CAP 8200

Flight Operations Inspector Manual

Approved by the Director General of Civil Aviation

Fourth Edition – 2013

Directorate General of Civil Aviation, India

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		Volume 0 Chapter 0	
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FLIGHT OPERATIONS INSPECTORS MANUAL

AIR OPERATOR CERTIFICATION, ADMINISTRATION AND SURVEILLANCE, TRAINING AND QUALIFICATION

Fourth Edition – 2013
(*Issued 25th Nov 2013)*

FOREWORD

The following responsibilities of the State of an international operator are explicit within Annex 6, Part 1, to the Convention on International Civil Aviation:

- Issue an Air Operator Permit (AOP) or equivalent document which shall be dependent upon the operator demonstrating an adequate organization, method of control and supervision of flight operations, training program, and maintenance arrangements consistent with the nature and extent of the operation specified (Para. 4.2.1.3);

- Ensure that the operator continues to maintain the requirements which resulted in the issuance of the AOP (Para. 4.2.1.4);

In discharge of its responsibilities for regulating air transportation and ensuring safety of aircraft operations, DGCA has laid down detailed rules, regulations and procedures under the provisions of Aircraft Act, 1934 and the Aircraft Rules, 1937. The main responsibility for the safe conduct of the operations and for compliance with the laws, rules, regulations and directions issued from time to time is that of the operator. These laws and regulations cannot in themselves provide the operator with comprehensive and detailed instructions on which to base his operations. The operator should, therefore, develop his own detailed operating procedures necessary for safety, regularity and efficiency of operations within the frame work of the laws, rules, regulations, and directions issued by DGCA from time to time. Accordingly, permits for operating the following types of air transport services are presently issued by DGCA to applicants who meet the laid down requirements for the specific type of air transport service:

1. Scheduled Air Transport Service (Passenger)
2. Scheduled Air Transport Service (Cargo)
3. Non- Scheduled Air Transport Service (Passenger)
4. Non- Scheduled Air Transport Service (Cargo)

These permits are equivalent to the Air Operator's Certificate required to be granted by ICAO member States in accordance with the provisions of Annex 6. Permits for any other special type of operation can be granted subject to the applicant showing satisfactory capability to undertake the type of operations. Certification and continuing surveillance go hand in hand. The same government infrastructure that ensures a valid certification process leading to the issuance of an AOP will provide for an adequate surveillance program and for competent day-to-day operator administration and oversight.

This manual is intended to provide detailed instructions for Flight Operations Inspector's of Directorate General of Civil Aviation, India, to carry out its flight operations certification and inspection responsibilities. It is divided into four volumes: Volume 1 contains the procedures to be followed by the DGCA and operators for the issuance of

an AOP and is referenced to CAP 3100 Air Operators Certification Manual. Volume 2 contains selected practices related to operator and pilot certification and administration; Volume 3 contains requirements for continuing inspection (surveillance) of certificated operators; and Volume 4 contains training and qualification requirements of Flight Operations Inspectors. Many of the types of inspections which are part of a surveillance programme of certificated operators are practically identical to those required for issuance of and AOP. Thus, when appropriate, Volume 1 (reference CAP 3100) makes reference to procedures to be followed, which are contained in Volume 3.

Sd/-
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India
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VOLUME 1 – CERTIFICATION OF AIR OPERATORS

Refer to
CAP 3100 – AIR OPERATOR CERTIFICATION MANUAL

VOLUME 2 - AIR OPERATOR ADMINISTRATION

CHAPTER 1- OPERATIONS SPECIFICATIONS

1.1 BACKGROUND.

Within the air transportation industry there is a need to establish and administer safety standards to accommodate many variables, including: a wide variety of aircraft; a wide range of operator capabilities; the various situations requiring different types of air transportation; and the continual, rapid changes in aviation technology. It is impractical to address these variables through the promulgation of safety regulations for each and every type of air transport situation and the varying degrees of operator capabilities. Also, it is impractical to address the rapidly changing aviation technology and environment through the regulatory process. Safety regulations would be extremely complex and unwieldy if all possible variations and situations were addressed by regulation. Instead, the safety standards established by regulation should usually have a broad application which allows varying acceptable methods of compliance. Operations Specifications provide an effective method for establishing safety standards that address a wide range of variables. In addition, Operations Specifications can be adapted to a specific operator's class and size of aircraft and type and kind of operation. Operations Specifications can be tailored to suit an individual operator's needs. Only those authorizations, limitations, standards, and procedures that are applicable to an operator need to be included.

Operations Specifications are issued along with the AOP and amended as necessary to reflect the current fleet and operating environment of the air operator. Amendments to the Operating Specifications serve as variances to the AOP.

The operator must make the content of his Operations Specifications available to all company personnel. To that end, they should be included in appropriate sections of his Operations and Maintenance manuals..

1.2 CONTENT OF OPERATIONS SPECIFICATIONS.

The Operations Specifications shall be issued in the format given in CAP 3100 Air Operator Certification Manual Appendix E which contains the items like Area of Operations, Special authorisations e.g. Carriage of Dangerous Goods, ILS Cat II /III/ and LVTO, RNAV and RNP, RVSM, EDTO (ETOPS), MNPS etc. These authorisations are endorsed in the permit by Directorate of Air Transport only after receipt of the operational approval from the Flight Standards Directorate which is issues only after airworthiness approval for the special authorization has been received from the Directorate of Airworthiness

CHAPTER 2 – AUTHORIZATION OF INSTRUCTORS AND LINE TRAINING CAPTAINS (LTCS)

2.1 BACKGROUND AND OBJECTIVES.

Operators are required to provide enough Instructors to carry out the flight training and assessments as specified in their approved training programmes. To assist Instructors in line training duties, the operator is empowered to authorize Line Training Captains (LTCs) and have oversight over the latter. The DGCA must specifically authorize operator personnel who are to serve as Instructors after a thorough review of the candidate's background, experience, training, and competency.

2.2 ELIGIBILITY REQUIREMENTS FOR INSTRUCTORS AND LTCs

Operator personnel who are to serve as Instructors and LTCs must meet the requirements as laid down in CAR Section 7 Series I Part II.

2.3 INSTRUCTORS AUTHORIZATION PROCESS.

The following sequence of events will be followed for DGCA authorization of Instructors:

a) Operator's Post-holder Training shall forward the names of pilots proposed as Instructors to FSD, DGCA. Operators, before recommending the names of the pilots, shall subject the pilots to a process of selection and suitability tests. Formal advice of the acceptability of each nominee Instructor must be received from DGCA prior to commencement of the Instructor training course.
b) After completion of training, the completed records shall be submitted to FSD, DGCA for authorization as Instructor.
c) The pilot trained as Instructors shall be checked for proficiency by DGCA Flight Inspector.

2.4 LTC AUTHORIZATION PROCESS

LTC shall be authorized by the Post-Holder Training of the operator and function under the operator's oversight.
The pilots trained as LTCs shall be checked for proficiency by the operator.

2.5 CONDUCT OF AN INSTRUCTOR EVALUATION.

The purpose of the Instructor evaluation is to ensure that the candidate has achieved the required skills for briefing, evaluating, and debriefing a pilot being checked. An Instructor evaluation does not entail an evaluation of the candidate's proficiency in the basic pilot crew position. An operator should not request authorization of an individual as an Instructor when there is any question about the pilot's skills in the basic pilot crew position. Should the DGCA inspector have reason to question the pilot basic crew qualifications, the Instructor evaluation shall not be conducted until the candidate's qualifications are definitely and thoroughly verified and accepted. An acceptable means of establishing the pilot basic crew qualifications is for an inspector to conduct a proficiency, competency, or line check of the Instructor candidate on a separate occasion before the Instructor evaluation. Such checks, however, are not routinely required.

The following general guidance applies to all Instructor evaluations:

a) Flight Inspectors assigned to conduct Instructor evaluations must become thoroughly familiar with the operator's methods and procedures. Inspectors should also become familiar with the regulatory requirements for the privileges to be exercised Instructor candidate. This familiarity is necessary if the inspector is to make a determination as to whether or not the Instructor has the ability to conduct training or assessments consistent with the operator's approved procedures and regulatory requirements.
b) An inspector conducting an Instructor evaluation must arrange to meet with the Instructor candidate in sufficient time for a pre-evaluation briefing. The inspector shall inform the candidate of the purpose of the evaluation . During the briefing, the inspector should also ask questions of the candidate to determine if the candidate has a thorough knowledge and understanding of applicable DGCA regulations, operator policies, methods and procedures, and of the actions to be taken when acceptable standards are not met.
c) While the proficiency check is in progress, the inspector must observe, but should not interrupt or interfere with the techniques and actions taken by the Instructor candidate. The inspector must determine if all required events were accomplished and if each event was properly conducted. The candidate's evaluation of the pilot's performance must be accurate. The candidate's debriefing of the pilot must be accurate, complete, and constructive.
d) If the inspector determines that an Instructor candidate does qualify for the requested authorization the inspector shall inform the candidate that a recommendation of approval will be reported to the DGCA.
e) In case of failure of an Instructor candidate , the DGCA may allow a re-evaluation. In such a case, the operator must conduct sufficient additional training, recertify the candidate's proficiency, and then arrange to have another evaluation conducted by a DGCA inspector

2.6 VALIDITY AND RENEWAL OF INSTRUCTORS

2.6.1 Unless revoked or suspended, the authorization of the Instructor shall remain valid for a period of five years from the date of issue of authorization so long as the pilots continue to meet the applicable requirements as per CAR Section 7 Series I Part II and remain in the employment of the operator who has obtained the authorization.

2.6.2 The DGCA authorized Instructors shall be required to undergo assessment of their continued proficiency in carrying out their privileges as Instructors. Such assessment shall be carried out in the simulator as a "Instructor Standardization Check" once in two years by a Designated Examiner of the operator, record of which will be forwarded to FSD.

2.6.3 Renewal of authorization of Instructor shall be accorded after submitting the following documents by the operators at least three months in advance.

a) Record of training done in last 24 months.
b) Copy of license and medical certificate.
c) Record of standardization checks.

The request will be examined at FSD, and if found satisfactory, a DGCA FOI will assess the proficiency as in Para 2.3 above following which the authorization may be extended for another 5 years.

2.7 WITHDRAWAL OF INSTRUCTOR PRIVILEGES

2.7.1 Policy

Privileges granted to a pilot as an Instructor may be withdrawn by the DGCA if the pilot is found lacking in any of the requirements. Besides, a Board consisting of the Chief of Operations and Chief of Training of the operator may also recommend to the DGCA, withdrawal of privileges as Instructor in respect of any pilot giving adequate justification.

Instructor privileges may be withdrawn by the DGCA, in part or in whole, for due cause. In these cases, the DGCA Flight Standards Directorate will issue a written notification of withdrawal of privileges to the Instructor concerned, and also inform the applicable Operator(s). Where there is an immediate threat to safety, this privilege will be withdrawn immediately. The DGCA may withdraw an Instructor's authority if evidence shows that an Instructor has:

- At any time, acts in a manner which is in contravention of the guidelines contained in CAR Section 7 Series I Part II;

- Failed to follow the applicable instructions to maintain the required standards, or to follow proper procedures;
- Tested alcohol positive in a pre/post flight medical check;
- Fraudulently misused Instructor authority, or acted in any other way that would discredit the DGCA;
- Breached the DGCA Civil Aviation Rules and Regulations; or
- During the course of a Proficiency Check, Skill Test or Standardization Check failed to meet the required DGCA Standards. The Instructor will be informed verbally, immediately upon completion of the Proficiency Check or Skill Test, or the Inspector may stop the check at the time an overall failure is awarded.

Except where there is an immediate threat to safety, the DGCA, prior to making a final decision in the matter of withdrawal of an Instructor's authority, shall ensure the matter has been investigated thoroughly; and the Instructor and, where applicable, the concerned Operator, have been given a formal opportunity to respond to the allegations, either verbally or in writing.

2.7.2 **Procedure**

The following steps shall be followed when withdrawing the approval of an Instructor;

a) Except in the case of an immediate threat to safety, upon receipt of evidence demonstrating grounds for withdrawal of approval the CFOI shall notify the Instructor and the Operator(s), if applicable, in writing of the pending investigation and the alleged grounds for withdrawal. The Instructor and the Operator(s) shall be provided an opportunity to respond to the evidence. The CFOI shall conduct the formal investigation and consider the facts provided by the Instructor and the Operator(s).
   In the case of an immediate threat to safety, the DGCA may immediately withdraw approval and conduct a formal investigation after the withdrawal.

b) At the completion of the formal investigation, the CFOI will make a determination whether to recommend withdrawal of approval. If the CFOI determines that withdrawal is warranted, the CFOI will make a recommendation for withdrawal to the JDG. If the CFOI determines that withdrawal is not warranted, the CFOI shall notify the Instructor in writing of the determination.

c) After considering the recommendation for withdrawal, the JDG or DG will approve or reject the CFOI's recommendation. Upon receiving the decision from the JDG or DG, the CFOI will issue written notification Instructor concerned, and also inform the applicable Operator(s), of the results of the investigation and the withdrawal of approval, if applicable.

Note: Refer Operations Circular 2 of 2013 - Withdrawal/Reinstatement of Trainer Approval

2.8 VALIDITY, RENEWAL AND STANDARDS OF LTC

The validity and renewal of LTC authorization and standards required to be maintained by the LTC are the responsibility of the operator.

2.9 TRANSITION OF INSTRUCTOR AND CHECK PILOT APPROVALS ISSUED PRIOR TO 22ND SEP 2014

DGCA has permitted a transition period of trainer approvals issued prior to 22nd Sep 2014. The following procedure will be followed till the transition period ending 01st Oct 2015;

a) Standardization checks will be done as per two year cycles under which the approvals were issued for individual trainers. For check pilots, the standardization will be done on a single route sector in the aeroplane. For Instructors, the standardization will be done as a proficiency check in the simulator. Case by case basis approval may be given by DGCA to conduct this check in an aeroplane when a type simulator is not available.
b) Withdrawal of Instructor/SFI/Check Pilots will be subject to the policy and procedure as per Para 2.7 above.

2.10 GROUND INSTRUCTORS.

2.10.1 A ground instructor is a person employed by an operator or training centre for the purpose of training flight crewmembers in an operator's approved training curriculum. These instructors provide the required training for flight crewmembers to ensure that the acceptable standards of knowledge and the necessary skills to complete a particular curriculum segment are met. When designated by the employer, an nstructor is responsible for certifying to the knowledge and proficiency of each crewmember upon completion of a training curriculum or curriculum segment. Instructors must be knowledgeable in the applicable DGCA requirements and in the operator's required policies and procedures applicable to each designated area of expertise. An instructor must possess effective communicative skills. An instructor's manner should reflect honesty and professionalism, and the instructor must exhibit a positive attitude toward safe aviation practices.

2.10.2 Criteria for approval of ground instructors are given in CAR Section 7 Series I Part VII. Through periodic inspections of operator training programmes as described in Volume 3 of this manual, the DGCA will ensure ground instructor competency, uniform methods of presentation, and compliance with approved training syllabi.

CHAPTER 3 – APPOINTMENT OF EXAMINERS

3.1 BACKGROUND AND OBJECTIVES.

Operators are required to provide enough Examiners to carry out the checks as specified in their approved training programmes The DGCA must specifically appoint operator personnel who are to serve as Designated Examiners (DEs) appointed under CAR Section 7 Series I Part I after a thorough review of the candidate's background, experience, training, and competency. This Chapter deals with the policies and procedures for DEs. Examiners for non-scheduled , GA and helicopter operators will be governed by CAR Section 7 Series I Part II, IV and supplemented by the policies and procedures in this Chapter as required.

3.2 ELIGIBILITY REQUIREMENTS FOR DEs

Operator personnel who are to serve as DEs must meet the requirements as laid down in CAR Section 7 Series I Part I for scheduled operators and CAR Section 7 Series I Part III, IV for non-scheduled, GA and helicopter operators.

3.3 EXAMINER APPOINTMENT PROCESS.

CAR Section 7 Series I Part I and CAP 7200 DE Manual will be applicable for DEs. For other examiners, respective CARs as in Para 3.1 above will apply.

3.4 CONDUCT OF AN EXAMINER EVALUATION.

The purpose of the Examiner evaluation is to ensure that the candidate has achieved the required skills for briefing, evaluating, and debriefing a pilot being checked. An Examiner evaluation does not entail an evaluation of the candidate's proficiency in the basic pilot crew position. An operator should not request appointment of an individual as an Examiner when there is any question about the pilot's skills in the basic pilot crew position. Should the DGCA inspector have reason to question the pilot basic crew qualifications, the Examiner evaluation shall not be conducted until the candidate's qualifications are definitely and thoroughly verified and accepted. An acceptable means of establishing the pilot basic crew qualifications is for an inspector to conduct a proficiency, competency, or line check of the Examiner candidate on a separate occasion before the Examiner evaluation. Such checks, however, are not routinely required.

The following general guidance applies to all Examiner evaluations:

a) Flight Inspectors assigned to conduct Examiner evaluations must become thoroughly familiar with the operator's methods and procedures.

Inspectors should also become familiar with the regulatory requirements for the functions to be exercised Instructor candidate. This familiarity is necessary if the inspector is to make a determination as to whether or not the Examiner has the ability to conduct checks consistent with the operator's approved procedures and regulatory requirements.

b) An inspector conducting an Examiner evaluation must arrange to meet with the Examiner candidate in sufficient time for a pre-evaluation briefing. The inspector shall inform the candidate of the purpose of the evaluation. During the briefing, the inspector should also ask questions of the candidate to determine if the candidate has a thorough knowledge and understanding of applicable DGCA regulations, operator policies, methods and procedures, and of the actions to be taken when acceptable standards are not met.

c) While the standardization check is in progress, the inspector must observe, but should not interrupt or interfere with the techniques and actions taken by the Examiner candidate. The inspector must determine if all required events were accomplished and if each event was properly conducted. The candidate's evaluation of the pilot's performance must be accurate. The candidate's debriefing of the pilot must be accurate, complete, and constructive.

d) If the inspector determines that an Examiner candidate does qualify for the requested appointment the inspector shall inform the candidate that a recommendation of approval will be reported to the DGCA.

e) In case of failure of an Examiner candidate, the DGCA may allow a re-evaluation. In such a case, the operator must conduct sufficient additional training, recertify the candidate's proficiency, and then arrange to have another evaluation conducted by a DGCA inspector

3.5 VALIDITY AND RENEWAL OF EXAMINERS

Refer to CAR Section Series I Part I, CAP 7200 and CAR Section 7 Series I Part III, IV as applicable.

3.6 WITHDRAWAL OF INSTRUCTOR PRIVILEGES

3.6.1 Policy

The appointment of an Examiner may be withdrawn by the DGCA if the pilot is found lacking in any of the requirements. Besides, a Board consisting of the Chief of Operations and Chief of Training of the operator may also recommend to the DGCA, withdrawal of appointment as Examiner in respect of any pilot giving adequate justification.

Examiner appointment may be withdrawn by the DGCA, in part or in whole, for due cause. In these cases, the DGCA Flight Standards Directorate will issue a written notification of withdrawal of appointment to the Examiner

concerned, and also inform the applicable Operator(s). Where there is a immediate threat to safety, this appointment will be withdrawn immediately. The DGCA may withdraw an Examiner's appointment if evidence shows that an Examiner has:

- At any time, acts in a manner which is in contravention of the guidelines contained in this CAR;
- Placed a personal interest, or the interest of the company, ahead of the interest of the DGCA and the travelling public;
- Failed to attend the requisite DE refresher training;
- Failed to follow the applicable instructions to maintain the required standards, or to follow proper procedures;
- Fraudulently misused Examiner authority, or acted in any other way that would discredit the DGCA;
- Tested alcohol positive in a pre/post flight medical check.
- Breached the DGCA Civil Aviation Rules and Regulations;
- During the course of a Proficiency Check, or DE Standardization Check, failed to meet the required DGCA Standards.
- Exercised poor judgment in assessing a candidate's performance, in relation to the standards contained herein; or
- Failed to represent DGCA in a manner acceptable to the Director General

Except where there is an immediate threat to safety, the DGCA, prior to making a final decision in the matter of withdrawal of an Examiner's appointment, shall ensure the matter has been investigated thoroughly; and the Examiner and, where applicable, the concerned Operator, have been given a formal opportunity to respond to the allegations, either verbally or in writing.

3.6.2 Procedure

The following steps shall be followed when withdrawing the appointment of an Examiner;

a) Except in the case of an immediate threat to safety, upon receipt of evidence demonstrating grounds for withdrawal of appointment the CFOI shall notify the Examiner and the Operator(s), if applicable, in writing of the pending investigation and the alleged grounds for withdrawal. The Examiner and the Operator(s) shall be provided an opportunity to respond to the evidence. The CFOI shall conduct the formal investigation and consider the facts provided by the Examiner and the Operator(s). In the case of an immediate threat to safety, the DGCA may immediately withdraw appointment and conduct a formal investigation after the withdrawal.

b) At the completion of the formal investigation, the CFOI will make a determination whether to recommend withdrawal of appointment. If the CFOI determines that withdrawal is warranted, the CFOI will

make a recommendation for withdrawal to the JDG. If the CFOI determines that withdrawal is not warranted, the CFOI shall notify the Examiner in writing of the determination.

c) After considering the recommendation for withdrawal, the JDG or DG will approve or reject the CFOI's recommendation. Upon receiving the decision from the JDG or DG, the CFOI will issue written notification Examiner concerned, and also inform the applicable Operator(s), of the results of the investigation and the withdrawal of appointment, if applicable.

Note: Refer Operations Circular 2 of 2013 - Withdrawal/Reinstatement of Trainer Approval

3.7 TRANSITION OF EXAMINER APPROVALS ISSUED PRIOR TO 22ND SEP 2014

DGCA has permitted a transition period of trainer approvals issued prior to 22nd Sep 2014. The following procedure will be followed till the transition period ending 01st Oct 2015;

a) Standardization checks will be done as per two year cycles under which the approvals were issued for individual trainers. For Examiners, the standardization will be done as a proficiency check in the simulator. Case by case basis approval may be given by DGCA to conduct this check in an aeroplane when a type simulator is not available.

b) Withdrawal of Examiners will be subject to the policy and procedure as per Para 3.6 above.

3.8 OVERSIGHT OF EXAMINERS

The DGCA shall monitor the standards of all DE by:

a) Monitoring each DE while he conducts a Skill Test or Proficiency Check every 12 months - this check shall be referred to as the DE Standardization Check.;

b) Reviewing the Operator's utilization of Designated Examiners on a regular basis;

c) Monitoring the activities of each Designated Examiner to ensure:
- his reports are complete, accurate and meaningful;
- his Checks cover the required sequences;
- his conduct of Checks is fair and in conformance with the standards and
- procedures described in this manual;
- he is acting within the limits of his authority; and

c) Completion of the Designated Examiner Standardization Report, retaining of records, and updating the Operator's Designated Examiner file.

CHAPTER 4 - PROVING FLIGHTS

The requirement of proving flights is covered in CAP 3100 Air Operator Certification Manual (Chapter 3 and Appendix “I” Para 18) and the FOI shall refer to this manual for guidance on procedures for proving flights

CHAPTER 5 - EMERGENCY EVACUATION DEMONSTRATIONS

The requirement of emergency evacuation demonstration is covered in CAP 3100 Air Operator Certification Manual (Chapter 3 and Appendix “I” Para 19) and the FOI shall refer to this manual for guidance on procedures for emergency evacuation demonstrations.

CHAPTER 6 - DITCHING DEMONSTRATIONS

The requirement of ditching demonstrations is covered in CAP 3100 Air Operator Certification Manual (Chapter 3 and Appendix “I” Para 20) and the FOI shall refer to this manual for guidance on procedures for ditching demonstrations.

CHAPTER 7 - LEASE AND INTERCHANGE AGREEMENTS BETWEEN STATES

ICAO specifies that the fundamental responsibility for the operation of an aircraft lies with the State of Registry. However, special conditions may arise as a result of aircraft leasing or interchange agreements between an operator and an operator or leasing company in another State. Unless suitable arrangements are made, complex legal, safety, and enforcement problems may be created for both the State of Registry and State of the Operator. It is therefor essential that agreement is reached on two key issues:

- Which State's regulations are to be applied and which State is responsible for the safe operation and airworthiness of the aircraft.

- Which operator (lessor or lessee) is responsible for the day to day operational control of the leased aircraft

Lease and interchange is covered in CAP 3200 Aircraft Leasing Manual and the FOI shall refer to this manual for guidance on procedures for lease and interchange.

CHAPTER 8 - REQUIRED MANOEUVRES AND PERFORMANCE STANDARDS FOR AIR TRANSPORT PILOT'S PROFICIENCY CHECKS

8.1 GENERAL.

Flight crew proficiency checks are required twice each year for an air transport pilot-in command and co-pilot. This chapter describes the manoeuvres and procedures which must be performed by all pilots during such an air transport **Pilot's Proficiency Check**, along with performance standards for evaluating the performance of those manoeuvres and procedures. All manoeuvres and procedures must be performed in-flight in an airplane or in a DGCA approved Level C or Level D flight simulator except as provided in 8.1.1 below.

Note: *See ICAO Doc 9625-AN/938 for definitions and qualifying criteria for flight Simulators.*

8.1.1. Certain manoeuvres and procedures may be performed in a DGCA approved visual flight simulator other than Level C or Level D, in a non-visual simulator, or in a training device, if so indicated by one of the following symbols after the description of a manoeuvre or procedure in paragraph 8.2 below:

(PV) Permitted in an approved visual simulator other than Level I or Level II
(PN) Permitted in an approved non-visual simulator
(PT) Permitted in an approved training device
(RS) Required to be performed in simulated instrument conditions

Whenever a manoeuvre or procedure is authorized to be performed in a non-visual simulator, it may also be performed in a visual simulator; when authorized in a training device, it may be performed in a visual or non visual simulator. Other symbols used to denote special requirements in 8.2 below are:

8.2 REQUIRED MANOEUVRES.

Throughout the manoeuvres prescribed in this paragraph, good judgment commensurate with a high level of safety must be demonstrated. In determining whether such judgment has been shown, the person conducting the check considers adherence to approved procedures, actions based on analysis of situations for which there is no prescribed procedure or

recommended practice, and qualities of prudence and care in selecting a course of action.

The procedures and manoeuvres set forth in this chapter must be performed in a manner that satisfactorily demonstrates knowledge and skill with respect to (1) The airplane, its systems and components; (2) Proper control of airspeed, configuration, direction, altitude, and attitude in accordance with procedures and limitations contained in the approved Airplane Flight Manual, the certificate holder's operations Manual, check lists, or other approved material appropriate to the airplane type; and (3) Compliance with approach, ATC, or other applicable procedures.

8.2.1. PREFLIGHT:

a) Equipment examination (oral or written). As part of the practical test the equipment examination must be closely coordinated with, and related to, the flight manoeuvres portion but may not be given during the flight manoeuvres portion. The equipment examination must cover:

(1) Subjects requiring a practical knowledge of the airplane, its powerplants, systems, components, operational, and performance factors;

(2) Normal, abnormal, and emergency procedures, and the operations and l imitations relating thereto; and

(3) The appropriate provisions of the approved Airplane Flight Manual.
The person conducting the check may accept, as equal to this equipment test, an equipment test given to the pilot in the AOP holder's ground school within the preceding 12 calendar months.

(b) Pre-flight inspection. The pilot must:

(1) Conduct an actual visual inspection of the exterior and interior of the airplane, locating each item and explaining briefly the purpose for inspecting it; and

(2) Demonstrate the use of the prestart check list, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies prior to flight, (PT).

(c) Taxiing. This manoeuvre includes taxiing (in the case of a second in command proficiency check to the extent practical from the second in command crew position), sailing, or docking procedures in compliance with

instructions issued by the appropriate traffic control authority or by the person conducting the checks.

(d) Powerplant checks. As appropriate to the airplane type (PN)

8.2.2. TAKEOFF:

a) Normal. One normal takeoff which, for the purpose of this manoeuvre, begins when the airplane is taxied into position on the runway to be used.

b) Instrument. One takeoff with instrument conditions simulated at or before reaching an altitude of 100 feet above the airport elevation. (RS) (PV)

c) Crosswind. One crosswind takeoff, if practicable, under the existing meteorological, airport, and traffic conditions.

Requirements (a) and (c) may be combined, and requirements (a), (b), and (c) may be combined if (b) is performed in-flight.

d) Powerplant failure. One takeoff with a simulated failure of the most critical powerplant. (PV)

(1) At a point after V1 and before V2 that in the judgment of the person conducting the check is appropriate to the airplane type under the prevailing conditions;
(2) At a point as close as possible after V1 when V1 and V2 or V2 and VR are identical;

(e) Rejected. A rejected takeoff may be performed in an airplane during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane. (PV)

8.2.3 INSTRUMENT PROCEDURES.

(a) Area departure and area arrival. During each of these manoeuvres, the applicant must: (RS) (PN).

(1) Adhere to actual or simulated ATC clearances (including assigned radials); and

(2) Properly use available navigation facilities.

(b) Holding. This manoeuvre includes entering, maintaining, and leaving holding patterns. It may be performed in connection with either area departure or area arrival (RS) (PN).

(c) ILS and other instrument approaches. There must be the following:

(1) At least one normal ILS approach. (RS) (PV).

(2) At least one manually controlled ILS approach with a simulated failure of one power plant. The simulated failure should occur before initiating the final approach course and must continue to touchdown or through the missed approach procedure. (RS)
(3) At least one non-precision approach procedure that is representative of the non-precision approach procedures that the certificate holder is likely to use. (RS) (PV).
(4) Demonstration of at least one non-precision approach procedure on a letdown aid other than the approach procedure performed under subparagraph (3) of this paragraph that the certificate holder is approved to use. (RS) (PV).

Each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of CA approach) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed. Instrument conditions need not be simulated below 100 feet above touchdown zone elevation.

(d) Circling approaches. If the AOP holder is approved for circling minimums , at least one circling approach must be made under the following conditions: (PV).

(1) The portion of the approach to the authorized minimum circling approach altitude must be made under simulated instrument conditions. (RS).

(2) The approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary manoeuvring (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90□ from the final approach course of the simulated instrument portion of the approach.

(3) The circling approach must be performed without excessive manoeuvring, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30 degrees.

If local conditions beyond the control of the pilot prohibit the manoeuvre or prevent it from being performed as required, it may be waived. However, the manoeuvre may not be waived under this provision for two successive proficiency checks. The circling approach manoeuvre is not required for a second in command if the certificate holder's manual prohibits a second in command from performing a circling approach.

(e) Missed approach.

(1) Each pilot must perform at least one missed approach from an ILS approach. (PV).

(2) Each pilot in command must perform at least one additional missed approach. (PV).

A complete approved missed approach procedure, to a holding fix or other point as required by ATC, must be accomplished at least once. At the discretion of the person
conducting the check a simulated powerplant failure may be required during any of the missed approaches. These manoeuvres may be performed either independently or in conjunction with manoeuvres required under Sections III or V of this appendix. At least one missed approach must be performed in flight.

8.2.4 IN-FLIGHT MANEUVERS:

(a) Steep turns. At least one steep turn in each direction must be performed. Each steep turn must involve a bank angle of 45º with a heading change of at least 180 degrees but not more than 360 degrees . (RS) (PN).

(b) Approaches to stalls. For the purpose of this manoeuvre, the required approach to a stall is reached when there is a perceptible buffet or other response to the initial stall entry. Except as provided below there must be at least three approaches to stalls as follows: (RS) (PN).

(1) One must be in the takeoff configuration (except where the airplane uses only a zero flap takeoff configuration).

(2) One in a clean configuration.

(3) One in a landing configuration.

At the discretion of the person conducting the check, one approach to a stall must be performed in one of the above configurations while in a turn with the bank angle between 15 degreesand 30 degrees.

If the certificate holder is authorized to dispatch or flight release the airplane with a stall warning device inoperative the device may not be used during this manoeuvre.

(c) Specific flight characteristics. Recovery from specific flight characteristics that are peculiar to the airplane type. (PN).

(d) Powerplant failures. In addition to specific requirements for manoeuvres with simulated powerplant failures, the person conducting the check may require a simulated powerplant failure at any time during the check. (PN).

8.2.5 LANDINGS AND APPROACHES TO LANDINGS:

Notwithstanding the authorizations for combining manoeuvres, at least two actual landings (one to a full stop) must be accomplished. Landings and approaches to landings must include the following, but more than one type may be combined where appropriate:

(a) Normal landing. (RS).

(b) Landing in sequence from an ILS instrument approach except that if circumstances beyond the control of the pilot prevent an actual landing, the person conducting the check may accept an approach to a point where in his judgment a landing to a full stop could have been made. (RS).

(c) Crosswind landing, if practical under existing meteorological, airportand traffic conditions. (RI).

(d) Manoeuvring to a landing with simulated powerplant failure as follows:

(1) In the case of 3 engine airplanes, manoeuvring to a landing with an approved procedure that approximates the loss of two powerplants (centre and one outboard engine). (PV).

(2) In the case of other multiengine airplanes, manoeuvring to a landing with a simulated failure of 50 percent of available powerplants, with the simulated loss of power on one side of the airplane. (PV).

(e) Landing from a circling approach. If the AOP holder is approved for circling minimums, a landing under simulated circling approach conditions. However, when performed in an airplane, if circumstances beyond the control of the pilot prevent a landing, the person conducting the check may accept an approach to a point where, in his judgment, a landing to a full stop could have been made. B* (PV).

(f) **Rejected landing.** A rejected landing, including a normal missed approach procedure that is rejected approximately 50 feet over the runway and approximately over the runway threshold. This manoeuvre may be combined with instrument, circling, or missed approach procedures, but instrument conditions need not be simulated below 100 feet above the runway. B (PV).

8.2.6 NORMAL AND ABNORMAL PROCEDURES:

Each applicant must demonstrate the proper use of as many of the systems and devices listed below as the person conducting the check finds are necessary to determine that the person being checked has a practical knowledge of the use of the systems and devices appropriate to the airplane type:
(a) Anti-icing and de-icing systems. (PN).
(b) Autopilot systems. (PN).
(c) Automatic or other approach aid systems. (PN).
(d) Stall warning devices, stall avoidance devices, and stability augmentation devices. (PN).
(e) Airborne radar devices. (PN).
(f) Any other systems, devices, or aids available. (PN).
(g) Hydraulic and electrical system failures and malfunctions. (PN).
(h) Landing gear and flap systems failure or malfunction. (PT).
(i) Failure of navigation or communications equipment. (PT).

8.2.7 EMERGENCY PROCEDURES:

Each applicant must demonstrate the proper emergency procedures for as many of the emergency situations listed below as the person conducting the check finds are necessary to determine that the person being checked has an adequate knowledge of, and ability to perform, such procedure:

(a) Fire in flight. (PN).
(b) Smoke control. (PN).
(c) Rapid decompression. (PN).
(d) Emergency descent. (PN).
(e) Any other emergency procedures outlined in the appropriate approved Airplane Flight Manual. (PN).

8.3. SPECIFIC GUIDANCE FOR THE CONDUCT OF PROFICIENCY CHECKS

The information presented in this paragraph is intended to provide additional, detailed guidance for the manner in which proficiency checks must be conducted. To that end, specific techniques are discussed and the manoeuvres listed in paragraph 8.2 above are further explained and clarified.

8.3.1 Preparation and Surface Operations.

Pilots shall be observed performing interior, exterior, and emergency equipment inspections and performing engine start, taxi, and powerplant checks in accordance with the operator's aircraft operating manual.

a. *Exterior Inspection.* The exterior inspection is not an extension of the oral phase in which systems knowledge is examined but rather a demonstration of an applicant's ability to perform appropriate safety checks. Inspectors and examiners shall limit questions to only those necessary for determining if an applicant can recognize when a component is in an unsafe condition. The exterior inspection may be conducted before or after the flight test at the inspector's or examiner's discretion.

b. Cabin Inspection. Pilots shall be evaluated on the ability to perform a cabin inspection when this inspection is specified as a pilot responsibility by the operator's
aircraft operating manual. Inspectors and examiners should occasionally sample a pilot's knowledge of the location and use of emergency equipment in the cabin, and the operation of cabin doors, even when the cabin inspection is not designated as a flight crewmember responsibility.

c. *Cockpit Pre-flight Inspection.* A pilot shall be required to complete the cockpit pre-flight checks using the procedures specified in the operator's aircraft operating manual and using the appropriate checklists. The proper challenges and responses to the checklist must be used. When the flight test is conducted in a flight simulator, it is appropriate for the inspectors or examiners to present minor malfunctions to determine if the pilot is accurately performing the specified checks.

d. Engine *Start Procedures.* A pilot shall be required to perform an engine start using the correct procedures. When the flight test is conducted in a flight simulator, it is appropriate for inspectors and examiners to present an abnormal condition such as a hot-start or malfunctioning air or start valve. The abnormal condition should be carried through to the expected conclusion in line operations, for the purpose of evaluating crew coordination and the pilot's proficiency.

e. Taxiing. Inspectors and examiners shall evaluate the pilot's ability to safely manoeuvre the airplane on the surface and to manage outside vigilance while accomplishing cockpit procedures. The pilot must ensure the taxi path is clear of obstructions, comply with local taxi rules and control tower instructions, make proper use of checklists, and maintain control of the crew and airplane.

f. *Powerplant Checks.* Powerplant checks must be accomplished in accordance with the appropriate checklist and procedures before takeoff. In a flight simulator, inspectors and examiners should present appropriate instrument or system malfunctions to determine if the pilot is accurately performing these checks.

8.3.2 Takeoff Events. A pilot shall be required to accomplish each of the following takeoff events. These events may be combined when convenient and practical.

a. *Normal Takeoff.* A normal takeoff is defined as a takeoff beginning from a standing or rolling start (not from a touch and go) with all engines operating normally during the takeoff and initial climb phase.

b. *Instrument Takeoff.* An instrument takeoff is defined as one in which instrument conditions are encountered or simulated at or before reaching an altitude of 100 feet above airport elevation. In a flight simulator, the visibility value should be set to the minimum authorized by the operator's operations specifications or for the runway in use. A pilot shall be evaluated on the ability to control the airplane, including making the transition to instruments as visual cues deteriorate. A pilot must also be evaluated on the planning of the transition to an instrument navigation environment. This event may be conveniently combined with an area departure.

c. *Engine Failure On Takeoff (For Multiengine Airplanes).* A pilot must demonstrate the ability to maintain control of the airplane and to continue a takeoff with the failure of the most critical powerplant. When the flight test is conducted in an airplane, the failure shall be simulated. The takeoff configuration, airspeeds, and operational procedures must be in accordance with the operator's aircraft operating manual. When the flight test is conducted in two segments (simulator and airplane), this event shall be conducted in the simulator segment of the flight test. This event should not be repeated in the airplane portion of the flight test unless an unusual situation occurs. The engine failure shall be introduced at a speed after V_1 and before V_2, and appropriate to the airplane and the prevailing conditions. When either V_1 and V_2 or V_1 and V_R are identical, the failure shall be introduced as soon as possible after V_1 is passed.

d. *Rejected Takeoff.* A rejected takeoff is a potentially hazardous situation that flight crews must be trained to handle correctly. As a testing event it must be presented in a realistic and meaningful manner. The event is a test of a pilot's ability to correctly respond to a critical situation and to correctly manage the actions necessary for safeguarding the airplane and passengers once the airplane is brought to a stop.

(1) When a flight test is conducted in a flight simulator, performance parameters should be adjusted to make the takeoff critical. For

e. *Crosswind Takeoffs.* A crosswind takeoff from a standing or rolling start (not a touch and go) must be evaluated to the extent practical. When appropriate, a crosswind takeoff may be evaluated simultaneously with other types of takeoffs.

(1) When the flight test is conducted in an airplane, inspectors and examiners will usually have very little control over existing meteorological, airport, and traffic conditions. Inspectors and examiners are expected to make a reasonable attempt to evaluate a takeoff on a runway not favourably aligned with the prevailing wind. It will frequently be necessary, however, to evaluate this event with the crosswind component that exists on the active runway.

(2) Flight simulators are capable of realistically duplicating crosswinds. Crosswind takeoffs shall be evaluated on all flight tests conducted in a flight simulator. The crosswind component entered in the simulator computer shall be between 10 and 15 knots. Occasionally, however, the crosswind components should be in excess of 15 knots, but must not exceed the crosswind component allowed by the operator's aircraft operating manual (or the maximum demonstrated value given in the AFM). The purpose of testing at such higher crosswind components is to determine whether pilots are being trained throughout the range of the flight envelope.

8.3.3 Climb, Enroute, and Descent.

a. *Area Departures and Arrivals.* The area departure and arrival events should include intercepting radials, tracking, and climbs or descents with restrictions. Whenever practical, a standard instrument departure or standard arrival should be used. Many of the standard procedures, however, are not suitable for the purpose of testing a pilot's abilities. For example, common radar departures are essentially initial climb instructions for a radar hand-off and provide little opportunity to test a pilot's ability to set up and use the navigation equipment normally used on an area departure. If a suitable published procedure is not available and circumstances allow, the inspector or examiner should give a clearance that presents the desired tests. Inspectors and examiners should allow pilots to use all installed equipment.

The autopilot may or may not be used at the inspector's or examiner's discretion. The pilot's use of navigation equipment, and other crewmembers, and the pilot's ability to adhere to ATC clearances and restrictions shall be evaluated.

c. *Holding.* Inspectors and examiners should give holding clearances with adequate time available for the pilot to identify the holding fix, select the appropriate speed, and plan the entry. Pilots should be allowed the use

of all aids normally available in the cockpit (such as wind drift readouts). At least the initial entry and one complete turn in the holding pattern should be completed before another clearance is issued. The pilot's performance shall be evaluated on the basis of compliance with the holding procedures outlined in the operator's aircraft operating manual, compliance with instructions issued by ATC, and the published holding pattern criteria. Holding airspeed must be as specified by the operator's aircraft operating manual, however it must not be allowed to exceed the regulatory limit. If the operator's manual requires a speed higher than that allowed by regulation, the pilot must resolve the conflict by requesting an amended ATC clearance or by selecting an aircraft configuration in which it is safe to comply with the regulatory speed.

d. *Steep Turns.* This event consists of a level turn in each direction with a bank of 45 degrees, continuing for at least 180 degrees, but not more than 360 degrees. Airspeed, altitude, and bank angle must be controlled within the tolerances specified in paragraph 8.4 of this chapter. Inspectors and examiners shall direct special attention to a pilot's smoothness, coordination, and orientation.

e. *Approaches to Stalls.* Inspectors and examiners shall evaluate the pilot's ability to recognize and recover from an approach to a stall in three separate airplane configurations. The three configurations are the clean configuration, the takeoff configuration, and the landing configuration. When the airplane uses only a zero-flap takeoff configuration, the takeoff configuration and the clean configuration stall are combined and only two stalls are required. At least one stall must be performed while in a turn with a bank angle between 15 and 30 degrees.

(1) Approaches to stalls should be entered by increasing the angle of attack smoothly, so that the airspeed decreases at a uniform rate. The use of power during approach to and recovery from stalls should be as specified in the operator's aircraft operating manual.
(2) When stalls are performed in an airplane, the operator's minimum entry and recovery altitudes must be observed. When stalls are performed in a flight simulator or training device, the operator's minimum entry and recovery altitudes need not be observed and an altitude that is realistic from a performance standpoint and convenient (in terms of the sequence of events) may be used.

(3) When the flight test is conducted in a flight simulator or training device, inspectors and examiners shall occasionally require a pilot to recover from a high altitude stall. Evaluation of stalls in various flight regimes should be accomplished to determine whether the operator's training program has adequately prepared pilots for flight in those regimes.

(4) A pilot must recognize the first indication of the approaching stall and immediately initiate recovery with a minimal loss of altitude. An actual stall should not be allowed to develop. Procedures used must be in accordance with the operator's aircraft operating manual.

e. *Specific Flight Characteristics.* This event consists of recovery from flight characteristics specific to the airplane type, such as Dutch-roll or a high rate of descent. Inspectors and examiners shall evaluate a pilot on recognition and recovery from these specific flight characteristics, when applicable. The procedures used for recovery must be those specified in the operator's aircraft operating manual.

8.3.4 Approaches. The approaches described in this paragraph are required on all proficiency checks. They may be combined when appropriate.

A *ILS Approaches.* Inspectors and examiners shall require pilots to fly a minimum of one normal (all engines operative) ILS. In addition, when multiengine airplanes are used, one manually-controlled ILS or with a powerplant failure is also required. When the flight test is conducted as a two-segment flight test, a manually-controlled, normal ILS must be flown in the airplane segment of the flight test.

(1) When the operator's aircraft operating manual prohibits raw data approaches, the flight directors must be used during the manually-controlled ILS approaches. In this case, a raw data approach is not required to complete the flight test.

(2) If the operator's aircraft operating manual permits raw data ILS approaches to be conducted, the operator must provide training in the use of raw data for controlling an aircraft during ILS approaches. If the operator's aircraft are equipped with a flight director system, the flight director must be used on at least one manually-controlled ILS approach. While raw data approach is not required to complete a flight test, inspectors and examiners should occasionally require a raw data approach to determine whether the operator's training program is adequately preparing pilots.

(3) The pilot must be able to track the localizer and glideslope smoothly and without significant excursion during the final approach segment. For all raw data and flight director ILS approaches flown in a flight simulator or training device, inspectors and examiners shall require pilots to use a DH of 200 feet above the touchdown zone. The localizer and glideslope indication shall not exceed 1/4 scale deflection at DH. When the ILS indicator is calibrated with the first dot at the 1/2 scale deflection point and a second dot at the full-scale point, the deflection at DH must not

exceed half the distance to the first dot. When raw data is used on ILS approaches in an airplane, inspectors and examiners shall require pilots to use a DH of 200 feet above the touchdown zone. When the flight director is used on ILS approaches in an airplane, inspectors and examiners shall require pilots to use a DH of 100 feet above the touchdown zone. However, if the pilot has accomplished an ILS using a 200 foot HAT in the simulator segment of the flight test, the published DH shall be used in the airplane portion of the test. The DH shall be determined by barometric altimeter. The localizer shall not exceed 1/4 scale deviation (1/2 dot) at decision height. The glideslope shall not exceed 1/2 scale deviation (one dot) at decision height. Inspectors and examiners shall inform pilots that this DH is for flight test purposes only and does not correlate to any minimums used in actual operations. If the flight test is being conducted in actual weather conditions, the DH shall be the published decision height.

(4) When the operator's airplanes are equipped with autopilot couplers, at least one coupled autopilot ILS approach must be flown. If the autopilot has the capability and the operator is authorized by operations specifications to conduct automatic landings, the coupled approach shall terminate in either an autolanding or a coupled missed approach. When an autoland is conducted, it *shall not* be credited as one of the three required manually-controlled landings. When the flight test is conducted entirely in an aircraft or entirely in a flight simulator, the autopilot-coupled approach may be combined with the normal ILS (all-engines operative) approach. This combination is permitted because the pilot's ability to manually control an ILS approach is evaluated on the ILS with an engine out.

(5) Qualification check requirements for CAT II and CAT III operations, including the required number and types of approaches are established by the operator's approved training program. If a pilot is simultaneously qualifying for these authorizations during the proficiency check, the approaches discussed in subparagraphs (1), (2), and (3) may be credited toward these requirements when the approach requirements are compatible.

(6) Inspectors and examiners shall use a crosswind component of 8 to 10 knots (not to exceed 10 knots) on at least one of the ILS approaches conducted in a flight simulator. The use of this crosswind is to evaluate the pilot's ability to track the localizer and not his ability to accomplish a crosswind landing.

(7) When the flight test is conducted in a flight simulator or flight-training device, the runway visual range should be set to the minimum value specified for the approach. If the inspector or examiner plans for the

pilot to acquire the runway and to continue below DH, the ceiling should be set to a value not more than 50 feet above HAT (the exact value depending on the characteristics of the specific simulator). When the flight test is conducted in an airplane, the vision restriction device must remain in use until just before the airplane arrives at the DH used for the flight test.

(8) Flight crew procedures, airplane configuration, and airspeeds must be as specified in the operator's aircraft operating manual. During each phase of the approach, the airspeed must not deviate from the target speed by more than the tolerances specified in paragraph 7.4 of this chapter. Turbojet airplanes must be stabilized before descending below 1,000 feet above the touchdown zone.

b. *Non-precision Approaches.* Inspectors and examiners shall require pilots to demonstrate two non-precision instrument approaches that are authorized in the operator's operations specifications. The second approach must be based on a different type of NAVAID than the first approach.

(1) Inspectors and examiners shall allow the pilot to use any aid normally available in the cockpit, such as the flight director and drift and ground speed readouts. Many operators train their pilots to perform non-precision approaches using the autopilot. While this training should be encouraged, at least one non-precision approach must be manually flown on the flight test.

(2) When non-precision approaches are conducted in a flight simulator, a crosswind component of 10 to 15 knots shall be used on at least one of the non-precision approaches. The purpose of the crosswind component is to test a pilot's ability to track the approach course, not to evaluate crosswind landings. Crosswind landings, however, may be combined with a non-precision approach.

(3) In an airplane, the vision restriction device shall remain in use until the airplane arrives at MDA and a distance from the runway approximating the required visibility for the approach. In a flight simulator or flight training device, inspectors and examiners shall enter a ceiling of not more than 50 feet higher than the published MDA. A visibility value of not more than 400 mts greater than the published minimums value shall be used, depending on the characteristics of the particular flight simulator or training device.

