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Civil Aviation Authority of Singapore

Advisory Circular

OPERATIONS MANUAL FOR ANR-135 OPERATIONS

GENERAL 1
PURPOSE 1
APPLICABILITY 1
RELATED REGULATIONS 1
RELATED ADVISORY CIRCULARS 1
CANCELLATION 2
EFFECTIVE DATE 2
OTHER REFERENCES 2
1 PURPOSE OF OPERATIONS MANUAL 3
2 PART A - GENERAL 4
3 PART B – AIRCRAFT OPERATING MATTERS 8
4 PART C – ROUTES, AERODROMES AND HELIPORTS 12
5 PART D – TRAINING 13
APPENDIX A EN-ROUTE PERFORMANCE – DRIFT DOWN 14
APPENDIX B ALTIMETER PROCEDURES 15

GENERAL

Advisory Circulars (ACs) are issued by the Director-General of Civil Aviation (DGCA) from time to time to provide practical guidance or certainty in respect of the statutory requirements for aviation safety. ACs contain information about standards, practices and procedures acceptable to CAAS. An AC may be used, in accordance with section 3C of the Air Navigation Act (Cap. 6) (ANA), to demonstrate compliance with a statutory requirement. The revision number of the AC is indicated in parenthesis in the suffix of the AC number.

PURPOSE

This AC provides guidance to demonstrate compliance with, and information related to, requirements regarding the contents of an operations manual to be developed and maintained by an AOC holder operating under ANR-135. It elaborates the expected details to be included under the various parts of an operations manual as specified in the Fourth Schedule of ANR-135.

APPLICABILITY

This AC is applicable for an AOC holder operating in accordance with ANR-135.

RELATED REGULATIONS

This AC relates specifically to Regulation 175 and the Fourth Schedule of ANR-135

RELATED ADVISORY CIRCULARS

- AC 121-2-3 Standard Operating Procedures for Flight Crew Members
- AC 121-2-4 Flight Crew Procedures and Training during Taxi Operations
- AC 121-2-5 Preventing Injuries Caused by Turbulence
- AC 121-2-6 Mode Awareness and Energy State Management Aspects of Flight Deck Automation
- AC 121-2-7 Management of lithium batteries in the Aircraft Passenger Cabin

- AC 121-2-9 Procedures for Cabin Crew
- AC 135-2-1 Guidance on Operational Procedures for ANR-135 Operations

CANCELLATION
This is the first AC issued on the subject.

EFFECTIVE DATE
This AC is effective from 1 October 2018.

OTHER REFERENCES
Nil.

1 PURPOSE OF OPERATIONS MANUAL

1.1 The operations manual is the primary indication of the standards to be achieved by an AOC holder. Commercial air operation is highly complex and should be based on clearly defined standards and procedures. The adequacy of a manual will be assessed largely on this basis.

1.2 The scope of the manuals will vary considerably with the AOC holder's scale, scope, and complexity of its operations and, the type(s) of aircraft it is operating. The AOC holder may also refer to the following ACs for advice, as appropriate for ANR-135 operations, on the procedures that should be included.

- AC 121-2-3 Standard Operating Procedures for Flight Crew Members
- AC 121-2-4 Flight Crew Procedures and Training during Taxi Operations
- AC 121-2-5 Preventing Injuries Caused by Turbulence
- AC 121-2-6 Mode Awareness and Energy State Management Aspects of Flight Deck Automation
- AC 121-2-7 Management of lithium batteries in the aircraft passenger cabin
- AC 121-2-9 Procedures for Cabin Crew

1.3 The AOC holder should submit a copy of any proposed amendment or revision of the operations manual to the CAAS at least 30 days prior to its planned initial use. A new AOC applicant should be guided by AC 119-1-1 for his submission of his proposed operations manual.

1.4 A "manual" will normally comprise a number of separate volumes, and may well include individual forms that the AOC holder may establish for its personnel. These include prepared navigational flight plans supplied by the AOC holder to his crew. Instructions and information to particular groups of operating personnel – e.g. traffic manuals, cabin crew manual, aircraft crew rostering instructions, safety and accident prevention manual and information on mass and balance supplied to handling agents – are all part of the operations manual. They should all be submitted together with copies of all amendments and temporary instructions.

