("Official Gazette of RS", No.39/09)

On the basis of Article 111, paragraph 1, Article 112, paragraph 3, Article 129 and Article 130, paragraph 1 of the Air Transport Law ("Official Gazette of FRY" No 12/98, 5/99-corrigendum, 44/99, 73/00 and 70/01 and "Official Gazette of the Republic of Serbia" No 101/05), and point 14, subpoint 2 of the Decision on the Establishment of the Civil Aviation Directorate of the State of Serbia and the State of Montenegro ("Official Gazette of the Republic of Serbia" No 102/03), Decision on Exercising the Founder's Rights in the Civil Aviation Directorate of the State of Serbia and the State of Montenegro ("Official Gazette of the Republic of Serbia", No 53/06) and the Conclusion on Name Modification of the Civil Aviation Directorate of the State of Serbia and the State of Montenegro ("Official Gazette of the Republic of Serbia", No 12/07),

The Council of the Civil Aviation Directorate of the Republic of Serbia lays down the following

REGULATION ON
FLIGHT ENGINEERS LICENCING AND TRAINING CENTERS

Article 1

This Regulation shall lay down the requirements and procedures for issuing, revaliditating and renewal of licence, rating and authorisation for flight engineers, flight engineer training programs, manner of determining and verification of their professional skills, as well as conditions that legal persons engaged in professional training of flight engineers must fulfil.

Article 2

Certain terms in this Regulation shall have the following meaning:

1) Joint Aviation Authorities -JAA)- an associated body of the European Civil Aviation Conference (ECAC);

2) JAA Member State-a State that signed Arrangements concerning the development, the acceptance and the implementation of Joint Aviation Requirements (JAR) concluded in Cyprus on September 11, 1990;

3) Joint aviation requirements governing the issuance of flight crew licences (Joint Aviation Requirements - Flight Crew Licencing - JAR FCL)- a collection of aviation requirements laying down conditions and procedures for obtaining, issuing, revaliditating and renewal of licences and ratings of aeroplane pilots, helicopter pilots and flight engineers, as well as conditions and procedures for issuing medical certificates on their fitness.

4) Aviation Authority (Authority) - a body responsible for regulatory and supervisory activities in civil aviation of the Republic of Serbia. The Civil Aviation Directorate of the Republic of Serbia (hereinafter referred to as "Directorate");

5) Flight Training Organisation (FTO)-a training center authorised to conduct a training of flight crew for the purpose of obtaining licences and ratings;

6) Type Rating Training Organisation (TRTO)-a training centre authorised to conduct training of flight crew for the purpose of obtaining the aircraft type ratings;

Article 3

Requirements for issuing, revaliditating and renewal of licence, rating and authorisation of flight engineers are set out in Appendix 1 to this Regulation (JAR-FCL 4).

Article 4

Flight training of flight engineers shall be conducted by the training centres provided they fulfil the requirements set out in Appendix 1 to this Regulation and upon authorisation of the Directorate.

Flight training for obtaining licence, rating and authorisation set out in this Regulation shall be conducted according to programmes laid down in Appendix 1 to this Regulation.

Article 5

Flight engineer licences issued in accordance with the regulations applicable prior to the entry into force of this Regulation shall be valid until the expiry date of type rating entered in the licence and shall be re-issued for a validity period of 5 years, provided the requirements for revaliditation or renewal of type rating set out in the Appendix 1 to this Regulation are fulfilled (JAR-FCL 4.245).

The holders of a F/E licence being granted the flight engineer instructor rating shall have entered that TRI(E) in their licence set out in Appendix 1 to this Regulation (JAR-FCL 4.305) for a validity period of three years.

Article 6

On the date of the entry into force of this Regulation the provisions of the Regulation on Flight Crew Licencing (”Official Gazette of the Republic of Serbia”, No 30/05) shall cease to be valid in the part related to flight engineers.

Article 7

This Regulation shall enter into force on the eighth day following the day of its publication in the “Official Gazette of the Republic of Serbia”.

No.1/0-01-0006/2009-0007
In Belgrade, 7 May 2009

Council

President

Milutin Mrkonjic
Minister of Infrastructure

JAR-FCL 4

SECTION 1- REQUIREMENTS

1. GENERAL
This section contains requirements regarding the flight crew licences.

JAR-FCL 4.001 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 a JAR-FCL licence on the basis of a licence issued by a non-JAA 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 JAR-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 JAR-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 synthetic training devices (STDs).

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 Authority.

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 check:
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/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/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 a JAA Member State having an integrally mounted, non-retractable engine and a non-retractable propeller plus those listed in Appendix 1 to JAR-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.

JAR-FCL 4.005 Applicability
(See Appendix 1 to JAR- FCL 4.005)

(a) General

The requirements set out in JAR-FCL 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 the Authority after the entry into force of this Regulation.

(2) Whenever licences, ratings, authorisations, approvals or certificates are mentioned in JAR-FCL, these are meant to be licences, ratings, authorisations, approvals or certificates issued in accordance with JAR-FCL. In all other cases these documents are specified as e.g. ICAO or national licences.
(3) Whenever a reference is made to JAA Member State for the purpose of mutual recognition of licences, ratings, authorisations, approvals or certificates, this means JAA full Member State.
(4) All synthetic training devices mentioned in JAR-FCL substituting an aircraft for training purposes are to be device qualified and in accordance with JAR-STD(A) and user approved in accordance with JAR-FCL by the Authority for the exercises to be conducted.
(5) A licence issued on the basis of training performed outside a JAA Member State, except training done according to JAR-FCL 1.055(a)(1), shall have an entry to limit the privileges to aircraft registered in the State of licence issue.
(6) Rating(s) issued on the basis of training performed outside a JAA Member State except training performed according to JAR-FCL 1.055(a)(1), shall be limited to aircraft registered in the State of licence issue.

