PART FCL4

Flight Crew Licensing (Flight Engineers)

This new part of Jordanian Civil Aviation Regulations is hereby adopted under the authority and provisions of the Civil Aviation Law N0. (41) dated 2007.

(Supersedes Subpart-B of JCAR Part 63)

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Revision Control Sheet

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General Requirements

FCL 4.001 Applicability

(See Appendix 1 to FCL 4.005)

(a) General

(1) The requirements set out in FCL 4 for flight engineers shall apply to all arrangements made for training, testing and applications for the issue of licences, ratings, authorisations, approvals or certificates received by CARC from 1 July 2010.

(2) Whenever licences, ratings, authorisations, approvals or certificates are mentioned in FCL, these are meant to be licences, ratings, authorisations, approvals or certificates issued in accordance with FCL. In all other cases these documents are specified as ICAO licences.

(3) All synthetic training devices mentioned in FCL substituting an aircraft for training purposes are to be device qualified and in accordance with FSTD A and user approved in accordance with FCL by CARC for the exercises to be conducted.

(4) A licence issued on the basis of training performed outside of Jordan, except training done according to FCL 1.055(a)(1), shall have an entry to limit the privileges to aircraft registered in Jordan.

(5) Rating(s) issued on the basis of training performed outside of Jordan except training performed according to FCL 1.055(a)(1), shall be limited to aircraft registered in Jordan.

(b) Transitional arrangements

(1) Training for flight engineer's licences commenced prior to 1 July 2007 will be acceptable for the issue of licences or ratings, provided that training and testing is completed before 30 June 2010 for the applicable licence or rating.

(2) Licences and ratings, authorisations, approvals or medical certificates for flight engineer's licences issued before 1 July 2007 or issued in accordance with paragraph (1) above, shall continue to be valid with the same privileges, ratings and limitations, if any, provided that after 1 January 2008 all requirements for revalidation or renewal of such licences or ratings, authorisations, approvals or medical

certificates shall be in accordance with the requirements of FCL, except as specified in sub paragraph (4).

(3) Holders of a licence issued before 1 July 2007 or in accordance with (b)(1) above, may apply for the issue of the equivalent licence specified in FCL 4. For the issue of such licences, the holder shall meet the requirements set out in Appendix 1 to FCL 4.005.

(c) Continuation of examiners holding national authorisations. Examiners holding authorisations prior to implementation date may be authorised as FCL 4 (Flight Engineers) examiner provided that they have demonstrated a knowledge of FCL and OPS to CARC. The authorisation will be for a maximum of 3 years. Thereafter re-authorisation will be subject to completion of the requirements set out in FCL 4.425(a).

FCL 4.003 Definitions and Abbreviations
(See IEM FCL 4.001)

Category (of aircraft): Categorisation of aircraft according to specified basic characteristics, e.g. aeroplane, helicopter, glider, free balloon.

Conversion (of a licence): The issue of an FCL licence on the basis of a licence issued by an ICAO Contracting State.

Co-pilot: "Co-pilot" means a pilot operating other than as pilot-in-command, an aircraft for which more than one pilot is required under the list of types of aeroplanes (see Appendix 1 to FCL 1.220), or the type certification of the aircraft, or the operational regulations under which the flight is conducted, but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction for a licence or rating.

Dual instruction time: Flight time or instrument ground time during which a person is receiving flight instruction from a properly authorised instructor.

Flight Engineer: A Flight Engineer is a person who complies with the requirements in FCL 4

Flight time: The total time from the moment an airplane first moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight.
Instrument time: Instrument flight time or instrument ground time.

Instrument flight time: Time during which a pilot is controlling an aircraft in flight solely by reference to instruments.

Instrument ground time: Time during which a pilot is receiving instruction in simulated instrument flight in flight synthetic training devices (FSTDs).

Multi-crew co-operation: The functioning of the flight crew as a team of co-operating members led by the pilot-in-command.

Multi-pilot aeroplanes: Aeroplanes certificated for operation with a minimum crew of at least two pilots.

Night: The period between the end of evening civil twilight and the beginning of morning civil twilight, or such other period between sunset and sunrise as may be prescribed by the appropriate CARC.

Other training devices: Training aids other than flight simulators, flight training devices or flight and navigation procedures trainers which provide means for training where a complete flight deck environment is not necessary.

Private pilot: A pilot who holds a licence which prohibits the piloting of aircraft in operations for which remuneration is given.

Professional pilot: A pilot who holds a licence which permits the piloting of aircraft in operations for which remuneration is given.

Proficiency checks: Demonstrations of skill to revalidate or renew ratings, and including such oral examination as the examiner may require.

Rating: An entry in a licence stating special conditions, privileges or limitations pertaining to that licence.

Renewal (of e.g. a rating or approval): The administrative action taken after a rating or approval has lapsed that renews the privileges of the rating or approval for a further specified period consequent upon the fulfilment of specified requirements.

Revalidation (of e.g. a rating or approval): The administrative action taken within the period of validity of a rating or approval that allows the holder to continue to exercise the privileges of a rating or approval for a further specified period consequent upon the fulfilment of specified requirements.

Route sector: A flight comprising take-off, departure, cruise of not less than 15 minutes, arrival, approach and landing phases.

Single-pilot aeroplanes: Aeroplanes certificated for operation by one pilot.

Skill tests: Skill tests are demonstrations of skill for licence or rating issue, including such oral examination as the examiner may require.

Solo flight time: Flight time during which a student pilot is the sole occupant of an aircraft.

Student pilot-in-command (SPIC): Flight time during which the flight instructor will only observe the student acting as pilot-in-command and shall not influence or control the flight of the aircraft.

Touring Motor Glider (TMG): A motor glider having a certificate of airworthiness issued or accepted by CARC having an integrally mounted, non-retractable engine and a non-retractable propeller plus those listed in Appendix 1 to FCL 1.215. It shall be capable of taking off and climbing under its own power according to its flight manual.

Type (of aircraft): All aircraft of the same basic design, including all modifications except those modifications which result in a change of handling, flight characteristics or flight crew complement.

For abbreviations see IEM FCL 4.001

FCL 4.010 Basic CARC to act as a flight crew member.

(a) Licence and rating. A person shall not act as a flight crew member of a civil aeroplane registered in Jordan unless that person holds a valid licence and rating complying with the requirements of FCL and appropriate to the duties being performed, or an authorisation as set out in FCL 4.230. The licence shall have been issued by:

(1) CARC; or

(2) Another ICAO Contracting State and rendered valid in accordance with FCL 4.015(b) or (c).

(b) Exercise of privileges. The holder of a licence, rating, or authorisation shall not exercise privileges other than those granted by that licence, rating or authorisation.

(c) Appeals, Enforcement

(1) CARC may at any time act on appeals, limit privileges, or suspend or revoke any licence, rating, authorisation, approval or certificate it has issued in accordance with the requirements of FCL if it is established that an applicant or a licence holder has not met, or no longer meets, the requirements of FCL.

FCL 4.015 Acceptance of licences, ratings, authorisations, approvals or certificates
(See Appendix 1 to FCL 4.015) , (See AMC FCL 4.005 & 4.015)

(a) Licences issued by ICAO Contracting States

(1) A licence issued by an ICAO Contracting State may be converted to a Jordanian licence, or rendered valid at the discretion of CARC for use on aircraft registered in Jordan in accordance with Appendix 1 to FCL 4.015.

(2) Validation of a flight engineer's licence shall not exceed one year from the date of validation, provided that the basic licence remains valid. Any further validation is subject to agreement by CARC and to any conditions it sees fit to impose. The user of a licence validated by CARC shall comply with the requirements stated in FCL.

(3) The requirements stated in (1) and (2) above shall not apply where aircraft registered in Jordan are leased to a foreign operator, provided that the State of the operator has accepted for the period of lease the responsibility for the technical and/or operational supervision in accordance with JCAR–OPS 1.165. The licences of the flight crews of the foreign operator may be validated at the discretion of CARC, provided that the privileges of the flight crew licence validation are restricted for use during the lease period only on nominated aircraft in specified operations not involving a Jordanian operator, directly or indirectly, through a wet lease or other commercial arrangement.

(b) Reserved.
(c) Conversion of a flight engineer licence issued by an ICAO Contracting State.

(d) A flight engineer licence issued by an ICAO Contracting State may be converted to a Jordanian licence provided that;

(1) The foreign licence is acceptable to CARC; and

(2) An applicant shall be a Jordanian Citizen.

(3) Comply with the requirements shown in Appendix 1 to FCL 4.015.

FCL 4.016 Credit given to a holder of a foreign licence.

(a) An applicant for a FCL licence and IR, if applicable, already holding at least an equivalent licence issued in accordance with ICAO Annex 1 shall meet all the requirements of FCL, except that the requirements of course duration, number of lessons and specific training hours may be reduced. CARC may be guided as to the credits to be granted on the basis of a recommendation from an appropriate training organisation.

(b) The holder of a F/EL issued in accordance with ICAO Annex 1 who meets the flying experience requirements of Appendix 1 to FCL 4.015 may be exempted from the requirements to undergo approved training prior to undertaking the theoretical knowledge examinations and the skill test, if that licence contains a valid type rating for the aeroplane to be used for the F/EL skill test.