(4) Pilots must remain within 5 degrees of the approach course. The reason for this tolerance is terrain clearance. When tracking is accomplished by means of a bearing pointer only, the tolerance is ± 5 degrees of the final approach course. When tracking a localizer signal, the tolerance is less than a full-scale deviation on the course deviation indicator. When tracking a VOR signal, the tolerance is a 1/2 scale deviation of the course deviation indicator. Also, at the visual descent point or its equivalent, the aircraft must be in a position that it can be aligned with the runway without excessive manoeuvring. Turbojet airplanes must be stabilized before descending below the MDA or 500 feet, whichever is lower.

c *Circling Approach Manoeuvre.* Operators are not required to train flight crewmembers in circling approach manoeuvres, if the operator's manual prohibits such manoeuvres with a ceiling below 1000 feet and a visibility of less than 5000 mts. Inspectors and examiners shall waive this event if the operator does not train flight crewmembers for the manoeuvre.

(1) For the purpose of flight-testing, the visual manoeuvring portion of a circling manoeuvre begins at the circling MDA of a non-precision approach and requires a change in heading from the final approach course to the runway heading of at least 90 degrees. The inspector or examiner, however, may use his authority to modify this event. For example, when traffic conditions preclude a circling approach, if tower approval is attained, the visual portion of the event can be entered from a modified VFR traffic pattern at a point downwind and abeam the touch-down point.

(2) The angle of bank for a circling manoeuvre should not exceed 30 degrees. Altitude and airspeed must not exceed the tolerances specified in paragraph 7.4. The airplane must not descend below MDA until the runway environment is clearly visible to the pilot, and the airplane is in a position for a normal descent to the touchdown point. Turbojet airplanes must be stabilized in the landing configuration before descending below the MDA or 500 feet above touchdown zone elevation, whichever is lower.

d. *Manoeuvre To a Landing With 50% of Powerplants Inoperative.* Inspectors and examiners shall require a pilot to demonstrate an approach and landing with 50% of powerplants inoperative.

(1) Inspectors and examiners should introduce this event in a realistic manner. Consideration should be given to the airplane weight, atmospheric conditions, and airplane position. The airplane position, when the engine failure is introduced (second engine in a three- or four-engine airplane) should provide enough room for the pilot to manoeuvre the aircraft. In the simulator, the weight should be adjusted to simulate realistic conditions but still allow the pilot enough time to exercise judgment. In a three-engine airplane, this event must be performed with the centre and an outboard engine failed. In a four-engine airplane, both powerplant failures must be on the same side.

(2) In two-engine airplanes, the engine-out ILS may be credited simultaneously with this event. In three- and four-engine aircraft, this event should be conducted in visual conditions. A visual pattern should be used rather than a vector to the final approach, so that the pilot's judgment with respect to manoeuvring the airplane can be evaluated. When this event is conducted in a flight simulator, the electronic glideslope or VASI shall not be made available for the pilot's use. In the airplane, it may not be possible to have the VASI's turned off. In daylight conditions, however, inspectors and examiners should request that the VASI be turned off. In an airplane at night, an electronic glideslope or VASI **must be available and used**.

Note: *An approach with a simulated failure of the most critical powerplant must always be performed in the airplane segment of a two-segment flight test. That event is required in the airplane segment, even when a manoeuvre and landing with 50% of powerplants inoperative has already been previously accomplished in a flight simulator.*

e. *No-Flap or Partial-Flap Approach.* Inspectors and examiners shall require a pilot to perform a no-flap approach in all airplanes except those airplanes which have alternate flap extension procedures and for which it has been determined that no-flap approaches are not required. If a no-flap approach is not required, a partial-flap approach will be accomplished. In this case, inspectors and examiners are only required to evaluate a pilot's demonstration of a partial-flap approach. However, inspectors and examiners may evaluate pilots conducting partial-flap or no-flap approaches anytime procedures for such approaches are published in the operator's aircraft operating manual.

(1) For either a partial or no-flap approach, the limitations specified for the use of VASI and electronic glideslope guidance in the 50% engine failure manoeuvre (subparagraph D. (2)) apply. The approach shall be flown from a visual pattern from at least a downwind position, so that the pilot may be evaluated on planning for the approach. The approach should be presented in a realistic manner. In a flight simulator, inspectors and examiners shall adjust the landing weight to require a pilot to exercise judgment in matters such as approach speed and runway limitations.

(2) A touchdown from a no-flap or partial-flap approach is not required and shall not be attempted in an airplane. The approach must be flown to the point that the inspector or examiner can determine whether the landing would or would not occur in the touchdown zone. In a flight simulator, the landing must be completed to a full stop so that the pilot's ability to control the airplane and to use correct procedures may be evaluated.

Note: *The events required in subparagraphs D and E should be conducted in a flight simulator whenever practical. These events should not be repeated in the airplane segment of the flight test, unless an unusual situation occurs*.

f. *Acceptable Performance for Approach Events.* The airspeed and altitude on downwind and base leg, or on an intercept to final approach must be controlled within the tolerances specified in paragraph 7.4. The airspeed on final approach must be adjusted for wind and gusts in accordance with the operator's aircraft flight manual. The airspeed must be controlled at the adjusted value. The approach angle must be controlled and be appropriate to the airplane and approach being flown. If a windshear or a ground proximity warning should occur, a pilot must respond in a prompt and positive manner. For turbojets, the approach must be stabilized, the airplane in the landing configuration, with a sink rate of less than 1,000 FPM, not later than the following heights:

- For all straight-in instrument approaches, the approach must be stabilized before descending below 1,000 feet above the airport or touchdown zone.

- For visual approaches and landings, the approach shall be stabilized before descending below 500 feet above the airport elevation.

- For the final segment of a circling approach manoeuvre, the approach must be stabilized 500 feet above the airport elevation or, at the MDA, whichever is lower.

Note: *Use of the stabilized concept is mandatory for all turbojet aircraft operations. It is recommended for all propeller-driven aircraft and rotorcraft when conducting operations in IFR weather conditions.*

8.3.5 Landing Events. A total of three manually-controlled landings must be accomplished on all proficiency checks. When a two-segment, flight simulator and airplane flight test is conducted, a minimum of three manually-controlled landings must be performed in the airplane. If the flight test is conducted in an amphibious airplane, one landing must be on water. The required events are as follows:

a. *Normal Landings.* A normal landing is defined as a manually-controlled landing in the normal landing configuration (as specified in the operator's aircraft operating manual), with normal power available, and without reference to an electronic glideslope. A normal landing can be accomplished from either a visual pattern or from a nonprecision approach.

b. *Crosswind Landings.* A manually-controlled landing with a crosswind must be accomplished on all flight tests. The crosswind landing may be combined with any other landing event.

(1) When the flight test is conducted in an airplane, inspectors and examiners usually have little control over existing meteorological, airport, and traffic conditions. As such, an inspector or examiner is expected to make a reasonable attempt to evaluate a landing on a runway not favourably aligned with the prevailing wind. It will frequently be necessary, however, to evaluate this event with the crosswind component currently existing on the active runway.

(2) Flight simulators are capable of realistically duplicating a crosswind for landing. Crosswind landings must be evaluated on all flight tests conducted in flight simulators. The crosswind component entered in the simulator computer shall be between 10 to 15 knots. Occasionally, however, the crosswind components should be in excess of 15 knots, but must not exceed the crosswind component allowed by the operator's aircraft operating manual (or the maximum demonstrated value given in the AFM). The purpose of testing at such higher crosswind components is to determine whether pilots are being trained throughout the range of the flight envelope. Crosswind landings should normally be performed from a VFR traffic pattern, but may be accomplished from a non-precision approach.

c. *Landing in Sequence from an ILS Approach.* On the landing from an ILS approach, the runway environment should become visible to the pilot as close as possible to the DH being used for the flight test. The pilot must complete the landing without excessive manoeuvring and within the touchdown zone. The approach angle must not be erratic, excessively steep, or shallow in the visual segment.

d. *Rejected Landing.* The rejected landing shall be initiated from a point approximately 50 feet above the runway. This event may be combined with an instrument missed approach.

e. *Engine-Out Landing.* One landing with the most critical powerplant inoperative must be evaluated. When a two-segment flight test is conducted, this event must be performed in the airplane. When conducted in an airplane, the engine failure shall be simulated.

f. *Landing with 50% of Powerplants Inoperative.* A landing with 50% of powerplants inoperative must be evaluated. In a three-engine airplane, the event must be performed with the centre and one outboard engine inoperative. In a four-engine airplane both powerplant failures must be on the same side. When this event is conducted in an airplane, the engine failures shall be simulated.

g. *No-Flap or Partial-Flap Landings.* No-flap or partial-flap landings are not required to complete the check. When the proficiency check is accomplished in an airplane in actual flight, a touchdown from a no-flap or partial-flap approach is not required and shall not be attempted. The approach must be flown to the point that the inspector or examiner can determine whether the landing would or would not occur in the touchdown zone. In a flight simulator, the landing should be completed to a full stop so that the pilot's abilities to control the aircraft and use correct procedures under abnormal circumstances may be evaluated. For example, the aircraft might have a pitch-up tendency with spoiler extension in the no-flap or partial-flap landing configuration.

h. *Acceptable Performance for Landing Events.* Landings must be in the touchdown zone, at the correct speed for the airplane, without excessive float, and on runway centre line. The rate of descent at touchdown must be controlled to an acceptable rate for the airplane involved. Side load on the landing gear must not be excessive, and positive directional control must be maintained through the rollout. Management of spoilers and thrust reversers must be in accordance with the operator's aircraft operating manual.

8.3.6 Missed Approach Events. Missed approaches from two separate instrument approaches are required to complete the flight test. At least one missed approach must be flown through the entire missed approach procedure, unless traffic or ATC restrictions prevent completing the entire procedure. One missed approach is required from an ILS. When the flight test is conducted in a multiengine airplane that has a single-engine climb capability, one missed approach should be accomplished with the most critical powerplant inoperative. The engine-out and ILS missed approaches may be combined, however to complete the flight test, at least two missed approaches are required. When the flight test is a two-segment flight test, the engine-out missed approach should be accomplished in the simulator segment.

(1) A missed approach from an approach with 50% of powerplants inoperative is not required to complete the flight test for three- and four-engine airplanes. However, when procedures for 50% of power plant-inoperative missed approaches are published in the operator's aircraft operating manual, inspectors and examiners may evaluate the event to determine if pilots are being trained to proficiency in the event. When this event is conducted in a three-engine airplane, the centre and one outboard engine must be inoperative. When this event is conducted in a four-engine airplane, two engines on the same side must be inoperative. When the missed approach event is conducted in an airplane, the engine failures shall be simulated.

(2) When a flight test is conducted in a flight simulator or flight training device, inspectors and examiners should make use of the "trouble buttons," as well as weather, to induce the missed approach decision. For example, many flight simulators have provisions to off-set the localizer so that the airplane is not in a position to continue the approach below DH.

(3) Pilots must promptly execute the missed approach procedure if the runway environment is not acquired at DH on an ILS approach. If the runway environment is not in sight on a nonprecision approach, or if the aircraft is not in a position to land at the missed approach point, the pilot must initiate a missed approach. Should conditions prevent continuation of any type of approach at any point, the pilot must initiate a missed approach. For example, a missed approach above DH might be required when an instrument failure flag appears. A missed approach is required if the aircraft is below DH or MDA and cannot be properly aligned with the runway or if the pilot loses sight of the runway environment. A pilot must adhere to the published missed approach or the instructions given by ATC and observe the procedures and limitations in the operator's aircraft operating manual. A pilot must properly use the available aids and other crewmembers when making the transition back to the instrument navigation environment.

8.3.7 Normal and Abnormal Procedures. Inspectors and examiners shall require a pilot to demonstrate the proper use of as many of the airplanes systems and devices as necessary to determine if the pilot has a practical knowledge of the use of these systems. Evaluation of normal and abnormal procedures can usually be accomplished in conjunction with other events and does not normally require a specific event to test the pilot's use of the airplane's systems and devices. A pilot's performance must be evaluated on the maintenance of aircraft control, the ability to recognize and analyze abnormal indications, and the ability to apply corrective procedures in a timely manner. Systems to be evaluated include, but are not limited to, the following:

- Anti-icing and de-icing systems
- Autopilot systems
- Automatic or other approach system aids
- Stall warning devices, stall avoidance devices, and stability augmentation devices
- Airborne radar devices
- Any other available systems, devices, or aids (such as flight management systems)

8.3.8 Emergency Procedure Events. A pilot must be able to competently operate all installed emergency equipment and to correctly apply the procedures specified in the operator's aircraft operating manual.

a. *Powerplant Failures.* Inspectors and examiners may introduce malfunctions requiring an engine shutdown at any time during the flight test. This provision is not intended as authority to require an unrealistic number of failures, but to permit such failures at times when they are most appropriate. Powerplant failures should be limited to those necessary for determining a pilot's proficiency. A pilot must promptly identify the inoperative engine and initiate correct action while manoeuvring the airplane safely. If the airplane is not capable of maintaining altitude with an engine inoperative, the pilot is expected to maintain the best engine-out climb speed while descending. Smooth application of flight controls and proper trim are required.

b. *Other Emergency Procedures.* Inspectors and examiners should sample as many of the following events as necessary for determining whether a pilot is proficient in identifying and responding to emergency situations:

- Fire in flight
- Smoke control
- Rapid decompression
- Emergency descent (with and without structural damage)
- Hydraulic and electrical system failure or malfunctions (if safe and appropriate)
- Landing gear and flap systems failure or malfunctions
- Navigation or communications equipment failure
- Any other emergency procedures outlined in the operator's aircraft operating manual or training program

8.4 STANDARDS OF ACCEPTABLE PERFORMANCE

An air transport pilot must possess the highest degree of piloting skills, and must be the master of the airplane, the crew, and the situation throughout the aircraft's operational envelope. Inspectors and examiners shall sample a pilot's ability to safely and practically operate the aircraft throughout the range of the approved operational envelope. The determination of whether a pilot's performance is acceptable or not is derived from the experience and judgment of the inspector or examiner. It is imperative that inspectors and examiners be fair and consistent when making these determinations. The airspeed, altitude, and heading standards which are listed below will be used in making their determinations. These standards must be applied with consideration for the prevailing conditions. Weather, aircraft responsiveness, traffic, and other factors beyond a pilot's control may cause the pilot to briefly deviate from a standard. For example, the airspeed tolerances for a final approach should be read as the tolerance allowed solely for control manipulation errors. In smooth air the pilot should be able to remain within these tolerances once stabilized on the approach. If atmospheric conditions are causing airspeed fluctuations, it may be physically impossible for the speed to be controlled within the tolerances specified.

The pilot is expected to adhere to the procedures for adjusting the target speed as specified in the operator's aircraft operating manual. In such situations, a pilot who makes determined efforts, and is generally successful in remaining within prescribed standards, and who does not deviate to the extent safety is compromised, should be considered to have met the standards

The pilot's ability to remain within the prescribed standard limits, however, is not the only criteria for acceptable performance. The pilot's performance must be such that the inspector or examiner is never seriously in doubt of the successful outcome of each event of the flight test.

Height - +/- 100 feet > 15 seconds

Speed - +/- 10 kts except in approach phase when it would be +10/- 0 kts

Direction - +/- 10 degrees

CHAPTER 9 - ADDITION OF A NEW AIRCRAFT TYPE TO A CERTIFICATED OPERATOR'S FLEET

The addition of a new aircraft type to a certificated operator's fleet requires many of the same inspections, reviews, demonstrations, authorizations, and approvals by the DGCA as were required for the original issuance of an AOP. The compete certification process shall be required (even if the aircraft is already in service with another operator). The FOI shall refer to CAP 3100 Air Operator Certification Manual for the certification process.

CHAPTER 10 - APPROVAL OF CREW MEMBER AND DISPATCHER (FLIGHT OPERATIONS OFFICER) TRAINING PROGRAMS

10.1. BACKGROUND AND OBJECTIVES.

This chapter contains direction and guidance to be used by DGCA personnel responsible for the evaluation, approval, and surveillance of commercial operator crewmember training programs.

An applicant for an Air Operator Permit (AOP) is required to develop a training program for crewmembers and dispatchers. An existing operator may need to revise its training program when purchasing new equipment, operating in a new environment, obtaining new authorizations, or when new DGCA requirements are specified. Each operator must obtain DGCA approval of curriculums used for training crewmembers, instructors, check airmen, and aircraft dispatchers. The operator is responsible for ensuring that its training program is complete, current, and in compliance with DGCA guidance. (Unless otherwise specified in this chapter, the term “operator” applies equally to an applicant for a permit and an existing permit holder).

A “modular” approach to training is emphasized in this chapter, and categories of training are defined which are based upon the circumstances for which training is required. Operations inspectors are responsible for ensuring that regulatory requirements are met and that the operator’s crewmembers and dispatchers can competently perform their assigned duties before they are authorized to enter revenue service. Operators should be encouraged to modify existing training programs to conform to this modular approach and to submit new programs in conformance with this format. However, it is the policy of the DGCA to encourage operators to be innovative and creative when developing training curriculums, methods and techniques. Other formats may be acceptable as long as all training requirements are met.

10.2. DEFINITIONS.

The following terms are used throughout this chapter and are defined as follows:

- *Training Programme:* A system of instruction which includes curriculums, facilities instructors, check pilots and examiners, courseware, instructional delivery methods, and testing and checking procedures. This system must satisfy the training programme requirements of the DGCA and ensure that each crewmember and dispatcher remains adequately trained for each aircraft, duty position, and kind of operation in which the person serves.

- *Modular Training:* The concept of program development in which logical subdivisions of training programs are developed, reviewed, approved, and modified as individual units. Curriculum segments and modules may be used in multiple curriculums. The modular approach allows great flexibility in program development and reduces the administrative workload on both operators and instructors in the development and approval of these programs.

- *Categories of Training:* The classification of instructional programs by the requirement the training fulfils. Categories of training consist of one or more curriculums. The categories of training are initial new-hire, initial equipment, transition, upgrade, recurrent (periodic), and requalification.

- *Curriculum:* A complete training agenda specific to an aircraft type, a crewmember or dispatcher duty position, and a category of training. An example is an "initial new-hire, Boeing 737 first officer curriculum." Each curriculum consists of several curriculum segments.

- *Curriculum Segment:* The largest subdivision of a curriculum containing broadly related training subjects and activities based on regulatory requirements. Curriculum segments are logical subdivisions of a curriculum which can be separately evaluated and individually approved. Examples are a "ground training" segment and a "flight training" segment. Each curriculum segment consists of one or more training modules.

- *Training Module:* A subpart of a curriculum segment which constitutes a logical, self-contained unit. A module contains elements or events which relate to a specific subject. For example, a ground training curriculum segment could logically be divided into modules pertaining to aircraft systems (such as hydraulic, pneumatic, and electrical). As another example, a flight training curriculum segment is normally divided into flight periods, each of which is a separate module. A training module includes the outline, appropriate courseware, and the instructional delivery methods. It is usually, but not necessarily, completed in a single training session.

- *Element:* An integral part of a training, checking, or qualification module that is subject oriented and not task-oriented. For example, an "electrical power" ground training module may include such elements as a DC power system, an AC power system, and circuit protection.

- *Event:* An integral part of a training, checking, or qualification module which is task-oriented and requires the use of a specific procedure or procedures. A training event provides a student an opportunity for instruction, demonstration, and/or practice using specific procedures. A checking or qualification event provides an evaluator the opportunity to evaluate a student's ability to correctly accomplish a specific task without instruction or supervision.

- *Checking and Qualification Module:* An integral part of a qualification curriculum segment which contains checking and qualification requirements. For example, a qualification curriculum segment may contain a proficiency check module, a LOFT module and an operating experience (qualification) module.

- *Courseware:* Instructional material developed for each curriculum. This is information in lesson plans, instructor guides, computer software programs, audiovisual programs workbooks, aircraft operating manuals, and handouts. Courseware must accurately reflect curriculum requirements, be effectively organized, and properly integrate with instructional delivery methods.

- *Instructional Delivery Methods:* Methodology for conveying information to a student. For example, this may include lectures, demonstrations, audiovisual presentations, programmed and directed self study workshops, and drills. Training devices, simulators, aircraft, and computer work stations are also considered instructional delivery methods.

- *Testing and Checking:* Methods for evaluating students as they demonstrate a required level of knowledge in a subject, and when appropriate apply the knowledge and skills learned in instructional situations to practical situations.

- *Training Hours:* The total amount of time necessary to complete the training required by a curriculum segment. This must provide an opportunity for instruction, demonstration, practice, and testing, as appropriate. This time must be specified in hours on the curriculum segment outline. A training hour includes time for normal breaks, usually 10 minutes each hour. Lunch breaks are not included.

- *Programmed Hours:* The hours specified for certain categories of training (initial new-hire, initial equipment, and recurrent). Programmed hours are specified in curriculum segment outlines in terms of training hours.

- *Duty Position:* The functional or operating position of a crewmember or aircraft dispatcher. Common duty positions are pilot-in-command (PIC),co-pilot , cabin crew, and flight dispatcher

- *Initial Approval:* A DGCA letter which conditionally authorizes an operator to begin instruction to qualify personnel under a specific curriculum or curriculum segment pending an evaluation of training effectiveness. An initial approval letter must specify an expiration date for the conditional authorization.

- *Final Approval:* A DGCA letter, without an expiration date, which authorizes an operator to continue training in accordance with a specific curriculum or curriculum segment.

10.3. TRAINING PROGRAMS: *A Schematic Depiction.*

A. Some elements of a training programme are depicted in figure T at the end of this chapter to show the relationship between the total training programme and the categories of training, curriculums, curriculum segments, and training modules. The illustration in figure T is representative only and is intended to present a framework for the modular development of a training programme. By using this "modular approach," the inspector has various strategies available for the evaluation of training effectiveness and for the planning of long-term surveillance.

B. The illustration in figure T consists of five parts as follows:

(1) Part A depicts representative components which, when combined, constitute an operator's overall training programme. These components differ in that some must be specifically approved by the DGCA (for example, courseware and check airmen), while others are accepted as essential supporting elements (for example, facilities and equipment).

(2) Part B illustrates the six categories of training that are recognized by the DGCA.

(3) Part C is an example of a curriculum which is a complete agenda of training specific to an aircraft type and crewmember or dispatcher duty position. This example depicts a PIC B-747-400 transition training curriculum.

(4) Part D is an example of a specific curriculum segment and shows that it consist of several training modules. This example is the flight training curriculum segment of the PIC B-747-400 transition training curriculum.

(5) Part E is an example of a specific training module. In this case the module is simulator lesson number 4.

10.4. CATEGORIES OF TRAINING.

There are six basic categories of training applicable to commercial operators. The primary factors which determine the appropriate category of training are the student's previous experience with the operator and previous duty position. Each category of training consists of one or more curriculums, each one of which is specific to an aircraft type and a duty position (for example: B-747 FE, B-747 co-pilot, and B-747 PIC). Training should be identified with and organized according to specific categories of training. When discussing training requirements, DGCA inspectors should be specific regarding the category of training being discussed and use the nomenclature described in this manual. Inspectors should encourage operators to use this nomenclature when developing new training curriculums or revising existing training curriculums.

Use of this common nomenclature improves standardization and mutual understanding. The six categories of training are briefly discussed in the following subparagraphs:

E. *Periodic or Recurrent Training.* This category of training is for an employee who has been trained and qualified by the operator, who will continue to serve in the same duty position and aircraft type, and who must receive recurring training and/or checking within an appropriate eligibility period to maintain currency.

F. *Re-qualification Training.* This category of training is for an employee who has been trained and qualified by the operator, but has become unqualified to serve in a particular duty position and/or aircraft due to not having received recurrent training and/or a required flight or competency check within the appropriate eligibility period.

G. *Summary of Categories of Training.* The categories of training are summarized in general terms as follows:

(1) All personnel not previously employed by the operator must complete *initial new-hire training through an Operator's Conversion Course*

(2) All personnel must complete *recurrent training* for the duty position and aircraft type for which they are currently assigned within the appropriate eligibility period.

(3) All personnel who have become unqualified for a duty position on an aircraft type with the operator must complete *requalification training* to re-establish qualification for that duty position and aircraft type.

(4) All personnel who are being assigned by the operator to a different duty position and/or aircraft type must complete either *initial equipment, transition througha Type Rating Course, upgrade,* or *requalification training,* depending on the aircraft type and duty position for which they were previously qualified.

10.5. DESCRIPTION OF CURRICULUM SEGMENTS

A. *Basic Indoctrination*. The objective of basic indoctrination is to introduce the new-hire flight crewmember to the operator and its manner of conducting operations in air transformation. It acquaints the student with the operator's general policies and practices that relate to his or her specific position, but not to a specific aircraft type or configuration. General subject areas during basic indoctrination training may be divided into "operator specific" and "job function specific" training. Examples of *Operator Specific* training modules include duties and responsibilities of flight crewmembers (or Cabin Crew ,etc.) , appropriate provisions of the Indian Rules and Regulation, contents of the operators operating specifications, company history, scope of operations, administrative procedures, rules of conduct, benefits, and contracts.

Examples of *Job Specific* general knowledge training modules for flight crewmembers and dispatchers would include basic aircraft systems overview, weight and balance, aircraft performance, meteorology, navigation, airspace and ATC procedures. Job Specific training modules for cabin crew would include ba sic aircraft systems and functions, duties of cabin crew, overview of emergency equipment, etc.

B. *Aircraft Ground Training.* The primary objective of aircraft ground training is to provide crewmembers and dispatchers with the necessary knowledge for understanding the functions of aircraft systems specific to an aircraft type or configuration, the use of individual system components, the integrations of aircraft systems, and operational procedures. Aircraft ground training may be conducted using many methods including classroom instruction, computer based instruction, e-learning, flight training devices, flight simulators and static aircraft.

C. *Aircraft Flight Training.* Flight training means the conduct of training events in an aircraft, flight simulator, or flight training device. The primary objective of aircraft flight training is to provide flight crewmembers with the skill and knowledge necessary to perform to a desired standard. This skill and knowledge is acquired through demonstration, instruction, and practice of manoeuvres and procedures pertinent to a particular aircraft and crewmember duty position.

D. *Emergency Training*. Emergency training means the conduct of training events which impart knowledge and skill in reacting properly to emergency situations.

E. *Differences Training.* Differences' training refers to training which is provided to acquaint crewmembers and dispatchers with differences in configuration, equipment, systems, and procedures between different versions aircraft of the same basic type of aircraft. For example, flight crewmembers and dispatchers may require training in different avionics installations, and cabin crew members may require training in different cabin configurations and installed emergency equipment.

10.6. TRAINING APPROVAL PROCESS

10.6.1 REQUESTS FOR INITIAL APPROVAL

A. The approval process begins when the operator submits its training proposal in writing, for initial approval, to the DGCA. The operator is required to submit to the DGCA an outline of each curriculum or curriculum segment and any additional relevant supporting information requested by the DGCA. These outlines, any additional supporting information, and a letter must be submitted to the DGCA. This letter should request DGCA approval of the training curriculum. Two copies of each curriculum or curriculum segment outline should be forwarded along with the letter of request to the DGCA.

B. Each operator must submit its own specific curriculum segment outlines appropriate for its type of aircraft and kinds of operations. These outlines may differ from one operator to another and from one category of training to another in terms of format, detail, and presentation. Each curriculum should be easy to revise and should contain a method for controlling revisions, such as a revision numbering system. Curriculums for different duty positions may be combined in one document provided the positions are specifically identified and any differences in instruction are specified for each duty position. Each curriculum and curriculum segment outline must include the following information:

- Operator's name
- Type of aircraft
- Duty position
- Title of curriculum and/or curriculum segment including the category of training
- Consecutive page numbers
- Page revision control dates and revision numbers

C. Each curriculum and curriculum segment must also include the following items, as appropriate:

- Prerequisites prescribed by the Indian Aircraft Rules and Regulations or required by the operator for enrolment in the curriculum
- Statements of objectives of the entire curriculum and a statement of the objective of each curriculum segment
- A list of each training device, mock-up, system trainer, procedures trainer, simulator, and other training aids which require DGCA approval (The curriculum may contain references to other documents in which the approved devices, simulators, and aids, are listed.)
- Descriptions or pictorial displays of normal, abnormal, and emergency manoeuvres and procedures which are intended for use in the curriculum, when appropriate (These descriptions or pictorial displays, when grouped together, are commonly referred to as the flight manoeuvres and procedures document. The operator may choose to present detailed descriptions and pictorial displays of flight manoeuvres and procedures in other manuals. For example, the flight manoeuvres and procedures document may be described in an aircraft operating manual. However, as a required part of the training curriculum, it must either be submitted as part of the curriculum or be appropriately referenced in the curriculum.)

- An outline of each training module within each curriculum segment (Each module should contain sufficient detail to ensure that the main features of the principal elements or events will be addressed during instruction.)

- Training hours which will be applied to each curriculum segment and to the total curriculum

- The checking and qualification modules of the qualification curriculum segment used to determine successful course completion.

10.6.2. INITIAL REVIEW OF REQUESTS FOR APPROVAL

The assigned inspector must review the submitted training curriculum and supporting information for completeness, general content, and overall quality. A detailed examination of the documents is not required at this time. If after initial review, the submission appears to be complete and of acceptable quality, or if the deficiencies are immediately brought to the operator's attention and can be quickly resolved, the inspector may begin the in-depth review. If the submission is determined to be incomplete or obviously unacceptable, the approval process is terminated and the inspector must immediately return the documents with an explanation of the deficiencies. The documents must be immediately returned, so the operator will not erroneously assume the DGCA is continuing the process to the next phase. The approval process can be resumed when the revised training curriculum or curriculum segment is resubmitted.

10.6.3. TRAINING CURRICULUMS SUBMITTED WITH AIR OPERATOR PERMIT APPLICATIONS.

An applicant for a permit in the early stages of certification may be unable to provide all information required for its training program. For example, the applicant may not yet know what training facilities or devices it intends to use. The lack of such information in the formal application does not necessarily mean that the training curriculum attachment must be returned. There should be an understanding between the applicant and the inspector that such portions are missing. The inspector may initiate the in-depth review without this type of information. Initial approval, however, of a curriculum segment must be withheld until all portions pertinent to the curriculum segment have been examined. For example, it may be appropriate to initially approve a ground training curriculum segment even though the simulator has not yet been evaluated and approved for flight training.

10.6.4. IN-DEPTH REVIEW OF SUBMITTED CURRICULUMS

A. This phase is initiated when the DGCA begins a detailed analysis and evaluation of a training curriculum or curriculum segment. The purpose of this phase is to determine the acceptability of training curriculums for initial

approval. This phase ends either with the initial approval or with the rejection of all or part of the training curriculum.

C. Before granting initial approval for a specific curriculum or curriculum segment, the Inspector must ensure that the following evaluations are accomplished.

(1) A side-by-side examination of the curriculum outline with the appropriate regulations and with the direction provided in this manual must be performed. This examination is to ensure that training will be given in at least the required subjects and in-flight training manoeuvres. It should also ensure that appropriate training will be given on safe operating practices.

(2) An examination of the courseware developed or being developed by the operator must be performed. This review should include a sampling of available courseware such as lesson plans, audiovisual programs, flight manoeuvres and procedures documents, and student handouts. The courseware must be consistent with each curriculum and curriculum segment outline. From this review, the inspector should be able to determine whether the operator is capable of developing and producing effective training courseware.

(3) An inspection of training facilities, training devices, and instructional aids (which will be used to support the training) must be performed if the Inspector is not familiar with the operator's training programme capabilities.

(4) The training hours specified in each curriculum segment outline must be evaluated. An inspector should not attempt to measure the quality or sufficiency of training by the number of training hours alone. This can only be determined by direct observation of training and testing (or checking) in progress, or by examination of surveillance and investigation reports. The specified training hours must be realistic, however, in terms of the amount of time it will take to accomplish the training outlined in the curriculum segment so as to achieve the stated training objectives. During the examination of courseware, an inspector should note the times allotted by the operator for each training module. These times should be realistic in terms of the complexity of the individual training modules. The number of training hours for any particular curriculum segment depends upon many factors. Some of the primary factors are as follows:

- The aircraft family in which the specific aircraft belongs
- Complexity of the specific aircraft
- Complexity of the type of operation
- Amount of detail that needs to be covered

- The experience and knowledge level of the students
- Efficiency and sophistication of the operator's entire training program (including items such as instructor proficiency, training aids, facilities, course ware, and the operator's experience with the aircraft)

C. If after completing these evaluations, the inspector determines that the curriculum or curriculum segment is satisfactory and adequately supported, and that the training hours are realistic, initial approval should be granted. Sometimes a portion of the submittal may appear to be satisfactory. However, if that portion is dependent upon another undeveloped portion or another unsatisfactory portion, initial approval must be withheld. For example, PIC B-737-400 initial equipment, flight training curriculum segment is satisfactory but related training modules within the initial equipment ground training curriculum segment are unsatisfactory. In such a case, it may be inappropriate to grant initial approval to the initial equipment slight training curriculum segment until the ground training curriculum segment is determined to be satisfactory.

10.6.5 EXPIRATION DATES FOR INITIAL APPROVALS.

When the Inspector determines that a training curriculum or curriculum segment should be initially approved, the Inspector must also determine an appropriate expiration date for the initial approval. The expiration date provides an incentive to the operator for refining all aspects of the program to assure that this regulatory requirement is met. The expiration date also provides the DGCA with a time frame with which to plan evaluation activities for determining the effectiveness of the training. The expiration date assigned to an initially approved training curriculum must not exceed 24 months from the date of initial approval. The expiration date of initial approval may be reduced by the DGCA if it is apparent that a 24-month time frame will unnecessarily delay final approval. The inspector should be aware that shortening the initial approval expiration date will commit him to completing the final approval phase within the shorter time period. The inspector may grant final approval any time before the expiration date. Except when unforeseen circumstances preclude an adequate evaluation of training effectiveness, an extension to the initial approval expiration date should not be permitted. A new expiration date, however, may be established for a curriculum segment when there are significant revisions to an initially-approved curriculum segment.

10.6.6. METHOD OF GRANTING INITIAL APPROVAL.

A. Initial approval is granted by letter. A Sample letter granting initial approval is included at the end of this chapter as Figure B. The initial approval letter must include at least the following information:

- Specific identification of the curriculums and/or curriculum segments initially approved, including page numbers and revision control dates
- A statement that initial approval is granted, including the effective and expiration dates
- Any specific conditions affecting the initial approval, if applicable
- A request for advance notice of training schedules so that training may be evaluated.

B. An initial approval letter serves as the primary record of curriculum or curriculum segment pages that are currently approved and effective may agree to use the method to account for revisions to training documents. If this method is used, the stamp must clearly indicate initial approval and the expiration date. Other acceptable methods include a list of effective curriculum or curriculum segment pages, or pages with a pre-printed signature and date blocks.

C. The original pages of the curriculum or curriculum segment shall be returned to the operator with the transmittal letter. These documents should be retained by the operator as an official record. A copy of the training curriculum or curriculum segment, with a copy of the transmittal letter granting initial approval attached, shall be maintained on file at the DGCA, along with all additional, relevant supporting information.

10.6.6 METHOD OF DENYING INITIAL APPROVAL.

If the Inspector determines that initial approval of a proposed training curriculum or curriculum segment must be denied, the operator shall be notified in writing of the reasons for denial. This letter must contain an identification of the deficient areas of the training curriculum and a statement that initial approval is denied. It is not necessary that each minor deficiency which resulted in the denial be identified; however the major deficiencies should be outlined in the letter. It is the operator's responsibility to redevelop or correct the deficient area before resubmission to the DGCA. A copy of the denial letter and a copy of the proposed training curriculum or curriculum segment shall be kept on file in the DGCA. Figure C is a sample letter of a denial of initial approval.

10.6.7. EVALUATING INITIALLY-APPROVED TRAINING CURRICULUMS.

A. The final portion of the approval process begins when the operator starts training under the initially-approved curriculum. This phase should provide the operator with adequate time to test the program and the flexibility to adjust the program during DGCA evaluation. The inspector must require an operator to provide ongoing schedules of all training and checking to be accomplished under an initially-approved training curriculum. Whenever possible, the first session of training conducted under initial approval should be monitored by a qualified

operations inspector. DGCA inspector does not need to observe every training session. A sufficient sampling of the training sessions, however, should be observed as a basis for a realistic evaluation. Inspectors qualified in the type aircraft, and other individuals knowledgeable of the curriculum subject matter, should assist in evaluating the training. During training under initial approval, the operator is expected to evaluate and appropriately adjust training methods as needed. Often adjustments can be made by changing courseware and instructional delivery without (or with only minor) revisions to the initially-approved curriculum. Conversely, it may be necessary for the operator to substantially change the curriculum which may require another initial approval action by the DGCA before the changes can be put into effect. Sometimes proposed revisions may be transmitted to the DGCA just before the initial approval expiration date. If the change is significant, the DGCA may need to establish a different expiration date for the curriculum segment, or for the revised portions, to allow adequate time for a proper evaluation.

10.6.8 ELEMENTS AVAILABLE FOR EVALUATING TRAINING.

The Inspector must develop a plan for systematically evaluating training given under the initially-approved training curriculum. This plan should remain in effect throughout the initial approval period. There are five elements which can be evaluated when assessing the overall effectiveness of training programs. These five elements are: curriculum segment outlines, courseware, instructional delivery methods and training environment, testing and checking, and surveillance and investigation of operator activities. These elements are interrelated; however, each can be separately evaluated. See Figure D at the end of this chapter for a summary of these five elements.

A. Before evaluating a training program, an inspector must become familiar with the contents of the curriculums or curriculum segments to be evaluated. This preparation is essential if an inspector is to determine whether an operator has developed an effective course of instruction from its initially-approved training curriculum.

B. Direct examination of courseware includes reviewing materials such as lesson plans, workbooks, or flight instructor guides. The inspector must determine whether the courseware is consistent with the curriculum or curriculum segment and that it has been organized to facilitate effective instructional delivery. Courseware is usually the training program element which is most adaptable to revision or refinement. Inspectors must review at least sampling of the courseware.

C. Direct observation of instructional delivery includes surveillance of training methods, such as instructor lectures, computer-based instruction presentations, and in-flight instruction. Effective learning can only occur when an instructor is organized, prepared, and properly uses the courseware and various training aids. The inspector must determine that the instructional delivery is consistent with the courseware. For example, the inspector should not whether the

instructor teaches the topics specified in the lesson plan. Training aids and devices should function as intended during the instructional delivery. In addition, during training, the inspector should be sensitive to the type of questions being asked by students and should identify the reasons for any excessive repetition. These conditions may indicate ineffective instructional delivery or courseware. The inspector must also determine if the instructional environment is conducive to learning. Distractions which adversely affect instructional delivery, such as excessive temperatures, extraneous noises, poor lighting, cramped classrooms or work spaces, are deficiencies because they interfere with learning.

D. Direct observation of testing and checking is an effective method for determining whether learning has occurred. Examining the results of tests, such as oral or written tests or flight checks, provides a quantifiable method for measuring training effectiveness. The Inspector must examine and determine the causal factors of significant failure trends.

E. Direct observation of training and checking in progress is an effective method of evaluating training. Sometimes the opportunity for direct observation, however, will be limited. In such cases, the Inspector will have to rely more on his evaluation of other sources of information such as reports of surveillance and investigations. Results of inspection reports, incident or accident reports, enforcement actions, and other relevant information about the operator's performance should be reviewed by the Inspector for indications of training effectiveness. The Inspector must establish methods to evaluate these sources of information for trends which may develop while training is being conducted under initial approval. For example, repeated reports of deficiencies such as excessive taxi speed, navigation deviations, incomplete briefings, or incorrect use of the checklists, may be traceable to a lack of specific training or ineffective training. Such information may provide indications that revisions or refinements are needed for a curriculum segment and/or training modules.

10.6.9 METHOD FOR GRANTING FINAL APPROVAL.

This phase involves the granting of final approval of an operator's training curriculum. Based on the results of the evaluation, the DGCA must determine whether to grant or deny final approval of a training curriculum. This determination must be made before the expiration date of the initial approval. If the DGCA decides that final approval should be granted, the following procedures apply:

A. The original and a copy of the training curriculum and/or curriculum segment shall be stamped for approval, dated, and signed by the Inspector.

B. The original stamped curriculum or curriculum segment must be transmitted to the operator with an approval letter signed by the DGCA. This letter must specifically identify the curriculum or curriculum segment; contain a statement that final approval is granted; and provide the effective date of approval. This letter must also state that final approval shall remain in effect until otherwise

notified by the DGCA that a revision is necessary provided the operator continues to train in accordance with the approved curriculum. Figure E at the end of this chapter is an example of a letter of final approval.

10.6.10. REVISIONS TO TRAINING CURRICULUMS.

A. To incorporate significant revisions into a training curriculum with final approval usually requires the full training approval process Revisions to initially-approved training curriculums will normally be processed as described in paragraphs in the paragraphs 10.6.1 to 10.6.10. . Final approval, however, may be directly granted to a proposed revision, if the revision involves any of the following situations:

- Correction to administrative errors such as typographical or printing errors
- A reorganization of training or any changes in the sequence of training that does not affect the quality or quantity of training
- An improvement to the quality, or an increase in the quantity, of training

B. Other proposed revisions, including any proposal to reduce the approved number of training hours, are subject to the training program approval process. Although each step in the process must be completed, the process may be abbreviated in proportion to the complexity and extent of the proposal. There are many factors that could require revisions to training curriculums. Such factors include the following:

- The effects and interrelationships of changes in the kind of operations
- The size and complexity of an operation
- The type of aircraft being used
- Any special authorizations through operations specifications
- A revised MEL
- Any exemptions or deviations

Figure A

A. TRAINING PROGRAM: SCHEMATIC DEPICTION OF TRAINING PROGRAMS

FACILITIES	COURSEWARE	INSTRUCTORS	INSTRUCTIONAL DELIVERY METHODS
EQUIPMENT	CATEGORIES OF TRAINING	CHECK AIRMEN	QUALITY CONTROL

B. CATEGORIES OF TRAINING					
Initial New-hire Training	Initial Equipment Training	Transition Training	Upgrade Training	Periodic Training	Requalification Training
□ PIC □ CO-PILOT □ FE □ FA □ FO	□ PIC □ CO-PILOT □ FE □ FA □ FO	□ PIC □ CO-PILOT □ FE □ FA □ FO	□ PIC □ CO-PILOT	□ PIC □ CO-PILOT □ FE □ FA □ FO	□ PIC □ CO-PILOT □ FE □ FA □ FO

C. EXAMPLE OF CURRICULUM	
PIC B-747-400 Transition Training	
□ Ground Training □ Flight Training □ Emergency Training □ Differences Training □ Qualification Requirements	Segments within a Curriculum

D EXAMPLE OF CURRICULUM SEGMENT
PIC B-747-400 Transition Flight Training

□ CPT □ CPT □ CPT □ CPT □ Simulator No. 1 □ Simulator No. 2 □ Simulator No. 3	□ Simulator No. 4 □ Simulator No. 5 □ Simulator No. 6 □ Simulator No. 7 □ Simulator Flight Exam □ Aircraft Training □ Aircraft Flight Exam	Training Modules within a Curriculum Segment

Figure B
EXAMPLE OF INITIAL APPROVAL LETTER

ABC Airlines
Attn: Mr. Mehra
Director of Training
Address

Dear Mr. Mehra:

This letter is in reference to ABC Airline's B-737-400 Pilot-in-Command and Co-pilot Initial Equipment Ground Training curriculum, pages 100/1 through 100/15, dated April 14, 2008. This curriculum is granted initial approval, effective 30 June 2009.

The expiration date of this initial approval is April 30, 1999. This office requests ABC Airlines provide at least 7 days advance notice of any training to be conducted under this curriculum to allow for evaluation of the training for final approval.

Director, FFFF
DGCA

FIGURE C
EXAMPLE OF LETTER OF DENIAL OF INITIAL APPROVAL

ARK Airlines
Attn: Mr. Kapoor
Director of Training

Dear Mr. Kapoor

This letter is in response to your request for initial approval of Revision 2 to ABC Airline's B-747-400 Pilot-in-Command and Co-pilot Recurrent Ground Training curriculum, dated August 2, 1997. Your request for initial approval of revision 2 is denied for the following reason:

A portion of your scheduled operations occur in areas which during the winter months, are subject to cold weather, snow, ice, and sleet. Your pilot workforce must have adequate training in the safe operating practices associated with a cold weather environment, to enable them to cope effectively with such hazards. Revision 2 deletes training previously given on major aspects of cold weather operations and does not provide any identifiable instruction to your crews for operating flights in such conditions. Presently there is not another course of training for ARK Airline's pilots containing adequate information on cold weather procedures.

Director, FFFF
DGCA

Figure D
ELEMENTS FOR TRAINING EVALUATION

ELEMENTS AVAILABLE FOR EVALUATING TRAINING	
CURRICULUM SEGMENT OUTLINES	Curriculum segment outlines contain the specific training modules and the amount of time allocated for the curriculum segment. The modules must be consistent with regulatory requirements and safe operating practices. This element requires direct examination.
COURSEWARE	Courseware converts curriculum outline information into usable instructional material. Courseware must be consistent with the curriculum outline and be organized to permit effective instructional delivery. It is readily adaptable to adjustments and refinement by the operator. This element usually requires direct examination.
INSTRUCTIONAL DELIVERY METHODS AND TRAINING ENVIRONMENT	Instructional delivery methods are used to convey information to the student. Effective learning is maximized if the instructional delivery adheres to and properly uses the courseware. The training environment should be conducive to effective learning. This element requires direct observation.
TESTING AND CHECKING	Testing and checking is a method for determining whether learning has occurred. Testing and checking standards are used to determine that a desired level of knowledge and skill has been acquired. Testing and checking also measures the effectiveness of courseware and instructional delivery. This element requires direct observation. It can be supplemented by examining operator records of test and checks.
SURVEILLANCE AND INVESTIGATION OF OPERATOR ACTIVITIES	Surveillance and investigations produce information about an operator's overall performance. A high rate of satisfactory performance usually indicates a strong, effective training program. Repeated unsatisfactory performances can often be traced to deficiencies in a training program. This element requires the examination and analysis of surveillance and investigative reports.

Figure E
EXAMPLE OF LETTER OF FINAL APPROVAL

ABC Airlines, Inc.
Attn: Mr. Pandit
Director of Training
Address

Dear Mr. Pandit

Final approval is granted to ABC Airlines' Flight Attendant Recurrent Ground Training curriculum, for pages 1 through 5, dated May 21, 1997, and for pages 6 through 7, dated April 15, 1998.

The effective date of final approval is January 20, 1999. ABC Airlines may continue to train in accordance with this curriculum until a revision is required by the DGCA or, until ABC Airlines revises the curriculum.

Director, FFFF
DGCA

CHAPTER 11- APPROVAL OF SPECIAL OPERATIONS/AUTHORISATIONS

11.1 GENERAL

During the certification process for initial certification or amendment of operations specifications, the Flight Operations Inspector would be required to make an assessment of the applicant's capability of carrying out special operations as proposed in the draft operations specifications. This would involve an assessment of airworthiness and operations aspects. Generally, the airworthiness elements of the application would be assessed prior to operational evaluation, however, these may be done concurrently. Operations specifications shall be endorsed after operational approval which is only after airworthiness approval has been done.

The process for initial approval of special operations such as EDTO, PBN, MNPS, RVSM, Cat II/III, LVTO, EFB, CPDLC, ADS-C/B, HUD, EVS etc., involves the operator submitting an application with the regional office of DCGA where the airworthiness aspects are evaluated and thereafter the application is forwarded to DGCA HQ Dte of Airworthiness for further scrutiny. Dte of AW forwards the application after final scrutiny to Flight Standards Directorate at HQ DGCA for process of operational approval. The FOI at FSD will evaluate operational aspects and if found satisfactory recommend operational approval. Operational approval will be granted by FSD after ensuring that both airworthiness and operational aspects have been evaluated and found satisfactory. This will form the basis of Ops Specs endorsement on the AOP of the applicant. Once initial approval has been granted for a special operation, addition of an aircraft of the same type requiring ops specs endorsement will need the operator to apply at the regional office of DGCA which will issue the approval on the basis of the initial approval, as long there is no change in the aeroplane engine/equipment related to the special approval. Referral to HQ DGCA is not required in this case. In order to process operational approval, the FOI will make use of job aids and checklists where developed or use the detailed requirements as listed in the applicable CAR both for cases of initial approval and addition of a similar type of aircraft requiring amendment of ops specs.

Special Operations approvals follow the same general five phase certification process for initial approval as below;

a) Phase one: pre-application.

b) Phase two: formal application.

c) Phase three: review of documentation.

d) Phase four: inspection and demonstration.

e) Phase five: approval.

11.2 PBN APPROVAL

PBN operational approval is to be processed as per the job aids given in CAR Section 8 Series S Part IV, applicable Operations Circulars (OCs) and CAP 8300 FOI PBN Operational Handbook making use of the job aids in CAP 8200 Annexures

11.3 LOW VISIBILITY OPERATIONS

Cat II/III and LVTO operational approval is to be processed as per requirements laid down in CAR Section 8 Series C Part I, CAR Section 8 Series B Part I making use of the job aids in CAP 8200 Annexure.

11.3.1 The approval process encompasses the airworthiness and the operational approval. Although the two have different requirements, they must be considered within the same process.

11.3.2. This process constitutes an orderly method used by DGCA to ensure that applicants meet the established requirements.

