

Seasonal
Technical
Communication

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Dear ‘e-STC Newsletter’ readers,

We just came back to the office after the ‘End of the Year’ break.

We took up our projects and daily activities from where we left them, but January gives us the feeling of having a blank white page ahead; the enthusiasm of the New Year and gazing into the future make us forget the rush of work in the last few days before Christmas.

However, December stress reappears punctually every year...

Overloaded periods are sometimes inevitable and we just have to cope with them. However, work peaks and project incidents could often be better managed. Although a bit of adrenaline could be beneficial, we would like to emphasise the importance of efficient project management and the precious contribution that a communication platform such as the e-STC Newsletter has demonstrated to bring to our community.

Solidity: the success of a project is mainly due to team work and to the thoroughness and expertise of the team members working on it. The solidity of information and the high technical level of the tips transmitted through the e-STC Newsletter by PCMs and Experts, who are involved daily in several projects, is certainly an asset.

Awareness: the backbone of every successful project is awareness, with a wide overview and access to diversified information. Our technical subjects and insights into new regulations are there to inform you about current important topics.

Future Events: heads up! The e-STC Newsletter has the goal of promptly informing the community about all the major events that could bring added value in terms of technical exchanges and networking.

Exchange: communication is the lifeblood of project management. Well, what better communication channel is there than our ‘e-STC Newsletter’?

Tangibility: we don’t need to reinvent the wheel! Sometimes a good mix of concreteness and common sense can make a huge difference. This is why we love best practises, so have a look at Section 2 for this edition’s best practises for cabin safety.

You, as an STC Community member, are our most important concern. Our attention is turned to you in order to increase our level of cooperation and exchange, since we have a common goal: achieving more and more safer and better designs!

Let’s start the New Year with our usual passion and creativeness, while keeping an eye on smooth and efficient project management!

On behalf of the whole EASA staff, we wish you an outstanding 2019, full of enriching aviation projects, meetings with inspiring people, not forgetting personal fulfilment.

Welcome to the winter e-STC Newsletter! In this 4th edition you will find:

1. Technical subject – cabin decompression related to STC projects
2. Best practices – cabin safety
3. Special supplement – Modstore Seminar 2018
4. EASA initiatives – the Rotorcraft Safety Roadmap & CT Roadmap 2020
5. Upcoming events – the Rotorcraft and VTOL Structures Workshop
6. Questions & answers from the 2018 STC Workshop

Enjoy these topics, and I look forward to your engagement in this two-way communication channel (STC_news@easa.europa.eu)

Sincerely,
Francesca Scaramuzzino and Michele Ambrosio

For this 4th edition of the e-STC Newsletter, special thanks to:

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Thomas OHNIMUS (Senior Cabin Safety Expert)

Sabine MEISSNER (Cabin Safety Expert)

Helene DE WOLF (Fokker – ModStore event Coordinator)

Carla IORIO (CT2020 Roadmap Project Manager)

Javier CASTILLO (CT2020 Roadmap Change Agent)

Emily LEWIS (Structures Expert)

David SOLAR (Rotorcraft Head of Department)

Phillip BROOKE (Certification Policy Officer)

Andrew BRIDGE (Safety, Software & Airborne Electronic Hardware Expert/Rulemaking Officer)

INSIDE STORIES



Francesca Scaramuzzino joined EASA in April 2017 as a 'Junior Aviation Professional' in the context of the 'Junior Qualification Program' (JQP), familiarising herself with the main activities of the Project Certification Manager role and to that of a Safety Investigation Officer. After 18 months in the programme, she was appointed as a Junior Project Certification Manager for Large Aeroplanes. Before coming to EASA, Francesca completed her studies in aerospace engineering, obtaining an Engineering PhD in 'Hybrid propellant rockets'. She later started working in the aviation field by gaining work experience at EASA as a Graduate Trainee within the Certification Propulsion Section. She joined the Superjet Company as a Technical Service Engineer, investigating and analysing service events for all the Sukhoi SuperJet 100 aircraft in-service issues. She then changed company and worked for 2+ years as a Technical Leader for General Electric-Avio Aero for technical investigations related to failure events that involved Gearboxes and Low Pressure Turbine modules of GEnx -1B/-2B engines. Recently, Francesca has been appointed as the focal PCM for Lufthansa Technik STC(s) installed on Airbus types, and she concurrently supports the Powerplant Expert colleagues on the activities related to their areas of expertise. She also contributes to EASA transversal activities.

