European Aviation Safety Agency — Rulemaking Directorate

Comment-Response Document 2012-08

Maintenance check flights (MCFs)

CRD to NPA 2012-08 — RMT.0393 (MDM.097(a)) & RMT.0394 (MDM.097(b)) — 10.12.2013

EXECUTIVE SUMMARY

This Comment-Response Document (CRD) addresses the comments received on the Notice of Proposed Amendment (NPA) 2012-08 (published on 30 July 2012) regarding Maintenance Check Flights (MCFs). The CRD contains a summary of the Agency's responses comments received, which were assessed with the help of a Review Group. To review the comments, the initial Rulemaking Group was enlarged with a representative of the EASA Standardisation Directorate and a representative from the European Helicopter Association (EHA).

After gathering reactions to this CRD, the Agency will publish an Opinion and a Decision. MCFs may be required to complete certain maintenance instructions, to avoid potential operational disruptions after major maintenance, to verify that certain maintenance has been properly performed or to assist in the identification of a defect that can only be done in flight. During an MCF there is often the need to operate the aircraft differently from the normal aircraft operation, requiring a different set of flight crew skills, as well as different operator procedures and training of flight crew. The current requirements contained in Commission Regulation (EU) No 965/2012 (Air OPS) do not contain specific procedures or limitations for these flights. While there is some guidance material that has been developed by aviation authorities (such as the UK CAA), it is not systematically used or applied across all EU Member States. NPA 2012-08 and this CRD address a number of safety recommendations stemming from incidents/accidents during the performance of maintenance check flights. These safety recommendations have urged the Agency to develop additional requirements regarding crew qualifications and training when such flights are conducted. This CRD distinguishes between complex MCFs ('Level A') which entail new requirements for crew qualification and training, and non-complex MCFs ('Level B') for which some basic requirements are proposed, such as the development of a dedicated MCF manual. The key changes in this CRD, as opposed to NPA 2012-08, are as follows:

— exclusion from the proposed provisions of European Light Aircraft (ELA2 and ELA1, as defined in Commission Regulation (EU) No 748/2012);

— less stringent flight crew requirements for MCFs conducted with complex and non-complex motor-powered aircraft;

— simplification of provisions in respect of crew composition and persons on board;

— new definition of complex MCFs (now entitled 'Level A' MCF) and new link to the aircraft flight manual (AFM);

— grandfathering of the training requirements for pilots already conducting MCFs today.

This CRD is based on the Agency's Opinion No 02/2012 on Air Operations — OPS (Part SPO). The final Agency Opinion on MCFs will be aligned with any changes to Part SPO as a result of the adoption procedure.

Reactions to this CRD should be submitted via the CRT by clicking the 'add a general reaction' button.
Please indicate clearly the applicable page and paragraph.

Applicability		Process map	
Affected regulations and decisions:	Commission Regulation (EU) No 1178/2011, Commission Regulation (EU) No 965/2012, Commission Regulation (EU) No 748/2012, Decision 2012/017/R, Decision 2003/19/RM.	Concept Paper:	No
		Rulemaking group:	Yes
		RIA type:	Light
		Technical consultation during NPA drafting:	No
		Publication date of the NPA:	30.07.2012
		Duration of NPA consultation:	3 months
		Review group:	Yes
		Focussed consultation:	No
Affected stakeholders:	Operators, maintenance organisations, CAMOs, national aviation authorities (NAAs).	Publication date of the Opinion:	2014/Q3
		Publication date of the Decision:	2016/Q1
Driver/origin:	Safety		
Reference:	Safety Recommendations		

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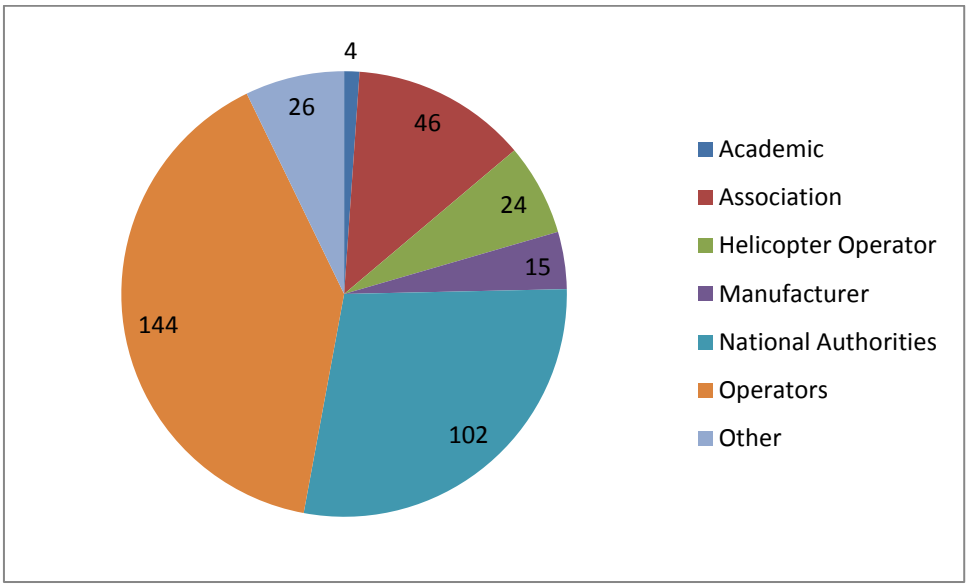
1. Procedural information

1.1. The rule development procedure

The European Aviation Safety Agency (hereinafter referred to as the 'Agency') developed this Comment-Response Document (CRD) 2012-08 in line with Regulation (EC) No 216/2008[1] (hereinafter referred to as the 'Basic Regulation') and the Rulemaking Procedure[2].

This rulemaking activity is included in the Agency's Rulemaking Programme for 2010–2014 under RMT.0393 (MDM.097(a)) & RMT.0394 (MDM.097(b)). The scope and timescale of the task were defined in the related Terms of Reference (ToR), which were published on 28 July 2011 on the Agency's website[3]. The draft Implementing Rules (IRs), Acceptable Means of Compliance (AMC) and Guidance Material (GM) have been developed by the Agency based on the input of a Rulemaking Group. All interested parties were consulted through NPA 2012-08[4], which was published on 30 July 2012. The NPA received 362 comments from 48 interested stakeholder groups, including industry, national aviation authorities and social partners.

Comments received per type of stakeholders:



[1] Regulation (EC) No 216/2008 of the European Parliament and the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1), as last amended by Commission Regulation (EU) No 6/2013 of 8 January 2013 (OJ L 4, 9.1.2013, p. 34).

[2] The Agency is bound to follow a structured rulemaking process as required by Article 52(1) of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as the 'Rulemaking Procedure'. See Management Board Decision concerning the procedure to be applied by the Agency for the issuing of Opinions, Certification Specifications and Guidance Material (Rulemaking Procedure), EASA MB Decision No 01-2012 of 13 March 2012.

[3] http://easa.europa.eu/rulemaking/docs/tor/mdm/EASA-ToR-MDM.097(a)_MDM.097(b)-00-04042011.pdf

[4] http://www.easa.europa.eu/rulemaking/docs/npa/2012/NPA%202012-08.pdf

The largest number of comments was received from representatives of air sports clubs and their associations, followed by helicopter operators and their associations. Next to those commentators, the Agency received comments from individual fixed-wing operators and their associations followed by national aviation authorities and manufacturers.

The text of this CRD has been developed by the Agency based on the input of a Review Group. The Review Group was composed of the same members as the Rulemaking Group, enlarged to include one additional member representing the European Helicopter Association (EHA) and one additional member from the Agency's Standardisation Directorate. The Review Group met twice between March and May 2013 to finalise the CRD. During these meetings the Review Group discussed the comments received on the NPA and proposed changes to the rule, which were subject to internal scrutiny prior to this publication.

This rulemaking proposal is based on the Agency's Opinion No 02/2012 on Air Operations — OPS (Part SPO). During the preparation of this CRD, Opinion No 02/2012 was discussed within the EASA Committee between Member States and the European Commission. As a result of these discussions, Part SPO (as adopted by the European Commission) will differ from the text of the Agency's Opinion No 02/2012. The Agency's final Opinion on maintenance check flights (MCFs) will have to be aligned with the published version of Part SPO.

The process map on the title page contains the major milestones of this rulemaking activity.

1.2. The structure of this CRD and related documents

This CRD provides a summary of the comments and responses as well as the full set of the individual comments received to NPA 2012-08. The resulting rule text is provided in Chapter 3 of this CRD.

1.3. The next steps in the procedure

Stakeholders are invited to submit their reactions to this CRD regarding possible misunderstandings of the comments received and the responses provided.

Such reactions should be submitted to the Agency not later than **10 February 2014** and should be submitted using the automated **Comment-Response Tool (CRT)** available at **http://hub.easa.europa.eu/crt**[5].

The Opinion containing the proposed changes to EU regulations and addressed to the European Commission will be published in no less than two months after the publication of this CRD.

The Decision containing CS, AMC and GM linked to the changes to the Implementing Rules will be published by the Agency once the related rules are adopted by the Commission.

[5] In case of technical problems, please contact the CRT webmaster (crt@easa.europa.eu).

2. Summary of comments and responses

This CRD does not contain a response to each of the comments that have been submitted to the Agency. A copy of the individual comments is provided in Section 4 'Individual comments' of this document. Comments have been grouped according to subject together with a response to the grouped comments, as follows:

2.1. Exclusion of light aircraft used for non-commercial operations

NPA 2012-08 attracted some 360 comments. Some 70 comments were submitted from **European Air Sports and General Aviation (GA)** stakeholders who stated their opposition to the new requirements for light aircraft that are used for non-commercial operations. Those stakeholders argued that the proposed new procedures will increase costs for smaller operators, without a justified safety case. They asked for proportionate rules and argued that many of the NPA provisions are targeted to commercial operators with complex motor-powered aircraft and cannot be easily applied to lighter, single-pilot aircraft, sailplanes or balloons.

European Air Sports and GA stakeholders argued that the NPA should follow the logic of flight testing rules, which do not apply to the light aircraft and GA community. According to them, the NPA proposal did not make appropriate reference to sailplanes and motor-sailplanes and, therefore, could not be easily applied to sports and GA operations which do not require AOCs nor specialist personnel, simulators, etc. Therefore, the NPA was judged to over-regulate GA, being not in line with the Agency's Strategy for General Aviation. The European Air Sports and GA stakeholders requested that the Agency should exempt from the proposal all sport and general aviation operating outside CAT.

Agency's response

— The Agency has decided to exclude European Light Aircraft (ELA2 and ELA1), as defined in Commission Regulation (EU) No 748/2012, from the applicability of the MCF rule proposal.

— Despite the fact that the proposed rule will not cover operators with ELA1 and ELA2 aircraft, the proposal contains GM (GM SPO.SPEC.MCF.100) which has been developed to advise those operators to enhance safety levels of MCFs.

— Also, based on the comments received, it seems that the applicability of some provisions was not well understood since some stakeholders wrongly assumed that certain requirements would be applicable for all aircraft, while they were only a requirement for complex motor-powered aircraft (CMPA).