Note: The route guide may be contained in a volume or series of volumes forming Part C of the Operations Manual.

1.5 The manuals should be designed in a manner suitable for regular use by the operating personnel and in particular by aircraft crew in flight. For all but the simplest of operations, the division of the manual into a number of separate volumes will be essential. Manuals should be divided in such a way that essential information is immediately available on the flight deck, and extracts or "digests" of information and instructions may sometimes be necessary to supplement drill cards and check lists. "Operating personnel" refers to the employees and agents employed or engaged by the AOC holder, whether or not as members of the crew of the aircraft, to ensure that the flights of the aircraft are conducted in a safe manner, and includes an AOC holder who himself performs these functions.

1.6 The operations manual is to be structured in four main parts as specified in the Fourth Schedule of ANR-135. The following paragraphs provide more information for each of the parts.

2 PART A - GENERAL

2.1 DUTIES OF CREW AND OTHER OPERATING PERSONNEL

2.1.1 The duties of operating personnel are to be included in the Operations Manual Part A. In this context, the term “operating personnel”, as distinct from the aircraft crew, can be taken to mean personnel having specific duties in relation to particular flights, which fall within the general pre-flight and in-flight responsibilities of the pilot-in-command. The manual must define the duties and responsibilities of people employed as:

(a) pilot-in-command of the aircraft; the responsibilities and duties for the conduct of the operation and safety of the aircraft and all persons on board, during flight;

(b) flight operations officers/flight dispatchers, if the AOC holder’s approved method of control and supervision of flight operations requires the use of flight operations officers/flight dispatchers;

(c) rostering and scheduling personnel.

2.1.2 The duties of flight operations officers/flight dispatchers are specified in Regulation 23 of ANR-135. It is important that the pilot-in-command also conveys similar safety-related information to the flight operations officer/flight dispatcher during the course of the flight, particularly in the context of emergency situations.

2.1.3 In defining the duties of members of the aircraft crew, the AOC holder should include instructions on:-

(a) The briefing of passengers on emergency exits and equipment (including, where appropriate, life-jacket demonstration and use of “automatic drop-out” oxygen equipment) and restrictions of portable electronic devices (PEDs) such as laptop computers, mobile phones, personal radio, tape recorder, music player etc in flight

(b) Who, in the absence of competent ground engineering personnel, is responsible for supervising re-fuelling and ensuring that filler caps, re-fuelling valves, freight hold doors etc are secured.

(c) Who, in the absence of competent traffic personnel, is responsible for supervising the loading of the aircraft

(d) The duties of special personnel such as car marshallers and animal attendants

(e) The responsibility for taking precautions for the safety of passengers when they are permitted to embark, disembark or to remain on board during fuelling operations. There should be a nominated qualified person in attendance who is ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available. Two-way communication should be maintained by the aircraft’s intercommunication system or other suitable means between the ground crew and supervising and qualified personnel on board the aircraft.

(f) The responsibility for ensuring correct completion of the Technical Log, day to day servicing and any pre-flight maintenance checks, ground de-icing and anti-icing operational procedures and checks before flight or any other special pre-

flight servicing, such as when a flight is to be planned or expected to operate in suspected or known ground icing conditions.

(g) Limitations on the extent to which pilots and flight engineers may be allowed to operate on more than one aircraft type or variant.

2.1.4 Special consideration should be given to instructions on the arrangement of flight deck duties between the members of the flight crew, succession of command, and procedures such as that for double checking altimeter settings, and the selection and identification of radio aids. The risk of confusion or a serious oversight can be eliminated only if suitable routine procedures are laid down and meticulously observed both in training and in the course of normal operations. The AOC holders should therefore specify such procedures in detail, with particular reference to the division of duties during take-off, en-route and in the execution of an instrument approach procedure and “go around” in IMC, and to give them special emphasis in all training and periodical tests. The procedure for instrument approach in IMC in multi-crew aircraft should relieve the pilot-in-command of as much of the workload as possible, and through a proper division of duties and monitoring functions throughout the descent provide adequate safeguards against error or omission. The difficulty of transition from instruments in poor visibility should be taken fully into account, together with the need for a clear and systematic procedure for initiating “go-around” if there is any doubt about the advisability of continuing the approach by visual reference to the ground.