FCL 4.020 Credit for military service
(See Appendix 1 to FCL 4.005)

Application for credit:
Military flight crew members, having served or servicing in Jordan and applying for licences or ratings specified in FCL 4 shall apply to CARC. The knowledge, experience and skill gained in military service will be credited towards the relevant requirements of FCL 4 licences and ratings at the discretion of CARC. The privileges of such licences shall be restricted to aircraft registered in the State of licence issue until the requirements set out in the Appendix 1 to FCL 4.005 are met.

FCL 4.025 Validity of licences and ratings
(See FCL 1.105)

(a) A licence holder shall not exercise the privileges granted by any licence or rating unless the holder maintains competency by meeting the relevant requirements of FCL.

(b) Validity of the licence and revalidation of a rating

(1) The validity of the licence is determined by the validity of the ratings contained therein and the medical certificate (see FCL 3.105).

(2) When issuing or revalidating/renewing a rating, CARC may extend the validity period of the rating until the end of the month in which the validity would otherwise expire, that date remains the expiry date of the rating.

(c) The licence will be issued for a maximum period of 3 years. Within this period of 3 years the licence will be re-issued by CARC:

(1) After initial issue or renewal of a rating;

(2) When paragraph XII in the licence is completed and no further spaces remain;

(3) For any administrative reason;

(4) At the discretion of CARC when a rating is revalidated.

Valid ratings will be transferred to the new licence document by CARC. The licence holder shall apply to CARC for the re-issue of the licence. The application shall include the necessary documentation.

FCL4.026 Recent experience for F/E.

A F/E shall not operate an aeroplane carrying passengers as F/E unless he has carried out at least one route sector in an aeroplane of the same type or a flight simulator of the aeroplane type to be used, in the preceding 90 days.

FCL 4.030 Arrangements for testing

(a) Authorisation of examiners. CARC will designate and authorise as examiners suitably qualified persons of integrity to conduct on its behalf, skill tests and proficiency checks. The minimum qualifications for examiners are set out in FCL 4 (Flight Engineers) Subpart I. Examiners' responsibilities and privileges will be notified to them individually in writing by CARC.

(b) Number of examiners. CARC will determine the number of F/E examiners it requires, taking account of the number and geographic distribution of its flight engineer population.

(c) Notification of examiners.

(1) CARC will maintain a list of all examiners it has authorised stating for which roles they are authorised. The list will be made available to TRTOs, and FTOs within Jordan. CARC will determine by which means the examiners will be allocated to the skill test.

(2) CARC will advise each applicant of the examiner(s) it has designated for the conduct of the skill test for the issue of a flight engineer licence.

(d) Examiners shall not test applicants to whom flight instruction has been given by them for that licence except with the expressed consent in writing of CARC.

(e) Pre-requisites for applicants undergoing a skill test. Before a skill test for the issue of a licence or rating is taken the applicant shall have passed the associated theoretical knowledge examination. Instruction for the associated theoretical knowledge examination shall always have been completed before such skill tests are taken. The applicant for a skill test shall be recommended for the test by the organisation/person responsible for the training.

FCL 4.035 Medical fitness

(a) Fitness. The holder of a medical certificate shall be mentally and physically fit to exercise safely the privileges of the applicable licence.

(b) Requirement for medical certificate. In order to apply for or to exercise the privileges of a licence, the applicant or the holder shall hold a medical certificate issued in accordance with the provisions of FCL 3 (Medical) and appropriate to the privileges of the licence.

(c) Aeromedical disposition. After completion of the examination the applicant shall be advised whether fit, unfit or referred to CARC. The Authorised Medical Examiner (AME) shall inform the applicant of any condition(s) (medical,

operational or otherwise) that may restrict flying training and/or the privileges of any licence issued.

FCL4.040 Decrease in medical fitness
(See IEM FCL 3.040)

(a) Holders of medical certificates shall not exercise the privileges of their licences, related ratings or authorisations at any time when they are aware of any decrease in their medical fitness which might render them unable to safely exercise those privileges.

(b) Holders of medical certificates shall not take any prescription or non-prescription medication or drug, or undergo any other treatment, unless they are completely sure that the medication, drug or treatment will not have any adverse effect on their ability to perform safely their duties. If there is any doubt, advice shall be sought from the AMS, an AMC, or an AME. Further advice is given in FCL 3 (see IEM FCL 3.040).

(c) Holders of medical certificates shall, without undue delay, seek the advice of the AMS, an AMC or an AME when becoming aware of:

(1) Hospital or clinic admission for more than 12 hours; or

(2) Surgical operation or invasive procedure; or

(3) The regular use of medication; or

(4) The need for regular use of correcting lenses.

(d) Holders of medical certificates who are aware of:

(1) Any significant personal injury involving incapacity to function as a member of a flight crew; or

(2) Any illness involving incapacity to function as a member of a flight crew throughout a period of 21 days or more; or

(3) Being pregnant, shall inform CARC in writing of such injury or pregnancy, and as soon as the period of 21 days has elapsed in the case of illness. The medical certificate shall be deemed to be suspended upon the occurrence of such injury or the elapse of such period of illness or the confirmation of the pregnancy, and:

(4)In the case of injury or illness the suspension shall be lifted upon the holder being medically examined under arrangements made by CARC and being pronounced fit to function as a member of the flight crew, or upon CARC exempting, subject to such conditions as it thinks fit, the holder from the requirement of a medical examination; and

(5) In the case of pregnancy, the suspension may be lifted by CARC for such period and subject to such conditions as it thinks fit and shall cease upon the holder being medically examined under arrangements made by CARC after the pregnancy has ended and being pronounced fit to resume her functions as a member of the flight crew.

FCL4.045 Special Circumstances

(a) It is recognised that the provisions of all parts of FCL will not cover every possible situation. Where the application of FCL would have anomalous consequences, or where the development of new training or testing concepts would not comply with the requirements, an applicant may ask CARC concerned for an exemption. An exemption may be granted only if it can be shown that the exemption will ensure or lead to at least an equivalent level of safety.

(b) The exemptions are divided into short term exemptions and long term exemptions (more than 6 months).

FCL 4.050 Crediting of flight time

(a) Unless otherwise specified in FCL 4, flight time to be credited for a F/E licence or a TRI(E) rating shall have been flown as flight engineer in multi-pilot aeroplanes operated with a flight crew including a F/E.

(b) Flight engineer under instruction or supervision: an applicant for a F/EL is credited in full with all simulator time under instruction of a TRI(E) provided that the training is performed in a multi-pilot environment.

FCL 4.055 Training organisations
(See Appendix 1 to FCL 4.055) ,(See IEM FCL 4.055)

(a)Flying training organisations (FTOs): see FCL 1 (Aeroplane).

(b) Type rating training organisations (TRTO's) wishing to offer training for type rating only shall be approved by CARC. Requirements for approval of TRTO's are given in Appendix 1 to FCL 4.055.

(c) Organisations specialising in theoretical knowledge instruction located in Jordan will be granted approval by CARC subject to complying with those

parts of Appendix 1 of FCL 4.055 relevant to the specialised knowledge instruction they are providing.

FCL 4.070 Normal residency

Normal residency means the place where a person usually lives for at least 185 days in each calendar year because of personal and occupational ties or, in the case of a person with no occupational ties, because of personal ties which show close links between that person and the place where she or he is living.

FCL 4.075 Format and specifications for flight crew licences
(See Appendix 1 to FCL 4.075)

The flight crew licence issued in accordance with FCL 4 will conform to the following specifications.

(a)Content. The item number shown will always be printed in association with the item heading. Items I to XI are the "permanent" items and items XII to XIV are the "variable" items which may appear on a separate or detachable part of the main form. Any separate or detachable part shall be clearly identifiable as part of the licence.

(1) Permanent items

(I) State of licence issue.

(II) Title of licence.

(III) Serial number commencing with the postal code of the issuing state and followed by a code of numbers and/or letters in Arabic numerals and in Roman script.

(IV) Name of holder, (in Roman alphabet, if script of national language is other than Roman).

(V) Holder's address.

(VI) Nationality of holder.

(VII) Signature of holder.

(VIII) CARC and, where necessary, conditions under which the licence was issued.

(IX) Certification of validity and authorisation for the privileges granted.

(X) Signature of the officer issuing the licence and the date of issue.

(XI) Seal or stamp of CARC.

(2) Variable items

(I) Ratings - type, instructor, etc., with dates of expiry. Radio telephony (R/T) privileges may appear on the licence form or on a separate certificate.

(II) Remarks i.e. special endorsements relating to limitations and endorsements for privileges.

(III) Any other details required by CARC.

(b) Material. The paper or other material used will prevent or readily show any alterations or erasures. Any entries or deletions to the form will be clearly authorised by CARC.

(c) Colour. White material will be used for flight engineer licences issued in accordance with FCL 4.

(d) Language. Licences shall be written in the English language and such other languages as CARC deems appropriate.

FCL 4.080 Recording of flight time

Details of all flights flown as a flight engineer shall be kept in a reliable record in a logbook format acceptable to CARC.