2.2. MCFs conducted with helicopters

Next to the sports aviation/GA community, individual **helicopter operators and helicopter associations,** such as the European Helicopter Association, submitted some 50 comments to the NPA. Most comments from helicopter stakeholders stated that the NPA offers a fixed wing orientated proposal, and in this form it is not practicable for helicopter operations conducted far away from any maintenance facility, e.g. offshore helicopter operations.

Helicopter stakeholders stated that the NPA includes a blurred definition of 'Level A'[6] and 'Level B' MCFs. This has important consequences on the minimum flight hour requirements for pilot qualifications under *SPO.SPEC.MCF.115 Flight crew requirements*. For helicopter operations, the NPA required a minimum of 50 hours on type (unless a test pilot rating is held). Helicopter stakeholders argued that if many MCFs would be labelled as 'Level A' MCFs, the NPA proposal would be too onerous for some older, rarer types of helicopters. Since all helicopters require a type rating, the ability to gain the proposed experience in another helicopter with similar characteristics is not available as written in the NPA (as it is with fixed wing aircraft). Some helicopter stakeholders proposed to offer in the AMC the same flexibility for older, rarer types of helicopters as that proposed for gliders.

Regarding the safety impact assessment, helicopter operators referred to the fact that the safety recommendations, which triggered this rulemaking task, relate to fixed wing aircraft. Therefore, the rules should not apply to rotorcraft unless past accident/incident data and safety recommendations show a need to act.

Helicopter associations also commented on the NPA's proposal on crew composition and persons on board (in SPO.SPEC.MFC.125). They argued that this requirement is impracticable and does not reflect the real requirements of helicopter industry. Helicopter stakeholders questioned the need to prescribe minimum crew composition requirements. A general definition as proposed in the NPA may work for airline operators, they argued, but is impracticable and partly not possible for some helicopter MCFs. They argued that the requirement does not consider the certification status of an aircraft since — even when the aircraft is certified for single-pilot operation — in accordance with the proposed MCF in the NPA dual pilot mode operation could become mandatory due to a dual flight controls design only. This may unnecessarily lead to cancellation of MCFs because of non-availability of pilots and to a situation where flight crews, normally operating as single pilots, are forced to operate in a dual pilot environment, which may negatively affect safety.

Agency's response

— The Review Group was enlarged to include a member of the European Helicopter Association, who contributed to the discussions with his views.

— The definition of 'Level A' (complex) MCFs and 'Level B' MCFs has been completely revised and is now linked to the AFM. Therefore, more MCFs conducted with a helicopter would fall under the new definition of 'Level B' MCFs and, therefore, less stringent requirements would apply.

— The reference to pilot stations has been removed and replaced with a reference to aircraft configuration. In addition, the text of *SPO.SPEC.MCF 125 Crew composition and persons on board* has been amended to alleviate the requirement to fly with a task specialist or additional pilot if the operator can justify as part of its risk analysis that the flight crew would not require additional assistance.

[6] The revised CRD proposal includes the following definition of 'Level A' MCFs: According to SPO.SPEC.MCF.100(b)(1) Level A maintenance check flights are maintenance check flights for which the use of abnormal or emergency procedures as defined in the aircraft flight manual is expected. Level A MCF also includes operations required to prove the functioning of a backup system or other safety devices. Level B MCF are MCFs other than Level A MCFs.
Whenever this CRD refers to Level A MCFs, it refers to the Level A MCFs defined in the resulting text of this CRD, which significantly differs from the definition given in the NPA.

2.3. MCFs conducted by business aviation operators

Business aviation organisations and operators stated that the economic impact assessment is not suitable for business operators who do not have a fixed based operator status with a large home base. Therefore, MCFs may occur anywhere and the pre-MCF maintenance very often would be carried out by third party contractors. This means that business aviation operators will rarely be in a position to fly with specialised maintenance personnel on board, or will frequently be unable to return to the departure airport. In addition, insurance and third party liability will often preclude the presence of a maintenance person on board. Therefore, they claimed that the NPA proposal has an additional economic impact on operators.

Business operators also asked about the content of the written flight programme and whether this could be spread out in different parts of the operator's manual. The Agency responds that the written flight programme can be developed shortly before the flight, but does not have to be included in the MCF manual. The manual, on the other hand, should describe the process to perform an MCF including the development of the specific flight programme.

Agency's response

— The scenario presented by business aviation organisations is not different from other operators that contract most of their maintenance activities. The Agency acknowledges that for an operator with maintenance capability within the same company integrating interface procedures might be easier than for operators without such in-house maintenance capability. However, the fact that a maintenance task or maintenance check has to be completed in flight does not allow for a total separation of functions, and may require the operator and the maintenance organisation to work together. Having addressed with this rulemaking task continuing airworthiness and operational aspects of these flights, achievable results and proper assignment of the responsibilities is ensured.

2.4. Granting of grandfathering rights

Commentators from individual business aviation operators, scheduled operators and manufacturers requested grandfathering rights for those pilots who already conduct MCFs. Business operators requested grandfathering rights acceptable to the national authority for individuals who clearly meet/exceed the training requirements based on previous experience and/or training. For example: military MCF training and experience, UK prior CAA CofA renewal air test authorisation, NTPS Technical Pilot Course.

If the operator has already established a process to perform MCFs with qualified crew members, the pilots should not have to prove that they meet the minimum flight crew requirements and should not have to undergo specific MCF training as specified in the NPA.

Operators argued that the introduction of any new system will cause disruptions and they would like to minimise these as much as possible by being allowed to continue using the existing procedures until new ones are fully introduced. They claimed that since there will be pilots who will be experienced in carrying out MCFs, but won't meet the experience requirements in this document, specifically the 1 000-hour requirement on similar aircraft for CMPA, their experience should be grandfathered.

One manufacturer also suggested that such a grandfathering right for the training course only should apply to pilots that have some MFC experience. In this case, the pilots should be exempted from the requirement to follow a training course.

The Review Group discussed the issue of grandfathering and proposed to exempt all pilots with previous 'Level A' MCF experience from the 'Level A' MCF minimum flight hour requirement, as well as from the MCF training course.

After consideration of the Review Group's proposal, the Agency's position is as follows:

Agency's response

— Grandfathering rights for the training course stipulated in SPO.SPEC.MCF.120 will apply to all pilots having conducted flights comparable to 'Level A' MCFs before the entry into force of the new MCF requirements. However, the minimum flight hours required to qualify a pilot to conduct a 'Level A' MCF will be applied to all pilots, including pilots who have performed MCFs in the past. Grandfathering will, therefore, only apply to the training course, allowing those pilots with the required flight hours to conduct MCFs without a training course.

2.5. Definition of maintenance check flight

Additionally, around 20 comments related to the definition of a maintenance check flight were received. The commentators requested a clearer definition and a clearer distinction with functional check flights. They requested clarity on whether the scope of the NPA also addresses functional check flights.

Unfortunately, there is not a widely accepted definition for this term. Where these flights fall under the definition of MCF contained in the NPA and CRD proposal, the MCF requirements would apply.

One NAA commented that the text in the RIA seems to be the reverse of a safe condition and is in itself not well formulated since the MCF definition of trying to reproduce in flight a fault discovered on the ground for troubleshooting is not clear. The same NAA stated that one should not try to reproduce in flight a fault discovered on the ground, but one may well try to reproduce on the ground a fault found in flight. From the Agency's perspective, in some cases it is not feasible to troubleshoot some faults on the ground and, they, therefore, require an MCF.

One commentator stated that at the moment the NPA's scope of MCF is limited to post-maintenance activities or post-defect scenarios — where maintenance has been carried out or a defect has been found already. In the commentator's opinion, a check flight may be desired in the scenario of a pre/post-lease delivery/acceptance flights; check flights performed on behalf of aircraft owners, lessors or operators who wish to (periodically) verify and confirm the serviceability of aircraft systems that can only be checked in flight (for example: stall warning system behaviour, pressurisation system performance). Such checks can, for example, be done on the positioning flight to a heavy maintenance facility, where scheduled maintenance is going to be carried out. The objective of such flights is to search and discover (hidden) malfunctions (check flight requested as part of an airworthiness review). All such check flights are not covered in the NPA definition of MCF. Therefore, the commentator proposes to consider the wording 'Continuing Airworthiness Check Flight' or 'Serviceability Check Flight' instead of restricting it to MCFs.

Another operator stated that the definitions should be expanded to cover other functional check flights, such as pre-maintenance check flights, delivery flights, demonstration flights, at end of lease or sale. The reason for this request is that operators perform almost the same flight prior to base maintenance as they do after base maintenance; even though the risk is a bit less because maintenance errors are ruled out, it should fall within the same category of flights. In addition, the commentator states that EASA SIB 2011-07 gives three examples of accidents/incidents regarding functional check flights, two of which are flights at the end of lease. Therefore, these flights should be included in the scope of the NPA.

One operator association stated that the definition should include demonstration flights as performed by operators when handing over the aircraft to another operator or back to the leasing company. The association, therefore, suggested adding 'to satisfy the demonstration flight requirements from the leasing company and/or next operator' to the list of definitions of an MCF. In addition (for editorial reasons), the association suggested to amend the definition 'c) as requested by the maintenance organisation for verification of a successful defect rectification'.

Helicopter operators requested a clearer definition of 'Level A' and 'Level B' MCFs. From a rotorcraft's perspective, the NPA definition is unclear and a helicopter operator would not know where, e.g. helicopter main rotor track and balance, engine power assurance, and check of main rotor auto-rotational speeds would fall under. This would seem to fall under the definition of 'Level A'[7] MCFs and, therefore, would require more stringent flight crew experience/qualification requirements. However, the examples listed before are frequent MCF items for helicopters and are part of the normal maintenance, and may be required very frequently.

Agency's response

— The draft resulting text states a definition of the flights that would be subject to the new rules. Some events that happened, as reported, to functional check flights correspond to flights that would fall under the MCF definition proposed in this CRD.

— Expanding the scope of the NPA to other non-revenue flights is not accepted since the Agency will develop requirements for those types of flights in a separate rulemaking task entitled 'Operator's description of non-revenue flights' (RMT.0352 (OPS.075(a)) & RMT.0353 (OPS.075(a)), which will start in the third quarter of 2013. The Agency decided to separate the development of the applicable rules. The requirements for MCFs consider the specific case of the MCF where there is a required interaction between maintenance and operations activities. Although some of the provisions developed for MCFs may be adequate for some non-revenue flights, this is not necessarily the case for all non-revenue flights.

2.6. Part SPO to be in the appropriate place in the rule structure

Some comments from NAAs and operator associations addressed the placement of the rules in Part SPO (Specialised Operations). This item attracted 15 comments. Some NAAs argued that for CAT-Operators, Part SPO should not be the relevant section when looking for the requirements for MCFs. Others agreed with the NPA proposal, since Part SPO requirements are less stringent and in line with the principle of proportionality since CAT operators, when conducting MCFs, are not transporting fee-paying passengers and, therefore, should be subject to less stringent rules. Other NAAs argued on the contrary that CAT operators should not be required to look into Part SPO rules when conducting MCFs.

Some NAAs focussed on MCFs conducted by operators who are normally conducting CAT operations and will conduct MCFs with aircraft normally used for CAT operations. They agreed with the proposed change to ORO.AOC.125, which refers CAT operators to Part SPO when conducting MCFs under the AOC certificate.