(b) Transitional arrangements
(1) Not applicable.
(2) Not applicable.
(3) Holders of a licence issued in accordance with the national regulations of a JAA Member State prior to entry into force of this Regulation , may apply to the State of licence issue for the issue of the equivalent licence specified in JAR-FCL 4 which extends the privileges to other States as set out in JAR-FCL 4.015(a)(1). For the issue of such licences, the holder shall meet the requirements set out in Appendix 1 to JAR-FCL 4.005.
(4) Holders of a licence issued in accordance with the national regulations of a JAA Member State who do not fully meet the Section 1 requirements of JAR-FCL (Medical) shall be permitted to continue to exercise the privileges of the national licence held.

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

JAR-FCL 4.010 Basic authority 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 a JAA Member State unless that person holds a valid licence and rating complying with the requirements of JAR-FCL and appropriate to the duties being performed, or an authorisation as set out in JAR-FCL 4.230. The licence shall have been issued by:

(I) a JAA Member State;
(II) another ICAO Contracting State and rendered valid in accordance with JAR- 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) A JAA Member State may at any time in accordance with its national procedures 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 JAR-FCL if it is established that an applicant or a licence holder has not met, or no longer meets, the requirements of JAR-FCL or relevant national law of the State of licence issue.
(2) If a JAA Member State establishes that an applicant or licence holder of a JAR-FCL licence issued by another JAA Member State has not met, or no longer meets, the requirements of JAR-FCL or relevant national law of the State in which an aircraft is being flown, the JAA Member State shall inform the State of licence issue and the Licensing Division of the Central JAA. In accordance with its national law, a JAA Member State may direct that in the interest of safety an applicant or licence holder it has duly reported to the State of licence issue and the JAA for the above reason may not [exercise the privileges of his licence in any aircraft registered in that State or in any aircraft in that State's airspace.

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

(a) Licences, ratings, authorisations, approvals or certificates issued by JAA Member States
(1) Where a person, an organisation or a service has been licensed, issued with a rating, authorisation, approval or certificate by the Authority of a JAA Member State in accordance with the requirements of JAR-FCL and associated procedures, such licences, ratings, authorisations, approvals or certificates shall be accepted without formality by other JAA Member States.
(2) Not applicable.

(b) Licences issued by non-JAA States
A licence issued by a non-JAA State may be rendered valid at the discretion of the Authority of a JAA Member State for use on aircraft registered in that JAA Member State in accordance with Appendix 1 to JAR-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 for

use on aircraft registered in any JAA Member State is subject to agreement by the JAA Member States and to any conditions seen fit within the JAA. The user of a licence validated by a JAA Member State shall comply with the requirements stated in JAR-FCL.
(3) The requirements stated in (1) and (2) above shall not apply where aircraft registered in a JAA Member State are leased to an operator in a non-JAA State, 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 JAR-OPS 1.165. The licences of the flight crews of the non-JAA State operator may be validated at the discretion of the Authority of the JAA Member State concerned, 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 JAA operator, directly or indirectly, through a wet lease or other commercial arrangement.

(c) Conversion of a flight engineer licence issued by a non-JAA State.
A flight engineer licence issued by a non-JAA State may be converted to a JAR-FCL licence provided that an arrangement exists between the JAA and the non-JAA State. This arrangement shall be established on the basis of reciprocity of licence acceptance and shall ensure that an equivalent level of safety exists between the training and testing requirements of the JAA and the non-JAA State. Any arrangement entered into will be reviewed periodically, as agreed by the non-JAA State and the JAA. A licence converted according to such an arrangement shall have an entry indicating the non JAA State upon which the conversion is based. Other Member States shall not be obliged to accept any such licence.

(d) When an Authority issues a licence which deviates from JAR-FCL, an endorsement shall be made on the licence, under item XIII.

JAR-FCL 4.016 Credit given to a holder of a licence issued by a non-JAA State

(a) An applicant for a JAR-FCL licence and IR, if applicable, already holding at least an equivalent licence issued in accordance with ICAO Annex 1 by a non-JAA State shall meet all the requirements of JAR-FCL, except that the requirements of course duration, number of lessons and specific training hours may be reduced. The Authority 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 JAR-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.

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

Application for credit:
Military flight crew members applying for licences or ratings specified in JAR-FCL 4 shall apply to the Authority of the State for which they serve(d). The knowledge, experience and skill gained in military service will be credited towards the relevant requirements of JAR FCL 4 licences and ratings at the discretion of the Authority. The policy for the credit given shall be reported to the JAA. 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 JAR FCL 4.005 are met.

JAR-FCL 4.025 Validity of licences and ratings (See JAR-FCL 3.105)

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

(b) Validity of the licence and revalidation of a rating
The validity of the licence is determined by the validity of the ratings contained therein and the medical certificate (see JAR-FCL 3.105).
(2) When issuing or revalidating/renewing a rating, the Authority 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 5 years. Within this period of 5 years the licence will be re-issued by the Authority:
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 the Authority when a rating is revalidated.
Valid ratings will be transferred to the new licence document by the Authority. The licence holder shall apply to the Authority for the re-issue of the licence.
The application shall include the necessary documentation.

