerodrome to be considered as Category A and then provide a list of those aerodromes categorized as B and C.

6.6.5 All aerodromes an operator intends to use should be categorized in one of those three categories. Such categorization must be acceptable to AACM and based on the following guidelines.

6.6.6 *Category A.* An aerodrome which satisfies all of the following requirements:

(a) an approved instrument approach procedure;

(b) at least one runway with no performance limited procedure for take-off and/or landing;

(c) published circling minima not higher than 1000 feet above aerodrome level; and

(d) night operations capability.

6.6.7 *Category B.* An aerodrome which does not satisfy the Category A requirements or which requires extra consideration such as:

(a) non-standard approach aids and/or approach patters; or

(b) unusual local weather conditions; or

(c) unusual characteristics or performance limitations; or

(d) any other relevant considerations such as obstructions, physical layout, lighting etc.

6.6.8 *Category C.* An aerodrome which requires additional considerations to a Category B aerodrome.

6.6.9 Prior to operating to a Category B aerodrome, a Captain should be briefed, or self briefed by means of programmed instruction, on the Category B aerodrome(s) concerned and should certify that he/she has carried out these instructions.

6.6.10 Prior to operating to a Category C aerodrome, a Captain should be briefed and visit the aerodrome as an observer and/or undertake instruction in a flight simulator approved by AACM for the purpose. The instruction should be certified by the operator.

6.7 ***Pilot Qualification for Operations in Either Seat***

6.7.1 Pilot flying duties (PF) may only be completed from the seat in which the PC was completed. However, for take-off and landing both pilots must have completed their PC from their respective seats. Any Captain required completing PF duties from the right-hand seat must complete additional training and testing as specified in this AC and in the operator's training manual, concurrent with the operator's competent checks prescribed in the 9th Schedule to the ANRM. This addition training which normally will be conducted during the PC must include at least the following:

(a) an engine failure during take-off;

(b) a one engine inoperative approach and go-around; and

(c) a one engine inoperative landing.

6.7.2 When operating in the right-hand seat, the checks required by the 9th Schedule to the ANRM for operating in the left-hand seat must, in addition, be valid and current.

6.8 ***Emergency and Safety Equipment Training***

6.8.1 An operator shall ensure that emergency and safety equipment training conducted by suitably qualified personnel is incorporated in the initial training course and recurrent training.

6.8.2 An operator shall ensure that each flight crew member undergoes training and checking on the location and use of all emergency and safety equipment carried. The emergency and safety equipment check shall be performed within the final 3 calendar months of validity of a pervious check. The period of validity of the emergency and safety equipment check shall be extended from the date of the previous expiry date of the check for 12 calendar months in addition to the remainder of the month.

6.8.3 An operator shall ensure training facilities used for the training and checking are able to support the purpose of the training and checking. A representative training device may be used for the training and checking of flight crew as an alternative to the use of the actual aeroplane or required equipment.

Note: Requirements and guidance with regard to the use of representative training devices are contained in the Macao Aeronautical Circular AC/OPS/037 – "Use of Representative Training Devices".

6.8.4 Emergency and safety equipment training may be combined with emergency and safety equipment checking and shall be conducted in an aircraft or a representative training device.

6.8.5 Operators should provide survival training appropriate to their areas of operation, e.g. polar, desert, jungle or sea, including the use of any survival equipment carried.

6.8.6 A comprehensive drill to cover all ditching procedures should be practiced where flotation equipment is carried. This should include practice of the actual donning and inflation of a life-jacket, together with a demonstration or film of the inflation of life-rafts and/or slide-rafts and associated equipment. This practice should, in initial training, be conducted using the equipment in a body of water or pool of sufficient depth to realistically perform the simulated exercise.

6.8.7 Instruction on the location of emergency and safety equipment, correct use of all appropriate drills, and procedures that could be required of flight crew in different emergency situations. Evacuation of the aircraft (or a realistic training device) by use of a slide where fitted should be included when the Operations Manual procedure requires the early evacuation of flight crew to assist on the ground.

