EASA

European Union Aviation Safety Agency

Seasonal Technical Communication

INDEX

EDITORIAL

Dear e-STC Newsletter readers,

the summer is often mistaken for a moment in year during which no interesting changes are to be expected.

Once again, last summer has proven to be all but quiet. This Newsletter is highlighting a few topics that will possibly impact your business models, your procedures and your design data.

The growing importance of international relationships for aviation is all over the press. In particular, the EU-China bilateral agreement has taken a giant leap toward regular validation of STC processes. You will find further details in our dedicated article.

While I am delighted to regularly highlight how innovative the STC holders solutions can be, the regular business that pays the bills is not forgotten. Strengthening the EASA –Industry relationship, the Large Aeroplanes department has given more weight to the STC coordinator role. This led to the implementation of new activities this summer.

This means in particular more resources dedicated to the strategic management of the STC projects. The five staff members involved in this activity is moreover directly attached to the head of department.

As STC coordinator, my aim is to ensure the expected level of safety, industry support and Agency visibility. This can be reached by enhancing the EASA STC projects management with regards to standardisation, efficiency and communication.

Breaking down those high-level goals, several activities were identified which resulted in the following outputs (the list is not exhaustive) for our all benefit:

- Agency visibility: the now well-established EASA STC Workshop induced the wider coordination activity
- Industry support: the use of a generic mailbox for all kind of questions related to STC STC_news@easa.europa.eu
- Quality management: EASA-internal upfront check of all Large Aeroplanes STC Technical Visa
- Standardisation: EASA – National Aviation Authorities strengthened communication, strategic review of the PCM focal points list
- Efficiency: STC projects resources management centralised by the STC coordinator
- Level of Safety: new and important technical topics highlighted in the STC Newsletter, FAQ webpage updated

If there is one point to remember, it would be the fact that I am committed to support all STC applicants when they encounter difficulties that the regular certification team cannot solve.

I can regularly meet STC holders during the year, but be aware that you are over 500 organisations holding a Design Organisation Approval worldwide! Thus please check the online possibilities to reach out to EASA (Website, EASA Youtube channel, Facebook, Twitter...) and spread this message to your colleagues!

In this edition, you will discover the following topics:

- inside the story: Jan Loncke, Rotorcraft expert
- rulemaking rotorcraft: external installations certification memo
- technical subject: chemical oxygen generators security concerns
- rulemaking: new part 21, new privilege
- international cooperation: Bilateral agreement and “Outside track II process” with China
- questions and answers – online publication
- upcoming events

I hope you will enjoy reading this Newsletter and look forward to hearing from you!

Sincerely,
Nicolas Duprez
EASA Large Aeroplanes Department - STC Coordinator

To unsubscribe from this Newsletter, send a message to STC_news@easa.europa.eu.

For this edition of the e-STC Newsletter, special thanks to:

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Javier Vicedo,
Senior EASA representative in China and North Asia

INSIDE THE STORY

EASA welcomed recently Jan Loncke as new VTOL OPS expert

When the job posting for my function was launched, it bore the title Rotorcraft OPS expert. By the time I could start at EASA the title had changed to VTOL OPS (Vertical Take-Off and Landing vehicles Operations) expert.

This swift change is typical for the times we currently live in. There are many changes and challenges to come, such as urban air mobility, e-VTOL (electrically powered VTOL) and other new technologies that find their way in for instance training devices.

Originally I graduated as an industrial engineer in electro-mechanics, but my operational experience as helicopter pilot in Helicopter Emergency Medical Services, Offshore and Helicopter Hoist Operator was a factor that weight in my recruitment by EASA, next to my professional history as quality manager, auditor and safety officer.

So within EASA, internally I'm here to help building a bridge between different EASA departments using my operational experience.

Outside EASA, I am here to support the industry. I will stimulate and work to improve multilateral cooperation aiming at safe, but still profitable business. In a context of a level playing field I will keep an eye for proportionate solutions.

I am also striving towards a risk-based level playing field, in order to protect the final users, let's say of air mobility in general, which is you, me, everybody. Not limited to an acceptable level of safety in the operation of helicopters, but actively working towards continuous safety improvement with all stakeholders involved, and that includes all forms of aviation where a 'vertical lift' dimension of some sort comes in play.