Other NAAs enquired whether this would mean that all non-commercial operators need to be certified for the performance of an MCF. This is clearly not the case, since SPO operators, whether commercial or not, will only be required to have a declaration towards the authority and will not require an AOC certificate.

One NAA stated that, based on the Opinion on Part SPO, a new Annex IX to the Cover Regulation (Part MCF) should be created which would apply to all operators without the obligation of the activity to be part of a certification process or a declaration.

Operator associations stated that MCF should not be confused with other test flights which go beyond the certified flight envelope. One association stated that the NPA is too restrictive and against the aim to have performance-based rules based on actual safety

[7] The revised CRD proposal includes the following definition of 'Level A' MCFs: According to SPO.SPEC.MCF.100 (b)(1) Level A maintenance check flights are maintenance check flights for which the use of abnormal or emergency procedures as defined in the aircraft flight manual is expected. Level A MCF also includes operations required to prove the functioning of a back-up system or other safety devices.

risks. The association stated that the future MCF proposal should focus on training and technical competence rather than minimum flight hour requirements.

Other associations also raised objections to Part SPO being the appropriate place in the rule hierarchy as MCFs are (for the majority) absolutely standard in an airline. By requesting each and every airline to fulfil the requirement of Part SPO would establish a highly complicated procedure. Part SPO requirements should not be a copy and paste of Part CAT or Part ORO requirements. The association notes that this may be justified for test flights performed by aircraft manufacturers, but the new requirements seem much too complicated for a regular operator. Therefore, the association is requesting to place these requirements in Part ORO (Organisation Requirements) which include the general requirements for CAT and NCO operations, or in Part SPA (Specific Approvals) which are both well-known to operators. To avoid unnecessary regulatory complexity, it would be advisable that CAT operators typically remain unaffected by Part SPO.

Agency's response

The Agency continues to believe that Part SPO is the appropriate rule structure to include MCF for the following reasons:

— The analogy to Part SPA is understood, but also applies to Part SPO. This means that an operator has to follow Part ORO and Part CAT when conducting CAT operations and Part SPO when conducting MCFs. This can easily be reflected in the operator's manual.

— Part SPO ensures proportionality of the rule, which is something that operators and NAAs have requested from the Agency. The operators that normally conduct CAT operations should have less stringent requirements when conducting MCFs since, in this case, they do not carry fee-paying passengers on board.

— Regarding the need for operators to certify or declare their activity, this would be irrespective of MCFs in Part SPO or any other part of the rule. In the future, SPO operators will have to declare their activity to the authority, irrespective of whether they are conducting commercial or non-commercial SPOs.

— Part SPO is the most suitable place in the rule to include the specific requirements applicable to specialised operations, such as MCFs for all operators, regardless if they are flying commercially or not.

2.7. Written flight programme

Commentators requested clarification on the requirements to develop a written flight programme before conducting a complex MCF (new 'Level A' MCFs) as described in SPO.SPEC.MCF.105. This requirement was not clear as it was perceived to be very general and, therefore, the intent might not be met. It is suggested that either AMC/GM is added to allow the intent to be met or the rule is amplified.

Agency's response

New Guidance Material has been developed explaining that the operator developing a written flight programme should consider applicable documentation available from the type certificate holder.

2.8. Maintenance check flight manual

Regarding the requirements for a manual contained in SPO.SEC.MCF.110, commentators requested clarification that this only applies to MCFs with complex motor-powered aircraft. In addition, commentators requested to include some proportionate guidance for MCFs for other-than-complex motor-powered aircraft.

Agency's response

The rule text was amended to specify that the requirement for an MCF manual only applies to 'Level A' MCFs with complex motor-powered aircraft.

2.9. Flight crew requirements

Some 30 comments requested changes to or clarifications on the NPA's flight crew requirements contained in SPO.SEC.MCF.115 when conducting MCFs with complex and non-complex motor-powered aircraft.

1 000-flight-hour requirement

Commentators stated that adequate flight crew requirements should be reduced and should be aligned with the flight crew requirements for test pilots.

One operator association stated that the minimum requirement of 1 000 flight hours is too restrictive and not justified on safety grounds. It stated that the requirement is in contradiction with the aim to move to performance-based rules in particular in the field of training. The association states that airlines are best placed to select the pilots for MCFs based on their experience and technical competence. This is in particular true since MCFs remain within the normal flight envelopes and should, therefore, not be confused with other test flights.

Recency requirement

The NPA proposed that the pilot-in-command shall not perform a complex MCF unless he/she has carried out a complex MCF in the last 24 months. To regain the recency, the pilot would have to conduct one 'Level A' MCF as observer or pilot monitoring or after acting as pilot-in-command in a full flight simulator. Regarding recency requirements, commentators requested to extend the recency requirements to 36 or 48 months from the NPA's proposed 24 months. Commentators representing operators with pilots of non-complex motor-powered aircraft argued that the recency requirements are too restrictive.
On the other hand, one operator requested to reduce the recency requirements to 12 months, since even 'Level A' MCFs can be relatively undemanding and, therefore, do not prepare the pilot for more demanding MCFs, which could include more difficult manoeuvres, e.g. stall.

Requirements for co-pilots

Another operator requested clarification on co-pilot requirements when conducting MCFs. Should the co-pilot have to follow the same training course as the pilot-in-command (PiC) and have to comply with the minimum flight hour requirements? The commentator stated that the co-pilot usually performs the system switching and, thus, needs the theoretical course, and sometimes the co-pilot acts as pilot-flying and, thus, needs the simulator session and some experience in handling the aircraft. The Agency confirms that neither the NPA nor the CRD establish requirements for co-pilots and, therefore, their selection is left to the operator.

Wording 'with similar characteristics' not clear

Many operators and NAAs proposed to replace the wording 'with similar characteristics' within the same aircraft category. Many commentators stated that the reference to flight hours in an aircraft with 'similar characteristics' is not adequate and will lead to confusion. Others commented that the concept would introduce restrictions not technically justified: as an example, it would mean that with 10 000 hours on A320 but with only 900 hours as PIC on A330, a pilot would not be allowed to perform an MCF on an A330 since the two aircraft significantly differ in terms of weight. The same situation would happen with the criteria about the number of engines: a pilot with 5 000 hours flight experience in an A340 would not qualify as MCF pilot on an A330 if he/she has 900 flight hours on this type.

Clarification needed on test pilot requirements

Regarding the test pilot rating, commentators requested to clarify this term and to link it to the rule requirements for test pilots.

One NAA asked whether the holder of a test pilot rating can carry out MCFs instead of having to comply with the experience and qualifications specified in *SPO.SPEC.MCF.115 Flight crew requirements*. This NAA also asked whether, for example, a 'test pilot' working for an airline but only rated on Boeing 737 could do an MCF on an A320 or A330 without any experience in that type and whether this would be appropriate. The NAA asked how the privileges of a test pilot rating as defined in FCL.820 can be extended to MCFs in this way.

In addition, commentators stated that very few airlines employ test pilots and that, therefore, the possibility to employ a test pilot to conduct an MCF is rather hypothetical.

Operator responsibility to select crew

The NPA proposed that the 'operator' is responsible for the selection of the flight crew members. Commentators asked whether the operator could also assign flight crew to MCFs which are not directly employed by the operators. Commentators stated that this flexibility is needed for private operators conducting non-commercial flights, which will sometimes or often subcontract MCFs and, therefore, will delegate the responsibility of selection of the crew members to the assigned operator.

Agency's response

— European Light Aircraft as defined in Commission Regulation (EU) No 748/2012 have been excluded from the applicability of the proposal.

— Flight crew requirements with regard to flight hours have been adjusted in line with the commentators' requests for both MCFs in complex motor-powered aircraft and in non-complex motor-powered aircraft.

— The flight hour requirements have been aligned with the minimum flight hour requirements for test pilots.

— Account is taken of operators, who introduce a new aircraft type and, therefore, might not have sufficiently qualified pilots to conduct MCF on this new type of aircraft. In this case, the operator should assess the pilot's qualifications in accordance with an established assessment procedure.

— Recency requirements have become more lenient, allowing intervals of 36 months after the last 'Level A' MCF, instead of the NPA's proposal of intervals of 24 months.

— Any reference to aircraft with similar characteristics has been replaced with 'aircraft of the same category'.

— The Agency clarifies that pilots with a valid test pilot rating are required to comply with the requirement to have a valid class or type rating when flying a certified aircraft during an MCF. The Agency sees no justification to deviate from the general principle that all pilots can only fly an aircraft for which they have the appropriate rating. Commission Regulation (EU) No 1178/2011 (the Aircrew Regulation) requirements contained in FCL.700 state that 'holders of a pilot licence shall not act in any capacity as pilots of an aircraft unless they have a valid and appropriate class or type rating, except when undergoing skill tests, or proficiency checks for renewal of class or type ratings, or receiving flight instruction'. In addition, ORO.FC.100(c) rules, which apply to SPO operators with complex motor powered aircraft, stipulate that all flight crew members shall hold a licence and ratings issued or accepted in accordance with Commission Regulation (EU) No 1178/2011 and appropriate to the duties assigned to them. It should also be noted that FCL.700(c) only extends the privileges of pilots holding a flight test rating to flights other than test flights when

those flights are related to the introduction or modification of aircraft types and conducted by design or production organisations, provided that compliance with Subpart H of Part FCL is not possible (which would be the case before the aircraft is certified); this is clearly not the case for MCFs.

— However, the existing FCL rules (FCL.725(e)) include an exemption for pilots holding a flight test rating issued in accordance with FCL.820 who were involved in development, certification or production flight tests for an aircraft type, and have completed either 50 hours of total flight time or 10 hours of flight time as PIC on test flights in that type. Those pilots shall be entitled to apply for the issue of the relevant type rating, provided that they comply with the experience requirements and the prerequisites for the issue of that type rating, as established in this Subpart for the relevant aircraft category.

2.10. Flight crew training course

Commentators reacted to the requirement to conduct training in a full flight simulator and stated that this was overly cumbersome. Commentators also stated that the NPA proposal to require a 'training' MCF as co-pilot or observer, if the training has taken place in a simulator before, was unnecessary. The training course may be conducted in a simulator but should not need to be followed by a flight as co-pilot or observer.

Other commentators stated that, as with the flight crew requirements, the flight crew training course should only be mandatory when conducting complex 'Level A' MCFs for which the use of abnormal or emergency procedures as defined in the AFM is expected. This comment was due to a misunderstanding: excluding the case of test pilots, the CRD (as the NPA) proposes specific MCF training only for 'Level A' MCFs which can be replaced with additional flight experience in the operation of non-complex aircraft.

Other commentators questioned the meaning of aircraft category and asked for clarifications that the training course followed on one aircraft category is considered valid for all aircraft types in that category.

Operator associations also stated that the wording of aircraft category is not in line with the definitions and requirements contained in Commission Regulation (EU) No 965/2012 (Air Operations) and Commission Regulation (EU) No 1178/2011 (FCL) (which refer to types and variants, not to categories of aircraft). Therefore, the associations proposed to include a reference to validity for all variants of the considered aircraft type in that category.