6.8.8 Initial emergency and safety equipment training should include all the items listed in 6.8.9 and 6.8.10 below. In addition, the following should be addressed:

(a) First aid subjects in general, and as appropriate to the aircraft type and crew complement;

(b) Guidance on the avoidance of food poisoning;

(c) The possible dangers associated with the contamination of the skin or eyes by aviation fuel and other fluids and the immediate treatment;

(d) The recognition and treatment of hypoxia and hyperventilation; and

(e) Survival training and guidance on hygiene appropriate to the routes operated.

6.8.9 Every year the emergency and safety equipment training program must include the following:

(a) Actual donning of a lifejacket where fitted;

(b) Actual donning of protective breathing equipment where fitted;

(c) Actual handling of fire extinguishers;

(d) Instruction on the location and use of all emergency and safety equipment carried on the aircraft;

(e) Instruction on the location and use of all types of exits; and

(f) Security procedures.

6.8.10 Every 3 years the program of training must include the following:

(a) Actual operation of all types of exits;

(b) Actual fire-fighting using equipment representative of that carried in the aircraft on an actual or simulated fire except that, with Halon extinguishers, an alternative method acceptable to the Authority may be used;

(c) The effects of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke-filled environment;

(d) First aid;

(e) Demonstration in the use of the life-raft(s) where fitted;

(f) Demonstration of the method used to operate a slide where fitted; and

(g) Actual handling of pyrotechnics, real or simulated, where fitted.

6.8.11 Recurrent checking shall comprise emergency and safety equipment checks. The items to be checked shall be those for which training has been carried out in accordance with sub-paragraphs 6.8.9 and 6.8.10 above.

6.9 ***Crew Resource Management (CRM) Training***

6.9.1 An operator shall ensure that CRM training is incorporated in the initial training course and each flight crew member undergoes CRM training as part of recurrent training.

6.9.2 An operator shall ensure that CRM training is conducted by suitably qualified personnel.

6.9.3 CRM training should address the nature of the company's operations as well as the associated crew operating procedures. This will include areas of operations which present particular difficulties, adverse climatological conditions and any unusual hazards.

6.9.4 CRM training should include both classroom training and practical exercises including group discussion and accident reviews to analyze communication problems and instances of a lack of information or crew management.

6.9.5 Where an operator utilizes Line Oriented Flying Training (LOFT) in the recurrent training program the flight crew member should complete elements of CRM training.

6.9.6 Where an operator does not utilize LOFT, the flight crew member should complete elements of CRM training every year. The flight crew member should not be assessed.

6.9.7 An operator shall ensure that flight crew members complete the major elements of the full length CRM course over a three-year recurrent training cycle. The flight crew member completing this refresher training should not be assessed.

6.9.8 When a flight crew member undergoes an operator proficiency check, line check or command course, then CRM should be included in the overall assessment.

6.9.9 Operators should, as far as practicable, provide combined training for flight crew and cabin crew. There should be an effective liaison between flight crew and cabin crew training departments. Provision should be made for flight and cabin crew instructors to observe and comment on each other's training.

6.9.10 The successful resolution of aircraft emergencies required interaction between flight crew and cabin crew and emphasis should be placed on the importance of effective coordination and two-way communication between all crew members in various emergency situations. Initial and recurrent CRM training should include joint practice in aircraft evacuations so that all who are involved are aware of the duties other crew members should perform. When such practice is not possible, combined flight crew and cabin crew training should include joint discussion of emergency scenarios.

6.10 ***Recent Type Experience (Handling Recency)***

6.10.1 An operator shall not assign a pilot-in-command or a co-pilot to operate at the flight controls of a type or variant of a type of aircraft during take-off and landing unless that pilot has operated the flight controls during at least 3 take-offs and 3 landings within the preceding 90 days on the same type of aircraft or in a flight simulator approved for the purpose. If a pilot has not maintained the recent type experience, the pilot's recency may be re-validated in accordance with the requirements set forth in Appendix B of this AC.