So basically, the rotorcraft safety roadmap is my road book for the years to come. I'm looking forward to working with all of you in this – fast-rate changing - environment where we face all these challenging evolutions.

RULEMAKING ROTORCRAFT – EXTERNAL INSTALLATIONS CERTIFICATION MEMO

The new Certification Memo is meant to help all stakeholders on the path to a successful certified project. Is your next project possibly a minor change after all?

Certification approach standardised

External installations on helicopters and subsequent modifications are common changes to the initial design to fulfil specific needs of operators.

EASA certification experience has shown that non-TC holder applicants face often difficulties in defining the appropriate classification of changes. The completeness of the compliance demonstration is another challenge that led EASA to issue a dedicated certification memorandum (CM-21.A-D-002).

The EASA VTOL Department has thus recently developed a CM on helicopter external installations to support Supplemental Type Certificate (STC) applicants during the certification process. The initial edition of this CM aims at giving guidance to EASA applicants about the structural and flight disciplines only. Potentially this scope could be expanded to other disciplines in future revisions of the CM.

More precisely and as already described in the document itself, the purpose of this CM is to provide specific guidance for certification of external installations on helicopters, for modifications for which CS 27/29.865 is not applicable. It deals with external fixtures and devices that are non-extensive in terms of weight, external surface are and/or volume.

Similarity considerations

Most design changes installing external systems on the basic aircraft configuration are considered "major".

EASA can accept upon request by the applicant, the additional of new camera/FLIR models to existing major changes/STCs as minor changes when the criteria below are met:

- The same main original fixed structural provisions are kept and are installed in the same location on the helicopter

- The new camera/FLIR has:
    - o the same or lower weight
    - o the same or lower exposed surface area and
    - o the same or greater ground clearance than the one approved in the initial major change/STC and

- Establishing a "Similarity" statement might be an acceptable MOC in the case of the original certificate holder or appropriate internal competence in the required domains in order to be able to technically assess and justify such statements

Structures and flight tests compliance

The CM is providing details about the different aspects of the necessary compliance data.

For instance, the approach to be used in order to demonstrate compliance with the vibration requirements is mentioned with useful elements such as the extent to which analysis can be used.

On top of that, the CM is referencing the relevant standards and guidance materials that you will need in the frame of the generation of the compliance data. Such as the CM dedicated to Night Vision Systems (NVIS) CM-FT-01 in the section about to the compatibility of external installations with existing NVIS installations.

Applicability

Be aware that external fixtures extensive in terms of weight/surface/volume as large agricultural kits, external rigid water tanks for fire-fighting operations, collapsible buckets or external platforms used for Human External Cargo (HEC), hoist and cargo hook installations are considered to be outside of the scope of this CM.

Examples of external installations to which this Certification Memorandum is applicable:

- External equipment boxes with fixed equipment (fixed mass and CG)
- Cameras
- Searchlights
- Loudspeakers

Expert TIPS

For flight tests, the effect of the external installation on the airspeed and altimeter calibration is the first area to be assessed.

As a matter of fact, if an external installation has the potential to impact the airflow around the pitot and/or the static port, the applicant should address this area before proceeding any further with the flight test activity, as the results of all the subsequent tests may be affected by the errors induced by the altered calibration.

Authors

Our special thanks go to the EASA structures expert Emily LEWIS and to the flight expert Francesco PAOLUCCI who have been the main technical contributors to the development of this CM, together with the Product Certification Manager Jose Miguel ANGULO.

Should you have dedicated questions about this topic, do not hesitate to contact Jose-Miguel Angulo (Jose-Miguel.Angulo-Manso@easa.europa.eu).

The CM-21.A-D-002 has been published on the EASA website.

TECHNICAL SUBJECT - CHEMICAL OXYGEN GENERATORS SECURITY CONCERNS

The Security concerns about certain types of oxygen generators are impacting cabin completion centers' business. Are you aware of the differences between EASA and FAA?

The security concerns

Oxygen systems have been a mandatory part of airliners configuration since the beginning of the pressurized commercial flights.

Their history, while being quite interesting from an engineering point of view, has known a remarkable episode with the concerns raised about their security.