Other associations requested to amend the text referring to training flights to consider a 'Level A' MCF as a training flight in accordance with SPO.SPEC.MCF.120. The justification for this is that the association considers that the difficulties (and decrease in safety) of MCFs do not lie in the abnormal or emergency situations that may arise from the MCF itself. These situations are commonly practised during type ratings and recurrent trainings by all pilots. The real challenge, they argued, is to mitigate the likelihood of such abnormal or emergency situations by proper flight preparation and to be able to cope with them adequately.

Agency's response

— The reference to full flight simulator has been deleted and changed to reference to a simulator 'that for training purposes adequately reflects the reaction of the aircraft and its systems to the checks being conducted.'

— Regarding the training course requirements for MCFs in complex motor-powered aircraft, the training course conducted in a simulator has been specified to ensure that in this case the pilot should conduct at least one 'Level A' MCF as co-pilot or observer before flying as pilot-in-command on a 'Level A' MCF.

— Aircraft category is already defined in Commission Regulation (EU) No 1178/2011 (the Aircrew Regulation) and, therefore, does not have to be redefined.

— According to SPO.SPEC.MCF.120, unless the pilot holds a valid test pilot rating, the CRD requires a training course when conducting 'Level A' MCFs with complex motor-powered aircraft, in addition to the minimum flight hour requirements.

— For MCFs with other-than-complex motor-powered aircraft, the CRD only requires a training course whenever the pilot has less than 500 flight hours on an aircraft within the same aircraft category as the aircraft to be flown during the MCF, with a minimum of 200 flight hours as pilot-in-command.

2.11. Crew composition and persons on board

Regarding the NPA's proposal in SPO.SPEC.MFC.125 on crew composition and persons on board, helicopter stakeholders stated that the proposal to demand two pilots, if the aircraft has two pilot stations, is not possible unless 'pilot station' is defined. Helicopter types like EC 135 or BK 117 cannot be flown with two pilots for MCFs. Therefore, this requirement should be removed as not being practicable and partly not possible for helicopter MCFs. Instead, commentators argued that the flight manual and/or the design holders' procedure for the MCF should define the minimum crew. Smaller helicopters (e.g. R22) would have no room for a technician if two pilots are required. This requirement, they argued, is impracticable and does not reflect the real requirements of the helicopter industry. One NAA agreed and stated that the requirement for two pilots may be disproportionate where controls or flight instruments have not been affected and where the aircraft may be flown by one pilot in accordance with the AFM. The NAA argued that a pilot and an engineer often suffice. Therefore, the fitment of two pilot stations is not a good discriminant for requiring a two-pilot crew, and the requirement should be amended to read that the minimum flight crew shall be no less than that required by the AFM.
NAAs expressed doubts about the alleviation to fly without additional crew in case the operator can justify this. They stated that the operator should make a clear safety case whenever less crew are conducting MCFs.

Agency's response

The reference to pilot stations has been removed and replaced with a reference to the aircraft configuration. In addition, the text in *SPO.SPEC.MCF 125 Crew composition and persons on board* has been amended to alleviate the requirement to fly with a task specialist or additional pilot if the operator can justify as part of its risk analysis that the flight crew would not require additional assistance.

2.12. Role of and need for a task specialist

The question whether a task specialist should be required in the flight crew compartment to support the flight crew when performing MCFs, as proposed in SPO.SPEC.MCF.125, was the subject of comments raised by a number of stakeholders.

Some operators requested that if a task specialist's assigned duties are not directly related to the flight operation, but related to a maintenance check performed in flight (e.g. reporting from the cabin on a certain vibration or noise), the required training and briefing should be adequate to this function, but should at least include a flight safety training. The training of the task specialist was also touched upon by other commentators who requested that the task specialist is briefed on emergency equipment and procedures.

One NAA requested that the guidance regarding the role of the task specialist in GM1 SPO.SPEC.MCF.125 is changed to improve the intent of the guidance and to add to

the task specialist's duties the opportunity to record parameters in addition to monitoring them. This would ensure reduction of flight crew workload.

Regarding the role of the task specialist, helicopter operators argued that it is unreasonable to require a task specialist for all complex MCFs, even if there was a suitable space in the flight crew compartment for him/her to sit, which in most aircraft there is not.

One NAA stated that the requirements for a task specialist should be simplified to require the operator to establish the need for, and to assign, task specialists to assist the flight crew. The NAA also requested additional AMC/GM to support the proposed task specialist requirements. Regarding the alleviation for a task specialist, the NAA questioned the wording of this paragraph and stated that the wording 'as a general principle' is not specific enough for an IR and this sentence would be better deleted from this section and placed as AMC or GM.

Agency's response

— The revised *SPO.SPEC.MCF.125 Crew composition and persons on board* foresees for 'Level A' MCFs a task specialist or additional pilot in the flight crew compartment to assist the flight crew to conduct the MCF if permitted by the aircraft configuration, or

— if the workload of the flight crew is expected to be low, then the operator can justify as part of a risk assessment that the flight crew does not need additional assistance and, therefore, the operator may fly without a task specialist or additional pilot.

— GM1 SPO.SPEC.MCF.125 referring to the task specialist's assigned duties, equipment and training has been amended to include 'recording of parameters', as requested by one NAA.

2.13. Requirements for cockpit voice recorders (CVR), flight data recorders (FDR) and data link recording (DLR)

The proposed text regarding cockpit voice recorders, flight data recorders and data link recording triggered a number of comments and questions from operators' associations, individual operators and NAAs.

One association requested that the rule is clarified to ensure that with regard to data link recording, dispatch according to Master Minimum Equipment List (MMEL) or Minimum Equipment List (MEL) is allowed.

Helicopter associations stated that CVR, FDR and DLR requirements are unworkable for helicopters since especially smaller and older helicopter types do not have such equipment or it is not available. They gave the example of the twin turbine engine helicopter type BO105 where there is no CVR/FDR or data link available. Even for larger helicopters (e.g. BK117 B-2), where a CVR/FDR is available, a data link system does not exist. The installation of such system, even if available, will sometimes be more expensive than the value of the helicopter (e.g. BO105, R22, etc.) and requires about 1 200 man hours (example BK117). The association wrongly believed that the requirement would have foreseen a retrofit of existing helicopters.

This wrong assumption regarding additional requirements apart from the existing proposal in Part SPO has been shared by other NAAs and operators.

Agency's response

— The Agency can confirm that the NPA's proposal regarding CVR, FDR and DLR did not foresee any new requirements for operators normally conducting flights in accordance with Part SPO. This means that those operators will only apply the SPO.IDE requirements, which means e.g. that helicopters only have to be fitted with a CVR if the helicopter weighs more than 7 000 kg and has been issued with a Certificate of Airworthiness (CofA) after 1 January 2016.

— The NPA's text was only applicable to CAT and NCC operators to ensure that whenever a CAT or NCC operator conducts an MCF, they should continue to fly in accordance with their standard CVR, FDR and DLR requirements under Part CAT or Part NCC.

— Therefore, the Agency in this CRD proposes a new Implementing Rule requirement covering Maintenance Check Flights conducted by AOC holders, who would normally fly in accordance with Part CAT rules. This new proposal clarifies:

  - that the requirement only applies to AOC holders normally performing Part CAT flights (since Part NCC and Part SPO requirements regarding CVR, FDR and DLR are equivalent), and
  - that only in this case the operator should not disengage a perfectly working equipment.

— The Agency also confirms that the master minimum equipment list/minimum equipment list (MMEL/MEL) requirements regarding CVR, FDR and DLR continue to apply, which allow for a CVR/FDR/DLR to be inoperative under certain conditions. This, of course, is necessary, if the operability of a CVR/FDR/DLR is to be checked during a maintenance check flight.

2.14. Comments on Flight Time Limitation requirements for MCF

Some commentators questioned the need to develop a separate FTL provision in the specific MCF requirements for operators normally conducting operations under Part CAT. One authority stated that this is unnecessary, since a maintenance check flight conducted by an AOC holder has always been a flight duty performed for the operator and, therefore, has always been included in the FTL scheme.

Agency's response

— The Agency is aware that many AOC Holders, usually conducting Part CAT operations, often apply FTL rules for maintenance check flight, e.g. to ensure that the flight duty period continues to apply in the case where a flight crew is assigned for a maintenance check flight.

— Since the existing FTL rules only apply to CAT aeroplane operations (Article 8 of the Cover Regulation), this CRD maintains the proposal for a separate rule text to ensure AOC holders, who otherwise operate under Part CAT FTL rules, also apply those rules when conducting MCF.

2.15. Comments on amending Part M

In Part M and its AMC/GM, the term 'check flight' is used in two different scenarios: the first scenario addresses a flight similar to that referred to in NPA 2012-08 and this CRD as a 'maintenance check flight'; the second scenario refers to a flight performed as part of an airworthiness review. The term 'maintenance check flight' is only used in Part M in M.A.301(8). A comment was made on the NPA to propose an update of the relevant paragraphs of the AMC/GM to Part M to make the wording consistent with the wording 'maintenance check flight'.

Agency's response

— The Agency accepted this comment and has reviewed all references to 'check flights' in AMC/GM to Part M and referred them as 'maintenance check flights', where appropriate. One of the amendments updates the headings of the Exposition of the CAMO, also in response to a comment requesting that the CAMO should establish a policy for MCFs.

— The references to 'check flights' in ED Decision 2003/19/RM in respect of airworthiness reviews have not been changed.

Some other comments on the NPA requested that since in certain cases the MCF would need a permit to fly (see the resulting text GM M.A.308 (b)(4)), point 21.A.701 of Part 21 should be updated to refer to this scenario as additional purpose for the issuance of a permit to fly.

Agency's response

— The Agency has accepted this comment and the resulting text contained in this CRD proposes an amendment to 21.A.701 (scope of permit to fly) to add the purpose (a) 16 in this respect.

— The issuance of the flight conditions and permit to flight by a CAMO is the subject of a future rulemaking activity.

Another comment on the NPA proposed that a permit to fly should not be required in all cases of M.A.308(b)(4).

Agency's response

— In the case of (b)(4), if the aircraft does not meet the applicable airworthiness requirements, the troubleshooting process to be performed in flight is not described in the maintenance data and the maintenance organisation cannot be considered suitable to decide on the criticality of the checks to be performed in flight. Therefore, the Agency has not made a change to the resulting text due to this comment.

Some comments on the NPA requested some clarifications or confirmation of the understanding in respect of the role and responsibilities of Part 145 organisations and the CAMO organisation in respect of MCFs.

Agency's response

— The Agency considers that there is no need to change the resulting text of this CRD due to these comments, since the rule already establishes that the maintenance organisation is responsible for the maintenance performed in accordance with Part 145 and approved procedures before issuing a certificate of release to service. When, as in the case described in GM M.A.301 (8)(b)(3), a Part 145 organisation has issued a certificate of release to service, it is up to the operator/CAMO to consider a recommendation from the Part 145 organisation to perform the MCF.

Another comment requested to refer to the CAMO in the process described in GM M.A.301(8). The Agency has not introduced changes to the resulting text in this respect since it considers clear that, as described in the Air Operations rule, the operator is responsible for the MCF, but the airworthiness of the aircraft, including the identification on the need to perform a MCF, is the responsibility of the CAMO as described in M.A.301. Other comments proposed to define the process by which the pilot(s) would report to the maintenance organisation in cases where their input is required to issue the certificate of release to service after the flight. The Agency has not introduced changes in the resulting text due to these comments, since it is considered that several options may be acceptable to the maintenance organisation as long as it is in compliance with the Part 145 procedures. Some other comments received affecting the airworthiness paragraphs have suggested some improvement of the wording without changing the intent of the proposed text of the NPA. These comments have led to some minor adjustment of the resulting text of this CRD.

