



GOVERNMENT OF INDIA  
**OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION**  
TECHNICAL CENTRE, OPP. SAFDARJUNG AIRPORT, NEW DELHI – 110003

**CIVIL AVIATION REQUIREMENT**  
**SECTION 8 – AIRCRAFT OPERATIONS**  
**SERIES 'F', PART II**  
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**SUB: FLIGHT CREW TRAINING AND QUALIFICATION REQUIREMENTS FOR SCHEDULED AND NON-SCHEDULED OPERATORS HAVING AEROPLANES WITH AUW EXCEEDING 5700 KGS**

**1. INTRODUCTION**

ICAO Annex 6 – Operation of Aircraft Part I contains standard and recommended practices (SARPs) for operation of commercial air transport which covers flight crew requirements. It is no longer considered necessary to differentiate between the SARPs for scheduled and non-scheduled operations. The Annex requires operators to establish and maintain approved ground and flight training programmes which ensures that all flight crew members are adequately trained and qualified to perform their assigned duties.

**2. APPLICABILITY**

- 2.1 This CAR is applicable to scheduled and non-scheduled operators with aeroplane weight exceeding 5700 kg.
- 2.2 This CAR lays down responsibilities of operators and flight crew towards training and qualification requirements to carry out operations and is consistent with Annex 6 and Aircraft Rules 1937.
- 2.3 This CAR is issued under the provisions of Rule 29C and Rule 133A of the Aircraft Rules, 1937

### 3. DEFINITIONS/TERMINOLOGY

- 3.1 **Month.** One month is considered as the period compassing consecutive days in the month of the Gregorian calendar e.g., 03 Feb to 02 Mar or 30 Dec to 29 Jan or 15 May to 14 Jun. Example of 6 months is 04 Jan to 03 Jul.
- 3.2 **Year.** One year consists of 12 consecutive months, e.g. 03 Feb 2013 to 02 Feb 2014 or 01 Jan 2013 to 31 Dec 2013
- 3.3 **Base Training.** Take-off and landing training carried out on the aircraft for the purpose of allowing flight crew to experience actual aircraft handling characteristics. This is carried out after completion of type rating simulator training. Base training can be replaced with ZFTT, if the entry experience requirements of ZFTT are met.
- 3.4 **Proficiency Checks.** Demonstration of skill conducted for continued exercise of privileges of license, ratings or approval as may be required.
- 3.5 **Renewal (of license, rating or approval).** The administrative action taken which renews the privileges of the license, rating or approval for a further specified period, consequent upon fulfillment of the applicable renewal requirements.
- 3.6 **Re-qualification.** A generic term describing the training and checking requirements following an expiry of a qualification.
- 3.7 **Revalidation (of qualification).** The administrative action taken, within the period of validity of a qualification, which allows the holder to continue to exercise the privileges of that qualification for a further specified period, consequent upon fulfillment of the applicable revalidation
- 3.8 **Route Check.** Demonstration of proficiency in normal line operations. A route check may be carried out for purposes such as fulfilling an annual line proficiency requirement, PIC upgrade, route/aerodrome qualification etc.
- 3.9 **Route Sector.** A flight comprising take-off, departure, cruise, arrival, approach and landing phases.
- 3.10 **Skill Test.** A demonstration of skill for initial issue/renewal of a license or rating as may be required.
- 3.11 **Supervised Line Flying.** Supervised line flying (SLF) is operating experience/flying done by a type rated flight crew member under supervision of a Check Pilot/Instructor/Examiner for the purpose of acquiring the specified experience prior to undertaking line operations which are unsupervised by a Check Pilot/Instructor/Examiner. SLF forms part of the training syllabus and may be specified in terms of experience of flying hours or sectors by an operator.
- 3.12 **ZFTT (Zero flight time training).** ZFTT refers to an approved training course carried out on a Level D simulator without the need for base training on completion of a type endorsement. The minimum experience requirements for flight crew entering a ZFTT course are 500 hours on turbojet aeroplanes with AUW exceeding 5700 kgs or 500 hours on turboprop aeroplanes with AUW exceeding 10000 kgs. When a pilot transitions from turboprop to turbojet, the minimum experience requirements for flight crew are 1500 hours on turboprop aeroplanes with AUW exceeding 10000 kgs.

#### **4. COMPOSITION OF FLIGHT CREW**

An operator shall ensure that:

- 4.1 The composition of the flight crew and the number of flight crew members at designated crew stations are both in compliance with DGCA regulations, and no less than the minimum specified in the Aeroplane Flight Manual (AFM) and Certificate of Airworthiness (C of A);
- 4.2 The flight crew includes additional flight crew members when required by the type of operation, and is not reduced below the number specified in the approved Operations Manual
- 4.3 All flight crew members hold an applicable and valid license acceptable to DGCA and are suitably qualified and competent to conduct the duties assigned to them;
- 4.4 Procedures acceptable to DGCA are established, to prevent the crewing together of inexperienced flight crew members;
- 4.5 One pilot amongst the flight crew, qualified as a pilot-in-command (PIC) in accordance with the Aircraft Rules 1937, is designated as the PIC, and;
- 4.6 Initial operator's crew resource management (CRM) training shall be completed before commencing unsupervised line flying unless the crew member has previously completed an initial operator's CRM course.

#### **5. INITIAL OPERATOR'S CREW RESOURCE MANAGEMENT (CRM) TRAINING**

- 5.1 When a flight crew member has not previously completed initial operator's crew resource management (CRM) training (either new employees or existing staff), then the operator shall ensure that the flight crew member completes an introductory CRM training course (refer Appendix 5).
- 5.2 If the flight crew member has not previously been trained in human factors then a theoretical course based on Human Performance and Limitations topics shall be included with the introductory operator's CRM training course.
- 5.3 Initial CRM course training shall be conducted by at least one CRM facilitator approved by DGCA.
- 5.4 Initial CRM training is conducted in accordance with a detailed course syllabus included in the Operations Manual.