2.1.5 The division of duties between members of the crew in normal and emergency situations have to be promulgated.

2.2 STANDARD OPERATING PROCEDURES

2.2.1 As specified in the Fourth Schedule of ANR-135, the AOC holder has to develop standard operating procedures (SOP) for use by the crew members and operating personnel for every aircraft type operated. The SOPs are also to be developed taking human factors principles into consideration.

2.2.2 The SOPs include those that relate to the operation of an aeroplane in normal, abnormal and emergency situations. Such SOPs are to be consistent with the aircraft flight manual and the aircraft checklists to be used. The AOC holder may refer to AC 121-2-3, insofar as it may be relevant for operations under ANR-135, for guidance on details of SOPs that may be developed for flight crew.

2.3 GROUND HANDLING

2.3.1 The AOC holder should provide ground handling instructions, procedures and arrangements so that all ground handling tasks may be carried out in a standard manner. The AOC holder may refer to the IATA Airport Handling Manual to establish instructions, procedures and arrangements on ground handling.

2.3.2 In addition, the AOC holder should provide instructions to its personnel for the monitoring of performance of the contracted handling agents such that the tasks may be conducted safely.

2.3.3 The AOC holder should provide instructions, procedures and arrangements on the carriage of live animals. The AOC holder may refer to the IATA Live Animal Regulations to establish instructions procedures and arrangements on the carriage of live animals.

Notes:

(1) Ground handling includes services, other than air traffic services, that are necessary for an aircraft's arrival at or departure from, an airport.

(2) The AOC holder remains responsible even when all or part of the functions or tasks related to ground handling services have been contracted to service provider(s).

2.4 MAINTENANCE INFORMATION FOR FLIGHT CREW

2.4.1 The AOC holder should include information regarding maintenance or engineering arrangement in the Operations Manual so that:

(a) the flight crew is advised of the action to be taken to obtain engineering assistance when the aircraft are away from main base, of the procedures which are acceptable for any necessary certifications, and of the procedure to be adopted where any doubt exists over work being carried out by any other organisation, or which cannot be certified.

(b) Where no arrangements have been made in respect of maintenance or engineering support at route stations, the flight crew is advised of the procedures to be followed for reporting defects to main base.

(c) the flight crew is informed of any advisory information of a temporary nature to flight crews, for e.g. an information sheet may be included in the technical log containing the relevant data in respect of modifications to the aircraft, trial installations or other changes which the crew need to be aware of during their operation of the aircraft, or which impose operating restrictions.

2.5 DANGEROUS GOODS

2.5.1 The AOC holder, as required in Regulation 66 of ANR-135, is required to include information and instructions on the carriage of dangerous goods in the Operations Manual.

2.5.2 For an AOC holder who is not authorized to carry dangerous goods as cargo in accordance with Regulation 14 of ANR-135, the operations manual should specify this and contain dangerous goods policies and procedures to allow the AOC holder's personnel and its agents to:

(a) identify and reject undeclared dangerous goods, including COMAT classified as dangerous goods;

(b) identify, handle and accept dangerous goods permitted to be carried by passengers and crew as specified in ICAO TI Part 8;

(c) report to the appropriate authorities of the Director-General of Civil Aviation and the State in which it occurred any:
(i) occasions when undeclared dangerous goods are discovered in cargo or mail; and

(ii) dangerous goods accidents and incidents;

(d) take action in the event of emergencies arising involving dangerous goods.