7 Use and Approval of Flight Simulators and Trainers

7.1 Provision is made in the ANRM for use of apparatus such as flight simulators, flight trainers and fuselage 'mock-ups' for certain periodical tests. These devices must be individually approved by AACM and may be used only under the supervision of a person approved for the purpose. Approvals normally restrict the use of such devices to the particular company's own flight crews. Examiners' simulator authority extends only to the device(s) for which the company named on this authority holds a specific written approval.

7.2 All training staff should be instructed that training and checking exercises conducted in simulators and flight trainers should be treated from a flight safety aspect as if they were being carried out on an actual aircraft. Therefore, close adherence to established operating procedures and practices, particularly crew monitoring, call-outs and incapacitation procedures should be emphasized. Practicing or continuing unsafe maneuvers should be strongly discouraged.

7.3 Prior to each simulator session, examiners should check the serviceability in the technical log and the level to which the simulator is cleared, as it may change from time to time and at short notice. Additionally, a carefully check should be made of the AACM approval document to confirm the simulator's validity for checks and tests.

8 Retraining and Retesting

8.1 Operators must ensure that training staff are adequately instructed on the action to be taken when unsatisfactory performance by a crew member, either during training or line operations, leads to retesting or further training. For example, following an unsatisfactory check, a crew member should not be immediately subjected to a series of retests in the item(s) concerned until an acceptable standard is achieved. If the failure points to a fundamental weakness in ability or technique, adequate remedial training should be given before further testing.

8.2 If a crew member is found to be unsatisfactory during the course of line operations, the Captain should report the circumstances without delay and the crew member should be withdrawn from further duty until retraining and/or retesting has been carried out. A record should be kept of any action taken.

9 Flight Crew Conversion Training

9.1 ***Syllabi***

9.1.1 All type conversion training shall be conducted in accordance with detailed syllabi included in the training manual. The syllabi shall be designed to reflect the experience level of the trainee. This could be low and therefore provision should be made to give sufficient training by allowing extra time, when necessary, to reach and maintain a safe operating standard. When considering programs and syllabi for newly acquired aircraft types, operators are strongly urged to consult the AACM at the outset. Early consultation will help to prevent difficulties and inconvenience to the operator.

NOTE: Amendments or additions to the training manual relating to training experience, practice and periodical tests on a newly acquired aircraft type must be submitted to AACM before the aircraft may fly for the purpose of commercial air transport.

9.2 ***Minimum Experience Requirements***

9.2.1 The minimum standards of qualifications and experience required of flight crews before being rostered for conversion training should be specified in the training manual.

9.3 ***Ground Training***

9.3.1 Great importance is attached to technical training and there should be a properly organized program of ground instruction by suitably qualified personnel with adequate facilities, including any necessary audio, mechanical and visual aids. If the aircraft concerned is relatively simple, private study may be adequate, if the operator provides suitable manuals and/or study notes. Inspectors will examine premises and equipment to be used for ground training. They are also authorized to be present while tuition and lectures are in progress.

Note: Suitably qualified personnel is a person, acceptable to the AACM, who has the appropriate knowledge, experience, training, and teaching technique to instruct flight crews.

9.3.2 Courses of ground instruction for flight crews should incorporate written progress tests at the end of each distinct phase. Pilots, for example, should be examined on such matters as engines, airframes, flight director systems, radio and electrics, performance and flight planning, as each phase of ground training is completed.

9.3.3 For all flight crews, the ground course should include comprehensive instruction on the location and use of all emergency equipment carried in the aircraft and practice in the procedures for emergency evacuation.

9.3.4 Once an operator's conversion course has been commenced, a flight crew member should not undertake flying duties on another type or class of aircraft until the course is completed or terminated.