JAR-FCL 4.026 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.

JAR-FCL 4.030 Arrangements for testing

(a) Authorisation of examiners.
The Authority 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 JAR-FCL 4 (Flight Engineers) Subpart I. Examiners' responsibilities and privileges will be notified to them individually in writing by the Authority.

(b) Number of examiners.
The Authority 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.
The Authority 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 the JAA Member State. The Authority will determine by which means the examiners will be allocated to the skill test.
The Authority 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 the Authority.

(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.

JAR-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 JAR-FCL (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 the Authority. The Authorised Medical Examiner (AME) shall inform the applicant of any conditions (medical, operational or otherwise) that may restrict flying training and/or the privileges of any licence issued.

(d) Operational Multicrew Limitation for F/E (OML - forF/E Class 1 only).
The limitation 'OML' for F/E is to be applied when the holder of a F/E licence does not fully meet the class 1 medical certificate requirements but is considered to be within the accepted risk of incapacitation (see JAR-FCL 3 (Medical), IEM FCL A, B and C).
This limiation is applied by the Authority and can only be removed by the Authority.
(2) The other flight crew members shall not be subject to an OML.

JAR-FCL 4.040 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 JAR-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:
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 the Authority 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 the Authority and being pronounced fit to function as a member of the flight crew, or upon the Authority 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 the Authority for such period and subject to such conditions as it thinks fit. It shall cease upon the holder being medically examined under arrangements made by the Authority after the pregnancy has ended and being pronounced fit to resume her functions as a member of the flight crew.

JAR-FCL 4.045 Special circumstances

(a) It is recognised that the provisions of all parts of JAR-FCL will not cover every possible situation. Where the application of JAR-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 the Authority 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). The granting of a long term exemption may only be undertaken in agreement with the JAA Licensing Sectorial Team.

JAR-FCL 4.050 Crediting of flight time and theoretic knowledge

(a) Crediting of flight time
(1) Unless otherwise specified in JAR 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.

JAR FCL 4.055 Training organisations

(See Appendix 1 to JAR- FCL 4.055) (See IEM FCL 4.055)

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

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

(c) Organisations specialising in theoretical knowledge instruction located in the JAA Member States will be granted approval by the Authority subject to complying with those parts of Appendix 1 of JAR-FCL 4.055 relevant to the specialised knowledge instruction they are providing.

JAR-FCL 4.065 State of licence issue
(See JAR-FCL 4.010(c))
(See JAR-FCL 4.070).

(a) An applicant shall demonstrate the satisfactory completion of all requirements for licence issue to the Authority of the "State of licence issue" (see JAR-FCL 4.010(c)).

(b) In circumstances agreed by both Authorities, an applicant who has commenced training under the responsibility of one Authority may be permitted to complete the requirements under the responsibility of the other Authority.
The agreement shall allow for:
(1) theoretical knowledge training and examinations;
(2) medical examinations and assessment;
(3) flight training and testing,
The Authorities shall agree the 'State of licence issue'.

(c) Further ratings may be obtained under JAR-FCL 4 requirements in any JAA Member State and will be entered into the licence by the State of licence issue.

(d) For administrative convenience, e.g. revalidation, the licence holder may subsequently transfer a licence issued by the State of licence issue to another JAA Member State, provided that employment or normal residency is established in that State.

(see JAR-FCL 4.070). That State would thereafter become the State of licence issue and would assume the responsibility for licence issue referred to in (a) above.

(e) An applicant shall hold only one JAR-FCL licence (flight engineer) and only one medical certificate at any time.

JAR-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.

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

The flight crew licence issued by a JAA Member State in accordance with JAR FCL 4 will conform to the following specifications.

(a) Content: The item number shown will always be printed in association with the item heading. A standard JAA licence format is shown in Appendix 1 to JAR-FCL 4.075. 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) Authority 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.

(2) Variable items
(XII) Ratings - type, instructor, etc., with dates of expiry.

Radio telephony (R/T) privileges may appear on the licence form or on a separate certificate.
(XIII) Remarks i.e. special endorsements relating to limitations and endorsements for privileges.
(XIV)Any other details required by the Authority.

(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 the Authority.

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

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

JAR-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 the Authority (see IEM FCL 4.080 (to be developed)).

Appendix 1 to JAR- FCL 4.005

Minimum requirements for the issue of a JAR-FCL licence/authorisation on the basis of a national licence/authorisation issued by a JAA Member State.

(See JAR-FCL 4.005(b)(3))
(See AMC FCL 4.005 & 4.015)

1. Flight engineer licence

A flight engineer licence issued by a JAA Member State in accordance with the national requirements of that State may be replaced by a JAR-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 JAR-FCL 4.245 relevant to the privileges of the licence held;
(b) demonstrate to the satisfaction of the Authority that a knowledge of the relevant parts of JAR-OPS and JAR-FCL (see AMC FCL 4.005 & 4.015) has been acquired;
(c) demonstrate a knowledge of English in accordance with JAR FCL 4.160
(d) comply with the experience requirements and any further requirements as set out in the table below :

National licence held	Total flying experience (hours) as flight engineer	Specific conditions JAA	Replacement for JAR-FCL licence and restrictions	Repeal restrictions
(1)	(2)	(3)	(4)	(5)
Flight engineer	>1500 as flight engineer on aeroplanes	None	F/EL	Not applicable

2. Instructor ratings

National rating, authorisation or privileges held	Experience	Additional conditions JAA	Conversion for JAR-FCL rating
(1)	(2)	(3)	(4)
TRI(E)	As required under JAR-FCL 4 (flight engineer) for specific rating	Demonstrate to the satisfaction of the Authority a knowledge of the relevant parts of JAR-FCL 4 (flight engineer) and JAR OPS, as set out in AMC FCL 4.005 and 4.015	TRI(E)

JAA Member States' 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 for JAR-FCL licence and/or ratings.