In her free time, she practices Yoga, plays the piano and she is getting ready to face a new and extraordinary experience...



Michele Ambrosio joined EASA in June 2018 as a 'Junior Project Certification Manager'.

Before landing at EASA, Michele worked for 5 years in the aviation industries of Italy and France. After an internship at Airbus Toulouse, where he investigated new methodologies to analyse 'Velocity of Minimum Unstick' flight tests, he worked as an Aircraft Certification Consultant for general aviation projects in Milan and as an Aircraft Performance Engineer at Altran Technologies in Toulouse.

At EASA, Michele currently works on several STCs, Airbus multi-program Major Changes, and on a business jet Type Certificate. He also supports EASA's transversal activities and is acquiring knowledge in the field of continued airworthiness.

Besides work, he enjoys sports, outdoor activities and flying as a private pilot.

CABIN DECOMPRESSION RELATED TO STC PROJECTS

One recurrent requirement in STC projects is §25-365 on rapid decompression. We find it everywhere from cabin layouts (initial or conversion/refurbishing) up to large antenna installations.

Why?

So that the crew and passengers can fly safely and in a comfortable environment at high altitudes, the ambient air in the aircraft cabin is pressurised and heated as addressed in §25.841.

Cabin Layout

Decompression is a loss of pressure in the aircraft cabin resulting from a structural failure 'explosive decompression', or a 'sudden or rapid decompression'. Depending on the rate of depressurisation, the depressurisation can also be a 'slow decompression' (mainly due to a pressurisation system failure).

There are two main structural hazards that may result from a decompression:

- The structural integrity of the primary structure, especially the floor structure, can be affected;
- There may be a failure of the internal structure, potentially injuring the passengers and crew: a failure of the ceiling, partitions and monuments, or an explosion/implosion could potentially injure passengers.

To avoid the hazards in the last bullet, sufficient venting has to be implemented (which is sometimes a burden for a VIP layout, but safety comes before concerns about appearance). A failure of the floor grid is not an option, as it would endanger the integrity of the aircraft.

In addition, these failures may lead to disruptions of some systems, which is why systems need to be segregated.

During the configuration of a new cabin layout, special features have to be investigated carefully. This is clear for the creation of new spaces, of small compartments and/or small spaces, but some other aspects may not be so

obvious, such as checking that with new seats (in general, shrouded ones in BC/FC), the venting areas (Dado panels) are not blocked, and checking whether additional vents need to be implemented.

In accordance with CS 25.365(e)(2), applicants may combine small and large compartments. EASA had developed a generic CRI to cover these small compartments, which defines the sizes of their openings. A compartment is defined as 'small' when it has a width of three (3) frames length or less. All other compartments are defined as 'large' compartments.

For the 'small' compartments, the size of the opening resulting from a skin bay failure (bounded by two adjacent frames and two adjacent stringers) should generally be considered (i.e. it is not extremely improbable) to be a minimum opening size for these 'small' compartments.

Another possible aspect, which may be taken into account in a decompression analysis, is the introduction of **opening time** venting, e.g. changing the position of a door (i.e. the angle of the opening) in each iteration, with the resulting evolution of the vents.

In addition to special conditions for operating above 41 000 ft, applicants have also to be aware of other aspects, such as the existence of different critical altitudes for decompression:

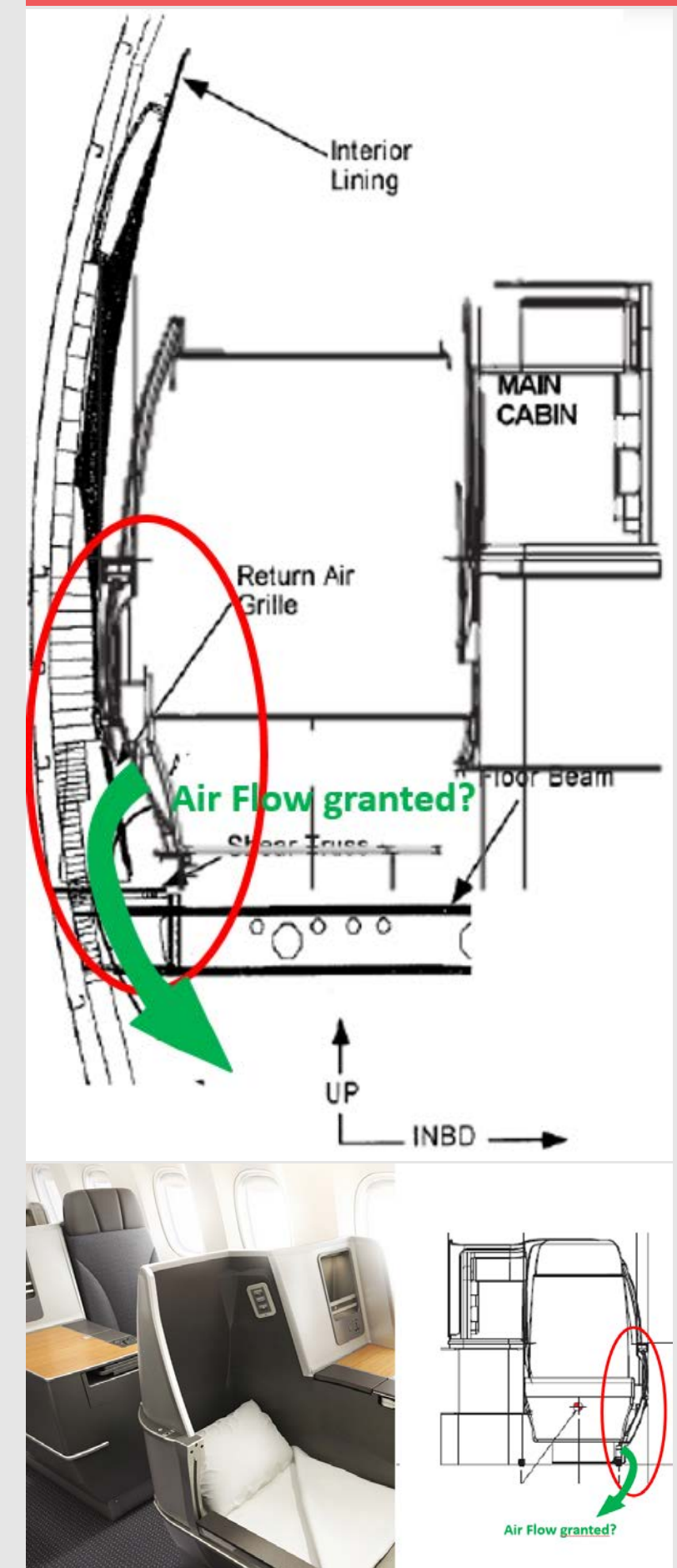
- Pressurized to the outside air pressure (ca. 22 to 25 000 ft);
- Pressurized to unpressurized compartments, as tail cone (usually at the maximum altitude).

Large antennas

When installing a large antenna, the possibility of a rapid decompression has to be taken into consideration in order to avoid a rupture or a departure of the radome from the aircraft. Here similarly, (sufficient) venting surface area has to be included in the design to withstand such an event. The vent to the outside may be designed with grids or fleece to prevent insects and dirt from entering the radome. Such a grid affects the airflow (e.g. the discharge coefficient), so care must be taken to design enough vents.

Expert TIPS

- Ensure enough venting is available;
- Ensure that the access to these venting areas is not blocked
- In case of doubt, do not hesitate to contact EASA Panel 3 experts and/or PCMs



SEAT INSTALLATIONS WITH OR WITHOUT INNOVATIVE DESIGN FEATURES

Reviewing the latest innovative developments in seat design, EASA has found that ETSO seat approvals have their limitations, as the current regulation is based on previous design practices. EASA would therefore like to take the opportunity to highlight the limitations of the current ETSO approval. Typically, the ETSO seat approval covers:

- the structural load path,
- seat cushion flammability (bunsen-burner & oil-burner tests),
- the life vest installation (provisions only),
- the general capability of the seat to be installed on an aircraft,
- the dimensions of the seat under deformation,
- production oversight,
- instructions for continuing airworthiness (maintenance and repair manuals).

Considering these aspects above, the responsibility for the basic seat design is with the ETSO approval holder.

Based on experience gathered during previous innovative seat installation projects, EASA suggests that STC applicants should pay special attention to the following items that are not covered by the ETSO approval:

- electrical installations (IFE, electrical harnesses or other electrical installations are not covered by the ETSO);
- HHR & SD are currently not covered by the ETSO (this will change with ETSO C-127-C);
- 25.795 (ease of search for the life vest stowage);
- the structural attachment to the actual floor structure (interface loads);
- intermediate load cases may not be covered by the ETSO;
- some special seat features or designs need to be covered by special conditions (CRI):
 - airbags,
 - pre-tensioners,
 - inertia locking devices (ILDs).