11.3.3. In phase one, pre-application, the DGCA meets with the operator (pre-application meeting), who is advised of all the requirements it must meet during the approval process.

11.3.4. In phase two, formal application, the operator submits the formal application, accompanied by all the relevant documentation, in accordance with formal application documentation paragraph bellow.

11.3.5. In phase three, review of documentation, the DGCA evaluates the documentation to determine their admissibility. As a result of this review and evaluation, the DGCA may accept or reject the formal application together with the documentation.

11.3.6. In phase four, inspection and demonstration, once the DGCA has accepted or approved the amendments to the manuals, programs and documents submitted, the operator will:

a) provide the respective training to its personnel and

b) implement the operational demonstration.

11.3.7. In Phase five, approval, once all the aforementioned steps have been completed satisfactorily, the DGCA will issue the operations specifications (Ops Specs). For CAT III the authorization will specify the lowest DH, or no DH, and lowest RVR for the operator.

11.3.9. Formal Application Documentation.

a) Airworthiness approval: aircraft must meet the corresponding airworthiness requirements as established in CAR Section 2 Series O Part XIV.

b) Application: the operator will submit the following documentation to the DGCA:

(1) the application to obtain the CAT II or CAT III authorization;

(2) aircraft qualification documentation: documentation showing that the proposed aircraft meets the airworthiness requirements;

(3) type of aircraft and description of the aircraft equipment to be used;

(4) operating procedures;

(5) training program and crew qualification;

(6) operations manual and checklists: operators will submit the operations manuals and checklists containing information and guidance on CAT II or CAT III operations;

(7) aerodrome operating minima for each aerodrome intended to be used and method used to establish such minima;

(8) maintenance procedures containing airworthiness and maintenance instructions concerning the systems and equipment to be used in the operation (maintenance manuals);

(9) any revision to the MEL needed to conduct CAT II or CAT III operations;

(10) airfield equipment for CAT II or CAT III operations;

(11) operational demonstration plan;

(12) statement of compliance.

11.4 RVSM OPERATIONS

RVSM operational approval is to be processed as per requirements laid down in CAR Section 8 Series S Part II. The job aid in CAP 8200 Annexure will be used.

11.5 MNPS OPERATIONS

MNPS operational approval is to be processed as per requirements laid down in CAR Section 8 Series S Part IV. The job aid in CAP 8200 Annexure will be used.

11.6 EXTENDED DIVERSION TIME OPERATIONS (EDTO)

General

EDTO operational approval is to be processed as per requirements laid down in CAR Section 8 Series S Part I issued on 4 September 2014 and job aids in CAP 8200 Annexure.

Note: EDTO is interchangeable with Extended Twin-Engine Operations (ETOPS).

The approval process encompasses airworthiness and the operational approval. Although the two have different requirements, they must be considered within the same process. Airworthiness and operations elements can be assessed concurrently, however operational approval shall only be issued after airworthiness requirements have been met.

This process constitutes an orderly method used by DGCA to ensure that applicants meet the established requirements. The EDTO operational approval job aid should be used by the FOI to process the EDTO application in a standardized manner.

In phase one, pre-application, the DGCA meets with the operator (pre-a plication meeting), who is advised of all the requirements it must meet during the approval process.

In phase two, formal application, the operator submits the formal application, accompanied by all the relevant documentation

In phase three, review of documentation, the DGCA evaluates the documentation to determine their admissibility. As a result of this review and evaluation, the DGCA may accept or reject the formal application together with the documentation. The EDTO operational approval job aid is completed by the FOI in this phase.

In phase four, inspection and demonstration, once the DGCA has accepted or approved the amendments to the manuals, programs and documents submitted, the operator will provide the respective training to its personnel. The EDTO demonstration checklist is completed by the FOI in this phase. Demonstration for EDTO more than 90 minutes approval shall involve a 3 step process culminating in proving flights;

a) EDTO readiness check (table-top exercise)
b) Simulator validation.
c) Additionally for EDTO approvals more than 90 minutes EDTO, EDTO (more than 90 minutes) approvals for new aircraft/ engine combination will require two (2) EDTO sectors on non-revenue flights. Further, EDTO

time extension beyond this will require two (2) EDTO sectors on revenue/non-revenue flights.

In Phase five, approval, once all the aforementioned steps have been completed satisfactorily, the DGCA will issue the operations specifications (Ops Specs).

11.6.1. EDTO Definitions

Alternate Aerodrome. An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate. An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en-route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Extended diversion time operations (EDTO). Any operation by an aeroplane with two or more turbine engines where the diversion time to an en-route alternate aerodrome is greater than the threshold time established by the DGCA.

EDTO Entry Point. The first point on the route of an EDTO flight; determined using a one-engine inoperative cruise speed under standard conditions in still air that is more than 60 minutes from an enroute alternate airport for airplanes with two engines, and more than 120 minutes from an enroute alternate airport for passenger-carrying airplanes with more than two engines.

EDTO critical fuel. The fuel quantity necessary to fly to an en-route alternate aerodrome considering, at the most critical point on the route, the most limiting system failure.

Note: Attachment D to ICAO Annex 6 Part I contains guidance on EDTO critical fuel scenarios.

EDTO-significant system. An aeroplane system whose failure or degradation could adversely affect the safety particular to an EDTO flight, or

whose continued functioning is specifically important to the safe flight and landing of an aeroplane during an EDTO diversion.

Isolated aerodrome. A destination aerodrome for which there is no destination alternate aerodrome suitable for a given aeroplane type.

Maximum diversion time. Maximum allowable range, expressed in time, from a point on a route to an en-route alternate aerodrome.

Point of no return. The last possible geographic point at which an aeroplane can proceed to the destination aerodrome as well as to an available en-route alternate aerodrome for a given flight.

Threshold time. The range, expressed in time, established by the State of the Operator to an en-route alternate aerodrome, whereby any time beyond requires an EDTO approval from the State of the Operator.

Note: The threshold time for EDTO established by DGCA is 60 minutes for two engine aeroplanes and 120 minutes for more than two engine aeroplanes.

Auxiliary Power Unit (APU). A gas turbine engine intended for use as a power source for driving generators, hydraulic pumps and other aeroplane accessories, equipment and/or to provide compressed air for aeroplane pneumatic system.

In - Flight Shutdown (IFSD). When an engine ceases to function in flight and is shutdown, whether self-induced, crew initiated or caused by some other external influence (i.e. IFSD for all cases; for example due to flameout, internal failure, crew initiated shutoff, foreign object ingestion, icing, inability to obtain and/or control desired thrust etc.).

Propulsion System. A system consisting of power unit and all other equipment utilized to provide those functions necessary to sustain, monitor and control the power/thrust output of any one-power unit following installation on the airframe.

EDTO Configuration, Maintenance and Procedures (CMP) Standard. The particular aeroplane configuration minimum requirements including any special inspection, hardware life limits, master minimum equipment list constraints and maintenance practices found necessary to establish the suitability of an airframe engine combination for an EDTO.

11.6.2 EDTO Special Requirements

A. Operational Approval to Conduct EDTO

While approving an operator with a particular aeroplane type for extended diversion time operations, DGCA will establish an appropriate threshold time and approve a maximum diversion time and in addition to the requirements set forth in CAR Section 8 Series S Part 1, ensure that:

1) specific operational approval is granted by DGCA;

2) the operator's past experience and compliance record is satisfactory and the operator establishes the processes necessary for successful and reliable extended diversion time operations and shows that such processes can be successfully applied throughout such operations;

3) the operator's procedures are acceptable based on certified aeroplane capability and adequate to address continued safe operation in the event of degraded aeroplane systems;

4) the operator's crew training programme is adequate for the proposed operation;

5) documentation accompanying the authorization covers all relevant aspects; and

6) it has been shown (e.g. during the EDTO certification of the aeroplane) that the flight can continue to a safe landing under the anticipated degraded operating conditions which would arise from:

   i. the most limiting EDTO significant system time limitation, if any, for extended diversion time operations identified in the aeroplane's flight manual directly or by reference; or
   ii. total loss of engine generated electric power; or
   iii. total loss of thrust from one engine; or
   iv. any other condition which DGCA considers to be equivalent in airworthiness and performance risk

11.6.3 EDTO Maintenance Programme

Each operator's maintenance programme shall ensure that:

1) the titles and numbers of all airworthiness modifications, additions and changes which were made to qualify aeroplane systems for extended diversion time operations are provided to DGCA;

2) any changes to maintenance and training procedures, practices or limitations established in the qualification for extended diversion time operations are submitted to DGCA before such changes are adopted;

3) a reliability monitoring and reporting programme is developed and implemented prior to approval and continued after approval;

4) prompt implementation of required modifications and inspections which could affect propulsion system reliability is undertaken;

5) procedures are established which prevent an aeroplane from being dispatched for an extended diversion time operation after engine shutdown or EDTO significant system failure on a previous flight until the cause of such failure has been positively identified and the necessary corrective action is completed. Confirmation that such corrective action has been effective may, in some cases, require the successful completion of a subsequent flight prior to dispatch on an extended diversion time operation;

6) a procedure is established to ensure that the airborne equipment will continue to be maintained at the level of performance and reliability required for extended diversion time operations; and

7) a procedure is established to minimize scheduled or unscheduled maintenance during the same maintenance visit on more than one parallel or similar EDTO significant system. Minimization can be accomplished by staggering of maintenance tasks, performing and/or supervising maintenance by a different technician, or verifying maintenance correction actions prior to the airplane entering an EDTO threshold.

8) a procedure (through cockpit placard/external marking) is established to indicate to maintenance and flight crew EDTO status of the aeroplane.

Note: The maintenance considerations applicable to extended diversion time operations are provided in the Airworthiness Manual (Doc 9760).

11.6.4 Propulsion System Reliability

The operator should establish firm criteria as to what action has to be taken when adverse trend in propulsion system conditions are detected. When the propulsion system IFSD (computed on 12 month rolling average) exceeds 0.05/1000 engine hours for a 120 minute operation or exceeds 0.02/1000 engine hours for a 80 minutes operation, an immediate evaluation should be accomplished and a report on problems identified and corrective action taken must be forwarded to DGCA to consider additional corrective action or operational restriction. Further the operator should compile necessary data on propulsion system reliability
which should include;

1) A list of all engine shutdown events both on ground and in flight (excluding normal training events) for all causes including flame out.

2) Unscheduled engine removal rate and summary

3) Total engine hours and cycles.

4) Mean time between failures of propulsion system components that affect reliability.

5) IFSD rate based on 6 and 12 months rolling average.

6) Any other relevant data.

11.6.5 EDTO Significant Systems

1) EDTO significant systems may be the aeroplane propulsion system and any other aeroplane systems whose failure or malfunctioning could adversely affect safety particular to an EDTO flight, or whose functioning is specifically important to continued safe flight and landing during an aeroplane EDTO diversion.

2) Many of the aeroplane systems which are essential for non-extended diversion time operations may need to be reconsidered to ensure that the redundancy level and/or reliability will be adequate to support the conduct of safe extended diversion time operations.

3) The maximum diversion time shall not exceed the value of the EDTO significant system limitation(s), if any, for extended diversion time operations identified in the Aeroplane's Flight Manual directly or by reference, reduced with an operational safety margin specified as 15 minutes by DGCA

4) When planning or conducting, extended diversion time operations, an operator and pilot in command, shall ensure that:
   (i) when planning an EDTO flight, the minimum equipment list, the communications and navigation facilities, fuel and oil supply, en-route alternate aerodromes or aeroplane performance, are appropriately considered;
   (ii) if an aeroplane engine shutdown, proceed to and land at the nearest (in terms of the least flying time) en-route alternate aerodrome where a safe landing can be made; and

(iii) in the event of a single or multiple failure of an EDTO significant systems or systems (excluding engine failure), proceed to and land at the nearest available en-route alternate aerodrome where a safe landing can be made unless it has been determined that no substantial degradation of safety results from any decision made to continue the planned flight.

Note: If no more than one engine is shut down for an aeroplane with more than two engines, the pilot-in-command may elect to continue beyond the nearest en-route alternate aerodrome (in terms of time) if he determines that it is safe to do so. In making this decision the pilot-in-command should consider all relevant factors.

11.6.6 EDTO Operational Procedures

Operating procedures refer to the specification of organization and methods established to exercise operational control and flight dispatch procedures in the appropriate manual(s) and should cover at least a description of responsibilities concerning the initiation, continuation, termination or diversion of each flight as well as the method of control and supervision of flight operations

In addition, an operator shall develop unique EDTO flight crew procedures for each of the flight operations requirements pertaining to EDTO covered in CAR Section 8 Series S Part 1. These procedures should be contained in the applicable manual or information provided to the flight crew. The manual or information provided to the flight crew should also contain procedural information necessary to interface with

EDTO maintenance requirements such as;

1) Fuel cross-feed valve operational check (if applicable);
2) Special EDTO MEL requirements;
3) APU in-flight start procedures (if applicable);
4) Engine Condition Monitoring (ECM) data recording; and
5) In-flight verification of EDTO significant systems.

11.6.7 Training

Training program refers to the training for flight crew and flight dispatchers in operations and maintenance personnel for maintenance programmes. Training programmes for flight crew and flight dispatchers should ensure requirements of are complied with such as but not limited to:

1) route qualification;
2) flight planning and preparation;

3) concept of extended diversion time operations;
4) criteria for diversions; and
5) diversion decision making

11.6.8 EDTO Enroute Alternates

Aerodrome(s) to which an aircraft may proceed in the event that a diversion becomes necessary while en-route, where the necessary services and facilities are available, where aircraft performance requirements can be met, and which are expected to be operational if required, need to be identified any time that the operation is beyond 60 minutes to an en-route alternate aerodrome.

Operations conducted by aeroplanes with two turbine engines require that prior to departure and in flight, the meteorological conditions at identified en-route alternate aerodromes will be at or above the aerodrome operating minima required for the operation during the estimated time of use (planning minima for dispatch and authorized operating minima in flight) in accordance with CAR Section 8 Series C Part I (Table 9)

In addition to the en-route alternate aerodrome provisions described above the following apply:

1) for route planning purposes, identified en-route alternate aerodromes need to be located at a distance within the maximum diversion time from the route and which could be used if necessary; and

2) in extended diversion time operations, before an aeroplane crosses its threshold time during flight, there should always be an en-route alternate aerodrome within the approved maximum diversion time whose conditions will be at or above the operator's established aerodrome operating minima for the operation during the estimated time of use.

If any conditions, such as weather below landing minima, are identified that would preclude a safe approach and landing at that aerodrome during the estimated time of use, an alternative course of action should be determined such as selecting another en-route alternate aerodrome within the operator's approved maximum diversion time.

During flight preparation and throughout the flight the most up-to-date information should be provided to the flight crew on the identified en-route alternate aerodromes, including operational status and meteorological conditions.

Note: En-route alternate aerodromes may also be the take-off and/or destination aerodromes.

For the purpose of converting diversion times to distances, an "approved one engine-inoperative (OEI) speed" or "approved all-engine-operative (AEO) speed" is any speed within the certified flight envelope of the aeroplane.

For determining whether a point on the route is beyond threshold time (60 minutes for a twin engine aeroplane and 120 minutes for an aeroplane with more than two engines) to an en-route alternate, the operator should select an approved one-engine-inoperative (OEI) speed or an approved all-engine operative (AEO) speed, as the case may be. The distance is calculated from the point of the diversion followed by cruise for 60/120 minutes as the case may be, in ISA and still air conditions. For the purposes of computing distances, credit for drift down may be taken.

11.6.9 Minimum Equipment List (MEL) Requirements

The operator is required to submit its MEL, designed in accordance with the Master Minimum Equipment List (MMEL), appropriate to the requested level of EDTO. An operator's MEL may be more restrictive than the MMEL, considering the kind of EDTO proposed and the equipment and service problems unique to the operator. System redundancy levels appropriate to EDTO should be reflected in the MMEL. Systems considered to have a fundamental influence on flight safety may include, but are not limited to the following:

1) Electrical, including battery,
2) Hydraulic,
3) Pneumatic,
4) Flight instrumentation,
5) Fuel,
6) Flight control,
7) Ice protection,
8) Engine start and ignition,
9) Propulsion system instruments,
10) Navigation and communications,
11) Auxiliary power units,
12) Air conditioning and pressurization,
13) Cargo fire suppression,
14) Emergency equipment, and
15) Any other equipment necessary for EDTO.

11.6.10 Aeroplane Performance Data

An operator shall not dispatch an airplane on an EDTO flight unless it makes performance data available to its flight crewmembers and dispatchers that support all phases of EDTO operations, including divert scenarios. This performance data will contain the following information:

1) Detailed one-engine inoperative performance data including fuel flow for standard and nonstandard atmospheric conditions, which should be demonstrated as a function of airspeed and power setting, where appropriate. This data will cover:
   (i) Drift down (includes net performance);
   (ii) Cruise altitude coverage including 10,000 feet;
   (iii) Holding; and
   (iv) Altitude capability (includes net performance).

2) Detailed all-engine-operating performance data, including nominal fuel flow data, for standard and nonstandard atmospheric conditions, which should be demonstrated as a function of airspeed and power setting, where appropriate. This data will cover:
   (i) Cruise altitude coverage including 10,000 feet; and
   (ii) Holding.

3) Details of any other conditions relevant to EDTO that can cause significant deterioration of performance, such as ice accumulation on the unprotected surfaces of the airplane, RAM Air Turbine (RAT) deployment, and thrust reverser deployment if such data is available.

11.6.11 EDTO Critical Fuel

An aeroplane with two engines engaged in EDTO operations should carry enough fuel to fly to an en-route alternate aerodrome. This EDTO critical fuel corresponds to the additional fuel that may be required to comply with CAR Section 8 Series O Part II, Para 4.3.6.3 f) 2). The following shall be considered, using the anticipated mass of the aeroplane, in determining the corresponding EDTO critical fuel:

1) No operator may dispatch or release for flight or takeoff a turbine engine powered airplane in EDTO unless, considering wind and other weather conditions expected, it has enough fuel to satisfy paragraphs (i) through (iv) below:
   (i) The greater amount of fuel sufficient to fly to an en-route alternate under the following three scenarios:
      a. Assuming a rapid decompression at the most critical point followed by descent to a safe altitude in compliance with the oxygen supply requirements, or
      b. At the approved one-engine inoperative cruise speed assuming a rapid decompression and a simultaneous engine failure at the most critical point followed by descent to a safe altitude in compliance with the oxygen supply requirements, or

c. At the approved one-engine inoperative cruise speed assuming an engine failure at the most critical point followed by descent to the one-engine inoperative cruise altitude.

(ii) Upon reaching the alternate, hold at 1,500 ft above field elevation for 15 minutes and then conduct an instrument approach and land.

(iii) Add a 5 percent wind speed factor (that is, an increment to headwind or a decrement to tailwind) on to the actual forecast wind used to calculate fuel in paragraph (i) above to account for any potential errors in wind forecasting. If an operator is not using the actual forecast wind based on a wind model acceptable to the DGCA, the airplane must carry 5 percent of the fuel required for paragraph 1 above, as reserve fuel to allow for errors in wind data. A wind aloft forecast distributed worldwide by the World Area Forecast System (WAFS) is an example of a wind model acceptable to the DGCA.

(iv) After completing the calculation in paragraph (iii), compensate in paragraph (i) above with additional fuel for the greater of the following scenarios:

a. The effect of airframe icing during 10 percent of the time during which icing is forecast (including ice accumulation on unprotected surfaces, and the fuel used by engine and wing anti-ice during this period). Unless a reliable icing forecast is available, icing may be presumed to occur when the total air temperature at the approved one-engine cruise speed is less than +10 degrees Celsius, or if the outside air temperature is between 0 degrees Celsius and -20 degrees Celsius with a relative humidity of 55 percent or greater.

b. Fuel for engine anti-ice, and if appropriate wing anti-ice, for the entire time during which icing is forecast

2) Unless the operator has a program established to monitor aeroplane in-service deterioration in cruise fuel burn performance, and includes in fuel supply calculations fuel sufficient to compensate for any such deterioration, increase the final calculated fuel supply by 5 percent to account for deterioration in cruise fuel burn performance.

3) If the APU is a required power source, then its fuel consumption must be accounted for during the appropriate phases of flight.

4) In computing the EDTO critical, advantage may be taken of drift down computed at the approved one-engine inoperative cruise speed. Accounting of wing anti-ice as in paragraph (a)(iv) above may apply to some models of aeroplane based on their characteristics and the manufacturer's recommended procedures.

Note 1: For aeroplanes with more than two engines simultaneous engine failure and depressurization or depressurization alone, whichever is more limiting will be considered.

Note 2: The speed selected for the all-engine-operative diversion (i.e. depressurization alone) may be different from the approved one-engine inoperative speed used to determine the EDTO threshold and maximum diversion distance;

Note 3: The speed selected for the one-engine-inoperative diversions (i.e. engine failure alone and combined engine failure and depressurization) should be the approved one-engine-inoperative speed used to determine the EDTO threshold and maximum diversion distance.

11.6.12 Communications Equipment (VHF/HF, Data Link, Satellite Communications)

For all routes where voice communication facilities are available, the communication equipment required by operational requirements should include at least one voice-based system. At normal conditions of propagation and normal one engine inoperative cruise altitude, reliable two-way voice communications between aeroplane and appropriate ATC unit over the planned route should be available.

11.6.13 EDTO Operational Approval (In-Service Method)

A. Requirements

An in-service experience program is one method of obtaining EDTO operational approval. As a prerequisite to obtaining any operational approval, the operator needs to show that an acceptable level of propulsion system reliability has been achieved in service by the world fleet for that particular airplane-engine combination. The operator also should obtain sufficient maintenance and operation familiarity with the particular airplane-engine combination. Each operator requesting approval to conduct EDTO by the in-service method should have operational experience appropriate to the operation proposed.

The following paragraphs contain requirements for requisite in-service experience. These may be reduced or increased following review and

concurrence on a case-by-case basis by DGCA. Any reduction or increase in in-service experience requirements will be based on an evaluation of the operator's ability and competence to achieve the necessary reliability for the particular airplane-engine combination in EDTO. For example, a reduction in in-service experience may be considered for an operator who can show extensive in-service experience with a related engine on another airplane that has achieved acceptable reliability. In contrast, an increase in in-service experience may be considered for those cases where heavy maintenance has yet to occur and/or an abnormally low number of takeoffs have occurred.

75/90 Minutes Operation. Approval to carry out EDTO with 75 minutes diversion time may be granted by DGCA to an operator with minimal or no in-service experience with particular airframe engine combination. This approval will be based on such factors as the proposed areas of operation, the operator's demonstrated ability to successfully introduce aircraft into operation, and the quality of the proposed maintenance and operation program. Special case by case operational approval may be granted beyond 75 minutes diversion time (in steps of 15 minutes) with limited evaluation of service experience at the time of the application. For this approval, the service experience of Airframe-engine combination may be less than 2, 50,000 hours in the world fleet.

More than 75/90 Minutes – 120 Minutes Operation. Each operator requesting approval to conduct EDTO with a maximum diversion time of 120 minutes (in still air) should have minimum of 12 consecutive months of operational in service experience with the specified airframe engine combination. Normally the accumulation of at least 2, 50,000 engine hours in the world fleet (not necessarily on a particular airframe) will be necessary before the proposal is considered. Where the engine experience on another type of aeroplane is applicable to the candidate aeroplane, the candidate aeroplane should normally obtain a significant portion of the 2, 50,000-engine hours experience. This number of engine hours may be reduced if sufficient data is available to prove reliability of the engine. In the event that a particular engine is derived from an existing engine the required operational experience is subject to establishing the degree of hardware commonalties and operating similarities.

More than 120 Minutes – 180 Minutes Operation. Each operator requesting approval for maximum diversion time of 180 minutes (in still air) should have held current approval for 120 minutes, EDTO for a minimum period of 12 months with a corresponding high level of demonstrated propulsion system reliability.

B. Procedure for seeking approval for EDTO (In Service Method)

Any operator requesting approval for EDTO should submit the request with the supporting data to the Regional Airworthiness office of DGCA at least

three months prior to the proposed start of EDTO with the specific airframe/engine combination. Each operator requesting approval to conduct EDTO should have operational in service experience as given above appropriate to the operation proposed. This data shall include the details of compliance of modifications, additions and changes in the maintenance practices, which were made to qualify the aeroplane system for EDTO. It should also be shown that an acceptable level of propulsion system reliability has been achieved in service by the world fleet for that particular airframe-engine combination. The operator must obtain sufficient maintenance and operations familiarity with the particular airframe engine combination in question before seeking approval.
Each applicant/operator for EDTO approval should show that the particular airframe/engine combination is sufficiently reliable. Systems required for EDTO should be shown by the operator to be continuously maintained and operated at levels of reliability appropriate for intended operation

EDTO approval of an aeroplane by the manufacturer/Regulatory Authority of the country of manufacture is normally reflected by a statement in the approved Aeroplane Flight Manual (AFM) / Type Certificate Data Sheet (TCDS) or Supplemental Type Certificate (STC), which specifies the Configuration, Maintenance and Procedures (CMP) Standard requirements for suitability. The CMP standards shall be of latest revision. The standards and its revisions may require priority actions to be implemented before the next EDTO flight and other actions to be implemented according to a schedule acceptable to DGCA.

C. Application for Approval (In-Service Method)

An applicant seeking approval for EDTO shall submit the proposal on the prescribed application given in Annexure 1 of CAR Section 8 Series S Part 1. The operator should further furnish details of the procedure/instructions and methodology for continued capability to adhere to conditions laid down at the time of grant of approval in a separate EDTO Manual for use by personnel involved in EDTO. Any amendment to the EDTO manual requires DGCA approval. See CAR Section Series S Part 1 Item 6.7 for detailed contents of the EDTO Manual.

11.6.14 EDTO Operational Approval (Accelerated Method)

A. General Requirements

An operator may initiate EDTO when the operator establishes the processes necessary for successful and reliable EDTO operations and proves to the DGCA that such processes can be successfully applied throughout the applicant's EDTO operations. This may be achieved by thorough documentation and analysis of processes and process validation, or demonstration on another airplane/validation (as described under

process validation in this section, below) or a combination of these processes.

The airplane-engine combination for which the operator is seeking accelerated EDTO operational approval must be EDTO type design-approved (except for two-engine EDTO at 75-minute) and be capable of operating at a satisfactory level of reliability before commencing EDTO. The operator seeking accelerated EDTO operational approval must demonstrate to the DGCA that it has an EDTO program in place that consists of all the following applicable EDTO process elements:

1) The applicable process elements defined as the EDTO maintenance and operations requirements in CAR Section 8 Series S Part 1.

2) Documentation of the following elements as appropriate:
   - (i) Technology new to the operator and significant difference in primary and secondary power (engines, electrical, hydraulic, and pneumatic) systems between the airplanes currently operated and the two-engine airplane for which the operator is seeking EDTO operational approval.
   - (ii) The plan to train flight and maintenance personnel to the differences identified in the maintenance subparagraph above.
   - (iii) The plan to use proven manufacturer-validated training and maintenance and operations manual procedures relevant to EDTO for the two-engine airplane for which the operator is seeking accelerated EDTO operational approval.
   - (iv) Changes to any previously proven validated training, maintenance or operations manual procedures used in previous non-EDTO operations or in previous EDTO with a different airplane-engine combination and/or geographic area of operations. Depending on the nature and extent of any changes, the operator may be required to provide a plan for validating such changes.
   - (v) The validation plan for any additional operator unique training and procedures relevant to EDTO.
   - (vi) Details of any EDTO program support from the airframe manufacturer, engine manufacturer, other operators or any other outside person.
   - (vii) The control procedures when maintenance or flight dispatch support is provided by an outside person as described above.

B. Process Validation Methodology (Accelerated Method)

CAR Section 8 Series S Part 1 identifies those process elements that should be proven before EDTO approval is granted by the DGCA under the accelerated EDTO approval program. For a process to be considered proven the process should first be defined. Typically, this will include a flow chart showing the various elements of the process. Roles and responsibilities of the personnel who will be managing this process should be defined including any training requirement. The operator should demonstrate that the process is in place and functions as intended. The operator may accomplish this by thorough documentation and analysis, or by demonstrating on an aeroplane, that the process works and consistently provides the intended results. The operator should define the necessary evaluation duration to validate the process and also show that a feedback loop exists to illustrate need for revision of the process, if required, based on in-service experience.

Normally the choice to use or not to use demonstration on an aeroplane as a means of validating individual processes should be determined by the operator. Process validation may be done with the airframe-engine combination that will be used in EDTO. It can also be done with a different aeroplane type from that for which EDTO approval is being sought, including an aeroplane with more than two engines, if it can be shown that the particular airplane-engine combination in the operator's EDTO program is not necessary to validate a process. With sufficient preparation and dedication of resources, such validation may not be necessary to assure processes that produce acceptable results.

However, if the plan proposed by the operator to prove processes is determined by the DGCA to be inadequate or the plan does not produce acceptable results, validation of the processes with an aeroplane will be required.

If an operator currently is conducting EDTO with a different airplane engine combination, it may be able to document that it has proven EDTO processes in place with only minimal further validation required. If the operator has similar non-EDTO operations and can simulate or demonstrate proven EDTO processes in such operations, credit can be given for such successful evaluations. In either case, the operator should demonstrate that the means are in place to assure equivalent results with the airplane-engine combination being proposed for EDTO operational approval. The following elements may aid in justifying a reduction in the validation requirement of EDTO processes:

1) Experience with other airframes and/or engines,
2) Previous EDTO experience,
3) Experience with long range, overwater operations with two-, three-, or four-engine airplanes, and
4) Experience gained by flight crewmembers and maintenance and flight dispatch personnel while working with other EDTO-approved operators.

C. Procedure for Seeking EDTO Approval (Accelerated Method)

The operator seeking accelerated EDTO operational approval should submit an Accelerated EDTO operational approval plan to the DGCA six months before the proposed start of EDTO. This will provide sufficient time for the operator and the DGCA to validate the effectiveness of all EDTO process elements ("proven process"). The operator's application for EDTO should:

1) State the EDTO time category requested. Define proposed routes and the EDTO diversion time necessary to support these routes and the aeroplane engine combination to be flown.

2) Define processes and related resources being allocated to initiate and sustain EDTO operations in a manner that demonstrates commitment by management and all personnel involved in EDTO maintenance and operational support.

3) Provide a documented plan for compliance with requirements listed in this section for Accelerated EDTO.

4) Define Review Gates. A review gate is a milestone- tracking plan to allow for the orderly tracking and documentation of specific provisions of CAR Section 8 Series S Part 1. Each review gate should be defined in terms of the process elements to be validated. Normally, the review gate process will start six months before the proposed start of EDTO and should continue until at least six months after the start of EDTO. The review gate process will help ensure that the proven processes comply with the provisions of CAR Section 8 Series S Part 1 and are capable of continued EDTO operations.

D. Validation of Process Elements (Accelerated Method)

When the operators accelerated EDTO plan receives approval by the DGCA (DAW and FSD), a validation of the process elements of the accelerated EDTO plan should begin. Close coordination between the operator and the DGCA is necessary for a successful validation of the EDTO plan. All process elements required should be validated.

1) Before the start of the validation of the process elements, the following information should be part of the Accelerated EDTO plan submitted to the DGCA:
   (i) Validation periods, including start dates and proposed completion dates.
   (ii) Definition of airplane(s) to be used in the validation. List should include registration numbers, manufacturer and serial number and model of the airframes and engines.

(iii) Description of the areas of operation (if relevant to validation objectives) proposed for validation and actual EDTO.

(iv) Definition of designated EDTO validation routes. The routes should be of duration necessary to ensure process validation occurs.

2) Process validation reporting. The operator should compile results of EDTO process validation. The operator should:

(i) Document how each element of the EDTO process was utilized during the validation.

(ii) Document any shortcomings with the process elements and measure in place to correct such shortcomings.

(iii) Document any changes to EDTO processes that were required after an IFSD, unscheduled engine removals, or any other significant operational events.

(iv) When there is concurrence between the operator and the DGCA that a process element has been successfully proven, the review gate should be closed and confirmation documented.

(v) Provide periodic process validation reports to the DGCA. This should be addressed during the review gates.

3) The operator should include a final review gate prior to final EDTO approval that is the validation flights described in the DGCA APM and FOI Manual. This review gate should ensure that all EDTO processes have been proven.

4) Any validation program should address the following:

(i) The operator should show that it has considered the impact of the EDTO validation program with regard to safety of flight operations. The operator should state in its application any policy guidance to personnel involved in the EDTO process validation program. Such guidance should clearly state that EDTO process validation exercises should not be allowed to adversely impact the safety of operations especially during periods of abnormal, emergency, or high cockpit workload operations. It should emphasize that during periods of abnormal or emergency operation or high cockpit workload EDTO process validation exercises may be terminated.

(ii) The validation scenario(s) should be of sufficient frequency and operational exposure to validate maintenance and operational support systems not validated by other means.

(iii) A means must be established to monitor and report performance with respect to accomplishment of tasks associated with EDTO process elements. Any recommended changes to EDTO maintenance and operational process elements should be defined.

E. Final Approval for Accelerated EDTO Authority

At the successful completion of the operator's accelerated EDTO validation program all process elements should have been validated and appropriate review gates closed. Report of successful completion of review gates will be forwarded by DAW to FSD. Upon final concurrence and approval, the applicant should forward to the DGCA a plan for final validation flights to be conducted over proposed routes in the EDTO area of operation and in the airframe-engine combination listed in the operator's application. This DGCA witnessed EDTO validation flight or flights will be conducted in accordance with APM and FOI Manual. The purpose of these flights is for the operator to demonstrate to the DGCA that it has the competence and capability to safely conduct and adequately support the intended EDTO operation.

11.7 ELECTRONIC FLIGHT BAG (EFB) OPERATIONAL APPROVAL

The introduction and use of EFBs in the cockpit and cabin require authorization from FSD, DGCA. This requirement includes DGCA evaluation of all operating procedures, pertinent training modules, checklists, operations manuals, training manuals, maintenance programs, minimum equipment lists (MEL),other pertinent documents, and reporting procedures

Operations Circular 5 of 2014 contains the means to obtain Airworthiness and Operational approval for EFBs and will be used by the Inspector. Job aids in CAP 8200 Annexure will be used for the operational approval process.

Phase One: Request Authorization:

Phase one of the process begins when the operator requests authorization from a regulator to use the EFB. It should be noted that use of the EFB prior to operational approval does not imply any deviation from the operator’s present procedures. It simply defines a training phase which will eventually lead to paperless trials.

During this phase, the regulator and the operator reach a common understanding of when paperless trials should begin, how they must be conducted and documented, the role of the regulator, and what documents and actions the operator is responsible for during each phase of the authorization process. Phase one is typically applicable when the operator

transition from paper to a paperless flight deck; and may not be required by the DGCA.

Phase Two: Application

Phase Two begins when the operator submits a formal compliance plan to FSD, DGCA for evaluation. The plan is reviewed for completeness and FSD, DGCA may coordinate with other inspectors and regulatory offices as necessary. Once the plan is accepted, the operator follows that plan to produce a complete EFB program. The operator must clarify the intent of the operation (with or without paper back-up or a combination of paperless and paper). The applicant user should submit the following information in the application package:

EFB hardware and application specification
EFB operator procedures/manual revisions,
EFB cockpit procedures checklists,
EFB training program,
EFB RD test data (when required),
Complete non-interference test results,
Airworthiness documents for installed resources,
EFB evaluation report,
Operational risk analysis

Phase Three: Authority Review

DGCA should conduct a review of the application submitted by an operator. All assigned regulatory specialties should participate in the review of an operator's EFB program. DGCA should participate in the simulator evaluation or flight evaluation of an EFB when an operator is requesting initial EFB authorization. Additional simulator or flight evaluations are not required for adding a new EFB to an existing authorization unless there is a substantial change in EFB intended functions. When a new aircraft is added to a certificate with existing EFB authorization, the suitability of the EFB for that aircraft must be addressed as part of the aircraft conformity and configuration control process. DGCA should examine the technical content and quality of the proposed EFB program and other supporting documents and procedures. The operator's program for EFB management is critical to EFB reliability. The EFB program must address all EFB issues and be well documented.

Phase Four: Interim Authorization to Use EFB

An interim EFB authorization may be granted to allow the operator to proceed with EFB validation testing.

For operator transitioning from paper to EFB, during this validation phase, the operator must maintain paper back-up for all electronic information. The

validation phase begins when the operator formally begins use of the EFB combined with paper backup for an established period of time.

For operators starting EFB operations without paperback-up, they must have in place adequate mitigations means to access the information in case of EFB failures, that are accepted by the DGCA.

Final considerations by DGCA:

1. Unacceptable Validation Results. If the DGCA finds the proposed EFB reliability and/or function to be unacceptable, the DGCA should contact the operator for corrective action. EFB deficiencies should be corrected and the EFB function revalidated prior to paperless authorization being issued.
2. Acceptable Validation Results. If the DGCA finds the proposed EFB reliability and/or function to be acceptable based on validation data then paperless authorization may be issued.

Phase Five: Authorization to Use EFB

A formal letter is issued by the regulatory authority granting use of the EFB to the operator. Additionally, the approval of a "paperless flight deck" should be added to the authorization, if it was included as a part of the Ops Evaluation. The initial authorization should define criteria for changes to the EFB system which may require consideration of an amended authorization

11.7 DATA LINK AND ADS-C OPERATIONS

11.7.1 Introduction.

This Section provides guidance to inspectors on the process for operators to obtain Operational Data Link authorization (e.g., Operational Specification (OpSpec) or other acceptable approval as applicable) for operation in Oceanic and Remote Airspace. CAR Section 8 Series S Part VI, OC 16 of 2014 on Data Link and ADS-C as well as job aids in CAP 8200 annexure will be used for the approval process.

11.7.2 Basic Events in Data Link Authorization Process

	Operator Actions	DGCA Inspector Actions
1	Establish need to obtain Data Link authority.	
2	Reviews Airplane Flight Manual (AFM), AFM Supplement or Type Certificate Data Sheet or other appropriate documents (e.g., Service Bulletins, Service Letters) to determine aircraft eligibility for Data Link. **Operator contacts airplane or avionics manufacturer, if necessary, to confirm airplane eligibility for Data Link.**	
3	Contacts the DGCA authority to arrange a **pre-application meeting** to discuss requirements for operational approval.	
4		Establishes, during pre-application meeting: • Form and content of operator application (exhibits/documents) supporting Data Link authorization. • Date prior to start of operations when operator application should be submitted for evaluation.
5	Submits operator application (exhibits/documents) to the DGCA with sufficient time prior to the planned start of Data Link operations for evaluation. (DGCA will specify time prior to planned start).	
6		Reviews operator application (submissions).
7	Provides revised material when requested.	
8		Issues operational authorization in the form acceptable by the applicable authority, as appropriate, when airworthiness and operational requirements are fulfilled.

11.7.3 Inspector and Operator Actions

	Lead	Action
1	Inspector	Reviews the "Basic Events in the Data Link Approval Process" in Para 11.7.2 with the operator in the pre-application meeting to provide an overview of approval process events.
2	Inspector	Reviews the requirements for approval with the operator to establish the form and content of the operator application for Data Link authority.
3	Operator	Uses the Job Aid as a guide to assemble documents/exhibits for its application for Data Link.
4	Operator	Annotates Job Aid to show location of Data Link program elements in the operator exhibits/documents.
5	Operator	Submits Job Aid and Data Link operator application (exhibits/documents) to inspector.
6	Inspector	Annotates Job Aid to show task or document "complete/satisfactory" or "open/further operator action required".
7	Inspector	Informs the operator as soon as possible, when further operator action is required.
8	Operator	Provides inspector, when requested, with revised material.
9	Inspector	Issues authorization in the form acceptable (e.g., Operations Specifications (OpSpecs) or GA Letter of Authorization (LOA)) to operator when required tasks and documents are completed.

11.7.4 Authorization for Data Link Use.

The POI of the AOP holder will coordinate with the avionics qualified AW inspector and PAWIs on the following matters:

A. Equipment and systems certification, and airworthiness approval review;

B. The content of the OpSpec authorization;

C. The required communication performance;

D. The AFM;

E. Additional MEL requirements and relief; and

F. Other elements necessary for the safe and effective use of data link communications.

Note: POIs should be aware that there may be additional limitations and guidance for specific airplanes in Flight Standardization Board (FSB) reports.

11.7.5 Automatic Dependent Surveillance – Contract (ADS-C)

There are three types of communication contracts that can be set up between the aircraft and air traffic control services using ADS-C: Periodic, Event and Demand Contracts. Periodic contracts are time-based and can be varied by air traffic controllers depending on system needs. In an Event contract, air traffic is only concerned with aircraft deviations in altitude, vertical speed, or several other different parameters that are pre-designated. Air traffic is notified of any Events immediately. Demand contracts are used when air traffic wants to know where all aircraft are at a particular moment in time. Air traffic will initiate a contract and everyone will reply. There is a fourth type of contract for in-flight emergency situations, but this contract is controlled by the pilot and initiated by a mayday message.

11.7.6 Requirements for Approval.

A. Data Link Training.

All Indian AOP holders shall have an approved data link training program for their maintenance and flight crew personnel that is approved by the DGCA.

B. Contents of Operator Application for Operational Authorization to Use Data Link.

The operator's application to obtain authorization to use data link must address and contain the following subjects:

1) List of source documents used:

   a. For generic data link operations (e.g., aircraft/avionics manufacturer documents).

   b. For area of operations specific policy/procedures. (See item 3 below.)

2) Description of aircraft data link systems including certification documents and current configuration (e.g., current avionics load).

3) Data link system make/model/series. All STC and AFM limitations and procedures.

4) General information.

5) Areas of operation/routes where operator intends to use data link.

   a. List of areas and/or routes where operator intends to conduct data link operations.

   b. List of air traffic centers/service providers with which the operator intends to communicate via data link.

c. List of policy and procedures source documents applicable to each area(s) of operations, such as:

i. Operations manuals for specific areas of operations (e.g., FANS-1/A Operations Manual (FOM) for operation in Asia–Pacific flight information regions (FIR)).

ii. State Aeronautical Information Publications (AIP).

iii. State Notices to Airmen.

iv. DGCA chart supplements (e.g., Pacific and Alaska chart supplement).

6) Flight crew qualification programs.

7) Manuals and other publications.

8) MMEL/MEL.

9) Issues unique to a particular operator.

10) Maintenance programs.

C. ADS-C Approval Process.

The DGCA Inspector must do the following action events prior to the issuance of ADS-C to the Operation Specifications:

1) Verify that the pilot training program has been revised to include training on ADS-C.

2) Verify that the dispatcher training program has been revised to include training of ADS-C

3) Verify that the Flight Crew Operating Manual (FCOM) has been revised to include ADS-C procedures.

4) Verify that the Minimum Equipment List has been revised to include ADS-C equipment.

5) Observe the use of ADS-C equipment and procedures on at least two actually flights prior to approval.

6) Conduct quarterly surveillance of ADS-C performance of actually flights.

D. Contents of Flight crew Qualification Programs.

1) **Academic Training Subjects.** A basic source document for data link procedures in oceanic areas is the ICAO GOLD document and FCOM. Policy and procedures applicable to specific FIRs are in state AIPs and NOTAMs. The following areas need to be addressed:

a. Acronym Source,

b. General concepts of digital and analog communications,

c. Expected flight crew response,

d. ATS coordination,

e. Aircraft digital or analog communication equipment components, displays, alerts. (Sources: aircraft manufacturer documents.),

f. Interface with other aircraft systems,

g. AFM information MEL provisions,

h. Data link events reports,

i. Data link malfunction or irregularity reports, and

j. Human factors—lessons learned.

2) **Operational Use Training.**

a. General requirement,

b. Simulators,

c. Computer-based instruction,

d. Policy on initial pilot evaluation, and

e. Recurrent training and evaluation.

3) **Currency (recent experience).**

4) **Line Checks and Route Checks (if applicable).**

5) **Line-Oriented Flight Training (if applicable).**

E. Operational Authorization Documents.

The approval to use data link communications in operations shall be listed on the Operations Specifications.

11.7.7 Communications Systems and Operating Environments

This table lists the systems and their operating environment including the applicable criteria with references.

Row	Aircraft Data Link System	Operating Environment			Applicable Standards
		Type of Airspace	ATS Unit System	Capabilities and Uses	
					(Applies only to aircraft).
	FANS 1/A+ or FANS 1/A	Oceanic and remote	FANS-1/A	Normal means of ATC communication uses AFN and CPDLC applications for direct controller-pilot communications (DCPC). Eligible for: Required Communication Performance (RCP) 240 operations via VHF, SATCOM Iridium and SATCOM Inmarsat subnetworks. RCP 400 operations via HF	a. DO-306/ED-122, Oceanic SPR Standard. b. DO-258A/ED-100A (or earlier versions) FANS 1/A INTEROP Standard.

Row	Aircraft Data Link System	Operating Environment			Applicable Standards
		Type of Airspace	ATS Unit System	Capabilities and Uses	
				data link subnetwork. No RCP operations. Note 4: Aircraft capability that supports multiple RCP type operations needs to include appropriate indications and/or alerts to enable the flightcrew to notify ATC when aircraft equipment failures result in the aircraft's ability to no longer meet its criteria for any of the RCP types, per DO-306/ED-122, paragraph 5.2.6.a) and 5.2.6.b). Uses ADS-C application for automatic position reporting.	
4	FANS 1/A+ or FANS 1/A	Oceanic and Remote	CADS	No CPDLC application. Uses ADS-C application for automatic position reporting.	a. DO-306/ED-122 Oceanic SPR Standard. b. DO-258A/ED-100A (or earlier version), FANS 1/A INTEROP Standard (Applies only to

Row	Aircraft Data Link System	Operating Environment			Applicable Standards
		Type of Airspace	ATS Unit System	Capabilities and Uses	
					aircraft) c. Centralized ADS (CADS) Common Specification, Version 2.0, approved ICAO NAT FIG/10, Paris, March 29– April 2, 2004 (Applies only to ATS unit)
	Flight management system waypoint position reporting (FMS WPR)	Oceanic and Remote	CFRS		a. DO-306/ED-122, Oceanic SPR Standard b. ARINC 702A, Advanced Flight Management Computer System (Applies only to aircraft) c. Central Flight Management Computer Waypoint Reporting System (CFRS) Common Specification, Version 2.0, approved International Civil Aviation Organization (ICAO) North

Row	Aircraft Data Link System	Operating Environment			Applicable Standards
		Type of Airspace	ATS Unit System	Capabilities and Uses	
					Atlantic (NAT) FIG/10, Paris, March 29–April 2, 2004 (Applies only to ATS unit when ATS unit is CADS)
6	FANS 1/A ADS-C	Oceanic and Remote	FANS-1/A or CADS		a. DO-306/ED-122 Oceanic SPR Standard b. DO-258A-ED-100A (or earlier version) FANS 1/A INTEROP Standard (If ATS unit is CADS, applies only to aircraft) c. CADS Common Specification, Version 2.0, approved ICAO NAT FIG/10, Paris, March 29–April 2,

Note:
An exception to the requirement for data link communication systems is the FANS-1/A system in oceanic or remote airspace. The FANS-1/A communications system can only be approved for data link operations in oceanic and remote area airspace. FANS-1/A systems are not interoperable with the VDL-2 infrastructure for domestic data link communications.

11.8 AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST (ADS-B)

11.8.1 Introduction.

Automatic Dependent Surveillance-Broadcast (ADS-B) is a new system for air traffic surveillance within those areas where the ground infrastructure (ADS-B ground station and air traffic communications network) is in place and available. ADS-B is expected to play an increasing role in air traffic as its capabilities evolve, and is expected to be a key element in improving the use of airspace, improving airport surface surveillance, and enhancing safety. ADS-B Out is the capability to send a formatted message that includes elements such as position, altitude, velocity, direction, etc., for use by air traffic in providing air traffic separation services. ADS-B approval considerations are covered in CAR Section 8 Series S Part V, OC 17 of 2014 on ADS-B and job aid in CAP 8200 Annexure will be used.

11.8.2 General Guidance.

A. ADS-B System Description.

1) ADS-B is:

a) Automatic and periodically transmits position, velocity, and other information with no pilot or controller action required for the information to be transmitted;

b) Dependent on the aircraft position source (e.g., Global Navigation Satellite System (GNSS)/Global Positioning System (GPS);

c) Used for surveillance services, much like traditional radar; and

d) Used to broadcast aircraft position and other data to any aircraft or ground station equipped to receive ADS-B.

2) The ADS-B system consists of three elements:

a) Avionics. Installed aircraft avionics gather, format, and transmit the message elements from the aircraft via a discrete frequency. ADS-B messages include at least the following elements:

(i) Aircraft horizontal position (latitude/longitude).

(ii) Aircraft barometric altitude.

(iii) Aircraft identification: the assigned, unique International Civil Aviation Organization (ICAO) 24-bit address.

(iv) Flight ID.

(v) Special Position Indicator (SPI).

(vi) Emergency status.

Note: Flight ID, SPI, and the emergency status are the only message elements that can be modified by the flight crew.

b) Navigation Source. Position data is typically derived from GNSS/GPS to determine an aircraft's position.

c) Ground Stations. The ground infrastructure must be in place to receive and process the message elements from aircraft and to provide the air traffic automation system with the necessary information for air traffic control (ATC) surveillance and separation services.

B. Application Process.

1) The Indian AOP holder request to conduct ADS-B operations shall make application to the DGCA.