9.4 ***Aircraft/Flight Simulator Training***

9.4.1 Flight training should be structured and sufficiently comprehensive to familiarize the flight crew member thoroughly with all aspects of limitations and normal/abnormal and emergency procedures associated with the aircraft, and should be carried out by suitably qualified Instructors and/or Examiners. For specialized operations such as ETOPS or low visibility operations, additional training should be carried out.

9.4.2 In planning training on aircraft types with a flight crew of two or more, particular emphasis should be placed on the practice of Line Orientated Flying Training (LOFT) with emphasis on Crew Resource Management (CRM).

9.4.3 Normally, the same training and practice in the flying of the aircraft should be given to co-pilots as well as Captains. The 'flight handling' sections of the syllabus for Captains and co-

pilots alike should include all the requirements of the appropriate type rating tests together with the following items, if appropriate to the aircraft type.

(a) aeroplanes:

(i) visual circuits and landings by day and by night, including approaches without glideslope guidance and correction of displacement in azimuth and elevation on final approach;

(ii) visual 'go around' from not more than 200 ft AGL;

(iii) engine failure before V1;

(iv) take-off with engine failure between V1 and V2, or as soon as safety considerations permit;

(v) in instrument flight conditions with an outboard engine inoperative, a full manual ILS procedure, including a holding pattern, to decision height followed by a go-around;

(vi) landing with one engine inoperative;

(vii) landing with asymmetric reverse thrust;

(viii) failures of light director system, including ILS approach without flight director;

(ix) a typical noise abatement procedures;

(x) approach to the stall and recovery, including operation of any stall warning devices and/or stick pusher;

(xi) emergency descent with and without use of autopilot;

(xii) automatic approach/landing training including disconnects at critical state of approach and landing;

(xiii) use of autothrottle in manually controlled flight;

(xiv) taxi operations and active runway identification.

(b) helicopters:

(i) practice of appropriate type rating test items under instrument flight conditions, including failure of flight instruments and flight directors;

(ii) recovery from unusual attitudes under instrument flight conditions.

9.4.4 Each exercise should be practiced until a satisfactory standard is achieved. The various take-off, 'go-around' and landing exercises should be performed at least twice. Records kept by the operator should show the number of times that each exercise was covered. Unless the type rating training program has been carried out in an appropriate flight simulator approved for zero flight time conversion, the training must include at least 3 take-offs and landings in the aircraft.

9.4.5 Particular emphasis should be placed on the practice of correct flight crew procedures for take-off, approach, landing and 'go-around' plus, for helicopter pilots, the procedures for IMC descent en-route in conditions of low cloud and poor visibility.

9.4.6 Pilots undergoing conversion training should at some state be given an exercise in coping with incapacitation of another flight crew member. If the flight complement includes a flight engineer, it will be necessary for pilots to be sufficiently familiar with his/her in-flight functions.

9.5 ***Additional Requirements for Captains***

9.5.1 Without prejudice to any of the requirements of a particular type rating test, the conversion training of captains should include the following items insofar as they may be appropriate to the aircraft type:

(a) landing with two engines inoperative;

(b) landing without flap/slat or with restricted flap;

(c) landing with flying control system malfunction;

(d) instrument approach and 'go-around' with flight director malfunction;

(e) landing at night with one engine inoperative;

(f) crosswind take-off and landing.

9.5.2 Captains must also be given practice in the stopping and starting of engines in flight and in any emergency drills that might fall them while the co-pilot is handling the aircraft.

9.6 ***Additional Requirements for Co-pilots***

9.6.1 It is essential that co-pilots (in addition to the handling practice already referred to) should be given adequate training, during the simulator conversion course, in the execution of all emergency drills that might fall to them while the Captain is flying the aircraft. Co-pilots should also be given practice in the operation of aircraft systems and radio equipment normally managed by the co-pilot, while the Captain is handling the aircraft.