3. Draft Opinion, AMC, and GM

Resulting text

Draft Opinion(s) and Decision(s)

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

(a) deleted or amended text is shown with a strike through: ~~deleted~~

(b) new or amended text is highlighted with grey shading: new

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

3.1 Draft Opinion — Commission Regulation (EU) No 748/2012

Amendment to Annex I (Part 21)

Paragraph 21.A.701 is amended as follows:

21.A.701 Scope

(a) Permits to fly shall be issued in accordance with this Subpart to aircraft that do not meet, or have not been shown to meet, applicable airworthiness requirements but are capable of safe flight under defined conditions and for the following purposes:

1. development;
2. showing compliance with regulations or certification specifications;
3. design organisations or production organisations crew training;
4. production flight testing of new production aircraft;
5. flying aircraft under production between production facilities;
6. flying the aircraft for customer acceptance;
7. delivering or exporting the aircraft;
8. flying the aircraft for Authority acceptance;
9. market survey, including customer's crew training;
10. exhibition and air show;
11. flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage;
12. flying an aircraft at a weight in excess of its maximum certificated take off weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel are not available;
13. record breaking, air racing or similar competition;
14. flying aircraft meeting the applicable airworthiness requirements before conformity to the environmental requirements has been found;
15. for non-commercial flying activity on individual non-complex aircraft or types for which a certificate of airworthiness or restricted certificate of airworthiness is not appropriate~~.~~;

16. flying an aircraft for troubleshooting purposes or to verify the functioning of one or more systems, parts or appliances.

(b) This Subpart establishes the procedure for issuing permits to fly and approving associated flight conditions, and establishes the rights and obligations of the applicants for, and holders of, those permits and approvals of flight conditions.

3.2 Draft Opinion — Commission Regulation (EU) No 965/2012 as amended by Commission Regulation (EU) No 800/2013 (Air Operations)

3.2.1 Amendment to the Cover Regulation

Article 2(7), is amended as follows:

5. 'Specialised operation' means any operation other than commercial air transport where the aircraft is used for specialised activities such as agriculture, construction, photography, surveying, observation and patrol, aerial advertisement, maintenance check flights.

3.2.2 Amendment to the Cover Regulation

A new Article 9a is inserted:

Article 9a

Flight Crew requirements for Maintenance Check Flights

A pilot having acted, before this Regulation enters into force, as pilot-in-command on maintenance check flights (MCFs) that in accordance with the definition contained in SPO.SPEC.MCF.100 would be categorised as 'Level A', shall be deemed compliant with the training course requirements of SPO.SPEC.MCF.115(a)(1) and (b)(1). In this case, the operator shall ensure that the pilot-in-command receives a briefing on any differences identified between operating practices established before this Regulation enters into force and any new obligations stipulated by this Regulation and procedures established by the operator.

3.2.3 Amendment to Annex I (Definitions)

In paragraph 1 of Annex I the following definition is inserted:

'maintenance check flight' means a flight carried out to provide reassurance of the aircraft's performance or to establish the correct functioning of a system that cannot be fully established during ground checks:

(a) as required by the aircraft maintenance manual (AMM) or any other maintenance data issued by the design approval holder with responsibility for the continuing airworthiness of the aircraft; or

(b) after maintenance, as required by the operator or proposed by the continuing airworthiness management organisation; or

(c) as requested by the maintenance organisation for verification of a successful defect rectification; or

(d) to assist with fault isolation or troubleshooting.

3.2.4 Amendment to Annex III (Organisation requirements for air operations — Part ORO)

Paragraph ORO.AOC.125 is replaced as follows:

ORO.AOC.125 Non-commercial operations of aircraft listed in the operations specifications by the holder of an AOC

The holder of an AOC may conduct non-commercial operations with an aircraft otherwise used for commercial air transport operations that is listed in the operations specifications of its AOC, provided that the operator:

(a) for maintenance check flights, complies with Annex VIII (Part SPO);

(~~a~~b) for all other flights, describes such operations in detail in the operations manual, including:

(1) identification of the applicable requirements;

(2) a clear identification of any differences between operating procedures used when conducting commercial and non-commercial operations; and

(3) a means of ensuring that all personnel involved in the operation are fully familiar with the associated procedures;

(~~b~~c) submits the identified differences between the operating procedures referred to in (~~a~~b)(2) to the competent authority for prior approval.

3.2.5 Amendment to Annex VIII to Specialised operations (Part SPO)

Paragraph 'SPO.GEN.005 Scope' is amended as follows:

SPO.GEN.005 Scope

(a) Specialised operations include the following activities:

(1) helicopter external loads operations;

(2) helicopter survey operations;

(3) human external cargo operations;

(4) parachute operations and skydiving;

(5) agricultural flights;

(6) aerial photography flights;

(7) glider towing;

(8) aerial advertising flights;

(9) calibration flights;

(10) construction work flights, including stringing power line operations, clearing saw operations;

(11) oil spill work;

(12) avalanche mining operations;

(13) survey operations, including aerial mapping operations, pollution control activity;

(14) news media flights, television and movie flights;

(15) special events flights, including such as flying display, competition flights;

(16) animal herding and rescue flights and veterinary dropping flights;

(17) maritime funeral operations;

(18) scientific research flights (other than those under Annex II of Regulation 216/2008);

(19) cloud seeding.;

(20) maintenance check flights performed with aircraft other than European Light Aircraft ELA1 or ELA2 as defined in Commission Regulation (EU) No 748/2012.

(b) Any other activity falling under the definition of 'specialised operations' shall be regulated by this Part.

A new 'Section 5 — Maintenance check flights (MCFs)' is inserted in Subpart E of Part SPO:

Subpart E — Specific requirements

Section 5 — Maintenance check flights (MCFs)

SPO.SPEC.MCF.100 Applicability

(a) This section shall apply whenever maintenance check flights are intended to be conducted.

(b) Before conducting maintenance check flights, the operator shall determine the applicable level of the maintenance check flight, as follows:

(1) 'Level A' maintenance check flights are maintenance check flights for which the use of abnormal or emergency procedures as defined in the aircraft flight manual is expected. 'Level A' maintenance check flights also include operations required to prove the functioning of a backup system or other safety devices.

(2) 'Level B' maintenance check flights are maintenance check flights other than 'Level A'.

(c) Paragraph SPO.OP.230 is not applicable to maintenance check flights.

SPO.SPEC.MCF.105 Flight programme

Before conducting a 'Level A' maintenance check flight with a complex motor-powered aircraft, the operator shall develop a written flight programme.

SPO.SPEC.MCF.110 Maintenance check flight manual

Operators intending to conduct 'Level A' maintenance check flights with complex motor-powered aircraft shall:

(a) describe these operations and associated procedures in the operations manual referred to in ORO.MLR.100 or in a dedicated maintenance check flight manual;

(b) update the manual when necessary;

(c) inform all affected personnel of the manual and its changes that are relevant to their duties.

(d) Holders of an AOC shall provide the manual and its updates to the competent authority.

SPO.SPEC.MCF.115 Flight crew requirements

(a) When selecting the flight crew member for a 'Level A' maintenance check flight in complex-motor-powered aircraft, the operator shall ensure that the pilot-in-command:

(1) has followed a training course in accordance with SPO.SPEC.MCF.120. If the training has been conducted in a simulator, the pilot should conduct at least one 'Level A' MCF as co-pilot or observer before flying as pilot-in-command on a 'Level A' MCF; and

(2) has completed on aircraft within the same aircraft category as the aircraft to be flown a minimum of 1 000 flight hours, of which at least 400 hours were as pilot-in-command on the particular aircraft type.

(3) Notwithstanding (2), if the operator introduces a new type to its operation and has assessed the pilot's qualifications in accordance with an established assessment procedure, the pilot-in-command shall have completed a minimum of 1 000 flight hours, of which 400 hours were on complex motor-powered aircraft.

(b) When selecting the flight crew member for a 'Level A' maintenance check flight in other-than complex-motor-powered aircraft, the operator shall ensure that the pilot in command:

(1) has accumulated a minimum total experience of 200 flight hours as pilot-in-command on an aircraft within the same aircraft category as the aircraft to be flown, and followed a training course in accordance with SPO.SPEC.MCF.120; or

(2) has completed a minimum of 500 flight hours on an aircraft within the same aircraft category as the aircraft to be flown, of which at least 200 flight hours as pilot-in-command; or,

(3) in the case of single piston-engine aircraft, has completed a minimum of 200 flight hours as pilot-in-command in the same aircraft category;

(c) Pilots holding a flight test rating in accordance with Commission Regulation (EU) No 1178/2011 shall be fully credited towards the training course requirements stipulated in (a)(1) and (b)(1) above, provided that the pilot holding a flight test rating has obtained the required initial and recurrent CRM training in accordance with ORO.FC.115 & 215.

(d) The pilot-in-command shall not perform a 'Level A' maintenance check flight unless he or she has carried out a 'Level A' maintenance check flight within the preceding 36 months.

(e) Recency as pilot-in-command on a 'Level A' maintenance check flight is regained after performing a 'Level A' flight as observer or pilot monitoring or after acting as pilot-in-command in a 'Level A' maintenance check flight in a simulator.

SPO.SPEC.MCF.120 Flight crew training course

(a) 'Level A' maintenance check flight training courses shall be conducted in accordance with a detailed syllabus. The operator of complex motor-powered aircraft shall describe this training in the manual referred to in SPO.SPEC.MCF.110.

(b) The flight instruction for the training course shall be conducted:

(1) in a simulator which for training purposes adequately reflects the reaction of the aircraft and its systems to the checks being conducted; or

(2) during a flight in an aircraft demonstrating maintenance check flight techniques.

(c) A training course followed on one aircraft category is considered valid for all aircraft types in that category.

(d) When considering the aircraft used for the training and the aircraft to be flown during the maintenance check flight, the operator shall specify if differences or familiarisation training is required and the contents of such a training.

SPO.SPEC.MCF.125 Crew composition and persons on board

(a) For 'Level A' maintenance check flights, a task specialist or additional pilot is required in the flight crew compartment to assist the flight crew, if permitted by the aircraft configuration, except if the operator can justify, as part of its risk analysis, that the flight crew would not require additional assistance, considering the workload of the flight crew based on the flight programme.

(b) The operator shall have procedures to identify the need for additional task specialists before each intended flight.

(c) For 'Level A' flights on complex motor-powered aircraft, the operator shall define in its manual the policy for other persons on board.

SPO.SPEC.MCF.130 Simulated abnormal situations in flight

The requirement laid down in SPO.OP.185 is not applicable to maintenance check flights when the simulation of abnormal situations in flight is required to meet the intention of the flight and is identified in the flight programme.

SPO.SPEC.MCF.135 Flight limitations and rest requirements

Operators subject to Subpart FTL of Annex III (Part ORO) shall apply that Subpart when assigning crew members to maintenance check flights.

SPO.SPEC.MCF.140 Systems and equipment

When a maintenance check flight is intended to check the proper functioning of a system or equipment, it shall be identified as potentially unreliable, and appropriate mitigation measures shall be agreed prior to the flight in order to minimise risks to flight safety.

