

Implementation procedure for certification and continued airworthiness of SaM146 engines

1. Scope

1.1 This procedure defines and documents the process to be used by the EASA and the IAC for the type certification programme for the SaM146 engines, and an almost simultaneous validation by IAC, with the objective to organise the demonstration of compliance with the airworthiness codes of both parties in an efficient manner.

1.2 This procedure also defines the roles and actions of EASA and IAC with regard to continued airworthiness for the SaM146 engines.

1.3 Should the need arise for clarification of any part of this procedure, such clarification will be made by revising this document.

2. General obligations

2.1 All activities performed by the applicant for type-certification (PowerJet SA) must be transparent to enable the appropriate controls by EASA. Consequently, IAC shall provide any necessary support to EASA to enable access to all files and facilities, relevant to SaM146 engines, located in Russia.

2.2 EASA and IAC may use specialists from other organisations. They will notify each other of such arrangements and any system change having an effect on the procedures outlined in this Arrangement.

3. Certification Procedures

3.1 Design Organisation Approval

IAC shall support and advise EASA on any aspects of the investigation / surveillance related to SaM146 design activities that are carried out by NPO Saturn and its design subcontractors. Particularly, IAC shall support EASA in any visits to the NPO Saturn facilities or to any other facility which is located in Russia and is part of the design organisation, in the frame of DOA investigation / surveillance.

3.2 Type Certification

3.2.1 The EASA type-certificate for the SaM146 engines will be validated by the IAC according to usual ICAO principles after completion of this procedure.

3.2.2 EASA and IAC will fulfil their responsibilities using the following principles:

- (a) IAC will nominate a focal point to act as the interface with EASA for the SaM146 programme.

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This focal point will be empowered by IAC to nominate the specialists who will participate to the activity, in particular to the meetings identified in paragraph 3.2.3.

IAC will notify to EASA the list of nominated specialists for the validation programme.

- (b) EASA will notify to PowerJet SA its certification basis.
- (c) IAC will notify to EASA and PowerJet SA its validation basis.
- (d) IAC will notify to EASA and PowerJet SA the requirements of the IAC validation basis, which are not covered by the EASA certification basis.
- (e) EASA will make the compliance finding with the EASA certification basis.
- (f) In order to demonstrate compliance with the entire IAC validation basis, the following will be applied:
 - IAC will make the compliance findings with the requirements of the IAC validation basis identified in paragraph 3.2.2 (d).
 - IAC will identify and notify to EASA and PowerJet SA the requirements for which there is a difference in means of compliance between EASA and AR. This also may be a subject for specialised meetings mentioned in 3.2.3(c).
 - for all other cases, IAC will accept the findings made by EASA under paragraph 3.2.2 (e) as acceptable compliance findings against the requirements of the IAC validation basis, which are considered as being covered by the EASA certification basis.

3.2.3 Meetings.

EASA will conduct the certification programme according to its usual procedures but, in order to fulfil the goal of this procedure, IAC will be closely associated to this activity as described below.

Three kinds of meetings will be considered :

- General meetings at planned dates, to make an overall review of the programme.
- Specialised meetings for the EASA certification.
- Specialised meetings associated to the elements of the IAC validation basis.

(a) EASA will organise general meetings called “SaM146 certification technical meetings (CTMs)”, with PowerJet SA, at agreed, fixed, dates. The IAC focal point, identified under paragraph 3.2.2 (a) above, will be invited to attend these meetings.

(b) In between the planned CTMs, EASA may organise additional specialised meetings with PowerJet SA, as appropriate. The IAC focal point will be invited to attend and to designate any specialists, from the team identified under paragraph 3.2.2 (a), when such attendance is necessary.

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- (c) IAC may organise additional specialised meetings as necessary for the compliance with the requirements of the IAC validation basis identified under 3.2.2
- (d). An invitation to attend such meetings will be sent to EASA.

3.3 Implementation

- 3.3.1 Certification plan. PowerJet SA shall submit the certification plan to each authority simultaneously for review and acceptance by both authorities in order to comply with the intent of this procedure.
- 3.3.2 Delegations. EASA and IAC may choose to delegate certain aspects of the certification process (e.g. test witnessing or conformity inspections) to the proper authority, after assessment by the delegating authority of the delegated authority's organisation and procedures to ensure these provide an equivalent level of assurance to that of the delegating authority. In such cases, the delegating authority will advise its decision to the other authority and to PowerJet SA.
- 3.3.3 Test Plans and means of substantiation. Test plans and other proposed means of substantiation related to requirements referred to in paragraph 3.2.2 (d) will be sent to IAC only. All other test plans and related means of substantiation will be sent to both EASA and AR.

Unforeseen circumstances arising during the actual testing may make it desirable for deviations from the agreed Test Plan. In such circumstances, EASA will agree the deviation if the testing is related to the EASA certification basis. IAC will agree the deviation if the testing is related to requirements referred to in paragraph 3.2.2 (d).

