Annex to ED Decision 2021/001/R

'AMC and GM to Part 21 — Issue 2, Amendment 11'

The text of the amendment is arranged to show deleted, new or amended text as shown below:

— deleted text is ~~struck through~~;

— new or amended text is highlighted in blue;

— an ellipsis '[…]' indicates that the rest of the text is unchanged.

Annex I to Decision 2012/020/R of the Executive Director of the Agency of 30 October 2012 is amended as follows:

AMC3 21.A.3A(a) Failures, malfunctions and defects

INVESTIGATION AND ANALYSIS

The 'collection', 'investigation' and 'analysis' functions of the system should include specific means to analyse the collected failures, malfunctions, defects or other occurrences, and the related available information, to identify adverse trends, to investigate the associated root cause(s), and to establish any necessary corrective action(s). It should also allow the determination of reportable occurrences as required under point 21.A.3A(b) — see GM 21.A.3A(b).

In addition, for parts whose failure could lead to an unsafe condition, the 'analysis' function of the system should ensure that reports and information sent, or available, to the design approval holder are fully investigated so that the full nature of any damage, malfunction, or defect and its effect on continuing airworthiness is understood. This may then result in changes to the design, to the instructions for continued airworthiness (ICAs), and/or in establishing a mitigation plan to prevent or minimise such occurrences in the future, as necessary, and is not limited to those requiring the involvement of EASA under point 21.A.3A(c).

GM 21.A.3A(a) ~~The system for collection, investigation and analysis of data~~Failures, malfunctions and defects

GENERAL

~~In the context of this requirement the~~ The word ~~"Collection"~~ 'collection' means the setting up of systems and procedures which will enable relevant ~~malfunctions,~~ failures, malfunctions and defects, or other occurrences, to be properly reported when they occur.

Considerations for the collection of information related to failures, malfunctions and defects, or other occurrences, should include the analysis of failure rates, the early rejection of parts from service, and comparison with the certification assumptions.

In the context of point 21.A.3A(a), the phrase '[…] or any other relevant approval deemed […]' refers to 'grandfathered' design approvals under Part 21, as defined in Article 3 of Regulation (EU) No 748/2012.

Approval holders of minor changes and minor repairs do not have to comply with the requirements in point 21.A.3A(a), since according to the classification criteria for design changes and repairs (see points 21.A.91 and 21.A.435), minor changes and minor repairs have no appreciable effect on the characteristics affecting the airworthiness of the product.

AMC1 21.A.3B(b) ~~Unsafe condition~~ Failures, malfunctions and defects

UNSAFE CONDITION

[…]

GM1 21.A.3B(b) ~~Determination of an unsafe condition~~ Failures, malfunctions and defects

DETERMINATION OF AN UNSAFE CONDITION

It is important to note that these guidelines are not exhaustive. However, this material is intended to provide guidelines and examples that will cover most cases, taking into account the applicable certification requirements.

1. INTRODUCTION

Certification or approval of a product, part or appliance is a demonstration of compliance with requirements which are intended to ensure an acceptable level of safety. This demonstration, however, includes certain accepted assumptions and predicted behaviours, such as:

— fatigue behaviour is based on analysis supported by test,

— modelling techniques are used for Aircraft Flight Manual performance calculations,

— the system safety analyses give predictions of what the system failure modes, effects and probabilities may be,

— the system components' reliability figures are predicted values derived from general experience, tests or analysis,

— the crew is expected to have the skills to apply the procedures correctly, and

— the aircraft is assumed to be maintained in accordance with the prescribed instructions for continued airworthiness (ICAs) (or maintenance programme)~~, etc~~.

In-service experience, additional testing, further analysis, etc., may show that certain initially accepted assumptions are not correct. Thus, certain conditions, initially demonstrated as safe, are revealed by experience as unsafe. In this case, it is necessary to mandate corrective actions in order to restore a level of safety consistent with the applicable certification requirements.

To support the determination of an unsafe condition, the investigation may need to include examinations of worn, damaged and time-expired parts / analysis / certification demonstration / tests / statistical analysis, and comparison with the certification assumptions.

See AMC1 21.A.3B(b) for the definition of 'unsafe condition' used in 21.A.3A(b).

[…]

GM 21.A.3A(b) ~~Occurrence reporting~~ Failures, malfunctions and defects

OCCURRENCE REPORTING

For guidance on the ~~occurrence~~ reporting of failures, malfunctions, defects or other occurrences which have resulted or may result in an unsafe condition, refer to the latest edition of AMC 20-8 ~~(see AMC 20 document)~~. The GM available to determine an unsafe condition in accordance with 21.A.3B(b) could be considered to the extent that 21.A.3A(b)(1) also requires the reporting of occurrences that may result in an unsafe condition.

AMC1 21.A.14(b) ~~Alternative procedures to demonstrate design capability~~ Demonstration of capability

ALTERNATIVE PROCEDURES FOR THE DEMONSTRATION OF DESIGN CAPABILITY

[…]

4. Issue of data and information (including instructions) to owners, operators or others required to use the data and information.

   4.1 General

   Data and information include the operational suitability data.

   4.2 Data related to changes

   The data and information (including instructions) issued by the holder of a design approval (for a TC, STC, approval of a change, approval of a repair design) are intended to provide the owners of a product with all the necessary data and information to embody a change or a repair on the product, or to inspect it.

   The data and information (including instructions) may be issued in the format of a service bulletin as defined in the ATA 100 system, or in structural repair manuals, maintenance manuals, engine and propeller manuals, etc.

   The preparation of this data involves design, production and inspection. The three aspects should be properly addressed and a procedure should exist.

   4.3 Procedure

   The procedure should address the following points:

— preparation;

— verification of technical consistency with corresponding approved change(s), repair design(s) or approved data, including effectivity, description, effects on airworthiness or operational suitability, especially when limitations are changed;

— verification of the feasibility in practical applications; and

— approval for the release of data and information.

The procedure should include the information (including instructions) prepared by subcontractors or vendors, and declared applicable to its products by the holder of the TC, STC, approval of changes or approval of repair designs.