The Chemical Oxygen Generators (COG) are easy to install as there is no need to connect them to oxygen bottles through lines of pipes through the whole aircraft. For this reason, they are quite popular amongst the cabin completion centers' design offices.

In a nutshell, a vulnerability was discovered in the design of the COG which, if intentionally modified by a person having access to the aircraft ("tampering"), could have generated damages to the aircraft and to the passengers. The analysis made by the relevant authorities concluded that the lavatories-installed COG were most exposed to such tampering.

The regulators' reactions

Initially, the FAA published on March 8th, 2011 the AD 2011-04-09.

This AD required that chemical oxygen generators installed inside of lavatories on certain transport category airplanes be rendered inoperative in order to address the security concern. Compliance with this AD resulted in a non-compliance with other US regulations and the AD contained a provision to permit operation notwithstanding those other requirements.

The FAA AD 2011-04-09 has since been superseded by AD 2012-11-09. The new AD required a terminating action to reinstall a supplemental oxygen system in the lavatories that were modified per AD 2011-04-09.

Those AD were not adopted by EASA after a decision that was made at the European Commission level. Since CS 25 amendment 17, the security issues related to the installation of COG are addressed by CS25.795(d) with AMC 25.795(d) giving guidelines for tamper-resistant designs.

Those EASA requirements are not retroactive and, should your STC not elect to comply to CS 25 amendment 17 or later amendment, are not applicable for EASA STC applications. The STC certification basis remains the one mentioned in the aircraft EASA TCDS.

Expert TIPS

For validation of a COG with the FAA, you might upfront elect to comply to CS 25.795 (d) at amendment 17, which is harmonised with FAR 25.795 (d) at amendment 25-145, making the FAA validation straightforward.

You might be impacted anyway!

However, be careful about the following case which might impact an STC project that has not considered this issue in the first place.

Aircraft registered in the USA (or in countries applying the FAA rules) have to implement the measures in FAA AD 2012-11-09 as per operational regulations. This is a security concern and the FAA is adamant in having this significant difference in the applicable requirements being implemented before the import certificate is issued.

In this case you might upfront elect to comply to CS 25.795 (d) at amendment 17, which is harmonised with FAR 25.795 (d) at amendment 25-145, making the FAA validation straightforward.

The newcomer

The chemical oxygen generators technology is now confronted to the arrival of the pulse oxygen generators technology on the market. The latter are gaseous systems not exposed to those particular security concerns.

Be aware that for this technology EASA has defined an Equivalent Safety Finding (for instance F-GEN9-1 for Boeing aircraft) for "Minimum mass flow of supplemental oxygen component qualification". The proposed aircraft manufacturer design does show compliance with 25.1443(c) but with the provisions of this ESF.

For STC holders, it means that the installation of pulse oxygen systems not certified already for the aircraft manufacturer might lead to the need for such an ESF at project level.

EASA certification is about security too!

Security is now a topic that has many more implications for EASA applicants than in the past.

In particular CS25.795 is addressing several issues that need to be carefully taken into account by Design Organisations. Several large transport aircraft include these requirements in their certification basis already.

Do not hesitate to ask the PCM in charge of your project in case of doubt!

RULEMAKING – NEW PART 21, NEW PRIVILEGE

The New Part 21 is now available. The new privilege is opening new territories for STC holders. How can you take benefit from this?

New Part 21

The last update to Part 21 changed significantly certain rights and obligations of design organisations and of the competent authorities.

Regulation (EU) 2019/897 amending Regulation (EU) No 748/2012 and its Part 21 was adopted on March 12th 2019: it introduces not only the now often presented concept of risk-based Level of Involvement but also the new privileges to approve "certain major changes" "certain major repairs" and "certain major STCs" without an application to EASA.

Approved Design Organisations are entitled to apply for it since June 23rd 2019.

New privilege

Three new privileges are encompassed by the new wording in 21.A.263:

"(c) A holder of a design organisation approval shall be entitled [...]

5. to approve certain **major repair** designs under Subpart M to products or auxiliary power units (APUs); [...]