#### **6. CONVERSION TRAINING AND CHECKING**

- 6.1 An operator shall ensure that:
  - 6.1.1 A flight crew member completes a Type Rating course which satisfies the requirements applicable to the issue of licence/rating when changing from one type of aeroplane to another type for which a new type rating is required.;
  - 6.1.2 A flight crew member completes an Operator's Conversion course before

commencing unsupervised line flying;

(a) When changing to an aeroplane for which a new type or class rating is required; or

(b) When changing operator;

6.1.3 Conversion training is conducted by suitably qualified personnel in accordance with a detailed course syllabus included in the Operations Manual. The operator shall ensure that the personnel integrating elements of CRM into conversion training are suitably qualified;

6.1.4 The amount of training required by the operator's conversion course is determined after due note has been taken of the flight crew member's previous training as recorded in his/her training records;

6.1.5 The minimum standards of qualification and experience required of flight crew members before undertaking conversion training are specified in the Operations Manual;

6.1.6 Each flight crew member undergoes the checks required by Para 9.2 (PPC) and the training and checks required by Para 9.5 (SEP) before commencing supervised line flying (SLF);

6.1.7 Upon completion of SLF, the check required by Para 9.4 (line route check can be combined with operator's line release route check) is undertaken;

6.1.8 Once the aeroplane/FFS (full flight simulator) training phase of an operator's conversion course has been commenced, a flight crew member does not undertake flying duties on another type or class until the course is completed (except if authorized to fly more than one type of aeroplane) or terminated; and

6.1.9 Elements of CRM training are integrated into the conversion course (refer Appendix 5).

6.2 In the case of changing aeroplane type, the pilot's proficiency check may be combined with the type rating skill test.

6.3 The Operator's Conversion course and the Type Rating course may be combined.

6.4 A pilot, undertaking a zero flight time training (ZFTT) course, shall:

6.4.1 Complete 6 take-offs and landings in a ZFTT simulator session within 45 days of the skill test and commence SLF thereafter as soon as possible but within two months of the skill test. If SLF has not been commenced within two months of the skill test, the operator shall provide an additional ZFTT simulator session of 6 take-offs and landings prior to commencing SLF. For any subsequent gap in commencing SLF after the additional simulator session, the operator shall ensure that the pilot has completed 3 take-offs and landings in a ZFTT simulator session in the previous 30 days prior to commencing SLF.

6.4.2 Undergo minimum training and checks as stipulated in Appendix 2 to this CAR.

6.5 For pilots changing an operator and already qualified in the same capacity (PIC or co-pilot) on the same aeroplane type, a minimum SLF of 6 sectors is required.

## **7. DIFFERENCES TRAINING AND FAMILIARISATION TRAINING**

7.1 An operator shall ensure that a flight crew member completes:

7.1.1 Differences training which requires additional knowledge and training on an appropriate training device or the aeroplane:

- (a) When operating another variant of an aeroplane of the same type or another type of the same class currently operated; or
- (b) When changing equipment and/or procedures on types or variants currently operated;

7.1.2 Familiarization training which requires the acquisition of additional knowledge:

- (a) When operating another aeroplane of the same type or variant; or
- (b) When changing equipment and/or procedures on types or variants currently operated.

7.2 The operator shall specify in the Operations Manual when such differences training or familiarization training is required and approved by DGCA.

## **8. DESIGNATION AS PIC**

8.1 An operator shall ensure that for upgrade to PIC (commander) from co-pilot and for those joining as PICs:

8.1.1 A minimum level of experience, acceptable to the DGCA, is specified in the Operations Manual; and

8.1.2 For multi-crew operations, the pilot completes an appropriate command course.

8.2 The command course required by paragraph 8.1.2 above must be specified in the Operations Manual and include at least the following:

8.2.1 Extended ground refresher training as stipulated in Appendix 3 (Para 1);

8.2.2 PIC's legal/regulatory responsibilities;

8.2.3 Undergo minimum training and checks as stipulated in Appendix 2 (Para 5) to this CAR

8.2.4 Elements of Crew Resource Management.

## **9. RECURRENT TRAINING AND CHECKING**

9.1 General. An operator shall ensure that:

9.1.1 Each flight crew member undergoes recurrent training and checking and that all such training and checking is relevant to the type or variant of aeroplane on which the flight crew member operates;

9.1.2 A recurrent training and checking programme is established in the Operations Manual and approved by DGCA;

9.1.3 Recurrent training is conducted by the following personnel:

(a) Ground refresher training — by suitably qualified and approved personnel;

(b) Aeroplane/FSTD training — by a TRI-A/TRI-S/SFI for FSTD, TRI-A for aeroplane;

(c) Safety and emergency procedures (SEP) training — by suitably qualified and approved personnel; and

(d) Crew resource management (CRM):

(i) Integration of CRM elements (refer Appendix 5) into all the phases of the recurrent training — by all the personnel conducting recurrent training. The operator shall ensure that all personnel conducting recurrent training are suitably qualified to integrate elements of CRM into this training;

(ii) Modular CRM training — by combining CRM elements into modules and conducted by at least one CRM facilitator who may be assisted by experts in order to address specific areas;

9.1.4 Recurrent checking is conducted by the following personnel:

(a) Pilot's proficiency checks — by a DE trained in CRM concepts and the assessment of CRM skills.

- (b) Route checks — by suitably qualified LTCs/TRIs. It shall be ensured that two consecutive route checks for a pilot are done by different LTCs/TRIs;
- (c) Safety and emergency procedures checking — by suitably qualified personnel.

9.2 Pilot's proficiency check (PPC): An operator shall ensure that:

9.2.1 Each flight crew member undergoes PPC to demonstrate his/her competence in carrying out normal, abnormal and emergency procedures on each type or variant of a type of aeroplane. When an operator schedules flight crew on several variants of the same type of aeroplane, the PPC for each variant can be combined. When an operator schedules flight crew on different types of aeroplanes with similar characteristics in terms of operating procedures, systems and handling, the PPC for each type shall be carried out separately without any credits for the other rated type; and

9.2.2 The check is conducted without external visual reference when the flight crew member will be required to operate under IFR;

9.2.3 The period of validity of a PPC shall be six months. A PPC may be carried out on an aeroplane or a Level C/CG/D/DG simulator, however at least once a year, it must be carried out in a Level C/CG/D/DG simulator. PPC shall be performed twice within any period of one year. Any two such checks which are similar and which occur within a period of four consecutive months shall not alone satisfy this requirement.