4.4 Statement

~~The data and information (including instructions) should contain a statement showing EASA's approval.~~

The data and information should include a statement:

— confirming that the documentation has been produced by the design approval holder in accordance with the associated procedures accepted by EASA; and

— containing a reference to EASA approvals of related changes or repairs, when applicable[1].

[…]

GM ~~No~~ 4 ~~to~~ 21.A.15(d) ~~Scope of operational suitability data~~ Application

SCOPE OF OPERATIONAL SUITABILITY DATA

In the application ~~extension~~ for the approval of operational suitability data, the TC applicant may apply for the approval of different types of operations. If the aircraft is ~~certificated~~ certified for certain types of operations (e.g. ETOPS, RNP, LVO), the impact on the OSD constituents of 21.A.15(d) should be addressed.

The five defined OSD constituents are listed in paragraph (2)(k) of Article 1 of Regulation (EU) No 748/2012 ~~21.A.15(d)(1) through (5)~~. As explained in GM No 1 to 21.A.15(d), they may not all be ~~all~~ applicable to all aircraft types. The content of each ~~of the~~ OSD constituent~~s~~ is defined in the relevant certification specification (CS) and will be approved under a type certificate (TC), supplemental type certificate (STC) or change to those certificates. As explained in GM No 3 to 21.A.15(d), each OSD constituent can have a part that is mandatory for the end user ~~end-user~~ (operator, training organisation, etc.) and a part that is not mandatory (recommendation) for the end user ~~end-user~~. However, both the mandatory and the non-mandatory part together are the OSD constituent. Furthermore, the OSD constituent always includes the element required from the TC/STC applicant,

[1] EASA does not directly approve information or instructions. These are approved as part of the TC, STC, change approval or repair design approval. When stand-alone changes (i.e. not related to a TC change or repair design) to the issued information or instructions (e.g. to take in-service experience into account) are needed, these should be prepared, verified and approved according to the agreed procedures (see above).

as specified in the CS, and may include additional elements at the request of the TC/STC applicant, but still as defined in the CS.

~~GM No 1 to 21.A.15(d)6 Other type-related operational suitability elements~~

~~ED Decision 2016/007/R~~

~~In addition to the five defined OSD constituents, there may be other data which could qualify as OSD when it is relevant for the operational suitability of the aircraft type, is not included in the type design and is specific to that aircraft type.~~

~~The term 'element' as used in this GM carries its normal dictionary meaning, i.e. part, portion, component, etc.~~

~~In order for this 'element' to qualify as 'other type-related operational suitability element', the following conditions apply:~~

~~it concerns data (not the approval of equipment);~~

~~the data is type specific;~~

~~the data is not already be part of the 'classic' part of the type certificate (TC) (such as Airworthiness Limitations Section (ALS), aircraft flight manual (AFM), etc.);~~

~~the data is relevant for the safe operation of the aircraft type; and~~

~~conditions/criteria for the approval of the data can be established.~~

~~The other type-related operational suitability elements can only contain data that is not mandatory for the end-users unless they are covered by one of the existing requirements in Regulations (EU) Nos 965/2012, 1178/2011 or 1321/2014 referring to OSD approved in accordance with Part-21.~~

~~If data can be included in one of the five defined OSD constituents, it does not qualify as an additional operational suitability element under 21.A.15(d)6. For example, the pilot training necessary to introduce an electronic flight bag (EFB) can be included in the OSD constituent flight crew data (FCD), and is not considered an additional operational suitability element.~~

GM ~~No~~ 1 ~~to~~ 21.A.112B Demonstration of capability ~~for supplemental type certificate (STC) cases~~

DEMONSTRATION OF CAPABILITY FOR SUPPLEMENTAL TYPE CERTIFICATE (STC) CASES

See also AMC 21.A.14(b) for the details of the alternative procedures.

The following examples of major changes to type design (ref.: 21.A.91) are classified in two groups. Group 1 contains cases where a design organisation approved under Part 21 Subpart J ('Subpart J DOA') should be required, and Group 2 cases where the alternative procedure may be accepted. They are typical examples, but each STC case should be addressed on its merits, and there would be exceptions in practice. This classification is valid for new STCs, not for evolutions of STCs, and may depend upon the nature of the STC (complete design or installation).

Product	Discipline	Kind of STC	Group
All aircraft			
	OSD		
		Major stand-alone change to any OSD constituent	1
Products for which an alternative procedure may be accepted according to 21.A.14(b)	**All disciplines**		2
CS-23 (products where a Subpart J DOA is required for TC)			
Notes: *1) An STC which leads to a reassessment of the loads on large parts of the primary structure should be in gGroup 1. *2) '2/1' means that an assessment of consequences in terms of handling qualities, performance or complexity of demonstration of compliance may lead to classification in gGroup 1.			
	Aircraft		
		Conversion to tail wheel configuration	1
		Auxiliary fuel tank installations	2/1
		Glass fibre wing tips	2/1
		Fairings: nacelle, landing gear	2
		Gap seals: aileron, flap, empennage, doors	2
		Vortex generators	2/1
		Spoiler installation	1
		Increase in MTOW	1
	Structures		
		Stretcher installation	2
		Change to seating configuration	2
		Windshield replacement (heated, single piece, etc.)	2
		~~Light weight~~ Lightweight floor panels	2
		Ski installations	2/1
	Propulsion		
		Engine model change	1
		Fixed pitch propeller installation	2
		Constant speed propeller installation	2/1
		Installation of exhaust silencer	2
		Installation of ~~Graphic~~ graphic engine monitor	2
		Installation of fuel flow meter	2
		Accessory replacement (alternator, magnetos, etc.)	2
		Inlet modifications: oil cooler; induction air	2
	Equipment		
		Avionics upgrades (EFIS, GPS, etc.)	2/1
		Engine instrument replacements	2
		Carburettor ice detection system	2
		Autopilot system installation	1