9.7 ***Tests after Flying Training***

9.7.1 Before they are assigned to line duty (whether under supervision or not) all flight crew must be certified as competent by the operator in accordance with the requirements of the 9th Schedule Part B of the ANRM. Testing in these functions and duties must not be conducted in the course of normal operations. All conversion flying training must therefore incorporate a proficiency check and an instrument approach-to-land proficiency check before a flight crew member is assigned to line duty.

9.7.2 Before they are assigned to line duty all flight crew must complete Line Flying Under Supervision and a line check. It is essential, nevertheless, that pilots should demonstrate proficiency in the flight planning procedures for the type, ability to operate in accordance with an IFR air traffic clearance whilst performing normal functions on the flight deck, as well as proficiency in the use of the installed radio and radar aids. Furthermore, all flight crew members must demonstrate their proficiency in operating the aircraft as both PF and PNF from the control seat in which they completed their Proficiency Check. Following a satisfactory line check the operator must certify the pilot's competence, to operate as Captain, co-pilot or flight engineer.

9.8 ***Line Flying Under Supervision***

9.8.1 For all aircraft conversion courses, the first Line Flying Under Supervision flight must be within three months of the completion of the simulator course. Each flight crew member should operate a minimum number of sectors and/or flying hours under the supervision of a flight crew member nominated by the operator and acceptable to AACM. The minimum sectors/hours should be specified in the operations manual.

10 Upgrade to Captain

10.1 An operator shall ensure that for upgrade from co-pilot to Captain and for pilots joining as direct entry Captains:

(a) a minimum level of experience acceptable to AACM is specified in the operations manual;

(b) for multi-crew operations, the pilot completes an appropriate command course.

10.2 The content of the command course must be specified in the operations manual and should include at least the following:

(a) flight simulator and/or flying training, including Line Orientated Flying Training;

(b) Crew Resource Management training and Captain's responsibilities;

(c) completion of an operator's proficiency check acting as Captain;

(d) line training in command under supervision. A minimum of 10 sectors is required for pilots already qualified on aircraft type;

(e) completion of a Captain's line check and route and aerodrome competence qualifications.

11 Operation on More than One Type or Variant

11.1 Pilots and flight engineers shall be limited to operate on one aircraft type or variant unless sub-paragraphs 11.2 to 11.8 have been complied with.

11.2 Notwithstanding paragraph 11.1, the following classes of personnel may be allowed to operate more than one aircraft type or variant:

(a) pilots and flight engineers;

(b) flight instructors;

(c) flight examiners; or

(d) pilots operating under Mixed Fleet Flying (MFF) operation.

11.3 When considering operations of more than one type or variant below, an operator shall ensure that the differences and/or similarities of the aircraft concerned justify such operations, taking account of the following:

(a) The level of technology;

(b) Operational procedures;

(c) Handling characteristics.

11.4 *Cross Crew Qualified*

If a flight crew member is to qualify on a type which is similar to a type on which he/she is currently qualified, his/her conversion training to the second type may be suitably abbreviated, subject to agreement with the AACM. The crew member is then 'Cross Crew Qualified'. Details of the agreed abbreviated training course, and subsequent recurrent training, are to be specified in the operations manual.

11.5 *Mixed Fleet Flying (MFF)*

11.5.1 MFF will only be considered for those aircraft types which are conductive to Cross Crew Qualification (CCQ) training, as recommended by the aircraft manufacturer.

11.5.2 A flight crew member who is Cross Crew Qualified may be allowed to operate both types ('Mixed Fleet Flying' or 'MFF') subject to agreement with the AACM. Operator who intends to commence MFF operations shall apply for approval from the AACM, the requirements for flight crew approved for MFF training and operations are set forth in Appendix A to this AC.