Appendix 1 to FCL 4.005
Minimum requirements for the issue of a FCL licence/authorisation
(See FCL 4.005(b)(3))
(See AMC FCL 4.005 & 4.015)

1Flight Engineer licences

A flight engineer licence previously issued by CARC may be replaced by a FCL 4 licence subject, where applicable, to conditions. For the replacement of such licences the holder shall:

(a) Complete, as a proficiency check, the type rating revalidation requirements of FCL 4.245 relevant to the privileges of the licence held;

Licence held	Total flying experience as flight engineer	Any further requirements	Replacement FCL licence	Removal of conditions
(1)	(2)	(3)	(4)	(5)
Flight Engineer	>1 500 as flight engineer on	none	F/EL	Not applicable

(b) Demonstrate to the satisfaction of CARC that a knowledge of the relevant parts of JCAR–OPS and FCL (see AMC FCL 4.005 & 4.015) has been acquired;

(c) Demonstrate a knowledge of English in accordance with FCL 4.160

(d) Comply with the experience requirements and any further requirements as set out in the table below:

2. Instructor ratings

National rating, authorisation or privileges held	Experience	Any further CARC requirements	Replacement FCL rating
(1)	(2)	(3)	(4)
TRI(E)	required under 4 (Flight Engineers) for the relevant rating	Demonstrate to the satisfaction of the Authority a knowledge of the relevant parts of FCL 4 (Flight Engineers) and OPS as set out in AMC FCL 4.005 & 4.015.	TRI(E) *

* CARC instructors fulfilling all the above replacement requirements, but unable to obtain relevant JAR-FCL licence/rating(s) due to present

implementation status of their State of licence issue, may be accepted to instruct FCL licence and/or ratings.

3. SFI(E) authorisation

A SFI(E) authorisation may be replaced by a FCL 4 (Flight Engineers) authorisation provided that the holder complies with the experience requirements and any further requirements as set out in the table below:

National authorisation held	E	Any further CARC requirements	Replacement FCL authorisation
(1)		(3)	(4)
SFI(E)	>1 500 hrs as flight engineer on aeroplanes	(i) hold or have held a flight engineer licence issued by a ICAO Member State flight engineer licence acceptable to CARC (ii) have completed the flight simulator content of the applicable type rating course including MCC	SFI(E)
SFI(E)	3 years recent experience as a SFI(E) acceptable to CARC	have completed the flight simulator content of the applicable type rating course including MCC.	SFI(E)

This authorisation will be for a maximum period of 1 year.

Further re-authorisation will be subject to completion of the requirements set out in FCL 4.415.

Appendix 1 to FCL 4.015
Minimum requirements for the validation of flight engineer licences
(See FCL 4.015)
(See AMC FCL 4.005 & 4.015)

1 The minimum requirements for the validation of a flight engineer licence are specified below.

2 A flight engineer licence issued in accordance with ICAO Annex 1 may be validated subject to conditions in order to permit flights (other than flight instruction) in aeroplanes registered in Jordan. To validate such licences, the holder shall:

(a) complete, as a skill test, the type rating revalidation requirements of FCL 4.245 relevant to the privileges of the licence held. A skill test or proficiency check previously conducted to FCL 4.245, or to a standard acceptable to CARC, and valid at the time of application would meet this requirement.

(b) demonstrate to the satisfaction of CARC that a knowledge of the relevant parts of JCAR–OPS and FCL (see AMC FCL 4.005 & 4.015) has been acquired;

(c) demonstrate a knowledge of English in accordance with FCL 4.160(d);

(d) **[**hold a valid FCL Class 2 medical certificate;**]**

(e) meet any published additional requirements that CARC deems necessary; and

(f) the experience requirements set out in column (2) of the following table in relation to the validation conditions specified in column (3):

Licence held	Total flying experience as flight engineer	Validation conditions	
(1)	(2)	(3)	
Flight engineer	>1 500 hours as flight engineer on aeroplanes	Commercial air transport in aeroplanes as flight engineer	(a)
Flight engineer	>1 000 hours as flight engineer on aeroplanes	Other than commercial air transport in aeroplanes as flight engineer	(b)

Appendix 1 to FCL 4.055

Type Rating Training Organisations for the issue of type ratings only
(See FCL 4.055(b) and (c)), (See FCL 4.261(c) for approval of courses)
(See IEM FCL 4.055)

INTRODUCTION

1 A type rating training organisation (TRTO) is an organisation staffed, equipped and operated in a suitable environment offering type rating training, and/or MCC training, and/or synthetic flight instruction and, if applicable, theoretical instruction for specific training programmes.

2 A TRTO wishing to offer approved training to meet FCL requirement shall obtain the approval of CARC. No such approval will be granted by CARC unless:
(a) CARC can enforce the FCL requirements; and
(b) The TRTO meets all requirements of FCL

This Appendix gives the requirements for the issue, revalidation and variation of the approval of a TRTO.

OBTAINING APPROVAL

3 A TRTO seeking approval shall provide to CARC operations and training manuals, including quality systems, and descriptions of its training schemes as required by paragraph 17 and 25 through 27. After consideration of the application, the TRTO will be inspected to ensure that it meets the requirements set out in this Appendix. Subject to satisfactory inspection, approval of the TRTO will initially be granted for a period of one year. Revalidation of the approval may be granted for further periods of up to three years. CARC is not obliged to grant an approval for a TRTO outside Jordan if the personnel resources are not available or the cost of processing the application for approval and inspections puts undue burden on CARC.

4 All training courses shall be approved (see IEM FCL 4.055 (to be developed)).

5 Approval will be varied, suspended or revoked by CARC if any of the approval requirements or standards cease to be maintained to the minimum approved level.

6 If a TRTO wishes to make changes to an approved course or to its operations or training manual the approval of CARC shall be obtained before the changes are implemented. TRTOs need not advise CARC of minor changes in day-to-day operations. Where any doubt exists as to whether a

proposed change is minor, CARC shall be consulted.

7 A TRTO may make training arrangements with other training organisations or make use of alternative base aerodromes as part of its overall training organisation, subject to the approval of CARC.

FINANCIAL RESOURCES

8 (a) A TRTO shall satisfy CARC that sufficient funding is available to conduct training to the approved standards.

(b) A TRTO shall nominate a person acceptable to CARC who shall satisfy CARC that sufficient funding is available to conduct training to the approved standard. Such person shall be known as the accountable manager.

INSPECTION

9 In addition to the initial inspection, CARC will make certain inspections to determine the TRTO's compliance with ANTRs and the approval.

10 During such visits, access shall be given by the TRTO to training records, authorisation sheets, technical logs, lectures, study notes and briefings and any other relevant material. A copy of any report on a visit to a TRTO will be made available to that TRTO.

MANAGEMENT AND STAFFING

11 The management structure shall allow supervision of all grades of staff by persons having the experience and qualities necessary to ensure the maintenance of high standards. Details of the management structure, indicating individual responsibilities, shall be included in the TRTO's Operations Manual.

12 A Head of Training (HT) acceptable to CARC shall be nominated. The HT's responsibilities shall include ensuring that the TRTO is in compliance with FCL requirements. This person is ultimately directly responsible to CARC.

13 The TRTO shall have adequate personnel necessary to accomplish the training objectives. The duties of each instructor shall be identified and documented.

FLIGHT ENGINEER INSTRUCTOR

14 Flight Engineer Instructors shall hold:

(a) a flight engineer licence and rating(s) related to the flying training courses they are appointed to conduct; or
(b) an authorisation from CARC to conduct specific training in a TRTO (see FCL 4.300).

INSTRUCTORS FOR SYNTHETIC FLIGHT TRAINING

15 For flight training duties, instructors shall hold or have held a flight engineer licence and have instructional experience appropriate to the training courses they are appointed to conduct. For multi crew type rating and/or MCC flight training on a flight simulator and/or FTD, instructors shall hold a Flight Engineer Instructor rating or a SFI(E) authorisation.

THEORETICAL KNOWLEDGE INSTRUCTION

16 The theoretical knowledge instruction shall be conducted by an authorised instructor holding the appropriate type rating or any instructor having appropriate experience in aviation and knowledge of the aircraft concerned, e.g. flight engineer, maintenance engineer, flight operations officer.

TRAINING STANDARDS

17 The TRTO shall establish a system to ensure that the training centre operations and training are run efficiently and effectively. The quality system shall determine the effectiveness of TRTO policies, procedures, and training.

RECORDS

18 A TRTO shall maintain the following records and retain for a period of at least 5 years, using appropriate administrative staff:

(a) F/E trainee’s assessments before and during the course;

(b) details of theoretical knowledge, flying, and simulated flight training given to individual
trainees; and

(c) personal information, (expiry dates of medical certificates, ratings, etc.) related to TRTO's
personnel.

19 The format of the trainee's training records shall be specified in the Training Manual.

20 The TRTO shall submit training records and reports as required by CARC.

TRAINING PROGRAMME

21 A training programme shall be developed for each type of course offered. This programme shall include a breakdown of flying and ground training in either a week-by-week or phase presentation, a list of standard exercises and a syllabus summary. In particular, synthetic flight training and theoretical knowledge instruction shall be phased in such a manner as to ensure that trainees shall be able to apply to flying exercises the knowledge gained on the ground. Arrangements should be made so that problems encountered in instruction can be resolved during subsequent flight training.

Flight training for type rating for multi-pilot aeroplanes operated with a flight crew including a F/E shall be conducted with a flight crew of three using the MCC concept. The type rating course of a flight engineer shall be conducted by a flight engineer instructor.

TRAINING AEROPLANES

22 Each aeroplane must be equipped as required in the training specifications concerning the approved course in which it is used.