2.5.3 For an AOC holder who is authorized to carry dangerous goods as cargo in accordance with Regulation 14 of ANR-135, the operations manual should specify this including any applicable operational approval and limitations and contain dangerous goods policies and procedures to allow the AOC holder's personnel and its agents to:

(a) identify and reject undeclared or misdeclared dangerous goods, including COMAT classified as dangerous goods;

(b) identify, handle and accept dangerous goods permitted to be carried by passengers and crew as specified in Part 8 of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284);

(c) report to the Director-General of Civil Aviation and the State in which it occurred any:
(i) occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail; and

(ii) dangerous goods accidents and incidents;

(d) report to the Director-General of Civil Aviation and the State of Origin any occasions when dangerous goods are discovered to have been carried;

(i) when not loaded, segregated, separated or secured in accordance with the ICAO TI; and

(ii) without information having been provided to the pilot-in-command;

(e) accept, handle, store, transport, load and unload dangerous goods, including COMAT classified as dangerous goods as cargo on board an aircraft;

(f) provide the pilot-in-command with accurate and legible written or printed information concerning dangerous; and

(g) take action in the event of emergencies arising involving dangerous goods.

Notes:
(1) Guidance material on the development of policies and procedures for dealing with dangerous goods incidents on board aircraft is contained in Emergency Response Guidance for Aircraft Incidents involving Dangerous Goods (ICAO Doc 9481).

(2) COMAT" means AOC holder material carried on an AOC holder's aircraft for the AOC holder's own purposes.

3 PART B – AIRCRAFT OPERATING MATTERS

3.1 TECHNICAL PARTICULARS OF AIRCRAFT

3.1.1 The AOC holder should include, for each aircraft type operated, the "technical particulars of the aircraft" as part of the operational manual. The AOC holder should take care to distinguish between specific information to be used in the course of flight operations and the more general basic information that a pilot might need to prepare for a technical type rating examination. If detailed descriptive matter is included as part of the manual, it should be in a separate volume. Information on the following matters, in particular, should be provided in a form suitable for use as an immediate reference in day-to-day operations:

(a) Action to be taken in the kind of technical emergency or fault that cannot be covered by a set drill of vital actions. Information should be provided about the effect on essential systems and services of serious faults such as the loss of generated electrical power. Information to be provided will vary with the type of aircraft and together with the emergency drills, it should be in a readily identified section of the manual (e.g. on distinctively coloured pages).

(b) Procedure for pre-departure inspection as required by the maintenance programme including a check of the fuel system for water content.

(c) Replenishment of the aircraft's fuel, oil, coolant, hydraulic fluid, de-icing and water methanol supplies to an approved specification. Checking of accuracy of fuel uplift and total contents, particularly for operations in remote areas.

(d) Supervising refuelling and the topping up of tyres, oleos, de-icing and hydraulic systems, including oxygen and air reservoirs. The refuelling information should include any specific precautions called for by:

(i) the use of wide cut fuels; and

(ii) the "off aerodrome" situation where either a fuelling vehicle or a barrelled supply is used.

(e) Calculation of critical airspeeds and mach numbers, variable thrust, and tail plane settings.

(f) Maker's and/or AOC holder's limitations affecting the handling of engines and pressurisation systems.

(g) Procedure and precautions to be observed in order to jettison fuel.

(h) Compliance with any special handling instructions.

(i) Procedure and precautions to be observed in response to ACAS, GPWS and windshear alerts and warnings.

3.1.2 With regard to aircraft performance, the AOC holder should normally provide its pilots-in-command with information and simplified data from which they can readily determine without reference to a Flight Manual or Performance Schedule the maximum mass at which they may take-off or land on a particular flight. The maximum mass referred to is that resulting from the statutory mass and performance requirements or limitations such as zero fuel mass contained in the Flight Manual. In many cases (on regular or

scheduled operations) it would only be necessary to indicate that there was no restriction under the performance requirements; in others it might be necessary to indicate which of the requirements is critical and to provide a tabular or other clear presentation of limiting masses in varying environmental conditions such as wind and temperature. There would also be instances in which it would be both practicable and desirable for the AOC holder to indicate any special flight procedures – such as minimum height for setting course in IMC or emergency turn after take-off in the event of engine failure – essential to secure compliance with the performance requirements in relation to the obstacle clearance data provided in the Aerads, Jeppesen or any other charts approved by the DGCA or by the State in which the aerodrome is located.

