European Aviation Safety Agency

DECISION 2013/001/R
OF THE EXECUTIVE DIRECTOR OF THE AGENCY

of 23 January 2013

ON ACCEPTABLE MEANS OF COMPLIANCE AND GUIDANCE MATERIAL FOR THE AIRWORTHINESS AND ENVIRONMENTAL CERTIFICATION OF AIRCRAFT AND RELATED PRODUCTS, PARTS AND APPLIANCES, AS WELL AS FOR THE CERTIFICATION OF DESIGN AND PRODUCTION ORGANISATIONS ('AMC AND GM TO PART-21')

AMENDING ED DECISION 2012/020/R OF THE EXECUTIVE DIRECTOR OF THE AGENCY OF 30 OCTOBER 2012

'AMC & GM to Part-21 Amendment 1 to Issue 2'
'Implementation of CAEP/8'

THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY AGENCY,

Having regard to Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC[1] (the 'Basic Regulation'), and in particular Articles 18 and 19 thereof,

Having regard to Commission Regulation (EU) No 748/2012 of 3 August 2012 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations[2], in particular 21A.16A and 21A.18 of the Annex to Commission Regulation (EU) No 748/2012 ('Part-21') thereof,

WHEREAS:

(1) The Agency shall, pursuant to Article 18 of the Basic Regulation, issue certification specifications, including airworthiness codes and acceptable means of compliance, as well as guidance material to be used in the certification process.

(2) The Agency has, pursuant to Article 52 of the Basic Regulation, consulted widely interested parties on the matters which are subject to this Decision and following that consultation provided a written response to the comments received.

[1] OJ L 79, 19.3.2008, p. 1. Regulation as last amended by Regulation (EU) No 6/2013 of 8.1.2013 (OJ L 4, 9.1.2013, p. 34).

[2] OJ L 224, 21.08.2012, p. 1. Regulation as last amended by Regulation (EU) No 7/2013 of 8.1.2013 (OJ L 4, 9.1.2013, p. 36).

HAS DECIDED AS FOLLOWS:

Article 1

The Annex I 'Acceptable Means of Compliance and Guidance Material to be used in the airworthiness certification of products, parts and appliances and the approval of organisations involved in their design or manufacture' to ED Decision 2012/020/R of the Executive Director of the Agency of 30 October 2012 is hereby amended in accordance to the annex to this Decision.

Article 2

This Decision shall be published in the Official Publication of the Agency, and shall enter into force on 29 January 2013.

Done at Cologne, on 23/01/2013.

P. GOUDOU

Annex to ED Decision 2013/001/R

The Annex I 'Acceptable Means of Compliance and Guidance Material to be used in the airworthiness certification of products, parts and appliances and the approval of organisations involved in their design or manufacture' to ED Decision 2012/020/R of the Executive Director of the Agency of 30 October 2012 is hereby amended as follows: AMC and GM to Part-21.
The text of amendments is arranged to show deleted text or new text as shown below:

1. Text to be deleted is shown with a ~~strikethrough~~.

2. New text to be inserted is highlighted with grey shading.

3. … indicates that remaining text is unchanged in front of or following the reflected amendment.

Subpart F to Section A is amended as follows:

Subpart F — Production without production organisation approval …

GM No. 2 to 21.A.121 Applicability – Applicable design data

Applicable design data is defined as all necessary drawings, specifications and other technical information provided by the applicant for, or holder of a design organisation approval, TC, STC, approval of repair or minor change design, or ETSO authorisation (or equivalent when Part 21 Section A Subpart F is used for production of products, parts or appliances, the design of which has been approved other than according to Part 21), and released in a controlled manner to the manufacturer producing under Part 21 Subpart F. This should be sufficient for the development of production data to enable manufacture in conformity with the design data.

Prior to issue of the TC, STC, approval of repair or minor change design or ETSO authorisation, or equivalent, design data is defined as 'not approved', but parts and appliances may be released with an EASA Form 1 as a certificate of conformity.