SPO.SPEC.MCF.145 CVR, FDR and DLR requirements for AOC Holders

If the aircraft is otherwise used for CAT operations, the provisions for cockpit-voice recorders (CVR), Flight Data Recorders (FDR) and Data Link Recording (DLR) in accordance with Annex IV (Part CAT) shall apply.

3.3 Draft Decision — AMC/GM to Regulation on Air Operations: Annex VIII Specialised operations (Part SPO)

Amendment to Subpart E — Specific requirements

A new 'Section 3 — Maintenance check flights (MCFs)' is inserted in Subpart E:

Section 3 — Maintenance check flights (MCFs)

GM SPO.SPEC.MCF.100 Applicability

The provisions established for the operation of maintenance check flights are not applicable to ELA1 and ELA2 aircraft as defined in Commission Regulation (EU) No 748/2012. However, all operators may consider the requirements and guidance provided when performing such flights. In particular, the following considerations would enhance safety levels when conducting maintenance check flights on these types of aircraft:

— pilot acceptability for maintenance check flights should be linked to flying experience, the experience in the aircraft (or similar aircraft) and also in the particular type of flight;

— persons on board should be restricted to those needed for the purpose of the flight and all crew members should be briefed in advance on their responsibilities and safety procedures;

— specific preparation for the flight is essential: in addition to the standard considerations before a typical flight (weather, aircraft weight and balance, pre-flight inspection and checklists, etc.), the pilot should also pay attention to the relevant paragraphs of the requirements which identify the need to follow a carefully prepared flight programme, to inform ATC of the particular flight, and the need to agree an appropriate airspace, to understand the airworthiness status of the aircraft and to assess the complexity of the flight, developing appropriate procedures to mitigate potential risks.

GM SPO.SPEC.MCF.105 Flight programme

DOCUMENTATION WHEN DEVELOPING A WRITTEN FLIGHT PROGRAMME

The operator developing a written flight programme should consider the applicable documentation available from the type certificate holder or other valid documentation such as Flight Safety Foundation Functional Check Flight Compendium.

AMC1 SPO.SPEC.MCF.110 Maintenance check flight manual

CONTENTS OF MAINTENANCE CHECK FLIGHT MANUAL

The items to be covered in the manual for 'Level A' MCFs with complex motor-powered aircraft should be as follows:

(a) General considerations

(1) conditions requiring a maintenance check flight (e.g. heavy maintenance);

(2) appropriate maintenance release before the maintenance check flight;

(3) flight authorisation by the operator;

(4) process to develop a flight programme and procedures;

(5) relevant procedures to document maintenance check flights in the aircraft records; and

(6) policy for the determination of 'Level A' or 'Level B' maintenance check flights.

(b) Aircraft status

(1) requirements on the status of the aircraft prior to departure (e.g. MEL, CDL and multiple defects) for the maintenance check flight;

(2) fuel loading, if applicable;

(3) mass and balance, if applicable; and

(4) specific test and safety equipment.

(c) Crew selection and other persons on board

(1) qualifications;

(2) experience and recency;

(3) training; and

(4) persons on board.

(d) Briefings

(1) briefing participants;

(2) specific pre-flight briefing topics:

(i) aircraft status,

(ii) summary of maintenance,

(iii) flight programme, specific procedures and limitations,

(iv) crew members' responsibilities and coordination, and

(v) documents on board;

(3) information to ATC; and

(4) post-flight briefing.

(e) Contents of the flight programme and procedures: the flight programme should be thoroughly developed by the operator using applicable current data. It should contain the checks to be performed in flight and may include read and do checklists where practicable. The following items should be included in the overall procedure:

(1) in-flight briefings;

(2) limits (not to be exceeded);

(3) specific entry conditions;

(4) task sharing and call-outs;

(5) potential risks and contingency plans;

(6) information to additional crew; and

(7) adequate available airspace and coordination with ATC.

(f) External conditions

(1) weather and light conditions;

(2) terrain;

(3) ATC, airspace; and

(4) airport (runway, equipment)/operating site.

(g) Documentation

(1) specific documentation on board;

(2) in-flight recordings;

(3) results of the maintenance check flight and related data; and

(4) accurate recording of required maintenance actions after the flight.

AMC1 SPO.SPEC.MCF.120 Flight crew training course

COURSE CONSIDERATIONS

(a) The training course stipulated in SPO.SPEC.MCF.120(a) should comprise ground training followed by a demonstration in a simulator or aircraft of the techniques for the checks in flight and failure conditions. In a demonstration performed in an aircraft, the trainer should not simulate a failure condition that could induce a safety risk.

(b) The ground training should cover the specified training syllabus (see AMC2 SPO.SPEC.MCF.120).

(c) The flight demonstration should include the techniques for the most significant checks covered in the ground training. As part of this demonstration, the pilots under training should be given the opportunity to conduct checks themselves under supervision.

(d) The ground training and flight demonstration should be provided by experienced flight crew with test or maintenance check flight experience. Flight demonstrations should be instructed by any of the following persons:

(1) a type rating instructor currently authorised by the operator to conduct maintenance check flights; or

(2) a pilot assigned by an aircraft manufacturer and experienced in conducting pre-delivery check flights; or

(3) a qualified test pilot.

(e) Upon successful completion of the training, a record should be kept and a training certificate delivered to the trainee.

AMC2 SPO.SPEC.MCF.120 Flight crew training course

COURSE SYLLABUS

In the case of aeroplanes and helicopters, the training course syllabus should include the following subjects:

(a) Legal aspects: regulations concerning maintenance check flights.

(b) Organisation of maintenance check flights: crew composition, persons on board, definition of tasks and responsibilities, briefing requirements for all participants, decision-making, ATC, development of a flight programme.

(c) Environmental conditions: weather and light requirements for all flight phases.

(d) Flight preparation: aircraft status, weight and balance, flight profile, airfield limitations, list of checks.

(e) Equipment and instrumentation: on-board access to various parameters.

(f) Organisation on board: CRM, crew coordination and response to emergency situations.

(g) Ground checks and engine runs: review of checks and associated techniques.

(h) Taxi and rejected take-off: specifications and techniques.

(i) Techniques for checks of various systems:

(1) **aeroplanes:** flight controls, high speed and low speed checks, autopilot and autothrottle, depressurisation, hydraulic, electricity, air conditioning, APU, fuel, anti-ice, navigation, landing gear, engine parameters and relight, air data systems.

(2) **helicopters:** flight controls, engine power topping, track and balance, high wind start, autopilot, performance measurement, hydraulic, electricity, air conditioning, APU, fuel, anti-ice, navigation, landing gear, engine checks and relight, autorotation, air data systems.

(j) Review of failure cases specific to these checks.

(k) Post-flight analysis.

GM1 SPO.SPEC.MCF.125 Crew composition and persons on board

TASK SPECIALIST'S ASSIGNED DUTIES, EQUIPMENT AND TRAINING

(a) The operator should ensure that the task specialist is trained and briefed as necessary to assist the flight crew, including performing functions such as, but not limited to:

(1) assistance on ground for flight preparation;

(2) reading of MCF checklists; and

(3) monitoring and recording of parameters.

(b) If a task specialist's assigned duties are not directly related to the flight operation but related to the maintenance check flight (e.g. reporting from the cabin on a certain vibration or noise), the required training and briefing should be adequate to this function.

(c) The task specialist should be trained as necessary on crew coordination procedures and emergency procedures and be appropriately equipped.

(d) Only personnel essential to complete the flight (crew and task specialists) should be on board.

3.4 Draft amendment to ED Decision 2003/19/RM

3.4.1 Amendment to Annex I — Acceptable Means of Compliance to Part M

In AMC M.A.801(g), paragraph 1 is modified as follows:

… or by virtue of the condition of the aircraft requiring additional maintenance downtime or because the maintenance data requires a flight to be performed as part of the maintenance, as described in paragraph 4.'

In AMC M.A.801(g), point 4 is added:

(4) Certain maintenance data issued by the design approval holder (e.g. aircraft maintenance manual (AMM)) require that a maintenance task is performed in flight as a necessary condition to complete the maintenance ordered. Within the aircraft limitations, the person authorised to certify the maintenance per M.A.801 should release the incomplete maintenance before this flight. GM to M.A.301(8) describes the relations with the aircraft operator, who retains the responsibility for the maintenance check flight. After performing the flight and any additional maintenance necessary to complete the maintenance ordered, a certificate of release to service should be issued in accordance with M.A.801.

Paragraph 2.16 of Appendix II to M.A.201(h)(1) is replaced by the following paragraph:

2.16 Maintenance check flight procedures

Maintenance check flights are carried out under the control of the operator. Maintenance check flight requirements from the subcontracted organisation or contracted Part 145 maintenance organisation should be agreed by the operator.

Part D of Chapter 2 of Appendix IV to AMC M.A.604 is modified as follows:

…

— Release to service – Certificate of release to service
  - Procedure for signing the CRS (including preliminary actions)
  - Certificate of release to service wording and standardised form
  - Completion of the aircraft continuing airworthiness record system
  - Completion of EASA Form 1
  - Incomplete maintenance
  - Maintenance cCheck flight authorisation
  - Copy of CRS and EASA Form 1

…

The table of contents in Appendix V to AMC M.A.704 is modified as follows:

…

1.13 Maintenance cCheck flight procedures.

…

Paragraph 1.13 of Appendix V to AMC M.A.704 is replaced by the following paragraph:

1.13 Maintenance check flight procedures

(The criteria for performing a maintenance check flight are normally included in the aircraft maintenance programme or derived by the scenarios described in GM M.A.301(8). This paragraph should explain how the maintenance check flight procedure is established in order to meet its intended purpose (for instance after a heavy maintenance check, after engine or flight control removal installation, etc.), and the release procedures to authorise such a maintenance check flight.)

Paragraph 1.13 of PART 3 of Appendix VII to AMC M.B.702 (f) (EASA FORM 13) is modified as follows:

…

1.13 Maintenance cCheck flight procedures

…

3.4.2. Amendment to Annex II — Acceptable Means of Compliance to Part 145

In AMC 145.A.50(e), paragraph 1 is modified as follows:

… or by virtue of the condition of the aircraft requiring additional maintenance downtime or because the maintenance data requires a flight to be performed as part of the maintenance, as described in paragraph 4.'

In AMC 145.A.50(e), point 4 is added:

(4) Certain maintenance data issued by the design approval holder (e.g. aircraft maintenance manual (AMM)) require that a maintenance task is performed in flight as a necessary condition to complete the maintenance ordered. Within the aircraft limitations, an appropriately authorised certifying staff should release the incomplete maintenance before this flight on behalf of the maintenance organisation. GM to M.A.301(8) describes the relations with the aircraft operator who retains the responsibility for the maintenance check flight. After performing the flight and any additional maintenance necessary to complete the maintenance ordered, a certificate of release to service should be issued in accordance with 145.A.50(a).