8. to approve certain **major changes** to a type-certificate under Subpart D; and

9. to issue certain **supplemental type-certificates** under Subpart E and approve certain major changes to those certificates."

We are focussing on the STC projects in the frame of this newsletter.

The main idea is to allow for one particular DOA holder to approve changes classified "Major" similar to those that have been previously approved by EASA.

Scope for STC/Major changes

Of course, there is a well-defined framework in order to grant this privilege as per the below listed AMC and GM to part 21, how to extend the privileges of a Design Organisation.

Now sit down, get your first officer's attention and go through the checklist below!

Should you identify a set of projects that are sufficiently similar to benefit from this privilege, check first that they meet the 'eligibility' criteria:

- ✓ Existence of a **reference project**: at least one major change / STC approved by EASA in the past
- ✓ **Similarity**: The design, installation and operation are basically the same as in such reference project
- ✓ **Repetitiveness** of the certification process: The certification process is repetitive, i.e. identical to, or part of, the already approved referenced project(s)
- ✓ **Performance** and experience in previous projects
  - o 'medium' or 'high' level of performance during at least the latest project referenced, to demonstrate 'similarity' and 'repetitiveness'
  - o 'low' or 'very low' likelihood of an unidentified non-compliance for all the groups of compliance demonstration activity and data (CDIs)

Does your project meet all criteria?

If yes, make sure that this time you match none of the following limitations on eligibility:

- ✓ changes that require a revision to a type certificate data sheet (TCDS) or a type certificate data sheet for noise (TCDSN);
- ✓ changes that require an amendment to the existing certification basis by a special condition, equivalent safety finding, deviation or 'elect to comply';
- ✓ changes that revise airworthiness limitations or operating limitations, unless otherwise agreed with EASA;
- ✓ changes that are intended to be used as alternative means of compliance to an airworthiness directive (AD);

KEY FACTS

Part 21 is a Regulation of the EU, it contains the rights and obligations of organisations and the competent authorities.

Regulation(EU) 2019/897 amends Regulation (EU) No 748/2012 and its Part 21.

Over 50 changes were made to the previous Part 21 in total.

In particular, it introduces the concept of risk-based Level of involvement and new privilege for Design Organisations to approve "certain" Major Changes / STC without application to EASA.

The new privileges entered into force on 23 June 2019.

The new LOI approach becomes mandatory by 23 March 2020.

- ✓ changes that are made mandatory by an AD or that are the terminating action of an AD;
- ✓ changes that are classified as 'significant' in accordance with point 21.A.101;
- ✓ changes for which, in the affected area and for the operations for which the design is to be certified, more conservative certification requirements are applicable which were not used in the description of the EASA-approved procedure of the DOA holder,
- ✓ changes that affect the noise and/or emissions characteristics of the changed product, unless otherwise agreed with EASA;
- ✓ changes that affect a part or system, a single failure of which may have a catastrophic effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity;
- ✓ changes to engines or propellers, a single failure of which may have a hazardous effect upon the product, and for which critical characteristics have been identified, which should be controlled to ensure the required level of integrity; and
- ✓ changes for which a non-compliance has been found in the referenced change during the continued-airworthiness process.

If your set of projects has passed the checklists hurdle, go on reading this article in order to find out how the privilege can be granted.

Relevant guidance

Keeping in mind that your EASA DOA Team Leader is your point of contact for this topic, you will find the necessary guidance material in the AMC/GM to Part 21 Issue 2 amdt 9 published in August 2019.

We consider here only STC and corresponding Major Changes.