After issue of the TC, STC, approval of repair or minor change or ETSO authorisation, or equivalent, this design data is defined as 'approved' and items manufactured in conformity are eligible for release on an EASA Form 1 for airworthiness purposes.

For the purpose of Subpart F of Part 21 the term 'applicable design data' includes, in the case of engines and when applicable, the information related to the applicable emissions production cut-off requirement.

…

AMC No. 2 to 21.A.130(b) Statement of Conformity for Products (other than complete aircraft), parts, appliances and materials - The Authorised Release Certificate (EASA Form 1)
A. INTRODUCTION
...
5. COMPLETION OF THE CERTIFICATE BY THE ORIGINATOR

...
Block 12 – Remarks
Examples of conditions which would necessitate statements in block 12 are:
...

- In case of an engine, when the Competent Authority has granted an emissions production cut-off exemption the following statement must be entered in block 12:

'["NEW" OR "SPARE"] ENGINE EXEMPTED FROM NOx EMISSIONS PRODUCTION CUT-OFF REQUIREMENT'.

Block 13b – Authorised Signature
...

AMC 21A.130 (b) (4) Applicable emissions requirements

1. General

This determination is made according to the data provided by the engine type-certificate holder. This data should allow the determination of whether the engine complies with the emissions production cut-off requirement of paragraph (d) of Volume II, Part III, Chapter 2, paragraph 2.3.2 of Annex 16 to the Chicago Convention. It should be noted that in the case of engines for which the Competent Authority has granted an exemption from these requirements, the emissions requirements applicable are the regulatory levels defined in Volume II, Part III, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention.

2. Process and criteria for exemptions against a NOx emissions production cut-off requirement

2.1 Request

The organisation should submit a formal request to the Competent Authority, signed by an appropriate manager, and copied to all other relevant organisations and involved Competent Authorities including the Agency. The letter should include the following information for the Competent Authority to be in a position to review the application:

a) Administration

- Name, address and contact details of the organisation.

b) Scope of the request

- Engine type (model designation, type-certificate (TC) number, TC date, emission TC basis, ICAO Engine Emissions Databank Unique Identification (UID) Number);
- Number of individual engine exemptions requested;
- Duration (end date) of continued production of the affected engines.
- Whether the proposed affected engines are 'spares' or 'new' and whom the engines will be originally delivered to.

Note: In the case where the engines are 'new' (new engines installed on new aircraft), and if this would result in a larger negative environmental impact as compared to exemptions only for spare engines, more detailed justification could be required to approve this application.

c) Justification for exemptions

When requesting an exemption for a 'new' engine, the organisation should, to the extent possible, address the following factors, with quantification, in order to support the merits of the exemption request:

- Technical issues, from an environmental and airworthiness perspective, which may have delayed compliance with the production cut-off requirement;
- Economic impacts on the manufacturer, operator(s) and aviation industry at large;
- Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:
  - the amount that the engine model exceeds the NOx emissions standard, taking into account any other engine models in the engine family covered by the same type-certificate and their relation to the standard;
  - the amount of NOx emissions that would be emitted by an alternative engine for the same application; and
  - the impact of changes to reduce NOx on other environmental factors, including community noise and CO_2 emissions;
- Impact of unforeseen circumstances and hardship due to business circumstances beyond the manufacturer's control (e.g. employee strike, supplier disruption or calamitous events);
- Projected future production volumes and plans for producing a compliant version of the engine model seeking exemption;
- Equity issues in administering the production cut-off among economically competing parties (e.g. provide rationale for granting this exemption when another manufacturer has a compliant engine and does not need an exemption, taking into account the implications for operator fleet composition, commonality and related issues in the absence of the engine for which exemptions are sought);
- Any other relevant factors.

2.2 Evaluation

2.2.1. Since the Agency has the overview of the exemptions granted within the Member States and within Third Countries by contacting the relevant Design Organisation, the Agency advises the Competent Authority during the process of granting exemptions. The advice from the Agency should take the form of a letter sent to the Competent Authority.