*Note: For aeroplanes with less than 3 qualified simulators globally, the operator may obtain approval from DGCA to carry out PPC once in two years in the simulator while the intervening six-monthly PPCs are carried out in the aeroplane.*

9.3 Instrument rating (IR) check. An operator shall ensure that:

9.3.1 Each flight crew member undergoes IR checks to demonstrate his/her competence in carrying out normal, abnormal and emergency procedures under instrument conditions. An IR check for renewal of IR may be carried out on an aeroplane or Level C/CG/D/DG simulator. When an operator schedules flight crew on several variants of the same type of aeroplane, the IR check for each variant can be combined. When an operator schedules flight crew on different types of aeroplanes, the IR check for each type shall be carried out separately without any credits for each rated type; and

9.3.2 The check is conducted without external visual reference;

9.3.3 The period of validity of an instrument rating check shall be 12 months from the date of issue.

9.4 Line Route Check. An operator shall ensure that each flight crew member undergoes a line route check on the aeroplane to demonstrate his/her competence in carrying out normal line operations described in the Operations Manual. The period of validity of a line route check shall be 12 months.

When an operator schedules flight crew on several variants of the same type of

aeroplane, the line route check for each variant can be combined. When an operator schedules flight crew on different types of aeroplanes with similar characteristics in terms of operating procedures, systems and handling, the line route check for each type shall be carried out separately without any credits for the other rated type

- 9.5 Safety and emergency (SEP) procedures training and checking. An operator shall ensure that each flight crew member undergoes training and checking on the location and use of all safety and emergency equipment carried. The period of validity of an SEP check shall be 12 months. If issued within the final three months of validity of a previous emergency and safety check, the period of validity shall extend from the date of issue until 12 months from the expiry date of that previous SEP check.
- 9.6 CRM. An operator shall ensure that:
- 9.6.1 Elements of CRM (refer Appendix 5) are integrated into all appropriate phases of the recurrent training, and;
- 9.6.2 Each flight crew member undergoes specific modular CRM training. All major topics of CRM training shall be covered over a period not exceeding three years;
- 9.7 Ground refresher training. An operator shall ensure that each flight crew member undergoes ground and refresher training at least every 12 months. If the training is conducted within three months prior to the expiry of the 12 months period, the next ground and refresher training must be completed within 12 months of the original expiry date of the previous ground and refresher training.
- 9.8 Aeroplane/FSTD training. An operator shall ensure that each flight crew member undergoes aeroplane/FSTD training at least every 12 months. If the training is conducted within three months prior to the expiry of the 12 months period, the next aeroplane FSTD training must be completed within 12 months of the original expiry date of the previous aeroplane/FSTD training.
- 9.9 Security Training. An operator shall ensure that each flight crew member undergoes aviation security (AVSEC) training at least every two years. If the training is conducted within three months prior to the expiry of the two years period, the next AVSEC training must be completed within two years of the original expiry date of the previous AVSEC training.
- 9.10 Dangerous goods regulations training. An operator shall ensure that each flight crew member undergoes dangerous goods regulations (DGR) training at least every two years. If the training is conducted within three months prior to the expiry of the two years period, the next DG training must be completed within two years of the original expiry date of the previous DG training.



## **10. PILOT QUALIFICATION TO OPERATE IN EITHER PILOT'S SEAT**

- 10.1 An operator shall ensure that:
- 10.2 A pilot who may be assigned to operate in either pilot's seat completes appropriate training and checking; and
- 10.3 The training and checking programme is specified in the Operations Manual and approved by DGCA.

## **11. RECENT EXPERIENCE**

- 11.1 An operator shall ensure that:
- 11.2 Recent experience for PIC and co-pilot. A PIC or co-pilot is not assigned to operate at the flight controls of a type or variant of a type of aeroplane during take-off and landing unless that pilot has operated the flight controls during at least three take-offs and landings within the preceding 90 days on the same type of aeroplane or in a flight simulator approved for the purpose.
- 11.3 Recent experience for cruise relief pilot. A pilot is not assigned to act in the capacity of cruise relief pilot in a type or variant of a type of aeroplane unless, within the preceding 90 days that pilot has either operated as a PIC, co-pilot or cruise relief pilot on the same type of aeroplane or carried out flying skill refresher training including normal, abnormal and emergency procedures specific to cruise flight on the same type of aeroplane or in a flight simulator approved for the purpose, and has practised approach and landing procedures, where the approach and landing procedure practice may be performed as the pilot who is not flying the aeroplane.
- 11.4 When an operator schedules flight crew on several variants of the same type of aeroplane, the recent experience required in Para 11.2 and 11.3 for each variant can be combined. When an operator schedules flight crew on different types of aeroplanes with similar characteristics in terms of operating procedures, systems and handling, the recent experience required in Para 11.2 and 11.3 for each type shall be carried out separately without any credits for the other rated type.

## **12. ROUTE AND AERODROME COMPETENCE QUALIFICATION**

- 12.1 An operator shall ensure:
- 12.2 A pilot is not utilized a pilot as PIC of an aeroplane on a route or route segment for which that pilot is not currently qualified until such pilot has complied with Para 12.3 and 12.4.

12.3 Each such pilot shall demonstrate to the operator an adequate knowledge of:

a) The route to be flown and the aerodromes which are to be used. This shall include knowledge of:

- 1) The terrain and minimum safe altitudes;
- 2) The seasonal meteorological conditions;
- 3) The meteorological, communication and air traffic facilities, services and procedures;
- 4) The search and rescue procedures; and
- 5) The navigational facilities and procedures, including any long-range navigation procedures, associated with the route along which the flight is to take place; and

b) Procedures applicable to flight paths over heavily populated areas and areas of high air traffic density, obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures, and applicable operating minima.