11.6 *Variants of the Same Aircraft Type*

11.6.1 Subject to agreement with the AACM, an operator may operate a number of aircrafts which, though of the same type, are not identical. They may differ in engines, systems, equipment, flight deck lay-out, operating procedures, performance or in other respects. In such circumstances, the operator shall conduct a 'differences training' for his crews to ensure they are adequately trained on each variant. When considering programs and syllabi for the differences training, operators are strongly urged to consult the AACM at the outset. Early consultation will help to prevent difficulties and inconvenience to the operator.

11.7 An operator shall ensure that a flight crew member operating more than type or variant complies with all of the requirements prescribed in Part B of the 9th Schedule to the ANRM for each type or variant unless credit(s) related to the training, checking and recency requirements have been allowed by the AACM.

11.8 An operator shall specify appropriate procedures and/or operational restrictions, approved by the AACM, in the operations manual, for any operation on more than one type or variant covering:

(a) The flight crew member's minimum experience level;

(b) The minimum experience level on one type or variant before beginning training for and operation of another type or variant;

(c) The process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant; and

(d) All applicable recency requirements for each type or variant.

12 Training Records

12.1 An operator must ensure that flight crews are properly trained and tested in accordance with the 8th and the 9th Schedules to the ANRM. Records showing a trainee's progress through each stage of training must be maintained. These should indicate the number of times each exercise in base and line training was covered and should include information about the results of tests. Records must incorporate certificates indicating the competence of examinees to perform the duties in respect of which they have been tested.

12.2 The training records must be kept in the pilot's training file and securely retained in the operator's training department.

12.3 Operator must keep records for all aircraft flight crew members showing the dates on which tests, ratings, medical certificates, licenses etc are all due for renewal. There should also be an effective system to guard against aircraft flight crews being rostered for duty, when checks etc are overdue, and for verifying that licenses etc have been renewed at the appropriate time.

12.4 Prior to operating a commercial air transport flight, and commencement of Line Flying Under Supervision, the records must show that a pilot has satisfactorily completed the appropriate approved ground and flight simulator course and aircraft base training. It therefore follows that a valid PC form shall be part of the training records. They must show that the pilot is properly licensed with an endorsement on his/her Macao pilot license, all the 8th and the 9th Schedule to the ANRM and the ACs regarding the training requirements have been met including evidence of competence in all required training and any special airspace qualification, area, route and airfield qualification etc.

12.5 Once a pilot commences Line Flying Under Supervision, appropriate line sector records and the final line check form must be in the training file.

13 Flight Operations Officer

13.1 ***General Requirements for Flight Operations Officer (FOO) Training***

13.1.1 When the FOO is employed in conjunction with an approved method of flight supervision, the requirements in respect of age, knowledge, experience and skill for licensing purpose and the requirements for FOO training as part of the approved flight supervisory system must be specified. The requirements are contained in the 4th Schedule to the ANRM.

13.1.2 The initial training shall be divided into phases to cover both theoretical and practical aspects of flight operations:

(a) Phase 1 – Basic Knowledge Training which provides the trainee with all the necessary background information to enable him/her to proceed with the practical training. The training syllabi can be divided into modules which cover the versatile aspects of flight operations.

(b) Phase 2 – Applied Practical Training which consists of the applied practical flight operations, on-the-job flight dispatch practices and route familiarization.

13.1.3 Operator is responsible for ensuring that all FOOs have undergone periodical training in order to maintain their knowledge, skill and qualification. The syllabus of the recurrent training and requalification training must be specified in the training manual.

13.1.4 Training course information including delivery method, syllabus, duration, pre-requisites, instructor qualification, specimen record forms and the arrangements for administering and recording the training and checking must be specified in the training manual.