3. SFI(E) authorisation

A SFI(E) authorisation issued by a JAA Member State in accordance with the national requirements of that State may be replaced by a JAR-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	Experience	Any further JAA requirements	Replacement for JAR-FCL authorisation
(1)	(2)	(3)	(4)
SFI(E)	>1500 hrs as flight engineer on aeroplanes	(I) hold or have held a flight engineer licence issued by a JAA Member State or a non JAR-FCL flight engineer licence acceptable to the Authority. (II) have completed the flight simulator content of the applicable type rating course incl. MCC.	SFI(E)
SFI(E)	3 years recent experience as SFI(E) acceptable to the Authority.	have completed the flight simulator content or the applicable type rating course including MCC.	SFI(E)

This authorisation will be for a maximum period of 3 years.
Further re-authorisation will be subject to completion of the requirements set out in JAR-FCL 4.415.
4.415.

Appendix 1 to JAR- FCL 4.015
The minimum requirements for the validation of a flight engineer licence of a non-JAA State by a JAA Member State are specified below.
(see JAR-FCL 4.015)
(See AMC FCL 4.005 & 4.015)

1. The minimum requirements for the validation of a flight engineer licence of a non-JAA State by a JAA Member State are specified below.

2. A flight engineer licence issued in accordance with ICAO Annex 1 by a non-JAA State may be validated subject to conditions by a JAA Member State in order to permit flights (other than flight instruction) in aeroplanes registered in that JAA Member State. To validate such licences, the holder shall:
(a) complete, as a skill test, the type rating revalidation requirements of JAR-FCL 4.245 relevant to the privileges of the licence held;
(b) demonstrate to the satisfaction of the Authority that a knowledge of the relevant parts of JAR-OPS and JAR-FCL (see AMC FCL 4.005 & 4.015) has been acquired;
(c) demonstrate a knowledge of English in accordance with JAR-FCL 4.160(d);
(d) hold a valid JAR-FCL Class 1 medical certificate;
(e) meet any published additional requirements that the JAA Member State deems necessary; and
(f) comply with 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 in commercial air transport	Commercial air transport in aeroplanes as flight engineer	(a)
Flight engineer	>1 000 hours as flight engineer on aeroplanes in other than commercial air transport	Other than commercial air transport in aeroplanes as flight engineer	(b)

Appendix 1 to JAR- FCL 4.055
Type rating training organisation (TRTO) for the issue of type ratings only
(See JAR-FCL 4.055 (b) and (c))
(See JAR 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 JAR-FCL requirements shall obtain the approval of the Authority of a JAA Member State. No such approval will be granted by the Authority of the Member State unless:
(a) the Authority can enforce the JAR-FCL requirements; and
(b) the TRTO meets all requirements of JAR-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 the Authority 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. No Authority is obliged to grant an approval for a TRTO outside the JAA Member States if the personnel resources are not available or the cost of processing the application for approval and inspections puts undue burden on the Authority.
4. All training courses shall be approved (see IEM FCL 4.055 (to be developed)).
5. Approval will be varied, suspended or revoked by the Authority 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 the Authority shall be obtained before the changes are implemented. TRTOs need not advise the Authority of minor changes in day-to-day operations.
Where any doubt exists as to whether a proposed change is minor, the Authority 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 the Authority.

Financial resources

8. (a) A TRTO shall satisfy the Authority that sufficient funding is available to conduct training to the approved standards.
(b) A TRTO shall nominate a person acceptable to the Authority who shall satisfy the Authority 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, the Authority will make certain inspections to determine the TRTO's compliance with JARs 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 staff

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 the Authority shall be nominated. The HT's responsibilities shall include ensuring that the TRTO is in compliance with JAR-FCL requirements. This person is ultimately directly responsible to the Authority.
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 the Authority to conduct specific training in a TRTO (see JAR-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.

Instruction 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 the Authority.

TRAINING PROGRAM

21. A training program 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.

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

Appendix 1 to JAR- FCL 4.075
Specifications for flight crew licences
(See JAR 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 JAR-FCL 3 IEM FCL 3.100) and at the discretion of the Authority on the licence.
4. In this subpart, the “Authority” is the Authority of the State of licence issue.

STANDARD JAA LICENCE FORMAT

Cover page

Authority name and logo
(English and Serbian language)

JOINT AVIATION AUTHORITIES
(English only)

FLIGHT CREW LICENCE
(English and Serbian language)

Issued in accordance with ICAO and JAR-FCL Standards
(English and Serbian language)

Requirements

Size of each page shall be not less than one eighth A4.

I	Issuing State	
III	Licence No.	Licence number will always commence woth the U.N. country code of the State of licence issue.
IV.	Holder's name and forename	
XIV	Date (see instructions) and Place of birth:	Standard date format is to be used, i.e. day /month / year in full (e.g., 21/01/1995)
V.	Address Street, town, area, zip code	see JAR-FCL 4.070
VI.	Nationality:	
VII.	Signature of holder:	
VIII	Issuing Authority	
X	Signature of issuing officer and date	
XI	Seal or stamp of issuing Authority.	