*Note.— That portion of the demonstration relating to arrival, departure, holding and instrument approach procedures may be accomplished in an appropriate training device which is adequate for this purpose.*

12.4 A PIC shall have made an actual approach into each aerodrome of landing on the route, accompanied by a pilot who is qualified for the aerodrome, as a member of the flight crew or as an observer on the flight deck, unless:

a) The approach to the aerodrome is not over difficult terrain and the instrument approach procedures and aids available are similar to those with which the pilot is familiar, and a margin approved by the DGCA is added to the normal operating minima, or there is reasonable certainty that approach and landing can be made in visual meteorological conditions; or

b) The descent from the initial approach altitude can be made by day in visual meteorological conditions; or

c) The operator qualifies the pilot-in-command to land at the aerodrome concerned by means of an adequate pictorial presentation; or

d) The aerodrome concerned is adjacent to another aerodrome at which the PIC is currently qualified to land.

12.5 The operator shall maintain a record, sufficient to satisfy the DGCA of the qualification of the pilot and of the manner in which such qualification has been achieved.

12.6 An operator shall not continue to utilize a pilot as a PIC on a route or within an area specified by the operator and approved by the DGCA, within the preceding 12 months, that pilot has made at least one trip as a pilot member of

the flight crew, or as a check pilot/instructor/examiner, or as an observer in the flight crew compartment:

a) Within that specified area; and

b) If appropriate, on any route where procedures associated with that route or with any aerodromes intended to be used for take-off or landing require the application of special skills or knowledge.

- 12.7 In the event that more than 12 months elapse in which a PIC has not made such a trip on a route in close proximity and over similar terrain, within such a specified area, route or aerodrome, and has not practised such procedures in a training device which is adequate for this purpose, prior to again serving as a pilot-in-command within that area or on that route, that pilot must re-qualify in accordance with Para 12.3 and 12.4.

*Note – Refer Operations Circular 2 of 2012 Route and Aerodrome Competence Qualification*

### **13. OPERATION ON MORE THAN ONE TYPE OR VARIANT**

- 13.1 An operator shall ensure that a flight crew member does not operate on more than one type or variant unless the flight crew member is approved by DGCA and competent to do so.

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

- (a) The level of technology;
- (b) Operational procedures
- (c) Handling characteristics.

- 13.3 An operator shall ensure that a flight crew member operating more than one type or variant complies with all of the requirements prescribed in this CAR for each type or variant.

- 13.4 An operator shall specify appropriate procedures and/or operational restrictions, approved by DGCA, in the Operations Manual, for any operation on more than one type or variant covering:

- (a) The flight crew members' minimum experience level;
- (b) The minimum experience level on one type or variant before beginning training for and operation of another type or variant;
- (c) The process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant;
- (d) All applicable recent experience requirements for each type or variant.

## **14. TRAINING RECORDS**

An operator shall:

- 14.1 Maintain records of all training, checking and qualification prescribed in this CAR. which are undertaken by a flight crew member; and
- 14.2 Make the records of all conversion courses and recurrent training and checking available, on request, to the flight crew member concerned.
- 14.3 Retain records for a period of 3 years from the date of training, checking and qualification which are undertaken by the flight crew member.

## **15. GENERAL**

This CAR supersedes AIC 14/1990.

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## IN-FLIGHT RELIEF OF FLIGHT CREW MEMBERS

1. A flight crew member may be relieved in flight of his/her duties at the controls by another suitably qualified flight crew member who shall hold qualifications which are equal to or superior to those held by the crew member who is to be replaced for the purpose of in-flight relief (rest)
2. Relief of the PIC (commander). The PIC may delegate conduct of the flight to another qualified commander as detailed in paragraph 3 below.
3. Minimum requirements for a pilot relieving the commander:
  - (a) Valid Airline Transport Pilot Licence;
  - (b) Conversion training and checking (including type rating training) as prescribed in this CAR;
  - (c) All recurrent training and checking as prescribed in this CAR; and
  - (d) Route competence qualification as prescribed in this CAR.
4. Minimum requirements for a pilot relieving the co-pilot:
  - (a) Valid Commercial Pilot License with instrument rating;
  - (b) Conversion training and checking, including type rating training, as prescribed in this CAR.
  - (c) All recurrent training and checking as prescribed in this CAR.

## OPERATOR'S CONVERSION COURSE

1. An operator's conversion course shall include:
  - (a) Ground training and checking including aeroplane systems, technical and performance topics, normal, abnormal and emergency procedures;
  - (b) Safety and emergency procedures training and checking which must be completed before aeroplane training commences;
  - (c) Aeroplane/flight simulator training and checking; and
  - (d) SLF and operator's line release route check.
2. The conversion course shall be conducted in the order set out in paragraph 1 above.
3. Elements of crew resource management shall be integrated into the conversion course, and conducted by suitably qualified personnel.
4. When a flight crew member has not previously completed an operator's conversion course, the operator shall ensure that in addition to Para1 above, the flight crew member undergoes general first aid training (duration at least 2 hrs) and, if applicable, ditching procedures training using the equipment in water.
5. A pilot requiring Type Rating shall undergo syllabus for PIC/Co-pilot endorsement which includes as a minimum;
  - 5.1 Complete simulator profile training which should include circuits and landings and one Line Oriented Flight Training (LOFT) session.
  - 5.2 Skill Test (CA 40) Day and Night with a minimum duration of 2 hrs as PF each when conducted on the simulator or on the aeroplane. Skill test may be combined with IR/PPC (CA 41) check.

- 5.3 Low Visibility Take Off (LVTO) training and check with minimum duration of 1 hr each, adverse weather training and check to include wet runway and adverse weather operations with minimum duration of 1 hr each. This training may be combined in one session of 2 hrs (LVTO and adverse weather) and check may be combined in one session of 2 hrs (LVTO and adverse weather). Both LVTO and adverse weather training will comprise of ground and simulator training segments.

*Note: LVTO and adverse weather training may be done prior to skill tests.*

- 5.4 Base training on the aircraft or ZFTT simulator session consisting of 6 take-offs and landings;

- 5.5 PIC line training and checks.

(a) Route check for release to undergo SLF.

(b) SLF for co-pilots upgrading to PICs on the same aeroplane, consisting of at least 75 hours or 10 sectors (whichever is later) from LHS is required. For pilots without minimum 100 hours co-pilot experience on the aeroplane type, SLF of at least 100 hours or 12 sectors (whichever is later) from the LHS is required.

(c) Completion of SLF above shall be followed by 10 consecutive satisfactory PIC route checks of which not less than five shall be by night under the supervision of a DE, performing the duties and functions of a PIC.