Note: As standard instrument departure (SID) routes do not guarantee adequate terrain clearance for all aircraft in the engine out case, the AOC holder should check that the performance requirements are met for all SIDs used by the AOC holder's aircraft. Similarly, any emergency turn after take-off onto routes contained in the aircraft's operations manual, and approved for use by the local air traffic control, should also have been checked for compliance with the performance requirements.

3.1.3 Information should also be given on the following points:

(a) Landing or take-off on runways affected by water, snow, slush or ice, with particular reference to techniques, the additional distances required and the crosswind limitations.

(b) Allowances to be made for the effect of varying surface conditions where grass strips are used.

(c) Crosswind limits for take-off and landing. It is not sufficient to repeat a statement in a flight manual that a particular crosswind component has been found to be acceptable; AOC holders' limitations should be stated in unequivocal terms. In gusty conditions, the limit shall apply to the mean of the reported steady wind and reported gusts. Limits in excess of any figure mentioned in the flight manual will not be acceptable. Lower limits must be stated for use on a contaminated runway and where appropriate for landing with control, steering, or retarding systems not fully serviceable or following an engine failure.

(d) Minimum strip widths to be available after the clearance of snow, together with the maximum height of associated snow banks.

(e) For light aircraft, maximum permissible wind velocities for taxiing, take-off and landing.

(f) Allowances to be made for the effect of unserviceable devices such as flaps, reversers, air brakes, etc.

(g) Drift-down procedures to be followed on specific routes after failure of an engine, if the aircraft's stabilising altitude is likely to be critical in terms of safety height: further guidance on the subject is at **Appendix A**.

(h) Special handling techniques and/or routing procedures resulting from noise abatement regulations related to particular airfield and runways. The noise abatement procedures specified for any one aircraft type should be the same

for all aerodrome, unless otherwise approved by the DGCA: further guidance on this subject is provided in AC 135-2-1.

(l) Instructions on the conditions under which ferry flights with one engine inoperative can be undertaken, with details of the procedures to be followed.

Note: In respect of any operating conditions for which no relevant data is provided in the flight manual or performance schedule, it is more important that the AOC holder seeks information and approval of the data to be used from the DGCA.

3.1.4 A statement should be included in the manual to the effect that simulated instrument flight, and the simulation of emergency situations which might affect the flight characteristics of the aircraft, are prohibited on passenger or cargo carrying flights.

3.2 EMERGENCY EVACUATION PROCEDURES

3.2.1 The manual should specify the procedures to be followed by the aircraft crew for the rapid evacuation of an aircraft, and the care of passengers, in the event of a forced landing, ditching or other emergency. Much of the material will necessarily be descriptive but it is essential that the basic drills to be followed by the various members of the aircraft crew should be summarised and tabulated. Particular attention should be paid to the following points:

(a) The correct setting for pressurisation controls – e.g. spill valves, safety valves, discharge valves – prior to ditching;

(b) The proper use of emergency escape chutes;

(c) The method of fitting life-jackets to small children;

(d) The briefing of passengers and warning of impact;

(e) The seating of aircraft crew members adjacent to exits which drills require them to open;

(f) Crowd control (particularly in relation to aircraft capable of carrying large numbers of passengers) including procedures for initiating and maintaining the rapid egress of passengers in the event of an emergency evacuation;

(g) The need to move passengers away from the vicinity of the aircraft after evacuation.

3.2.2 Clear instructions should be given in the manual (supplemented by simple diagrams) on the location and, where it is not self-evident, the method of use of each item of emergency and survival equipment such as escape chutes and ropes, exits, fire extinguishers, oxygen masks and smoke protection equipment, emergency lights, portable lights, first aid kits, dinghies, life-jackets, survival packs, emergency radio, and life cots. It is especially important that differences between individual aircraft of the same type are clearly shown.

3.2.3 Special consideration should be given to the problems posed by the carriage of disabled passengers and the possible need to carry additional cabin crew. The pilot-in-command should be made aware of the presence of severely disabled persons on

board, and of the precautions taken to minimise the effect of their carriage on the conduct of an emergency evacuation of the aircraft.