2) ADS-B is required for many areas of operations currently flown by Indian AOP holders.

3) The DGCA will conduct a review of the applicant's submitted proposal using applicable guidance. When compliance with all applicable requirements has been demonstrated, the DGCA will forward approval of this phase of certification to the Indian AOP holder.

4) Once all requirements are completed DGCA shall issue the ADS-B authorization in the Operations Specifications.

C. ADS-B Out (Transmit) Functions.

Different avionics packages and suites are available to support ADS-B Out. The transmission of message elements by ADS-B-equipped aircraft is known as ADS-B Out.

D. Position Source Dependency.

1) ADS-B derives horizontal and vertical position information from the positioning source on the aircraft, which is typically the GNSS/GPS navigation system. This can mean that the accuracy of the ADS-B system is directly related to the availability of the GPS constellation of satellites. In some installations the altimeter is also used as an added vertical cross-check referred to as baro-aiding. The navigation service and the altimeter must be available and of sufficient quality in order to

provide the required level of safety to meet air traffic separation services standards. This dependency can become complicated since the operator is not aware, at any moment, what accuracy is being provided to the avionics.

2) The ADS-B system is heavily dependent on the continued high performance of the avionics and position source. This dependency requires an operator to ensure that the planned operation can meet the performance requirements for the entire route and time of the flight. For this reason, certificate holders/operators should check the availability of the ADS-B service and GNSS/GPS (e.g., Notice to Airmen (NOTAM)) to ensure that ADS-B performance is available.

E. Air Traffic Separation Services.

1) Air traffic separation services using ADS-B enhances operations in several ways. ADS-B data is provided to ATC at a higher rate than existing radar surveillance, resulting in more accurate position information to the controller. This increased position accuracy enables more efficient and effective use of airspace.

2) Air traffic separation services using ADS-B are dependent on the quality and performance of the individual aircraft and the ground system. It is critically important that each piece of the system is operated and maintained in a manner that ensures design performance, supporting the approved safety levels associated with the operation.

F. Contingency Operations.

A failure of any one component of the ADS-B system requires ATC to "fallback" to procedural separation standards. Therefore, service provider or certificate holder/operator reliance on ADS-B must be carefully weighed for the contingency operations, which may be required should the ground service, avionics, or positioning source fail.

11.8.2 Automatic Dependent Surveillance-Broadcast (ADS-B)-Related

Definitions.

A. **ADS-B.** A surveillance system in which an aircraft or vehicle to be detected is fitted with cooperative equipment in the form of a data link transmitter.

1) The aircraft or vehicle periodically broadcasts its GPS-derived position and other information such as velocity over the data link, which is received by a ground-based transmitter/receiver (transceiver) for processing and display at an ATC facility.

2) ADS-B is a system for airborne or surface aircraft, or other surface vehicles operating within the airport surface movement area, that periodically transmits a state vector and other information.

3) ADS-B is a function on an aircraft or surface vehicle operating within the surface movement area that periodically broadcasts its state vector (horizontal and vertical position, horizontal and vertical velocity) and other information. ADS-B is automatic because no external stimulus is required to elicit a transmission; it is dependent because it relies on onboard navigation sources and onboard broadcast transmission systems to provide surveillance information to other users.

4) ADS-B is an advanced surveillance technology where ADS-B-Out-equipped aircraft share position, altitude, velocity, and other information with ATC and other appropriately equipped aircraft.

B. **ADS-B Out.**

1) The capability of an aircraft or surface vehicle to periodically broadcast its position, velocity, and other information. ADS-B Out is automatic in the sense that no flightcrew or controller action is required for the information to be transmitted. It is dependent surveillance in the sense that the surveillance information depends on the navigation and broadcast capability of the source.

2) Transmission of an aircraft's position, altitude, velocity, and other information to other aircraft and ATC ground-based surveillance systems.

C. **Extended Squitter (ES).**

A long message (e.g., format DF=17) that Mode S transponders transmit automatically, without needing to be interrogated by a radar, to announce the own-ship aircraft's presence to nearby ADS-B-equipped aircraft.

D. **Global Navigation Satellite System (GNSS).**

1) A worldwide position, velocity, and time determination system that includes one or more satellite constellations, receivers, and system integrity monitoring, augmented as necessary to support the RNP for the actual phase of operation.

2) The generic term for a satellite navigation system, such as GPS, that provides autonomous worldwide geospatial positioning and may include local or regional augmentations.

E. **Global Positioning System (GPS).**

1) A space-based radio positioning, navigation, and time-transfer system. The system provides highly accurate position and velocity information, and precise time (on a continuous global basis) to an unlimited number of properly equipped users. The system is unaffected by weather and provides a worldwide common grid reference system. The GPS concept is predicated upon accurate and continuous knowledge of the spatial position of each satellite in the system with respect to time and distance from a transmitting satellite to the user. The GPS receiver automatically selects appropriate signals from the satellites in view and translates these into three-dimensional position, velocity, and time. System accuracy for civil users is normally 100 meters horizontally.

2) A space-based position, velocity, and time system composed of space, control, and user segments. The space segment, when fully operational, will be composed of 24 satellites in 6 orbital planes. The control segment consists of five monitor stations, three ground antennas, and a master control station. The user segment consists of antennas and receiver-processors that provide positioning, velocity, and precise timing to the user.

3) A U.S. satellite-based radio navigation system that provides a global positioning service. The service provided by GPS for civil use is defined in the GPS Standard Positioning System Performance Standard, 4th edition.

F. **International Civil Aviation Organization (ICAO) 24-bit Address.**

Address assigned to each aircraft transponder of an ADS-B transmitter. For aircraft equipped with Mode S transponders, their replies to Traffic Alert and Collision Avoidance System (TCAS) interrogations and their ADS-B transmissions should use the same 24-bit address, allowing correlations by Airborne Surveillance and Separation Assurance Processing (ASSAP).

G. **Mode S.**

A Secondary Surveillance Radar (SSR) system that operates using addressed interrogation on 1030 megahertz (MHz), and the transponder replies on 1090 MHz. Mode S systems interrogate for aircraft identity (Mode A), altitude (Mode C), and other aircraft-specific information. The aircraft transponder replies with the requested information. Mode S supports a two-way data link and an ADS-B service known as Extended Squitter (ES).

H. **Position Source.**

1) The onboard avionics equipment that provides the latitude, longitude, geometric altitude, velocity, position and velocity accuracy metrics,

and position integrity metrics. Additionally, the position source may provide the vertical rate parameters.

2) The term Receiver Autonomous Integrity Monitoring (RAIM) is a synonym for Aircraft-Based Augmentation System (ABAS) and is used to refer to both RAIM and RAIM-equivalent algorithms.

I. **Secondary Surveillance Radar (SSR).**

A radar sensor that listens to replies sent by transponders carried onboard airborne targets. SSR sensors, in contrast to primary surveillance radar (PSR) sensors, require the aircraft under surveillance to carry a transponder.

J. **Surveillance.**

Detection, tracking, characterization, and observation of aircraft, other vehicles, weather, and airspace status information and phenomena for the purposes of conducting flight operations in a safe and efficient manner. The primary purposes of traffic surveillance (as distinct from all surveillance functionality) are to control the flow of aircraft, to provide SA for pilots and controllers, and to separate aircraft.

11.8.3 ADS-B Out Operations

A. **Applicability.**

See AIP of individual ICAO Member States.

B. **Background.**

ADS-B provides ATC with an alternate means of surveillance in regions where a radar-based system would be impractical (e.g., Gulf of Mexico (GOMEX), mountainous terrain, etc.) or economically viable. ADS-B allows application of reduced separation standards in these areas and improves the efficiency and safety of operations within the airspace. Currently, ADS-B provides surveillance coverage in several regions outside of U.S.-designated airspace, including portions of Australia, Canada, and in the Asia-Pacific region. Additional ICAO regions and Member States are expected to implement ADS-B in the future.

C. **Airworthiness Considerations.**

The 1090ES message elements represent new or additional requirements for most certificate holders/operators, including identifying and performing regular specific maintenance actions to ensure the continued airworthiness of the ADS-B equipment with all other interrelated avionics dependencies addressed. Specific checks of all required message elements should be completed on a periodic basis, including the correct functioning of system

fault detectors and transmission of the ICAO 24-bit address assigned to each specific aircraft. It is important for the principal maintenance inspector (PMI) and principal avionics inspector (PAI) to ensure that adequate and specific procedures are in place for these checks.

Note: ADS-B equipment installed in accordance with FAA AC 20-165 as adopted will be considered to meet the equipment requirements of European Aviation Safety Agency (EASA) Acceptable Means of Compliance (AMC) 20-24, Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHz Extended Squitter, dated February 5, 2008. See AMC 20-24 for any additional maintenance, operational, and training considerations.

1) Return to service (RTS) requirements will be incorporated into the instructions for continued airworthiness (ICA) for both the ADS-B system and all source systems.

2) Full system-level testing is required any time the following conditions are met:

   a) The main ADS-B transponder is replaced.

   b) A source system is disturbed and there is a dedicated input to ADS-B that cannot be verified by other means (source system test, flight deck display, etc.).

D. **Canada-Specific Requirements.**

All Indian operators wishing to operate in ADS-B-designated airspace within Canada must be in compliance with the following requirements (current editions):

1) EASA AMC 20-24, Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHZ Extended Squitter;

2) Transport Canada AC 700-009, Automatic Dependent Surveillance-Broadcast (ADS-B), paragraph 6.2, Foreign Air Operators; and

3) NAV CANADA Aeronautical Information Circular (AIC) 21/09, Air Traffic Flow Management in the Vicinity of Hudson Bay as a Result of Automatic Dependent Surveillance Broadcast Out Implementation, for information related to ATC services supported by ADS-B.

Note: The certificate holder/operator must provide the appropriate Transport Canada Civil Aviation (TCCA) office or representative with a copy of the FAA-issued authorization (OpSpec/MSpec/LOA A353), as appropriate. The certificate holder/operator must also submit the

unique ICAO 24-bit aircraft address to NAV CANADA for each aircraft approved for use in ADS-B-designated airspace within Canada.

Note: NAV CANADA may accept formats other than octal (i.e., hexadecimal or binary) for the aircraft ICAO 24-bit address. The certificate holder/operator should coordinate with NAV CANADA for acceptable ICAO 24-bit address formats.

Note: NAV CANADA maintains an aircraft eligibility list of all aircraft approved for ADS-B services in Canada. Only aircraft with an authorized registration and/or ICAO 24-bit address will be provided ADS-B services.

E. **Australia-Specific Requirements.**

All Indian operators wishing to operate in designated ADS-B airspace within Australia must be in compliance with the following requirements (current editions):

1) EASA AMC 20-24, Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHZ Extended Squitter; and

2) For General Aviation (GA) operators, Civil Aviation Safety Authority (CASA) Civil Aviation Order (CAO) 20.18, Aircraft Equipment—Basic Operational Requirements; or for certificated operators, CASA CAO 82.5, Condition on Air Operators' Certificates Authorising Regular Public Transport Operations in High Capacity Aircraft.

F. **Asia-Pacific-Specific Requirements.**

All Indian operators wishing to operate in ADS-B-designated airspace within the Asia-Pacific (outside areas specifically identified previously) must be in compliance with the following requirements (current editions):

1) Singapore: EASA AMC 20-24, Certification Considerations for the Enhanced ATS in ADS-B-NRA Application via 1090ES; and

2) Singapore: AIC 14/10, Introduction to Automatic Dependent Surveillance Broadcast (ADS-B) Out Service within parts of the Singapore FIR.

Note: The Civil Aviation Authority of Singapore (CAAS) plans to implement ADS-B operations after 2013 within the Singapore flight information region (FIR). See AIC 14/10 for specific airways that will require ADS-B.

G. **General ADS-B Requirements.**

1) Aircraft Flight Manual (AFM) Requirements. The AFM, Aircraft Flight Manual Supplement (AFMS), Airplane Operations Manual (AOM), and/or pilot's operating handbook (POH), as applicable to the specific operator, must be carried in the airplane at all times when ADS-B Out equipment is installed in accordance with a type certificate (TC) or Supplemental Type Certificate (STC). The AFM/AFMS/AOM//POH, as applicable, of each aircraft type must contain a statement that the ADS-B system complies with EASA AMC 20-24 and if deviations are applicable. Deviations, as stated in AMC 20-24, may be included or referenced. If the installed ADS-B system is compliant with FAA AC 20-165, as adopted, the appropriate manuals should indicate that the installation meets the equipment requirements of FAA AC 20-165.

2) Flight Operations Manual (FOM) or Equivalent Requirements. The certificate holder/operator (as applicable) must submit an FOM bulletin or equivalent to the flight crews describing ADS-B to include:

   a) ADS-B system description,

   b) Cockpit setup,

   c) En route irregular/emergency procedures,

   d) Communications,

   e) Aircraft statement of compliance to EASA AMC 20-24, and

   f) Authorization (see subparagraph D1)).

3) Required Flight crew/Dispatch/Flight Follower Training Before being authorized to use the ADS-B Out equipment, each member of the flight crew operators and the dispatcher/flight follower shall have completed an approved training program that includes:

   a) Use of ADS-B Out equipment,

   b) Specific regional operating practices,

   c) Normal procedures,

   d) Flight planning,

   e) Surveillance phraseology,

   f) Emergency procedures,

   g) Dispatch considerations (as applicable),

h) Minimum equipment list (MEL) considerations,

i) Human factors,

j) Safety considerations,

k) Equipment limitations, and

l) Contingency planning.

4) Training Verification. The POI must verify that the certificate holder's/operator's training is accomplished and that the AFM or supplements indicate compliance with EASA AMC 20-24 or FAA AC 20-165, as adopted. The POI must attend at least one full training session for both the flight crew and flight operations officers.

5) Designation of Aircraft requires specific designation of the aircraft approved for operations outside of Indian-designated airspace. Aircraft make, model, and series (M/M/S), aircraft registration number, and aircraft serial number will be automatically populated to reflect the ADS-B authorization.

6) ICAO Regions of Operation. ADS-B Out operations conducted by certificate holders are not authorized beyond the areas specified in the Operation Specifications.

H. **Certification Basis of the Aircraft Avionics.**

The POI must determine that the certificate holder/operator understands and complies with all limitations and conditions associated with applicable STC requirements, parts Manufacturer Approvals (PMA), and appropriate AFMSs.

1) The PAWI and PAI will ensure that the ADS-B system is installed in compliance with the applicable STC or other appropriate aircraft certification requirements and that the certificate holder's/operator's maintenance program includes continuing airworthiness and maintenance personnel training requirements.

2) The POI will review the certificate holder/operator procedures for deferral of inoperative equipment and will coordinate with the PAWI and avionics AWI during the evaluation and approval of the certificate holder/operator MEL. The POI will also provide the operator with guidance for revising the existing airplane MEL. ADS-B equipment may not be listed as "Administrative Control Items" in the MEL.

3) The POI must verify that the certificate holder/operator is able to conduct the proposed operations, and validate that the appropriate training manuals, operations manuals, checklists, and operating procedures address ADS-B operations.

4) The certificate holder/operator must provide a listing of the aircraft make and model, registration number, serial number, and the make and model of the approved ADS-B equipment.

After the POI has examined and determined satisfactory all technical details of the application the authorization for the addition of ADS-B to the Operations Specifications shall be made by DGCA

11.9 Heads up Display (HUD), Enhanced Vision Systems (EVS)

HUD and EVS approval will be done as a five phase approval process using OC 18 of 2014 on HUD and EVS approval with job aid in CAP 8200 annexure.

CHAPTER 12 - APPROVAL OF TRAINING ORGANISATIONS

Approval of training organisations will be done in accordance with CAR Section 7 Series D Part III, CAR Section 7 Series D Part. IV and CAP 7100. Apart from the approval and inspection process, surveillance of ATOs/TRTOs will be carried out on an annual basis to ensure that these organisations continue to comply with the standards based on which approval was give. If any ATO/TRTO does not meet these requirements, then FSD, DGCA will issue a letter suspending the approval immediately. Re-approval of the TRTO will be in accordance with CAR Section 7 Series D Part III, CAR Section 7 Series D Part IV, CAP 7100. The checklist for surveillance is included in CAP 8200 annexure.

CHAPTER 13 - APPROVAL OF FLIGHT TRAINING DEVICES (FTD) AND FULL FLIGHT SIMULATORS (FFS) FOR AIR OPERATORS

13.1 **Purpose.**

The purpose of this Chapter is to provide guidance to operations inspector to approve the use of Flight Training Devices (FTDs) and Full Flight Simulators (FFSs) for use in air operator training operations. This process ensures the Flight Simulation Training Device (FSTD) operator's manual includes policies, procedures, instructions and information necessary to ensure that aeroplane simulators, training devices and training aids meet the requirements of its DGCA Approved Training Programme.

13.2 **Objective.**

A. To determine if the FTD or FFS meets the minimum standards to be used at Level 4, 5, or 6 for FTDs or A, B, C or D for FFSs.

B. To identify any shortfalls in the FTD or FFS in terms of required functionality, capability and operating environment.

13.3 **Specific Instructions.**

To properly complete this FSTD Use Approval Job Aid in CAP 8200 annexure, the Inspector should have a basic understanding of the FTD and FSS approval process, which is described in detail in OC 15 of 2014 **Flight Training Device (FTD) And Full Flight Simulator (FFS) Qualification**. This job aid should be utilized for each FTD and FFS intended for use in air operator training operations.

VOLUME 3

SURVEILLANCE

CHAPTER 1 - SURVEILLANCE OF AIRLINES: GENERAL INFORMATION, POLICY AND PROCEDURES

1.1 OBJECTIVE of the Manual: The purpose of this manual is to clearly define the responsibilities, goals and methods for surveillance of airline flight operations by the Directorate General of Civil Aviation (Flight Standards Directorate).

1.2 BACKGROUND: Section 4.2.1 of Part I to Annex 6 of ICAO Recommended Standards and Practices require that member states issue air operator certificates or equivalent documents to air operators. The issuance of an air operator certificate shall be dependent upon the operator demonstrating an adequate organization and method of control and supervision of flight operations and the continued validity of that certificate shall be dependent upon the operator's continuing maintenance of the standards which it demonstrated upon original issuance of the certificate. Member states must therefore perform surveillance of operators in order to ensure that operators continue to meet certification requirements. Chapter 8 of the ICAO Manual of Procedures for Operations Certification and Inspection contains information concerning States, responsibilities for continuing supervision of certified operators.

Surveillance of leased operations is also under the purview of DGCA. Whereas safety oversight of aircraft leased into India for supplementing 'Indian' carriers' operations (i.e. foreign registered aircraft) will be addressed in the lease agreement, the primary responsibility is that of the lessor. DGCA however will be carrying out inspections on a random basis. The operator leasing the aircraft will be required to maintain, preserve and provide all records for DGCA audit. Surveillance and safety oversight of Indian (registered aircraft) will, although the being responsibility of the carrier leasing the aircraft, be under the oversight plan of DGCA. The FOI will refer to CAP 3200 Aircraft Leasing Manual for further guidance.

1.2.1 It is important to make a clear distinction between surveillance and certification activities. Both are important aspects of an inspector's duties and one should not take precedence over the other. Certification activities are required by specific Civil Aviation Regulations to license, (certificate) certify or otherwise qualify an aircrew or an airline to operate in a prescribed manner. Surveillance on the other hand, is aimed at ensuring that the aircrew of airlines continue to adhere to the standards to which they were certified or

approved, through regular inspections of various aspects of an airline's operation.

1.2.2 This distinction is particularly important in the case of aircrew surveillance. For aircrew, a type rating, skill test, route check or proficiency check is a certification activity whereas the observation of a cockpit crew from the observer's seat during scheduled operations and when no other type of check or requalification is intended is a surveillance activity. For aircrew, certification activities may be thought of as more "person oriented" where the personal performance of the aircrew is being evaluated for purposes of licensing, qualification, or requalification. Aircrew Surveillance may be viewed of as more "system oriented" where individual performance may be considered in the context of the operator's total system for training, qualifying and ensuring the continued proficiency of aircrew. Systematic causes for less than satisfactory performance during certification checks cannot be ignored, particularly where trends exist; and the personal performance of an individual during a surveillance activity must be taken into account. Perhaps the clearest distinction to be made between the two activities is that aircrew certification is an active process whereas Aircrew Surveillance Activities are intended to be more passive in nature. During surveillance, the inspector is present primarily to observe and evaluate. His role is to remain as passive and unobtrusive as possible and let the events he is observing unfold of their own accord. This is why surveillance of flight operations in the cockpit is best accomplished from the observer's seat.

Aside from aircrew surveillance, many other types of activities, recommended by ICAO and enumerated in this Manual, must be undertaken on a regular basis to ensure that an operator maintains adequate standards and follows approved procedures. For example, when an airline introduces a new aeroplane type, the DGCA should approve all elements of the training programme(s) for all pilots and cabin attendants. Whenever possible, the DGCA should approve all course content in advance, and then provide inspectors to monitor ground, simulator and flight training prior to final approval of the course of instruction. Thereafter, the FOI must regularly monitor various aspects of the airline's approved training to ensure that training is being conducted in accordance with previously approved programmes.

1.3 FLIGHT STANDARDS DIRECTORATE: The Directorate of Flight Inspection was established in 1985 to carry out certification and surveillance functions on behalf of DGCA. AIC-10 of 1991 requires the Directorate of Flight Inspection, hereinafter being referred was renamed Flight Standards referred to as FSD to carry out the

certification, inspection and surveillance functions covered in the following paragraphs. Till April 2014, Flight Operations Inspectors were deputed/seconded to FSD from various operators as per recruitment rules and CAR on secondment of inspectors. In this case, a strategy to mitigate potential conflict of interest issues was established wherein inspectors from a particular operator are not assigned inspector functions for their parent organisation as far as possible. However, it may have been impossible to ensure that an inspector in such a case would not be involved in inspections concerning the operator from which the secondment was effected. It was still incumbent upon the DGCA to ensure that operator personnel, seconded as DGCA inspectors, were adequately trained and qualified and subsequently supervised in the carrying out of their duties. Since April, 2014, DGCA has obtained approval of the Ministry of Civil Aviation to hire full-time FOIs against the required vacancies. Progressively, as full-time FOIs are hired, seconded FOIs have been released back to their parent airlines and the remaining seconded FOIs are no longer employed on certification activities.

1.3.1 Conduct a percentage of proficiency skill and standardization check of pilots and monitor their skill levels in the air and on simulators on a random basis,

1.3.2 Ensure continuous surveillance of various operational aspects of the airlines and other operators.

1.3.3 Check that the Aircraft Rules and Regulations on Air Safety complied with.

1.3.4 Conduct any other flying checks specifically ordered by the DGCA.

1.3.5 Clearly, both certification and surveillance responsibilities were envisioned for the FSD and is particularly important because it requires that the FSD provide continuous surveillance of various operational aspects of the Airlines. This implies, in accordance with ICAO practices, that surveillance activities encompass operational aspects of the entire airline and of the air transport system, and not just the-aircrew alone.

1.3.6 Directive O. Adv ((Av)/FI/1/91-FID expands upon the provisions of AIC 10 of 1991. This directive also requires FOIs to carry out inspections

1.4 OBJECTIVES OF DGCA SURVEILLANCE PROGRAMME: The primary objective of surveillance is to provide the DGCA, by means of risk based oversight surveillance programme, with an accurate, real-time and comprehensive evaluation of the safety status of the air transportation

system. As part of the Annual Surveillance Programme, Regulatory Audits are planned in which FOIs are part of the DGCA team (for procedures on these audits, FOIs shall refer to Manual of Regulatory Audits). This surveillance programme objective is accomplished by DGCA inspectors performing the following:

i) Determining each airline/operator's compliance with regulatory requirements and safe operating practices.

ii) Detecting changes as they occur in the operational environment.

iii) Detecting the need for regulatory, managerial and operational changes.

iv) Measuring the effectiveness of previous corrective actions

.

1.5 PLANNING AND EXECUTING THE SURVEILLANCE PROGRAMMES:

Surveillance is an important duty and responsibility of inspectors assigned to the DGCA. Surveillance programmes provide a method for the continued evaluation of operator compliance with government regulations and safe operating devices. Information generated from surveillance programmes permits the DGCA to act upon deficiencies which affect or have a potential effect an aviation safety, surveillance programmes to be effective, they must be carefully planned and executed. Inspections are specific work activities within a surveillance programme which should exhibit the following characteristics:

i) A specific work activity title.

ii) A definite beginning and a definite end.

iii) Defined procedures.

iv) Specific objectives

v) A requirement for a report of findings (either positive, negative or both)

1.5.1 Planning and executing any type of surveillance program may reasonably be broken down into four phases

i) Phase One - Developing a risk based oversight surveillance plan by determining the types of inspections necessary and the frequency of those inspections.

ii) Phase Two - Accomplishing the surveillance plan by conducting the inspections.

iii) Phase Three - Analyzing surveillance data gathered from inspection reports and related information from other sources.

iv) Phase Four - Determining appropriate course of action.

1.5.2 **Phase One**: Developing a Surveillance Plan: Responsibility for the development of the annual surveillance program rests with the Inspectorate. The risk based oversight surveillance programme should recognize the need to conduct routine and ongoing surveillance and should anticipate the possibility of special emphasis Surveillance as a result of certain events such as accidents, incidents, repeated violations of CARs and evidence of financial problems. When planning a surveillance program, the CFOI/ DDG should identify the program objectives, evaluate the resources available and determine the specific types and number(s) of inspections to be conducted in support of that programme. Numbers of inspections should be established taking into consideration the current operating environment which the FOI oversees (such as number of aero planes and variety of aero plane types, number of crew members, routes, number and geographic location of transit stations and the volume of training being conducted). Previous inspection reports, accident/incident information, compliance and enforcement information and public complaints should also be used to determine both the types and frequency of inspections to be accomplished during a given time frame. History of compliance with regulations and cooperation with the inspectorate may also be considered when developing a surveillance program for a specific airline. The safety oversight of operators is to be conducted on a continuous basis, whether or not the AOC has a specific duration with an expiration date. It should be based on periodic random inspections of all aspects of the operation.

1.5.2.1 Pilot Proficiency Check Inspections: A sufficient number of inspections may be conducted so that Training Captains are observed in the performance of their duties for the purpose of standardization of training.

1.5.2.2 It must be emphasized that the preceding are the minimum numbers which must be accomplished to fulfil the FSD's surveillance responsibilities. Whenever possible, taking into account inspector resources and the demand for certifications activities, the CFOI will schedule a significantly larger number of inspections of cockpit crews, cabin crews, check pilot and training events.

1.5.3 **Phase Two**: Conducting Surveillance Plan Inspections: During the conduct of the surveillance plan inspections, accurate and qualitative inspection reporting is essential. High quality inspection reporting is necessary for the effective accomplishment of the third and fourth phases of a surveillance program. The quality and standardization of inspection reporting will be enhance through the use of the inspection checklists and report forms contained in this handbook.

1.5.4 **Phase Three**: Analyzing Surveillance Data: After the Inspection data has been reported, an evaluation of the information obtained from inspection reports and related sources must be conducted. The purpose of this evaluation is to identify the areas of concern and note areas such as the following:

i) Non compliance with regulations or safe operation practices.

ii) Both positive and negative trends.

iii) Isolated deficiencies or incidents.

iv) Causes of non-compliance, trends or isolated Deficiencies.

1.5.4.1 Evaluation of inspection results is a key phase of any surveillance program. The primary purpose of evaluating surveillance date is to identify both negative and positive trend. This evaluation of inspection results is also important in terms of redefining and implementing subsequent surveillance objectives and inspection activity. The CFOI/ DDG and responsible Inspectors must adopt systematic methods that permit accurate and effective evaluation of inspection results. Additionally, other related information from incidents, accidents, enforcement actions and other sources may provide valuable trend information which may relate to the operator's safety and compliance status. For example, if in a series of ramp inspection reports a trend of deficiencies in the use of the MEL is identified, but the cause of these deficiencies cannot be identified, the CFOI/ DDG may need to adjust the emphasis on the types of inspections conducted. In this case, additional training program inspections, manual inspections or flight control inspections (flight release procedures) may be more effective in determining the cause of these deficiencies.

1.5.5 **Phase Four**: Determining Appropriate Course of Action: The CFOI/ DDG and Inspectors must use good judgment when determining the most effective course of action to be taken as a result of unsatisfactory inspection findings. The appropriate course of action often depends on many factors, many of which may be quite subjective. Various options which may be considered are: informal discussion with the operator and/or aircrew; formal written request for corrective action; withdrawal of DGCA approval for a program, manual or document; and initiation of an investigation leading to formal enforcement/disciplinary action. Corrective action which an operator or aircrew takes independently of the DGCA should be taken into account. The DGCA must also decide whether or not the results of a specific inspection should result in a modification or their current surveillance program. As previously mentioned, the DGCA may elect to conduct further inspections to determine if the unsatisfactory finding was an isolated incident or part of a trend.

1.5.6 Specific Inspection Practices: The remainder of this handbook is devoted to the conduct and reporting of the various types of surveillance inspections required. A surveillance program which includes all the types of inspections which appear in the following chapters will ensure that the DGCA is adhering to the surveillance guidelines provided in Chapter 9 of the ICAO manual of Procedures for Operations Certification and Inspection. Checklists to aid inspectors in various kinds of inspections have been placed at Annexure to this manual.

CHAPTER 2 - AIRLINE MAIN BASE INSPECTIONS:

SECTION2.1 GENERAL:

2.1.1 BACKGROUND AND OBJECTIVES: Paragraph 9.6.2 of the ICAO Doc 8335 Manual of Procedures for Operations Certification and Inspection states that Base Inspections should be performed at the operator's principal base of operations, sub-bases, and separate maintenance facilities; and the purpose of the inspection is to assess the suitability of the operator's organization, management, facilities, equipment, manuals, personnel and training records. The operations portion of Main Base Inspections will be accomplished in six increments as follows:

i) Operations Manual
ii) Operational Control
iii) Operations and Flight (trip) Records.
iv) Flight and Duty Time Records.
v) Training Program.
vi) Training and Qualification Records.

2.1.1.1 Check- lists have been developed for each of the above inspection areas and these could be used as a guidance material by the Flight Operations Inspectors during the Main Base Inspection.

2.1.2 GENERAL INSPECTION GUIDELINES: Inspectors should contact the operator well in advance to make appropriate arrangements for inspecting elements of the main base operation. Unlike many types of operations inspections which are most effective when conducted on short notice (such as Ramp inspections and En Route Inspections), elements of the main base operation are not subject to repaid adjustments on the part of the operator in anticipation of the inspection and the inspections are most productive following adequate notice and coordination. During the initial contact, the operator should be briefed in detail regarding the specific intent of the inspection, areas to be covered and the approximate duration of the inspection arrangements should be made to ensure that key company personnel will be present during the course of the inspections to provide information and answer questions. The required company presence will vary according to the type of inspection. For example, when evaluating operational control procedures and operations, the inspector will require almost constant contact with personnel who are responsible for each functional area. Conversely, the inspection of Flight and Duty Time records requires very little company involvement except to make records available and answer any initial questions the inspector may have about the operator's record keeping system.

2.1.3 Before commencing each inspection of the areas listed in paragraph I above, inspectors should familiarize themselves to the maximum extent possible with the operator's manuals, policies and instructions regarding the area to be inspected. In developing an annual work program, it therefore should be a practice to schedule an Operations Manual Inspection in advance of the other types of inspections contained in this chapter. This will provide the inspector with an overview of the operator's instructions and policies prior to evaluating their effectiveness in day to day practice. Before performing the individual inspections contained in this chapter. This will provide the inspector with an overview of the operator's instructions and policies prior to evaluating their effectiveness in day to day practice. Before performing the individual inspections contained in the sections of this chapter which follow, inspectors should review for a second time and in greater depth those portions of the operator's manual which pertain to the specific area to be evaluated. In that sense, all inspections which are conducted by the Operations inspectors become an extension of the formal evaluation of the operator's manual, because unsatisfactory performance in operational areas can often be traced to inadequate planning, guidance and training.

2.1.4 Upon arriving at the site where the inspection is to be conducted, inspectors should introduce themselves and present their identification to the operator's representatives, if not personally known to them. The inspector should review with the operator the scope of the inspection to be conducted, and assemble key company personnel who are to be evaluated to answer questions during the course of inspection. The inspector should advise the operator that a time and place will be scheduled at the conclusion of the inspection to review its findings.

2.1.5 SPECIFIC INSPECTION PROCEDURES AND PRACTICES: Detailed guidance regarding the six areas which should be evaluated at an operator's main base are contained in the sections which follow:

2.2 MANUAL INSPECTIONS

2.2.1 BACKGROUND AND OBJECTIVE. CAR Section 8 - Series `O' Part VII and Indian Aircraft Rules states than an operator shall provide, for the use and guidance of operations personnel, an operations manual which will be amended or revised as is necessary to insure that information contained therein is kept up to date. Annex 6, Part I, Section 11.1 sets forth specific information which must be incorporated in the operator's manual. Annex 8, Chapter 9 specifies areas which must be covered in the airplane flight manual. There are other requirements in several ICAO annexes, such as Annex 2, which can best be met by including material in the operations manual. Section 5.3 of the ICAO Manual of Procedures for Operations Certification and Inspection states that an operations manual, which may consist of one or more separate volumes, should provide the necessary policy guidance and instructions in a clear and concise manner to the applicant's personnel as to how the operation is to be carried out.

2.2.1.1 The following paragraphs cover guidance on manual inspections, and is supplementary to the information contained in CAP 8100 Preparation and Certification of Operations Manual . This document should serve as the primary resource for FOI in evaluating an operator's proposed, or existing manual system and contains relevant checklists for evaluating an operations manual.

2.2.1.2 The objective of an inspection of an Airline operations manual is to substantiate that it:

i) Implements Indian Aircraft Rules and Recommended Practices and CAR'S, and does not conflict with the regulations of **any other state** where operations will be conducted.

ii) Provides clear, complete, and detailed instructions, policies, and procedures so that operational staff are fully informed of what is required of them. Procedures should be effective and represent sound safety philosophy. Through the proper use of this material it is expected that personnel will be able to perform their duties to a high degree of precision, thus resulting in safe and efficient operations.

iii) Presents necessary guidance and instructions to personnel in a suitable and convenient format.

iv) Outlines standardized procedures for all crew member functions.

v) Is updated regularly.

2.2.2 **Manual organization**: In order to accomplish the above requirements and effectively organize policy and instructions„ that portion of an operator's overall manual system which applies specifically to operations personnel is typically divided into several volumes such as:

i) A Basic Operations Manual (BOM) or Flight Operations Manual (FOM) which contains general guidance for flight crew members regarding company organization, policies, procedures, and aspects of flight operations which are applicable to all aircraft types which the company may operate

ii) Aircraft operating Manuals (AOM)-(AFM) which are specific to aircraft types and contain such information as operating limitations, aircraft equipment and systems, normal, abnormal, and emergency operating procedures and checklists, performance data and SOP's.

iii) A Cabin Crew Manual which contains general and specific information regarding cabin crew policy and duties, cabin safety procedures, and information concerning cabin

iv) configuration and emergency equipment aboard the types of aircraft operated.

v) Minimum Equipment Lists and Configuration Deviation Lists which contain guidance regarding the operation of aircraft with inoperative equipment of missing components.

vi) A Flight operations Officer or Dispatcher Manual which contains information regarding operational control of aircraft and Dispatcher duties and procedures.

vii) A Weight and Balance Manual which contains information regarding aircraft loading and CG considerations.

viii) A Route manual which contains en route charts, aerodrome approach plates, information about communications facilities, navigation aids, air traffic services, etc.

ix) A Training Manual which contains descriptions of approved training courses, flight manoeuvres, training procedures, and qualification requirements for company flight operations personnel.

2.2.2.1 The above list is presented as an example of one method for organizing the wide range of information required of an airline, and is not intended to be all-inclusive or typical of every operator. The overall manual system may be organized in any manner which adequately provides guidance concerning all important aspects of the carrier's operation. Very small operators may reasonably cover all of the required subject areas in one volume.

Note: Section 6 of this chapter contains detailed guidance regarding Training Manual inspections.

2.2.2.2 SPECIFIC OPERATIONS MANUAL INSPECTION AREAS. Inspectors should review the airline's operations manual or manual system to ensure that it contains information in sufficient detail to permit all flight operations personnel to perform their duties safely and efficiently. The following areas should be evaluated:

2.2.2.3 Organization and readability. The manual or manuals should be organized so that information specific to various employee positions and types of operations is easy to locate, clear, concise, and unambiguous. Tables of contents should be detailed enough so that

specific subject areas may be easily and expeditiously located. Type quality, illustrations, and graphics should be clear and readable. Poorly copied pages from manufacturers' data or from other operators' manuals should not be acceptable.

2.2.2.4 Validity and accuracy. Technical information contained in manuals such as weight and balance charge, performance charts, limitations, etc. should accurately reflect data provided from the manufacturer or have been developed through the use of accepted and approved methods.

2.2.2.5 Continuity. Information presented in the various sections or volumes of a manual should be consistent with that presented in other sections.

2.2.2.6 Currency and Conformity. Information contained in manuals should reflect current company organization, equipment, procedures, and policies; ICAO standards and recommended practices, CAR'S, and technical data. The manual(s) should be easy to update and contain a list of effective pages.

2.2.2.7 Distribution and Availability. The operator should have an effective system for distributing and updating manuals. There should be no question as to who has responsibility for entering changes in specific manuals. The state of the operator should be provided with a copy.

2.2.2.8 Approvals. Certain portions of the operator's manuals are normally reviewed in detail and require specific signature approval by the DGCA. These include, but are not limited to:

i) Aircraft operating limitations.

ii) Normal, abnormal, and emergency checklists.

iii) Minimum equipment lists.

iv) Training syllabi and procedures.

2.2.2.9 Content. An Airline Manual Inspection Checklist/Report form is incorporated in CAP 8100 and will be used for all operations manual inspections. The focus of the manual inspection will be to evaluate the carrier's operations manual in the areas listed above. The "content" area of the form contains a checklist of the minimum subject areas which should be adequately addressed in the

operator's manual(s). The checklist items in the "content" area are designed to be used for all operators, both domestic and international. Certain items may not apply to domestic operations. Training subjects are omitted because they are contained in section 6 of this handbook. The intent of the inspection is to generally review the operators' manual system and to ensure that all of these subject areas are at least addressed. An inspector will study many of these subject areas in detail in the course of preparing for the conducting other types of inspections (such as Operations Control inspections and Station Facility inspections) and may properly make more detailed assessment of the contents of those areas at that time.

SECTION 2.3 **OPERATIONAL CONTROL INSPECTIONS**

2.3.1 BACKGROUND AND OBJECTIVES. CAR Section 8 - Series `O' Part II and Indian Aircraft Rules requires operators to demonstrate a method of control and supervision of flight operations. Section 5.4.4 of the ICAO Manual of Procedures for Operations Certification and Inspection contains general information regarding operations control organizations and sets forth specific areas to be inspected before an operator is certified. Annex 6 chapter 10 sets forth standards and recommended practices regarding Flight Operations officers (Dispatchers).

2.3.1.2 An operational control inspection has two primary objectives. The first objective is to ensure that the operator is in compliance with the minimum requirements of the CAR's and conforms to ICAO international standards and recommended practices. The second objective is to ensure that the operator's system of control provides positive assurance of public safety. The operator must meet both objectives to obtain and retain an operating certificate or equivalent document. To make this determination, the inspector must evaluate the operator to ensure the following:

i) Responsibility for operational control is clearly defined.

ii) An adequate number of operational control personnel are provided.

iii) Applicable manuals contain adequate policy and guidance to allow operational control personnel and flight crews to carry out their duties efficiently, effectively, and with a high degree of safety.

iv) Operational control personnel are adequately trained, knowledgeable, and competent in the performance of their duties.

v) Flight control personnel and flight crews have been

provided with the necessary information for the safe planning, control, and conduct of all flights.

vi) The operator provides adequate facilities for operational control functions.

vii) The operator performs all operational control functions required by the regulations.

viii) The operator performs all functions necessary to provide adequate operational control in the environment in which operations are conducted.

ix) Adequate emergency procedures and contingency plans have been formulated,

2.3.2 GENERAL INSPECTION PRACTICES AND PROCEDURES. Inspectors conduct operational control inspections through systematic manual reviews, records inspections, observations, and interviews.

2.3.2.1 **Inspector Preparation and Manual Review**. Before starting an operational control inspection, the inspector must become familiar with the operational control provisions of the operator's manual system. The manual review is both the first step in the inspection process and *preparation for subsequent* steps. Such a review would be in addition to or in conjunction with the general evaluation of the operator's entire manual system which is addressed in section 2 of this chapter, and its purpose is to examine operations control policy and guidance in depth.

2.3.2.2 **Observations, Interviews, and Records Checks**. The inspector should establish with the operator a mutually convenient time for conducting the interviews and records checks, and for observing flight control functions.

1. Inspectors should conduct interviews with both management and working-level personnel to meet inspection objectives. Inspectors should plan these interviews so that the required information can be obtained without unduly distracting personnel from their duties and responsibilities.

2. Inspectors should observe actual flight-release operations. Before beginning these observations, an inspector should request a tour of the operator's facility for general orientation. During this time, he may observe an operations control personnel performing a variety of job functions. If possible, these observations should be made during periods of peak activity, adverse weather, or during non-routine operations. Inspectors should ask pertinent questions of personnel regarding their

individual duties and responsibilities and relationship to the overall operations control effort.

3. Inspectors should observe competency checks being conducted to evaluate the knowledge level of flight dispatchers and the performance of the supervisor.

4. Detailed guidance concerning Flight Operations (Trip) records and Flight and Duty Time records is contained in Section 4 and 5 of this chapter respectively. Each area has its own checklist and report form. These areas may be examined separately or in conjunction with the remainder of the operational control inspection areas.

2.3.3. SPECIFIC INSPECTION PRACTICES AND PROCEDURES. The Airline Operational Control Checklist/Report form at the end of this section contains a list of specific inspection "remainders" which should adequately sample the effectiveness of the carrier's operations control organization, functions, and guidance. It will serve as both a checklist of items to be covered and as a means of recording the results of the inspection. The following inspection areas will be evaluated:

2.3.3.1 POLICIES AND PROCEDURES.

2.3.3.2 Authorized operations.

i) The type of operations that may and may not be conducted should be clearly specified in manuals and other instructions (VFR, IFR, extended range, CAT II/III, etc)

ii) CAR's and the operator's policies applicable to each type of operation should be clearly stated.

Geographic areas and destinations to which extended overwater flights or extended range operations may be conducted should be clearly specified.

2.3.3.3 Manuals.

i) A section of the Operations Manual should be devoted to the policy and guidance for operational control.

ii) If the operator conducts extended overwater or extended range operations, a separate section of the operations manual should contain key considerations regarding these types of operations.

iii) The applicable section(s) of the operations Manual should be readily available to dispatchers and flight crews while they perform their duties.

2.3.3.4 Pre-departure Functions. The responsibility and procedures for accomplishing the following functions should be clearly defined and properly executed:

i) Crew assignment.

ii) Load planning

iii) Aircraft routing.

iv) Flight planning.

v) Release of the aircraft from maintenance.

vi) Control of MEL and CDL limitations. Required instruments and equipment should be installed and operational.

vii) Compliance with flight operations limitations.

viii) Weight and balance.

ix) Performance Planning, including consideration of mass, elevation, temperature, wind, obstacles, etc.

x) Adequate procedures for supervising and verifying these activities should be established.

xi) The operator should have a means for the PIC and dispatcher to ensure that each of these functions has been satisfactorily accomplished before the aircraft departs.

2.3.3.5 Original Release.

i) The conditions under which a flight may and may not be dispatched (type of operation, weather, crew compliment, load, etc.) should be clearly defined.

ii) The conditions under which a flight must be re-routed, delayed, or cancelled should be defined.

iii) A written copy of weather reports and forecasts (including PIREP's) and NOTAM's should be attached to the release and provided to the flight crew.

iv) Extended overwater or extended range operations should be conducted under instrument flight rules.

v) Flight should not be commenced unless it is ascertained by every reasonable means that airports to be used are adequate for the operation.

2.3.3.6 Dispatcher briefing

i) The operator's procedures should provide for briefing of the PIC by the dispatcher.

ii) The minimum content of the briefing should be specified and adequate.

2.3.3.7 Dual Responsibility.

(If applicable-see Company Ops Manual or Flt Despatch Manual for policy)

i) The signatures of both the PIC and the Dispatcher should be required on the flight dispatch.

ii) The PIC's obligation to operate the flight according to the release, or to obtain an amended release, should be clearly stated.

2.3.3.8 Flight-Following.

i) The dispatcher’s flight-following requirements and procedures should be clearly identified.

ii) Policy and guidance should be provided to flight crews and dispatchers for monitoring fuel en route.

iii) Flight crew reporting requirements and procedures should be clearly stated.

iv) There should be specified procedures for dispatchers to follow when a required report is not received.

v) The operator should maintain a record of communications between the dispatcher and the flight.

vi) Procedures should be established to notify flights en route concerning hazardous conditions relating to aerodromes, navigation aids, etc., and to report changes in forecast weather.

2.3.3.9 Planned Re-release. If the operator uses planned re-release procedures in connection with extended overwater operations, the following areas should be considered:

i) A separate operational analysis should be prepared for the two routes and provided to both the PIC, dispatcher, or flight follower.

ii) The re-release point should be common to both route.

iii) Re-release messages should be transmitted, acknowledged, and recorded. The message should include all requirements including NOTAM and weather information.

iv) The aircraft should meet landing performance requirements at the intermediate Destination.

2.3.4 Inability to Proceed as Released.

i) Policy concerning the PIC's latitude to deviate from a flight dispatch release without obtaining a revised flight plan should be stated.

ii) Specific and adequate direction and guidance should be provided to PIC's and dispatchers for the actions to take when a flight cannot be completed as planned (such as destinations or alternates below minimums, runways closed or restricted).

iii) Procedures to follow in case of diversion or holding should be specifically and clearly stated.

iv) Procedures to be followed in case of an emergency procedure which resulted in deviation from local regulations or procedures should be clearly stated.

2.3.4.1 Weather.

i) Weather reports should be obtained from ATIS/MET.

ii) Forecasts should be based on approved weather reports.

iii) The operator have adequate procedures for updating weather information when the aircraft is delayed on the ground.

iv) The operator should have adequate procedures for providing the latest available weather reports and forecasts to flight crews while the flight is en route.

v) Procedures should be employed for disseminating information pertaining to turbulence, thunderstorms, and

other adverse weather phenomena; and as well as the best routes for avoiding them.

vi) The flight should not be released into known icing conditions unless equipped to cope with such conditions.

2.3.4.2 Aerodrome operating Minima.

i) If release under VFR is permissible or authorized, the forecast and actual weather reports should permit VFR flight over all portions of the route to be flown under visual flight rules.

ii) IFR departure minimums should be consistent with CAR's and specific DGCA approvals.

iii) Takeoff alternates should be named on the dispatch release when flights are released with the -departure airport below landing minimums, and should meet the requirements of CARs/applicable regulations on the subject.

iv) Destination weather minimum should be clearly defined.

v) The operator should make provisions regarding weather minima.

vi) Destination alternates should be named on the dispatch release when required by CARs/applicable regulations on the subject

vii) The weather at the named destination alternate airport should be equal to or better than that required by applicable regulations.

viii) Flights should not be continued toward the aerodrome of intended landing unless the latest available information indicates that operating minima can be complied with.

2.3.4.3 Minimum En Route Altitudes. The operator should establish minimum en route altitudes for routes flown, which should not be lower than those established by the DGCA.

2.3.4.4 Selection of Alternates.

i) Policy, direction, and guidance should be provided for the selection of takeoff, en route, and destination alternates.

ii) Terrain and engine-out performance should be considered in selecting an alternate.

2.3.4.5 Totalities

i) NOTAM information should be available and utilized.

ii) GPS (RAIM) NOTAMs, as applicable, should be provided to appropriate extended overwater operations.

2.3-4.6 Information.

i) The operator should make adequate provisions for supplying airport and navigation information to pilots and dispatchers.

ii) The operator should have an adequate method for providing data to dispatchers on takeoff and landing minima at each airport. Dispatchers should have immediate access to such data.

2.3.4.7 Fuel and Oil Supplies.

i) All increments of fuel required by ICAO Annex 6 and CARs (start & taxi, takeoff to arrival at destination, approach and landing, missed approach, alternate fuel, holding, and contingency) should be provided. Special fuel provisions for extended range operations should be strictly adhered to.

ii) Although this is not permissible, as a supplementary information for any contingency: If aircraft are dispatched without an alternate, adequate contingency fuel should be carried for unforecast winds, terminal area delays, runway closures, and contingencies.

iii) Minimum fuel procedures should be specified for both dispatchers and PIC's and should be adequate for the environment in which operations are conducted.

2.3.4.8 Engine Out Performance Considerations.

i) The operator should take into account engine out performance rules when applicable to specific routes and types of operations.

ii) Engine out performance analysis should be complete and accurate.

iii) When possible, multiple ETP's should be provided for overwater flights and extended range operations.

iv) Adequate guidance should be available for drift down computations and fuel dump requirements.

2.3.4.9 Emergency Procedures

i) Emergency action procedures and checklists should be published and readily available to operations control personnel for the following emergencies:

ii) In-flight Emergency.

iii) Crash.

iv) Overdue or missing aircraft.

v) Bomb threat.

vi) Hijacking.

vii) Operator should have available lists containing information on the emergency and survival equipment carried aboard its airplanes.

viii) Provisions should be made to retain in safe custody the flight recorder of an airplane which becomes involved in an accident.