*Note: Route check by night shall require approach and landing by night*

(d) Once the license is endorsed as PIC, operator's line release check combined with route check as required in Para 9.4.

- 5.6 Co-pilot line training and checks.

(a) Route check for release to undergo SLF.

(b) Conduct the first 4 sectors of SLF in the aeroplane under the supervision of an LTC/TRI occupying RHS and complete a minimum of;

(i) 30 sectors SLF if flying experience is less than 1000 hours on commercial transport aeroplanes.

(ii) 15 sectors SLF if flying experience is more than 1000 hours on commercial transport aeroplanes.

(iii) An operator may specify a proportion of sectors above to be performed as PM depending on the experience level and type of operations.

(c) Operator's line release route check combined with line route check as required in Para 9.4.

**RECURRENT TRAINING AND CHECKING — PILOTS**

1. Recurrent training. Recurrent training shall comprise:
  - (a) Ground refresher training;
    - (i) The ground and refresher training programme shall include:
      - (A) Aeroplane systems;
      - (B) Performance topics
      - (C) Operational procedures and requirements including ground de-/anti-icing and pilot incapacitation; and
      - (D) Accident/incident and occurrence review.
      - (E) Topics covering special operations as applicable to the operator approvals e.g. RVSM, MNPS, PBN, EDTO, CAT II/III etc.
    - (iii) Knowledge of the ground refresher training shall be verified by a questionnaire or other suitable methods.
    - (iv) Ground refresher training may be conducted through “e-learning”, CBT etc. provided such method is approved by the DGCA.
    - (v) The duration of annual ground refresher training shall be based on minimum hours of training and evaluation for mandatory and specific modules depending upon the nature and scope of operations as specified in Appendix 8. In case of extended ground refresher (as prescribed for PIC upgrade and break in flying) an additional amount as specified in Appendix 8 will be required.
  - (b) Aeroplane/FSTD training;
    - (i) The aeroplane/FSTD training programme shall be established such that all major failures of aeroplane systems and associated procedures will have been covered in the preceding three-year period. It shall be ensured that crew coordination, support and PM duties are adequately trained to proficiency prior to recurrent checks.
    - (ii) When engine-out manoeuvres are carried out in an aeroplane, the engine failure shall be simulated in stabilized flight conditions.
  - (c) Safety and emergency procedures (SEP) training;



(i) The SEP training programme may be combined with safety and emergency equipment checking and shall be conducted in an aeroplane or a suitable alternative training device.

(ii) Every year the SEP training programme must include the following:

(A) Actual donning of a lifejacket where fitted;

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

(C) Actual handling of fire extinguishers;

(D) Instruction on the location and use of all emergency and safety equipment carried on the aeroplane;

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

(F) Security procedures.

(iii) Every three years the programme of training must include the following:

(A) Actual operation of all types of exits;

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

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

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

(E) Actual handling of pyrotechnics, real or simulated, where fitted; and

(F) Demonstration in the use of the life-raft(s) where fitted.

(d) Crew resource management training

(i) Elements of CRM shall be integrated into all appropriate phases of recurrent training; and

(ii) A specific modular CRM training programme (Appendix 5) shall be established such that all major topics of CRM training are covered over a period not exceeding three years, as follows:

- (A) Human error and reliability, error chain, error prevention and detection;
- (B) Company safety culture, SOPs, organizational factors;
- (C) Stress, stress management, fatigue and vigilance;
- (D) Information acquisition and processing, situation awareness, workload management;
- (E) Decision making;
- (F) Communication and coordination inside and outside the cockpit;
- (G) Leadership and team behaviour, synergy;
- (H) Automation and philosophy of the use of automation (if relevant to the type);
- (I) Specific type-related differences;
- (J) Case based studies;
- (K) Additional areas which warrant extra attention, as identified by the accident prevention and flight safety programme.

(iii) Operators shall establish procedures to update their CRM recurrent training programme. Revision of the Programme shall be conducted over a period not exceeding three years. The revision of the programme shall take into account the de-identified results of the CRM assessments of crews, and information identified by the accident prevention and flight safety programme.

2. Recurrent checking. Recurrent checking shall comprise:

(a) Pilot proficiency checks;

- (i) Pilot proficiency checks shall include the manoeuvres as stipulated in Appendix 6. It shall be ensured that all items in 3.4 of the form are completed in a 3 year checking cycle and all items in 3.6 of the form are completed in a 1 year checking cycle.
- (ii) When engine out manoeuvres are carried out in an aeroplane, the engine failure must be simulated in stabilized flight conditions.
- (iii) The duration of PPC shall be at least 2 hrs as PF when conducted on the simulator or on an aeroplane. PPC combined with IR may be done within the same duration.

(b) SEP checks. The items to be checked shall be those for which training has been carried out in accordance with subparagraph 1 (c) above.

(c) Line Route checks;

(i) Line Route checks must establish the ability to perform satisfactorily a complete line operation including pre-flight and post-flight procedures and use of the equipment provided, as specified in the Operations Manual.

(ii) The flight crew must be assessed on their crew resource management CRM skills in accordance with a methodology acceptable to DGCA and published in the Operations Manual. The purpose of such assessment is to:

(A) Provide feedback to the crew collectively and individually and serve to identify retraining; and

(B) Be used to improve the CRM training system.

(iii) CRM assessment alone shall not be used as a reason for a failure of the route check.

(iv) When pilots are assigned duties as pilot flying and pilot monitoring they must be checked in both functions. The line route check as PF and PM may be completed on different route sectors within a span of 7 days. The date of completion of the route check shall be when both functions have been checked with satisfactory results.

(v) Line route checks must be completed in an aeroplane.

(vi) Line route checks must be conducted by LTCs/TRIs. The person conducting the line route check shall be trained in CRM concepts and the assessment of CRM skills and may occupy an observer's seat where installed. When a line route check is conducted from the observer's seat, it shall be ensured that the pilot/pilots under check hold valid and current licenses/ratings/qualification to undertake the flight. In the case of long haul operations where additional operating flight crew are carried, the person may fulfill the function of a cruise relief pilot and shall not occupy either pilot's seat during take-off, departure, initial cruise, descent, approach and landing. His/her CRM assessments shall solely be based on observations made during the initial briefing, cabin briefing, cockpit briefing and those phases where he/she occupies the observer's seat.