Product	Discipline	Kind of STC	Group
		Wing tip landing light; recognition lights	2
		WX radar installation	2
		Aeromedical system installations	2
		De-icing and anti-icing~~ice~~ system installations	1
		Emergency power supply installations	2
CS-25			
	Cabin Safety		
Note: Basically, all changes related to cabin configuration should be in Group 2.		Cabin layout (installation of seats (16G), galleys, single class or business / economy class, etc.)	2
		Floor path marking	2
		Crew rest compartment	1
		Change of cargo compartment classification (from class D to class C)	1
	Structure		
Note: An STC which leads to a reassessment of the loads on large parts of the primary structure should be in Group 1.		Cargo door	1
		Change from ~~P~~passenger to ~~F~~freighter configuration	1
	Avionics		
Notes: For CS-25 products, the existence of an ETSO is not taken into account for the classification.~~;~~ The ~~i~~impact on aircraft performance, and influence of aircraft performance are criteria to assess the classification. ~~;~~ Subjective assessment of human factors is considered for determination of the classification.		CVR	2
		VHF	2
		NAV (ADF, VOR, GPS, BRNAV)	2
		Autopilot, HUD, EFIS, FMS	1
		DFDR	2/1
		Meteo radar	2
		ILS Cat 3	1
		RVSM	1
		TCAS, EGPWS	1
		GPWS	2
	Powerplant		
		Auxiliary fuel tanks	1
		Thrust ~~R~~reverser system	1
		Hushkit	1
		Fire detection	1
		Fuel gauging	1
		Change of ~~E~~engine or ~~P~~propeller	1
CS-27 or CS-29	**All disciplines**		

Product	Discipline	Kind of STC	Group
Note: 2/1 means that an assessment of consequences in terms of handling qualities and performance may lead to classification in Group 1.		Replacement of ~~M~~main rotor or tail rotor blades ~~replacement~~	1
		Autopilot	1
		Engine type change	1
		GPS installation	2
		Jettisonable overhead raft installation	2
		Utility basket installation	2/1
		Nose or side mount camera installation	2/1
		Passenger access step installation	2/1
		Protection net & handle installation (parachuting)	2
		VIP cabin layout	2
		Navigation system installation	2
		Fuel boost pump automatic switch-on installation	2
		Decrease of maximum seating capacity	2
		Agricultural spray kit installation	2/1
		Long exhaust pipe installation	2
		Flotation gear installation	2/1
		Wipers installation	2
		Engine oil filter installation	2
		Skid gear covering installation	2/1
		Gutter installation (top pilot door)	2
		Cable cutter installation	2
		Auxiliary fuel tank fixed parts installation	2
		Cabin doors windows replacement	2
		~~Radio altimeter~~ Radio altimeter aural warning installation	2
		~~Stand by~~ Standby horizon autonomous power supply	2
		Fire attack system	2/1
		Hoisting system installation	2/1
		External loads hook installation	2
		Emergency flotation gear installation	2/1
		Heating/demisting (P2 supply)	2

GM 21.A.149 and 21.A.249 Transferability

GENERAL

~~A Transfer of approval would normally only be agreed in cases where the ownership changes but the organisation itself remains effectively unchanged. For example:~~

~~An acceptable transfer situation could be a change of company name (supported by the appropriate certificate from the National Companies Registration Office or equivalent) but with no changes to site address, facilities, type of work, staff, accountable manager or person nominated under 21.A.145.~~

~~Alternatively, in the event of receivership (bankruptcy, insolvency or other equivalent legal process) there may be good technical justification for continuation of the approval provided that the company continues to function in a satisfactory manner in accordance with their POE. It is likely that at a later stage the approval might be voluntarily surrendered or the organisation transferred to new owners in which case the former paragraphs apply. If it does not continue to operate satisfactorily then the competent authority could suspend or revoke the approval under 21.B.245.~~

~~In order for the competent authority to agree to a transfer of approval, it will normally prescribe it as a condition in accordance with 21.A.147(b) that the obligations and responsibilities of the former organisation should be transferred to the new organisation, otherwise transfer is not possible and application for a new approval will be required.~~

A transfer of approval to another production or design organisation is, by default, excluded by points 21.A.149 or 21.A.249 respectively. These points only allow it exceptionally if it is a direct consequence of a transfer of ownership in an approved production or design organisation, which is then considered a significant change to the existing approval (to which point 21.A.147 or 21.A.247 applies).

As a consequence, and in order to apply this exception, the production or design organisation has to demonstrate to the competent authority the existence of a change in ownership which resulted in the fact that a different legal entity is now conducting the approved production or design functions while remaining effectively unchanged.

An example of such an exception is a change of ownership that leads to a re-registration of the organisation (supported by the appropriate certificate from the National Companies Registration Office or equivalent). In order to demonstrate that the organisation remains effectively unchanged, the organisation needs to demonstrate that there are no changes affecting the initial demonstration of compliance of the organisation with Subpart G or Subpart J. If, for instance, the change of ownership would, in addition, lead to a change of address, facilities, type of work, staff, accountable manager or persons nominated under points 21.A.145 or 21.A.245, then it is not an acceptable transfer situation; the exception does not apply in this case. A new investigation by the competent authority would be necessary. The new organisation would have to apply for its own approval. In such a case where the organisation applies for a new approval, the demonstration of compliance in accordance with points 21.A.135 or 21.A.235 may be limited to the demonstration that the changes in the organisation comply with the Subpart G or Subpart J requirements, while referring for the rest to the compliance demonstration of the previous approval holder.

A pure name change, where the ownership does not change, does not require a transfer of the approval. In this case, the natural or legal person that holds the approval remains the same. However, as a consequence of the name change, the approval document needs to be amended to reflect the new company name. This is a significant change, to which point 21.A.147 or 21.A.247 applies.

Another example of a transfer of ownership, which may be exceptionally accepted under points 21.A.149 or 21.A.249, may be the event of receivership (bankruptcy, insolvency or another equivalent legal process). In this case, there is no change to the production or design organisation, except that the custodial responsibility for its property, including its tangible and intangible assets and rights, is

transferred to a receiver or insolvency administrator. The receivership aims to continue the business of the same organisation.