2.3.5 Changeover Procedures.

i) During shift changes, an adequate overlap should be provided for dispatchers and other flight operations control personnel to brief their oncoming counterparts.

2.3.5.1 Communications and Reports. Provisions should be made concerning the following:

i) In flight meteorological observations and reports.

ii) Reports of hazardous conditions other than meteorological.

iii) Coordination with ATS regarding operational instructions to aircraft t in flight which change an ATS flight plan.

2.3.6 DESPATCHERS (And Meteorologists).

2.3.6.1 Qualification.

i) All dispatchers should have undergone the approved course and be certified in accordance with DGCA requirements.

ii) Dispatchers should have successfully completed a

refresher
course/competency check within a required eligibility period.

iii) Dispatchers whenever necessary should have completed route familiarization within a specified time period.

iv) Dispatchers at foreign locations should hold dispatched certificates from that country or equivalent acceptable of DGCA.

v) Meteorologists, when employed by the operator, should be qualified according to DGCA regulations and operator policy.

2.3.6.2 Knowledge of weather. Dispatchers should have-.

i) Surface (fronts, fog, low ceilings, etc.).

ii) Upper Air (Tropopause, jet streams).

iii) Turbulence (pressure and temperature gradients).

iv) Severe (Low level wind shear, microburst, icing, thunderstorms).

v) Able to read terminal reports, forecasts, various weather depiction charts and upper air charts and interpret the meanings.

2.3.6.3 Knowledge of the Area. Dispatchers should be:

i) Able to immediately recognize the airport identifiers for the airports in the area they are working.

ii) Aware of which airports in the areas they are working in are special airports, with regard to crew qualifications.

iii) Aware of the terrain surrounding the airports in the areas they are working.

iv) Generally familiar with the airports in the area they are working (number and length of runways, available approaches, general location, elevation, surface temperature limitations).

v) Aware of dominant weather patterns and seasonal variations of weather in the area.

vi) Aware of route segments limited by drift down.

2.3.6.4 Knowledge of Aircraft and Flight Planning. Dispatchers should have knowledge of:

i) The general performance characteristics of each airplane with which they are working (such as average hourly fuel

burn, holding fuel, engine out, drift-down height, effect of an additional 50 knots of wind, effect of lower altitudes for flight, crosswind limits, maximum takeoff and landing weights, required runway lengths).

ii) All of the elements contained in the operator's flight plan.

2.3.6.5 Knowledge of Policy. Dispatchers should be:

i) Knowledgeable regarding DGCA policy and authorizations regarding such items as weather minima.

ii) Aware of the provisions of the operators' manual regarding all policies and procedures discussed in this section.

2.3.6.6 Knowledge of Responsibilities. Dispatchers should be:

i) Knowledgeable of their responsibilities under the CAR's (Such as briefing PIC; cancelling, rescheduling, or diverting for safety; in-flight monitoring; in-flight notification of PIC).

ii) Knowledgeable of their responsibilities under the operator's manual as discussed in paragraph A.

2.3.6.7 Proficiency. Dispatchers should be:

i) Competent in the performance of their assigned duties.

ii) Alert for potential hazards.

2.3.6.8 Duty Time. Regulatory requirements should be complied with. In the absence of regulatory requirements, shifts should be of a reasonable length and adequate rest time should be provided between shifts.

2.3.6.9 SUPERVISORS.

2.3.6.9.1 Qualification. Supervisors of dispatchers should themselves be qualified and current as dispatchers.

2.3.6.9.2 Conduct of Competency Checks. Competency check/refresher course administered by supervisors should be appropriate, through, and rigorous.

2.3.7 FACILITIES AND STAFF.

2.3.7.1 Physical.

i) Working space should be adequate for the number of people working in the dispatch centre.

ii) Temperature, lighting, and noise levels should be conducive to effective performance by operations personnel.

iii) Access to the facilities should be controlled.

2.3.7.2 Information.

i) Dispatchers should be supplied with all the information they require (such as: Flight Status, Maintenance Status, Load, Weather, Facilities).

ii) Information effectively disseminated and displayed; and be quickly and accurately located.

iii) Real time weather displays should be available for adverse weather avoidance.

2.3.7.3 Communications.

i) A dispatcher should be able to establish rapid and reliable voice communications with a captain at the gate and to be able to deliver a message to a flight en route and get a response within a reasonable time interval.

ii) Dispatchers should be properly authorized and qualified to use all communications channels required for operational control.

iii) Direct voice radio communications should be available between the control centre and line stations to the maximum extent possible.

iv) Backup communications links should be available in case of a failure of the primary links.

v) The operations control centre should have adequate communications with appropriate ATS facilities.

2.3.7.4 Management.

i) Overall responsibility for operations in progress should be assigned by the operator to one individual who can coordinate the activities of all the dispatchers.

ii) Adequate internal communications links to f low control type facilities and to high-level management officials should be firmly established.

2.3.7.5 Workload.

i) The operator should assign enough personnel to adequately handle the workload during periods of both normal and non-routine operations.

ii) Dispatchers should have enough time to perform both dispatch and flight-following duties in an effective manner Dispatchers should not be used to perform other functions such as clerks, maintenance officers, etc., to the detriment of their primary function.

iii) Duty time restrictions for licensed personnel should be adhered to.

2.4 OPERATIONS AND FLIGHT (TRIP) RECORDS INSPECTIONS

2.4.1 BACKGROUND AND OBJECTIVES. CAR Section 8 - Series 'O' Part II requires that a flight shall not be commenced until flight preparation forms have been completed certifying that the PIC is satisfied that:

i) The mass of the airplane is such that the flight can be conducted safely taking flight conditions expected, and that the airplane load is properly distributed and safely secured.

ii) Operating limitations have been complied with and that instruments and equipment for the particular type of operation to be undertaken are installed and sufficient for the flight.

iii) Operational flight planning has been conducted.

iv) The airplane is airworthy and a Flight release has been issued.

2.4.1.1 CAR Section 8 - Series `O' Part II requires that completed flight preparation form be kept by the operator for a period of three months. Flight preparation forms meeting the above requirements and conforming to DGCA regulations commonly take the following forms: the load manifest, the dispatch or flight release, the flight plan, and the maintenance or airworthiness release.

2.4.1.2 The primary objective of operations and flight records inspections is to ensure that operators meet established operator procedures and appropriate civil aviation regulations for the proper preparation and retention of operational trip records. Inspectors can evaluate trip records to reconstruct a particular flight or a series of flights by examining flight plans, dispatch or flight releases, loading and weight documents, weather documents, and other related flight information retained by the operator. The inspector's evaluation provides the DGCA with the methods of information acquisition and dissemination used by the operator.

2.4.2 TRIP RECORDS INSPECTION AREAS. Operations and flight (Trip) records may be broken down into five general areas as follows:

2.4.2.1 General Inspection Area. This inspection area refers to those inspection elements that are common to all trip records. Inspectors should evaluate such items as record availability, practicality, legibility, currency, continuity, and conformity as they related to regulatory record keeping requirements. Inspectors should ensure that each trip record package they examine contains all of the required information and that it pertains to the actual flight it represents. Each document should have a date, flight number or a trip number, and an aircraft registration number which clearly identifies the applicable flight.

2.4.2.2 Flight Plan transparency: This inspection area refers to the flight planning requirements which may be applied to most scheduled airlines operations. Inspectors should evaluate flight plan content. Many operators incorporate the flight plan and the dispatch/flight release into one document. This is acceptable and reduces the duplication of information that may be required by both documents. The flight plan should contain the following information:

i) Aircraft registration number and type of aircraft.
ii) Flight number.
iii) Name of the PIC (usually found on the dispatch release).
iv) Point and proposed time of departure.
v) Proposed route, cruising altitude (or flight level), and true airspeed at the cruising altitude.
vi) Minimum flight altitude and aerodrome operating minima.
vii) Point of first-intended landing and the estimated elapsed time until' over that point.
viii) Amount of fuel on board (in hours).
ix) An alternate airport, if required by ICAO Annex 6, Part 1, CAR Section 8 Series O part II or as specified in appropriate civil aviation regulations.
x) Number of persons in the aircraft, except where that information is otherwise readily available to the DGCA.
xi) Any other information the PIC or ATS believes is necessary for ATS purposes.

2.4.2.3 Dispatch Release Inspection Area. A dispatch is normally executed and signed by both the PIC and the dispatcher (flight operations officer) for the following types of flights.

i) All scheduled flights.
ii) All extra section (unscheduled) flights.
iii) All charter flights.
iv) All ferry flights.

v) All proving flights.

vi) All flights undertaken to reposition an airplane after landing at an unscheduled airport.

vii) All other flights as required by ATC.

2.4.2.4 The dispatch release should contain the following information:

i) Aircraft identification number.

ii) Flight/Service number.

iii) Departure airport, intermediate stops, destination airports, and alternate airports.

iv) A statement of the type of operation (IFR or VFR).

v) Minimum fuel required.

vi) Weather reports and forecast for the destination airport, each intermediate stop, and any alternate airport that is the latest information available at the time the despatch is signed.

1. With regard to minimum fuel required, CAR Section 8 Series `O' Part II requires operators to keep fuel and oil records for at least three months. Inspectors should examine records to ensure that they include an annotation of the minimum fuel required to conduct the flight, and that this fuel load is in accordance with DGCA standards and applicable civil aviation -regulations. many operators will provide a breakdown of fuel loads such as trip fuel, alternate fuel reserve fuel, and holding fuel. When examining fuel figures, inspectors should cross-check the dispatch or flight release fuel quantity (or weight) with the load manifest fuel quantity (or weight) to ensure that the figures are the same. Additionally, inspectors must ensure that the operator's flight plan includes the amount of fuel on board (in hours), and that this figure agrees with the figures for the amount of fuel annotated on both the flight release and the load manifest. Inspectors may obtain hourly fuel burn information from the cruise control charts in the applicable Airplane Operating Manual (AFM).

2.4.2.6 The operator must comply with CAR time limits for the validity of a dispatch or flight release. If flights are delayed beyond a prescribed

time, they must be re-released prior to departure. To ensure the operator is rereleasing flights as required, inspectors should determine the actual departure times from company logs, ATC tower logs, or some other means, and then compare those times with the dispatch or flight release time (as applicable).

2.4.2.6.1 Load manifest inspection Area. Each trip records package, regardless of the type of operation, should contain aircraft weight, balance (CG), and loading information. Passenger and cargo weight information must be accurately reflected on the load manifest. Inspectors should inspect and validate the operator's loading documents to ensure their accuracy and compliance with the CAR'S, manufacturer's data, and the aircraft load data sheet. The load manifest should contain the following information:

i) The individual weights of the aircraft, fuel and oil, cargo and baggage, passengers, and crew members.

ii) Maximum allowable takeoff weight for the runway to be used (both runway-limited and climb-limited weights).

Maximum allowable takeoff weight (considering anticipated fuel and oil consumption rates) that shall allow compliance with en route performance limitations, destination landing weight limitations, and destination or alternate landing distance limitations.

iv) The total aircraft takeoff weight as computed under approved procedures.

V) Documentation that the aircraft is properly loaded with the centre of gravity within approved limits Passenger names, unless such information is maintained elsewhere by the operator.

2.4.2.6.2 Operators may have systems which result in weight and balance "finals" being transmitted to the flight crew via ACARS or company radio frequencies after the aircraft has departed the gate or ramp area. This information, which normally consists of adjusted takeoff gross weight and trim settings, is critical to the crew members for accurately determining the takeoff data. Inspectors should ensure that the information contained on the load manifest accurately portrays the actual passenger and cargo weights. And that adequate procedures are in place in the SOP's/ Ops Manual for such crew workload requirements.

2.4.2.7 Airworthiness Release Area. An airworthiness and/or maintenance release should be prepared in accordance with the procedures set forth in the operator's manual and should certify that the following conditions have been met:

i) Any work performed on the aircraft was performed in accordance with the requirements of the operator's manual.

ii) All items required to be inspected were inspected by an authorized person who determined that the work was satisfactorily completed.

iii) No known condition exists that would make the aircraft un airworthy.

iv) Concerning the work performed, the aircraft is in condition for safe operation.

Note: The Flight Release should be signed by an authorized person.

2.4.2.8 Other Required Documents Inspection Area. This inspection area refers to such items as pertinent weather forecasts, NOTAM'S, fuel slips, route certification requirements (if applicable), and other documents that are issued to flight crew members before each flight.

2.4.3 INSPECTION PRACTICES AND PROCEDURES. Flight/ Service records inspections are normally conducted at the operator's principal base of operations. Operators should have established a system where transit stations forward all trip records information to one central location where the information is retained for the required time period. Some operators may have most of their trip records information stored in a computerized format.

2.4.3.1 Inspectors should contact the operator's personnel responsible for maintaining trip record files and advise them that an inspection shall be conducted. Upon arriving at the record keeping location, the inspectors) should properly identify himself and request records for a specific series of trips. This ensures that the operator has an effective series of trips. This ensures that the operator has an effective means of storing record information and is capable of retrieving specific trip information at the DGCA's request. Inspectors should also request space at the operator's facility to conduct the inspection. It is not recommended that inspectors to remove trip records from the operator's facility.

2.4.3.2 Before conducting the actual inspection, inspectors should familiarize themselves with the operator's trip records procedures, formats, and means of disseminating information to flight crews. If the inspector has previously completed an operational control inspection of the

airline or is deputed from that airline, he should already have a-working knowledge of the operator's system. Inspectors should pre-plan the inspection by deciding which specific areas should be concentrated upon, such as listing alternates, accurate fuel loads, dispatch release time versus actual blackout time, and accurate and timely weather information.

2.4.3.3 During the conduct of the actual inspection, inspectors should examine all of the available documents for each flight and cross-check the information between the trip records. For example, the fuel load on a dispatch release should agree with the fuel load on the load manifest, the flight plan, and the fuel slip (if available).

1.4.3.4 The Airline Operations and Flight Records Inspection Checklist/Report form which is included at the end of this chapter closely follows the information and requirements presented in paragraph 2 of this chapter.

2.5 FLIGHT AND DUTY TIME RECORDS INSPECTIONS.

2.5.1 BACKGROUND AND OBJECTIVES. ICAO Annex 6. Part 1, Section 4.2.10 states that an operator shall formulate rules limiting the flight time and duty periods of flight crew members. Currently CAR Section 7 Series J Part I/II/III applies. These rules shall also make provisions for adequate rest periods and shall be such as to ensure that fatigue occurring either in a flight or successive flight or accumulated over a period of time due to these and other tasks, does not endanger the safety of the time due to these and other tasks, does not endanger the safety of the flight. These rules shall be approved by the state of the operator and included in the operations manual. Attachment A to Part 1 of Annex 6 discusses points which states should consider when formulating flight, duty time, and rest period rules for their operators.

2.5.2 Annex 6 Section 4.2.10 further states that an operator shall maintain current records of flight time of all flight crew members. Paragraph 5.4.3.2 of the ICAO Doc 8335 Manual of Procedures for operations Certification and Inspection recommends that flight records be examined to check compliance with statutory regulations relating to flight and duty time limitations.

2.5.3 **INSPECTION AREAS**. Operators must develop methods for recording and monitoring flight and duty time for flight crew the regulatory limitations are not exceeded to ensure that. Such a record keeping system should have the following attributes:.

i) Adequacy. The record keeping forms which the operator uses are adequate for recording essential information which the DGCA requires including information on time spent in office by executive pilots before immediately commencing flying duties.

ii) Practicality. The operator's method for recording flight time for individual crew members should be easy for employees to use. Forms which are developed for this purpose should be unambiguous and easy to complete. If an operator uses ACARS or a similar system for reporting flight and duty time, personnel should be properly trained in its use.

iii) Accessibility and Security. Data regarding flight and duty time should be readily accessible to personnel which have responsibility for monitoring compliance with various time intervals. Records should be secure from tampering by unauthorized individuals.

iv) Currency. Data available to personnel responsible for ensuring that individual crewmembers do not exceed regulatory or contractual requirements should be updated expeditiously. The system used by the operator should provide that schedulers and/or flight control personnel are immediately aware when daily totals may be exceeded. Flight time totals from written crew logs must be expeditiously transmitted to the scheduling or flight control office, so that weekly and monthly totals, where required, may be promptly updated.

v) Accuracy. The system should faithfully track daily flight and duty time for crew members, and accurately reflect totals for longer prescribed time limitations.

vi) Conformity. The records should reflect conformance with regulatory flight and duty time limitations.

2.5.4 INSPECTION PRACTICES AND PROCEDURES. The Airlines Flight and Duty Time Inspection Checklist/Report form which appears at the end of this section reflects the areas discussed in paragraph 2 above.

2.5.4.1 At the commencement of the inspection, inspectors should receive a briefing from responsible employees of the operator regarding their flight and duty time record keeping system in its entirety. The inspector should then review a sufficient number of records for individual crew members to ensure that regulatory requirements are being met. Figures which are used in flight time summaries (cumulative totals) to track required time intervals should be checked against original flight logs or similar records to ensure that times for specific flights are being accurately recorded and totalled. Similarly, a flight time which appears on flight logs and summaries may be checked against maintenance or payroll records for continuity.

2.5.4.2 If individual crew members participate in more than one type of operation for which different regulatory requirements exist (e.g. domestic vs. international), the inspector should determine that the operator has devised methods to ensure that corresponding flight and duty time limitations are not exceeded.

2.5.4.3 Inspectors should indicate the scope of their records inspections in the comments section of the report form (i.e. number of individual airmen records inspected, time interval covered, cross-checks with other records).

2.6 TRAINING PROGRAM INSPECTIONS

2.6.1 BACKGROUND AND OBJECTIVES. CAR Section 8 Series O Part II and CAR Section 8 Series F Part II and ICAO Annex 6 Paragraph 9.3 (requires that operators establish and maintain a ground and flight training program, approved by the state of the operator, which ensures that all flight crew members are adequately trained to perform their assigned duties. - In order to accomplish this, the operator should have adequate ground and flight training facilities and adequately trained instructors. Inspections of the many components of such a training program are an important part of an overall DGCA surveillance program. These inspections are best planned and executed over a period of time that permits a thorough and ongoing evaluation of an operator's training program. This chapter describes a surveillance strategy for training program inspections that is modular in design and that can be flexibly implemented into an overall surveillance plan.

2.6.1.1 The primary objective of a training program inspection is to ensure that the operator's overall training program continues to provide quality instruction by conducting an evaluation of training program curriculums, facilities, instructors, check Aircrew, courseware, instructional delivery methods, and testing and/or checking

procedures, which were previously approved by the DGCA.

2.6.1.2 To meet this objective, the DGCA will periodically conduct an overall evaluation of an operator's training program through a "modular" approach. This approach permits the many components of an operator's training program to be broken down into manageable inspection areas, and provides inspection data which lends itself to meaningful interpretation.

1. Training program inspections also provide the DGCA with the ability to require changes in an operator's training program, to rescind an initially or finally approved program (or segments of that program), and to maintain a current and accurate appraisal of the program's status and ability to train competent and capable flight crewmembers.

2.6.2 TRAINING PROGRAM INSPECTIONS AREAS. Training programs vary widely in their complexity depending on the operator's size, aircraft fleet diversification, number of crewmembers, training locations, and scope of operation. Training program inspections involve much more than simply observing and evaluating training in progress. Six primary inspection areas may be identified as areas to be observed and evaluated:

i) Training manual or curricula.

ii) Course Material.

iii) Instructional delivery methods.

iv) Testing and checking

v) Surveillance

information (data).

vi) Simulators.

2.6.2.1 These six areas are the same areas that should be evaluated before granting either initial or final approval (as applicable) during the training approval process. Because these areas are broad in terms of scope and context, they are organized into inspection "modules" to provide the inspection with a flexible inspection strategy. This means the inspector has more latitude in terms of scheduling specific types of

inspections, maximizing inspection resource capabilities, and in determining the sequence of the various types of inspections to be conducted. Specific guidance regarding these six areas is as follows:

2.6.2.2 Training Curricula Inspection Area. Inspectors should evaluate the operator's approved training curricula. Inspectors should ensure that these training curricula are consistent with the approved syllabus for the type of operation being conducted. The inspector should evaluate the curricula and their associated outlines that are currently being used by the operator. The inspector should ensure that the curriculum outlines contain enough descriptive detail to ensure that the main features of each principal subject will be addressed during the course of instruction. The inspector should maintain a copy of each initially or finally approved training curriculum for every operator. This is usually the best source document available for inspectors to review before evaluating currently used curriculum outlines. Inspectors should evaluate each of the operator's curriculum outlines to ensure that the subject matter is current and appropriate in depth and scope, and also to gain an adequate understanding of what kinds of subject matter will be observed and evaluated during later phases of the inspection. The following is a list of basic curricula typical of both domestic and international operators. These should be reviewed for all crewmember positions and dispatchers:

i) Basic Indoctrination Aircraft Ground Training.
ii) Emergency Training.
iii) Flight Training (flight crewmembers only).
iv) Differences Training (if applicable).
v) Recurrent/Refresher, Training.
vi) Requalification Training.
vii) Special Curricula.
viii) Qualification Curricula.

2.6.2.3 Many operators conduct training which is in addition to the regulatory training requirements. Because this additional training is part of the overall approved program, it would also be subject to inspection and evaluation by the DGCA.

2.6.3 Courseware Inspection Area. Inspectors should examine an operator's courseware, such as lesson plans, instructor guides, computer software or audiovisual programs, and hand-outs. The courseware should be examined to ensure that it is consistent with the curriculum outline and be organized to permit effective instructional delivery. The courseware should also be examined to ensure it is current, effective, and germane to the various instructional delivery methods.

2.6.4 Instructional Delivery methods Inspection Area. Inspectors should ensure that the operator's various instructional delivery methods, such as lectures, workshops, slide tape presentations, training devices, and simulators are sufficient to convey information to a student. These methods should be evaluated to ensure that they are effectively creating a transfer of learning to the student, that they are being maintained as originally approved, and that they are updated as necessary.

2.6.5 Testing and Checking Inspection Area. Para 1 of Annex 6, Paragraph 9.3.1 requires that a training program shall include examination to determine competence. Paragraph 9.4.4 requires that pilots receive proficiency or competency checks. Observing testing and checking is the primary method by which in inspector can determine if learning has occurred. In this inspection area the inspector can evaluate the operator's standards, reflected by pass/fail rates, which determine whether a desired level of knowledge and skill has been acquired by the students being trained. The inspector should examine the operator's training records to ensure the operator's regulatory compliance with testing, checking, and other training program requirements. Additionally, check aircrew and instructor programs should be examined as the functional quality control element within this area.

2.6.6 Surveillance Information Inspection Area. During training inspections, inspectors should analyze previous inspection results for deficiencies in specific training program areas. Inspectors in charge should use previous inspection data when planning training program inspections to establish special emphasis or other unique evaluation requirements.

2.6.7 GENERAL TRAINING PROGRAM: INSPECTION PRACTICES AND PROCEDURES.

2.6.7.1 The five primary inspection areas previously outlined should constitute the core areas of an operator's training programme that were evaluated by the DGCA before the issuance of final approval. These inspection areas apply to all operators and vary only in their complexity from operator to operator.

2.6.7.2 In certain situations, there may be a requirement for the DGCA to initiate a "special emphasis" training program inspection of one or more specific areas. This type of inspection may be initiated for several reasons such as an incident, an accident, or a series of deficiencies discovered through trend analysis of surveillance data. Special emphasis training program inspections usually focus on a limited

area, such as use of checklists or wind shear training, and are relatively short in duration.

2.6.7.3 Before the inspector can inspect any particular training program area, the inspector should introduce themselves to the instructor or check aircrew conducting the training and display their DGCA credentials. The inspector should then inform them that a DGCA inspection of training in progress will be conducted. Inspectors should refrain from active participation in the training being conducted and should make every effort not to influence the training environment or the instruction in the subject matter. If an inspector has comments on any of the areas of training being conducted, the inspector should reserve the comments for the debriefing with the instructor or check aircrew after the training session.

2.6.8 SPECIFIC TRAINING PROGRAM INSPECTION MODULES. Key elements of the six primary inspection areas may be organized into eleven inspection "modules" to enhance inspection scheduling, tracking, analysis of results, and to serve as the most efficient use of inspector resources. Any inspection module may be conducted as an independent inspection. The following inspection modules may be considered to be the "core" training program inspection requirements:

2.6.8.1 Training Curriculum Inspection Module. The inspector should evaluate each of the operator's approved (initial or final) training curricula, primarily for format and content. Ideally, each should contain the following:

i) Title. Each curriculum should be appropriately titled with a specific crewmember position (or positions, such as PIC/FO) and the relevant category of training.

ii) List of Effective Pages. Each curriculum should have a list of effective pages and a means to record revisions.

iii) Approvals. Each page of the curriculum (for finally approved programs) should be signed, dated, and stamped by the inspector or an appropriate designee.

iv) Detail. Each curriculum should include comprehensive outlines of course material contained therein in sufficient detail to determine adequacy of coverage.

v) Hours. The total number of training hours should be specified for each curriculum.

vi) Objective. Each curriculum should list a training objective.

vii) Currency. The information contained in each curriculum should be current and may not be contrary to the regulations or safe operating practices. Company bulletins, notices,

information letters and other means of conveying new or revised information to crewmembers should have been, or are in the process of being, incorporated into the appropriate curriculum.

viii) Conformity. Scope and content of each curriculum should conform to DGCA requirements.

2.6.8.2 Instructor Courseware Inspection Module. In this module, the inspector should evaluate the operator's instructor guides, lesson plans, and/or training outlines. Ideally, this courseware should have the following characteristics:

i) Title. Instructor courseware should be clearly titled for the appropriate curriculum.

ii) Detail. It should contain sufficient information to permit the instructor to conduct detailed instruction for each subject area.

iii) Usability/Practicality. It should contain instructional material in a logical order and sequence that is relatively easy to use.

iv) Consistency. It should be consistent with the curriculum outline.

v) References. It should have references to the applicable operator's manuals and publications.

vi) Validation. Instructor courseware should include some means for determining that the students are properly assimilating the instructed material (such as "responder" panels, multiple-choice questions, or in-class exercises).

2.6.8.3 Student Courseware Inspection Module. In this module, the inspector should evaluate the information in all of the various "self teaching" training mediums such as video tapes, audiovisual (carousel-type) slide presentations, computer-based training presentations, programmed learning publications, and home-study materials, as follows:

i) Consistency. The information should be consistent with the curriculum outline I should be current with information in the operator's manual and other publications.

ii) Detail. It should have sufficient detail to ensure that students can clearly understand the applicable subject area.

iii) Validation. The courseware should include some means of testing student assimilation of information presented.

2.6.8.4 Training Facilities/Environment Inspection Module. The inspector should evaluate the operator's training facilities in this inspection module, as

follows:

i) The training facilities and the instructional environment should be conducive to learning by providing adequate seating space for students, storage areas for training materials, and facilities for instructors to prepare their lessons.

2.6.8.5 Ground Instructor inspection Module. The inspector should evaluate the quality of instruction provided by ground instructors as follows:

i) Training. Instructors should be adequately trained in accordance with the operator's approved program and be appropriately documented in the operator's training records.

ii) The facility should be free of distractions which adversely affect instructional delivery, such as excessive temperatures, extraneous noise, poor lighting, and cramped classrooms and/or work spaces.

iii) Knowledge. Instructors should be knowledgeable in the specific area of instruction and in the operator's training policies and procedures, form completion requirements.

iv) Instructional Technique and Delivery. Instructors should exhibit satisfactory instructional methods and techniques. They should be able to present the material in a logical, cleat, and organized manner.

v) Adherence. Instructors should follow the applicable lesson plans, guides or other training aids to ensure the material is properly presented as designed.

2.6.8.6.1 Flight Instructor Module. In addition to the areas listed above, flight instructors should be evaluated in the following specific areas:

i) Proficiency. Flight Instructors should be highly proficient in the operation of aircraft, flight simulators and training devices, and in the performance of manoeuvres and procedures which they are teaching.

ii) Briefing. Flight instructors should provide a thorough pre-flight briefing (for flight training devices, flight simulators, or the aircraft) on all manoeuvres and procedures that will be conducted.

iii) Debriefing. Flight instructors should provide a thorough post flight debriefing to review each individual student's performance during a training *session.*

iv) Evaluation. Flight instructors should properly evaluate student progress and provide or recommend additional training when necessary.

2.6.8.6.2 During evaluations of flight training, the instructor should adhere to the events listed for the specific flight training curriculum.

Instructors may deviate when necessary, however, to accommodate events from previous or subsequent flight training sessions. Every effort should be expended to alleviate artificiality from the training session and the instructor should be accorded a certain measure of flexibility to ensure the highest level of realistic training is achieved.

2.6.8.7 Training Aids and Equipment inspection Module. The inspector should evaluate the operator's training aide and equipment such as audiovisual equipment, systems mock-up boards, panel layouts, ground training devices, instructor station equipment, student responders (if applicable), and other related items, in terms of equipment. Ideally, the following conditions will prevail:

i) Instructions for use. Any equipment designated to be used for "self teaching" purposes (such as CBT platforms) should have clear operating instructions readily available for the student's use.

ii) Condition. All equipment used in the training program should operate and function in good working order (Replacement parts or components such as slide projector lamps, should be readily available.

iii) Fidelity. Systems panels, layouts, boards, or mock-ups (Such as aircraft exit mock-ups) should accurately represent the designated aircraft.

2.6.8.8 Flight Simulator/Training Device Inspection Module. It is not intended for the inspector to conduct an extensive flight evaluation of the training device or simulator but rather to evaluate the following: The general condition of the equipment, any significant periods of "down time" (and the reasons for the down time), and the operator's general ability to maintain the equipment as approved. The inspector should evaluate the operator's flight simulators and/or flight training devices, as follows:

i) Approval. Flight simulators and flight training devices should be approved by the DGCA and periodically inspected. Inspectors should review the operator's record of simulator evaluations and approval information to ensure compliance (refer Volume 2 Chapter 12 and 13)

ii) Condition. Flight simulators and flight training devices should function at the same level as when they were initially approved. Inoperative or defective equipment should be properly documented along with the training events that are affected by the inoperative or defective components.

iii) Publications. Published instrument approach charts, SID'S,

STAR'S, en route charts, and other information (such as aircraft performance manuals and takeoff/ landing data charts) should be current and in generally good condition.

2.6.8.9 Check Aircrew and Examiners Inspection module. The inspector should evaluate the following elements:

i) Staffing. The number of check aircrew and examiners employed by the operator should be adequate for the level of training and checking activity.

ii) Training and qualification. Training records should reflect that Check Aircrew and Examiners are qualified in accordance with applicable regulations and the operator's approved training program.

iii) Standardization. The operator should have an effective standardization program to ensure that check aircrew conduct training skill test and proficiency checks in a uniform manner.

iv) Level of Activity. The number of examinations that a check aircrew conducts each year should be sufficient to maintain currency proficiency in performing the performance of his duties.

v) Oral and Practical Tests. The inspector should evaluate the conduct the tests or checks in progress. Inspectors should observe and/or conduct a sufficient number of aircrew certification evaluations as well as proficiency, competency, or line' checks (as applicable) to determine the overall effectiveness of the operator's training, check aircrew programs, and testing and/or checking standards. Testing and checking standards should comply with regulations and safe operating practices. Chapter 7 of this Manual deals specifically with airmen proficiency checks.

2.6.8.9.1 Quality Control Module. In this module the inspector should evaluate the operator's quality control program to ensure that training effectiveness is continually monitored and that specific areas or items are corrected when necessary. Specific modules should be identified in the ground and flight curriculums as progress evaluations". The operator's quality control system should ensure that students do not proceed to the next level of training until satisfactory proficiency has been achieved. Additionally, training folders should be maintained by the operator while students are in a specific curriculum. Inspectors should review the information contained in these folders to identify any deficient trends. This information, coupled with the results of testing and checking, provides a quantifiable method for measuring

training effectiveness.

2.6.9 USE OF DATA ACCUMULATED FROM TRAINING PROGRAM INSPECTIONS. Inspectors can use previous inspection results as a source of information about an operator's overall performance. A high rate of satisfactory performance usually indicates a strong, effective training program. Repeated cases of unsatisfactory performance indicate serious deficiencies in an operator's training program. Results of inspection reports, incident or accident reports, enforcement actions, and other relevant information about the operator's performance should be reviewed by the DGCA for indications of training effectiveness. For example, repeated reports of deficiencies such as configuring too late, incomplete briefings, or incorrect use of the checklists, may be traceable to a lack of specific training or ineffective training in a particular area.

2.6.9.1 THE AIRLINE TRAINING PROGRAM INSPECTION CHECKLIST/REPORT. This chapter has provided a broad overview of the many areas of an operator's training program that must be evaluated during the FSD's annual work program. The Airline Training Inspection Checklist/Report form which appears at the end of this chapter will be used for all such inspections. It contains the major inspection areas which were discussed in this chapter together with sub-areas or "modules." This form is designed to be flexible, and appropriate sections should be completed to indicate the scope or content of an inspection which has been conducted. The scope of the inspection should be indicated in the "curriculum" block at the top of the page (e.g. "A-320 Pilot Recurrent Ground Training").

2.7. TRAINING AND QUALIFICATION RECORDS INSPECTION

2.7.1 BACKGROUND AND OBJECTIVE. Paragraph 9.6.5.6 of the ICAO Manual of Procedures for operations Certification and Inspection states that inspectors should ensure that records are available for each company employee who is required to receive flight, ground, simulator, emergency, or operational control training to confirm that:

i) Appropriate training prescribed in the approved training program has been conducted as and when required.

ii) Such records reflect each individual’s attendance, participation, aptitude, or performance.

iii) Adequate and accurate records are being maintained and retained in accordance with applicable regulations.

2.7.2. Terminology. The following terminology is used in this section:

i) A file refers to a collection of records of training events for a specific employee which is maintained in a folder, binder or computer database.

ii) A record refers to an individual record of a training or qualification even which is completed by the instructor or examiner and placed in an employee's file.

iii) A flight operations personnel refers to pilots, flight engineers, flight operations officers (dispatchers), and flight attendants.

2.7.3 Essentially, the operator should develop forms and maintain records which are sufficient to establish the qualification and currency of each flight operations person for the position that he or she occupies at the time the inspection is conducted. By reviewing training records, the inspector should be able to establish a chronology *of* training and qualification events which render an individual fully qualified to perform the duties to which he is presently assigned, in accordance with DCGA's regulations and the operator's approved training manual. Each record *of* a training event in an individual's file should contain the following information as a minimum:

i) Specific type of training or qualification conducted the terminology employed should reflect that contained in the operator's approved training program, (e.g. "A-320 pilot Recurrent Ground Training").

ii) Date(s) on which training was conducted.

iii) Employee's name.

iv) Employee's position.

v) Results of training or qualification - complete or incomplete, satisfactory or unsatisfactory, etc.

vi) Instructor or examiner's name and signature.

CHAPTER 3 - EN ROUTE COCKPIT INSPECTIONS

3.1 BACKGROUND AND OBJECTIVES. The ICAO manual for Operations Certification and Inspection recommends that en route inspections be conducted as a means of evaluating both cockpit and cabin crew members. The primary objective of cockpit en route inspections is for an inspector to observe and evaluate the in flight operations of a airline within the total operational environment of the air transportation system. En route inspections are one of the most effective methods of accomplishing air transportation surveillance objectives and responsibilities. These inspections provide the DGCA with an opportunity to assess elements of the aviation system that are both internal and external to an operator.

3.1.1 Elements of the aviation system which are internal to the airline and can be observed during cockpit en route inspections include:

i) Crewmembers.
ii) Operator manuals and checklists.
iii) Use of Minimum Equipment Lists and Configuration Deviation Lists.
iv) Operational control functions (dispatch, flight-following, flight locating).
v) Use of checklists, approved procedures, and safe operating practices.
vi) Crew coordination/cockpit resource management.
vii) Cabin safety.
viii) Aircraft condition and servicing.
ix) Training program effectiveness.

3.1.2 Elements of the aviation system which are external to the airline and can be observed during en route inspections include:

i) Airport surface areas.
ii) Ramp/apron/gate activities.
iii) Airport condition and construction.
iv) Aircraft and vehicle movements.
vi) ATC and airway facilities. ATC and airspace procedures.
vii) IAP'S, SID'S, and STAR'S.
viii) Navigational aids.
ix) Communications

3.2 COCKPIT EN ROUTE INSPECTION AREAS. Inspectors should consider all inspection areas, both internal and external to the operator, to be of equal importance. Four general inspection areas may be identified for observation and evaluation:

i) Crewmember.
ii) Flight conduct.
iii) Airport.
iv) ATC/ Airspace.

3.2.1 The Air Operator Cockpit En Route Inspection Checklist/Report form at the end of this chapter is divided into the four areas listed above. The remainder of this chapter is structured around this form:

3.2.1.1 The "crewmember" inspection are applies primarily to flight (cockpit) crewmembers, but cabin crewmembers may also be observed in certain areas such as coordination with the cockpit. Inspectors should evaluate such items as flight crewmember knowledge, ability, and proficiency by directly observing crewmembers performing their_ respective duties and functions. The checklist/report form contains a list of remainder items which should be observed in the crewmember inspection area. These items are not all-inclusive but represent the types of items which are common to several phases of flight and which inspectors should evaluate during a typical cockpit en route inspection.

3.2.1.2 The "flight conduct" inspection area is by far the largest and most complex. It relates to specific phases of flight which can be observed during an en route inspection. The checklist/report form contains a list of the items that should be evaluated by inspectors during these phases of flight. These items are not all-inclusive and in some cases (such as "power back") may not be applicable to the flight conducted. Inspectors are, however, encouraged to observe, evaluate, and report on as many of these items as possible.

3..2. 1.3 The "airport" inspection area pertains to the various elements of airports which may be observed during flights such as runways, taxiways, ramp/aprons, and aircraft ground movements. Inspectors should observe and evaluate as elements as possible.

3.2.1.4 The "ATC/Airspace" inspection area pertains to the various elements of Air Traffic Control and national or international airspace systems. These elements should be observed and

evaluated by inspectors during en route inspections. From an operational standpoint, these evaluations are a valuable information source which can be used not only to enhance safety with respect to air traffic control and the airspace system, but also to enhance the effectiveness of en route and terminal facilities and procedures.

3.2.2 Deficiencies in the "Crewmember" and "Flight Conduct" inspection areas may indicate weaknesses in the operator's training and checking program.

3.2.3 Although these four general inspection areas cover a wide range of items, they are not the only areas that can be observed and evaluated during cockpit en route inspections. Inspectors may have the opportunity to evaluate many other operations functions, such as transit base operations and flight control procedures. Such functions can often be observed before a flight begins, at en route stops, or at the termination of a flight. Inspectors should include any remarks regarding such areas in the comments section of the checklist.

3.3 GENERAL COCKPIT EN ROUTE INSPECTION PRACTICES AND PROCEDURES.

3.3.1 Before conducting en route inspections, it is important that inspectors be thoroughly familiar with the operating procedures and facilities used by the airline. Inspectors who are not seconded from the airlines they are checking can obtain such information by reviewing pertinent sections of the operations manual, by obtaining briefings from other inspectors who are acquainted with the operator's procedures and facilities, is encouraged to comment in the inspection report on any procedure believed to be deficient or unsafe. He should also debrief the flight crew at the conclusion of the flight regarding any deficiencies which he intends to note in the inspection report.

3.3.2 Each operator should have established procedures to be used by inspectors for scheduling the cockpit observer's seat (jump seat). Inspectors should make arrangements to be present in the cockpit far in advance as possible. However, since an inspector may experience a sudden change in his schedule and may thus not always be able to provide appropriate advance notice, operator's procedures should be flexible so as to permit use of an available jump seat on short notice.

3.3.3 A cockpit en route inspection is a routine surveillance function which is distinct from a route check required by civil aviation regulations. Its purpose should be to observe and evaluate the entire cockpit crew captain, First Officer, and Flight Engineer if applicable - in the performance of the full range of their duties during regularly scheduled flights. Thus, it should be accomplished from the jump seat with as little disruption to the cockpit routine as possible. En route inspections should be scheduled so as not to interfere with required check flights by company check aircrew or with orientation flights for pilots under training who occupy the observer's seat. Should an inspector arrive for a flight and find that the jump seat is occupied by pilot under training, he must determine whether or not it is essential that the cockpit en route inspection be conducted on that flight. If it is essential, the operator should be so advised and should make the jump seat available to the inspector.

3.3.4 An inspector should begin a cockpit en route inspection a reasonable amount of time before the flight (approximately 1 hour) by reporting to the operations area or to the gate, according to established procedures. He should complete any necessary jump seat related paperwork for inclusion in the operator's passenger manifest and weight and balance documents. The inspector should introduce himself to the flight crew, if not already known to them, and inform the PIC of his intention to conduct an en route inspection. The inspector should then request that the flight crew present their pilot's licenses and medical endorsements to him for examination. It is desirable that the inspector review with the flight crew prior to boarding the aircraft such items as weather documents, NOTAMS, planned route of flight, dispatch or flight release documents, and information about the airworthiness of the aircraft.

3.3.5 Sometimes an inspector cannot meet and inform the PIC of the intention to conduct an en route inspection before boarding the aircraft. In such a case, as soon as possible after boarding the aircraft the inspector should introduce himself to the PIC, present his identification, and inform the flight crew of his intention to conduct a cockpit inspection. In this situation a flight attendant will usually be at the main cabin entrance door. One of the flight attendant's primary duties should be to ensure that only authorized persons enter the aircraft such as ticketed passengers, caterers, and authorized company personnel. Therefore, an inspector should be prepared to present his identification and any applicable jump seat paperwork to the flight attendant before entering the cockpit. When boarding the aircraft, an inspector should also avoid unnecessarily impeding passenger flow or interrupting flight attendants during the performance of their duties. Also, during this time an inspector may have ample opportunity to observe and evaluate the operator's carry-on baggage procedures and the gate agents or flight attendants actions concerning oversized

items. Once inside the cockpit, the inspector should request an inspection of' each flight crewmembers airman certificates when convenient. He should review the maintenance logbook to determine the airworthiness of the aircraft, and request that theflight crew provide him with the trip documents (Flight plan, Load sheet, etc.) for his review when it does not interfere with their duties.

3.3.6 The inspector must wear a headset during the flight, during cockpit en route inspections; inspectors must try to avoid diverting the attention of flight crewmembers performing their duties during critical phases of flight such as approaches and landings. Inspectors must be alert and point out to the flight crew any apparent hazards such as conflicting traffic. If during an en route inspection, an inspector becomes aware that the flight crew is violating any regulation, company policy, or an ATC clearance, the inspector should immediately inform the PIC of the situation.

3.4 SPECIFIC COCKPIT EN ROUTE INSPECTION PRACTICES AND PROCEDURES.

3.4.1 Once situated in the cockpit, the inspector should check the jump seat oxygen and emergency equipment (if applicable) and connect the headset to the appropriate interphone system. The PIC or a designated crewmember should offer to give the inspector a safety briefing. If the PIC does not make such an offer, the inspector should request a briefing. Although the inspector may be qualified on the aircraft and well known to the PIC, this will permit him to evaluate the jump seat safety briefing which the PIC or First officer should give to any jump seat rider. It is important that the inspector monitor all radio frequencies being used by the flight crew to properly evaluate ATC procedures, flight crew compliance, transmission clarity, and radio phraseology. The monitoring of these frequencies also ensures that the inspector does not inadvertently interfere with any flight crew communications. Inspectors should continuously monitor these frequencies to remain aware of the progress of the flight. The following major areas will be observed and evaluated:

3.4.2 Crewmembers. Inspectors will have the opportunity to evaluate crewmembers in the following areas which are common to many or all phases of flight:

3.4.2.1 Certificates - valid as follows:

i) Proper ratings and endorsements for the positions occupied.

ii) Medical endorsement appropriate and current.

3.4.2.2 Knowledge - demonstrated knowledge in the following specific areas:

i) AOM - Specific aircraft limits, systems, equipment, procedures, and flight profiles.

ii) FOM or equivalent - General company policy and procedures related to crew conduct and type of operation.

iii) DGCA regulations and ICAO International standards and recommended practices - appropriate to the type of operation conducted

iv) Airway-Manuals - Interpretation and application of approach plates, STAR's, SID's, airport and transit base information, communications, etc.

v) MEL/CDL - Familiarization to the extent that specific items can be expeditiously located and information properly interpreted and applied.

vi) Checklists - cockpit flow and responses to challenges in normal checklists, knowledge of where to locate and an understanding of the philosophy behind abnormal and emergency procedures.

vii) General body of aviation knowledge commensurate with level of airman certificate and experience: ATC, weather, aerodynamics, power plants, radar interpretation, etc.

3.4.2.3 Proficiency - skill in applying the above knowledge to specific phases of flight and in manipulating aircraft controls and systems at the assigned crewmember position.

3.4.2.4 Situational awareness - related to proficiency but refers to apparent or demonstrated awareness (particularly in critical phases of flight) of such factors as traffic flow, weather, position and configuration of airplane, airspeed, altitude, rate or descent, etc.

3.4.2.5 Conformity - to provisions of AOM, FOM, Other company bulletins and instructions, DGCA regulations, ICAO standards and practices, ATC practices and specific instructions, MII,/CDL, and airway manual. Attention should be given to:

i) Remaining at duty stations per regulatory guidance.

ii) Use of seatbelts and safety harnesses.

iii) Use of oxygen.

iv) Use of corrective lenses (glasses) when required by medical certificate.

3.4.2.6 Manuals/Maps/Charts - available, current, and adequate (information regarding latest changes can be obtained from the carrier prior to the inspection).

3.4.2.7 Coordination - between cockpit crewmembers (cockpit resource management) and between cockpit and cabin crewmembers.

3.4.2.8 Use of checklists - prompt and consistent use of requirement checklists during appropriate phase of flight.

3.4.2.9 Requirement equipment - flashlight, cockpit key, headset, and other such personal items which may be required by DGCA regulations or company policy.

3.4.3 Phase of Flight. Some of the areas that should be observed and evaluated during each specific flight phase are as follows-.

3.4.3.1 Pre-flight: Inspectors should determine that the flight crew has all the necessary flight information including the appropriate weather, dispatch, or flight release information; flight plan; NOTAM'S; and weight and balance information. MEL items should be resolved in accordance with the operators MEL and appropriate maintenance procedures. Inspectors should observe the flight crew performing appropriate exterior and interior pre-flight duties in accordance with the operator's procedures.

3.4.3.2 Pre-departure: Inspectors should observe the flight crew accomplishing all pre-departure checklists, takeoff performance calculations, and required ATC communications. If a Flight Management System (FMS) is installed, setup and data entry should be observed. If INS or Omega is installed, data entry and verification should be observed. Flight crew should verify fuel quantity indications against amount delivered and/or physically check tanks. The flight crew should use coordinated communications (via hand signals or the aircraft interphone) with ground personnel. Crew should properly monitor engine starts. Often pushback or power back clearance must be obtained from the appropriate ATC or apron control facility.

3.4.3.3 Taxi: The following areas should be observed during taxi:

i) Adherence to taxi clearances.
ii) Control of taxi speed and direction.
iii) Observance of taxiway signs and markings.
iv) Cockpit setup and checklist.

v) Conduct of a pre-takeoff briefing in accordance with the operator's procedures.
vi) Awareness of other ground movement (aircraft and vehicles).
vii) Use of appropriate checklists.

3.4.3.3.1 When weight and balance information is transmitted to the aircraft by company radio during the outbound taxi, the flight crew should follow the operator's procedures as to which crewmember receives the information and completes the final takeoff performance calculations, and which crewmember monitors the ATC frequency.

3.4.3.4 Takeoff: The takeoff procedure should be accomplished as outlined in the operator's manual. Inspectors should observe and evaluate the following terms or activities during the takeoff phase

i) Aircraft centreline alignment.
ii) Application of power to all engines.
iii) Takeoff power settings.
iv) Use of crosswind control techniques.
v) Flight crew standard call-outs and coordination.
vi) Adherence to appropriate takeoff or V speeds.
vii) Rate and degree of initial rotation.
viii) Use of flight director, autopilot, and auto throttles applicable).
ix) Gear and flap retraction schedules and limiting airspeeds.
x) Use of radar and weather avoidance if applicable.

3.4.3.5 Climb: The climb procedure should be conducted according to the operator's manual. Inspectors should observe and evaluate the following items and activities during the climb phase *of* flight:

i) Compliance with the ATC departure clearance or with the appropriate published departure.
ii) Adherence to proper climb profile.
iii) Airspeed/Mach control.
iv) Navigational tracking/heading control.
v) Powerplant control.
vi) Use of radar and weather avoidance, if applicable.
vii) Use of autoflight systems.
viii) Pressurization procedures- if applicable.
ix) Sterile cockpit procedures.
x) Cockpit vigilance and traffic awareness.
xi) After-takeoff checklist.

3.4.3.6 Cruise: Procedures used during cruise flight should conform to the operator's procedures. Inspectors should observe and evaluate the following areas during the cruise phase *of* flight:

i) Cruise mach/airspeed control.
ii) Navigational tracking/heading control.
iii) Use *of* radar, *if* applicable.
iv) Turbulent air procedures, *if* applicable.
v) Monitoring flight plan (actual vs. planned fuel consumption and flight time).
vi) Awareness of mach buffet and maximum performance ceilings.
vii) Coordination with cabin crew.
viii) Compliance with oxygen requirements, if applicable.
ix) Vigilance - proper visual lookout and crewmembers at stations except to attend to physiological needs.
x) Compliance with ATC clearances and instructions.