Requirements

II	Titles of licences, date of initial issue and country code	Abbreviations used will be as used in JAR-FCL (e.g. PPL(H), F/E etc.). Standard date format is to be used, i.e. day / month / year in full (e.g., 21/01/1995)
IX	Validity: This licence is to be re-issued not later than ... The privileges of the licence shall be exercised only if the holder has a valid medical certificate for the required privilege. By the application of JAR-FCL 4.015 (a) (1), the licence holder is entitled to exercise licence privileges on aircraft registered in any Member State of the Joint Aviation Authorities. A document containing a photo shall be carried for the purposes of identification of the licence holder.	Re-issue is to be not later than 5 years from the date of initial issue shown in item II. This document is not specified, but a passport would suffice when outside the State of licence issue.
XII	Radiotelephony privileges: the holder of this licence has demonstrated competence to operate R/T equipment on board aircraft in English (other languages specified).	All additional licensing information required by ICAO, EC Directive / Regulations or JARs to be entered here.
XII	Remarks:	

XII Ratings to be revalidated	
Type	Remarks/Restrictions
Instructor	

Requirements

These pages are intended for use by the Authority to state requirements following the initial issue of ratings, or the renewal of expired ratings.

Initial issues and renewal of ratings will always be entered by the Authority.

Operational limitations will be entered in the Remarks/Restrictions against the appropriate restricted privilege e.g., restricted instruction privileges to one aircraft type, privileges to one aircraft type, etc.

Pages 5,6 and 7:

For revalidation of proficiency checks for type, the standard JAA licence format allows for these pages to have entries made in the licence by the examiner undertaking the proficiency checks. Alternatively, at the discretion of the Authority, revalidating entries may only be made by that Authority. Instructor ratings may also at the discretion of the Authority be revalidated in the licence by the Examiner who forms a part of the revalidation process. If an Examiner is not involved in the revalidation process, the rating entry will be made by the Authority. Ratings that are not validated will be removed from the licence at the discretion of the Authority and not later than 5 years from the last revalidation

XII

Rating	Date of check	Valid until	Authorisation of examiners No	Signature of examiners

(Each page will contain 10 spaces for initial issue and revalidation of rating).

Page 8:

Abbreviations used in this licence	

e.g. F/EL: Flight Engineer Licence
e.g. TRI(E) Flight Engineer Instructor
MPA: Multi Pilot Aeroplanes
e.g. R/T: Radio Telephony

SUBPART D-Flight engineer licence-F/EL

JAR-FCL 4.135 Student flight engineer

Flight engineer-a student flight engineer shall meet the requirements specified by the Authority of the State in which the student intends to train.

JAR-FCL 4.140 Minimum age

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

JAR-FCL 4.145 Medical fitness

An applicant for a F/EL shall hold a valid Class 1 medical certificate. In order to exercise the privileges of the F/EL a valid Class 1 medical certificate shall be held.

JAR-FCL 4.150 Privileges and conditions

(a) Privileges.
Subject to any other conditions specified in JARs, 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 JAR-FCL 4.140, 4.145 and4.155 through 4.170 shall have fulfilled the requirements for the issue of a F/EL including at least 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.

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

An applicant for a F/EL shall:
(a) (1) hold a theoretical ATP(A) in accordance with JAR-FCL 1.285; or

(2) have passed an ICAO ATP(A) theory test, including RT privileges or hold a R/T certificate/licence, in the JAA Member State of licence issue;
(b)(1) have completed an approved technical training course of the maintenance of JAR 25/FAR 25, BCAR, or AIR 2051aeroplanes as in Appendix 1 to JAR FCL 4.160; or
(2) have a university level of education in aeronautical engineering and have practical experience acceptable to the Authority in the maintenance of JAR 25/FAR 25, BCAR, or AIR 2051 aeroplanes; or
(3) hold an Aircraft Maintenance Licence class B1/B2/C according to JAR 66 or equivalent national licence/approval.
(c) have completed a "flight appreciation course" (see Appendix 2 to JAR-FCL 4.160);
(d) have demonstrated the ability to use the English language as set out in Appendix 3 to JAR FCL 4.160.

JAR-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 JAR FCL 4.160(c).

JAR-FCL 4.170 Skill
(See Appendices 1 and 2 to JAR-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 JAR-FCL 4.240.

Appendix 1 to JAR FCL 4.160 Technical Training Course (TTC)
(See JAR-FCL 4.160(b) and (c))

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, 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 the Authority.

THEORETICAL KNOWLEDGE INSTRUCTION

4. The theoretical knowledge instruction shall be given in an approved FTO or JAR 147 Training Organisation.
5. The theoretical knowledge instruction consists of 100 hours in addition to the following parts of the ATPL(A) syllabus in JAR-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 center of an approved JAR 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 training 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 JAR FCL 4.160 Flight Appreciation Course
(See JAR-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 JAR-FCL Appendix 1 to 1.055 or at a TRTO approved in accordance with JAR FCL Appendix 1 to 4.055.
4. The course shall be acceptable to the Authority.
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 F/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 program shall be developed as appropriate to the type of aeroplane, simulator or FNPT II to be used for the course. The training program shall be acceptable to the Authority.
9. The training program 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 the Authority at the time of license application.