AMC1 21.A.163(d) Privileges ~~— Maintenance~~

MAINTENANCE

[…]

MAINTENANCE OF COMPONENTS OUTSIDE THE POA CAPABILITY

Such a maintenance activity outside the capability of the ~~A~~aircraft POA holder may still be accomplished under the production approval of the original release organisation. In such circumstances, the engine(s), propeller(s), parts and appliances will require re-release in accordance with point ~~GM~~ 21.A.163(c) (EASA Form 1).

[…]

AMC ~~No~~ 1 ~~to~~ 21.A.243(a) Data ~~requirements~~

HANDBOOK CONTENT

The handbook should provide the following information for each product covered by the design organisation approval.

[…]

10. A description of the means by which the organisation collects, monitors, analyses and responds to reports of problems which cause or might cause an adverse effect ~~affecting~~ on the airworthiness or operational suitability of its product, part or appliance during design, production and in service, in particular to comply with point 21.A.3A (see also AMC3 21.A.3A(a) and GM No 1 to 21.A.239(a), points ~~paragraphs~~ 3.1.4(s) and (u)). These collected reports should include both mandatory and voluntary occurrence reports from organisations and natural persons involved in the operation and maintenance of the product, part or appliance.

[…]

AMC-ELA ~~No~~ 1 ~~to~~ 21.A.263 Privileges and AMC-ELA ~~No~~ 1 ~~to~~ 21.A.265(h) Obligations of the holder

[…]

(d) The approval of minor revisions to the AFM and its supplements should contain the following statement: ~~'Revision No [YY] to AFM (or supplement) ref. [ZZ] is approved under the authority of DOA ref. EASA. 21J. [XXXX].'~~ 'The technical content of this document is approved under the authority of the DOA, ref.: EASA.21J.[XXXX]. Such a change is treated as a change to the type certificate, as the AFM is formally a part of the type certificate, and it is consequently classified on the basis of the application of the method defined in response to AMC-ELA No 2 to 21.A.239(a), and identified as being related to a 'minor' design change. Administrative revisions to the AFM are also expected to be classified as 'minor'. The following revisions to the AFM are defined as 'minor' revisions:

1. editorial revisions or corrections to the AFM;

2. changes to parts of the AFM that are not required to be approved by EASA;
3. changes to limitations or procedures that are achieved without altering or exceeding the certification data;
4. conversions of units of measurement that were previously approved by the FAA or by EASA, and that are added to the AFM in a previously approved manner;
5. the addition of aircraft serial numbers to an existing AFM if the aircraft configuration, as related to the AFM, is identical to the configuration of the aircraft already in that AFM;
6. the removal of references to aircraft serial numbers that are no longer applicable to that AFM;
7. the translation of an EASA-approved AFM into the language of the State of Design or the State of Registration;
8. AFM revisions as part of minor changes to a type design.

[…]

AMC ~~No 1 to~~ 21.A.263(c)(1) ~~Procedure for the classification of changes to a type certificate (TC) or to a supplemental type certificate (STC) and of repair designs as 'minor' or 'major'~~ Privileges

PROCEDURE FOR THE CLASSIFICATION OF CHANGES TO A TYPE CERTIFICATE (TC) OR TO A SUPPLEMENTAL TYPE CERTIFICATE (STC), AND OF REPAIR DESIGNS AS 'MINOR' OR 'MAJOR'

[…]

2. PROCEDURE FOR THE CLASSIFICATION OF CHANGES TO A TC, APU ETSO, OR TO THAT PART OF THE PRODUCT COVERED BY AN STC, AND REPAIR DESIGNS

2.1 Content

The procedure should address the following points:

— the identification of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs;~~,~~

— classification;~~,~~

— justification of the classification;~~,~~

— acceptance of the classification by authorised signatories;~~,~~ and

— supervision of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs initiated by subcontractors.

~~For changes to a TC, APU ETSO or to that part of the product covered by an STC, the criteria used for the classification should be in compliance with point 21.A.91 as further explained in GM 21.A.91.~~

~~For repairs, the criteria used for classification should be in compliance with point 21.A.435 as further explained in GM 21.A.435.~~

2.2 Identification of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs

The procedure should indicate how the following are identified:

~~— major changes to a TC, APU ETSO or to that part of the product covered by an STC or major repairs;~~

~~— those minor changes to a TC, APU ETSO or to that part of the product covered by an STC or minor repairs where additional work is necessary to demonstrate compliance with the CS and environmental protection requirements; and~~

~~— other minor changes to a TC, APU ETSO or to that part of the product covered by an STC or minor repairs that require no further demonstration of compliance.~~

— items (consisting of areas, systems, parts, or appliances) to be affected by the change or repair following the definitions provided in paragraph 3.9 of GM 21.A.101;

— airworthiness directives which have, or might have, an impact on any of the identified items affected by the change or repair;

— other constituents of the TC and of the pre-existing change(s) to the TC as applicable to the affected items (for instance, operating limitations, OSD constituents, manuals — see also point 21.A.90A and the associated GM) to be affected by the change or repair;

— the existing type-certification basis of the affected items containing, as applicable, the certification specifications, special conditions, deviations from the applicable certification specifications and the equivalent level of safety findings incorporated by reference in the TC of the product to be changed;

— the existing OSD certification basis;

— the definition of the change or repair to the affected items and to the other affected constituents of the TC and of the pre-existing change(s) to the TC, if applicable, in accordance with the provisions of points 21.A.31 and 21.A.91;

— the certification basis of the change or repair determined in accordance with point 21.A.101 with the support of GM 21.A.101 (point 21.A.433 for repairs); this might lead to preclassification of the change as 'major significant' as per the associated definitions (see point 2.3 below).

The procedure should request the applicant to record a justification that the information, on which those identifications are based, is adequate. This may be done either by using the DOA holder's own resources, or through an arrangement with the TC holder, or any other design approval holder as relevant.

The procedure should address cases where the pre-existing configuration of the type design is the result of multiple changes or repairs applied to the same areas, systems, parts, equipment or appliances.