2.2.2 The evaluation of an exemption request should be based on the justification provided by the organisation and on the following definitions and criteria:

a) Use of engines

- 'Spare engines' are defined as complete new engine units which are to be installed on in-service aircraft for maintenance and replacement. It can be presumed that exemption applications associated with engines for this purpose would be granted as long as the emissions were equal to or lower than those engines they are replacing. The application should include the other items described in points (a) and (b) of paragraph 2.1 above,

but it would not need to include the items specified in point (c). For spare engines, the evaluation of the exemption application would be conducted for record keeping and reporting purposes, but it would not be done for approval of an exemption.

- 'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement of paragraph (d) of Volume II, Part III, Chapter 2, paragraph 2.3.2 of Annex 16 to the Chicago Convention is only possible if an engine type already meets the regulatory levels defined in Volume II, Part III, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention). Also, in order for and exemption to be granted for this type of engine the applicant must clearly demonstrate that they meet the criteria for an exemption by including items described in points (a), (b) and (c) of paragraph 2.1 above. The Competent Authority may require additional information regarding the appropriateness of the potential exemption.

b) Number of new engine exemptions

Exemptions should be based on a total number of engines and time period for delivery of these engines, which would be agreed at the time the application is approved and based on the considerations explained in point (c) of paragraph 2.1 above. The number of engines exempted should not exceed 75 per engine type-certificate, and the end date of continued production of the affected engines should not exceed 31.12.2016. The number of exemptions is related to individual non-compliant engines covered under the same type-certificate.

Exemptions for new engines should be processed and approved by the Competent Authority, in agreement with the Agency, for both the manufacture of the exempted engines and the initial operator of the aircraft to which they are to be fitted. Given the international nature of aviation, the Agency should attempt to collaborate and consult on the details of exemptions. In the case where engine type certification is done through a reciprocity agreement between the Agency and Third Countries, the Agency should coordinate on the processing of exemptions and concur before approval is granted.

c) Other engines

Unlimited exemptions may be granted for continued production of spare engines having emissions equivalent to or lower than the engines they are replacing.

Engines for use on aircraft excluded from the scope of the Basic Regulation - i.e. aircraft specified in Annex II to the Basic Regulation and aircraft involved in activities referred to in Article 1(2) of the Basic Regulation (e.g. military, customs, police, search and rescue, fire fighting, coastguard or similar activities or services) - are excluded from civil aircraft NOx production cut-off requirements.

2.3 Rejection of request

If the competent authority rejects the request for exemption, the response should include a detailed justification.

GM 21A.130 (b) (4) Definitions of engine type certification date and production date

Volume II of Annex 16 to the Chicago Convention contains two different references to applicability dates:

- 'Date of manufacture for the first individual production model' which refers to the engine type certification date; and
- 'Date of manufacture for the individual engine' which refers to the production date of a specific engine serial number (date of Form 1).

The second reference is used in the application of the engine NOx emissions production cut-off requirement, which specifies a date after which all in-production engine models must meet a certain NOx emissions standard.

21A.130(b)(4) includes the production requirements and refers to paragraphs (b) and (d) of Volume II, Part III, Chapter 2, paragraph 2.3 of Annex 16 to the Chicago Convention.

…

Subpart G to Section A is amended as follows:

Subpart G — Production organisation approval for products, parts and appliances

GM 21.A.131 Scope – Applicable design data

Applicable design data is defined as all necessary drawings, specifications and other technical information provided by the applicant for, or holder of a design organisation approval, TC, STC, approval of repair or minor change design, or ETSO authorisation and released in a controlled manner to a production organisation approval holder. This should be sufficient for the development of production data to enable repeatable manufacture to take place in conformity with the design data.

Prior to issue of the TC, STC, approval of repair or minor change design or ETSO authorisation, or equivalent, design data is defined as 'not approved' but parts and appliances may be released with an EASA Form 1 as a certificate of conformity.