Appendix 3 to JAR- FCL 4.160
Use of English language
(See JAR 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 JAR-FCL 4.160 given in English; or
(b) an IR; or
ATPL skill test or proficiency check; or
the skill test or proficiency check in accordance with JAR-FCL 4.170 during which the two- way radiotelephony communication is performed in English; or
(c) having passed a specific examination on behalf of the Authority 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)

JAR-FCL 4.220 Type ratings (F/E)
(See Appendix 1 to JAR-FCL 4.220)

Listing.
Type ratings for aeroplanes will be issued according to the list of types of aeroplanes (see Appendix 1 to JAR-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 JAR-FCL 4.220).

JAR-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 JAA, such limitation shall be endorsed on the rating.

JAR-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 the Authority in place of issuing the type rating in accordance with JAR FCL
This authorisation shall be limited in validity to completing a specific task.

JAR-FCL 4.235 Type ratings - Privileges, number and variants

(a) Privileges.
Subject to JAR-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 JAR-FCL limit to the number of ratings that may be held at one time. JAR-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.

JAR-FCL 4.240 Type ratings Requirements

(See Appendices 1 and 2 to JAR-FCL 4.240)
(See IEM FCL 4.240(b))

(a) General
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 JAR-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 the Authority, an aeroplane type rating may be issued to an applicant who meets the requirements for that rating of a non-JAA State, provided JAR-FCL 4.250 is met. Such a rating will be restricted to aeroplanes registered in that non-JAA State, or operated by an operator of that non-JAAState. .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 JAR-FCL 4.245.
(4)A type rating contained in a licence issued by a non-JAA State may be transferred to a JAR-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 JAR-FCL 4.250 is met.

(b) Skill test
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 JAR-FCL 4.240.
(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.

JAR-FCL 4.245 Type ratings - Validity, revalidation and renewal
(See Appendices 1 and 2 to JAR-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 JAR-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 a non-JAA State, the Authority may at its discretion extend the validity period of the rating, or revalidate the rating provided the requirements of that non-JAA State are fulfilled.
(2)When the privileges of an aircraft type rating are being exercised in a JAA registered aeroplane being operated by an operator of a non-JAA State under the provisions of Article 83bis of the International Convention on Civil Aviation, Chicago, the Authority may at its discretion extend the validity period of the rating, or revalidate the rating provided the requirements of that non-JAA State are fulfilled.
3)Any rating extended or revalidated under the provisions of (1) or (2) above shall be revalidated in accordance with JAR-FCL 4.245(b) before the privileges are exercised on aircraft registered in and operated by an operator of a JAA Member State.
(4) A rating issued or used in a non-JAA State may remain in a JAR-FCL licence at the discretion of the Authority 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 the Authority and complete a proficiency check in accordance with Appendix 1 to JAR-FCL 4.240. The rating will be valid from the date of completion of the renewal requirements.

JAR-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 JAR-FCL 4.261). If the MCC course is to be added to the type rating course, this requirement is not applicable.

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

(c) Conduct of training courses
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. Such courses shall be approved by the Authority and such organisations shall meet the relevant requirements of Appendix 1 to JAR-FCL 4.055.

(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).

JAR FCL 4.262 Type ratings - Skill
(See Appendix 1 and 2 to JAR-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 JAR-FCL 4.240.

Appendix 1 to JAR-FCL 4.220 List of Type of aeroplane

(See JAR-FCL 4.220(c))

1. This Appendix includes aeroplanes type certificated in JAA Member States and does not include:

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

(b) aeroplanes type certificated in a JAA Member State under special registration such as military, ex-military, experimental or vintage aeroplanes;

Aeroplanes not listed may be entered into a JAR-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 JAR-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 JAR-FCL 4.080 (to be developed).

List of aeroplane type requiring a flight engineer*

1	2	3	4
Manufacturer Licence Endorsement	A/C Certification		
Aerospatiale/BAC	Concorde		Concorde
Aero Spaceline	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	(D)	L188 Electra
	L188 Electra series C		
	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 JAR-FCL 4.240 Skill test and proficiency check for aeroplane type ratings
(See JAR-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 JAR-FCL 4.240. The administrative arrangements for confirming the applicant's suitability to take the test, including disclosure of the applicant's training record to the examiner, shall be determined by the Authority.
2. Items to be covered in skill tests/proficiency checks are given in the applicable Appendix 2 to JAR-FCL 4.240. With the approval of the Authority, 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. The Authority 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:
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. Items to be covered in skill tests/proficiency checks are given in the applicable Appendix 2 to JAR-FCL 4.240. The format and application form to the skill test may be determined by the Authority.
The skill test shall be completed with a flight crew including a F/E using the MCC concept.
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 the Authority before the new type rating is entered in the applicant's licence.

Appendix 2 to JAR- 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 JAR-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 complemented 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:
the qualification of the flight simulator or FNTP II as set out in JAR-STD;
the qualifications of the instructor and examiner;
the amount of line-orientated training provided on the course;
the qualifications and previous line operating experience of the engineer under training; and
the amount of supervised line flying experience provided after the issue of the new type rating.