Expert TIPS

If a seat involves unusual design features or installations, please contact EASA at an early stage. This will help you to meet your deadlines and avoid surprises at a late stage in the project. Note: new special conditions or equivalent level of safety findings (ESFs) need to go through the publication process.

- Other special features that may need to be considered are:
 - mechanical override of electrical motors (in case of a failure),
 - E-tablet holders,
 - economy class seats with sleeping provisions,
 - PED charging provisions (wired or wireless),
 - the use of new materials (carbon structures, magnesium alloys),
 - massaging functions (shiatsu rollers, air mattresses),
 - comfort functions (heating, cooling, air conditioning, fragrance dispensers),
 - seat installations at an angle to the direction of flight.

EASA is aware that in most cases, the layout-specific tests are conducted by the seat manufacturer. However, the responsibility for the compliance demonstration is with the STC applicant.

The ModStore Seminar *

On Monday, October 15th, the ModStore Aircraft Modifications Seminar took place in Amsterdam.

ModStore.aero is an online platform, connecting buyers and sellers of aircraft modifications worldwide. Once a year, we organise the ModStore Seminar to create the opportunity for the people in this industry to meet up in person and share thoughts and experiences on current topics.

EASA accepted our invitation to be our guest and we were thrilled to hear that Mrs. Carla Iorio, Supplemental Type Certificates & Special Projects Section Manager, would attend as a Speaker and give a presentation on 'The growing importance played by DOAs within the actual & future evolution of PART 21 in the context of STC approvals'. Many of our attendees represent Part 21 DOA organisations, so this subject was spot on!

Carla Iorio would later also take part in the panel discussion in which she and the representatives of Embraer (OEM), Alliance Airlines (Airline), H4 Aerospace (a Part 21 organisation) and GSA Europe (the European GNSS Agency) shared thoughts on topics such as changing mandates and the role that OEMs have regarding DOAs and STC Holders. The debate moderator Mr. John Strickland took on the task of leading the conversation.

The seminar was a success. The guests were very satisfied with the event and expressed their appreciation for the diversity of the companies who were present, the subjects we discussed, and they especially mentioned the interaction with Carla Iorio during this seminar. Carla, on her side, was grateful for this opportunity to be able to share her knowledge and insights on several topics and deliver them to the right people.

Inspired by the events of the day, we realized that we could find more ways to collaborate. And so we did!

Announcements made by EASA were published in the ModStore Newsletter, thus reaching a bigger audience. As a result, more people started to read the ModStore Newsletter and got better acquainted with our platform. This was a big step forward in making our communication to the market more effective.

We thank EASA for taking part in our seminar. We have valued our cooperation so far, and we look forward to continuing this collaboration in 2019!



About ModStore

ModStore.aero is a centralized platform that connects sellers and buyers of rotor wing and fixed wing aircraft modifications. It is an online trading place, which contains over 30 000 modifications from around the globe. ModStore provides an extensive package of services to promote STC holders and design organisations. For more information, please contact:

Hélène de Wolf – Manager ModStore: info@modstore.aero or visit www.modstore.aero

EASA INITIATIVES

The Rotorcraft Safety Roadmap 2019 -2029

The Rotorcraft Safety Roadmap is one of EASA’s top objectives, and it was developed by EASA, together with external experts.