2.3 Classification

The procedure should show how the effects on airworthiness, operational suitability and environmental protection are analysed, from the very beginning, by reference to the specific applicable requirements of the affected items.

If no specific CSs or environmental protection requirements are applicable to the ~~change or repairs~~ affected items, the above review should be carried out at the level of the part or system where the ~~change or repair~~ affected items are ~~is~~ integrated and where specific CSs or environmental protection requirements are applicable.

For changes to a TC, the criteria used for the classification should be in compliance with point 21.A.91 and follow the guidelines provided in GM 21.A.91.

For repairs, the criteria used for the classification should be in compliance with point 21.A.435 and follow the guidelines provided in GM 21.A.435(a).

The procedure should define provisions to contact EASA in case of doubts regarding the classification.

The procedure should take into consideration that a change to a TC may have been found to be significant according to point 21.A.101 and following the definitions provided in GM 21.A.101.

Therefore, it is already preclassified at the stage of the determination of the certification basis (see point 2.2 above).

2.4 Justification of the classification

All decisions on~~f~~ the classification of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs classified as 'major' or 'minor' should be recorded, and, for those which are not straightforward, also ~~documented~~ justified according to the procedure and criteria in point 2.3 above. These records should be easily accessible to EASA for sample checking.

2.5 Acceptance of the classification by the a~~A~~uthorised signatories

All classifications of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs should be accepted by an appropriately authorised signatory, belonging to or tasked by the ~~O~~office of ~~A~~airworthiness, as explained in GM No 1 to 21.A.239(a)(3.1.4)(r).

The procedure should indicate the authorised signatories for the various products listed in the terms of approval.

For those changes or repairs that are handled by subcontractors, as described under point~~paragraph~~ 2.6, a description~~it~~ should be ~~described~~ provided of how the DOA holder manages its classification responsibility.

The final classification may be:

— major changes significant to a TC;

— major changes not significant to a TC or major repairs;

— minor changes to a TC or minor repairs where additional work is necessary to demonstrate compliance with the certification basis, the operational suitability data certification basis, where applicable, and the environmental protection requirements; or

— minor changes to a TC or minor repairs requiring no further demonstration of compliance.

The procedure should indicate how the above four classes of changes/repairs are identified, taking into consideration the requirements laid down in point 21.A.31.

2.6 Supervision of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs initiated by subcontractors

The procedure should indicate, directly or by cross reference to written procedures, how changes to a TC, or to that part of the product covered by an STC, and repair designs may be initiated and classified by subcontractors, and are controlled and supervised by the DOA holder, taking into consideration the requirements laid down in point 21.A.239(c) and the associated GM 21.A.239(c).

AMC ~~No 2 to~~ 21.A.263(c)(1) Privileges ~~– Organisations designing minor changes to a type certificate (TC) or a supplemental type certificate (STC) and minor repairs to products: classification procedure~~

ORGANISATIONS THAT DESIGN MINOR CHANGES TO A TYPE CERTIFICATE (TC) OR A SUPPLEMENTAL TYPE CERTIFICATE (STC), AND MINOR REPAIRS TO PRODUCTS: CLASSIFICATION PROCEDURE

1. Content

The procedure should address the following points:

— the configuration control rules, especially the identification of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs;

— the classification in compliance with point 21.A.91 and considering GM 21.A.91 for changes and GM 21.A.435(a) for repairs;

— the justification of the decisions for the classification; and

— the acceptance of the classification by authorised signatories.

2. Identification of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs

The procedure should indicate how the following ~~minor changes to a TC or minor repairs~~ are identified:

~~— those minor design changes to a TC or minor repairs where additional substantiation data is necessary to demonstrate compliance with the CS or environmental protection requirements;~~

~~— other minor design changes to a TC or minor repairs requiring no further demonstration of compliance.~~

— the items (consisting of areas, systems, parts, or appliances) to be affected by the change or repair as per the definitions provided in paragraph 3.9 of GM 21.A.101; these include the parts, appliances, systems or areas affected, and also the other TC constituents (see definitions in GM to 21.A.90A; for instance, operating limitations, OSD constituents, manuals, etc.);

— airworthiness directives which have, or might have, an impact on any of the identified items affected by the change or repair;

— the existing type-certification basis of the affected items containing, as applicable, the certification specifications, special conditions, deviations from the applicable certification specifications and the equivalent level of safety findings incorporated by reference in the TC of the product to be changed;

— the existing OSD certification basis;

— the definition of the change or repair to the affected items in accordance with the provisions of point 21.A.31;

— the certification basis of the change or repair determined in accordance with point 21.A.101 with the support of GM 21.A.101 (point 21.A.433 for repairs); this might lead to preclassification of the change as 'major significant' as per the associated definitions (see paragraph 3 below).

3. Classification

The procedure should show how the effects on airworthiness, operational suitability and environmental protection are analysed, from the very beginning, by reference to the specific applicable requirements of the affected items.

If no specific CSs or environmental protection requirements are applicable to the ~~change or the repair~~ affected items, the above review should be ~~done~~ carried out at the level of the part or system where the ~~change or repair~~ affected items are ~~is~~ integrated and where specific CSs or environmental protection requirements are applicable.

For repairs, the criteria used for the classification should be in compliance with point 21.A.435 and follow the guidelines provided in ~~see also~~ GM 21.A.435(a).

The procedure should define provisions to contact EASA in case of doubts regarding the classification.

4. Justification of the classification

All decisions on the classification of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs classified as 'minor'~~,~~, should be recorded, and, for those which are not straightforward, also ~~documented~~ justified according to the procedure and the criteria defined in paragraph 3 above.

These records should be easily accessible to EASA for sample checking.

The justification~~It~~ may be in the format of meeting notes or a register.

5. Acceptance of the classification by the a~~A~~uthorised signatories

All classifications of changes to a TC, APU ETSO or to that part of the product covered by an STC, and repair designs should be accepted by an appropriately authorised signatory.

The procedure should indicate the authorised signatories for the various products listed in the terms of approval.