Note: Guidelines for the training subjects and the recommended hours to be allocated for each subject can be found in the following ICAO reference material: ICAO Doc 7192-AN/857 Training Manual Part D3 – Flight Operations Officer/Flight Dispatchers

13.2 ***Flight Operations Officer Instructor Qualifications***

13.2.1 Operator shall specify the qualification, training and experience requirements for FOO training staff in the training manual. A comprehensive statement of the duties and responsibilities of all FOO training staff, the type of training which they may conduct and the types of aircraft on which they are authorized must also be in place.

13.2.2 FOO instructor must be qualified by reasons of his knowledge, experience, competence and skills. As a minimum requirement, the FOO instructor shall:

(a) hold a valid Macao Flight Operations Officer License;

(b) have at least 3 years of operational control experience;

(c) be familiar with the operator's operational procedures;

(d) be adequately trained in teaching techniques; and

(e) be knowledgeable, qualified on type and able to present the training material in an effective manner.

13.2.3 The minimum qualification for the FOO instructor to conduct the company FOO training must be specified in the training manual.

13.2.4 Operator is responsible for ensuring that all FOO instructors have undergone the periodical training in order to maintain their knowledge, skill and qualification. Such training program shall be specified in the training manual.

– END –

Appendix A Mixed Fleet Flying (MFF)

1 Definitions

- Mixed Fleet Flying (MFF)

  The operation of Primary MFF aircraft and Secondary MFF aircraft by a Macao AOC holder.

- Primary MFF Aircraft

  An aircraft, or group of aircraft, designated by a Macao AOC holder and used as a reference to compare differences with the Secondary MFF aircraft within the operator's fleet.

- Secondary MFF Aircraft

  An aircraft, or group of aircraft, of a different type from the Primary MFF aircraft.

2 General

2.1 An operator who intends to commence Mixed Fleet Flying (MFF) operations shall apply for approval from the AACM. AACM, when satisfied that the operator meets the requirements, may approve the MFF application with or without conditions imposed.

2.2 An application under paragraph 2.1 shall be accompanied by the following documents:

(a) assessment by the manufacturer on the suitability of the aircraft type(s) to be engaged in MFF;

(b) MFF policy and supporting procedures; and

(c) a MFF Program including the aircraft type(s) to be used for the Primary and Secondary MFF aircraft.

2.3 An operator who is approved to conduct MFF operations shall only use the MFF aircraft that is approved by the AACM.

2.4 The operator shall conduct the MFF operation in accordance with the approval granted by the AACM.

2.5 The MFF Policy and Program shall be documented in the Operations Manual and Training Manual.

3 Pilot Qualification

3.1 The operator shall ensure that each pilot:

(a) has completed at least two consecutive Proficiency Checks;

(b) has at least 500 total flying hours in the relevant crew position; and

(c) has at least 3 months and 150 flying hours' experience on the Primary MFF aircraft,

with the operator before he/she is inducted into the operator's MFF Program.

4 MFF Program

4.1 The operator's MFF Program shall describe the process for qualifying a pilot to become an MFF pilot. The MFF Program shall encompass the following:

(a) the necessity training to obtain an aircraft type rating on Secondary MFF aircraft;

(b) a Consolidation Period; and

(c) MFF Indoctrination Training.

Note: While undergoing the MFF program, the pilot shall not undertake flying duties on the Primary MFF aircraft until the MFF endorsement is obtained or termination of program is reported to the AACM.

4.2 ***Consolidation Period***

4.2.1 The operator shall ensure that the pilot accumulate sufficient operating experience on the Secondary MFF aircraft during the Consolidation Period.

4.2.2 The Consolidation Period shall, at the minimum, take into consideration the following factors:

(a) the extent of differences between Primary MFF aircraft and Secondary MFF aircraft;

(b) recommendations by the aircraft manufacturer(s); and

(c) experience of the operator.

4.2.3 In order to qualify for MFF, on completion of the consolidation period on Secondary MFF aircraft, the candidate must hold valid Proficiency Checks (PCs) on both Primary and Secondary MFF aircraft and Aircraft Line Check on the Primary MFF aircraft at the time he/she completes the Aircraft Line Check on the Secondary MFF aircraft.