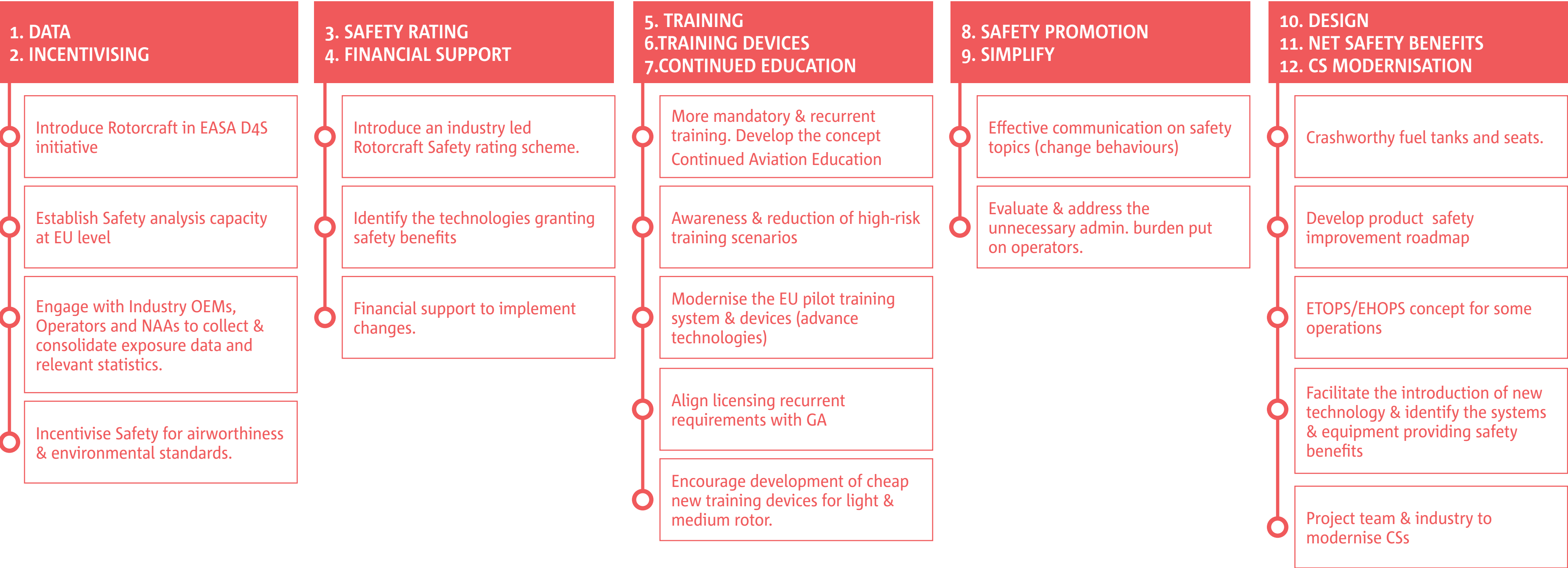
Our vision is to achieve a significant improvement in safety within the evolving rotorcraft industry, looking at all possible leverage across the board. The priorities, based on the numbers of accidents, were set on **General Aviation and small operators**.

The Strategic objectives are to:

- 1. Improve overall rotorcraft safety by 50 % within the next 10 years.
- 2. Make positive and visible changes to the rotorcraft safety trends within the next 5 years.
- 3. Develop performance-based and proportionate solutions that help to maintain the competitiveness, leadership and sustainability of the European industry.

In order to achieve these objectives, 12 work-streams have been identified, along with associated actions ranging from enabling the use of virtual reality for simulators to adding mandatory safety awareness training as part of the recurrent training.

Summary of the 12 work streams:

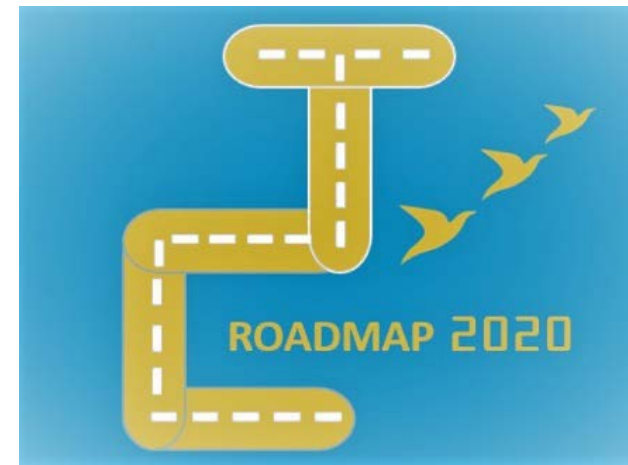


Synergies will be made with other roadmaps such as the EASA GA Roadmap.
We are now working to develop detailed plans and to allocate adequate resources for these work streams.
You will be kept informed of further developments.

EASA INITIATIVES

CT2020 Roadmap

In October 2017, the EASA Certification Director, together with the Deputy Directors (DDs) and the Heads of Departments (HoDs), launched an exercise to identify current inefficiencies and to improve the readiness of the CT Directorate so that it is better prepared to manage the fascinating developments of the future. This project has been named the **CT2020 Roadmap**, and will lead the CT Directorate through a transformation.