The final classification may be:

— minor changes to a TC or minor repairs where additional work is necessary for the demonstration of compliance with the certification basis, the operational suitability data certification basis (where applicable), and the environmental protection requirements; or

— minor changes to a TC or minor repairs that require no further demonstration of compliance.

AMC ~~No 1 to~~ 21.A.263(c)(2) ~~Procedure for the approval of minor changes to a type certificate (TC), APU ETSO or a supplemental type certificate (STC), and minor repairs~~ Privileges

PROCEDURE FOR THE APPROVAL OF MINOR CHANGES AND MINOR REPAIRS TO A TYPE CERTIFICATE (TC), AN AUXILIARY POWER UNIT EUROPEAN TECHNICAL STANDARD ORDER (APU ETSO) OR A SUPPLEMENTAL TYPE CERTIFICATE (STC)

[…]

2. PROCEDURE FOR THE APPROVAL OF MINOR CHANGES TO A TC, AN APU ETSO OR TO THAT PART OF THE PRODUCT COVERED BY AN STC, AND MINOR REPAIRS

2.1 Content

The procedure should address the following points:

— compliance documentation;

— approval under the DOA privilege;

— authorised signatories; and

— supervision of minor changes to a TC, an APU ETSO or to that part of the product covered by an STC or minor repairs handled by subcontractors~~sub-contractors~~.

2.2 Compliance documentation

For those minor changes to a TC~~-~~, an APU ETSO or to that part of the product covered by an STC, and minor repairs where additional work to demonstrate compliance with the applicable CSs and environmental protection requirements is necessary, compliance documentation should be established and independently checked as required by point 21.A.239(b).

The procedure should describe how the compliance documentation is produced and checked. For compliance documentation, see also AMC 21.A.20(c).

2.3 Approval under the DOA privilege

2.3.1 For those minor changes to a TC, an APU ETSO or to that part of the product covered by an STC, and minor repairs where additional work to demonstrate compliance with the applicable CSs and environmental protection requirements is necessary, the procedure should define a document to formalise the approval under the DOA privilege.

This document should include at least:

— ~~the~~ a ~~identification and~~ brief description of the change or repair and the reasons for the change or repair;

— identification of the initial configuration of the affected area and other items (which determines the eligibility for installation of the change or repair into an aircraft);

— identification of the final configuration of the affected area, and of supplements to manuals and to OSD constituents;

— the applicable CSs or environmental protection requirements and methods of compliance;

— references to the compliance documents;

— the effects, if any, on the limitations and on the approved documentation;

— evidence of the independent checking function of the demonstration of compliance;

— evidence of the approval under the privilege of point 21.A.263(c)(2) by an authorised signatory; and

— the date of the approval.

For repairs, see AMC 21.A.433(b) and 21.A.447.

[…]

AMC ~~No 2 to~~ 21.A.263(c)(2) Privileges ~~— Organisations designing minor changes to a type certificate (TC), APU ETSO or a supplemental type certificate (STC) and minor repairs to products: procedure for the approval of minor changes to a TC, APU ETSO or minor repairs~~

ORGANISATIONS THAT DESIGN MINOR CHANGES TO A TYPE CERTIFICATE (TC), AN AUXILIARY POWER UNIT EUROPEAN TECHNICAL STANDARD ODER (APU ETSO) OR A SUPPLEMENTAL TYPE CERTIFICATE (STC) AND MINOR REPAIRS TO PRODUCTS: PROCEDURE FOR THE APPROVAL OF MINOR CHANGES TO A TC, AN APU ETSO OR MINOR REPAIRS

1. Content

The procedure should address the following points:

— compliance documentation;

— approval under the DOA privilege; and

— authorised signatories.

2. Compliance documentation

For those minor changes to a TC, an APU ETSO or to that part of the product covered by an STC, and minor repairs where additional work to demonstrate compliance with the applicable CSs and environmental protection requirements is necessary, compliance documentation should be established and independently checked as required by point 21.A.239(b).

The procedure should describe how the compliance documentation is produced and checked. For compliance documentation, see also AMC 21.A.20(c).

3. Approval under the DOA privilege

3.1. For those minor changes to a TC, an APU ETSO or to that part of the product covered by an STC, and minor repairs where additional work to demonstrate compliance with the

applicable CSs or environmental protection requirements is necessary, the procedure should define a document to formalise the approval under the DOA privilege.

This document should include at least:

(a) ~~the~~ a ~~identification and~~ brief description of the change or the repair and the reason for change or repair;

(b) identification of the initial configuration of the affected area and other items (which determines the eligibility for installation of the change or repair into an aircraft);

(c) identification of the final configuration of the affected area, and of supplements to manuals and to OSD constituents;

(d) the applicable CSs or environmental protection requirements and methods of compliance;

(e) references to the compliance documents;

(f) the effects, if any, on the limitations and on the approved documentation;

(g) evidence of the independent checking function of the demonstration of compliance;

(h) evidence of the approval under the privilege of point 21.A.263(c)(2) by an authorised signatory; and

(i) the date of the approval.

For repairs, see also AMC 21.A.433(b) and 21.A.447.

[…]

AMC1 21.A.263(c)(6) ~~Procedure for the approval of the conditions for issue of a permit to fly~~ Privileges

PROCEDURE FOR THE APPROVAL OF THE CONDITIONS FOR THE ISSUE OF A PERMIT TO FLY (PtF)

1. INTENT

— This AMC provides the means to develop a procedure to determine that an aircraft can fly, under the appropriate restrictions compensating for non-compliance with the certification specifications applicable to the specific aircraft category.

— Each DOA applicant or DOA holder should develop its own internal procedure following this AMC, in order to obtain the privilege to make this determination and approve the associated conditions without EASA's involvement, under point 21.A.263(c)(6). When the privilege does not apply, the DOA applicant or the DOA holder will prepare all the necessary data required for the determination in accordance with the same procedure required for the privilege, and will apply for EASA's approval.