After issue of the TC, STC, approval of repair or minor change or ETSO authorisation, or equivalent this design data is defined as 'approved' and items manufactured in conformity are eligible for release on an EASA Form 1 for airworthiness purposes.

For the purpose of Subpart G of Part 21 the term 'applicable design data' includes, in case of engines and when applicable, the information related to the applicable emissions production cut-off requirement.

…

AMC No 2 to 21.A.163(c) Completion of the EASA Form 1

…
EASA Form 1 Block 12 'Remarks'
…

Examples of data to be entered in this block as appropriate:

- For complete engines, a statement of compliance with the applicable emissions requirements current ~~at~~ on the date of manufacture of the engine.
- For ETSO articles, state the applicable ETSO number.
- Modification standard.
- Compliance or non-compliance with airworthiness directives or Service Bulletins.
- Details of repair work carried out, or reference to a document where this is stated.
- Shelf life data, manufacture date, cure date, etc.
- Information needed to support shipment with shortages or re-assembly after delivery.
- References to aid traceability, such as batch numbers.
- In case of an engine, if the Competent Authority has granted an emissions production cut-off exemption the record: '["NEW OR SPARE"] ENGINE EXEMPTED FROM NOx EMISSIONS PRODUCTION CUT-OFF REQUIREMENT'.

…

AMC 21A.165(c)(3) Applicable emissions requirements

1. General

This determination is made according to the data provided by the engine type-certificate holder. This data should allow the determination of whether the engine complies with the emissions production cut-off requirement of paragraph (d) of Volume II, Part III, Chapter 2, paragraph 2.3.2 of Annex 16 to the Chicago Convention. It should be noted that in the case of engines for which the Competent Authority has granted an exemption from these requirements, the emissions requirements applicable are the regulatory levels defined in Volume II, Part III, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention.

2. Process and criteria for applying for exemptions against a NOx emissions production cut-of requirement.

2.1 Request

The organisation should submit a formal request to the Competent Authority, signed by an appropriate manager, and copied to all other relevant organisations and involved Competent Authorities including the Agency. The letter should include the following information for the Competent Authority to be in a position to review the application:

a) Administration

- Name, address and contact details of the organisation.

b) Scope of the request

- Engine type (model designation, type-certificate (TC) number, TC date, emission TC basis, ICAO Engine Emissions Databank Unique Identification (UID) Number);
- Number of individual engine exemptions requested;
- Duration (end date) of continued production of the affected engines.

- Designate whether the proposed exempted engines are 'spares' or 'new' and whom the engines will be originally delivered to.

Note: In the case where the engines are 'new' (new engines installed on new aircraft), and if this would result in a larger negative environmental impact as compared to exemptions only for spare engines, more detailed justification could be required to approve this application.

c) Justification for exemptions

When requesting an exemption for a 'new' engine, the organisation should, to the extent possible, address the following factors, with quantification, in order to support the merits of the exemption request:

- Technical issues, from an environmental and airworthiness perspective, which may have delayed compliance with the production cut-off requirement;
- Economic impacts on the manufacturer, operator(s) and aviation industry at large;
- Environmental effects. This should consider the amount of additional NOx emissions that will be emitted as a result of the exemption. This could include consideration of items such as:
  - the amount that the engine model exceeds the NOx emissions standard, taking into account any other engine models in the engine family covered by the same type-certificate and their relation to the standard;
  - the amount of NOx emissions that would be emitted by an alternative engine for the same application; and
  - the impact of changes to reduce NOx on other environmental factors, including community noise and CO_2 emissions;
- Impact of unforeseen circumstances and hardship due to business circumstances beyond the manufacturer's control (e.g. employee strike, supplier disruption or calamitous events);
- Projected future production volumes and plans for producing a compliant version of the engine model seeking exemption;
- Equity issues in administering the production cut-off among economically competing parties (e.g. provide rationale for granting this exemption when another manufacturer has a compliant engine and does not need an exemption taking into account the implications for operator fleet composition, commonality and related issues in the absence of the engine for which exemptions are sought);
- Any other relevant factors.