FACILITIES

23 Suitable training facilities shall be provided.

REQUIREMENTS FOR ENTRY TO TRAINING

24 The TRTOs shall be responsible for ensuring that trainees meet at least the pre-requisite conditions for type rating training as set out in FCL 4.250.

TRAINING MANUAL AND OPERATIONS MANUAL

25 A TRTO shall provide and maintain a Training Manual and an Operations Manual containing information and instructions to enable staff to perform their duties and to give guidance to trainees on how to comply with course requirements. A TRTO shall make available to staff and, where appropriate, to trainees the information contained in the Training Manual, the Operations Manual and the TRTO's approval documentation. The amendment procedure shall be stated and amendments properly controlled.

26 The Training Manual shall state the standards, objectives and training goal for each phase of training that the trainees are required to comply with, including stating the entry requirements for each course, as applicable.

It shall contain the information set out in IEM FCL 4.055, as applicable.

27 The Operations Manual shall provide relevant information to particular

groups of staff, e.g. TRI(E),synthetic flight instructors, ground instructors, operations and maintenance staff, etc. and shall contain the information set out in IEM FCL 4.055, as applicable.

Appendix 1 to FCL 4.075
Specifications for flight crew licences
(See FCL 4.075)

GENERAL

1 A valid licence including a valid medical certificate has always to be carried by the flight engineer when exercising the privileges of the licence.

2 A document containing a photo shall be carried for purposes of identification of the holder of the licence.

3 Any medical endorsements (e.g. use of spectacles, etc.) will be entered on the medical certificate (see FCL 3 IEM FCL 3.100) and at the discretion of CARC on the licence.

SUBPART-B
Reserved

SUBPART-C
Reserved

SUBPART -D

Flight Engineer Licence - F/EL

FCL 4.135 Student flight engineer

A student flight engineer shall meet the requirements specified by CARC.

FCL 4.140 Minimum age

An applicant for a F/EL shall be at least 18 years of age.

FCL 4.145 Medical fitness

An applicant for a F/EL shall hold a valid Class 2 medical certificate. In order to exercise the privileges of the F/EL a valid Class 2 medical certificate shall be held.

FCL 4.150 Privileges and conditions

(a) Privileges. Subject to any other conditions specified in ANTRs, the privileges of the holder of a F/EL are to act as a flight engineer in any multi-pilot aeroplane operated with a flight crew including a F/E.

(b) Conditions. An applicant for a F/EL who has complied with the conditions specified in FCL 4.140, 4.145 and 4.160 through 4.170 shall have fulfilled the requirements for the issue of a F/EL containing the type rating for the aeroplane used in the skill test.

(c) Restricted period.

(1) The privileges of the F/EL will be restricted until he has achieved 100 hours of flying experience as a F/E under the direct supervision of a TRI(E).

(2) From the 100 hours of flying experience, 50 hours may be credited in a flight simulator as F/E under restriction by a TRI(E) of which up to 25 hours may be substituted as pilot.

FCL 4.160 Theoretical and practical knowledge and skill
(See Appendix 1, 2 and 3 to FCL 4.160)

An applicant for a F/EL shall:

(a) (1) Hold a theoretical ATP(A) in accordance with FCL 1.285; or

(2) Have passed an ICAO ATP(A) theory test, including RT privileges or hold a R/T certificate/licence;

(b) (1) Have completed an approved technical training course of the maintenance of JAR 25/FAR 25/CS 25, JCAR, or AIR 2051 aeroplanes as in Appendix 1 to FCL4.160; or

(2) Have a university level of education in aeronautical engineering and have practical experience acceptable to CARC in the maintenance of applicable of JCAR aeroplanes; or

(3) Hold an Aircraft Maintenance Licence class B1/B2/C according to Part 66 or equivalent national licence/approval.

(c) Have completed a "flight appreciation course" (see Appendix 2 to FCL 4.160);

(d) Have demonstrated the ability to use the English language as set out in Appendix 3 to FCL 4.160.

FCL 4.165 Flight instruction and experience

(a) An applicant for a restricted F/EL shall have completed an approved course of flying training for a type rating on a multi-pilot aeroplane operated with a flight crew including a F/E at an approved Type Rating Training Organisation.

(b) An applicant who holds or has held an ICAO professional aeroplane pilot licence with IR or has equivalent experience as a military pilot is credited with the "flight appreciation course" as in FCL 4.160(c).

FCL 4.170 Skill
(See Appendix 1 and 2 to FCL 4.240)

An applicant for a F/EL shall have demonstrated the ability to perform as a flight engineer in an aeroplane the procedures and manoeuvres described in Appendices 1 and 2 to FCL 4.240.

Appendix 1 to FCL 4.160
Technical Training Course (TTC)
(See FCL 4.160(b)(1))

INTRODUCTION

1 The TTC shall be undertaken by an applicant for a F/EL with no previous experience in the maintenance of JAR 25/FAR 25, CS 25, BCAR or AIR 2051 aeroplanes.

2 The aim of the TTC is:

- to familiarise the applicant with the basic maintenance procedures;

- to give additional technical background knowledge, especially with respect to the implication of systems malfunctions;

- to train the applicant to oversee maintenance procedures in daily and routine operations of maintenance related to the MEL.

INSTRUCTORS

3 Instructors for a TTC shall be acceptable to CARC.

THEORETICAL KNOWLEDGE INSTRUCTION

4 The theoretical knowledge instruction shall be given in an approved FTO or Part 147 Training Organisation.

5 The theoretical knowledge instruction consists of 100 hours in addition to the following parts of the ATPL(A) syllabus in FCL 1:

1	Airframe and Systems	21 01
2	Electrics	21 02
3	Powerplant and Emergency Equipment	21 03/04
4	Flight Instruments and Automatic Flight Control Systems	22 01/02

PRACTICAL SKILLS

6 The practical part of a TTC shall be given in a training centre of an approved Part 145 maintenance organisation.

7 The practical training need not to be related to a single aeroplane type.

8 The applicant shall work together with experienced maintenance staff in the following departments:

1	Fuselage and Flight Controls	5 days
2	Engines	5 days
3	Instruments	5 days
4	Landing Gear and Brakes	5 days
5	Cabin/Cockpit/Emergency Equipment	5 days
6	Ground Handling and Servicing	5 days

CERTIFICATE OF COMPLETION

9 Following successful completion of the technical training, the Training Organisation carrying out the theoretical knowledge instruction and/or the practical skill training, shall provide the applicant with a certificate of satisfactory completion of the course, or part thereof.

Appendix 2 to AN TR-FCL 4.160
Flight Appreciation Course
(See FCL 4.160(c))

INTRODUCTION

1 The flight appreciation course shall be undertaken by any applicant for a F/EL with no previous IR experience as professional or military pilot.

2 The aim of the flight appreciation course is to familiarize the applicant with basic piloting skills and the use of instruments and navigation aids to comply with IFR procedures during departure, intermediate and final approach to landing phases of flight.

PROVISION OF COURSES

3 The flight appreciation course shall be undertaken at an FTO approved in accordance with FCL1 Appendix 1 to 1.055 or at a TRTO approved in accordance with FCL4 Appendix 1 to 4.055.

4 The course shall be acceptable to CARC.

5 The course shall be undertaken on a flight simulator, an FNPT II or an aeroplane equipped for IR flying. The procedural flying element of the course may be undertaken on a FNPT II.

6 The course may be combined with the Type Rating course required for the final issue of a/EL.

INSTRUCTORS

7 Instructors for the flight appreciation course shall be the holders of:

a) a FI(A) rating if conducted in an aeroplane;

b) a SFI(A) authorisation or a TRI(A) rating if conducted in a simulator;

c) a FI(A) rating or SFI(A) authorisation if conducted in a FNPT II.

TRAINING PROGRAM

8 A training programme shall be developed as appropriate to the type of aeroplane, simulator or FNPT II to be used for the course. The training programme shall be acceptable to the CARC.

9 The training programme shall include not less than 8 hours of flight instruction on an aeroplane or simulator or FNPT II, and not less than 10 hours of briefing and ground instruction. The flight instruction shall include:

a) aircraft handling in clean, approach and landing configuration;

b) aircraft trim and the effects of configuration/power changes,

c) approach to the stall and recovery from incipient stage of stall warning;

d) basic instrument flying on full panel;

e) use of autopilot

f) use of flight director, if available;

g) tracking of VOR/NDB radials;

h) approach and go-around;

i) situation awareness

LEVEL OF PROFICIENCY

10 The instructor shall ensure that the applicant has achieved a satisfactory understanding of basic aeroplane handling, and the use of flight instruments and navigation aids.

11 At the completion of the course, the instructor shall provide the applicant with a record of the ground briefing or instruction giving the flight time and exercises undertaken and a statement to the effect that the aim of the course has been achieved. The record shall be retained by the applicant for submission to CARC at the time of license application.

Appendix 3 to AN TR-FCL 4.160
Use of English language
(See FCL 4.160)

1 An applicant for a F/EL must as a crew member in a multi-pilot operated aeroplane:

(a) be able to monitor the communication in English during all phases of flight between the
aeroplane and ground stations, including weather information.

(b) be able to read and demonstrate an understanding of technical manuals written in
English, e.g. Operation Manual, Aeroplane Flight Manual etc.

(c) be able to communicate with other crew members in English during all phases of flight
relevant to the function on board, including flight preparation.