3.2.4 The AOC holder should ensure that there are satisfactory arrangements for cabin crew to be warned immediately of any emergency which might require the rapid evacuation of passengers from the aircraft

3.3 USE AND CHECKING OF ALTIMETERS

3.3.1 The AOC holder should provide detailed instructions in their operations manuals about altimeter setting procedures and in particular, about their policy regarding the use of QFE and QNH.

3.3.2 The instructions should include pre-flight serviceability checks, the settings to be used on each altimeter for each phase of flight, and the monitoring and cross-checking duties of flight crew during climb and descent and whenever a setting is changed.

3.3.3 In order to facilitate effective monitoring during the approach and landing phase in aircraft operated by two pilots, the DGCA requires that both pilots' altimeters be set to the same datum unless otherwise approved by the DGCA.

3.3.4 Guidance material on the use of altimeters is contained at **Appendix B**.

4 PART C – ROUTES, AERODROMES AND HELIPORTS

4.1 ROUTE GUIDE

4.1.1 The route guide may be contained in a volume or series of volumes of the Operations Manual. Aerad, Jeppesen or similar publications approved by the DGCA will normally meet the requirement provided that flight crew are given adequate advice on the route to be followed. An AOC holder providing his own guide should ensure that it meets the needs of crew in every respect. If flights are to be made only on airways or advisory routes (ADRs), it would be sufficient to include instructions to that effect; otherwise routes regularly flown should be specified in detail, normally on prepared navigation flight plans. For other flights, routes should be specified in a pilot-in-command's flight brief, a copy being retained at base. The AOC holder is not required to lodge copies of standard Aerad or Jeppesen or similar flight guides with the DGCA

4.1.2 Particular care should be taken to ensure that adequate information is provided on; search and rescue facilities, obstructions in the approach pattern, radio failure procedures, prohibited and danger areas, standard TMA routings, seasonal meteorological conditions, ATC communications and navigational facilities and procedures associated with the route along the route(s) and applicable procedures over heavily populated areas and areas of high traffic intensity, obstructions, physical layout, lighting, approach aids and arrival, departure holding and instrument approach procedures, and applicable operating minima. Only recognised instrument approach or let-down procedures in general use should normally be included in the flight guide. Exceptionally, a special "break cloud" procedure devised by the AOC holder may be considered acceptable provided it has been approved by the appropriate airport authority. Proposals to use such special procedures, accompanied by the associated aerodrome operating minima, should be submitted for approval to the DGCA

4.1.3 Normally, the cancellation of IFR flight plans at night or in congested terminal areas should be prohibited, and instructions to this effect included in the manual. If an AOC holder does not wish to impose a total prohibition, detailed instructions should be included in the manual setting out the minimum conditions that must be satisfied before cancellation of an IFR flight plan.

4.1.4 In order to facilitate effective monitoring of an instrument approach by members of the flight crew, AOC holders of multi-crew aircraft should provide for use on the flight deck at least two copies of the instrument approach charts to be used.

5 PART D – TRAINING

5.1 The training manual resides in the operations manual, it may also be a separate volume addressed primarily to training staff. The form that the manual takes will vary considerably according to the size and complexity of the AOC holder's organisation and the aircraft he/she uses, and its adequacy will be assessed solely on the basis of its suitability for the AOC holder's particular needs and circumstances.

5.2 The following matters should be covered for flight crew training:

(a) Requirements in respect of the qualifications, training and experience of training personnel;

(b) A comprehensive statement of the duties and responsibilities of all training personnel, which should include their names, the type of training and/or testing which they may conduct, and the types of aircraft used by the AOC holder;

(c) Minimum standards of experience and of initial and periodical training to be met by all aircraft crew for each type of aircraft used by the AOC holder;

(d) Detailed syllabi and specimen record forms for all training and testing;

(e) Arrangements for administering and recording the periodical tests of all aircraft crew;

(f) Methods of simulating instrument flight conditions;

(g) Methods of simulating engine failure;

(h) Procedures for touch-and-go or stop-and-go landings, including flap settings, minimum runway lengths, brake cooling requirements and handling techniques;

(i) Limitations on training and testing in the course of flights for the purpose of public transport. Note 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 public transport of passengers;

(j) Instructions covering retesting and retraining after unsatisfactory performance or periods off flying due to illness or other causes;

(k) The use of flight simulators; and

(l) The assessment and training of crew in the use of Crew Resource Management and Human Factors.