The CT2020 Roadmap is a multi-dimensional change project that impacts the CT Directorate in multiple areas, such as working methods & procedures, workload & resource management, enhancing the integration between aircraft certification and the certification of propulsion products, the integration of research, enhancing environmental protection and sustainability, among other aspects.

The transformation in these areas will enable the individuals who form the CT unit to deliver new results and better outcomes in the best possible way.

The *Organisational Structure* is one of the dimensions of the change. The CT Director set the objective of defining a new organisational chart in terms of the number of departments and sections, and their scopes, by the end of 2018, and this target has been successfully achieved.

The targeted benefits of the new CT Organigram are, among others, to:

- produce a more compact organisation (6 departments);
- introduce stronger product coherence at the department level;
- provide clarity on the boundaries for the types of products (e.g. VTOLs);
- enable more flexibility / agility within departments;
- produce more balanced departments and sections, (size-wise);
- facilitate stronger integration (e.g. engines/aircraft, environment and sustainability);
- facilitate stronger programme management and workload management functions;
- enhance consistency with strategic orientations (e.g. a reinforced DOA focus);
- make the organisation 'readable' from outside.

The CT Director decided that the CT2020 Roadmap had to embrace change management methodology, and a change management team was formally constituted in August 2018. Applying the change management methodology, the Change Core Team conducted a series of activities within CT to consider the detailed definition of the scope of the sections within the departments. The Change Core Team has also maintained continuous consultations and communications within EASA to the other stakeholders of the CT Directorate, both the internal and external ones.

Official events where the CT2020 Roadmap has been presented:

- 15th October: ModStore (Industry – Worldwide STCs Holders, OEMs);
- 16th – 18th October: CAPP (Propulsion OEMs, FAA, TCCA and ANAC);
- 30th – 31st October: DOA & Product Certification Workshop (Worldwide DOAs, FAA, TCCA, ANAC);
- 7 & 8th November: LA PCMs Plenary Meeting;
- 20th – 21st November: 6th EASA AD Workshop;
- 4th December: DOA TLs with NAAs Plenary Session;
- 5th December: Rotorcraft Symposium.

UPCOMING EVENTS

The 1st Rotorcraft and VTOL Structures Workshop will be held on 19th and 20th February 2019 at the EASA Headquarters in Cologne. The workshop is intended to be an interactive forum to discuss Rotorcraft and VTOL structure topics between TC and STC applicants, NAAs and EASA. Structural requirements and acceptable means of compliance, including EASA policies and certification memoranda related to materials, proof of structure, fatigue and damage tolerance, and vibration will be presented. Other major structural topics including the impact on structures from external and internal installations (for example VIP, EMS, camera installations, cargo hooks), standard fasteners, bird strikes, and progress on rulemaking will also be addressed. In addition, the structure-related content of the VTOL Special Condition will be discussed.



The draft agenda is available on the EASA website, and registration is open until 31st January. For any queries, comments or suggestions, please contact Structures.Workshop@easa.europa.eu.

QUESTIONS & ANSWERS

The following questions are directly selected from the unanswered question list of the 2018 STC Workshop.

- › Does 'Continuing A/W' mean the same as 'Continued A/W'?

Essentially, 'Continued' Airworthiness is often used in the context of 'type design' and certification, while 'Continuing' Airworthiness is used in connection with an individual aircraft being maintained to comply at all times.

- › Can a Permit to Fly cover (list) more than one MSN?

YES, the flight condition describes a technical condition for which conformity must be confirmed. If two or more aircraft as defined in the FC can be declared to conform to that described condition, the approval can be used for more than one permit to fly.

- › Different STCs from the same holder could have a very high degree of commonality. Could this be a key factor in determining the EASA LOI?

Yes, this factor has to be accounted for during the preparation of the risk assessment through the 'novelty' criteria.

Additionally, AMC 21.B.100 (a) and 21.A.15 (b) (6) contain specific provisions to adjust the risk class that should be determined for a CDI. The reuse of a compliance demonstration already assessed by EASA is addressed in the AMC.

- › If an installation is approved under an FAA special condition, can the EASA STC be considered to be 'Basic'?

The change could be classified as Basic (streamlined) provided that the SC is not considered to be new.

Let's continue this two
ways communication
and cooperation.

We kindly invite you
to share by e-mail to:

STC_news@easa.europa.eu