2 This shall be demonstrated by complying with one of the following alternative requirements:

(a) having graduated from an I/R or ATP course given in English, or the course according to
Appendix 1 to FCL 4.160 given in English; or

(b) having passed:

- an IR; or

- ATPL skill test or proficiency check; or

- the skill test or proficiency check in accordance with FCL 4.170 during which the two-way radiotelephony communication is performed in English; or

(c) having passed a specific examination on behalf of CARC after having undertaken a course of training enabling the applicant to meet the objectives listed in 1(a), (b) and(c).

SUBPART- F

Type Ratings (FLIGHT ENGINEERS)

FCL 4.220 Type ratings (F/E)

(See Appendix 1 to FCL 4.220)

Listing. Type ratings for aeroplanes will be issued according to the list of types of aeroplanes (see Appendix 1 to FCL 4.220). Type ratings may also be issued for multi-pilot aeroplanes operated with a flight crew including a F/E. In order to change to another variant of the aeroplane within one type rating, differences or familiarisation training is required (see Appendix 1 to FCL 4.220).

FCL 4.225 Circumstances in which type ratings are required

The holder of a flight engineer licence shall not act in any capacity as a flight engineer of an aeroplane except as a flight engineer undergoing skill testing or receiving flight instruction unless the holder has a valid and appropriate type rating. When a type rating is issued limiting the privileges, or to any conditions agreed within CARC, such limitation shall be endorsed on the rating.

FCL 4.230 Special authorisation of type ratings

For the non-revenue special purpose flights e.g. aircraft flight testing, special authorisation may be provided in writing to the licence holder by CARC in place of issuing the type rating in accordance with FCL 4.225. This authorisation shall be limited in validity to completing a specific task.

FCL 4.235 Type ratings - Privileges, number and variants

(See Appendix 1 to FCL 4.220)

(a) Privileges. Subject to FCL 4.220 above, the privileges of the holder of a type rating are to act as a flight engineer on the type of aeroplane specified in the rating.

(b) Number of type ratings held. There is no FCL limit to the number of ratings that may be held at one time. JCAR–OPS, however, may restrict the number of ratings that can be exercised at any one time.

(c) Variants. If the variant has not been flown within a period of 2 years following the differences training, further differences training or a proficiency check in that variant will be required.

(1) Differences training requires additional knowledge and training on an appropriate training device or the aeroplane:

The differences training shall be entered in the flight engineer's logbook or equivalent document and signed by a TRI(E) or SFI(E) as appropriate.

(2) Familiarisation training requires the acquisition of additional knowledge.

FCL 4.240 Type ratings - Requirements
(See Appendices 1 and 2 to FCL 4.240)
(See IEM FCL 4.240(b))

(a) General

SECTION 1 - AN TR-FCL 4 Subpart F

(1) An applicant for a type rating for a multi-pilot type of aeroplane operated by a flight crew including a F/E shall comply with the requirements for type ratings set out in FCL 4.250, 4.261 and 4.262.

(2) The type rating course, including theoretical knowledge, shall be completed within the 6 months preceding the skill test.

(3) At the discretion of CARC, an aeroplane type rating may be issued to an applicant who meets the requirements for that rating of another State, provided FCL 4.250 is met. Such a rating will be restricted to aeroplanes registered in that State, or operated by an operator of that State. The restriction may be removed when the holder has completed at least 500 hours of flight as a F/E on the type and complied with the revalidation requirements of FCL 4.245.

(4) A type rating contained in a licence issued by another State may be transferred to a FCL licence, subject to the appropriate proficiency check, provided the applicant is in current flying practice and has not less than 500 hours flying experience as a flight engineer on that type, provided FCL 4.250 is met.

(b) Skill test

(1) The skill test contents and sections for a F/E type rating on

multi-pilot aeroplanes requiring a minimum crew of three are set out in Appendices 1 and 2 to FCL 4.240; and

(2) Each applicable item in the appropriate skill test shall be satisfactorily completed within the six months immediately preceding the date of receipt of the application for the rating.

FCL 4.245 Type ratings - Validity, revalidation and renewal
(See Appendices 1 and 2 to FCL 4.240)

(a) Type ratings, aeroplane – Validity. Type ratings for aeroplanes are valid for one year from the date of issue, or the date of expiry if revalidated within the validity period.

(b) Type ratings, aeroplane – Revalidation. For revalidation of type ratings aeroplane, the applicant shall complete:

(1) A proficiency check in accordance with Appendix 1 to FCL 4.240 in the relevant type of aeroplane within the three months immediately preceding the expiry date of the rating; and

(2) At least ten route sectors as flight engineer of the relevant type of aeroplane, or one route sector as flight engineer of the relevant type of aeroplane flown with a TRE(E) during the period of validity of the rating.

(c) An applicant who fails to achieve a pass in all sections of a proficiency check before the expiry date of a type rating shall not exercise the privileges of that rating until the proficiency check has successfully been completed.

(d) Extension of the validity period or revalidation of ratings in special circumstances:

(1) When the privileges of an aircraft type rating are being exercised solely on an aeroplane registered in another State, CARC may at its discretion extend the validity period of the rating, or revalidate the rating provided the requirements of that State are fulfilled.

(2) When the privileges of an aircraft type rating are being exercised in a Jordanian registered aeroplane being operated by an operator of another State under the provisions of Article 83bis of the International Convention on Civil Aviation, Chicago, CARC may

at its discretion extend the validity period of the rating, or revalidate the rating provided the requirements of that other State are fulfilled.

(3) Any rating extended or revalidated under the provisions of (1) or (2) above shall be revalidated in accordance with FCL 4.245(b) before the privileges are exercised on aircraft registered in and operated by a Jordanian operator

(4) A rating issued or used in another State may remain in a FCL licence at the discretion of CARC provided the requirements of that State are fulfilled and the rating is restricted to aircraft registered in that State.

(e) Expired Ratings. If a type rating has expired, the applicant shall meet any refresher training requirements as determined by CARC and complete a proficiency check in accordance with Appendix 1 to FCL 4.240. The rating will be valid from the date of completion of the renewal requirements.

FCL 4.250 Type ratings – Multi-Crew Co-operation (MCC)

An applicant for the first issue of a type rating shall hold a certificate of satisfactory completion of multi-crew co-operation course (MCC) (see FCL 4.261). If the MCC course is to be added to the type rating course, this requirement is not applicable.

FCL 4.261 Type ratings - Knowledge and flight instruction
(See Appendix 2 to FCL 4.240) ,(See Appendix 1 to FCL 4.261)
(See AMC FCL 4.261)

(a) Theoretical knowledge instruction and checking requirements. An applicant for a type rating for multi-pilot aeroplanes operated with a flight crew including a F/E shall have completed the required theoretical knowledge instruction (see Appendix 1 to FCL 4.261(a)) and demonstrated the level of knowledge required for the safe operation of the applicable aeroplane type.

(b) Flight instruction. An applicant for a type rating for multi-pilot aeroplanes operated with a flight crew including a F/E shall have completed a course of flight instruction related to the type rating skill test (see Appendix 2 to FCL 4.240).

(c) Conduct of training courses

(1) Training courses for the above purpose shall be conducted by a TRTO. Training courses may also be conducted by a facility or a sub-contracted facility provided by an operator or a manufacturer.

(2) Such courses shall be approved by CARC and such facilities shall meet the relevant requirements of Appendix 1 to FCL 4.055, as determined by the CARC.

(d) Multi-crew co-operation training. The MCC training should be combined with the initial type rating course. The MCC training shall comprise at least 25 hours of theoretical knowledge instruction and exercises, and 4 hours of simulator training in addition to the type rating course (see AMC FCL 4.261).

FCL 4.262 Type ratings – Skill
(See Appendix 1 and 2 to FCL 4.240

Flight engineer skill test. An applicant for a type rating for a multi-pilot aeroplane operated with a flight crew including a F/E shall have demonstrated the skill required for the safe operation of the applicable type of aeroplane in a multi-crew environment as a F/E as set out in Appendices 1 and 2 to FCL 4.240.

Appendix 1 to FCL 4.220
List of Type of aeroplane
(See FCL 4.220(c))

1 This Appendix includes aeroplanes type certificated and does not include:

(a) aeroplanes not type certificated in accordance with FAR/JAR/CS 23, FAR/JAR/CS 23Commuter Category, FAR/JAR/CS 25, BCAR or AIR 2051;

(b) aeroplanes type certificated in the State of Jordan under special registration such a military, ex-military, experimental or vintage aeroplanes;

Aeroplanes not listed may be entered into a FCL licence, but the rating privileges are restricted to aeroplanes on the register of the State of rating issue.

2 Explanation of table (refer to FCL 4.235(c)):

(a) the symbol (D) in column 3 indicates that differences training is required when moving between variants or other types of aeroplane which are separated by the use of a line in column 2;

(b) although the licence endorsement (column 4) contains all aeroplanes listed in column 2,the required familiarisation or differences training has still to be completed;

(c) the specific variant on which the skill test for the type rating has been completed will be recorded according to FCL 4.080 (to be developed).