— The establishment of flight conditions may include conditions related to engines/propellers without a type certificate or with unapproved changes that are fitted

to~~n~~ the aircraft, for which a permit to fly (PtF) is requested. These conditions (i.e. the installation, operating limitations, maintenance conditions or limitations) should be defined by the organisation responsible for the design of the engine/propeller and provided to the organisation responsible for the design of the aircraft.

— These conditions should be established and substantiated under an arrangement between the organisation responsible for the design of the aircraft and the organisation responsible for the design of the engine/propeller. However, the establishment and substantiation of the flight conditions for the aircraft, including its engine(s), is ultimately the ~~ultimate~~ responsibility of the organisation responsible for the design of the aircraft.

2. PROCEDURE FOR THE APPROVAL OF THE CONDITIONS FOR THE ISSUE OF A PERMIT TO FLY (PtF)

2.1 Content

The procedure ~~must~~ should address the following points:

— the decision to exercise~~use~~ the privilege;

— management of the aircraft configuration;

— determination of the conditions that ~~must~~ should be complied with to safely perform ~~safely~~ a flight;

— documentation of substantiations of flight conditions ~~substantiations~~;

— approval under the DOA privilege, when applicable; and

— the authorised signatories.

2.2 Decision to exercise~~use~~ the privilege of point 21.A.263(c)(6)

The procedure ~~must~~ should include a decision to determine~~:~~ the flights for which the privilege of point 21.A.263(c)(6) will be exercised.

2.3 Management of the aircraft configuration

The procedure ~~must~~ should indicate:

— how the aircraft, for which an application for a permit to fly is made, is identified; and

— how changes to the aircraft will be managed.

2.4 Determination of the conditions that ~~must~~ should be complied with to safely perform ~~safely~~ a flight~~.~~

The procedure ~~must~~ should describe the process used by the DOA holder to justify that ~~an~~ the aircraft can perform the intended flight(s) safely. This process should include:

— with reference to point 21.A.701(a), identification of ~~deviations~~ the applicable airworthiness requirements which the aircraft does not meet, or has not been shown to meet, if applicable, and of the purpose of the flight(s); for flight conditions raised to cover unapproved changes, the identification of the applicable airworthiness requirements which the aircraft does not meet, or has not been shown to meet, can be fulfilled by referring to the certification programme of the

unapproved changes;~~from applicable certification specifications or non-compliance with Part 21 conditions for the issue of a certificate of airworthiness;~~

— the analysis, calculations, tests or other means used to determine under which conditions or restrictions the aircraft can safely perform ~~safely~~ a flight (the flights);

— the establishment of specific maintenance instructions and conditions to perform these instructions;

— an independent technical verification of the analysis, calculations, tests or other means used to determine under which conditions or restrictions the aircraft can perform the intended flight(s) safely;

— a statement by the office of airworthiness (or equivalent), that the determination has been made in accordance with the related procedure and that the aircraft has no features and characteristics ~~making~~ that render it unsafe for the intended ~~operation~~ operation(s) under the identified conditions and restrictions; and

— approval by an authorised signatory.

2.5 Documentation of flight conditions substantiations

1. The analysis, calculations, tests~~,~~ or other means used to determine under which conditions or restrictions the aircraft can safely perform ~~safely~~ a flight (or the flights)~~, must~~ should be compiled in compliance documents. These documents ~~must~~ should be signed by the author and by the person performing the independent technical verification.

2. Each compliance document ~~must~~ should have a number and an issue date. The various issues of a document ~~must~~ should be controlled.

3. The data submitted and approved by the ~~type-certificate~~ TC holder can be used as substantiations. In that case, the independent technical verification referred to in 2.4 is not required.

2.6 Approval under the DOA privilege

2.6.1 Initial approval

The procedure ~~must~~ should include the following EASA Form 18A (as an alternative, the DOA holder should provide an equivalent template containing the same level of information) to support the approval under the DOA privilege:

FLIGHT CONDITIONS FOR A PERMIT TO FLY ~~–~~ — APPROVAL FORM	
1. Applicant: **Approval No:** *[Name and organisation approval number of the organisation providing the flight conditions and associated substantiations]*	**2. Approval form No:** **Issue:** *[~~n~~Number and issue, for traceability purposes]*
3. Aircraft manufacturer/type	**4. Serial number(s)**
5. Purpose [Purpose in accordance with point 21.A.701(a)]	
6. Aircraft configuration The above aircraft, for which a permit to fly is requested, is defined in *[add reference to the document(s) identifying the detailed configuration of the aircraft]* *[For change(s) affecting the initial approval form: a description of the change(s). This form must be ~~re-~~reissued]*	
7. Substantiations *[References to the document(s) justifying that the aircraft (as described in block ~~6.~~) can perform the intended flight(s) safely under the defined conditions or restrictions.]* *[For change(s) affecting the initial approval form: reference(s) to additional substantiation(s). This form must be ~~re-~~reissued]*	
8. Conditions/Restrictions The above aircraft must be used with the following conditions or restrictions: *[Details of these conditions/restrictions, or a reference to the relevant document, including specific maintenance instructions and conditions to perform these instructions.]*	
9. Statement The determination of the flight conditions has been made in accordance with the relevant DOA procedure agreed by ~~the Agency~~ EASA. The aircraft, as defined in block 6 above, has no features ~~and~~ or characteristics ~~making~~ that render it unsafe for the intended ~~operation~~ operation(s) under the identified conditions and restrictions.	
[strike through what is not applicable] **10a. Approved under the authority of DOA EASA.21J.xyz** [when the privilege of point 21.A.263(c)(6) applies] **10b. Submitted under the authority of DOA EASA.21J.xyz** [when the privilege of point 21.A.263(c)(6) does not apply]	
11. Date of issue	**12. Name and signature** *[Authorised signatory]*
13. EASA approval and date [when the privilege of point 21.A.263(c)(6) does not apply]	

EASA Form 18A — Issue ~~4~~3

When the privilege of point 21.A.263(c)(6) is not applicable, the signed form should be presented by the office of airworthiness (or equivalent) to ~~the Agency~~ EASA.