## PILOT QUALIFICATION TO OPERATE IN EITHER PILOT'S SEAT

1. PICs (commanders) whose duties also require them to operate in the right-hand seat and carry out the duties of co-pilot, or PICs required to conduct training or examining duties from the right-hand seat, shall complete additional training and checking as specified in the Operations Manual, concurrent with the pilot proficiency checks prescribed in this CAR. This additional training must include at least the following:
  - (a) An engine failure during take-off;
  - (b) A one engine inoperative approach and go-around; and
  - (c) A one engine inoperative landing.
2. When engine-out manoeuvres are carried out in an aeroplane, the engine failure must be simulated in stabilized flight conditions.
3. When operating in the right-hand seat, the checks required for operating in the left-hand seat must, in addition, be valid and current.
4. The validity of RHS training shall be 12 months and may be combined with aeroplane/FSTD training.
5. The validity for the RHS check shall be 6 months and may be combined with the PPC.
6. RHS qualification is intended to qualify a PIC to carry out PF duties from RHS in the event of incapacitation of the LHS pilot besides PM duties. Trainers who are RHS current and qualified may however carry out PF duties from the RHS under normal circumstances.

*Note: PICs with current LVO qualifications may perform RHS duties during LVO provided they have been additionally trained and checked as per RHS training and checking cycles for exercises in Para 1 above to minimum authorised RVR conditions.*


**IMPLEMENTATION OF CRM**

The following table indicates which elements of CRM should be included in each type of training:

Core Elements	Initial CRM Course (duration 2 days)	Operator's conversion course when changing type	Operator's conversion course when changing operator	Command course	Recurrent training
Human error and reliability, error chain, error prevention and detection, human performance and limitations	In depth	In depth	Overview	Overview	Overview
Company safety culture, SOPs, organisational factors		Not required	In depth	In depth	
Stress, stress management, fatigue & vigilance		Overview	Not required		
Information acquisition and processing situation awareness, workload management			Overview	Overview	
Decision making			Overview	Overview	
Communication and co- ordination inside and outside the cockpit			Overview	Overview	
Leadership and team behaviour synergy		Overview	Overview		
Automation, philosophy of the use of automation (if relevant to the type)	As required	In depth	In depth	As required	As required
Specific type-related differences			Not required		
Case based studies	In depth	In depth	In depth	In depth	As appropriate

*Note: Operators shall carry out Joint (combined) CRM with flight and cabin crew not later than 2 years from the Initial CRM course. Recurrent CRM training shall be carried out annually*

## Appendix 6

 <small>सत्यमेव जयते</small>	<b>DGCA India</b>				<b>CA 40/CA 41</b>	
	<b>License/Type Rating Skill Test/IR PPC Form for Commercial Aeroplanes with AUW exceeding 5700 kgs</b>				<b>Page 1 of 2</b>	
					<b>Revision 2</b>	<b>1 Oct 15</b>
OPERATOR:	TEST ON: AEROPLANE/ SIMULATOR	SIMULATOR LEVEL DG/D LOCATION:	TEST DATE		TEST/FLIGHT TIME DURATION:	TYPE OF TEST: SKILL TEST <input type="checkbox"/> IR <input type="checkbox"/> PPC <input type="checkbox"/>
AEROPLANE TYPE:	DAY/ NIGHT	AEROPLANE REGISTRATION:	D D	M M	YY	ON/TAKE OFF OFF/LANDING
PILOT UNDER CHECK:		LICENSE NUMBER:	EXAMINER:		AUTHORISATION/LICENSE NUMBER:	
CREW STATUS: TRAINEE/LICENSED PIC/CO-PILOT		SEAT OCCUPIED:  LHS/RHS	<i>Note: For assessment enter "S" (Satisfactory) or "U" (Unsatisfactory). Items marked "#" to be completed only on Simulator. "M" is mandatory for skill test/PPC. "IR" is mandatory for instrument rating. Any engine-out exercises or items marked # conducted on aeroplane are to be simulated only through touch drills.</i>			
<b>EXERCISE</b>						<b>S/U</b>
<b>1</b>	<b>FLIGHT PREPARATION</b>					
1.1	Performance calculation					
1.2	Aeroplane external visual inspection; location of each item and purpose of inspection					
1.3	Cockpit inspection					
1.4 <b>M</b>	Use of checklists prior to starting engines, starting procedures, radio and navigation					
1.5	Taxying in compliance with ATC or instructions of Examiner					
1.6 <b>M</b>	Pre-flight checks					
<b>2</b>	<b>TAKE-OFF(s)</b>					
2.1	Normal take offs with different flap settings.					
2.2 <b>IR</b>	Instrument take off; transition to instrument flight during rotation or immediately after airborne					
2.3	Cross wind take-off (aeroplane, if practicable)					
2.4	Take-off at maximum take-off AUW (actual or simulated maximum take-off AUW)					
2.5 <b>IR</b>	Simulated engine failure after V2					
2.5.1 <b>M IR #</b>	Simulated engine failure between V1 and V2					
2.5.2 <b>M #</b>	Rejected take-off at a reasonable speed before reaching V1					
<b>3</b>	<b>FLIGHT MANOEUVRES AND PROCEDURES</b>					
3.1	Turns with and without spoilers (as applicable)					
3.2 <b>#</b>	Tuck under and Mach buffets and other specific flight characteristics of the Aeroplane (e.g. Dutch Roll)					
3.3	Normal operation of systems and control					
3.4	Normal and abnormal operations of following systems (minimum of 3 <b>M</b> items shall be selected from 3.4 to 3.5 inclusive)					
3.4.0 <b>M</b>	Engine (if necessary propeller)					
3.4.1 <b>M</b>	Pressurisation and air- conditioning					
3.4.2 <b>M</b>	Pitot/static system					
3.4.3 <b>M</b>	Fuel system					
3.4.4 <b>M</b>	Electrical system					
3.4.5 <b>M</b>	Hydraulic system					
3.4.6 <b>M</b>	Flight control and Trim- system					
3.4.7 <b>M</b>	Anti- and de-icing system, Glare shield heating					
3.4.8 <b>M</b>	Autopilot/Flight director					
3.4.9 <b>M</b>	Stall warning devices or stall avoidance devices, and stability augmentation devices.					
3.4.10 <b>M</b>	Ground Proximity Warning System, Weather radar, Radio altimeter, Transponder.					
3.4.11 <b>M</b>	Radios, Navigation equipment, Instruments, Flight Management System.					
3.4.12 <b>M</b>	Landing gear and brake- system.					