1Manufacturer	2 A/C Certification	3	4Licence Endorsement
Aerospatiale/BAC	Concorde		Concorde
Aero Space line	377 SGTF Super Guppy		Super Guppy
Airbus	A300 - B1 - B2 series - B4 series - C4-200 series - F4-200 series		A300
	A300 - 300-600ST (Beluga)		A300-600ST
Boeing	B707 - 100 series - 300 series - 400 series		B707
	B727 -100 series -200 series		B727
	B747 - 100 series - 200 series - 300 series	(D)	B747 100-300-S.P.
	- S.P.		
Boeing/McDonnell-Douglas	Douglas-3A-S1C3G		DC3
	DC4		DC4
	DC6 series		DC6
	DC7C		DC7
	DC8-33 DC8-50, 60, 70 series		DC8
	DC10 series		DC10

Lockheed	L382 G		Hercules
	L188 Electra series A		
	L188 Electra series C	(D)	L188 Electra
	L1011 series		L1011
Short Brothers	SC5 Belfast		Belfast

*Multi-pilot aeroplanes may be operated with a F/E as an additional member of the flight crew.

Appendix 1 to FCL 4.240
Skill test and proficiency check for aeroplane type ratings
(See FCL 4.240 through 4.262)

1 The applicant shall have completed the required instruction in accordance with the syllabus given in Appendix 2 to FCL 4.240. The administrative arrangements for confirming the applicant's suitability to take the test, including disclosure of the applicant's training record tothe examiner, shall be determined by CARC.

2 Items to be covered in skill tests/proficiency checks are given in the applicable Appendix 2 to FCL 4.240. With the approval of CARC, several different skill test/proficiency check scenarios may be developed containing simulated line operations. The examiner will select one of these scenarios. Flight simulators, if available and other training devices as approved shall be used.

3 The applicant shall pass all sections of the skill test/proficiency check. If any item in a section is failed, that section is failed. Failure in more than one section will require the applicant to take the entire test/check again. Any applicant failing only one section shall take the failed section again. Failure in any section of the re-test/re-check including those sections that have been passed at a previous attempt will require the applicant to take the entire test/check again.

4 Further training may be required after a failed test/check. Failure to achieve a valid pass in all sections in two attempts shall require further training as determined by the examiner. There is no limit to the number of skill tests/proficiency checks that may be attempted.

CONDUCT OF THE TEST/CHECK - GENERAL

5 CARC will provide the examiner with safety criteria to be observed in the conduct of the test/check.

6 Should an applicant choose not to continue with a test/check for reasons considered inadequate by the examiner, the applicant will be regarded as having failed those items not attempted. If the test/check is terminated for reasons considered adequate by the examiner, only those items not completed shall be tested in a further flight.

7 At the discretion of the examiner any manoeuvre or procedure of the test/check may be repeated once by the applicant. The examiner may stop the test/check at any stage if it is considered that the applicant's competency requires a complete re-test/re-check.

8 Checks and procedures shall be carried out/completed in accordance with the authorised check list for the aeroplane used in the test/check and, if applicable, with the MCC concept.

Performance data for take-off, approach and landing shall be calculated by the applicant in compliance with the operations manual or flight manual for the aeroplane used.

SPECIAL REQUIREMENTS FOR THE SKILL TEST/PROFICIENCY CHECK

9 The test/check shall be performed in a multi-crew environment.

10 The test/check should be accomplished as far as possible in a simulated commercial air transport environment under IFR. An essential element is the ability to plan and conduct the flight from routine briefing material.

FLIGHT TEST TOLERANCE

11 The applicant shall demonstrate the ability to:

(a) operate the aeroplane systems within its limitations;

(b) exercise good judgement and airmanship;

(c) apply aeronautical knowledge;

(d) understand and apply crew co-ordination and incapacitation procedures, if applicable; and

(e) communicate effectively with the other crew members.

CONTENT OF THE SKILL TEST/PROFICIENCY CHECK

12 (a) The skill test and proficiency check contents and sections are set out in Appendix 2 to FCL 4.240. The format and application form to the skill test may be determined by CARC.

(b) The skill test shall be completed with a flight crew including a F/E using the MCC concept.

(c) When the type rating course includes not more than 2 hours flight training on the aeroplane, the skill test may be simulator only and may be completed before the flight training on the aeroplane. In that case, a certificate of completion of the type rating course including the flight training on the aeroplane shall be forwarded to CARC before the new type rating is entered in the applicant's licence.

Appendix 2 to FCL 4.240
Content of the F/E Type rating/Training/Skill Test and proficiency check on multi-pilot aeroplanes requiring a minimum crew of three

(See FCL 4.240 through 4.262 and 4.295)

1 The following symbols mean:

F/E = Trained for the issue of a type rating as applicable.

X = Flight Simulators shall be used for this exercise, if available, otherwise an aeroplane shall be used if appropriate for the manoeuvre or procedure.

N/A = Not applicable for flight engineers.

F/E# = The training shall be complimented by supervised aeroplane inspection

2 The practical training shall be conducted at least at the training equipment level shown as F/E, or may be conducted up to any higher equipment level shown by the arrow (----->)

The following abbreviations are used to indicate the training equipment used:

A = Aeroplane

FS = Flight Simulator

FTD = Flight Training Device

OTD = Other Training Devices

3 Where the letter “M” appears in the skill test/ proficiency check column this will indicate a mandatory exercise.

4 A flight simulator shall be used for practical training and testing if the simulator forms part of an approved type-rating course. The following considerations will apply to the approval of the course:

(a) the qualification of the flight simulator or FNTP II as set out in FSTD A;

(b) the qualifications of the instructor and examiner;

(c) the amount of line-orientated training provided on the course;

(d) the qualifications and previous line operating experience of the engineer under training; and

(e) the amount of supervised line flying experience provided after the issue of the new type rating.

	PRACTICAL TRAINING					F/EL/TYPE-RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)	OTD	FTD	FS	A	Instructors initials when training completed	Chkd in FS A	Examiner's initials when test completed
SECTION 3							
3. Flight Manoeuvres and Procedures 3.1 Turns with and without spoilers.			F/E----->	----->			
3.2 Tuck under and Mach buffets after reaching the critical Mach number, and other specific flight characteristics of the aeroplane (e.g. Dutch Roll)			F/E----->	X An aircraft may not be used for this exercise			
3.3 Normal operation of systems and controls engineer's panel.	F/E----->	----->	----->	----->		M	
3.4 Normal and abnormal operations of following systems:						A mandatory minimum of 3 abnormal shall be selected from 3.4.0 to 3.4.14 inclusive. M	
3.4.0 Engine (if necessary propeller)	F/E----->	----->	----->	----->			
3.4.1 Pressurisation and air-conditioning	F/E----->	----->	----->	----->			
3.4.2 Pitot/static system	F/E----->	----->	----->	----->			
3.4.3 Fuel system	F/E----->	----->	----->	----->			
3.4.4 Electrical system	F/E----->	----->	----->	----->			
3.4.5 Hydraulic system	F/E----->	----->	----->	----->			
3.4.6 Flight control and Trim-system	F/E----->	----->	----->	----->			
3.4.7 Anti- and de-icing system, Glare shield heating	F/E----->	----->	----->	----->			
3.4.8 Autopilot/Flight director	F/E----->	----->	----->	----->			
3.4.9 Stall warning devices or stall avoidance devices, and stability augmentation devices.	F/E----->	----->	----->	----->			
3.4.10 Ground proximity warning system, weather radar, radio altimeter, transponder.		F/E----->	----->	----->			
3.4.11 Radios, navigation equipment, instruments, flight management system.	F/E----->	----->	----->	----->			
3.4.12 Landing gear and brake-system.	F/E----->	----->	----->	----->			
3.4.13 Slat and flap system.	F/E----->	----->	----->	----->			
3.4.14 Auxiliary power unit.	F/E----->	----->	----->	----->			
3.5 Intentionally left blank							

	PRACTICAL TRAINING					F/EL/TYPE-RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)	OTD	FTD	FS	A	Instructors initials when training completed	Chkd in FS A	Examiner's initials when test completed
3.6 Abnormal and emergency procedures:						A mandatory minimum of 3 items shall be selected from 3.6.1 to 3.6.9 inclusive. M	
3.6.1 Fire drills e.g. Engine, APU, cabin, cargo compartment, flight deck, wing and electrical fires including evacuation.		F/E---->	---->	---->			
3.6.2 Smoke control and removal .		F/E---->	---->	---->			
3.6.3 Engine failures, shut-down and restart at a safe height.		F/E---->	---->	---->			
3.6.4 Fuel dumping (simulated).		F/E---->	---->	---->		FS only	
3.6.5 Windshear at Take off/landing.			F/E	X		FS only	
3.6.6 Simulated cabin pressure failure/Emergency descent.			F/E---->	---->			
3.6.7 Incapacitation of flight crew member.		F/E---->	---->	---->			
3.6.8 Other emergency procedures as outlined in the appropriate aeroplane Flight Manual.		F/E---->	---->	---->			
3.6.9 ACAS event	F/E--->	---->	---->			FS only	
3.7 Steep turns with 45° bank, 180° to 360° left and right.		F/E---->	---->	---->	N/A	N/A	N/A
3.8 Early recognition and counter measures on approaching stall (up to activation of stall warning device) in take-off configuration, (flaps in take-off position), in cruising flight configuration and in landing configuration (flaps in landing position, gear extended)			F/E---->	---->			
3.8.1 Recovery from full stall or after activation of stall warning device in climb, cruise and approach configuration.			F/E---->	X			
3.9 Instrument flight procedures.							
3.9.1 Adherence to departure and arrival routes and ATC instructions.		F/E---->	---->	---->			
3.9.2 Holding procedures.		F/E---->	---->	---->	N/A	N/A	N/A
3.9.3 Precision approaches down to a decision height (DH) not less than 60 m (200 ft)			F/E---->	---->			
3.9.3.1 manually, without flight director.			F/E---->	---->		N/A	N/A
3.9.3.2 manually, with flight director.			F/E---->	---->		N/A	N/A
3.9.3.3 with autopilot.			F/E---->	---->			