4.3 ***MFF Indoctrination Training***

4.3.1 The MFF Indoctrination Training shall be designed to equip the pilot with the necessary knowledge on MFF operations. This training shall be conducted either by qualified personnel or by any other means acceptable to the AACM.

5 Pilot's License Endorsement

5.1 When the pilot applies for endorsement on his/her license for the MFF operation, the operator shall provide evidence to show that the pilot meets the pre-requisites for MFF operation and has successfully completed the MFF Program. The pilot shall be in possession of valid Proficiency Checks for both Primary and Secondary MFF aircraft.

6 Periodical Training/Tests and Recent Type Experience – MFF Pilots

6.1 The operator shall ensure that each MFF pilot completes the training and tests for each type operated in accordance with the requirements set forth in Part B of the 9th Schedule to the ANRM, unless credits have been allowed by the AACM in accordance with sub-paragraph 6.4 below.

6.2 In the event the Proficiency Check (PC) or Line Check (LC) on the Primary MFF aircraft or Secondary MFF aircraft lapses, or a pilot failed the check, the operator shall not allow the pilot to carry out his/her flying duties on the aircraft type with lapsed or failed check. The pilot shall be withdrawn from MFF operations until the particular PC or LC on the lapsed or failed aircraft type is renewed or revalidated.

6.3 The operator shall ensure each MFF pilot maintains the recent type experience for each type operated in accordance with Part B of the 9th Schedule to the ANRM, unless credits have been allowed by the AACM in accordance with sub-paragraph 6.4 below. The take-off(s) and landing(s) can also be carried out in an approved flight simulator of the same type/class.

6.4 Where credits are sought to reduce the training and checking and recent type experience requirements between aircraft types, the operator must demonstrate to the AACM which items need not be repeated on each type because of similarities.

7 Cessation of MFF Operation by MFF Pilot

7.1 The operator shall inform the AACM of any MFF pilot who no longer carry out his/her flying duties as a MFF pilot.

8 Rostering MFF Pilots

8.1 The operator shall not roster a MFF pilot to operate on both Primary MFF Aircraft and Secondary MFF Aircraft within the same day or Flight Duty Period.

– END –

Appendix B Revalidation of the 90 days Take-Off and Landing Recency

1. If the pilot has not maintained the **TAKE-OFF and LANDING RECENCY**, the said pilot's recency may be re-validated by completing the following:

   (a) Completes a minimum of THREE satisfactory take-offs and a minimum of THREE satisfactory landings(1) in a Simulator(2), or a minimum of THREE satisfactory take-offs and a minimum of THREE satisfactory landings(1) in aircraft base training, either being within the period of 90 days which immediately precedes the commencement of the commercial air transport flights and under the supervision of an Authorized Examiner (Simulator) or Authorized Examiner (Aircraft) as applicable; and

   (b) The said pilot is accompanied by a Line Training Captain at the flying controls for the purpose of Line Flying Under Supervision (LFUS) for a minimum of THREE take-offs and a minimum of THREE landings(1), (3) and (4).

Notes:

(1) A satisfactory take-off or satisfactory landing in the simulator or aircraft means the candidate was in full control at all times and without major prompting or physical input to the flying controls or thrust levers by the Line Training Captain or Authorized Examiner as applicable.

(2) The minimum specified take-offs and landings in the simulator shall be completed in 'real time' between each take-off and subsequent landing.

(3) One unsatisfactory take-off or landing in the aircraft shall necessitate the termination of all further take-offs and landings and the pilot concerned shall revert to Pilot Monitoring (PM) duties only. On return to Base the said pilot shall repeat the items as outlined in sub-paragraphs 1(a) and 1(b) above.

(4) The LFUS shall consist of a minimum of 4 LFUS sectors to include the three take-offs and three landings and one Pilot Monitoring (PM) sector.

– END –