APPENDIX A EN-ROUTE PERFORMANCE – DRIFT DOWN

1 The AOC holder should be aware of the routes on which the en-route performance of his aircraft, following the failure of one or two engines, will be critical and should include instructions relating to such routes in their operations manuals in order to reduce the risks which could arise from indecision or error in the case of engine failure.

2 In the case of critical routes it may, in some cases, be possible to regulate the aircraft's planned take-off weight to such an extent that its drift-down performance following engine-failure (in the case of turbine-engined aircraft from a height not exceeding the maximum re-light altitude) will enable it to clear all obstacles on its route by the required margin regardless of the point at which the failure occurs. In other cases, it may be necessary to calculate a critical point, or a number of critical points, which would determine the action to be taken in the event of engine failure at any given position, i.e. turn back, continue along the planned route or divert along an alternative route

3 Instructions should take into account the accuracy of navigation which may be expected of the flight crew in view of the crew complement and the aids available. Account should also be taken of the effect of varying meteorological conditions. Assumed winds and temperatures used in the calculation of the critical point(s) must be indicated because, if forecast or actual conditions differ from these used at the planning stage, the pilot-in-command may require to amend the drift-down procedure.

APPENDIX B ALTIMETER PROCEDURES

1 This appendix is intended to assist the AOC holder in preparing instructions relating to the proper use of all altimeters on the aircraft flight deck. It applies mainly to multi-crew operations, but can, with few exceptions, be applied to single-pilot operations. It is for the AOC holder to determine their own policy in using AFE or QFE for landing; this policy should be reflected in the instructions and procedures which should be clear, positive and consistent.

2 Instructions should cover all stages of the operation of the aircraft, both before and during flight. The AOC holder's basic policy should be accurately reflected in its check lists, and take account of the following:

(a) Pre-flight serviceability tests:

(b) The settings to be made on each altimeter on the flight deck prior to take-off and at each stage of the flight:

(c) During the approach phase a check of airfield height is required; a cross check of airfield height against the difference between the QFE and QNH settings should also be made when QFE is used for landing

3 Additional instructions should be included on the following (where appropriate to the basic policy):

(a) The procedure for indicating decision heights for landing; this might range from a figure in the navigation log to altimeter bugs and/or separate "landing data cards".

(b) The settings and procedures to be adopted when QFE is not available or cannot for some reason be used by an aircraft when the AOC holder's normal policy is to use QFE.

(c) The manner of checking and of the use of any non-pressure altimeter(s).

(d) The provision of appropriate procedures if an altimeter becomes unserviceable in flight, and also the conditions to be met if this is a pre-flight allowable deficiency.

(e) The manner of setting the altimeters, when the take-off or landing is carried out from the co-pilot's seat. Unless there are good reasons for doing otherwise, AOC holders should not vary their normal policy.

Note: Neither in the policy statement nor in the check lists is it sufficient for the word "set" to be used. The setting required by the AOC holder should be clearly stated in respect of each altimeter concerned, including any "standby" altimeter.

4 The following matters should also be covered in the operations manual:

(a) The calls to be made by the monitoring pilot during instrument approaches, e.g. at the outer marker and at 100 ft above decision height or thereabouts. In the case of Category II and III weather minima approaches, the appropriate calls and responses will need to be stated in some detail.

(b) Correct reporting of height changes to ATC: it should be particularly noted that the report should not be made before arriving at or before leaving the particular altitude/level.

(c) Provision of one altimeter to be set to an appropriate QNH setting when flying at or near to the Minima Safe Altitude (particularly for unpressurised single crew aircraft) would be a prudent precaution.

(d) Cross checking of altimeters at appropriate intervals by all flight deck crew during climb and descent.

(e) Instructions requiring the monitoring pilot to advise the flying pilot that he is approaching the assigned altitude or level.

(f) An instruction requiring the crew to inform ATC, prior to commencement of a radar approach, of the intention to use QNH settings throughout the procedure.

(g) Procedures for use of Altitude Alert Systems, if fitted.