3.4.3. Amendment to Annex VIII — Guidance Material to Part M

A new GM M.A.301(8) is added:

GM M.A.301(8) Maintenance check flights

(a) The definition and operational requirements for maintenance check flights are established in the Regulation on Air Operations and maintenance check flights are carried out under the control and responsibility of the aircraft operator. During the flight preparation, the flight and the post-flight activities and for the aircraft handover, the processes requiring the involvement of the maintenance organisations or their personnel should be agreed in advance with the operator. The operator should consult as necessary with the CAMO in charge of the airworthiness of the aircraft.

(b) Depending on the aircraft defect and the status of the maintenance activity performed before the flight, different scenarios are possible and are described below:

(1) The aircraft maintenance manual (AMM), or any other maintenance data issued by the design approval holder, requires that a maintenance check flight is performed before completion of the maintenance ordered. In this scenario, a certificate after incomplete maintenance when in compliance with M.A.801(g) or 145.A.50(e) should be issued by the maintenance organisation and the aircraft can be flown for this purpose under its airworthiness certificate.

Due to incomplete maintenance, for aircraft used in commercial air transport, it is advisable to open a new entry on the aircraft technical log to identify the need for a maintenance check flight. This new entry should contain or refer, as necessary, to data relevant to perform the maintenance check flight, such as: aircraft limitations due to incomplete maintenance, maintenance data reference and maintenance actions to be performed after the flight.

After a successful maintenance check flight, the maintenance records should be completed, the remaining maintenance actions finalised and the aircraft released to service in accordance with the maintenance organisation's approved procedures.

(2) Based on its own experience and for reliability considerations and/or quality assurance, an operator or CAMO may wish to perform a maintenance check flight after the aircraft has undergone certain maintenance while maintenance data does not call for such flight. Therefore, after the maintenance has been properly carried out, a certificate of release to service is issued and the aircraft airworthiness certificate remains valid for this flight.

(3) After troubleshooting of a system on ground, a maintenance check flight is proposed by the maintenance organisation as confirmation that the solution applied has restored the normal system operation. During the maintenance performed, the maintenance instructions are followed for the complete restoration of the system and therefore a certificate of release to service is issued before the flight. The airworthiness certificate is valid for the flight. An open entry requesting this flight may be recorded in the aircraft technical log.

(4) An aircraft system has been found to fail, the dispatch of the aircraft is not possible in accordance with the maintenance data and the satisfactory diagnosis of the cause of the fault can only be performed in flight. The process for this troubleshooting is not described in the maintenance data and therefore scenario (1) does not apply. Since the aircraft cannot fly under its airworthiness certificate because it has not been released to service after maintenance, a permit to fly issued in accordance with Regulation (EU) No 748/2012 is required.

After the flight and the corresponding maintenance work, the aircraft can be released to service and continue to operate under its original certificate of airworthiness.

(c) For certain maintenance check flights the data obtained or verified in flight will be necessary for assessment or consideration after the flight by the maintenance organisation prior to issuing the maintenance release. For this purpose, when the personnel of the maintenance organisation cannot perform these functions in flight, the maintenance organisation may rely on the crew performing the flight to complete these data or to make statements about in-flight verifications. In this case the maintenance organisation should appoint the crew personnel playing such a role on its behalf and brief them on their scope, functions and the detailed process to follow before the flight.

4. Individual comments (CRD table of comments)

(General Comments) -

comment *67* comment by: *Luftfahrt-Bundesamt*

The LBA has no comments on NPA 2012-08.

comment *68* comment by: *Diamond Aircraft*

Diamond Aircraft Industries response to the NPA 2012-08, 'Maintenance check flights (MCFs)'
I.) General Comment:
The present NPA shows that basic principles of safety management, eg the risk analysis have not been proper executed. It does not seem to be a methodical mistake, it seems to be intentionally. The route cause was one, but serious accident caused by a chain of deviation from existing regulations. The NPA does not reflect any intentions of the working group to asses if being in compliance with the existing requirements and executing good airmanship the mentioned accident in the ToR would not have happened or what might have been necessary to assure compliance along the chain of single events.
Applying the content of the NPA, it won't be able to demonstrate that the physical and human causes of the accident would have been avoided – the penetration of water inside the aeroplanes angle of attack sensors and the inability of a high experienced crew to identify indications as erroneous.
Flights that are performed in the context of the transfer of an aeroplane between the lessor and the lessee, at the beginning and end of a leasing contract, have to be expected as a quite common procedure through out the past decades. For sure: several operators, if asked would be able to describe how they perform this task. The EASA NPA might have pointed out some kind of best practice, but it does not. According Basic Regulation Article 22/1 EASA is entitled to determine and publish a corrective action. This would comply with the BEA safety recommendations and limit the impact to the unaffected aviation industry.

Add IV. Content of the draft Opinion
The NPA 2012-08 has been justified by a "significant number of aviation accidents".
Section 12 of the Explanatory Notes states *"Various accidents and serious incidents (see ToR) have occurred when aircraft where being flown for reasons other than their normal operation. …"*
The referenced ToR publishes:
1. …
2. Problem/Statement of issue and justification; reason for regulatory evolution (regulatory tasks):
Following the Perpignan accident, the Agency reviewed the OPS requirements and found that the issue of maintenance check flights and more widely that of non-commercial flights of commercial air transport operators is not sufficiently addressed in EU-OPS. ...
The French BEA - Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile published an investigation report, containing the following recommendations:
A: That EASA detail in the EU-OPS the various types of non-revenue flights that an operator from a EU state is authorised to perform;
B: That EASA require that non-revenue flights be described precisely in the

approved parts of the operations manual, this description specifically determining their preparation, programme and operational framework as well as the qualifications and training of crews,
C: That as a temporary measure, EASA require that such flights be subject to an authorisation, or a declaration by the operator, on a case-by-case basis. »
EASA transposed this by writing the NPA:
The relevant safety recommendations that stem from accidents and serious incidents include the following:
(a) 'That EASA detail in EU-OPS the various types on non-revenue flights that an operator from an EU Member State is authorised to perform.'
(b) 'That EASA require that non-revenue flights be described precisely in the approved parts of the operations manual, this description specifically determining their preparation, programme and operational framework as well as the qualifications and training of crews.'
(c) 'It is recommended that the European Aviation Safety Agency require AOC operators to have, and comply with, a detailed procedure and a controlled test schedule and record of findings for briefing, conducting and debriefing check flights that assess or demonstrate the serviceability or airworthiness of an aircraft.'
(d) 'It is recommended that the European Aviation Safety Agency provide guidance on minimum crew proficiency requirements and recommended crew composition and training for those undertaking check flights that assess or demonstrate the serviceability or airworthiness of an aircraft.'
These demonstrations shows, that the NPA presentation does not comply with the referenced content.
It is fact: There has been one serious accident followed by the recommendation of BEA to improve the EU-OPS, the future Regulations Air Operations Annex IV Part CAT.
Not any other accident or incident has been cited in the mentioned ToR.
The cited NPA safety recommendations are reaching far beyond the BEA safety recommendations and have been taken to develop an enormous increase of the regulatory requirement.
The content of this NPA is in line with to be observed EASA policy to increase the volume of the requirements not wasting one thought about the consequences for the user. EASA ignores the fact that an increasing volume of requirements does not necessarily create more safety.
The report of the root caused accident shows that all the accident triggers are the result of discrepancies to existing requirements and or good airmanship. The pilots involved have been highly experienced. It is not believable that additional requirements will protect of further accidents.
Present organisational approvals containing the approval to conduct compliance check flights or maintenance check flights shall be continued. Any additional organisational approval requirement does not create more safety, it creates only more administration and more costs.

Add V. Regulatory Impact Assessment/ Issue analysis and risk assessment
EASA concludes (2.1 – third paragraph) " *... the assumed ratio for accidents or serious incidents associated with these flights* (Maintenance flights) *is higher than for regular operations*" . This statement is given without demonstrating the method of the Assessment and the selected parameters. This sentence seems to be written in kind of political manner.
II.) Comment on details
The comments shall follow the general approach to lay down technical conditions for MCF but to include these into already existing regulations.

If this is not accepted, we propose clarification, that this section of Part SPO shall only define the 2 different levels of MCF and govern the requirements that can be referenced in the operator's manuals for CAT/commercial and NCC operators and Part 145 organisations for the remaining MCF. Level B MCF shall be governed under a PtF.
II.1.) Add B.I. Draft Opinion – Regulation on Air Operations
II.1.1) 1. Amendment of the cover regulation.
Recommended
Delete: *"or (i) a maintenance check flight is performed"*
Justification: In compliance with the proposed definition of *maintenance check flight*, a separate, additional operational organisation approval induces an administrative burden that's out of scale to the content. Maintenance check flights as treated in this NPA are one of several kinds of non-commercial operation of aircraft covered by an AOC. If any adoption of the present requirement seems to be necessary, it shall be limited to the specific Annex CAT of the Regulation Air Operation.
The remainder or MCF shall be covered in Part M and Part 145.
II.1.2) 3. Amendment of Annex III (Organisation requirements — Part-ORO)
ORO.AOC.125 Non-commercial operations of aircraft listed in the operations specifications by the holder of an AOC
Recommended:
Keep present ORO.AOC.125 wording
Justification: Maintenance check flights shall not become part of Annex VIII (Part-SPO) due to the administrative burden that's with out scale to the content. At that, the development of the NPA document shows it as one of more topics of non-commercial operations of aircraft operated by the holder of an AOC.
AMC/GM of Annex IV – Part CAT may contain additional content to provide maintenance check flights.
The remainder or MCF shall be covered in Part M and Part 145.

II.1.3) 4. Amendment of Annex VIII to Part-SPO (Specialised Operations)
4.1. Paragraph 'SPO.GEN.005 Scope':
Recommended:
Keep present SPO.GEN.005 wording
Justification: Maintenance check flights shall not become part of Annex VIII (Part-SPO) due to the administrative burden that's with out scale to the content. At that, the development of the NPA document shows it as one of more topics of non-commercial operations of aircraft operated by the holder of an AOC.
AMC/GM of Annex IV – Part CAT may contain additional content to provide maintenance check flights.
The remainder or MCF shall be covered in Part M and Part 145.

4.2. New 'Section 5 — Maintenance Check Flights (MCF)' in Subpart E:
Recommended:
Cancel Section 5
Justification: Maintenance check flights shall not become part of Annex VIII (Part-SPO) due to the administrative burden that's with out scale to the content. At that, the development of the NPA document shows it as one of more topics of non-commercial operations of aircraft operated by the holder of an AOC.
AMC/GM of Annex IV – Part CAT may contain additional content steaming from "Section 5" to provide maintenance check flights.
The remainder or MCF shall be covered in Part M and Part 145.
Notwithstanding the principle request to cancel section 5 the wording of SPO.SPEC.MCF.100 Applicability
Develop GM for a clear determination of Level A or Level B MCF. Level A shall be all flights where an aircraft can be dispatched for flight using SOP

(i. e. AFM Chapter 4 (A and B) and or AMM-MCF-Procedures) Only minimum equipment needs to be operational. Fault isolation in non-required systems shall be Level A.
Level B shall be all flights where it has to be assumed that an essential equipment for the kind of flight is likely to fail during fault isolation:
e. g. fly by wire (without mechanical backup), excessive vibration in the flight structure or the control system at high speeds, …
Level B flights shall be subject to a PtF (incl. approved FC) per nature.