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**License/Type Rating Skill Test/IR PPC  
Form for Commercial Aeroplanes with  
AUW exceeding 5700 kgs**

Revision 2


1 Oct 15

3.4.13 M	Slat and flap system.	
3.4.14 M	Auxiliary Power Unit.	
3.5 M #	ACAS/TCAS	
3.6	Abnormal and emergency procedures (minimum of 3 M items shall be selected from 3.6 to 3.6.8 Inclusive).	
3.6.1 M #	Fire drills e.g. Engine, APU, Cabin, Cargo compartment, Flight deck, Electrical Fires including Evacuation.	
3.6.2 M #	Smoke control and removal.	
3.6.3 M #	Engine failures, shut-down and restart	
3.6.4 M	Jet Upset and recovery/Fuel dum	
3.6.5 M #	Windshear at Take Off and Landing.	
3.6.6 M	Simulated cabin pressure failure/Emergency descent.	
3.6.7 M	Incapacitation of flight crew member.	
3.6.8	Other emergency procedures as outlined in the appropriate Aeroplane Flight Manual.	
3.7	Steep turns with 45° bank, 180° to 360° left and right.	
3.8 #	Early recognition and counter measures on approaching stall (up to activation of stall warning device)	
3.8.1#	Recovery from full stall or after activation of stall warning device in climb, cruise and approach configuration.	
3.9	Instrument flight procedures:	
3.9.1 M IR	Adherence to departure and arrival routes and ATC instructions.	
3.9.2 IR	Holding procedures.	
3.9.3 M IR	ILS-approaches down to a decision height (DH) not less than 60 m (200 ft):	
3.9.3.1 M IR	manually, without flight director.	
3.9.3.2 M IR	manually, with flight director. (any one of 3.9.3.2 or 3.9.3.3)	
3.9.3.3 M IR	automatically, with Autopilot (see above)	
3.9.3.4 M IR	manually, with one engine simulated inoperative	
3.9.4 M IR	NDB or VOC /LOC or RNAV approach down to the MDH/A.	
3.9.5 M IR	Circling approach (if applicable) to a runway at least 90° off centerline from final approach	
<b>4</b>	<b>MISSED APPROACH PROCEDURES</b>	
4.1 IR	Go-around with all engines operating after an ILS approach on reaching decision height.	
4.2 IR	Go – around with one engine simulated inoperative after an ILS approach on reaching DH (see also 3.9.3.4).	
4.3 M IR	Rejected landing at (50 ft) above runway threshold and go-around.	
<b>5</b>	<b>LANDING(s)</b>	
5.1 IR	Normal landings also after an ILS approach with transition to visual flight on reaching DH.	
5.2 #	Landing with simulated jammed horizontal stabiliser in an any out-of-trim position.	
5.3	Cross wind landings (aeroplane, if practicable).	
5.4	Traffic pattern and landing without extended or with partly extended flaps and slats.	
5.5 M	Landing with critical engine simulated inoperative.	
5.6 M #	Landing with two engines simulated inoperative (for 3 and 4 engine aeroplanes)	
<b>6</b>	<b>LOW VISIBILITY OPERATIONS INCLUDING CAT II/III(if applicable)</b>	
6.1 M IR #	RTO at minimum authorized RVR at a reasonable speed before reaching V1	
6.2 M IR	ILS approach using flight guidance system (checking for SOP, task sharing, standard calls etc)	
6.3 M IR	Go around - manual/automatic from DH/AH (due reduced RVR, ground/aircraft equipment failure etc)	
6.4 M IR	Landing(s) – manual/automatic from DH/AH with visual reference established	
6.5 M #	Take off in minimum T/O RVR <150m	

**OVERALL ASSESSMENT:** SKILL TEST / IR PPC - PASS/FAIL (separate sheet for remarks in case of fail)  
(Limitations: - Height ± 100' > 15 Sec, Direction ± 10°, Speed ± 10 kts except in approach phase when it would be +10 / -0 kts)

Pilot under Check

Examiner

 सत्यमेव जयते	<b>DGCA India</b>		<b>CA-42</b>	
	<b>Route Check Form for Commercial Aeroplanes with AUW exceeding 5700 kgs</b>		<b>Page 1 of 1</b>	
			<b>Revision 2</b>	<b>1 Oct 15</b>
Company Name:		Date:		
Pilot under check:	License Number :	Aircraft Type:	Aircraft registration	
LTC/TRI/DE:	License Number :	Route Sector:		
Crew status: PIC/Co-pilot	Nature of duties: PF/PM Seat occupied: LHS/RHS	Take off time (UTC): Landing time (UTC): (D/N route check determined by time of landing)	Day/Night Day/Night	
Type of check: Annual Line/PIC/SLF Release/Line Release/Other		Type of approach: ILS/VOR/LOC/NDB/RNAV/Visual/Circling		
<b>Assessment</b>				
<b>Pre-flight: S/U</b>		<b>In-flight: S/U</b>		<b>Post-flight: S/U</b>
<b>Overall assessment:</b>		<b>Satisfactory/Unsatisfactory</b>		
CRM:		FMS/FMGS:	S/U	
Situational awareness:	S/U	ECAM/EFB/ECL:	S/U	
Crew coordination:	S/U	F/D:	S/U	
Communication:	S/U	A/T:	S/U	
Decision making & judgment:	S/U			
Remarks:				
(Signature) Pilot Under Check		(Signature) LTC/TRI/DE		
Limitations: $\pm 100$ , $\pm 10^0$ and $\pm 10$ kts. except in Approach Phase when speed limits would be $+ 10$ kts and $-0$ .				
Note: 1) Remarks mandatory when assessment is U. 2) Take-off and landing to be given to Co-Pilots, weather permitting 3) S-SATISFACTORY U-UNSATISFACTORY				
Pilot performance id to be monitored for assessment in the following areas. One form to be filled up for each route sector				
<b>Pre-flight</b> 1) Flight Planning, 2) Pre-flight Procedures <b>In-Flight</b> 1) Taxi 2) Departure Procedures (Clearances, Briefing, T/O, SID, etc.) 3) Climb , 4) Cruise, 5) GNSS/GPS/INS / Radio Navigation 6) Descent and Approach Procedures, 7) Instrument Scan, 8) Landing, landing roll 9) Taxi and Parking and Shut down procedures 10) Knowledge of Emergency Equipment / Procedures 11) Route Knowledge / Airline Procedures, Diversion Awareness 12) Knowledge of Flight and Route Manuals 13) Airmanship and Crew Co-ordination and Standard Callouts where applicable <b>Post-flight</b> 1) Post Flight Documentation 2) Debriefing and snag reporting		<b>COCKPIT RESOURCE MANAGEMENT</b> <b>1. COMMUNICATION</b> - Shares information/ ideas - Attentive Listener - Assertive when required - Admits mistakes and clarifies doubts <b>2. LEADERSHIP/ TEAMWORK</b> - Balances Rank Authority - Open to feedback - Pro-active Participation <b>3. SITUATION AWARENESS</b> - Gathers Appropriate Data - Recognizes Potential Threats - Stays Ahead & Updates Plans - Traps Errors <b>4. DECISION MAKING</b> - Refrains from Assumptions - Uses the CLEAR Decision Making Tool - Optimum Utilization of Resources <b>5. WORKLOAD MANAGEMENT</b> - Recognizes High workload - Manages time - Sets Priorities <b>- Avoids Distraction &amp; Distracting</b>		