2.6.2 Approval of changes

Except for changes that do not affect the conditions approved for the issue of the permit to fly, the procedure ~~must~~ should specify how changes will be approved by the DOA ~~H~~holder. The EASA Form 18A ~~must~~ should be updated.

2.7 Authorised signatories

The person(s) authorised to sign the approval form ~~must~~ should be identified (name, signature and scope of authority) in the procedure, or in an appropriate document linked to the DOA handbook.

AMC1 21.A.265(a) ~~Administration of the Handbook~~ Obligations of the holder

ADMINISTRATION OF THE HANDBOOK

[…]

AMC2 21.A.265(a) Obligations of the holder

HANDBOOK FORMAT AND PUBLICATION MEANS

The term 'handbook' is meant to describe a means to document the design organisation's processes and procedures. This may be in an electronic or paper format, as a stand-alone document or integrated in a management system. It may consist of:

— an online integrated management system with flowcharts and descriptions embedded in it;

— an online system referring to single documents;

— a classic handbook with references to online procedures;

— or any other combination of the above.

In any case, as required by point (c) of point 21.A.243, independently of the system chosen by the design organisation, the relevant content and the means to update the system should be clearly identified.

GM 21.A.265(b) ~~Use of the Handbook~~ Obligations of the holder

USE OF THE HANDBOOK

1. The handbook should be signed by the ~~C~~chief ~~E~~executive and the ~~H~~head of the design organisation and declared as a binding instruction for all personnel charged with the development and type investigation of products. This binding statement should be provided independently of the means chosen by the design organisation to document its processes and procedures.
2. […]

~~GM 21.A.439 Production of repair parts~~

~~A maintenance body, (organisation or person), may manufacture parts for repair purposes when in accordance with Subpart F or when approved under Subpart G of Part-21. In addition, a maintenance organisation may manufacture parts for its own repair purposes when expressly authorised by the competent authority of the Member State in accordance with the applicable implementing rules.~~

~~GM 21.A.441 Repair embodiment~~

~~Repairs should be accomplished by an organisation or person in accordance with the relevant implementing rules.~~

~~The holder of a production organisation approval under Subpart G of Part-21 may accomplish repairs to new aircraft, within its terms of approval, under the privilege of 21.A.163(d).~~

~~GM 21.A.443 Limitations~~

~~Instructions and limitations associated with repairs should be specified and controlled by those procedures required by the applicable operations rules.~~

AMC1 21.A.709(b) ~~Submission of documentation supporting the establishment of flight conditions~~ Application for the approval of flight conditions

SUBMISSION OF DOCUMENTATION SUPPORTING THE ESTABLISHMENT OF FLIGHT CONDITIONS

The applicant should submit, together ~~Together~~ with the application, the documentation required by point 21.A.709(b) ~~must be submitted~~ with the approval form (EASA Form 18B) defined below, completed with all the relevant information. The same approval form (EASA Form 18B) should be used when the application is submitted by a DOA holder that does not have the privilege to approve flight conditions or when it has such a privilege, but the respective flight conditions are outside the approved scope of work. If the complete set of data is not available at the time of application, the missing elements can be provided later. In such cases, the approval form ~~must~~ should be provided only when all the data is ~~are~~ available, to allow the applicant to make the statement required in block ~~box~~ 9 of the form.

[…]

GM1 21.A.804(a)(3) Identification of parts and appliances

EUROPEAN PARTS APPROVAL (EPA) MARKING FOR REPAIR PARTS

The EPA marking only applies to the parts, specifically designed or modified for the repair, to be incorporated as part of the repair design. If the repair scheme does not require the addition of any new parts or the use of modified parts, there is no need to mark the repaired part with the letters 'EPA'.

AMC1 21.A.804(b) Identification of parts and appliances

EASA AGREEMENT FOR THE DESIGN APPROVAL HOLDER TO DEROGATE FROM POINT 21.A.804(a)

A design approval holder may apply point 21.A.804(a) or make use of the derogation defined in point 21.A.804(b) by clarifying, in the relevant procedures, the conditions (e.g. the minimum dimensions of a (flat) area on a part suitable for marking) in which the marking on the part may be completely or partially omitted. This can also be supported by examples of parts or cases when certain parts do not have to be marked.

In such cases, the relevant design data (e.g. drawings) should specify the contents and location of the information that could not be marked on the part (i.e. the information to be provided in the authorised release document or on the container).

GM1 21.A.805 Identification of critical parts

PARTS TO BE MARKED

For the purposes of point 21.A.805, a part that requires individual traceability for the management of its continued airworthiness, as identified by the design approval holder, shall be permanently marked with a part number and a serial number.

The need for the design approval holder to identify and mark parts may be related to specific requirements for critical parts included in a certification specification. For instance, according to point (c) of CS-E 110 *Drawings and Marking of Parts — Assembly of Parts*: 'Certain parts (including Engine Critical Parts; see CS-E 515) as may be required by the Agency must be marked and the constructor must maintain records related to this marking such that it is possible to establish the relevant manufacturing history of the parts.' Another example is in point AC 29.602 of FAA AC 29-2C, as referenced in Book 2 of CS-29: '(7) – Critical parts are identified as required, and relevant records relating to the identification are maintained such that it is possible to establish the manufacturing history of the individual parts or batches of parts.'

Another typical case is for any part subject to an individually specified life limit or inspection requirement when it is also possible for that part to be removed from one serial number of the associated product during maintenance and installed on another serial number of the same product. In this case, the traceability of the part, which is necessary for continued airworthiness management purposes, is not assured through the serial number of the product alone, and it is necessary to maintain records for the part through its serial number.

GM1 21.B.75 Special conditions

GENERAL

The term ‘novel or unusual design features’ should be judged in view of the applicable certification basis for the product. A design feature, in particular, should be judged to be a ‘novel or unusual design feature’ when the certification basis does not sufficiently cover this design.

The term ‘unsafe condition’ is used with the same meaning as described in GM1 21.A.3B(b).

The term ‘newly identified hazards’ is intended to address new risks that may be recognised in the design (e.g. questionable features) or its operational characteristics (e.g. volcanic ash) for which there is not yet enough in-service experience.