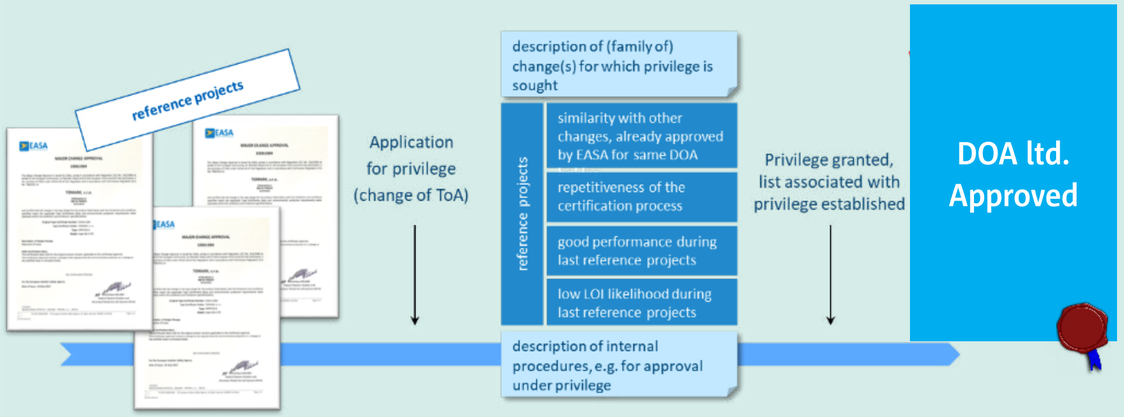
The guidance material provide a lot of details that help to understand the nature of such privileged changes regarding the eligibility and the related processes.

For instance, the repetitiveness is seen in terms of the applicable requirements and the compliance demonstration. In this context, a 'requirement' means any element of the type-certification basis as specified in point 21.B.80, the operational suitability data (OSD) certification basis as specified in point 21.B.82 and the environmental protection requirements as specified in point 21.B.85.

The diagram below shows the references to the new guidance material and their related scope.

AMC No 1 to 21.A. 263(c)(5)(8)(9)	• Explain the scope of the new privilege • Explain the criteria for limitation and eligibility of the new privilege
AMC No 2 to 21.A. 263(c)(5)(8)(9)	• Provide the process for obtaining and using the new privilege • Provides the process to extend the privilege
GM on 21.A.263(c) (5),(8),(9)	• Provide an example of numbering system for approval of STCs, major changes/repairs issued by DOA holders under the new privilege, and information to be sent to EASA

If you are willing to apply for this new privilege, you will need to read all details in the guidance material. Thankfully, the below diagram is summing up the key points to be aware of:



In order to obtain the privilege, DOA holders need to apply for an amendment of the TOA of their DOA with Form 82.

The related procedure needs to be prepared and submitted to your DOA Team Leader together with a "List associated with the privilege" (defining the projects).

The related "justification document" will then need to be presented and approved.

Those elements will then be assessed on a joint effort by the DOA Team Leader, the Product Certification Managers and Experts who were exposed to your previous projects.

Should the outcome of the assessment be positive, your Terms Of Approval will be modified to encompass your new privilege.

The next approval under this privilege will thus be handled fully within your Design Organisation, i.e. without application to EASA.

Roadshows

Roadshows took already place in Rome, Prague and Cologne, during which this topic was presented with many details. The lively exchanges between the presenters and the audience were very fruitful.

I went around and asked some participants for their reaction on one occasion:

- "the conditions are giving a very narrow spectrum of possible cases"
- "there is one only case I can think of for my business"
- "this is probably not a tool that can be used by smaller Design Organisations"
- "this is more appropriate to Organisations selling a standardised product rather that to those making tailored solutions"

Conclusion

This change is new to EASA and to your approved design. Let us discover together how to make the best use of it.

Should you need further support about this topic, please contact your DOA Team Leader or Leonardo.CAPACCI@easa.europa.eu.

INTERNATIONAL COOPERATION - BILATERAL AGREEMENT AND "OUTSIDE TRACK II PROCESS" WITH CHINA

The EU –China relationship has known this summer a significant development for the aviation industry. The Bilateral Aviation Safety Agreement (BASA) will make it possible to validate non-TC holders' design approvals between both Parties.

Bilateral agreement signed

The bilateral civil aviation safety agreement (BASA) between the EU and China on Civil Aviation Safety was signed on May 20th 2019.

The main objective of the BASA is to support worldwide trade in aircraft and related products.

Once its entry into force expected sometime in 2020, this agreement will remove the unnecessary duplication of evaluation and certification activities for aeronautical products by the civil aviation authorities, and therefore reduce costs for the aviation sector. The BASA also promotes cooperation between the EU and China towards a high level of civil aviation safety and environmental compatibility.

Individual working arrangements: no more!