**GROUND REFRESHER TRAINING CURRICULUM SEGMENT**

1. The annual ground refresher training curriculum segment consists of the following modules with minimum duration and operator's shall incorporate the relevant modules while formulating the refresher syllabus and duration. The modules marked with "M" are mandatory for inclusion while the ones marked with "S" are specific to the operator and will need to be included depending on the nature and scope of operations defined in the AOP.

SI No	Module	Duration (hrs)	Applicability
M 1.	Aeroplane specific performance	6	M
M 2.	Aeroplane technical (systems)	10	M
M 3.	SEP	1	M
M 4.	CRM	2	M
M 5.	LVO (general including LVTO)	0.5	M
M 6.	RVSM	0.5	M
M 7.	Adverse weather (including monsoon)	1	M
M 8.	SMS and Accident/incident review	2	M
M 9.	Changes in regulations	0.5	M
M 10.	Changes in Operations Manual	0.5	M
	Evaluation	2	M
	Sub total	26	
S 1.	MNPS	1	S
S 2.	De-icing/anti-icing	1	S
S 3.	LVO (CAT II/III)	1	S
S 4.	PBN (RNP 10, RNAV 5, RNAV1/2)	0.5	S
S 5.	PBN (APCH or AR APCH)	0.5	S
S 6.	EDTO	1	S
	Evaluation	1	M for S above
	Sub total	6	

2. The extended ground refresher shall consist of additional 8 hours of ground training (excluding evaluation. In case of PIC extended refresher, 4 hours will consist PIC legal responsibilities, national and international conventions pertaining to PIC authority and PIC duties/responsibilities as outlined in the Operations Manual while 4 hours will be apportioned to performance and technical subjects. In case of break in flying, the entire 8 additional hours of training will be apportioned to performance and technical subjects.

**FLIGHT CREW TRAINING EXPLANATORY MATERIAL**

1. Line route checks are to be carried out on two sectors with one sector as PF and one as PM. Aerodrome qualification route checks are to be carried out on two sectors to check performance in arrival/approach/landing and take-off/departure. All other route checks may be carried out on single sector.
2. Para 4.4: Inexperienced crew members are those with less than 100 hours as released PIC/co-pilot individually and 500 hours in aggregate as total cockpit experience.
3. Para 6.4.1: Additional ZFTT simulator session is required if two months have elapsed since the skill test without commencing SLF. If after conducting this additional simulator session, another gap ensues without commencing SLF, the operator will need to ensure that 3 take offs and landings are carried out in the previous 30 days prior to commencing SLF. Example – Skill test date 20 Jan 2014, if SLF does not commence by 19 Mar 2014, an additional ZFTT simulator session is required. Suppose this session is done on 01 Apr 2014, then SLF can commence within a further period of 30 days as at least 3 take offs and landings were carried out in the previous ZFTT session on 01 Apr 2014. If SLF still does not commence by 01 May 2014, then the operator will ensure that 3 take offs and landings has been carried out in another simulator session in the previous 30 days
2. Trainers are not required to carry out separate recurrent route checks from RHS. PPC done from RHS in FSTD/aeroplane meets the RHS qualification requirement.
3. Para 9.4: Line route check is an annual requirement from 01 Sep 2013. However, the first line route check that a pilot will need to undergo shall be 6 months from the last bi-annual route check carried out. For example, if a pilot has undergone a route check on 15 June 2013 as the bi-annual route check, then the first line route check shall be on or before 14 December 2013 (but not before 14 October 2013).
4. Para 3 of Appendix C: SEP training involving aeroplane may be combined with annual line route check requirement under the supervision of suitably qualified personnel.
5. Appendix 3 Para1: Extended refresher for PIC upgrade needs to be conducted separately even if the normal refresher for a pilot is valid. However, SEP training if valid a pilot may follow the existing recurrent cycle.
6. RHS qualification including RHS qualification for LVO will be endorsed on an operator's document or certificate which shall indicate date of RHS check.
7. Para 12.3: An acceptable means of compliance of route competence for less complex routes is a briefing guide document for the crew.
8. Para 12.4 (a): Additional safety margin of as per CAR Section 8 Series C Part I - AWO is to be added to the minima for first flight as PIC into an aerodrome to comply with the margin requirement in Para 12.3 (a).
9. Para 12.7: An acceptable means of compliance for re-qualifying a pilot who has not flown to an aerodrome for more than 12 months is to undertake a flight as an observer or co-pilot before operating as PIC without the need to repeat the initial qualification syllabus.