Appendix 2 to JAR- FCL 4.240 (continued)

	PRACTICAL TRAINING					F/EL /TYPE-RATING SKILL TEST/ CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation) Section 1	OTD	FTD	FS	A	Initials of instructors after completion training	Checked on FS A	Initials examiners after completion Test/check
1. Flight preparation 1.1 Performance calculation 1.2 Aeroplane ext. visual inspect.;	F/E						
location of each item and purpose of inspection	[F/E#]			F/E		M if an aeroplane is used	
1.3 Cockpit inspection		F/E----->	----->	----->		M	
1.4 Use of checklist prior to starting engines, starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies	F/E----->	----->	----->	----->		M	
1.5 Taxiing in compliance with air traffic control or instructions of instructor. 1.6 Before take-off checks		F/E----->	F/E-----> ----->	-----> ----->		M	
Section 2 2. TAKE-OFFS Normal take offs with different flap settings, including expedited take off.			F/E----->	----->			
Instrument take-off; transition to instrument flight is required during rotation or immediately after becoming airborne.			F/E----->	----->	A	N/A	N/A
Cross wind take-off A, if practgicable			F/E----->	----->	A	N/A	N/A
2.4 Take-off at maximum take-off mass (actual or simulated maximum take-off mass) 2.5 Take-offs with simulated engine failure			F/E----->	----->			
2.5.1 shortly after reaching V_2, or 2.5.2 between V_1 and V_2, or			F/E-----> F/E	-----> X		M M FS Only	
2.6 Rejected take-off at a reasonable speed before reaching V1.			F/E----->	X		M	

Appendix 2 to JAR- FCL 4.240 (continued)

	PRACTICAL TRAINING					F/EL /TYPE-RATING SKILL TEST/ CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation) Section 3	OTD	FTD	FS	A	Initials of instructors training is completed.	Checked in when FS A	Initials examiners training is completed. Test/check
3. Flight Maneuvres and Procedures							
3.1Turns with and without spoilers 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----->	----->			
			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 including M	
3.4.0 Engine (if necessary propeller)	F/E----->	----->	----->	----->			
3.4.1 Pressurisation and air-conditioning.	F/E----->	----->	----->	----->			
3.4.2 Pilot/static system. 3.4.3 Fuel	F/E----->	----->	----->	----->			
system	F/E----->	----->	----->	----->			
3.4.3 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. 3.4.8	F/E----->	----->	----->	----->			
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 3.4.11		F/E----->	----->	----->			
Communication and navigation equipment, ,instruments, FMS.	F/E----->	----->	----->	----->			
3.4.12 Landing Gear and Brakes	F/E----->	----->	----->	----->			
3.4.13 Slat and flap system.	F/E----->	----->	----->	----->			
3.4.14 Auxiliary power unit							
3.5 Intentionally left blank	F/E----->	----->	----->	----->			

Appendix 2 to JAR- FCL 4.240 (continued)

	PRACTICAL TRAINING					F/EL /TYPE-RATING SKILL TEST / CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)					Initials of instructor upon completion of training	Checked in when	Initials examiners training is completed.
3.6 Procedures in case of:	OTD	FTD	FS	A		FS A	Test/check
abnormal and emergency.						A mandatory min. of 3 abnormal should be chosen from 3.6.1 to 3.6.9 Including M	
3.6.1 Fire drills, engine, APU, cabin, cargocompartment, flight deck, wing and electrical fires including evacuation.							
3.6.2 Smoke control and removal.		F/E----->	----->	----->			
3.6.3 Engine failures, shut-down and restart at a safe height.							
3.6.4 Fuel dumping (simulated).		F/E----->	----->	----->			
3.6.5 Windshear at take-off/landing.		F/E----->	----->	----->			
3.6.6 Simulated cabin pressure failure/Emergency descent.		F/E----->	----->	----->		FS only	
3.6.7 Incapacitation of flight crew member.			F/E	X		FS only	
3.6.8 Other emergency procedures as outlined in the appropriate aeroplane Flight Manual.			F/E----->	----->			
3.6.9 **ACAS event**							
3.7 Steepturns with 45° bank, 180° to 360° left and right.		F/E----->	----->	----->			
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--->	----->	----->			FS only	
		F/E----->	----->	----->	N/A	N/A	N/A
3.8.1 Recovery from full stall or after activation of stall warning device in climb, cruise and approach configuration.			F/E----->	----->			
3.9 Instrument flight procedures 3.9.1 Adherence to departure and and arrival routes and ATC instructions 3.9.2 Holding procedures		F/E----->	F/E-----> ----->	X ----->			
		F/E----->	----->	----->	N/A	N/A	N/A

Appendix 2 to JAR- FCL 4.240 (continued)

	PRACTICAL TRAINING					F/EL /TYPE-RATING SKILL TEST/ CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation) 3.9.3 Precision approach down to a	OTD	FTD	FS	A	Initials of instructors after completion of	Checked in when FS A	Initials examiners training is completed. Test/check
decision height (DH) not less than 60m (200 ft) 3.9.3.1 manually, without			F/E----->	----->			
flight director. 3.9.3.2 manually, with flight			F/E----->	----->		N/A	N/A
director 3.9.3.3 with autopilot			F/E----->	----->		N/A	N/A
3.9.3.4 manually, with one engine			F/E----->	----->			
simulated in-operative 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.					N/A	N/A	N/A
3.9.4 non-precision approach down to the MDH/A			F/E----->	----->		M	
3.9.5 Visual manoeuvres after instrument approach.			F/E----->	----->			
Circling approach under following conditions: 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 centerline 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----->	----->			

Appendix 2 to JAR- FCL 4.240 (continued)