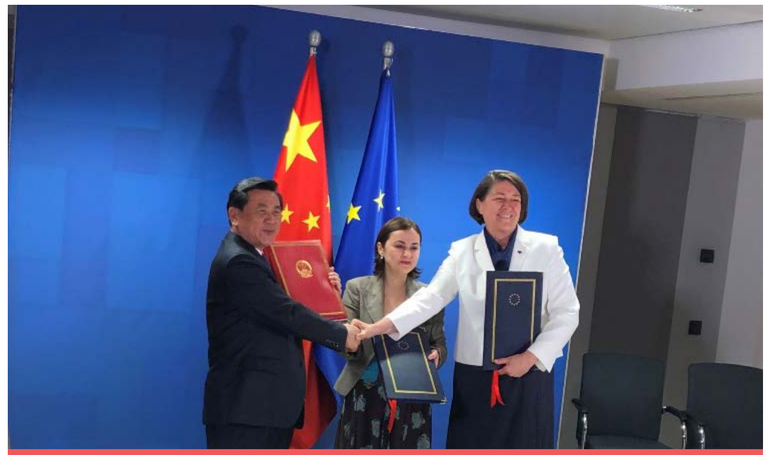
In anticipation of the entry into force of the BASA (after ratification of the Agreement by both Parties) and its implementation via agreed Technical Implementation Procedures, a "Temporary guidance material for validation of products outside Track II and without working arrangement" was signed between EASA and the CAAC on August 06th.

In accordance with the principles of the BASA, and pending its entry into force, this temporary Guidance Material is developed for any individual project applied or to be applied from both sides which is outside the previously agreed technical exposure scheme (Track II) and without a Working Arrangement between CAAC and EASA. It describes operational procedures to be used to enable acceptance of civil aeronautical products from both sides.

Paving the way to the Chinese market for European STC holders

Before entry into force, both EASA and CAAC have agreed to make it possible for European STC holders to ask for validation by CAAC of their EASA certificates using a specific process designed for this transitional period. This allows easier access to the Chinese market for European Design Organisations. This way of working will remain valid until publication of relevant Technical Implementation Procedures (TIP).

In case of questions/comments about this process, please contact the corresponding PCM or our EASA representative in China Javier VICEDO (javier.vicedo@easa.europa.eu).



The following guidelines need to be considered for each validation effort with CAAC:

- the regular CSV process (EASA Form 41) needs to be used
- the local end-customer needs to provide the STC holder with a letter of intent
- contacts between the STC holder and the validation authority (CAAC) are acceptable
- written record of any requests is suggested whenever these require EASA input
- one CSV application needs to be sent for each certificate to be validated
- for European applicants, the EASA PCM remains the main point of contact
- please keep the EASA representative in China in copy of all applications for validations

QUESTIONS AND ANSWERS – ONLINE PUBLICATION

Your questions are the fuel of our communication effort.
We published them online recently.

Whoever was involved in STC projects together with EASA already has certainly encountered issues that needed EASA answers.

We strive to share those answers and therefore have published a large batch of questions and their associated answers on our website.

Check out our FAQ webpage dedicated to “Certification of products and organisations”!

A large number of questions was recorded, in particular about topics that were raised in the frame of the yearly EASA STC workshops.

UPCOMING EVENTS

EASA is inviting industry participants to attend to events in for coordination, information and support purpose. Come and help us prepare the future of aviation!

New Part-21 amendment, what is changing for me? – Info session

When? October 30th /31st 2019

Where? Airbus St. Martin, Toulouse, France

2019 EASA-FAA Workshop on Additive Manufacturing

When? November 05th/ 07th 2019

Where? EASA Headquarters, Cologne, Germany

Side Meeting Day (prior the Product Certification & DOA Workshop 2019)

When? November 18th 2019

Where? EASA Headquarters, Cologne, Germany

Product Certification & Design Organisation Approval Workshop 2019

When? November 19th / 20th 2019

Where? Maritim Hotel, Cologne, Germany

Rotorcraft and VTOL Symposium in Cologne

When? December 10th / 11th 2019

Where? Pullman Hotel, Cologne, Germany

Check the details about those events and many more on our website!

Let’s continue this
two-ways communication
and cooperation.
We kindly invite you
to share by e-mail to:
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