3.4.3.7 Descent: Procedures used during descents should conform to the operator's procedures. Inspectors should observe and evaluate the following areas before and during the descent phase of flight:

i) Descent planning.
ii) Weather/ ATIS check.
iii) Crossing restriction requirements.
iv) Navigational tracking/ heading control.
v) Use of radar, if applicable.
vi) Awareness of Vmo/Mmo speeds and other speed restrictions.
vii) Compliance with ATC clearance and instructions.
viii) Use of autoflight systems including FMS is applicable.
ix) Pressurization control, if applicable.
x) Weather considerations.
xi) Altimeter settings.
xii) Briefings, as appropriate,
xiii) Coordination with cabin crew.
xiv) Sterile cockpit procedures.
xv) Vigilance.
xvi) Descent checklist.

3.4.3.8 Approach: Procedures used during the selected approach (instrument or visual) should be accomplished according to the operators manuals.

Inspectors should observe and evaluate the following areas during the approach phase of flight:

i) Approach checklists.
ii) Approach briefing, as appropriate.
iii) Compliance with ATC clearances and instructions.
iv) Navigational tracking/heading and pitch control.
v) Airspeed control, Vref speeds.
vi) Flap and gear configuration schedule.
vii) Use of flight director, autopilot, auto throttles, and FMS if installed.
viii) Compliance with approach procedure.
ix) Stabilized approach in the full landing.
x) Sink rates.
xi) Flight crew call-outs and coordination.
xi) Transition to visual segment, if applicable.

3.4.3.9 Landing: Procedures used during the landing manoeuvre should conform to those outlines in the operators manoeuvres and procedures documents. Inspectors should observe and evaluate the following areas during the landing phase of flight:

i) Before-landing checklist.
ii) Powerplant control and engine spool-up considerations.
iii) Threshold crossing height (TCH).
iv) Aircraft centerline alignment.
v) Use of crosswind control techniques.
vi) Sink rates to touchdown.
vii) Powerplant control/engine spool-up considerations,
viii) Standard call-outs.
ix) Touchdown and rollout.
x) Thrust reversing and speed brake procedures.
xi) Use of autobrakes, if applicable.
xii) Use of nosewheel steering.
xiii) Braking techniques.
xiv) After-landing checklist.

3.4.3.9.1 Arrival: Taxi, pre-arrival and parking procedures should conform to the operator's procedures as outlined in the appropriate manual. Inspectors should evaluate crew use of visual parking aids and/or parking directors, parking speed, and accomplishment of after landing checklists, ground crew parking, and passenger deplaning procedures.

3.4.3.9.2 Post-arrival: Inspectors should observe and evaluate the flight crew complete post flight duties such as post flight checks, aircraft logbook entries, and flight trip paper work completion and disposition.

3.4.4 Airports. Inspectors should evaluate the following items concerning the airports which the flight transits in the course of the inspection:

i) Condition of surface areas such as apron and gate areas, runways, and taxiways (cracks, depressions, weeds, overgrowth, etc.).
ii) Lighting of runways, taxiways, ramp/apron, and other traffic areas.
iii) Taxiway signs, markers, sterile areas, and hold lines.
iv) Ramp/ Apron vehicles, equipment, movement control.
v) Aircraft servicing, parking, and taxi operations.
vi) Obstructions, construction, and surface contaminants (such as ice, slush, snow, fuel spills, rubber deposits).
vii) FOD.
viii) Snow control for international flights, if applicable.
ix) Security and public safety.
x) Nav Aids, approach lighting, and communications.

3.4.5 ATC. During cockpit en route inspections, inspectors have the opportunity to observe and evaluate ATC operations and airspace procedures from the vantage point of the aircraft cockpit. Inspectors may observe and evaluate tile following areas from the cockpit:

i) Radio frequency congestion, overlap, or blackout areas.
ii) Controller phraseology, clarity, and transmission rate.
iii) ATIS validity, clarity, etc.
iv) Departure and approach instructions.
v) Clearance deliveries for responsiveness and acceptable, safe clearances.
vi) Aircraft separation standard.
vii) Controller situational awareness - traffic flow, conflicts, aircraft flight characteristics, priorities, etc.

3.4.6 While not specifically included on the checklist, Inspectors should note any discrepancies observed with regard to equipment, which is required to be installed on the aircraft by regulations.

3.4.7 After the flight has been terminated, the inspector should debrief the crew on the discrepancies observed and on any corrective actions that

should be taken. If the inspector observed a violation *of* DGCA regulations or company operating policies during the flight or intends to make critical comments concerning the crews' performance, the inspector should inform the flight crew during the debriefing.

CHAPTER 4 - CABIN EN ROUTE INSPECTIONS.

4.1 OBJECTIVE OF CABIN EN ROUTE INSPECTIONS. Cabin (en route) inspections are conducted to assess the level of cabin safety in air transportation by the direct observation and evaluation of operations conducted in the aircraft cabin. Cabin inspections provide the DGCA with information concerning flight attendant training programs, operator procedures, and the condition and maintenance of aircraft emergency equipment and furnishings. Cabin inspections, together with cockpit en route inspections, provide the DGCA with a comprehensive assessment of safety in air transportation operations.

4.2 PROCEDURES TRAINING FOR INSPECTORS: An operators procedures should be designed to have cabin en route operations conducted in accordance with government regulations and with standard operating practices. A wide variation may exist, however, in the manner in which different operators meet these requirements. It is difficult for an inspector when observing a cabin crew, to determine if the crew is carrying out their duties in the prescribed manner unless the inspector is knowledgeable in the operator's cabin procedures. Even pilot inspectors, who are deputed from the airline which they are inspecting, may not have an in-depth knowledge of that operators cabin procedures. Whenever possible, the DGCA will arrange for formal cabin procedures training for inspectors, to be conducted by the airlines they are required to inspect.

4.3 CABIN INSPECTION AREAS: Areas that should be covered during cabin inspections may be grouped into three broad categories as follows:

4.3.1 Aircraft. The "aircraft" inspection area applies to the general airworthiness of the aircraft and the condition and availability of aircraft cabin emergency equipment and furnishings.

4.3.2 Crewmember. The "crewmember" inspection area applies to flight attendants who perform duties during a cabin inspection. Inspectors should evaluate such items as crewmember knowledge, ability, and proficiency by directly observing flight attendants performing their respective duties and functions.

4.3.3 Flight Conduct. The "flight conduct" inspection area refers to items which relate to a particular phase of the flight such as stowage of girt bars, passenger briefings, turbulent air security, and stowage of carry-on luggage.

4.3.4 Although these three general inspection areas cover a wide range

of items to be inspected, they are not the only areas that can be observed and evaluated by inspectors. Inspectors may have the opportunity to evaluate many other areas such as line station operations and aircraft servicing. These types of areas can often be observed before beginning a flight, at en-route stops, or at the termination of a flight.

4.4 GENERAL CABIN ENROUTE INSPECTION PRACTICES AND PROCEDURES.

4.4.1 Inspectors should make prior arrangements with the carrier, in accordance with established procedures, for occupying cabin seats on revenue flights. Inspectors should board the aircraft before passengers are boarded to allow adequate time to inspect the aircraft emergency equipment, furnishings, flight attendant manuals, and to discuss-duties, responsibilities, and normal and emergency procedures with cabin crewmembers. Inspectors should first introduce themselves to both the captain and senior flight attendant and then inform them that an inspection is being conducted.

4.4.2 When the flight has ended, the inspector should thoroughly debrief the lead flight attendant, other applicable flight attendants, and if possible, the captain, of all pertinent observations and of any deficiencies noted during the inspection. If the inspector believes that he has discovered deviations from an existing Civil Aviation Regulation, he should inform the crew of his finding.

4.4.3 The Air Operator Cabin Inspection Checklist/Report form included in this chapter contains a list of remainder items for the specific inspection areas which should be observed and evaluated. The form is general in nature and intended to cover all aircraft types and conditions of flight, thus, every item may not apply to a particular flight.

4.4.4 An inspector should make an effort to be cordial and no confrontational with the crewmembers he is evaluating. Crewmembers should initially be briefed to continue their assigned duties as if the inspector was not present. The inspector should then request that a crewmember provide a manual and be available for a brief conversation about the crewmembers duties at a time that is convenient and chosen by that crewmember.

4.4.5 Inspectors should avoid interfering with the crewmembers assigned duties. They should consider that flight attendants are particularly busy during passenger loading, and should avoid

distracting crewmembers during this time. They can, however, make useful observations, such as evaluating the gate agents or flight attendants actions concerning carryon baggage and oversized items.

4.5 SPECIFIC CABIN EN ROUTE INSPECTION PRACTICES AND PROCEDURES. Inspectors should carefully plan cabin inspections to maximize the results of the inspection.

4.5.1 Inspectors should plan to spend a reasonable period of time before the actual flight in the operator's line station operations area when practical. During this time, the inspector should attempt to meet the crew and inform the captain of the intent to conduct a cabin inspection.

4.5.1.1 Inspectors should check in with the company agent by first presenting his authority to conduct the inspection and then requesting an unoccupied passenger aisle seat. A passenger seat located as far aft in the cabin as possible is considered to be a desirable location; however, it is not the only suitable location for an inspector conducting a cabin en route inspection.

4.5.1.2 The FSD will establish the specific procedures which the inspectors should follow to obtain a seat in the passenger cabin. It is the inspector's responsibility to follow the procedures established by this Manual.

4.5.2 Inspectors should board the aircraft as early as possible to allow enough time to inspect equipment and to introduce themselves to the lead flight attendant.

4.5.2.1 Some operators require flight attendants to accomplish a pre-flight inspection of at least some of the emergency and safety equipment in the cabin. In such a case, the inspector should observe the flight attendant inspect the equipment himself. An inspector can determine whether the operator requires a flight attendant to conduct pre-flight by referring to the flight attendant manual.

4.5.2.2 When a flight attendant pre-flight equipment inspection is not required by the operator, the inspector should inspect the equipment. If there is not enough time to inspect the emergency equipment before the flight, the inspector may choose to inspect it after the flight. Some emergency equipment may be inspected during the cruise portion of the flight, but the inspector should exercise care and discretion when doing so. Passengers should not be disturbed or alarmed. The inspector should refrain from examining such items as exits, slide pressure gauges, fire extinguishers, or portable oxygen bottles in view of passengers while in flight.

4.5.2.3 Inspectors should avoid impeding the flow of passenger traffic or in any way interfering with the crewmembers conduct of their duties. Since passengers are naturally curious about inspector's activities, it is recommended that reasonable passenger inquiries be answered in a brief, factual and courteous manner.

4.5.3 Aircraft. The aircraft emergency equipment and furnishings should preferably be inspected before passenger boarding. Some specific items or activities that may be evaluated in the "aircraft" inspection area as follows:

i) Cabin Logbooks, or if the airline does not have a separate cabin logbook, aircraft maintenance logbook for open discrepancies, carry-over items, and items of cabin equipment needing repair or replacement.

ii) Required Placards and Signs (exit signs; seat belt/no smoking signs; emergency/safety equipment placards; seatbelt/flotation equipment placards at seats; weight restriction placards; no smoking placards; door-opening instruction placards; etc.).

iii) Fire Extinguishers (for correct type, number, and location; if properly serviced, tagged, and stowed).

iv) Portable Oxygen Bottles (for correct number and location; if properly serviced, tagged, and stowed; for condition of mask, tubing, and connectors).

v) Protective Breathing Equipment (if installed) for correct location, properly stowed and sealed.

vi) First Aid Kits and Emergency Medical Kits (for correct number and location; if properly tagged and stowed; Validity).

vii) Megaphones (for correct number and location; if operable and properly stowed).

viii) Passenger Briefing Cards (if at each passenger seat position; if appropriate to aircraft; if they contain the necessary information including emergency exit location and operation, slides, oxygen use, seatbelt use, brace positions, flotation devices; appropriate pictorials for extended overwater operations including ditching exits, life preservers, life jackets and liferaft or slide raft in-flight location).

ix) Passenger Seats (not blocking emergency exits; flotation cushions; if seat cushions are intact; for latching mechanism on tray tables; if self-contained and removable ashtrays; if seatbelts are operational - not frayed or twisted; presence and condition of life preservers if required).

x) Passenger Oxygen Service Units (if closed and latched without any extended red service indicators or pins).

xi) Flight Attendant Station (for seat retraction/ restraint system operation - if retracts and is properly secured; if seatbelts are not frayed or twisted; seat cushions intact,, for correct position of headrest; if PA system and interphone are operable; for aircraft installed flashlight holders).

xii) Galleys (for latching mechanisms (primary and secondary); tie downs; conditions of restraints; padding; proper fit of cover and lining of trash receptacles; hot liquid restraint systems; accessibility and identification of circuit breakers and water shutoff valves; non-skid floor; debris or corrosion of girt bar; "clean" stationary cart tie-downs (mushrooms); if galley carts in good conditions and properly stowed; lower lobe galley (if applicable) emergency cabin floor exits should be passable and not covered by carpeting and baggage:

xiii)Galley Personnel Lift (if applicable) (should not move up or down with doors open; for safety interlock system; for proper operation of activation switches).

xiv) Lavatories (for smoke alarm, no-smoking placards, ashtrays; for proper fir of cover and lining of trash receptacles; for automatic fire extinguisher system).

xv) Stowage Compartments (for weight restriction placards; for restraints and secondary latching mechanisms; for compliance with stowage requirements; for accessibility to emergency equipment; for carry-on baggage provision).

xvi) Crew Baggage (if properly stowed).

xvii) Emergency Lighting System (for independence from main system; if operable; for floor proximity escape path system).

xviii) Exits (for general condition; door seals; girt bar and brackets; handle mechanisms; signs and placards; slide or slide raft connections and pressure indications; lights).

4.5.4 Crewmembers. The inspector should determine if the required number of flight attendants are aboard. When evaluating flight attendant knowledge and competency, inspectors should ask clear and concise questions that are related primarily to the use of emergency equipment and operational duties and responsibilities. If flight attendants are required to carry manuals, at least one flight attendant manual should be reviewed for currency and for determining the manuals accessibility when flight attendants are performing assigned duties. if time permits (for example during a meal service), the inspector should review the manual for items such as the location of aircraft emergency equipment, emergency and no normal procedures, communications with the cockpit, and required briefing and PA announcements. To evaluate cabin crewmember

knowledge and level *of* competency, inspectors should ask the flight attendants a limited number *of* questions, including asking for an explanation *of* safety procedures from the operators manual. Flight attendants are not normally required to know the contents *of* Civil Aviation Regulations. The operators procedures should be designed so that when a flight attendant complies with the company manual the flight attendant is also in compliance with the regulations. Inspectors and should make a careful distinction between inadequate knowledge on the part *of* the crewmember and a deficient company procedure. Inadequate knowledge may reflect a deficiency in training.

4.5.4.1 Some appropriate areas that inspectors may ask flight attendants to explain are as follows:

i) The term "captain's authority" and crew coordination procedures in case of an emergency.

ii) How to remove a fire extinguisher or portable oxygen bottle, its method of operation, how to determine its maintenance and inspection status, and how to stow the extinguisher or oxygen bottle correctly into its restraint mechanism.

iii) The company procedure for dealing with lavatory or galley fires.

iv) Which type of fire extinguisher should be used on galley (grease/electrical) fires, cabin furnishings fires (seats or floor), lavatory or galley waste container fires (paper or plastic).

v) The procedures for documenting (in aircraft or cabin logbooks, when available) the need for items of cabin equipment to be repaired, adjusted, or replaced.

vi) How to manually deploy a passenger service unit, including how to ensure adequate oxygen flow.

vii) Normal and emergency procedures for communications with the cockpit.

ix) Normal and emergency procedures for opening/deploying exit doors and slides or sliderafts, including how to deal with adverse conditions such as wind, fire, or a "titled" aircraft (for example, in a collapsed landing gear situation).

x) The location *of* company-required personnel equipment such as operational flashlight (could be installed in the aircraft), appropriate section of the flight attendant manual, a cockpit key.

xi) The signs of decompression, including mask dropping, a decrease in temperature, noise and physiological symptoms.

xii) The company procedure for flight attendants to follow in the event of

a rapid depressurization (recommended procedure is to immediately don to nearest mask, sit down and fasten seatbelt or hold on to something solid and wait for instructions from the cockpit).

xiii) The "brace for impact" position and the appropriate cockpit signal to assume the position.

xiv) The procedures to be followed during operations in turbulent air, including securing galley service carts, keeping passengers seated, cockpit coordination, and galley security.

xv) The procedures to be followed in the event of unruly, abusive, or threatening passengers.

xv) What to do if the aircraft is descending for landing and a flight attendant is unable to stow a galley cart (notify the cockpit* PIC shall make decision to land or go-around).

xvi) If a flight is conducted as an extended-overwater flight, the procedures for donning of life vests and cabin preparation before a water landing.

xvii) The procedures to be followed during a hijacking, bomb threat, or other potential security problem including the company specific procedures for notifying the cockpit.

4.5.5 Flight Conduct. Inspectors should evaluate the cabin crew during each pertinent phase of flight. This evaluation should include noting the flight attendants adherence to the procedures outlines in the flight attendant manual as well as adherence to regulations and safe operating practices. Specific guidance on what inspectors should evaluate during specific phases of flight are as follows:

4.5.5.1 Pre-departure: An inspector should observe flight attendants accomplishing tasks such as supervising the boarding of passengers and properly stowing carry-on baggage. The passenger-loading door should not be closed until a required crewmember verifies that each piece of carry-on luggage is properly stowed. Items that cannot be stowed should be processed as checked baggage (see ICAO Annex 6, Section 4.8). Additionally, carry-on baggage should not cover, or in any way interfere with, aircraft emergency equipment in the overhead compartments.

4.5.5.2 The departure briefing may be given any time before takeoff, provided the flight attendants have sufficient time to take their assigned positions and to secure their restraint systems. The quality, clarity, and volume level of the PA system should be evaluated by the inspector

during the briefing. Passenger briefings should contain the following areas of information (see ICAO Annex 6, Section 4.2.11.1 and 2):

i) Smoking: Company policy (in conformance with government regulations). No smoking when the no smoking signs are illuminated; requirement for passenger compliance with lighted signs and posted placards; prohibited in lavatories including a statement regarding prohibition against tampering with, disabling, or destroying any smoke detector in an airplane lavatory (if installed).

ii) Exit Locations: The preferred method is to phyCo-pilotally point out exits in a meaningful way.

iii) Seatbelt Use: Including instructions on how to fasten and unfasten seatbelts.

iv) Flotation Devices: Including the location and use of the means of flotation.

V) Tray Tables and Seatbacks: Position for takeoff and landing.

vi) Baggage: How to be properly stowed for takeoff and landing.

vii) Oxygen Use: Should point out the location of and demonstrate the use of the oxygen mask.

viii) Extended Overwater Operations: including the location, donning, and use of life preservers, liferafts (or sliderafts) and other means of flotation.

ix) Special Passenger Briefings (if applicable): For persons who are handicapped or warrant some other special kind of attention, and for the individuals assisting them.

4.5.5.3 If someone requires the assistance of another person in an emergency evacuation, both persons should be briefed by a flight attendant on the location and path to the exits and on the most appropriate manner for assisting the person so as to prevent pain or injury. Inspectors should refer to the flight attendant manual or equivalent instructions for company policy and procedures for the handling of handicapped persons.

4.5.5.4 Taxi and Takeoff: During taxi operations and before takeoff, flight attendants should perform only those duties that are safety-related and that require movement around the cabin. A list of those items or activities which should be evaluated during taxi and takeoff is as follows:

i) Each exit is closed and locked with the girt bars properly attached (if applicable).

ii) All stowage compartments are properly secured and latched closed.

iii) The galley is secured with no loose items; all serving carts are properly restrained in the proper floor attachment points; the cockpit door is closed or open in accordance with the operators manual

iv) Passenger seat belts and shoulder harnesses, if installed, are secured.

v) That operator have procedures for ensuring passengers are seated before the aircraft is moved.

vi) During the actual takeoff, each flight attendant is seated with restraint system properly fastened; any unoccupied flight attendant seat is properly secured for takeoff; signal from cockpit to cabin is clearly given.

vii) After takeoff, and either before or immediately after the seat belt illumination is shut off, it is recommended that an announcement is made that passengers should keep their seatbelts fastened, even when the seatbelt sign is turned off.

viii) If the flight is to be a smoking flight, when the no-smoking sign is turned off, an announcement is made that smoking is permitted in certain rows and prohibited in the aisles and lavatories.

4.5.5.5 En Route/Cruise Procedures: During the en route phase of flight, several areas may be evaluated by the inspector to note whether they conform to regulations and to safe operating practices:

i) Signs (monitoring of seatbelt and no-smoking signs to ensure passenger compliance).

ii) Crew Coordination (for flight crew and cabin crewmember communications - routine and/or emergency).

iii) Turbulent Air Procedures (including the proper restraint of serving carts, galley furnishings and equipment, passenger seatbelts fastened, and instructions from the cockpit being followed).

iv) Passenger Handling (including not serving alcoholic beverages to intoxicated passengers; handling abusive or disruptive passengers; handling 'handicapped or ill passengers; and handling those passengers who for other reasons require special attention).

4.5.5.6 Approach and Landing: During the approach and landing phases of flight, flight attendants should prepare the cabin for arrival by performing at least the following actions:

i) Ensuring carry-on baggage is stowed and all seat backs and tray tables are upright and stowed respectively.

ii) Removing all food, beverages, or tableware from each passenger seat location.

iii) Observing "sterile cockpit" (critical phases of flight when cockpit crew should not be distracted) procedures.

iv) Ensuring that passenger seatbelts are fastened.

v) Being seated before landing at assigned duty positions, with appropriate restraint systems fastened, for a uniform distribution among the floor level exits to provide the most effective egress of passengers in the event of an emergency evacuation.

4.5.5.7 Landing/Arrival: After landing, the cabin crew should prepare the aircraft for arrival by performing duties such as the following:

i) Before the captain has turned off the seatbelt sign, observing operator procedures for ensuring passengers remain in their seats with seatbelts fastened.

ii) Upon arrival at the gate and after the seatbelt sign has been - turned off, preparing the exits for deplaning.

iii) Ensuring the appropriate complement of flight attendants remain onboard the aircraft at en route stops (when passengers remain onboard the aircraft to proceed to another destination).

CHAPTER 5 - AIR TRANSIT STATION FACILITIES INSPECTIONS

5.1. BACKGROUND AND OBJECTIVES. Section 9.6.3 of the ICAO Doc 8335 Manual of Procedures for Operations Certification and Inspection provides that Station Facilities inspections should be conducted periodically at every transit base where the operator uses facilities and services in connection with his operations. Station facility operations may be defined as those support activities required to originate, turn around, or terminate a flight. A Station Facilities inspection encompasses both the operations and the facilities required to conduct them.

5.1.1 Eleven inspection areas may be identified as areas to be observed and evaluated during a station facilities inspection:

i) Personnel. Refers to adequacy and proficiency of staff employed at a station.

II) Manuals. Refers to the availability, currency, and content of the written guidance required by employees in the performance of their assigned duties.

iii) Records. Refers to those records the operator is required to maintain.

iv) Training. Refers to the adequacy of the training given ton assigned personnel as demonstrated by their knowledge of their duties.

V) Facility(Equipment Surface. Refers to the Various physical elements required to support flight operations, such as ramp areas, blast fences, signs, signaling devices, lighting, passenger and cargo loading equipment, aircraft servicing, and towing equipment.

vi) Conformance. Refers to the compliance of the operator's procedures with civil aviation regulations and the compliance of the operator's employees with the operator's direction and guidance.

vii) Flight Control. Refers to the control and support of aircraft flight operations.

xii) Servicing. Refers to the operator's procedures and standards required for the safe servicing and handling of the operator's aircraft.

ix) Management. Refers to the effectiveness ofthe operator's management and supervisory personnel.

x) Security. Refers to the procedures employed by the operator regarding passenger and cargo screening and access to restricted a: eas. Compliance with security instructions issued by DGCA1Bureau of Civil Aviation Security.

xi) Aerodrome. Refers to airport facilities and equipment which may be observed incidental to inspecting the operators immediate facilities.

5.2. MANAGEMENT OF STATION FACILITIES INSPECTIONS. The DFI must schedule regular inspections of existing operator's transit bases and ensure that newly established bases are inspected before the operator commences service to that destination.

5.3 INSPECTION PRACTICES AND PROCEDURES. Inspectors , conducting station facilities inspections will encounter a wide range of situations and operations conditions. Types of stations may vary from a large facility with a permanently assigned station manager, numerous; employees, and various departments, to a facility consisting of one employee and a counter. A station facilities inspection may be conducted to provide for an overall view of the operator's operation or it may be focused on a specific area of interest. Whenever possible, inspections should be conducted when actual departure or arrival operations are in progress, in order to obtain an overview of the operation of the station ; and the effectiveness of the equipment, services, procedures, and personnel utilized. The direction and guidance provided in this section is general in nature, not all of which may be appropriate in a given situation.

5.3.1 An inspector should carefully plan a station facilities inspection before conducting it. He should review previous inspection reports and review, any previously identified discrepancies along with any corrective actions that were taken. Inspectors should coordinate with the station manager ahead of time to establish a date and time for conducting the inspection. Station facilities inspections at small or remote locations may be conducted in conjunction with en route inspections.

5.3.2 Before beginning the inspection, the inspector should request that the station manager provide a briefing on the facility operation, including assigned personnel and operational procedures. In turn, the inspector should discuss the purpose and scope of the inspection with the manager and his staff. This discussion should include the following:

i) Purpose of the facility inspection.
ii) The specific areas to be inspected.
iii) Inspection authority (applicable CAR).
iv) The proposed time and place of the exit briefing.

5.3.3 The actual inspection should begin after the briefing, with a tour of the facility. The tour should provide the inspector with an overview of the operation and the location of individual sections. The inspector should introduce himself to section supervisors and other employees during the facility tour in order to become familiar with each section or unit. The tour should include those areas of the facility that are utilized by the flight and cabin crews for dispatch, briefing, and flight planning, and those areas that are utilized for passenger loading, cargo loading, weight and balance preparation, and ramp areas.

5.4. SPECIFIC INSPECTION AREAS. The Station Facility Inspection Checklist/Report form at the end of this chapter will be used for all such inspections. For convenience in locating information regarding items which appear on the checklist, the remainder of this chapter is organized after the major headings on the checklist.

5.4.1 Personnel. The inspector should review the staffing of the facility. During this review the inspector should attempt to determine if the station is adequately staffed and if the assigned personnel are competent in performing their duties. This may be accomplished by the inspector observing individuals as they perform their assigned job tasks. For example, the inspector may review recently completed forms for accuracy and may interview personnel regarding their job functions. Certificates should be sampled for appropriateness and currency for those personnel whose job functions require that they hold certificates. Duty time and length of shifts should be checked for reasonableness. Lengthy duty periods may indicate inadequate staffing.

5.4.2 Operational Manuals. The inspector should review the operator's manual or system of manuals for the operation of the facility to determine if the necessary manuals are on hand, current, readily available to personnel and adequate in content.

5.4.2.1 Availability. The inspector should determine prior to the inspection what manuals should be on hand. As with all inspections, a sound prior knowledge of the operator's organization and procedures is invaluable. During the course of the inspections, the inspector should reach a

conclusion as to whether these manuals are sufficient or if station personnel require any additional information which was not available.

5.4.2.2 Currency. The inspector should also ensure that the operator's manuals are current and that required revisions accurately posted. An inspector should obtain information on the revision status of manuals from the supervising inspector and/or the operator before beginning the inspection.

5.4.2.3 Adequacy Each manual or publication should be checked by the inspector to ensure that it includes that information and guidance necessary to allow personnel to perform their duties and responsibilities effectively and safely. 'Manuals or instructions which are kept at transit stations typically provide guidance and procedures for the following operational areas:

i) Refuelling procedures.
ii) Aircraft towing or movement requirement/procedures.
iii) Weight and balance procedures.
iv) Operation of and procedures regarding ground service equipment.
v) Aircraft flight manual (AFM)(for types of aircraft regularly scheduled).
vi) Personnel training manual.
vii) Current emergency telephone listing,
viii) Accident/incident telephone listing.
ix) Security training and procedures.
x) Severe weather notification procedures.
xi) Carry-on baggage procedures.
xii) Identification or handling of hazardous materials/procedures.
xiii) Instructions and procedures for notification of PIC when there are hazardous materials aboard.
xiv) Contract services (if applicable).
xv) Flight records disposition.

5.4.3 Records. Records which are required to be kept at the transit base or are kept at the discretion of the operator should be inspected. These may include:

i) Crew and duty time records.
ii) Trip records.
iii) Communications (ground to aircraft) records.

5.4.4 Training. The inspector should review the training conducted for the various classifications of station personnel. Although Civil Aviation Regulations may not require specific training for support personnel, such personnel should receive both initial and recurring training in assigned job functions. This training may be-either-formal classroom training or on-the-job training. Specific areas of concern are:

i) Duties and responsibilities.
ii) Hazardous materials.
iii) Passenger handling and protection.
iv) Load planning and weight and balance procedures.
v) Manual backup procedures in case computer or communications equipment failures.
vi) Aircraft servicing and ramp operations.
vii) First aid and emergency actions.
viii) Communications procedures.

5.4.5 Facility/Equipment/Surface. The operators facilities must be adequate to provide safe operating conditions for both aircraft and personnel. The inspector should conduct an evaluation to ensure the following.

5.4.5.1 Ramp Areas. Ramp areas should be clean and clear of foreign objects. the operator should have a regular program for inspecting and cleaning ramp surfaces. In northern climates, adequate facilities must be available for snow removal.

5.4.5.2 Passenger Movement. Employees and passengers must be protected from jet or prop blast. inspectors should evaluate passenger handling procedures and facilities and give particular attention paid to the movement of passengers across ramps. The operator should hay established procedures for assisting handicapped passengers, especially when boarding ramps are not used.

5.4.5.3 Lighting. To ensure that adequate lighting is available and is being used for safe ground operations, inspectors should conduct observations during night operations, if feasible.

5.4.5.4 Hazards and Obstructions. The operators management usually assigns to station managers or supervisors the responsibility for maintaining surveillance of the airport and for reporting airport hazards and any new obstructions. Inspectors should determine what

responsibilities have been assigned and how those responsibilities are being discharged.

5.4.6 Conformance. In each area inspected, inspectors should evaluate the operators procedures for compliance with provisions of the applicable CAR'S. In addition, the operators employees must comply with the operators directives. The conformity section on the checklist is not intended to be a separate and distinct inspection function but is intended to serve as a reminder of these elements.

5.4.7 Operational Control. The inspection of a stations operational control function should be conducted at a time when actual arrival or departure operations are in progress. This allows the inspector to get an overall view of the effectiveness of the operation and assigned personnel.

5.4.7.1 When a dispatch or flight-following centre is located within the station, an operational control inspection should be conducted in conjunction with the station facilities inspection.

5.4.7.2 Flight Plans. Operators often exercise operational control from a central location and task the transit stations with related support functions, such delivering dispatch releases and flight plans to the flight crew. In this situation, inspectors should determine which functions are the responsibility of the station. Inspectors should evaluate station personnel in the performance of these functions, as well as for the effectiveness of the division of responsibility between the central flight control centre and the line station.

5.4.7.3 Load and Trim sheet. Inspectors should determine responsibilities for load planning and weight and balance control. Passenger and cargo weights must be accurate and reliably obtained, collected, and transmitted. Personnel must be adequately trained. Procedures should be simple and effective. When computerized systems are used, there should be adequate back-up provisions for computer failure. If station personnel are assigned to perform manual calculations in case of computer failure, there should a means of ensuring continued proficiency of personnel in making these calculations. Inspectors should ask these individuals to perform a manual calculation and compare the individuals solution to the computer solution.

5.4.7.4 Weather. Inspectors should determine the official source of weather for the station, and whether or not this source is adequate for the operation and is acceptable to the DGCA.

5.4.7.5 NOTAM. If the station is responsible for disseminating NOTAMs to flight crews, currency of NOTAMs and the method for updating should be examined.

5.4.8 Servicing. The servicing area of a station facilities inspection covers

routine loading and servicing as opposed to maintenance activities. While operations inspectors should record and report observations they believe to be maintenance discrepancies; there not assigned to inspect the maintenance area. Inspectors should evaluate areas of concerns to operations personnel, such as the manner in which logbooks are handled and MEL provisions are complied with. The inspector should observe the operators service operations to ensure that safe practices are conducted and that adequate personnel are available for the required aircraft servicing. The operations that- the inspectors should observe may include, but are not limited to, the following:

i) Fuelling (ensuring that proper procedures are being followed).
ii) Oil and hydraulic servicing (ensuring that proper procedures are being followed).
iii) Potable water servicing (source of water, cleanliness of storage facilities, and proper handling).
iv) De-icing (ensuring the correct ration of glycol/water is being used and that all snow and ice is removed).
v) Marshalling (ensuring safe operation and correct procedures).
vi) Chokes/Mooring (ensuring chocks are in place, the parking ramp is level, and brakes are set or released).

5.4.9 Management. Managers should be thoroughly aware of their duties and responsibilities and those of the personnel they supervise. Areas that inspectors should observe and evaluate include the following:

5.4.9.1 Communications. Throughout the inspection, inspectors should observe managers and supervisors, and evaluate the organizational structure, particularly the effectiveness of vertical and horizontal communications.

5.4.9.2 Contract Services. If (lie operator contracts with other companies for station services, the station manager should have established adequate controls over their performance. The manager must assure adequate training is provided to contractor personnel.

5.4.9.3 Contingency Planning. The station management should be prepared for contingencies. Action plans should be available for use in case of such events as accidents, injury, illness, fuel spill, bomb threats, hijacking, severe weather, and hazardous material spills. Station personnel should be knowledgeable as to the location of these plans. Plans should contain emergency notification checklists and procedures for suspending or cancelling operations. Emergency telephone listings should be posted in obvious locations and be clearly legible.

5.5 Security. Security procedures should be observed with regard to passenger and cargo screening, integrity of sterile areas, and access to ramp and other restricted areas. Completed instructions should be verified to see whether they are up to date.

5.6 Aerodrome. Operations inspectors should be alert for obvious deficiencies in aerodrome facilities and condition, such as fire fighting equipment, medical services, and ramp and vehicle control. other areas, such as marking, lighting, obstructions, navigation facilities, approach aids, etc. are more properly observed in the course of conducting other types of inspections such as cockpit en route inspections and ramp inspections.

5.7 STATION FACILITIES INSPECTION REPORT. When completing the report form, discrepancies observed during the inspection should be documented along with any on-the spot corrective action taken by the inspector. Any recommended corrective actions should also be noted on the report. Also, the inspector should indicate an outstanding or above average station facility on the report, to provide an accurate picture of the operator's operations at the particular facility.

CHAPTER 6. - RAMP INSPECTIONS FOR INDIAN AND FOREIGN CARRIERS

6.1 BACKGROUND AND OBJECTIVES. Section 9.6.4 of the ICAO Doc 8335 Manual of Procedures for Operations Certification and Inspection States that a Ramp (Apron) inspection present an excellent opportunity for an overall evaluation of an operation actually being conducted.

6.1.1 The primary objective of a ramp inspection is to provide inspectors with the opportunity to evaluate an airline operation while the crewmembers and aircraft are on the ground. Ramp inspections allow inspectors to observe and evaluate the routine methods and procedures used by an operator's personnel during the period immediately before or after a flight, and to determine the operator's compliance with regulations and sage operating practices. A ramp inspection is an effective method for evaluating an operator's ability to prepare both the aircraft the crew for a flight to be conducted. When conducted after the completion of an flight, a ramp inspection is an effective method for determining whether the aircraft and crew were adequately prepared for the flight; as well as for evaluating the operator's post flight and or turn around procedures and crew member and ground personnel compliance with these procedures.

6.2 RAMP INSPECTION AREAS. A ramp inspection may be thought of as a "snapshot" of an airline's operation during which an inspector may observe, in a short period of time, many of the areas which are also examined during the more time-consuming Station Facility Inspections, Cockpit En Route Inspections, and Cabin Inspections. Areas which may be observed and evaluated during ramp inspections fall into six different categories:

i) Crewmember.
ii) Station Operations.
iii) Aircraft.
iv) Servicing and maintenance.
v) Ramp and gate condition and activity
vi) Security.

6.2.1 Crewmember. Refers to the evaluation of crew member preparation for flight and compliance with post flight procedures. This area includes evaluations of crewmember manuals and any required flight equipment, flight crew flight planning, flight crew cabin crew and medical certificates, crewmember disposition of trip paperwork, and other items that relate to crewmember responsibilities.

6.2.2 Station Operations. Refers to the various methods and procedures used by the operator to support the flight, such as distribution of dispatch, flight release, and flight-locating paperwork; distribution of weather reports, PIREP's and other flight planning material; passenger handling; boarding procedures; and carry-on baggage screening.

6.2.3 Aircraft. Refers to the aircraft's general airworthiness, logbook entries, MEL compliance, carryovers, and required items *of* emergency and cabin safety equipment.

6.2.4 Servicing and Maintenance. Applies to Any ongoing maintenance and servicing, such as fuelling, de-icing, or catering. This area is usually evaluated in detail by Airworthiness officers/Air Safety Officers when performing their own ramp inspections. Operations inspectors may, however, observe certain items in this area and comment on obvious deficiencies for Airworthiness officers/Air safety officers follow-up.

6.2.5 Ramp and gate condition and activity. Refers to taxi and marshalling operations, ramp or movement area surfaces, any apparent contamination or debris, vehicle operations, and the condition and use of support equipment.

6.3 GENERAL RAMP INSPECTION PRACTICES AND PROCEDURES.

6.3.1 Ramp inspections may be conducted before a particular flight, or at the termination *of* a flight. A ramp inspection may be conducted any time an aircraft is at a gate or a fixed ramp location, provided the inspection is conducted when the crew and ground personnel are performing the necessary preparations for a flight or when they are performing post flight tasks and procedures.

6.3.2 The operator should not have to be given advance notice that a ramp inspection is going to be conducted. Inspectors must, however, conduct inspections in a manner that does not unnecessarily delay crewmembers and/or ground personnel in the performance of their duties. The following are recommended guidelines for inspector conduct during ramp inspection activities:

i) Inspectors should not interrupt crew or ground personnel when they are performing a particular phase of their duties.

ii) When inspection activities require inspectors to interact directly with the crew or ground personnel, the activities should be timed to be accomplished when the crew or ground personnel are waiting to begin another phase of their duties

or after they have completed one phase of their duties and before they begin another phase.

iii) Inspection activities must be timed so that they do not delay or interfere with passenger enplaning or deplaning.

iv) Inspection activities should not adversely impede aircraft servicing or catering.

6.3.3 Because *of* the wide range *of* inspection areas involved, ramp inspections are usually limited in scope. There are many preparatory or post flight actions that occur simultaneously and one inspector cannot physically observe all *of* these action for a particular flight. For this reason, the inspector should vary the areas of emphasis over several inspections. For example, on one ramp inspection the inspector may decide to observe the evaluate the PIC accomplishing flight planning and the operators methods for providing the flight crew with appropriate flight planning support. On another ramp inspection, the inspector may decide to observe the PIC/Co-pilot accomplish the aircraft exterior preflight and then evaluate the aircraft interior equipment and furnishings. As an example of a ramp inspection conducted at the termination of a flight, the inspector may decide to inspect the aircraft interior equipment, furnishings, and aircraft logbooks, and then evaluate the trip paperwork turned in by the crew. In this example, the inspector may not have an opportunity to interact directly with the crew, therefore the "crewmember" inspection area would not be accomplished. Inspectors should vary both the sequence and the emphasis of the inspection areas during a ramp inspection. Inspectors should describe in their reports how the inspection was limited in scope.

6.3.4 The Air Operator Ramp Inspection Checklist/Report which is included at the end *of* this chapter will be used for all such inspections. This form contains checklist items ("reminders") that may be observed and evaluated by the inspector during the inspection. It is recommended that inspectors complete only those area of the form which have been the focus of his inspection, and document the limited nature *of* the inspection by marking "N" (Not Observed) next to the items not covered. The remainder *of* this chapter is structured around the checklist/report items.

6.4 SPECIFIC RAMP INSPECTION PRACTICES AND PROCEDURES.

1. Crewmember Inspection Area. When an inspector makes direct contact with a crewmember, the inspector should provide an official but courteous introduction, offer appropriate identification for the crewmember to inspect, and inform the crewmember that a ramp inspection is being conducted. If the direct contact is with a flight crewmember, the inspector should request to see the crewmembers license. The inspector should review the license to

see that it meets the appropriate requirements for both duty position and for the aircraft for the flight to be conducted or that was just terminated. when the direct contact is with flight crewmembers or flight attendants, the inspector should also request to examine the crewmember's professional equipment. Crewmember professional equipment includes any equipment that crewmembers are required to have according to regulation or operator policies, either on their person or that which will be available during the flight. Examples of professional equipment include aeronautical charts, appropriate operator manuals, and operable flashlights. Inspectors should determine whether the charts and manuals carried by crewmembers are current. The following is a list of other items and activities that, depending on the scope of the ramp inspection, may be observed and evaluated:

i) Flight crew flight-planning activities, such as review of weather, flight plans, anticipated takeoff weight and performance data, flight control requirements (dispatch, flight release, flight-locating, ATC flight plans).

ii) Flight attendant inspection of cabin emergency equipment and cabin setup procedures, including stowage of flight attendant baggage and professional equipment.

iii) Flight crew and flight attendant post flight logbook entries and proper use of MEL's and placards.

iv) Completed trip paperwork and the appropriate disposition of such paperwork.

v) Flight crew aircraft preflight activities, such as exterior walk around, logbook reviews, and cockpit setup procedures, including stowage of flight crew baggage and professional equipment.

1. Station Operations Area. This area of a ramp inspection usually involves a facility (or designated area of a facility) including related ground personnel, and is commonly referred to as "line station operations." Line Station operations include a designated location where crewmembers go to review and pick up required flight paperwork or to deposit flight reports, to send or receive communications with the operator's flight control system, and to join up with other crewmembers assigned to the flight. Line station operations also includes gates and ramp areas where passengers and cargo are enplaned and deplaned. The following is a list of items and activities that, depending on the scope of the inspection, may be observed and evaluated in this inspection area:

i) Pre-flight and post flight trip paperwork, such as load manifests, flight plans, weather reports and forecasts, NOTAM's, dispatch or flight messages and operator bulletins.

ii) Methods used by the operator to comply with MEL and CDL requirements, particularly the preflight information provided to the crew.

iii) Adequacy of facility with respect to crewmember and ground personnel use for completing preflight and post flight responsibilities, including work areas and administrative support (such as forms, charts, and copy machines when required by company procedures).

iv) Usability and currency of operator manuals and aircraft performance information maintained at the line station operations area for crew and ground personnel use.

v) Company communication capabilities and procedures.

vi) Passenger enplaning and deplaning including public protection procedures and carry-on baggage screening.

vii) Cargo and baggage loading and stowage procedures and unloading procedures.

6.4.3 Aircraft inspection Area. Ramp inspections should include at least an examination of the aircraft's registration, airworthiness certificate, and maintenance logbook. Inspectors should plan their ramp inspection activities so that any inspection of the aircraft's interior equipment and furnishings would be conducted either before passengers are enplaned or after they are deplaned. The following is a list of items, similar to those covered during a Cabin Enroute Inspection, that may be observed in this inspection area:

i) Aircraft registration and airworthiness certificates.

ii) Aircraft and cabin logbooks (or equivalent) (open discrepancies, carryover items, and cabin equipment items needing repair or replacement).

iii) Appropriate placarding.

iv) Fire extinguishers (correct types, numbers and locations; properly serviced, safeties, tagged, and stowed).

v) Portable oxygen bottles (correct numbers and locations; properly serviced, tagged, and stowed; condition of mask, tubing, and connectors).

vi) Protective breathing equipment (property; located, stowed, and sealed).

vii) First aid kits and emergency medical kits (correct numbers and locations; properly sealed, tagged, and stowed).

viii) Megaphones (correct numbers and locations; in operable condition, and properly stowed).

ix) Crash axe (properly located and stowed).

x) Passenger briefing cards (one at each seat position; appropriate to aircraft; required information including emergency exit operation, slides, oxygen use, seatbelt use, brace positions, flotation devices; appropriate pictorials for extended overwater operations, including ditching exists, life preserver, and life or slideraft in-flight location).

xi) Passenger seats (not blocking emergency exits; TSO label on flotation cushions; cushion intact; latching mechanism on tray tables; armrests have self-contained and removable ashtrays, seatbelts properly installed, operational, and not frayed or twisted; life preservers available and C02 cartridges not expired).

xii) Passenger oxygen service units (closed and latched with no extended red service indicators or pins).

xiii) Flight attendant stations (operable seat retraction and restraint systems; properly secured; harnesses not frayed or twisted; seat cushions intact; headrests in correct position; PA system and interphone).

xiv) Galley (latching mechanisms - primary and secondary; tie downs; condition to restraints; padding; proper fit of cover and lining of trash receptacles; hot liquid restraint systems; accessibility and identification of circuit breakers and water shut-off valves; non-skid floor; girt bar corroded or blocked by debris; clean stationary cart tie downs (mushrooms); galley carts in good condition and properly stowed; lower lobe galley emergency cabin floor exits passable and not blocked by carpeting, if Applicable).

xv) Galley personnel lift, if applicable (no movement up or down with doors open; safety interlock system; proper operation of activation switches).

xvi) lavatories (smoke alarm; no-smoking placards; ashtrays proper fit to cover and lining of trash receptacles: automatic fire extinguisher systems).

xvii) Stowage compartments (weight restriction placards; restraints and latching mechanisms; compliance with stowage requirements; accessibility to emergency equipment; carry-on baggage provisions).

xviii) Required placards and signs (seatbelt, flotation equipment placards at seats; emergency/safety equipment placards; weight restriction placards; no-smoking/seat belt signs; no-smoking placards; exit signs and placards, including door opening instructions).

xix) Emergency lighting system (operation independent of main system; floor proximity escape path system; controllability from cockpit).

xx). Exits (general condition; door seals; girt bars and brackets; handle mechanisms; signs; placards; slide or slide raft connections and pressure indications; lights and switches).

xxi) Main landing gear viewing ports, if applicable (cleanliness and usability).

6.4.4 Servicing and maintenance inspection Area. The servicing and maintenance of the aircraft may be observed at any time during the ramp inspection. The following is a list of some areas that may be observed and evaluated in this inspection area:

i) Fuelling procedures (ground wires in place; fuel slip properly completed; fuller trained in the operators specific procedures; fuel tested for water contamination).

ii) Routine maintenance (qualifications of AME's/Mechanics, repairmen or service agents; appropriate logbook entries).

iii) De-icing procedures (where applicable) (compliance with company procedures; proper glycol/water ratios and temperatures; avoidance of' engine /APU inlets; removal of all snow and ice; trailing and leading edges free of snow and ice and covered completely with de-icing fluid)

6.4.5 Ramp and Gate Condition and Activity Inspection Area. During ramp inspection, inspectors should observe and evaluate the ramp and gate surface condition as well as any support activities being conducted during an inspection. Inspectors should observe vehicular operations on the ramp and around gate areas and other aircraft operations during marshalling, taxiing, or towing operations. Inspectors should report any condition that appears to be unsafe or could potentially be unsafe. The following is a list of sonic items that may be observed and evaluated in this inspection area:

i) Ramp, apron, and taxiway surfaces (general condition; cracks; holes; uneven surfaces).

ii) Contamination debris (FOD; fuel, oil, or hydraulic spills; snow and ice accumulations).

iii) Marking and Lighting (taxi lines; gate markings; signs; signals).

iv) Construction (appropriate barriers; signs; markings; flags).

v) Vehicular operations (conducted safely around aircraft and gate areas by qualified personnel).

1.4.6 Security: As safety of aircraft could be endangered if the ramp area is not adequately secured and people working on them and in the aircraft are properly security cleared, inspection of the area should cover airline security measures in the area weak areas should be identified during inspection.

1.4.7 Foreign Carriers: Inspection of foreign Carriers is carried out under the directions of AIC 5 of 2009. Modelled on the basis of EU's SAFA program, as a safety oversight function for carriers operating into and out of India. It is pertinent to mention that utmost care and discretion be exercised, with tact and diplomacy. There is no reason of getting into a debate or discussion with any crew-members or airline representative. All findings may be restricted to being enumerated in the form/ checklist, and will be forwarded to the office of the CFOI, irrespective of the level of findings. Of course, it is understood that not only are the items more pertinent to long-haul international operations be checked but also no delay be caused to the flight in any way.

While the checklist is given in the AIC document the items which may be looked into beyond regular domestic operations are, AOP and it's Ops Specs. FDTL & crew reporting times, Cabin Crew currency & SEP's (or equivalent) GD and it's conformity to the crew list. Aircraft documents and their validity, Load and Trim (specific attention need be paid to carriers authorised for Load and Trim via ACARS/ Satellite, CFP's and FOB with respect to filed alternate and carried forward MELs. Static cabin inspection is also included.