	PRACTICAL TRAINING					F/EL/TYPE-RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)	OTD	FTD	FS	A	Instructors initials when training completed	Chkd in FS A	Examiner's initials when test completed
3.9.3.4 manually, with one engine simulated in-operative;					N/A	N/A	N/A
engine failure has to be simulated during final approach from before passing the outer marker (OM) until touchdown or through the complete missed approach procedure.			F/E----->	----->		M	
3.9.4 non-precision approach down to the MDH/A			F/E----->	----->			
3.9.5 Circling approach under following conditions: a) approach to the authorised minimum circling approach altitude at the aerodrome in question in accordance with the local instrument approach facilities in simulated instrument flight conditions; followed by: b) circling approach to another runway at least 90° off centreline from final approach used in item a), at the authorised minimum circling approach altitude; Remark: if a) and b) are not possible due to ATC reasons a simulated low visibility pattern may be performed.			F/E----->	----->			

	PRACTICAL TRAINING					F/EL/TYPE-RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)	OTD	FTD	FS	A	Instructors initials when training completed	Chkd in FS A	Examiner's initials when test completed
SECTION 4							
4. Missed Approach Procedures 4.1 Go-around with all engines operating after an ILS approach on reaching decision height.			F/E ----->	----->			
4.2 Other missed approach procedures.			F/E----->	----->			
4.3 Manual go-around with engine simulated inoperative after an instrument approach on reaching DH, MDH or MAPt			F/E----->	----->		M	
4.4 Rejected landing at 15 m (50ft) above runway threshold and go-around.			F/E----->	----->			
SECTION 5							
5. Landings 5.1 Normal landings also after an ILS approach with transition to visual flight on reaching DH.			F/E----->	----->			
5.2 Landing with simulated jammed horizontal stabiliser in any out-of-trim position.			F/E----->	X an aircraft may not be used for this exercise			
5.3 Cross wind landings (A, if practicable).			F/E----->	----->	N/A	N/A	N/A
5.4 Traffic pattern and landing without extended or with partly extended flaps and slats.			F/E----->	----->			
5.5 Landing with critical engine simulated inoperative.			F/E----->	----->		M	
5.6 Landing with two engines simulated inoperative: - Aeroplanes with three engines: the centre engine and one outboard engine as far as practicable according to data of the AFM. - Aeroplanes with four engines: two engines at one side.			F/E	X		M FS only (skill test only)	

General remarks:

Special requirements for extension of a type rating for instrument approaches down to a decision height of less than 200 feet (60m), i.e. Cat II/III operations. (Refer to Subpart E, FCL 1.180)

	PRACTICAL TRAINING					F/EL/TYPE-RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)	OTD	FTD	FS	A	Instructors initials when training completed	Chkd in FS A	Examiner's initials when test completed
SECTION 6							
6.Additionnal authorisation for instrument approaches down to a decision height of less than 60 m (200 ft) (CAT II/III) The following manoeuvres and procedures are the minimum training requirements to permit instrument approaches down to a DH of less than 60 m (200 ft). During the following instrument approaches and missed approach procedures all aeroplane equipment required for type certification of instrument approaches down to a DH of less than 60 m (200 ft) shall be used.							
6.1 Rejected take-off at minimum authorised RVR.			F/E---->	X an aircraft may not be used for this exercise		M	
6.2 ILS Approaches in simulated instrument flight conditions down to the applicable DH using flight guidance system. Standard procedures of crew co-ordination (task sharing, call out procedures, mutual surveillance, information, and support) shall be observed.			F/E---->	----->		M	
6.3 Go-around after approaches as indicated in 6.2 on reaching DH. The training also shall include go-around due to (simulated) insufficient RVR, wind shear, aeroplane deviation in excess of approach limits for a successful approach, and ground/airborne equipment failure prior to reaching DH and, go-around with simulated airborne equipment failure. Special attention shall be given to go-around procedures with pre-calculated manual or automatic go-around attitude guidance.			F/E---->	----->		M	

	PRACTICAL TRAINING					F/EL/TYPE-RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)					Instructors initials when training completed	Chkd in	Examiner's initials when test completed
	OTD	FTD	FS	A		FS A	
6.4 Landing(s). with visual reference established at decision height following an instrument approach. Depending on the specific flight guidance system, an automatic landing shall be performed.			F/E----->	----->		M	

Note: CAT II/III operations shall be accomplished in accordance with Operational Rules

Appendix 1 to FCL 4.261(a)
Theoretical knowledge instruction and checking requirements for type ratings

(See FCL 4.261(a))

1 The theoretical knowledge instruction shall be conducted by an authorised instructor holding the appropriate type rating or any instructor having appropriate experience in aviation and knowledge of the aircraft concerned, e.g. flight engineer, maintenance engineer, flight operations officer.

2 The theoretical knowledge instruction shall cover the syllabus in AMC FCL 4.261(a), as appropriate to the aeroplane type concerned with the following content:

(a) Aeroplane structure and equipment, normal operation of systems and malfunctions

- Dimensions
- Engine including auxiliary power unit
- Fuel system
- Pressurisation and air-conditioning
- Ice protection, windshield wipers and rain repellent
- Hydraulic systems
- Landing gear
- Flight controls, lift devices
- Electrical power supply
- Flight instruments, communication, radar and navigation equipment
- Cockpit, cabin and cargo compartment
- Emergency equipment

(b) Limitations

- General limitations
- Engine limitations
- System limitations
- Minimum equipment list

(c) Performance, flight planning and monitoring

- Performance
- Flight planning
- Flight monitoring

(d) Load, balance and servicing

- Load and balance
- Servicing on ground

(e) Emergency procedures

(f) Special requirements for extension of a type rating for instrument approaches down to a decision height of less than 200 ft (60 m)

- Airborne equipment, procedures and limitations

(g) Special requirements for “glass cockpit” aeroplanes

- Electronic flight instrument systems (e.g. EFIS, EICAS)

(h) Flight management systems (FMS)

3 For the initial issue of type ratings the written or computer based examination shall at least comprise one hundred multi-choice questions distributed appropriately across the main subjects of the syllabus. The pass mark shall be 75% in each of the main subjects of the syllabus.

4 For proficiency checks theoretical knowledge shall be verified by a multi-choice questionnaire or other suitable methods.

Appendix 1 to FCL 4.261(d)
Multi-crew co-operation course (Aeroplane)
(See FCL 4.261(d)), (See AMC FCL 4.261(d))

1 The aim of the course is to become proficient in multi-crew co-operation (MCC) in order to operate safely multi-pilot multi-engine aeroplanes under IFR and, for that purpose, to ensure that:

a. The pilot-in-command fulfils his managing and decision-making functions irrespective whether he is PF or PNF.

b. The tasks of PF and PNF and F/E are clearly specified and distributed in such a manner that the PF can direct his full attention to the handling and control of the aircraft.

c. Co-operation is effected in an orderly manner appropriate to the normal, abnormal or emergency situations encountered.

d. Mutual supervision, information and support is ensured at all times.

INSTRUCTORS

2 Instructors for MCC training shall be thoroughly familiar with human factors and crew resource management (CRM). They should be current with the latest developments in human factors training and CRM techniques.

THEORETICAL KNOWLEDGE

3 The theoretical knowledge syllabus is set out in AMC FCL 4.261(d). An approved MCC theoretical knowledge course shall comprise not less than 25 hours.

FLYING TRAINING

4 The flying training syllabus is set out in AMC FCL 4.261(d).

CERTIFICATE OF COMPLETION

5 On completion of the course, the applicant may be issued with a certificate of satisfactory completion of the course.

CROSS-CREDITING

6 A holder of a certificate of completion of MCC training on aeroplanes shall be exempted from the requirement to complete the theoretical knowledge syllabus as set out in AMC FCL4.261(d).

SUBPART- H
Instructors

FCL 4.300 Instruction - General

(a) A person shall not carry out the flight instruction required for the issue of any flight engineer licence or rating unless that person has:

(1) A flight engineer licence containing an instructor rating; or

(2) A specific authorisation granted by CARC in cases where:

(i) New aeroplanes are introduced; or

(ii) Vintage aeroplanes or aeroplanes of special manufacture are registered for which no person has an instructor rating.

(b) A person shall not carry out synthetic flight instruction unless holding a TRI(E) rating or a SFI(E) authorisation.

Paragraph (a)(2) above is also valid for the synthetic flight instruction.

FCL 4.305 Instructor rating and authorisation - Purposes

Two instructors categories are recognised.

(a) Flight engineer instructor rating TRI(E).

(b) Synthetic flight engineer instructor authorisation SFI(E).

FCL 4.310 Instructor ratings - General

Prerequisites. All instructors shall hold at least the licence and rating for which instruction is being given (unless specified otherwise).

FCL 4.315 Instructor ratings - Period of validity

(a) All instructors ratings and authorisations are valid for a period of three years.