	PRACTICAL TRAINING					F/EL /TYPE-RATING SKILL TEST/ CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)					Initials of instructor after completion of training	Checked in	Initials of examiners after completion of test/check.
Section 4	OTD	FTD	FS	A		FS A	
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							
4.3 Go-around with one engine simulated							
in-operataive after an instrument approach on reaching DH (see also			F/E----->	----->			
3.9.3.4)							
4.4 Rejected landing at 15 m (50ft) above runway threshold and go-around.			F/E----->	----->		M	
Section 5							
5. LANDINGS							
5.1 Normal landings also after an ILS approach with transition to visual flight			F/E----->	----->			
on reaching DH.							
5.2 Landing with simulated			F/E----->	----->			
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 patterns and landing without extended or with partly extended flaps and slats.			F/E----->	----->			
5.5 Landing with simulated 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 200ft (60m) i.e. Cat II/III operations. Refer to Subpart E, JAR-FCL 1.180)

Appendix 2 to JAR- FCL 4.240 (continued)

	PRACTICAL TRAINING					F/EL /TYPE-RATING SKILL TEST/ CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)					Initials of of instructor after completion of training	Checked in	Initials of examiners after completion of test/check.
Section 6	OTD	FTD	FS	A		FS A	
6. ADDITIONAL AUTHORISATION FOR INSTRUMENT APPROACHES DOWN TO A DECISION HEIGHT OF LESS THAN 60m (200ft) (CAT II/III) The following instrument 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 may not use an aercraft 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 shall also include go-around due to RVR, wind shear,(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-arounf attitude guidance.			F/E----->	----->		M	

	PRACTICAL TRAINING					F/EL /TYPE-RATING SKILL TEST/ CHECK	
Manoeuvres/Procedures (including Multi-Crew Cooperation)	OTD	FTD	FS	A	Initials of instructors after completion of of training	Checked in FS A	Initials of examiners after completion of test/check.
6.4 Landing(s) with visual reference established at decision height DH 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 JAR-FCL 4.261(a)
Theoretical knowledge instruction and checking requirements for type ratings
(See JAR-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: Depending on the equipment and installed systems, the theoretical knowledge instruction shall at minimum comprise of 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 JAR-FCL 4.261(d)

Multi-crew co-operation course (Aeroplane)

(See JAR-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 FCL 4.261(d).

CHAPTER H-INSTRUCTOR RATINGS (Aeroplane)

JAR-FCL 4.300 Flight 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 a JAA Member State in cases where:
(i) new aeroplanes are introduced;
(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 (a) is also valid for the synthetic flight instruction.

JAR-FCL 4.305 Instructors ratings and authorisations-purpose

Two instructors categories are recognised.
(a) Flight engineer instructor rating TRI(E).
(b) Synthetic flight engineer instructor authorisation SFI(E).

JAR-FCL 4.310 Instructors ratings-general

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

JAR-FCL 4.315 Instructors ratings and authorisations-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.

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

JAR-FCL 4.365 TRI(E)- Requirements
(See Appendix 1 to JAR- 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 JAR-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 landings as flight engineer on the applicable aeroplane type, or a similar type as agreed by the Authority, of which not more than 15 sectors may be completed in a flight simulator;
(4) conducted on a complete type rating course at least 4 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 1-H-1 satisfaction of a TRI(E) notified by the Authority 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 the Authority, 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 JAR-FCL 4.365) in a FTO or a TRTO; and
(3) 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 the Authority for this purpose.

JAR-FCL 4.370 TRI(E) – Revaliditation and renewal
(See Appendix 1 to JAR- 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;

(2) receive TRI(E) refresher training acceptable to the Authority.

(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 the Authority, 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 JAR-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 the Authority for this purpose.

JAR-FCL 4.405 Synthetic flight engineer instructor authorisation SFI(E) privileges
(See JAR-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 JAR-FCL 4.261(d)).

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

(a) An applicant for a SFI(E) authorisation shall:
(1) hold or have held a flight engineer licence issued by a JAA Member State or a non JAR-FCL flight engineer licence acceptable to the Authority;
(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 JAR-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 the Authority 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 JAR-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 the Authority, or

(II) have completed within a period of 12 months, preceding the application, at least 2 LOFT based simulatorsessions conducted by qualified flight crew as an observer on the flight deck of the applicable type or similar type as agreed by the Authority. These simulator sessions shall include:
(A) flight between different airports of at least 2 hours duration each, and
(B) associated pre-fligth 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 the Authority for this purpose.

JAR-FCL 4.415 SFI(E) – Revaliditation 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 JAR-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 the Authority (see Appendix 1 to JAR-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 Authority for this purpose.
(4) completed a proficiency check as set out in Appendix 1 to JAR-FCL 4.240 on a flight simulator of the appropriate type.

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

Aim of the course
1. The aim of the TRI(E) course is to train Flight Engineer licence holders with more than 1 500 hours 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

JAR-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 JAR FCL 4.370.
Where no qualified examiner is available and, at the discretion of the Authority, 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 the Authority or by a senior examiner specifically authorised by the Authority for this purpose.

(b) Compliance with JARs.
Examiners will be authorised in accordance with JAR FCL 4.030. The examiner shall comply with appropriate examiner's standardisation arrangements made or approved by the Authority.

(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 Authority and hold one copy of the check form on personal file.

JAR-FCL 4.430 Examiners-validity of authorisations

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

JAR FCL 4.440 Flight engineer examiner (TRE(E)) - Privileges

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 a multi-pilot aeroplanes operated with a flight crew including a F/E and holds a TRI(E) authorisation.