- 3.3.4 Witnessing of testing. The tests will be conducted in accordance with the agreed test plans either in France or in Russia and, if delegated under paragraph 3.3.2, may be witnessed by the authority of the country in which the test is conducted. Where this country is neither France nor Russia, EASA shall take the appropriate actions with regard to the witnessing if the testing is related to requirements of the EASA certification basis. If the testing is related to requirements referred to in paragraph 3.2.2 (d), IAC will take the appropriate actions.
- 3.3.5 Conformity inspections. PowerJet SA will make the conformity inspections before any test. Conformity inspections of prototype parts, test samples or test set-up may be required by EASA. EASA may choose to delegate the conformity inspection as specified in 3.3.2. If the conformity inspection is related to requirements referred to in paragraph 3.2.2 (d), IAC will take the appropriate actions.
- 3.3.6 Language. English will be the working language.
- 3.3.7 Units. All documents must be submitted in S.I. units.
- 3.3.8 Certification Documentation.

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- (a) Except as otherwise provided under DOA procedures, EASA will review all certification reports related to the EASA certification basis.
- (b) IAC will review certification reports related to requirements identified in paragraph 3.2.2 (d).
As validating authority, IAC is entitled to have any other certification documentation which would be required to fulfil its obligations.
- (c) When a report provided by PowerJet SA intends to address requirements identified in both paragraphs 3.2.2 (b) and (d), both EASA and IAC will make the findings of compliance.
- (d) EASA will retain a complete file of documentation related to the showing of compliance with requirements of the EASA certification basis. IAC will retain a complete file of documentation related to the showing of compliance with requirements of the IAC validation basis.

3.3.9 Prototype engines for type-certification. The conformity with the applicable design data of the prototype parts, modules and engines used for the type-certification will be made by extension of the Production Organisation Approval of Snecma Moteurs.

4. Changes to the engine type certificate subsequent to initial type certification

4.1 General

Any change to the Type Certificate and any repair must be shown compliant with applicable requirements (certification and validation bases, plus any additional requirement notified by EASA and / or IAC after TC issuance).

4.2 New models

New engine models would be dealt with according to the procedures outlined in paragraph 3.

4.3 Changes to the Type Certificate

EASA shall inform IAC of any change to the type certificate, approved by EASA, which :

- (a) Affects any limit or condition shown on the applicable EASA Type Certificate Data Sheet.

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(b) Affects any previously issued mandatory instruction and/or airworthiness directive.

This information is intended to allow IAC to modify its official documentation. Significant issues will be discussed as part of the CTMs.

4.4 Changes to the Type Design

The changes that are considered in this paragraph are those changes not addressed under paragraphs 4.2 and 4.3. Because they constitute the majority of the changes happening after certification and because the approval process should not delay the production, IAC agrees to limit its review of such changes to the minimum, in accordance with article 4 (g) of the working arrangement between EASA and IAC.

Advance information on future changes will be provided to EASA and IAC as part of the CTMs so that IAC may provide any input with regard to the means of compliance.

PowerJet SA shall demonstrate that the changed product still complies with both EASA and IAC certification bases. The means of compliance would be those used for the certification of the engine unless otherwise requested by the applicant. EASA will verify that compliance with the requirements referred to in paragraph 3.2.2 (d) has been satisfactorily shown by PowerJet SA.

Copies of the approved changes shall be given to IAC for its information, for coordination with production and for coordination with the aircraft certification in compliance with paragraph 5.2 (c), third alinea, below.

4.5 Repairs

Repairs will be treated as per the procedures described in paragraphs 4.3 or 4.4 above, as appropriate.

5. Continued Airworthiness

5.1 Reporting of failures, malfunctions and defects

(a) As holder of the type certificate for the SaM146 engine, PowerJet SA is responsible for reporting failures, malfunctions and defects to EASA in accordance with EU commission regulation 1702/2003. Although PowerJet SA may utilise the staff and facilities of NPO Saturn and Snecma Moteurs to the extent they deem appropriate, the ultimate responsibility for such reporting and for the provision of any necessary corrective action will rest with "PowerJet SA".

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- (b) The SaM146 engines are originally intended to be installed in an aircraft for which Russia will be the “State of design” according to ICAO Annex 8. Therefore, an engine event on this aircraft would also be reported to IAC by the aircraft TC holder. The appropriate co-ordination between EASA and IAC is described below.

5.2 Continued airworthiness

- (a) EASA will organise the process for continued airworthiness of the SaM146 engines to determine when it would be necessary to issue airworthiness directives. EASA will then communicate relevant information to the other authorities according to ICAO Annex 8.
- (b) An engine failure, malfunction or defect reported to IAC by the aircraft TC holder will be transferred by IAC to EASA for action and closure. EASA will report to IAC on actions taken.
- (c) Considering the high involvement of NPO SATURN in the design and production of the SaM146 engines, the IAC focal point identified under paragraph 3.2.2 (a) will be invited to the airworthiness review meetings organised by EASA with PowerJet SA as part of the CTMs identified in paragraph 3.2.3.

This will provide appropriate co-ordination between EASA and IAC for issues related to NPO SATURN design or production.

This will also provide co-ordination between EASA as authority of the State of Design for the engine with IAC as authority of the State of Design for the aircraft in which the SaM146 engines are installed.

6. Implementation

- 6.1 This arrangement will come into force after agreement by the Parties.
- 6.2 Either Party may terminate this arrangement by giving a three months prior written notice to the other Party, or can decide together to change its terms.