(b) The validity period for a specific authorisation shall not exceed 3 years.

(c) An applicant who fails to achieve a pass in all sections of a proficiency check before the expiry date of an instructor rating shall not exercise the privileges of that rating until the proficiency check has successfully been completed.

FCL 4.360 Flight engineer instructor rating (TRI(E)) - Privileges
(See FCL 4.245)

The privileges of the holder of a TRI(E) rating are to instruct for the issue of a flight engineer licence and type ratings, and the training required for F/E multi-crew co-operation (see FCL 4.245).

FCL 4.365 TRI(E)- Requirements
(See Appendix 1 to FCL 4.365) , (See AMC FCL 4.365)

An applicant for the initial issue of a TRI(E) rating shall have:

(a) (1) Successfully completed an approved TRI(E) course at an approved FTO or TRTO(see Appendix 1 to FCL 4.365);

(2) Completed at least 1 500 hours flight time as a F/E;

(3) Completed within the 12 months preceding the application at least 30 route sectors, to include take-offs and landing as flight engineer on the applicable aeroplane type, or a similar type as agreed by CARC, of which not more than 15 sectors may be completed in a flight simulator; and

(4) Conducted on a complete type rating course of at least three hours of flight instruction related to the duties of a TRI(E) on the applicable type of aeroplane and/or flight simulator under the supervision and to the satisfaction of a TRI(E)notified by CARC for this purpose.

(b) Before the privileges are extended to further types, the holder shall have:

(1) Completed, within the 12 months preceding the application, at least 15 route sectors as flight engineer on the applicable type of aeroplane, or a similar type as agreed by CARC, of which not more than 7 sectors may be completed in a flight simulator;

(2) Satisfactorily completed the relevant technical training content of an approved TRI(E) course (see Appendix 1 to FCL 4.365) in a FTO or a TRTO; and

(3) Conducted on a complete type rating course at least 3 hours of flight instruction related to the duties of a TRI(E) on the applicable type of aeroplane and/or flight simulator under the supervision and to the satisfaction of a TRI(E) notified by the CARC for this purpose.

FCL 4.370 TRI(E) rating - Revalidation and renewal
(See Appendix 1 to FCL 4.365)

(a) For revalidation of a TRI(E) rating, the applicant shall within the last 12 months preceding the expiry date of the rating:

(1) Conduct one of the following parts of an approved type rating/refresher/recurrent training course:

(i) One simulator session of at least 3 hours; or

(ii) One flight exercise of at least 1 hour including 2 take-offs and landings; or

(2) Receive TRI(E) refresher training acceptable to CARC.

(b) If the rating has lapsed the applicant shall have:

(1) Completed within the 12 months preceding the application, at least 30 route sectors to include take-offs and landings as flight engineer on the applicable aeroplane type, or a similar type as agreed by CARC, of which not more than 15 sectors may be completed in a flight simulator;

(2) Successfully completed the relevant parts of an approved TRI(E) course (see Appendix 1 to FCL 4.365), taking into account the recent experience of the applicant; and

(3) Conducted on a complete type rating course at least 3 hours of flight training related to the duties of a TRI(E) on the applicable type of aeroplane and/or flight simulator under the supervision and to the satisfaction of a TRI(E) notified by CARC
for this purpose.

FCL 4.405 Synthetic flight instructor authorisation (SFI(E)) – Privileges
(See FCL 4.261(d))

The privileges of the holder of a SFI(E) authorisation are to carry out synthetic flight instruction for type ratings, and the instruction required for F/E multi-crew co-operation (see FCL 4.261(d)).

FCL 4.410 SFI(E) - Requirements
(See Appendix 1 to FCL 4.240) , (See Appendix 1 to FCL 4.365)

(a) An applicant for a SFI(E) authorisation shall:

(1) Hold or have held a flight engineer licence or a non FCL flight engineer licence acceptable to CARC;

(2) Have completed the simulator content of the applicable type rating course at an approved FTO or TRTO;

(3) Have at least 1 500 hours flying experience as flight engineer;

(4) Have completed an approved TRI(E) course (see Appendix 1 to FCL 4.365);

(5) Have conducted on a complete type rating course at least 3 hours of synthetic flight instruction related to the duties of a TRI(E) on a flight simulator of the applicable type of aeroplane under the supervision and to the satisfaction of a TRI(E) notified by CARC for this purpose;

(6) Have completed within a period of 12 months preceding the application, a proficiency check as set out in Appendix 1 to FCL 4.240 on a flight simulator of the applicable type; and

(7) (i) Have completed within a period of 12 months preceding the application at least three route sectors as an observer on the flight deck of the applicable type or similar type as agreed by CARC, or

(ii) Have completed within a period of 12 months, preceding the application, at least 2 LOFT based simulator sessions conducted by qualified flight crew as an observer on the flight deck of the applicable type or similar type as agreed by CARC.
These simulator sessions shall include:
(A) Flight between 2 different airports of at least 2 hours duration

each, and

(B) Associated pre-flight planning and de-briefing.

(b) If the privileges are to be extended to further types of aeroplanes, the holder shall have:

(1) Satisfactorily completed the simulator content of the relevant type rating course; and

(2) Conducted on a complete type rating course at least 3 hours of synthetic flight instruction related to the duties of a TRI(E) on a flight simulator of the applicable type of aeroplane under the supervision of a TRI(E) notified by CARC for this purpose.

AN TR-FCL 4.415 SFI(E) - Revalidation and renewal

(a) For revalidation of a SFI(E) authorisation, the applicant shall within the last 12 months preceding the expiry date of the validity period of the authorisation:

(1) Conduct one simulator session of at least 3 hours as part of as a complete type
rating/refresher/recurrent training course; and

(2) Have completed a proficiency check as set out in Appendix 1 to FCL 4.240 on a flight simulator of the appropriate type.

(b) If the authorisation has lapsed the applicant shall have:

(1) Completed the simulator content of the applicable type rating course;

(2) Successfully completed an approved TRI(E) course according to the requirements of CARC (see Appendix 1 to FCL 4.365); and

(3) Conducted on a complete type rating course at least 3 hours of synthetic flight instruction related to the duties of a TRI(E) on a simulator of the applicable type of aeroplane under the supervision and to the satisfaction of a TRI(E) notified by the CARC for this purpose.

(4) Completed a proficiency check as set out in Appendix 1 to FCL 4.240 on a flight simulator of the appropriate type.

Appendix 1 to AN TR-FCL 4.365
Course for the type rating instructor rating for Flight Engineers (TRI(E))

(See FCL 4.365)

1 The aim of the TRI(E) course is to train Flight Engineer licence holders with more than 1 500hours as a F/E to the level of proficiency necessary for the issue of a TRI(E) or SFI(E) rating.
The course shall be designed to give adequate training to the applicant in theoretical knowledge instruction, flight instruction and/or synthetic flight instruction in order to instruct for any type rating.

TEACHING AND LEARNING

2 The syllabus is set out in AMC FCL 4.365. An approved TRI(E) Teaching and Learning course shall comprise not less than 25 hours. Pilots holding or having held a FI(A) or a TRI(A) rating are credited for the TRI(E) Teaching and Learning part of the TRI(E) course.

TECHNICAL TRAINING

3 The technical training syllabus is set out in AMC FCL 4.365.

SUBPART- I
Examiners

FCL 4.425 Examiners - General

(a) Prerequisites

(1) Examiners shall hold a F/E licence and rating at least equal to the licence or rating for which they are authorised to conduct skill tests or proficiency checks and, unless specified otherwise, the privilege to instruct for this licence or rating.

(2) Examiners shall be qualified to act as flight engineer of the aircraft during a skill test or a proficiency check, unless otherwise specified, and shall meet the applicable experience requirements set out in FCL 4.370. Where no qualified examiner is available and, at the discretion of CARC, examiners/inspectors may be authorised without meeting the relevant type rating requirements as mentioned above.

(3) The applicant for an examiner authorisation shall have conducted at least one skill test in the role of an examiner for which the authorisation is sought, including briefing, conduct of the skill test, assessment of the applicant to whom the skill test is given, debriefing and recording/documentation. This "Examiner Authorisation Acceptance Test" will be supervised by an inspector of CARC or by a senior examiner specifically authorised by CARC for this purpose.

(b) Compliance with AN TRs. Examiners will be authorised in accordance with FCL 4.030.
The examiner shall comply with appropriate examiner's standardisation arrangements made or approved by CARC.

(c) Entries in the licence. In licences where revalidation entries may be made by the examiner, the examiner will:

(1) Complete the following details: ratings, date of check, valid until, authorisation number and signature;

(2) Submit the original of the skill test/proficiency check form to the issuing CARC and hold one copy of the check form on personal file.

FCL 4.430 Examiners - period of validity

An examiner's authorisation is valid for not more than three years. Examiners are re-authorised at the discretion of CARC.

FCL4.440 Flight engineer examiner (TRE(E)) – Privileges / Requirements

The privileges of a TRE(E) are to conduct:

(a) Skill tests for the issue of flight engineer licence and type ratings;

(b) Proficiency checks for revalidation or renewal of flight engineer type ratings, provided that the examiner has completed not less than 1 500 hours flight time as a flight engineer on multi-pilot aeroplanes operated with a flight crew including a F/E and holds a TRI(E) authorisation.

-END-