CHAPTER 7 - FLIGHT CREW PROFICIENCY AND COMPETENCY CHECKS

7.1 BACKGROUND AND OBJECTIVES. Operators are required to conduct proficiency and competency checks to ensure that all flight crew are competently performing their duties and responsibilities. ICAO Annex 6, Part 1, Section 9.4.4, CAR Section 8 Series O Part II and CAR Section 8 Series F Part II requires that such checks shall be performed twice within the period of one year. Paragraph 9.6.28. of the ICOA Doc 8335 Manual of Procedures for Operations Certification and Inspection states that inspectors must ensure that proficiency checks of the operator's flight crew personnel are carried out in accordance with the standards and frequency prescribed in the regulations. Inspectors should be authorized to observe these checks at any time as an inspection job function. The objectives of a proficiency or competency check inspection are as follows:

i) Evaluate individual Flight crew performing their duties and responsibilities.

ii) Assess the effectiveness of the operator's training program.

iii) Evaluate individual check Flight crew performing their duties and responsibilities.

iv) Evaluate the effectiveness of the operator's standardization, and quality control program.

v) Identify previously approved or accepted operational procedures, manuals, or checklists which are deficient.

vi) Assess the effectiveness of the operator's simulators and equipment.

7.2. GENERAL INSPECTION PRACTICES AND PROCEDURES. The inspector should be adequately, prepared to conduct the inspection.

7.2.1 In addition to becoming thoroughly familiar with the operator's manuals, the inspector should be required to qualify in the operation of the aircraft, simulators, or training devices. Inspectors should be familiar with the following areas before conducting proficiency and competency check inspections:

i) Inspector, safety pilot, and crew qualification for simulators, flight training devices, and aircraft.

ii) Acceptable methods for presenting the manoeuvres and events of the check in simulators, flight training devices, and aircraft.

iii) Acceptable standards of Flight crew performance.

7.2.2 During the check, the check flight crew should be responsible for:

i) Ensuring that all required flight test events are completed in a realistic flight scenario.

ii) Providing suitable briefings before and after the session.

iii) Fairly and objectively evaluating the flight crew being checked.

7.2.3 After the check is completed, the inspector should debrief the flight crew who were checked only if he feels the check flight crew debriefing was inadequate. The inspector is responsible for debriefing the check flight crew regarding the manner in which he carried out the responsibilities enumerated in the preceding paragraph. This debriefing should be accomplished alone with the check flight crew and hot in the company of the flight crew who were checked.

7.2.3.1 The inspector's primary responsibility is to observe and evaluate the overall conduct of the check. The inspector should refrain from asking questions of the flight crew being checked, refrain from attempting to control the type of sequence of checking events, and refrain from interfering in any way with the manner in which the check flight crew conducts the check.

7.2.3.2 It is the check flight crew responsibility to conduct a complete and proper check. The inspector’s responsibility is to evaluate the performance of both the flight crew being checked and the check flight crew and to properly record the inspection results. Should the check flight crew fail to complete all required item on a check, the inspector should bring this fact to the attention of check flight crew and ensure all events are completed.

7.2.4 While certain training benefits are gained during proficiency or competency checks, the purpose of a check is to have the flight crew state of proficiency evaluated and to ensure that the last training conducted has been sufficient to ensure the flight crew proficiency throughout the interim period. If the check flight crew conducting the check observes minor deficiencies (and believes that minor instruction may correct the situation) the check flight crew may suspend the check temporarily, conduct remedial training, and then resume the check. However, check flight crew should not repeat events several times until they are performed in an acceptable manner. When a proficiency or competency check is interrupted to conduct training, that check should still be completed within the time frame the

operator originally scheduled for the check. If training is so extensive that the check cannot be completed in the allotted time, the inspector should grade the check unsatisfactory and place the flight crew in additional training. (Refer CAP 7200 Designated Examiner Manual)

7.2.4.2 Inspectors should record the time required to complete checks and amount of remedial training conducted while the check was suspended.

The DGCA should compare the time these checks require when conducted by check Flight crew and inspectors.

7.3 PROFICIENCY/COMPETENCY CHECK INSPECTION AREAS. From the preceding discussion, it can be seen that five specific areas may be observed and evaluated. These areas have been incorporated in the Aircrew Proficiency and Competency Check Inspection/Checklist which appears at the end of this chapter and will be used for all such inspections. The five areas are as follows:

i) Competency of flight crew being checked.
ii) Content of check.
iii) Competency of check flight crew as an evaluator.
iv) Manuals, procedures, and checklists.
v) Flight simulators and training equipment.

7.3.1 In filling out the form, the inspector should take the following information into consideration:

7.3.1.1 Flight crew Competency. An flight crew should perform specific events in an aircraft, an aircraft simulator, a flight training device, or a combination thereof. The events performed during the check depend on the type of operation conducted and the aircrew's duty position (PIC, Co-Pilot). This inspection area applies to the knowledge, ability, and proficiency of the flight crew receiving the proficiency or competency check, as demonstrated by his performance during a series of required manoeuvres and flight regimes. The inspector takes into account such items as;

i) Knowledge of the aircraft, its systems, and components
ii) For pilots: Proper control of airspeed, configuration, direction, altitude, and attitude in accordance with the procedures and limitations contained in the manufacturers airplane flight manual, the operator's Aircraft Operating Manual, Checklists, and other materials applicable to the type of aircraft.
iii) For pilots: Control of aircraft as delineated above over full range

of maneouvers and flight regimes including takeoff, climb, cruise, descent, approach, landing and during emergency and abnormal situations.

iv) Crew coordination (cockpit resource management and coordination with ground personnel and cabin crew)

v) Possession of appropriate ratings and endorsements)

7.3.1.2 A list of graded manoeuvres which CARs should typically require flight crew to compete is contained in the “Pilot Proficiency” sections of the Proficiency Check report at the end of this chapter. Separate columns are provided for manoeuvres or procedures which are accomplished in the aircraft and/or simulator.

7.3.2. Content of Check. In this inspection area the inspector evaluates whether all the manoeuvres required by CAR's were accomplished in the course of the check.

7.3.3. Competency of Check Flight crew as an Evaluator. This inspection area applies to the inspector evaluating the manner in completeness of the check flight crew observations, and the validity of the outcome. Such items as check flight crew briefings (before and after the check), are observed and evaluated by the inspector during the conduct of the check.

7.3.4. Manuals, Procedures and Checklists. This inspection refers to the inspector observing the manuals, procedures, and checklists used during the conduct of the flight. While conducting proficiency or competency check inspections, inspectors have an opportunity to observe deficiencies in previously approved or accepted material that can only be detected while the material is in use. such observations may provide the only opportunities inspectors have to observe the operator's non-normal and emergency .procedures in use.

1.3.5. Flight Simulators and Training Equipment. This inspection area refers to the condition of the aircraft, simulators, or training devices which are used to conduct the check. When evaluating the equipment, inspectors should determine that required inspections have been conducted, observed discrepancies are recorded on maintenance logs, and the equipment in an adequate state of repair.

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VOLUME 4 - TRAINING AND QUALIFICATION

CHAPTER 1 - DGCA TRAINING PROGRAM

1 GENERAL

1.1. International aviation standards require that a civil aviation authority provide its safety inspectors with comprehensive training to ensure the competency of its inspector workforce.

1.2 The DGCA's Training Program has four components: (a) initial training, (b) recurrent training, (c) on-the-job (OJT) and (d) specialized (or continuation) training. The multiple facets of the Training Program reflect the fact that the program is intended to support not only training for new inspectors, but professional development of inspectors throughout their careers.

1.3 This Chapter 1 provides the general guidelines and procedures for the DGCA's Training Program, which are further tailored in subsequent Chapters in accordance with the duties and responsibilities of the respective Directorates.

2 POLICY ON INSPECTOR TRAINING

2.1 The Director General acknowledges that all inspectors must be appropriately qualified and trained to perform all duties and tasks required. The Director General will ensure that all such personnel are provided the initial training necessary to carry out their duties, as set forth in this Chapter.

2.2 The Director also acknowledges that recurrent training is required for inspectors to be able to keep abreast of industry and DCCA developments and thereby continue to be able to provide appropriate safety oversight. The Director General will ensure such recurrent training is provided, as set forth in this Chapter

2.3. This training policy is effective immediately and shall remain in force until revoked or amended.

3. WORKFORCE EVALUATION METHODOLOGY

3.1 ICAO Document 9734 Safety Oversight Manual, Part A, Section 3.4.2: Staffing Requirements, states that a civil aviation authority must be properly organized and staffed with qualified personnel capable of accomplishing the wide range of technical duties involved in safety oversight.

3.2 The DGCA conducts a periodic review from time to time as required, and at least annually, to determine whether or not there needs to be a change in the number of inspectors authorized. As part of this review and in order to ensure that the DGCA has a sufficient number of inspectors to carry out its surveillance and certification activities, the DGCA utilizes its Workforce Evaluation Methodology. The DGCA's Workforce Evaluation Methodology is set forth in Appendix A.

4. INDIVIDUAL TRAINING PLANS

The Director General will ensure appropriate training by directing that the Training Directorate establish and maintain Individual Training Plans that sets out the training to be provided to each of their inspectors for at least a 12-month period. Each inspector's plan will be updated by managers as necessary to adjust the timing of the planned courses and activities, or to amend the list of planned courses and activities to meet a newly identified need.

FIGURE 1-1: GENERAL TRAINING REQUIREMENTS

INITIAL TRAINING AND ON-THE-JOB TRAINING **(Starting at Month 1 through Month 12)**
▪ Initial DGCA Training course ▪ On-the-Job training (OJT) pursuant to applicable job tasks ⬇ Inspector Status (Fully Qualified)
RECURRENT TRAINING **(Starting from Month 13 and repeated at intervals shown below)**
▪ Recurrent DGCA Training course (annually)
SPECIALIZED TRAINING **(one-time courses taken any time – ongoing process)**
▪ Technical and developmental courses as applicable to a particular inspector's duties

5. INITIAL TRAINING

5.1 Each respective Directorate provides an in-house Initial Training course for each newly hired inspector. The purpose of this course is to familiarize him/her with the DGCA and the functioning of the various Directorates.

5.2 Newly recruited inspectors are required to complete the Initial Training course within the stipulated time frame in order to start OJT their respective areas of posting. This will enable them to be more useful in providing assistance to senior officers at the preparatory level of work.

5.3 The module or syllabus for the each of the courses is provided in the chapters for each respective Directorate.

6 RECURRENT TRAINING

6.1 Each respective Directorate provides an in-house Recurrent Training course for inspectors that are already having working knowledge and experience. The purpose of the Recurrent Training course is to improve the inspector's decision-making capability, develop maturity to share more responsibilities in elevated position, and provide knowledge with international standards.

6.2 The Recurrent Training course may share content with the Initial Training course, but varies in emphasis from one to other, as the Initial Training course provides a fuller treatment across all subject area. The Recurrent Training course focuses on changes from year to year in regulations, guidance material as well as significant events occurring in the industry and the local environment from time to time.

7 ON-THE-JOB TRAINING

7.1 OJT provides direct experience in the work environment in which the inspector is performing or will be performing on the job. The DGCA's structured OJT policy and procedure is set forth in greater detail in Appendix B.

7.2 OJT entails the completion of three levels of training for each technical job function. The three levels encompass the study of reference materials, task observation, and task performance, as further defined below. An OJT trainer must validate all Levels (I, II, and III) of performance.

(a) **Level I Training (Knowledge):** Level I training is related to that body of knowledge associated with a specific job task. This knowledge is contained in orders, rules, guidance, and standards. Level I training typically involve a review of all reference materials applicable to the job tasks for which training has been identified. Level I training may be satisfied through classroom training or other delivery methods.

(b) **Level II Training (Task Observation):** Level II training involves observation of the performance of specific job tasks. This training typically involves the trainee observing and/or assisting the OJT

trainer in the performance of those specific job tasks for which the trainee will be held accountable. Level II training may be satisfied through appropriate training that provides the opportunity for the trainee to observe and/or assist the trainer performing the task.

(c) **Level III Training (Task Performance):** Level III training involves the application of knowledge and skills to the performance of specific job tasks. Typically, the trainee performs the job task under the observation of a qualified OJT trainer. The trainer assesses the performance of the task and indicates on the trainee's OJT training plan when Level III performance is achieved.

7.3 The OJT process begins with the DGCA formulating an OJT plan for the newly hired inspector. The OJT plan is based on specific job tasks that are part of his or her particular work assignments; allows for credit for classroom training (such as indoctrination) or prior experience that equate to Level I or Level II OJT for one or more tasks; and includes, as applicable, specialized tasks that newly hired inspectors may need to be able to perform.

8. SPECIALIZED TRAINING

8.1 The purpose of specialized (or continuation) training is to upgrade the knowledge and competency of existing inspectors on par with international standards and for efficient functioning.

8.2 Specialized and technical training programs are developed by DGCA as applicable to a particular inspector's duties. The DGCA works in association with international organizations under special training programs/schemes like US-India Cooperation project, India-US ACP program, COSCAP, etc. Duration of training is based on the course and the hosting organization.

9. EXTERNAL TRAINING

9.1 Formal training courses may be obtained from external training centres, or through relevant manufacturer training programs, subject to the approval of the DGCA based on the procedure set forth herein.

9.2 The DGCA evaluates the quality of such training pursuant to the following procedures (see also Figure 1-1 below):

(1) **Pre-Course Request:** The DGCA requests that the external training centre submit the training course syllabus for review.

(2) **Pre-Course Review and Approval:** The DGCA evaluates the general completeness, content and overall quality of training course information, and confirms whether the training adheres to

the requirements of the CARs and DGCA standards. Following review, the DGCA either determines that the training course is acceptable or unacceptable.

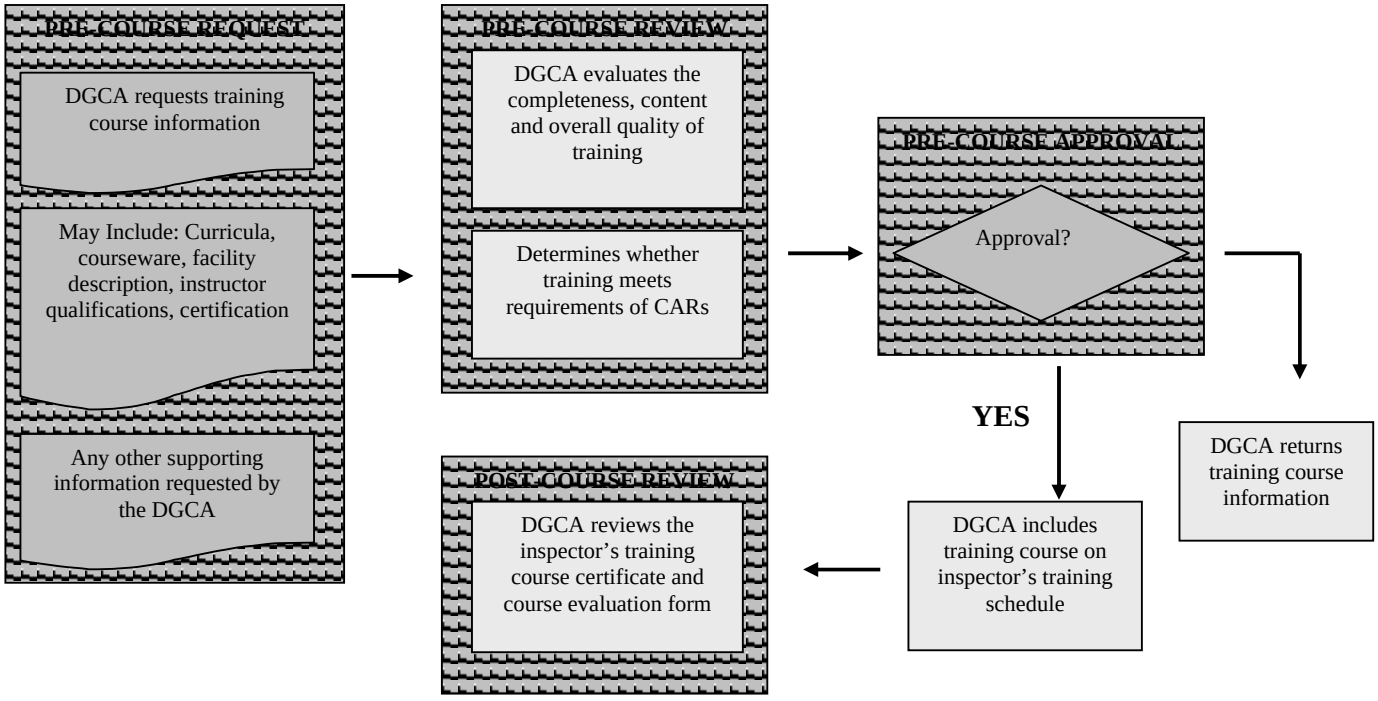
(3) **Post-Course Evaluation:** Following a DGCA inspector's completion of an accepted training course, the inspector will submit the following for review:

(a) The certificate indicating completion of the training course

(b) A course evaluation form that rates the quality of the training curricula, courseware, facilities, instructor, and any other appropriate type of supporting information

Note: Appendix D provides the Training Evaluation Form used by DGCA inspectors to review a course.

Figure 1-1
Review and Approval of Training Course at External Training Centres



9.3 **Authorization of External Aircraft Type Training Examiners for New Aircraft Types**

When an aircraft operator applies for a new aircraft to be added to its Air Operator Permit (AOP), the DGCA determines resources available for initial qualification. In the event of a new aircraft type, the DGCA may not have inspectors that are qualified in that aircraft type. In such instances, the DGCA implements the following procedure:

(1) The DGCA coordinates with another State or external training centre that has appropriately licensed personnel and qualified inspector/examiner, respectively, who can administer practical test to DGCA inspectors.

(2) The DGCA selects the qualified inspector/examiner that meets the criteria set forth below for DGCA trainers and ensures that this designee is familiar with and competent in CAR requirements and DGCA standards for administering practical tests.

(3) The DGCA issues a one-time written authorization to the external qualified inspector/designee examiner to conduct a practical test for inspector in accordance with the CAR requirements and DGCA standards.

(4) The qualified inspector/designee examiner must be identified by name and possess the requisite qualifications.

(5) The initial inspector and the AOP pilot applicants (the initial cadre) train together at the same time at the external training centre.

(6) The practical test is administered by the qualified inspector/designee examiner to the DGCA inspector first.

(7) The DGCA inspector, now qualified, then administers practical test to AOP pilot applicants for type rating in accordance with CAR requirements and DGCA standards.

(8) The DGCA inspector is qualified to approve elements for AOP certification and AOP pilot applicants are qualified to develop manuals/training program for review and approval by the DGCA.

10 SELECTION OF DGCA TRAINERS

10.1 The training provided to DGCA inspectors are delivered by individuals specifically designated by the DGCA as trainers. Selection of trainers is based on the following criteria:

(1) Qualification in the job specialty and job tasks they will be authorized to teach, according to CAR requirements and DGCA standards.

(2) Advanced knowledge, skill, and experience that match the identified training needs; along with the necessary skills to support and enhance training and create a learning environment

(3) Ability to demonstrate a task in a clear and logical order

(4) Willingness to prepare training and to instruct and coach trainees on performance of tasks being trained

(5) Ability to communicate technical information, concepts, and procedures clearly, concisely, and positively in a variety of ways

(6) Desire to be an instructor

(7) Compliance with the standards and definitions of professionalism

10.2 The DGCA will provide qualified trainers with a written designation stating that the individual is DGCA trainer and authorized to deliver the training – e.g., in-house training courses, OJT training and external aircraft type training.

11 AIRCRAFT TYPE TRAINING FOR CERTIFICATION

11.1 In the event an Air Operators Certificate applicant proposes to begin operations with an aircraft type for which the DGCA has no qualified Flight Operations Inspector (FOI) and Airworthiness Inspector (AWI), the DGCA must make the appropriate inspector(s) available for training on the new aircraft type. Generally, the inspectors will receive the necessary training by participating in the initial cadre training provided to the operator's personnel.

11.2 The aircraft type-specific training required does not have to be completed prior to the pre-application phase, formal application phase, or early part of the document evaluation and inspection phase, but does have to be completed before the document evaluation and inspection phases can be completed. Specifically, at least one FOI must have recent experience on the aircraft type prior to conducting the following:

(1) Approval of training programmes

(2) Approval of Aircraft Check System

(3) Acceptance of the Aircraft Operations Manual

(4) Approval of the MEL

(5) Approval of all-weather Operations

(6) Approval of EDTO (ETOPS) Operations/Special Operations

(7) Surveillance of demonstration flights

(8) Flight simulator acceptance

(9) Check pilot/Instructor/Examiner authorization

11.3 Where the crew complement for the aircraft includes a flight engineer, the FOI must be systems operator- (flight engineer) qualified for that aircraft type.

11.4 Other FOI and AWI also will be provided with basic information regarding the type of aircraft equipment, navigational systems, and/or proposed techniques associated with the new aircraft type.

12 REVIEW OF TRAINING PROGRAM

12.1 DGCA will periodically review the Training Program and carry out revisions so that the training of inspectors is continuously updated to keep abreast of the latest developments taking place in the aviation field.

12.2 Analysis of feedback received after each training should be considered for revision of policies, syllabus, and curriculum. The DGCA utilizes a Training Evaluation Form, set forth in Appendix D, for this purpose.

13 TRAINING FILES AND RECORDS

13.1 All training completed by an inspector will be documented in his or her inspector training file.

13.2 Inspectors who complete a formal external or in-house training course will receive a Certificate of Completion to be added to their inspector training file.

13.3 When OJT is delivered to an inspector, the individual OJT activity will be notated on the inspector's OJT plan.

13.4 The Training Directorate will establish and maintain an inspector training file for each inspector that includes the following:

Section 1 – Employment Documents
- Application
- Appointment Letter
- Contract
- Job Description

Section 2 – Credentials
- DGCA Inspector Identification
- BCAS Functionary Identification (as applicable)

Section 3 – Qualifications
- Diploma
- License
- Ratings (as applicable)

Section 4 – Initial Training
- DGCA Initial Training Course

Section 5 – OJT Training
- DGCA On-the-Job Training

Section 6 – Continuation/Specialized Training
- Documentation of Continuation/Specialized Training

Section 7 – Miscellaneous
- Additional training, qualifications

Section 8 – Recurrent Training
- DGCA Recurrent Training Course

APPENDIX A

INSPECTOR EVALUATION METHODOLOGY

The Inspector Evaluation Methodology allows the DGCA to determine whether it has an adequate number of inspectors, or needs to hire additional personnel. The methodology is conducted separately for each type of inspector group (e.g., operations, cabin safety, airworthiness). The Inspector Workforce Evaluation Methodology should be re-visited periodically to account for aviation system growth or when a brand new aircraft type is introduced into the system.

STEP 1: CALCULATE TOTAL INSPECTOR HOURS REQUIRED

1. First, it is necessary to calculate Total DGCA Inspector Hours Required. This requires collection of three types of information:

    a. The identification of each work function broken down into categories of activities
        i. Surveillance activities
        ii. Renewal activities
        iii. Certification activities
        iv. Other regulatory and administrative activities

    b. The annual frequency of each work function

    c. The total number of inspector hours required to complete each work function

2. Enter the information into an Excel spreadsheet (see Figure 1 for a sample Workforce Evaluation Worksheet). The total number of annual hours required for each work function can be calculated by multiplying the times per year each work function is performed by the number of inspector hours required to complete each work function.

3. Calculate the total DGCA Inspector Hours Required by each inspector group separately (Operations, Airworthiness, and Cabin Safety), then find the sum of the total number of hours required for each work function performed by that inspector group.

STEP 2: CALCULATE TOTAL INSPECTOR HOURS AVAILABLE

1. There are two important components to calculating Total Inspector Hours Available:

    a. The number of hours that each inspector is available to conduct work functions

b. The total number of inspectors

2. To determine the number of work hours, assumptions must be made regarding:

   a. The number of hours each day each inspector is expected to work (typically 8 hours per day)

   b. The number of days annually an inspector will work (typically between 1500 and 1600 hours)

   c. The number of work days annually the inspector will be in training, on vacation or unavailable to work for other reasons. For example, If it is assumed an inspector works 8 hours per day, 5 days per week, and devotes 5 weeks to vacation and training activities, the inspector's available work hours will be 8 hours x 220 work days = 1,760.

3. This analysis is conducted separately for each inspector group. Therefore, the total number of inspectors refers to the total number of current, qualified and available inspectors in the group currently being analyzed.

4. Once these two numbers are determined, Total Inspector Hours Available can be calculated by finding the sum of the number of hours each inspector is available to perform work function and the total number of inspectors. Thus, if each inspector has 1,760 hours available, and there are 6 inspectors, then the Total Inspector Hours Available are 10,560 (1,760 x 6).

STEP 3: COMPARE TOTAL HOURS REQUIRED AND TOTAL HOURS AVAILABLE

Compare the Total Inspector Hours Required calculated in Step 1 to the Total Inspector Hours Available calculated in Step 2. If the Total Inspector Hours Required is less than the Total Inspector Hours Available, then the DGCA likely has sufficient staffing. However, if the Total Inspector Hours Required is more than the Total Inspector Hours Available, the DGCA may want to consider adding additional staff.

STEP 4: ENSURE INSPECTOR WORKFORCE IS PROPERLY QUALIFIED AND TRAINED

This step involves taking the number of inspectors required and determining the necessary training and qualification requirements for the inspectors to meet the demands of the civil aviation system. These training requirements include the necessary inspector training (initial, recurrent and on-the-job training) as well as

the necessary aircraft type-rating qualifications needed for effective oversight of air operators.

Figure A.I. Sample Operations Inspector Workforce Evaluation Worksheet

Operations Inspector Workforce Evaluation

Region	New Delhi

STEP 1: CALCULATE TOTAL INSPECTOR HOURS REQUIRED

Work Function	Annual Frequency	Hours per Function	Hours Required
Function 1	36	24	864
Function 2	48	6	288
Function 3	24	4	96
Function 4	108	2	216
Function 5	12	24	288
Function 6	18	36	648
		Total Inspector Hours Required	2400

STEP 2: CALCULATE TOTAL INSPECTOR HOURS AVAILABLE

Annual Hours Available per Ops Inspector	1760
Currnet Number of Ops Inspectors	2
Total Ops Inspector Hours Available	3520

STEP 3: COMPARE TOTAL HOURS REQUIRED TO TOTAL HOURS AVAILABLE

Total Inspector Hours Available	3520
Total Inspector Hours Required	2400
Difference	1120

APPENDIX B

STRUCTURED OJT

PART I – INTRODUCTION

What is OJT?

"OJT is planned training conducted at a work site by an authorized Trainer. This type of training provides direct experience in the work environment in which the officer is performing or will be performing on the job."

Value of OJT

The OJT Program is an essential part of officer's training and adds value to the overall training effort.

1. Skills Application

By applying knowledge and skills learned, the trainee officer completes the learning process. At the same time, the Directorate gains confidence in the trainee's capabilities. With the completion of OJT the Directorate can certify the trainee as a qualified officer.

2. Flexibility

The officer's OJT Program is a process for implementation and management of a structured OJT system using DGCA guidelines. The program can be tailored to the tasks in which officer needs training and may also include training on tasks unique to an office.

3. Timeliness

OJT can be provided immediately when the need or opportunity arises.

4. Locally Managed

OJT empowers an officer to develop needed skills. When a training need exists, OJT can be provided. OJT has been identified as the best method for delivering the needed training, or if no other means to receive the training is available.

5. Career Broadening

Throughout the career, OJT remains a valuable tool for continually broadening technical skills and capabilities of an officer. Cross training in tasks to be co ordinated with other directorates may not be possible through other training

means due to resource limitations but may be more easily attainable through a structured OJT Program.

PART II – OJT BASICS

Definitions

Certification	Certification work activities validate the competency of an air operator, maintenance organization, or certifying personnel and their compliance with appropriate statutory and regulatory requirements prior to active performance in the aviation industry.
Level I OJT Training	Level I training is related to that body of knowledge associated with a specific job task. This knowledge is contained in orders, rules, guidance, and standards. Level I training typically involve a review of all reference materials applicable to the job tasks for which training has been identified. Level I training may be satisfied through classroom training or other delivery methods.
Level II OJT Training	Level II training involves observation of the performance of specific job tasks. This training typically involves the trainee observing and/or assisting the OJT trainer in the performance of those specific job tasks for which the trainee will be held accountable. Level II training may be satisfied through appropriate training that provides the opportunity for the trainee to observe and/or assist the trainer performing the task.
Level III OJT Training	Level III training involves the application of knowledge and skills to the performance of specific job tasks. Typically, the trainee performs the job task under the observation of a qualified OJT trainer. The trainer assesses the performance of the task and indicates on the trainee's OJT training plan when Level III performance is achieved.
Principal OJT Program Coordinator	The Principal OJT Program Coordinator is the in-charge of implementing the OJT Program in DGCA as a whole. He is responsible for approving the OJT Program prepared by OJT Program Coordinator of each Directorate of DGCA and reviewing the implementation and improvements in OJT Program based on feedback.
OJT Program Coordinator	The officer who is designated to establish and maintain the OJT Program for the respective Directorate. This is a key role in establishing the OJT Program.
Training Coordinator	The officer who is designated to establish and implement the OJT program in each respective Directorate. This is a key role in the implementation of the OJT Program.
OJT Trainer	A trained officer designated to provide OJT instruction to trainees on specific tasks at Levels I, II, and III, in accordance with the procedures established in this document. OJT trainers should be designated in each respective office.

OJT Record	A tool that is used to record the trainee's OJT plan, progress, and completion.
OJT Steering Committee	A group of officers from the headquarters who have oversight of the OJT Program.
OJT Task	A unit of work that contains logical and necessary steps in the performance of a job duty, typically with a defined beginning and ending. The task must produce a meaningful result and is one that can best being taught and learned on the job.
Surveillance	One of the most significant duties of the DGCA is to conduct surveillance in all areas of air transportation. The primary objective of surveillance activities is to provide the DGCA with accurate, real-time, comprehensive information for the evaluation of the safety status of the air transportation system.

Job Task Analysis

A Job Task is, "A single identifiable unit of work that is regularly accomplished by an inspector in the course of a normal work year." Each Job Task is supported by a detailed Job Task Analysis. This analysis is a written summary that describes how to perform the Job Task. More specifically a Job Task Analysis is, "A written description of the materials, procedures, and requirements that are used to accomplish a Job Task, including, supporting documentation, completion standards, narrative description of the task, and step by step listing of the required sub tasks." Trainee Officers must complete OJT for each Job Task that they will be asked to perform without assistance. OJT Program Co coordinator is responsible for determining which tasks are required for each officer based on the trainee officer's work assignment. OJT must be completed for each of the required Job Tasks.

PART III – ROLES AND RESPONSIBILITIES

The OJT Steering Committee

An OJT Steering Committee may be established by DGCA to assist in the management of the
OJT program of the respective Directorate. When so designated, the OJT Steering Committee should be composed of OJT Program Coordinators of each Directorate of DGCA and chaired by the Principal OJT Program Coordinator. The committee provides oversight and guidance for the implementation of the OJT Program of each Directorate. The Committee shall monitor and assess accomplishment of program objectives and shall recommend changes to the program. The committee shall meet at least annually to discuss training issues.

OJT Program Coordinator

An OJT Program Coordinator shall be of the rank of Deputy Director General of each Directorate. The OJT Program Coordinator is responsible for the implementation of the OJT program in the respective Directorate.

The OJT Program Coordinator is responsible for the items discussed below.

- Ensuring that this OJT Program is implemented efficiently and effectively,
- Ensuring the designation of OJT Trainers who meet the selection criteria outlined below,
- Planning and budgeting to ensure that the OJT Program continuously receives the
- resources necessary for the effective accomplishment of its goals,
- Specifying the particular Job Tasks that apply to trainee officers in the office,
- Establishing a standardized method to ensure that trainees are provided adequate time and resources required for completing OJT training on specific tasks,
- Obtaining assistance from an OJT Trainer located at another office when a training requirement cannot be fulfilled locally due to the lack of internal instructional expertise,
- Ensuring that trainees begin their OJT Program as soon as possible,
- Authorizing and signing the Training Record for OJT,
- Reviewing with each OJT Trainer, on a regular basis, the progress of assigned trainee officers and initiating any corrective action necessary to improve performance and/or training deficiencies,
- Final sign off in the Training Record of an officer to certify completion of all OJT requirements for each Job Task. This sign off is DGCA authorization for the officer to begin accomplishing that Job Task without further assistance,
- Evaluating OJT Trainer performance annually with a mid year review based on
    - feedback from trainees
    - the Trainer's ability to meet training plans
    - the selection criteria
- Assuming the role of mediator and decision maker when there are OJT problems and/or disagreements involving OJT Trainers and trainee officers,
- Acting upon feedback from trainees concerning the OJT Program,
- Assisting the OJT Program Coordinator in implementing program improvements,
- Verifying that, prior to conducting OJT, selected OJT Trainers have successfully completed required training courses,
- Monitoring OJT Trainer performance and guiding OJT Trainers on effective methods and techniques

OJT Trainers

- Completing a course of training in Instructional Techniques,
- Conducting OJT with trainees,
- Ensuring that OJT instruction is consistent with applicable DGCA regulations and practices,
- Updating general entries in OJT trainee records,
- Entering data in a trainee's training record after instruction when necessary to certify completion of individual Job Tasks,
- Exhibiting objective, constructive, empathetic, and other behaviors conducive to supporting all OJT trainees,
- Conducting OJT according to the trainee's individual training plan as developed by the OJT Program Coordinator/Training Coordinator.
- Assessing the trainee level of knowledge and skill on specific tasks,
- Providing structured, well planned, and documented OJT training with stated objectives and expected levels of performance,
- Communicating with the OJT Program Coordinator about trainee progress, and
- Ensuring that the trainee has accomplished all elements of OJT instruction associated with a particular task in an acceptable manner before notifying the OJT Program Coordinator that the trainee is able to perform the task without assistance and is ready for final sign off.

Trainee

- Fulfilling their OJT requirements as established within the office,
- Participating in the feedback process to help ensure continual improvement including feedback on the performance of the Trainer, and
- Participating, in a constructive manner, in their own training progress reviews and checking the accuracy of completed tasks during the review meetings.

PART IV – OJT SYSTEM IMPLEMENTATION

This part of the OJT policy discusses the implementation of the OJT system process. This process consists of three phases:

Phase 1 Planning
Phase 2 Delivery
Phase 3 Evaluation

Phase 1 – Planning

Designation of the OJT Program Coordinator

DDG (Headquarters) is designated as the OJT Program Coordinator.

Designation of Training Coordinator

Director of AED is designated as Training Coordinator. The Training Coordinator is very important to the success of the OJT program and has the responsibility to see that the program is implemented according to DGCA policy. The Training Coordinator shall report to the OJT Program Coordinator.

The following should be ensured by the Training Coordinator

- Should communicate with people at all levels
- Should make presentations to groups
- Should set up a program and to oversee its implementation
- Should have Knowledge of OJT instruction
- Should track OJT for each officer in the Region.
- Should complete a course of training on instructional techniques

Selection of OJT Trainer

The OJT Program Co ordinator and the Training Coordinator should estimate trainer
requirements while planning the OJT program. At a minimum, there should be one trainer for each represented occupational specialty in the office. As a maximum, not more than 25% of all officers in the office should be OJT trainer. When selecting OJT trainer following should be considered:

- How many officers, including new recruits, are expected to need OJT for the planning
- period?
- What knowledge and skills will the OJT trainer require? What specialties are represented
- in the needed training? This should come from the profiles developed earlier.
- How can trainer resources be best utilized?

The following criteria should be used to identify OJT trainers:

- Qualification in the job specialty and job tasks they are intended to teach advanced knowledge, skill, and experience that match the identified training needs along with the necessary skills to support and enhance training and create a learning environment
- Ability to demonstrate a task in a clear and logical order
- Willingness to prepare training, instruct and coach trainees on performance of tasks being trained
- Ability to communicate technical information, concepts, and procedures clearly, concisely, and positively in a variety of ways
- Desire to be an trainer
- Compliance with the standards and definitions of professionalism

It is important for all the trainers to attend a course of training on instructional techniques to ensure consistency in delivering OJT and in evaluating trainee

progress. The Training Coordinator will work with the trainer to reinforce training concepts and the value of a structured, planned training activity for each trainee.

Once individuals are appropriately trained to be OJT trainer, the Training Coordinator will prepare and sign a letter stating that the individual meets the criteria to be a trainer, that he has completed the formal training course on instructional techniques, and is authorized as an OJT trainer. The letter will list the specific roles and responsibilities assigned to the OJT trainer if different from those roles and responsibilities listed for OJT trainer in this policy.
Only those OJT trainers who are so authorised are considered to be OJT trainers under the respective OJT Program.

Development of Individual OJT Plans

Development of the trainee's Individual OJT Plan

The Training Coordinator shall review training program expectations and responsibilities to be sure that the trainee understands the process. The following points should be discussed:

- Review of the importance and goals of OJT
- Review of the roles of the trainee, OJT trainer, Training Coordinator, and the OJT Program Coordinator
- Review of the OJT process
- Informing the trainee that OJT is a means of receiving individualised training but does not substitute for required formal classroom training.

The Training Coordinator shall consider the proposed work assignment for the trainee. He may decide that the trainee should become proficient in all the job functions performed in the office.

Phase 2 – Delivery

Scheduling of OJT

The Training coordinator and OJT trainers will jointly develop a proposed schedule for providing training according to the trainee's individual OJT training plan developed.
The Training Coordinator shall ensure that sufficient time is allotted to allow the OJT to take place. When practical, the trainee's work program should be adjusted to accommodate the trainer's schedule. When allocating work time to accomplish OJT, consideration should be given to the specific level of the OJT training to be accomplished (Level I, II, or III) and the complexity of the task. The following should be considered for the different levels of training:

- Level I training is typically a self study effort on the part of the trainee with guided discussion and validation conducted by the OJT trainer afterwards.

The time allowed for this should be appropriate to the complexity of the task and the amount of material to be studied.

- Levels II and III involve the actual performance of the task. A good general guideline is to take the normal amount of time to conduct the task and add an additional 50% of that time to allow for instruction and questions. For example, a task that normally takes 1.0 hour should be allowed 1.5 hours for OJT.

As the process of scheduling OJT is continuous in nature, the schedule for delivering OJT should be updated as opportunities for OJT arise.

Preparation to Deliver OJT

When preparing for the delivery of OJT, trainer should review the Job Task Analysis,
associated technical guidance materials, and OJT Training Guidance

Job Task Analysis

- To review the Job Task Analysis for the task to be presented.
- To gather all needed equipment, hardware, and software (as applicable).
- To determine if any assistance from other sources is needed regarding the task and how it should be performed. If personnel other than an authorized OJT trainer are used as informational resources, the training should be observed by an authorized OJT trainer to ensure compliance with the training plan and other objectives contained in this policy.
- To create a specific lesson plan for the training event when necessary to properly organize the training.
- To finalize logistical arrangements for training in the office or off site as appropriate to the training event.

Guidance Materials

To review all technical guidance material to ensure that the training will be conducted in accordance with current approved procedures. These guidance materials may include such things as orders, Aircraft Engineering Procedure Manual, regulations, ICAO publications and other documents that are relevant to the task.

The OJT training Process

The OJT training process follows a logical progression of three levels as shown in the table below:

Level	Trainee	Trainer
Level I – Knowledge	Study	Discuss
Level II – Understanding	Observe	Demonstrate
Level III – Performance	Perform	Evaluate

Level I training is typically a self study effort on the part of the trainee with guided discussion and validation conducted by the OJT trainer afterwards. Levels II and III involve the actual performance of the task.

Each task assigned to a trainee requires certification at all three levels. Both formal training and OJT are integral parts of a well-developed training program and should be scheduled to complement each other.

Teaching of the Task

The content of each training session must be appropriate to the task and to the level of training that is being presented. A typical OJT training event will include some or all of the following activities:

- Establishment of a training environment
- Development of a rapport with the trainee
- State of learning objectives and expected performance outcomes
- Review of technical requirements
- Assessment of the trainee's existing knowledge and skill in performing the task
- Demonstration of tasks
- Motivation to the trainee
- Observation of the trainee performing the task
- Allowing sufficient time for the trainee to practice task
- Asking questions to check for understanding
- Providing explanations
- Reviewing and summarizing information
- Providing feedback to evaluate the trainee's performance
- To Provide additional training when necessary

Updating of OJT Records

Permanent training records must be maintained for each officer. This shall be accomplished using a hard copy paper system, and also through computerized record keeping system.

The Training Coordinator is responsible to maintain and update Training Records. This responsibility may be delegated to the OJT trainers when necessary. Entries should be updated as training is delivered. The OJT Program Coordinator, Training Coordinator, and OJT trainers have write access to the training records. Trainees have read only access to their own records

When a training event is successfully completed the OJT trainer should notify the Training Coordinator. This can be done via e mail or another locally implemented procedure that will provide a record that a trainee has completed training on a task. The notification should include:

- The task trained
- The level of training completed
- The date that training was completed
- Confirmation that the trainee successfully achieved the objectives

On receipt of report from OJT trainer about completion of a OJT task, the Training Coordinator shall issue a certificate to the trainee intimating such completion and authorizing him to carry out the tasks without any further assistance. With the Training Coordinator approval the OJT trainer will then update the trainee's records with the new information.

Conducting Review

A simple review of the trainee's OJT performance should be conducted at the end of each OJT training session. More in depth reviews of the trainee's progress in the OJT training program should be conducted quarterly, or as needed. The frequency of these reviews will depend on various factors such as the amount of OJT assigned, problems encountered, and the changing needs of the office. This meeting should be attended by the Training Coordinator, OJT trainer and the trainee.

The Training Coordinator shall schedule a meeting with the trainee and the OJT trainer. The following areas should be discussed:

- Review of OJT since the last meeting
- Present training status
- Accuracy of completed tasks
- Trainee feedback on the OJT process
- Problems encountered
- Modification of trainee's OJT plan as needed
- Identification of next tasks to be presented
- Identification of opportunities for OJT

If problems are encountered between the trainee and his trainer the Training Coordinator should meet with the trainer to discuss the issues and provide coaching as needed.

Phase 3 – Evaluation

Evaluate the OJT Program

The program shall be evaluated by the Training Coordinator with the input of OJT trainers, trainees. This evaluation shall be done at least twice a year. The Training Coordinator will evaluate the OJT program through meetings and observation. The review is one way of determining if the OJT program is working properly. The feedback should be analyzed and suggested changes discussed with the OJT Program Coordinator. These evaluations should be conducted even if there are no new recruits in the office. On site visits may be conducted on an as needed basis.

Communicate Findings

The Training Coordinator is responsible for communicating program suggestions and changes for his Directorate. This can include any recommendations arising from the evaluation. A meeting shall be scheduled to discuss the OJT program. The meeting should be attended by the OJT Program Coordinator, Training Coordinator and OJT Trainers to discuss the status of the program, problems encountered, and suggestions for improvement. The results of these meetings shall be implemented to improve the OJT Program in the Directorate.

Implementation of Improvements

The OJT Program Coordinator is critical in implementing changes as needed to ensure the officers develop the skills and capabilities. The OJT Program Coordinator shall develop an implementation plan for needed improvements, answering the following types of questions:

- What improvements are needed to the OJT Program?
- What are the benefits of these improvements?
- What are the competing needs?
- Do these improvements affect DGCA standards and policies?
- What approvals are required?
- What budgetary support is required?
- What is the plan for implementing improvements?
- Who is responsible for carrying out the improvements?
- What is the estimated timeline?

Conclusion:

Structured OJT is a critical component of the DGCA's officer's training system. It is a core training process that is required in the training program. An effective OJT Program contributes to the vision and goals of DGCA and fulfils the international obligations required of ICAO member States.

APPENDIX C

EMPLOYEE'S ON-THE-JOB TRAINING RECORD

1. **IDENTIFYING INFORMATION**

Last Name: _____ First Name: _____ Initials: _____

Position: _____ Section / Division: _____

2. **OJT ACTIVITY DOCUMENTATION**

Job Task or Subject Matter	Date Level Completed			*Name(s) and Signature of OJT Trainer
	Level I (Understanding)	Level II (Demonstration)	Level III (Performance)	

3. CERTIFICATION

(a) * By appending my signature in this column, I certify that the trainee has completed the OJT documented above and is competent to perform the task without supervision.

(b) I hereby confirm that I have completed the OJT documented above with the qualified OJT Trainer(s).

Signature: _____ Date: _____

APPENDIX D

TRAINING EVALUATION FORM						
IDENTIFYING INFORMATION						
Name:						
Training Location:						
Course Title:						
Instructor Name:						
Course Completion Date:						
EVALUATION						
Rate each of the following statements using the scale below. Indicate your rating by marking the applicable letter to the right of each statement. Place additional comments in the space provided on page two. Use back of the page if you need more room for comments and suggestions.						
A = Strongly Agree	**B = Agree**	**C = Neither Agree or Disagree**	**D = Disagree**		**E = Strongly Disagree**	
1. The objectives were clearly presented for each lesson.			A	B	C	D E
2. The design (organization, pace, sequence, transitions, feedback) of the lessons enhanced by ability to meet the course/lesson objectives.			A	B	C	D E
3. The lesson content was directly related to the stated intent (objectives) of the lessons.			A	B	C	D E
4. The information in the course materials supported the lesson objectives.			A	B	C	D E
5. The learning environment was free from distractions.			A	B	C	D E
6. The instructor provided assistance when I needed it.			A	B	C	D E
7. The facilities supported the lesson objectives.			A	B	C	D E
8. The course provided opportunity to demonstrate my knowledge and practice my skills.			A	B	C	D E
9. The skill performance evaluations assessed			A	B	C	D E

my proficiency level.					
10. The tests reflected the course materials presented.	A	B	C	D	E
11. I feel confident that I met the stated objectives	A	B	C	D	E
12. Overall, this training was highly effective.	A	B	C	D	E

Training Evaluation Form (contd.)

COMMENTS
If you answered “Disagree” or “Strongly Disagree,” please explain why.
Overall course evaluation:
Describe the effectiveness of instructors:
Please note any additional suggestions for improving the course:

CHAPTER 2 – THE FLIGHT STANDARDS DIRECTORATE

2.1 Introduction

The Flight Standards Directorate, other than many functions, performs the DGCA's task of maintaining regular surveillance of the operational aspects of all Air Transport Operators in order to ensure safe and efficient commercial air transport services in the country. This surveillance covers not only airlines operating scheduled services but also non-scheduled operators and General Aviation and includes both fixed wing aircraft and helicopters. The Directorate will be responsible to carry out Surveillance Inspection of the system and Certification Checks of aircrew as a part of its regular inspection programme. The personnel of this Directorate are responsible for carrying out Safety Oversight Responsibilities assigned by the Convention on International Civil Aviation and its Annexes except for those elements that pertain to determining whether or not there is a need for a service and for determining the financial viability of an operator or a potential operator.

In order to accomplish these tasks, qualified Flight Operations Inspectors (FOIs) will be appointed to the DGCA against established posts, who will conduct Certiciation/Surveillance/Inspection/Checks and similar other functions as per the policies laid down in ICAO Annexes, Docs, CAR's and elsewhere as desired by the DGCA.

2.2 Statutory Authority

The Flight Standards Directorate is organized as a component part of DGCA, authorized by the Government of India and receives responsibilities from the Director General of Civil Aviation to carry out all required functions.

The activities of the Flight Operations Inspectors will be governed by the following: -

a. Chapter 9, Para 9.4.4. of 'DOC 8335 AN/879 of the ICAO Manual of Procedures for Operation Inspection, Certification and Continued Surveillance

b. Indian Aircraft Act & Rules, AIC's, CAR's, and applicable Operations Circulars.

c. FOI Manual and any directives given by the Director General

d. Other relevant circulars and instructions that may be issued from time to time

2.3 Staffing Requirements

Staffing of the Flight Standards Directorate with a sufficient number of suitable Flight Operations Inspectors, experienced, qualified and capable of accomplishing the wide range of activities is paramount to the success of the Safety Oversight Programme of the Civil Aviation Department.

Flight Operations Inspectors (FOIs) must not only have the knowledge, experience and qualifications to carry out their duties in a professionally sound manner, but also possess the personality to win the respect and confidence of the operators. This would require a reasonable level of tact, understanding, firmness, impartiality, integrity and an exemplary personal conduct both in the air and on the ground. How well they do this, will be the real measure of their success as Flight Operations Inspectors.

Technical Staff of the Directorate normally have the qualification and experience of ATC, Licensing and regional offices of DGCA. In order to ensure that the technical staffs contribute effectively towards accomplishment of Directorate's overall objectives it is incumbent on Chief Flight Operations Inspector (CFOI) to nominate and encourage their participation in various technical courses, which may enhance their knowledge in discharge of day-to-day functions. OJT and their inclusion in appropriate surveillance activities will help the Directorate to benefit from their qualification and experience.

2.4 Authorized Strength Of Flight Operations Inspectors

The level of and the growth of aviation in the country will determine the number of Flight Operations Inspectors required. A periodic review will take place from time to time as required to determine whether or not there needs to be a change in the number of Inspectors authorized. The workforce evaluation methodology is given in Volume 4 Chapter 1 Appendix A.

2.5 Recruitment Policy Of Flight Operations Inspector And Qualification Requirement

Persons seeking a position as a Flight Operations Inspector should have held previous appointments either in operational management, as an airline pilot/flight engineer or training instructor, or as a military pilot/flight

engineer where experience in air transport operations would have been acquired. Detailed Recruitment Rules and qualifying experience are defined by the DGCA.
Ideally, a Flight Operations Inspector should have extensive operational experience, not less than 5,000 hours as pilot in command/flight engineer of air transport civil or military aircraft. However, the Director General, Civil Aviation Authority may relax the above experience requirement, at his discretion, whenever he would feel necessary.