2.2 Evaluation process.

2.2.1. Since the Agency has the overview of the exemptions granted within the Member States and within Third Countries by contacting the relevant Design Organisation, the Agency advises the Competent Authority during the process of granting exemptions. The advice from the Agency should take the form of a letter sent to the Competent Authority.

2.2.2 The evaluation of an exemption request should be based on the justification provided by the organisation and on the following definitions and criteria:

a) Use of engines

- 'Spare engines' are defined as complete new engine units which are to be installed on in-service aircraft for maintenance and replacement. It can be presumed that exemption applications associated with engines for this purpose would be granted as long as the emissions were equal to or lower than those engines they are replacing. The application should include the other items described in points (a) and (b) of paragraph 2.1 above, but it would not need to include the items specified in point (c). For spare engines, the evaluation of the exemption application would be conducted for record keeping and reporting purposes, but it would not be done for approval of an exemption.
- 'New engines' are defined as complete new engine units which are to be installed on new aircraft. They can only be exempted from a NOx production cut-off requirement if they already meet the previous standard (e.g. exemption from the CAEP/6 NOx production cut-off requirement of paragraph (d) of Volume II, Part III, Chapter 2, paragraph 2.3.2 of Annex 16 to the Chicago Convention is only possible if an engine type already meets the regulatory levels defined in Volume II, Part III, Chapter 2, paragraph 2.3.2 c) of Annex 16 to the Chicago Convention). Also, in order for and exemption to be granted for this type of engine the applicant must clearly demonstrate that they meet the criteria for an exemption by including items described in points (a), (b) and (c) of paragraph 2.1 above. The Competent Authority may require additional information regarding the appropriateness of the potential exemption.

b) Number of new engine exemptions

Exemptions should be based on a total number of engines and time period for delivery of these engines, which would be agreed at the time the application is approved and based on the considerations explained in point (c) of paragraph 2.1 above. The number of engines exempted should not exceed 75 per engine type-certificate, and the end date of continued production of the affected engines should not exceed 31.12.2016. The number of exemptions is related to individual non-compliant engines covered under the same type-certificate.

Exemptions for new engines should be processed and approved by the Competent Authority, in agreement with the Agency, for both the manufacture of the exempted engines and the initial operator of the aircraft to which they are to be fitted. Given the international nature of aviation, the Agency should attempt to collaborate and consult on the details of exemptions. In the case where engine type certification is done through a reciprocity agreement between the Agency and Third Countries, the Agency should coordinate on the processing of exemptions and concur before approval is granted.

c) Other engines

Unlimited exemptions may be granted for continued production of spare engines having emissions equivalent to or lower than the engines they are replacing.

Engines for use on aircraft excluded from the scope of the Basic Regulation - i.e. aircraft specified in Annex II to the Basic Regulation and aircraft involved in activities referred to in Article 1(2) of the Basic Regulation (e.g. military, customs, police, search and rescue, fire

fighting, coastguard or similar activities or services) - are excluded from civil aircraft NOx production cut-off requirements.

2.3 Rejection of request

If the competent authority rejects the request for exemption, the response should include a detailed justification.

GM 21A.165(c)(3) Definitions of engine type certification date and production date

Volume II of Annex 16 to the Chicago Convention contains two different references to applicability dates:

- 'Date of manufacture for the first individual production model' which refers to the engine type certification date; and
- 'Date of manufacture for the individual engine' which refers to the production date of a specific engine serial number (date of Form 1).

The second reference is used in the application of engine NOx emissions production cut-off requirement which specifies a date after which all in-production engine models must meet a certain NOx emissions standard.

21A.165(c)(3) includes the production requirements and refers to paragraphs (b) and (d) of Volume II, Part III, Chapter 2, paragraph 2.3 of Annex 16 to the Chicago Convention.

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