The Flight Operations Inspectors should have the following qualifications:

a. For Pilot Certification tasks, they should hold a current ATPL/ATPL (H)/FE licence with an endorsement on the type of aircraft for which they are being utilized.
b. For General Aviation surveillance tasks, they must hold or have held previously an ATPL/ATPL (H)/FE licence and/ or a Flight Instructor's rating.
c. For airline surveillance, they must hold or have held previously a type rating on a turbine-powered multi-engine aircraft.
d. A type rating on a particular type of aircraft is not required for the conduct of cockpit enroute inspections.
e. They should have a broad air transport background of 15 years or more, either airline or military.
f. Experience with technical training including visual aids, training devices and aircraft flight simulators; and
g. Have a reputation for possessing qualities of initiative, tact, tolerance and patience.

2.6 Flight Operations Inspectors' Training:

The newly recruited Flight Operations Inspector's must successfully complete the under mentioned training syllabus followed by a "bridging" course to cover topics for FOIs in need for additional instruction essentially covering special operations/authorizations. From 01 Sep 2014 onwards the Initial Inspector Training will be done as a modular 10 day course (Appendix E) which is mentioned below the course syllabus effective up to 31 Aug 2014. The course will be conducted by authorised DGCA trainers. For recurrent training for FOI shall be conducted annually with the same training curriculum abridged to spread over 5 days and will include all changes/amendments in the previous year that are pertinent to the assigned tasks.

Day	Training curriculum	Duration
Day 1	• Joining formalities *-Submission of details for Administration* *-Forms for credentials* *-Personal files and resume*	6 hours
	• DGCA Organisation and Structure; role and functions of all DGCA Directorates including regional offices	
	• Legislation and regulatory requirements: ICAO constitution and structure; Aircraft Rules, CARs, AICs, other circulars including Delegation of Powers	
	Role of FSD: • Functions, duties and responsibilities • Orientation - functioning of FID and FID interaction with other Directorates o safety oversight functions o training programme of airline operators o standardization of training captains o examination of operational documents o operational approvals o certification of airline operators • Review of regulatory and guidance material for flight operations inspectors: • Indian Aircraft Rules; CARs; AIC's, Circulars • ICAO Annexes and Docs: Specific references to items applicable to FSD operational aspects.	

	• Enforcement manual • ICAO- Co-operative development of Operational Safety and Continuing Airworthiness Program - *COSCAP*	
	Role of FOIs • Qualification, Experience, Duties and Responsibilities of Flight Operations Inspectors • FOI Manual: Inspectors Conversion/ Type-rating currency and refresher training • Flight Operations Inspector's Handbook - Training and Qualification Manual – An Overview. • Ethics, job conduct and reputation – JDG	

Course syllabus till 31 Aug 2014 (additional "bridging" course as needed)

Day 2	Air Operator Certification • Relevant Rules; CARs and Circulars, CAP 3100 • Air Operator's Administration- Operations Manual Volume 2 • Role of FSD and FOIs	6 hours
	Flight Operations Inspector Manual - Volume 1 - Air Operator Certification (refer CAP 3100 AOC Manual): - Process for grant of Air Operator Permit - Role of FSD - Operational Inspections (pre grant of AOP) - Pre-application and Formal Meetings - Analysis of type of Operation	

	planned. -Consideration for International Operations - Requirements of foreign States. - Operations Specifications - Special Operations - Proving Flights and Demonstrations- Requirements	
	Approval/ nomination process for: • F*light Dispatchers* • *SFIs* • *Check Pilots* • *Instructors* *Examiners* Guidance for conducting Viva- Voce • Relevance to applicability • Experience level and suitability. • Technical Knowledge commensurate with above.	
	Validation of Foreign Licences/ Conduct of FATA interview • Regulatory requirements (reference to rule and CAR) • Formation of Board • Role of FOI • Procedure: o documents to be reviewed/ Original Documents o Employer Indoctrination o Special Operations Authorization o Medical certification o Experience verification o English Language Proficiency o Parent State certification of Training Captain o Employer's Representation	
	Licensing of Pilots • Rules and regulations • Types of licences	

	• Role of FSD and FOIs o Check pilots, instructors and examiners o FATA o TRTOs o Flying training organizations o Medical assessment system • Interaction with training and licensing directorate	

Day 3	Approval process for authorisation of Training done at approved facilities overseas: o Regulatory requirements (reference to rule and CAR) o Required Certification: TRTO & Simulator Approvals and validity o Evaluation of Training Program o Minimum Manufacturer's plan as compared to DGCA requirements o Information to DTL.	6 hours
	Special Operations • Regulations • Approval procedures for Cat II/ III; RVSM; RNAV/RNP, MNPS, EDTO etc.	
	Special topics • Monsoon session • ALAR kit • Jet Upset Recovery	
	Lecture on Research and Development Department – Dir(R&D) • Role and functioning • Approval of Schedules	
	Surveillance by FSD/ FOIs • Safety Oversight:: As a function of States Responsibility • Scope • Surveillance of Air Operator Permit Holder – Scheduled Air	

	Carriers • Surveillance of Non- Scheduled Operators - Differences • Surveillance of Private/ General Aviation Aircraft.	

Day 4	**FOI Manual Volume 3**: Surveillance of Certified Operators: Continued Surveillance • Regulatory requirements: Rules and CARs (CAR Section 8 Series 'O' Part II) • Review of Procedure for Operations Inspections Certification and Continued Surveillance • Surveillance programme • Areas of Surveillance/ Inspection by FOIs including Checklists to be used (Explanations/ Discussions) - *Ramp Inspection* - *Cabin inspection* - *En-Route Inspection* - *Station Facility Inspection* • Report writing and procedure thereafter: - *Submission* - *Collation in records* - *Reference to operators about observations* - *Level I/ Level II Actions* - *Handling of comments/ ATR from Operators* - *Final Disposal of Report and closing the Loop*	6 hours

Day 5	Continued from Day 3: • Detailed briefing on process of conducting Surveillance Checks with respect to Various Report Forms. • Past Surveillance Reports (review of sample cases) • Discussions on Follow up and Action Taken Reports (sample cases)	6 hours
	Foreign Airlines Surveillance • Regulatory requirements - ICAO, AIC • Team Composition and programme • Scope of Inspection • Use of Checklist • Reporting	
	Airport Authority of India • Interaction with DGCA • Vetting of trial Instrument Approach Procedures prior to promulgation • Aeronautical Information Publication: A regulatory responsibility vested with AAI • Regulatory Oversight of AAI activities.	

Day 6	Audits & Inspections (Regulatory, Main Base, Station Facility of Operator, Apron, Cabin, Cockpit). • **Operations Audit Check lists**: - *Previous Audits*	6 hours

	- *Air Operator Permit and Operations Specifications* - *Company Manuals* - *Publications Library* - *Management Personnel and Operations Co-ordination* - *Company Check Pilot Program* - *Flight Crew Training Program* - *Flight Crew Training Records* - *Operational Control System* - *Flight Watch System Air Operators* - *Flight Following system for Air Operators* - *Flight Documentation* - *Aircraft Inspection* - *Aircraft Documentation* - *Minimum Equipment List* • **Cabin Safety**: - *Pre Audit* - *Inspection Review* - *Safety Features Card* - *Carry on Baggage Program* - *Flight Attendants Stations*	

Day 7	Contd. From previous day.	6 hours

	• Audit (On Site) In-flight inspection (to be reviewed w.r.t operations audit checklist) - *Apron Safety* - *Flight Attendants* - *Crew Briefing* - *Passenger Briefing* - *Carry on Baggage* - *Cabin Checks* - *Electronic Devices* - *Alcohol/ Drugs* - *Flight Attendant Station* - *Turbulence Procedures* • Audit (On Site) Aircraft Inspection • Flight Attendant Training Program and Records • Audit (On Site) DGR Program • Flight Inspection and Route Check • Aircraft Performance and Operating Limitations • Air Operator Flight Safety Program	
	Orientation – Inspection of • Operations Manuals: o Regulatory requirements o Scrutiny of the manual • *Contents- relevance to type of Operation.*	

	• *Guidelines under CAP 8100* • *Company procedure for Changes and Updates.* • *Emphasis on areas to be reviewed (with Sample)*	

Day 8	Orientation - (continued) Training Manuals o Regulatory requirements o Scrutiny of the manual ▪ *Specific to type of Operation of Carrier* ▪ *With reference to approved training programs* ▪ *Air Operator Training Program checklist* ▪ *Special Operations* ▪ *Recurrency program* ▪ *TRTO authorizations and privileges* ▪ *Accountable Manager- requirements and responsibility of Chief of Training* ▪ *Incorporation and Implementation of Operations Circulars and Regulatory Directives.* ▪ *Update and changes procedure*	6 hours
	Standard Operating Procedures: o Regulatory requirements o Review of the procedure ▪ *Specific to type of*	

	Air carrier Operation ▪ *Incorporation of Special Procedures* ▪ *Special Operations (RVSM; ETOPS; RNAV; ILS Category II/ III; Low Visibility Operations; MNPS, EDTO etc)* ▪ *Operations specific to relevant routes requiring special Procedures (when not addressed in a separate route manual)-Engine Out procedures/ use of oxygen for specific routes* ▪ *Monsoon Operations* ▪ *Best Industry Practices*	

Day 9	Orientation - (continued) Minimum Equipment List (MEL): o Regulatory requirements and role of FOI o Scrutiny of the manual • *Master Minimum Equipment: Provision of Manufacturer* • *Reference to AFM* • *MEL; approval by DGCA as a minimum of MMEL* • *Special Procedures: applicability* • *Operational Notes and procedures* • *Sample cases where states' procedures require*	

	higher standards than MMEL- extrapolation of Ops procedures	
	Airworthiness aspects of MEL – DAW	
	Enforcement Policy – DRI o Regulations o Enforcement Manual – Policy and Procedures o Detailed review on the procedure for enforcement	
	Regulatory Audits of DGCA – JDG • Purpose • Team Composition • Methodology • Reporting	
	Note: The above training would be followed by OJT on under supervision of Qualified Inspectors.	
	Accident prevention and investigation course - Director of Air Safety	5 days
	Total Training hours	84 hours

Course syllabus from 01 Sep 2014

APPENDIX E

DGCA Initial Inspector Training: Course Syllabus

Course Title: Initial Inspector Training

This course ensures that new DGCA personnel who will be serving as Operations Inspectors, Airworthiness Inspectors, Cabin Safety Inspectors, Personnel Licensing Inspectors, or other types of Inspectors have a clear understanding of the Civil Aviation Requirements (CARs); Inspector Guidance Material; basic job aides and data systems; and other materials, tools, and systems needed to perform their Inspector job functions.

Successful completion of this training course will prepare new inspectors to begin on-the-job training (OJT) on all aspects of their core duties.

Duration: Delivered in **12 Modules** over approximately **two-weeks**

Training Time: Direct Instruction Time: **24 Hours** Total Instruction and Self-Study Time: **64-70 Hours**

Content: This training covers the following topics:

Module 1: International Civil Aviation Organization & Chicago Convention □
Module 2: Annexes of the Chicago Convention □
Module 3: DGCA Working Arrangements and Other International Agreements □
Module 4: The India Civil Aviation Environment □
Module 5: India Civil Aviation Requirements and Regulatory Overview □
Module 6: DGCA Overview □
Module 7: Indian Civil Aviation Requirements (CARs) □
Module 8: Inspector Guidance Material Overview □
Module 9: The 5-Phase Certification Process □
Module 10: Introduction to Inspector Guidance – Part 1: Flight Operations, Airworthiness, and Personnel Licensing Inspector Guidance □
Module 11: Introduction to Inspector Guidance – Part 2: Continuous Surveillance and Enforcement
Module 12: Test

Training Modes: One-on-one or small group (maximum of 5 students per

Instructor) verbal instruction supported with hand-outs and reference materials related to the various training topics, and with student self-study in the form of reading assignments. Due to the individualized/small group nature of the training, audiovisual presentation of course material is limited to select topics.

Student : All course participants are expected to fully attend to the presentation of course

Responsibilities: Material, complete assigned reading and self-study activities on time, and ask questions as necessary to ensure they thoroughly understand the information provided. Students also will be expected to complete a course evaluation.

Testing: A comprehensive examination covering all training topics is administered to participants at the end of the course. The examination must be passed to be credited with course completion.

APPENDIX E Module 1: International Civil Aviation Organization & Chicago

Convention Instructional Time: 2.5 hours

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. An overview of the general content of the Convention and Annexes 2. Overview of the International Civil Aviation Organization (ICAO) 3. An overview of the key provisions of the Convention	45 minutes 45 minutes 60 minutes
SELF-STUDY ASSIGNMENT	Review ICAO website and Convention table of contents	60 minutes
		Total: 3.5 hours

APPENDIX E Module 2: Annexes of the Chicago Convention Instructional

Time: 2.5 hours

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. The process for making and amending the ICAO Annexes 2. Overview of the general format of the Annexes 3. An overview of the provisions of the Annexes: A. Annex 1 – Personnel Licensing B. Annex 2 – Rules of the Air C. Annex 3 – Meteorological Services for Air Navig. D. Annex 4 – Aeronautical Charts E. Annex 5 – Units of Measurement Used in Air Navigation F. Annex 6 a. Part I – Commercial Air Transport Operations – Aeroplane b. Part II – General Aviation Operations – Aeroplane c. Part III, Section 2 – Commercial Air Transport Operations – Helicopters d. Part III, Section 3 – General Aviation Operations – Helicopters G. Annex 7 – Registration and Markings H. Annex 8 – Airworthiness I. Annex 9 – Facilitation J. Annex 10 – Aeronautical Telecommunication K. Annex 11 – Air Traffic Services L. Annex 12 – Search and Rescue M. Annex 13 – Aircraft Accident Investigation N. Annex 14 – (Vol I – Aerodromes, Vol II – Heliports) O. Annex 15 – Aeronautical Information Services P. Annex 16 – Environmental Protection Q. Annex 17 – Aviation Security R. Annex 18 –Safe Transport of Dangerous Goods by Air 4. ICAO's eight (8) critical elements of a Safety Oversight Program	30 minutes 20 minutes 60 minutes 10 minutes
HANDOUT	Chicago Convention and Annexes	N/A
EXERCISE	Trainee will be asked to provide an oral summary of the information provided back to the instructor	30 minutes
SELF-STUDY ASSIGNMENT	Read through the Chicago Convention and Annexes 1, 6, and 8	10 hours
		Total: 12.5 hours

APPENDIX E Module 3: DGCA Working Arrangements and other International Agreements Instructional Time 1.0 hour

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. Explain the purpose and key aspects of the DGCA's Working Arrangements with other CAAs 2. Explain the purpose and key aspects other relevant International Agreements 3. Discuss implications of key provisions for Inspectors	30 minutes 15 minutes 15 minutes
		Total: 1.0 hour

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. Describe Air Operating Permit (AOP) Holders Based in India	10 minutes
	2. Describe Major Types/Number of Airmen in India	10 minutes
	3. Describe Aviation Training Organizations Used in India	10 minutes
	4. Describe Continuing Airworthiness Management Organizations within Operators	10 minutes
	5. Describe Approved Maintenance Organizations Used	10 minutes
	6. Describe Aerodromes in India	5 minutes
	7. Discuss Expected Changes/Development Plans Regarding Any of the Above	5 minutes
HANDOUT	India aviation environment diagram	N/A
SELF-STUDY ASSIGNMENT	Review websites maintained by the main entities discussed	30 minutes
		Total: 1.5 hours

APPENDIX E Module 4: The India Civil Aviation Environment Instructional Time: 1.0 hour

APPENDIX E Module 5: India Civil Aviation Requirements and Regulatory

Overview Instructional Time: 2.0 hours

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. Provide overview of The Aviation Law a. History b. Major Provisions c. Major Amendments	30 minutes
	2. Provide an orientation to the CARs a. Organization and Content b. Relationship to ICAO SARPs c. Relationship to JAR/EASA, FARs, and other CAA regulations d. Amendment Process	45 minutes
	3. Describe regulatory system established under the Aviation Law and CARs a. DGCA Powers b. DGCA Roles and Responsibilities	30 minutes
EXERCISE	Trainee will be asked to provide an oral summary of the information presented	15 minutes
SELF-STUDY ASSIGNMENT	Read The Aviation Law	60 minutes
		Total: 3 hours

APPENDIX E Module 6: DGCA Overview Instructional Time: 1.0 hour

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. Provide introduction to the structure of the DGCA and office locations	10 minutes
	2. Describe roles and responsibilities of each division/office	10 minutes
	3. Describe DGCA Technical Library contents and explain how it is accessed and used	10 minutes
	4. Describe Airworthiness technical library and how it is accessed and used	10 minutes
	5. Discuss Delegation of Authority a. Delegation to Director General (DG) b. Delegation from DG to DGCA Joint Director Generals (JDGs) and Inspectors c. Delegation from DG to external organizations and individuals (e.g. Designated Examiners) d. Delegation of Authority document process e. How delegations can be limited or lifted	20 minutes
SELF-STUDY ASSIGNMENT	Visit the Technical Library	30 minutes
		Total: 1.5 hours

APPENDIX E Module 7: Indian Civil Aviation Requirements (CARs)

Instructional Time: 3.0 hours

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. An overview of the general format of the CARs 2. General Overview of each CAR Section (following table of contents for each) a. Section 1 – General b. Section 2 – Airworthiness c. Section 3 – Air Transport d. Section 4 – Aerodrome Standards and Licensing e. Section 5 – Air Safety f. Section 6 – Design Standards and Type Certification g. Section 7 – Flight Crew Standards, Training and Licensing h. Section 8 – Aircraft Operations i. Section 9 – Air Space and Air Traffic Management j. Section 11 – Safe Transport of Dangerous Goods by Air	30 minutes 130 minutes
EXERCISES	Trainee will be asked to provide an oral summary of the information provided back to the instructor	20 minutes
SELF-STUDY ASSIGNMENTS	Read through the latest version of the CARs	12 hours
		Total: 15 hours

APPENDIX E Module 8: Inspector Guidance Material Overview Instructional

Time: 1.0 hour

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	An overview of Inspector Guidance Material 1. CAP 8200 Flight Operations Inspector Manual 2. Airworthiness Procedures Manual 3. CAP 3100 Air Operator Certification Manual 4. CAP 8100 Preparation and Certification of Operations Manual 5. Aircraft Engineering Directorate Procedures Handbook 6. Surveillance Procedures Manual 7. Procedures and Training Manual 8. Personnel Licensing Handbook 9. Enforcement Policy and Procedures Manual 10. Directorate of Flying Training Procedures Manual 11. Other Guidance	60 minutes
		Total: 1.0 hours

APPENDIX E Module 9: The 5-Phase Certification Process Instructional

Time: 4.0 hours

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	Review the 5-Phase Certification Process as explained in CAP 3100: 1. Pre-Application Phase 2. Formal Application Phase 3. Document Review Phase 4. Demonstration and Inspection Phase 5. Certification Phase	4 hours
HANDOUTS	ICAO Document 9734 – Safety Oversight Manual ICAO Five-Phase Certification Process Diagram	N/A
EXERCISES	Trainee will be asked to provide an oral summary of the information provided back to the instructor	30 minutes
SELF-STUDY	Read ICAO Document 9734 Review Certification Process diagram	2.5 hours
		Total: 7 hours

APPENDIX E Module 10: Introduction to Inspector Guidance – Part 1 Flight Operations, Airworthiness, and Personnel Licensing Inspector Guidance

Instructional Time: 3.5 hours

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. Flight Operations Inspector Guidance Review (CAP 8200) 2. Airworthiness Inspector Guidance Review (Airworthiness Procedures Manual) 3. Procedures and Training Manual (Flight Crew Licensing)	1 hour 1 hour 1 hour
HANDOUT	Inspector Guidance Materials	N/A
EXERCISE	Trainee will complete a worksheet that requires the entry of an Inspector Guidance Material citation for various types of information	30 minutes
SELF-STUDY	Read Guidance Material Relevant to Position	10 hours
		Total: 13.5 hours

APPENDIX E

Module 11: Introduction to Inspector Guidance – Part 2 Continuous Surveillance and Enforcement Instructional Time: 2.5 hours

COMPONENT	CONTENT	TIME REQUIREMENT
DIRECT INSTRUCTION	1. Surveillance Procedures Manual 2. Enforcement Policy and Procedures Manual 3. Annual Surveillance Plan	1 hour 1 hour 30 minutes
HANDOUTS	Guidance Materials Annual Surveillance Plan	N/A
SELF-STUDY	Review Guidance Materials and Surveillance Plan	2 hours
		Total: 4.5 hours

APPENDIX E Module 12: Written Examination Testing Time: 3.0 hours

COMPONENT	CONTENT	TIME REQUIREMENT
SELF-STUDY	Review all course material	**5-10 hours** depending on the individual trainee
TEST ADMINISTRATION	Provide test materials Administer the examination process	**3 hours**

prior to an FOI being permitted to conduct certification and surveillance tasks independently. The types of OJT as a minimum are as under;

a) Surveillance
- Cockpit en route inspection
- Cabin en route inspection
- Ramp inspection
- Station facility inspection
- SOFA

b) Pilot certification
- Examiner/Instructor release check
- Examiner/Instructor Standardization check
- Check pilot release check or standardization check

c) Viva
- ATPL or Flight Dispatcher or Ground Instructor
- FATA

d) Audit
- NSOP/State Govt
- Main base inspection
- Station facility for new AOP applicant
- Regulatory audit

e) AOP Certification
- CAP 3100 implementation including operations specifications

f) Special Operations
- PBN
- RVSM
- MNPS
- Cat II/III and LVTO
- EDTO

2.7 Duties And Responsibilities Of Flight Operations Inspector

The duties and responsibilities of Flight Operations Inspectors are divided into Surveillance, Operational Inspections that could lead to Certification of an Operator and the subsequent issue of an Air Operator Permit by the Director General, and Pilot Certification. The duties, job functions and responsibilities of CFOI and FOIs are covered in a central DGCA document maintained on the DGCA web site (under About DGCA>Functions tab). These Job Functions cover both ground and in-flight inspections. The in flight inspections cover checks from the Pilots observer's seat (or pilot's seat).

Flight Operations Inspectors are to particularly ensure that: -

a. Proper analytical reports are filed and submitted promptly to the FSD on their inspections.
b. Flying and surveillance programmes are submitted in advance of each month.
c. Monthly reports are to be submitted.
d. For important occurrences requiring immediate action, a report is submitted immediately.
e. Reports on initial flight trials, such as proving or inaugural flights of operators and comments on Weather Minima are given promptly.
f. Tasks assigned by other divisions are responded to promptly. Reports may be submitted through the Director Flight Inspection.
g. All orders/notices/circulars issued by the Director Flight Inspection are adhered to and responded to promptly where necessary.
h. Use their initiative to pursue any matter that needs to be attended to by the DGCA in the interest of air safety, morale and efficiency of the system.
i. Ensure that the confidentiality of matters dealing with the reputation of individuals is always maintained.
j. Maintain a constant dialogue with operators and officials in the aviation industry on professional matters in order to keep up to date with latest developments.

2.8 Training For Flight Operations Inspectors

Technical Training of Flight Operations Inspectors may be accomplished from several sources. These can be accomplished directly from aircraft manufacturers or can be contracted to an operator of any country who offers a course that is approved for use in that country for use by their citizens, or from operators of India. Of these, the least desirable is from an operator over which the DGCA has certification and surveillance jurisdiction.

While it is not a good idea to accept training from an operator over which DGCA has jurisdiction, it is acceptable to require an operator to arrange and pay for training when the aircraft, to be inducted by that operator, is a type that the DGCA has no inspector(s) type rated in. The training mentioned here is the type rating training for one or more types of aircraft. This could be accomplished in conjunction with the training programme approval for that operator in that type of aircraft.

An Inspector is normally required to undergo a full type-rating course before embarking on pilot certification activities on that type of aircraft. Routine surveillance activities can be accomplished on any aircraft in airline service whether or not the Inspector is type rated on that particular type. In cases where the inspector is conducting a surveillance function on an aircraft in which he is not type rated, he must limit his observations and remarks to those elements that are not specific to that type of aircraft unless the occurrence is self-evident and would not take a type rated person to make an observation of that nature. An example of that would be not levelling at the altitude to which cleared or not complying with an ATC clearance.

2.9 Qualifications Required For Inspector Activities

The following is a synopsis for the qualifications required by an inspector for the carrying out of the various activities under the Safety Oversight Programme:

2.10 Pilot Certification Duties

a. Completion of a Initial Inspector Training course; and

b. Completion of type rating training on that type of aircraft within the preceding 12 months or if the initial training was completed more than 12 months, have completed recurrent training and a proficiency check . This type of duty includes:

c. Conduction of Licensing checks, line checks, proficiency checks or any other certification checks as directed for an operator's pilot(s).

2.11 Surveillance Duties

a. Completion of a Initial Inspector Training course; and

b. Hold a type rating either by actual flying or by simulator training as a pilot on any type of aircraft in scheduled airline service in India. This type of duty includes:

c. Conduction of Cockpit en-route inspections, cabin en-route inspections and any other surveillance checks as directed.

2.12 Inspector Conversion/ Type Rating Currency And Refresher Training:

Flight Operations Inspectors must be scheduled for a minimum of one refresher/recurrent training course followed by a proficiency check in a year. This training can be accomplished either in an aircraft or an approved simulator. It is preferable for this training not to be conducted by an airline over which the DGCA has certification and surveillance responsibilities for. In addition, where applicable all FOIs shall ensure that requirements of CAR Section 8 Series F Part II are also complied with.

When an Inspector is rated on two types of aircraft, he must be scheduled for refresher/recurrent training on type 'A' one-year and the next year he would be scheduled for training on 'type B'. Training requirements would alternate thereafter from 'type A' to 'type B'; etc. It is not anticipated that an Inspector will be required to maintain currency in this manner in more than two types of aircraft during any one period. To add a different type aircraft, the inspector would be required to complete the required type rating training for that type of aircraft and then replace one of the previous types with the new one, for purposes of currency.

A DGCA's Flight Operations Inspector must conduct proficiency checks for a DGCA's Flight Operations Inspector. When this is not possible or practical because of time / distances and/or expenses, by prior arrangement, a check carried out by a Flight Operations Inspector of the country in which the check is to be carried out to the level required by that authority for their own Inspectors, or to the level required by the rules of India would be acceptable.

Flight Operations Inspectors are NOT exercising the privilege of their pilots licence and are not carrying passengers for hire or compensation when they are performing DGCA required certification or surveillance activities, therefore, they are not required to maintain the same level of currency as are required of pilots that ARE exercising the privilege of their licence and carrying passengers for hire or compensation. There may be an occasion where there is no inspector qualified and current on a particular type of aircraft and there is a need for one to accomplish a task that normally required a type rating. In such a case, an inspector with a type rating on a similar aircraft could accomplish the required task after being issued a letter of authorisation from the Chief Flight Operations Inspector or his designated representative.

In order to ensure that there is, to the maximum extent possible, an inspector available to carry out a required function on a particular aircraft, each inspector should be trained and current on two types of aircraft. It is desirable though that the Inspector would have been trained on more than two types, although he may not be current on them.

The license of inspectors who have been given type rating training DGCA will be endorsed for “FOI purpose only” and inspectors are not required or expected to fly the aircraft for which type rating training has been obtained in DGCA. For these cases, currency will be maintained by recurrent training as described in the preceding paragraphs.

For inspectors who were current and holding type ratings on being recruited by DGCA, currency in flying will be maintained by ensuring 3 take offs and landing within 90 days on the aircraft type of which one could be on the Full Flight Simulator. This flying may be done with an Indian air operator having the same type of aerolane provided the operator’s requirements for currency and completion of applicable parts of the Operators Conversion Course are complied with. Such an arrangement will be authorised by DGCA in coordination with the airline.

The quantum of training required for FOIs in order to regain their currency or acquire a type rating will be approved by DGCA. In case, the license requires endorsement of the type rating, then a full type rating course would generally be required with skill tests on the simulator prior to endorsement of the license. In case a an existing rating, in order to gain currency, the following training framework would be used to approve the specific training. The skill test or PPC when required would be according to the applicable DGCA form.

TRAINING REQUIREMENT FOR THE FLIGHT OPERATIONS INSPECTORS FOR RATINGS ACQUIRED IN DGCA ("FOR FOI PURPOSE ONLY")		
The following minimum training is recommended for experienced pilots, prior to them exercising the privileges of a Flight Operations Inspector for certification purposes,		
	ABSENCE FROM FLYING	**TRAINING REQUIRED**
	MORE THAN 6 MONTHS TO 12 MONTHS AND FOR ANNUAL CHECK	
1)	***I.*** GROUND TRAINING	8 HOURS
	II. FFS TRAINING	4 HOURS
	III. PROFICIENCY CHECK (PF)	2 HOURS
	MORE THAN 12 MONTHS TO 24 MONTHS	
2)	*I.* GROUND TRAINING	32 HOURS
	II. 04 FFS TRAINING SESSION	8 HOURS
	III. PROFICIENCY CHECK (PF)	2 HOURS
	MORE THAN 24 MONTH TO 36 MONTHS	
3)	*I.* GROUND TRAINING	32 HOURS
	II. 6 FFS TRAINING SESSIONS	12 HOURS
	III. PROFICIENCY CHECK (PF)	2 HOURS
4)	**MORE THAN 36 MONTHS** FULL TYPE RATING COURSE	
5)	**CONVERSION ON A NEW TYPE OF AIRCRAFT** Note: - If FOI is current as per 1,2,3 on base aeroplane the manufacturer's differences/CCQ/STAR course may be approved conversion to another type	

CHAPTER 3 - INSPECTOR RESPONSIBILITIES, ADMINISTRATION AND CONDUCT

3.1 General Responsibilities

This chapter addresses responsibilities, standards of conduct, and credentials of flight operations inspectors (FOI) assigned to air transportation job functions. The section describes the general responsibilities of the Flight Operations Inspector (FOI). FOIs of the DGCA's play a key role in ensuring safety in the field of aviation. This responsibility for ensuring safety in air travel covers almost every aspect of aviation, including the certification of aircraft and pilots; the operation and maintenance of aircraft; aircraft manufacturing; and the approval of new aircraft design.

3.2 Specific Duties

Flight Operations Inspectors are experienced pilots who specialize in the operation of aircraft and who ensure compliance with the Civil Aviation Regulations (CAR's). These inspectors have responsibility for scheduled operators, and commercial operators. FOIs may administer tests (written, oral, and practical) for a variety of certificates and ratings, perform cockpit and cabin en-route inspections, and conduct surveillance on various other aspects of an air carrier's operation. These other aspects typically would include evaluating the operations of air carriers and similar commercial aviation operations for adequacy of facilities, equipment, procedures, and overall management to ensure safe operation of aircraft. Other important functions of FOIs include the examination of airmen (pilots, dispatchers, flight engineers) for initial and continuing qualification, as well as the evaluation of pilot training programs, equipment, and facilities. When, in the course of an inspection, inspectors find an aircraft or pilot not in compliance with the CARs, they may recommend an enforcement action. Such enforcement can range from administrative action to civil penalty and possible suspension or revocation of license.

3.3 Additional Functions Of Flight Operations Inspectors

An additional role is the investigation of aircraft accidents in cooperation with the Directorate of Air Safety, which is responsible for investigating accidents. FOIs may also speak to student groups about career opportunities in the field of aviation, and may conduct seminars and briefings on pertinent aviation topics for pilots, dispatchers, and airline officials. Inspectors may also, from time to time, be called upon to testify in administrative hearings and trials.

3.4 Surveillance

A. Pilot Surveillance:

FOIs are responsible for the surveillance of pilots.
Some of the airmen that an FOI may survey are as follows:

- SFIs, Instructors and Examiners
- Check Pilots

B. Scheduled Operators Surveillance:

A number of the surveillance activities that FOIs shall perform are as follows:

- Ramp inspections
- Cabin en route inspections
- Cockpit en route inspections
- Pilot proficiency and competency checks for operators
- Operators' records
- Operators' training programs
- Operators' crew and dispatch records
- Operators' flight-following and flight-dispatch procedures
- Operators' flight-following or flight-locating procedures
- Operators' check pilots.
- Operators' line stations
- Operators' main base or sub-base
- Operators during a strike
- Operators' de-icing programs
- Operators' manuals
- Flight simulators or flight training devices (FTD) inspection

Scheduled Operators' on-line stations where servicing procedures have been outsourced to a handling/-servicing agency (AMO/ MRO).

3.5 Certification

A. AIRCREW:

Some of the FOIs certification duties involve the following:

- Certificate an Flight Engineer or Flight Navigator
- Designate or renew Examiners/ Instructors/ Check-Pilots/SFI,
- Evaluate an pilot's minimum navigation performance specification (MNPS) qualifications etc.

B. AIR CARRIERS (SCHEDULED OPERATORS):

FOIs are heavily involved in the certification of air operators. Some of the many duties of the FOI in air operator certification are as follows:

- Approve operators' exit seating plans
- Approve operators' carry-on baggage programs
- Conduct proficiency checks of operators' pilots
- Conduct proficiency checks of operators' flight engineers
- Conduct emergency evacuations or ditching demonstrations
- Conduct aircraft proving and validation tests
- Designate examiners/instructors/check pilots.
- Evaluate operators' compliance statements
- Evaluate flight crew training programs
- Evaluate dispatcher training programs
- Evaluate operators' operations manuals
- Evaluate approved flight manuals or company aircraft operations manuals
- Evaluate operators' aircraft checklists
- Evaluate operators' airport and weather aeronautical data
- Evaluate operators' special means of navigation
- Evaluate operators' power back procedures
- Evaluate operators' airport/runway performance data analysis systems
- Evaluate operators' minimum equipment lists (MEL)
- Evaluate hazardous materials (HAZMAT) programs
- Evaluate passenger briefing cards
- Evaluate operators' crew recordkeeping systems
- Issue and amend operations specifications
- Recommend issue an air carrier operating permit
- Evaluate operators' flight-following procedures
- Evaluate operators' flight records
- Review operators' compliance statements
- Evaluate operators' EDTO, RVSM, RNAV/RNP procedures
- Evaluate operators' LVTO, CAT II and CAT III procedures

3.6 Other Responsibilities

INVESTIGATIONS

Three areas that FOIs are responsible for investigating are accidents, incidents, and enforcement's.

A. **Accidents**:
FOIs may be required to conduct on-site accident investigations when serious injuries or fatalities have occurred. The inspector will work closely with the AAIB.

B. **Incidents**:
FOIs are responsible for the investigation of incidents, as appropriate. Some of the incidents that require investigation are as follows:

- Foreign air carrier incidents
- Reports of emergency evacuation
- Incidents involving hazardous materials
- Noise complaints
- Damage caused by a civil aircraft

C. **Enforcement**:
FOIs are required to investigate, analyze, and report enforcement findings. In situations that involve alleged non-compliance with the CARs, FOIs are required to make recommendations concerning enforcement action.

FOIs participate in other activities, such as accident prevention, and the issuance of authorizations. FOIs also perform many other duties, including the ones that follow:

- Make a deposition or court appearance
- Process a voluntary surrender of an operator's certificate
- Provide technical assistance

3.7 Movements By An FOI On Inspection Or Other Duty

For the purpose of performing the duties of FOI in terms of AIC 10/ 1991 and exercise the powers under rule 156 of the Indian Aircraft Rules 1937, Inspectors are authorized by air Operators to enable and facilitate travel by using ACM (Additional Crew Member) travel authority, supernumerary or other boarding pass, or with AIC ticketing. Further, the FOI identity card validates entry and transhipment of Inspectors.

(a) When performing in-flight or other "ad hoc" inspection duties;

(b) When responding to an operator's request for special services (e. g., pilot proficiency checks (PPC), etc.) involving air travel with that same carrier; and
(c) When accompanying flight crewmembers on familiarization flights, unless the operator provides otherwise.

3.8 Admission To The Flight Deck

The flight deck of an aircraft is a close society in which each member is proficient in his/her duties and aware of his/her responsibilities, position and rank. The introduction of an inspector into this type of environment may create a distraction and possibly add tension. The FOIs authority can be seen either as a threat to the individual flight crewmember or a challenge to the Pilot-in-Command's status. While maintaining the status of his/her own position, the FOI must recognize and support the Pilot-in-Command's authority unless he/she is obviously about to violate a regulation or operate in a hazardous manner. Even in these conditions, the FOI should at first appear to be acting in an advisory capacity and only resort to the powers vested in him/her by the aeronautical legislation as a last resort.

FOI shall, under normal circumstances, make every effort to reserve the use of any observer seat through the operator's flight dispatch or other designated office prior to scheduled departure time unless a no notice inspection is planned.

If for some season, such as joining the flight at an enroute stop, the crew could not be contacted prior to boarding the aircraft, the FOI should identify him/herself to a cabin crew and have him/her present his/her credentials to the Pilot-in-Command. The cabin crew should be requested to advise the Pilot-in-Command that an FOI wishes to join the crew on the flight deck for purposes on an in-flight inspection. The FOIs credentials will constitute the FOIs on board authority.

At times, FOIs may occupy any observer seat without advanced notice to the operator or crewmembers. Occasions may arise, such as "ad hoc" inspections, when FOIs will not have had time to affect prior co-ordination. In this situation, a FOIs approach must demonstrate courtesy and common sense.

Where an aircraft is equipped with more than one observer seat, the operator shall make available the observer seat that permits optimal monitoring, by the FOI of the flight deck instrumentation and controls, and the procedures used by flight crew members
While on the flight deck, the FOI must avoid distracting the crew. This may not be easy, as another aspect of the flight deck environment is a degree of boredom brought about by repetitive duties and routines. The FOI is a new person to talk to, and a new source of information. A flight deck conversation

can be valuable to the FOI as a source of information and to establish a good relationship with the flight crew but it must be carefully controlled so as to avoid distractions at critical times.

During the departure and approach phases of a flight, the FOI should silently observe cockpit policy and procedures. This does not preclude the inspector from advising the crew of a potential hazard or infraction.

Potential for the type of situation referred to below is minimal. Such situations would likely occur only during "ad hoc" inspections:

(a) The legal provisions authorising an FOI to occupy that position.

(b) That further denial will be in contravention of Civil Aviation Rules/Regulation, which may be processed by way of enforcement action.

If an FOI has reason to believe that an aircraft is unsafe or is about to be operated in an unsafe manner, he/she may detain the aircraft pursuant to Civil Aviation Rule / Regulation. Directing Air Traffic Services (ATS), where available, to deny take-off clearance could be the best course of action. This would give the FOI more time to co-ordinate other recourses.

CHAPTER 4 - PERSONAL ETHICS AND CONDUCT

4.1 Purpose

This section contains direction and guidance for Flight Operations Inspectors (FOI) pertaining to principles of ethics and conduct as they affect the performance of duties.

Although some hints as regards to personal ethics and conduct in respect of FOIs are outlined and listed in this section, it may be quite obvious that in many instances an inspector may encounter abnormal circumstances whose remedial actions could not possibly be explained or outlined in black and white. Therefore, considering the fact that inspectors are always in the public eye, they are expected to exercise good judgment and professional behaviour at all times while on and/or off duty. Two major areas of responsibilities are outlined as below:

a. **Civil Aviation Requirements:** Inspectors are required to comply fully with the spirit of the standards of conduct as set forth by this section; and with those set forth in Regulations, CARs, circulars and other procedures as required under the ICAO convention. The Authority's policy on employee conduct is designed to encourage employees to maintain a level of professionalism that will promote the efficiency of the Civil Aviation Department and conform to accepted principles of conduct.

b. **Requirements other than Civil Aviation Regulations:** FOIs are exposed to a number of circumstances that are critical to their positions and which are not pertinent to other Civil Aviation Department's job functions. The inspector has the critical position of frequently interpreting and evaluating the quality of training programs, looking into the operational standards, inspecting and certifying various manuals and publications, judging and monitoring the professional standards of pilots and maintenance manuals, pilot and mechanic performance, and overall safety activities. It is imperative that all inspectors be sensitive to the responsibilities and demands of their positions and be objective and impartial while performing their duties. Inspectors must also be sensitive to actual as well as perceived appearances of any conflict that could disrupt the effectiveness or credibility of the 'Flight Standards' mission.

4.2 On-The-Job Ethics And Conduct

The conduct of an FOI has a direct bearing on the proper and effective accomplishment of official job functions and responsibilities. Inspectors are

required to approach their duties in a professional manner and to maintain that attitude throughout their activities. Through their conduct, inspectors working in direct contact with operators, and with the public, bear great responsibility in the determination of public perception of the Civil Aviation Department.

A. **Rules of Conduct**. All inspectors must observe the following rules of conduct:

- Report for work on time and in a condition that will permit performance of assigned duties
- Render full and industrious service in the performance of their duties
- Maintain a professional appearance, as appropriate, during duty hours
- Respond promptly to directions and instructions received from Chief Flight Operations Inspector.
- Exercise courtesy and tact in dealing with co-workers, supervisors, and members of the public
- Conserve and protect DGCA property, equipment, and materials (Inspectors may not use or permit others to use DGCA equipment, property, or personnel for other than official business.)
- When duties concern the expenditure of public funds, have knowledge of and observe all applicable legal requirements and restrictions
- Safeguard classified information and unclassified information that should not be given general circulation as provided by DGCA Order (Inspectors shall not disclose or discuss any classified information or "official use only" information unless specifically authorized to do so.)
- Observe the various laws, rules, regulations, and other authoritative instructions, including all rules, signs, and instructions relating to personal safety
- Uphold with integrity the public trust involved in the position to which assigned
- Report known or suspected violations of law, regulations, or policy through appropriate channels
- Not engage in private activities for personal gain or any other unauthorized purpose while on government property
- Give any supervisor or official conducting an official investigation or inquiry all information and testimony about all matters inquired of, arising under the law, rules, and regulations administered by the Civil Aviation Department.

- Not use illicit drugs or abuse alcohol or other substances (No one known to do so will be permitted to perform any duties related to aviation safety until the DGCA is satisfied that any such person is no longer a risk to public safety.)
- Not participate in telephone eavesdropping (Advance notice must be given whenever any other person is placed on the line for any purpose whatsoever). An advance verbal warning must be given when an automatic recording device or a speaker telephone is used. The use of recording devices, portable or otherwise, on telephones shall be limited to areas involving air safety.)
- Not make irresponsible, false, or defamatory statements that attack, without foundation, the integrity of other individuals or organizations (Inspectors are accountable for the statements they make and the views they express.)

4.3 Off-The-Job Ethics And Conduct

A. General. The Civil Aviation Department expects FOI's to conduct themselves off duty in a manner that will not adversely reflect on the Department's ability to discharge its mission. FOIs must conduct themselves while off duty in a manner that will not cause the public to question their reliability and trustworthiness in carrying out their responsibilities as employees of the Civil Aviation Department.

B. Subversive Activity. No inspector shall become a member of any organization that the inspector knows advocates the overthrow of the Government of India, or that seeks by force of violence to deny other persons their rights under the Constitution of India.

C. Striking. No inspector shall engage in, or encourage another inspector, or any other civil employee, to engage in a strike, work stoppage, or work slowdown, in a labour management dispute involving the Government.

D. Meeting Financial Obligations. All FOIs are expected to meet their private financial obligations in a proper and timely manner. Failure without sufficient excuse or reason to honour valid debts, including claims based on court judgments and tax delinquencies, or to make and adhere to reasonable arrangements for settlement, will constitute grounds for disciplinary action.

E. Inaugural Flight and Ceremonial Events. FOIs shall not accept invitations from airlines, aircraft manufacturers, or other aviation-related businesses, that are subject to DGCA regulations, for flights or for free transportation in connection with roll-outs and similar ceremonial events.

4.4 Outside Employment, Financial Interests, And Gifts

A. Business Interests. FOIs and their immediate families should seek clarification and guidance before engaging in any airline or other business activity for which the Civil Aviation Department has oversight responsibility. If an inspector holds any interest that may give the appearance of impropriety, the inspector should immediately consult the CFOI for a determination.

B. Conflict of Interest. Inspectors may hold employment or own businesses that do not present a conflict of interest with their official job functions. Inspectors who wish to participate in outside aviation activities (such as flight instruction, commercial flying, or any other aviation-related activity) should seek clarification and approval from the CFOI.

C. Public Speaking. Inspectors may not receive payment for speaking on issues that deal with their official job functions. Teaching or instructing at colleges, universities, or vocational schools may be acceptable, but should be coordinated and approved through the CFOI.

D. Fund Raising. FOIs may not participate in fund raising or soliciting donations from any business or activity for which their office is assigned oversight responsibility. Exceptions to this requirement may exist for door prizes for aviation safety seminars by the aviation safety program. They should be coordinated through the CFOI.

E. Gifts - Avoiding Conflict of Interest. Gifts should be accepted only when the inspector knows that the gift will not give the appearance of a conflict of interest. [As per Govt. of India policy, no gift is acceptable.]

Note: Inspectors shall exercise the utmost discretion when giving or receiving gifts.

1.5 Dress

FOIs should be aware that their personal appearance affects their professional image; therefore, they should adhere to the guidelines below:

(a) On visits to air operator facilities, FOI should dress semi-formally (Jacket and tie (optional) for men, dress or slacks for women).

(b) During pilot proficiency checks in aircraft or simulators, the semi-formal wear noted above is recommended, regardless of air operator practices.

(c) During training FOIs dress should be compatible with the air operator's practice but should lean towards formality.

(d) During in-flight inspection, the sight of a non-uniformed person moving in and out of the flight deck can be disturbing to hijack -

conscious passengers. For this reason, FOIs should maintain a low profile, dress conservatively, restrict movements between cabin and flight decks and wear the Airport Security Pass.

(e) When conducting FOI duties at an airport, the Airport Security Pass must be used to follow crew access routes and shall be worn at all times on the ramp and air-side of the terminal

CHAPTER 5 - FLIGHT OPERATIONS INSPECTOR (FOI) CREDENTIALS

5.1 General

This section contains information for inspectors concerning the types of Flight Operations Inspector (FOI) credentials and the inspector eligibility requirements and application procedures for those credentials. This section also contains direction and guidance to be used by inspectors when employing FOI credentials during the performance of inspector tasks.

5.2 Types Of Credentials

FOIs are issued two types of credentials: (1) DGCA Inspector Identification that identifies as an “Authorised Person” for the purpose of rule 156 of the Indian Aircraft Rules 1937 and in terms of AIC 10/ 1991 and authorised to perform the duties and exercise the powers under said rule; and Functionary Identification from Bureau of Civil Aviation Security (BCAS) which provides for access to different areas of any Indian airport and aircraft, as indicated on the credential

5.3 Eligibility Requirements

Operations FOIs currently assigned to positions involving air transportation inspections and surveillance are eligible to receive the DGCA credential; however, the inspector must have also completed an "Air Carrier Operations Indoctrination” course. To be eligible for the Airport credential, the FOI must possess (or be concurrently issued) the DGCA credential; have fulfilled the requirements set forth in this Manual authorizing the conduct of enroute inspections; and have a job function that requires the conduct of inspections.

5.4 Application Procedures

Inspectors shall apply for the two credentials by completing an application for a CIVIL AVIATION DEPARTMENT Inspector Credential and a BCAS Credential in accordance with the procedures. To expedite the issuance of the credentials, the application may be initiated before the inspector meets the training and qualification requirements outlined in this manual.

5.5 Use Of Credentials

Although the credentials contain the general authorization for the inspector to conduct CIVIL AVIATION DEPARTMENT work functions, specified work functions may only be performed after the inspector has been authorized by an appropriate supervisor and has satisfied the training and qualification requirements specified in this handbook. The work functions for the two credentials are as follows:

A. DGCA's Inspector Credential. The CIVIL AVIATION DEPARTMENT Inspector credential identifies an individual as an "authorised Person" for the purposes of rule 156 of the Indian Aircraft Rules 1937 and in terms of AIC 10/ 1991 and authorises that individual to perform the duties and exercise the powers under the rules. These official duties include the conduct of cockpit enroute inspections. An inspector who meets all training and qualification requirements, with the exception of not yet possessing an airline transport pilot (ATPL) licence or a flight engineer rating with an airplane type rating, may conduct cabin enroute inspections.

B. Airport Security Force Credential. The ASF Functionary credential contains authorization for an inspector to be given free and uninterrupted access to restricted areas at airports governed by the CARs while the inspector is performing official duties to the extent stated on the credential. These official duties include those types of inspections (such as ramp inspections). An inspector must display this credential on an outer garment to be permitted entry airport secured areas, and while working in these areas. While employing the ASF Functionary credential, inspectors should consider the following procedures:

1) Physical Barriers. Although this credential is an authorization for inspectors to be in secured areas, for physical barriers such as locked doors and gates, an inspector may need to seek local assistance to gain access. Inspectors should ask at the time of entry if the operator has any specific security program practices and procedures that need to be followed.

2) Passenger Screening Points. Inspectors approaching passenger screening points may not bypass that screening; however, if the inspector is unable to afford the delay that may be involved in passenger screening, then arrangements should be made with the airport or operator personnel to enter the secured areas at other entry points.

C. Lost or Stolen Credentials. If either one or both of these credentials are lost, stolen, or damaged, the inspector should report the occurrence immediately to the inspector's supervisor and to the Chief of the Flight Standards Directorate.