Notwithstanding the principle request to cancel section 5 the wording of SPO.SPEC.MCF.110 Maintenance check flight manual is recommended as follows:
(a) Operators intending to conduct level B maintenance check flights with complex motor-powered aircraft shall describe these operations and associated procedures in the operations manual referred to in ORO.MLR.100 or in 145.A.70 or in a dedicated maintenance check flight manual.
(d) Commercial operators according Annex IV Part CAT shall submit the manual and its updates to the competent authority if this manual is not part of another competent authority approved manual.
Justification:
To avoid multiplication of manuals and all the accompanied full risks and to reduce the administrative burden, manuals with the requested content but part of another organisation approval like POA or Part 145 shall be treated as equal.

Notwithstanding the principle request to cancel section 5 the wording of SPO.SPEC.MCF.115 Flight crew requirements is recommended as follows:
(a)The operator shall select the flight crew members for Level B maintenance check flights in accordance with the approved flight conditions for the intended flight.
(a)(1),(2) shall be transferred to GM/AMC Part 21 Subpart P.
The requirements shall be reduced in accordance with the current Austrian CAA Austro Control LTH 42 - Condition 4 Pilots, which is applicable to execute maintenance check flights:
Origin wording: *„Flugeigenschaftsprüfer [FTP] bzw. Piloten für Check Flights (Wartungsflüge) haben soweit anwendbar eine entsprechende Typenberechtigung oder Klassenberechtigung nachzuweisen.*
• *PPL für CS / FAR 23, 27, 29 Luftfahrzeuge*
Zusätzlich müssen folgende Anforderungen erfüllt werden:
Für CS / FAR 25 und CS / FAR 23 Multi- Pilot Luftfahrzeuge zusätzlich ATPL Theorieprüfung oder gleichwertiges Training (Crew Management Training) PPL für VLA, JAR 22, Ultraleicht- Flugzeuge und andere Nichtkategorisierte Luftfahrzeuge unter 2000 kg.
• *Mindestflugstundenzahl von 250, davon 100 in der jeweiligen Luftfahrzeuggruppe. Für CS / FAR 25 und CS / FAR 23 Multi Pilot Luftfahrzeuge beträgt die Mindeststundenanzahl 1000 Flugstunden*
• *Ausreichende Klassen und Typenerfahrung. Für 2-Mot Kolben sowie Jet und Turboprop sind mindestens 50 Stunden erforderlich wovon max. 10 Stunden Simulatortraining angerechnet werden dürfen.*
Ist die Besatzung für eine Kategorie autorisiert, so ist automatisch die Berechtigung für eine niedrigere Kategorie erteilt.
Short translation:
Class or type rating as applicable.
In addition

PPL for CS 22, VLA 23,27,29 aircraft
For CS 25 and CS 23-Multi-Pilot: ATPL theory or equivalent crew management

training course
Minimum 250 hours total (all classes), 100 in type for CS 25 and CS 23 Multi-Pilot: 1000h
Sufficient class or type experience. For multi-engine piston, jet or turbo-prop: min. 50 h, max. 10 thereof on simulator

Justification:
The Perpignan accident, the trigger for this NPA, occurred with high experienced pilots on the controls. Fault pilots qualification is not touched by the French BEA safety recommendations. The NPA lost the maintenance check flight perspective: pilots shall monitor if the respective aeroplane is compliant to the technical requirement. These Pilots are neither demonstration pilots nor flight test pilots. They shall be able to operate the aircraft not on a different level than any other pilot who has to demonstrate his proficiency at the pilot's licence- or operational proficiency annual or half annual check ride. Each of these flights contains several system degradation or malfunctions and procedures to recover from unusual attitudes.
Considering the widths of aeroplanes, the law shall not contain to detailed, minor useful and practicable requirements. Details shall be placed to the AMC/GM.
Identification of crew requirements is currently already part of the approved flight conditions.
Notwithstanding the principle request to cancel section 5 the wording of SPO.SPEC.MCF.120 Flight crew training course is recommended as follows:
(a) Level B Maintenance check flights training courses for complex motor-powered aircraft shall be conducted in accordance with a ~~detailed~~ specified syllabus described ~~The operators of complex motor-powered aircraft shall describe this training~~ in the manual referred to in SPO.SPEC.MCF.110.
(b) The training course shall be conducted as follows:
Simulation of a maintenance check flight in a synthetic training device or during a flight in an aircraft with a recent maintenance check flight pilot acting as pilot in command and the trainee acting as pilot non flying or observer;
(c) The training course referred to in (a) followed on one aircraft category is considered valid for all aircraft types in that category.
(d) Considering the aircraft used for the training and the aircraft to be flown during the maintenance check flight, the operator shall specify if differences or familiarisation training is required and the contents of such training.
(e) The training course has to be finished before the first time acting as pilot -in-command on a maintenance check flight.
Justification:
Add a) it shall be clarified that the need to conduct a specific maintenance check flights training courses is limited to complex motor-powered aircraft. The syllabus shall have the focus on aspects how to prepare a maintenance check flight, how the briefing shall be conducted, to cover aspects of CRM but not e.g. to determine the climb gradient in case of an engine failure because it is not the syllabus for a specific type rating training.
Add b) A full flight simulator shall not be required as the main focus shall be adhering to the procedures identified as part of the check flight preparation and CRM, not the flying skills itself. Further it shall be clarified that the trainer must not be a flight instructor, but shall have the necessary proficiency.
Add e) it shall be clarified that training has to be finished before operating.

Notwithstanding the principle request to cancel section 5 the wording of SPO.SPEC.MCF.125 Crew composition and persons on board is recommended as follows:

d. The minimum crew per AFM shall conduct the maintenance check flight.
~~e. For level B maintenance check flights on complex motor-powered aircraft, a task specialist is required in the flight crew compartment assist the flight crew to conduct the maintenance check flight if permitted by the aircraft configuration.~~
~~f. Notwithstanding (b) and considering the workload of the flight crew based on the flight programme, when the operator can justify as part of its risk analysis that the flight crew would not require additional assistance, the operator may fly without a task specialist in the flight crew compartment.~~
~~g. For level B maintenance check flights on aircraft certified for single pilot only, a task specialist is required to assist the pilot to conduct the maintenance check flight, if permitted by the aircraft configuration.~~

(~~e~~ b)The operator shall identify the need for additional task specialists as required for the intended flight.
(~~f~~ c) Only personnel essential to complete the flight (crew and task specialists) should be on board unless the operator has defined in its manual the policy for other persons on board.

Justification:
Add a: This paragraph is in contradiction to paragraph d and shall be reworded. According the present NPA two pilots were required for a level A maintenance check flight on aircraft certified for single pilot operation but equipped with two pilot stations (as common) but not for level B maintenance check flights.! The minimum flight crew shall not be altered against the type certificate or the competent authority approved operational conditions.
Add b and c: This requirement shall be part of the PtF and FC process. They are acceptable in its content.
Add d: As mentioned above – to operate the mission with assistance or not shall depend on the flight conditions and the content of the prepared programme.
Add e: Shall be (b) according to our comments
Add f: The present NPA opens the door to mask flights for other purposes than maintenance check flights. If you analyze the Perpignan accident, the main trigger for this NPA, you might conclude that the number of the victims would have been lower if this check flight which has not been a MCF, has not been prepared also as a positioning flight.

Notwithstanding the principle request to cancel section 5 the wording of SPO.SPEC.MCF.130 simulated abnormal situations in flight is recommended as follows:
The requirement laid down in SPO.OP.185 is not applicable for maintenance check flights when the simulation of abnormal situations in flight in between the approved flight envelope is required to meet the intention of the flight and is identified in the flight programme.
Justification: The reference "in between the approved flight envelope" shall underline the simulation of an abnormal situation is not a kind of flight testing.

Notwithstanding the principle request to cancel section 5 the wording of SPO.SPEC.MCF.145 Cockpit voice recorder is recommended as follow:
If the aircraft is equipped with a cockpit voice recorder, it shall be operational.
Justification: Any aircraft not equipped with a cockpit voice recorder shall not be obliged to make use of cockpit voice recorder. But if it is equipped the cockpit voice recorder shall be operational.

Notwithstanding the principle request to cancel section 5 the wording of

SPO.SPEC.MCF.150 Flight data recorder is recommended as follow:
If the aircraft is equipped with a flight data recorder, it shall be operational.
Justification: Any aircraft not equipped with a flight data recorder shall not be obliged to make use of flight data recorder. But if it is equipped the flight data recorder shall be operational.

Notwithstanding the principle request to cancel section 5 the wording of SPO.SPEC.MCF.155 Data link recording is recommended as follow:
If the aircraft is equipped with a data link recording, it shall be operational.
Justification: Any aircraft not equipped with a data link recording shall not be obliged to make use of data link recording equipment. But if it is equipped the data link recording shall be operational.

II.2.) Add B.
II. Draft Decision — AMC/GM to Regulation on Air Operations: Annex VIII (Specialised Operations — Part-SPO)
The AMC/GM shall be adopted to reflect the above mentioned comments. The principle content is agreed with.

II.3.) Add B.
III. Draft amendment to Decision 2003/19/RM
The AMC/GM shall be adopted to reflect the above mentioned comments. The principle content is agreed with.

III Required Changes to EC 748/2012
Regardless of the acceptance of our comments, an adoption to EC 748/2012 is necessary, as for Level B MCF no regime is provided under 21.A.701(a) because 21.A.701(a) 11. "Flying the aircraft to a location where maintenance or airworthiness review are to be performed, or to a place of storage" definitely excludes MCF as proposed by this NPA (e.g. fault isolation, refer also to current NPA, 8.; GM M.A.301(8)(b)(4))

comment *85* comment by: *René Meier, Europe Air Sports*

Europe Air Sports, representing European National Aero-Clubs and Air Sports Organizations in Regulatory Matters with European Authorities and Institutions, thanks the Agency for the preparation of NPA 2012-08 dealing with Maintenance Check Flights.
Europe Air Sports supports the comments posted by its national members and the air sports organisations, particularly the comments posted by the European Gliding Union and the British Gliding Union.
It is indeed very difficult to find out what operators of aircraft active in the sports and recreational sector at the lower end of aviation will have to do. This will create frustration, probably duplicate efforts, or, even worse, provoke efforts proving not be be required in the end.
Europe Air Sports also repeats the request to delete glider towing from the several lists of "Specialised Operations". Towing is an additional rating to be held by the pilot performing this task, nothing else.
In addition, Europe repeats that gliding is a sports activity, having nothing to do with commercial air transport: Gliding is sports or fun or a recreational activity. It is for sure that a passenger embarking on a sailplane never thinks of commercial air transport.
Our first conclusion is: Sports and recreational aviation activities with aircraft up to ELA 2 specifications should be exempt from these regulations. If this is not

	acceptable to the regulators, provisions adapted to the sports and recreational aviation world should be created. Europe Air Sport would like to assist the Agency in doing so.
comment	*89* comment by: *René Meier, Europe Air Sports* The Aero-Club of Switzerland covering all sports and recreational activities except hang-gliding fully supports the position of Europe Air Sports.
response	
comment	*118* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* The Swedish Transport Agency support EASA:s efforts in this rulemaking task and find the proposal acceptable with some comments which is explained in relevant parts of this NPA. Tomas Olsson Head of flight operations unit Jonas Gavelin Flight inspector/EU-OPS section
response	*Accepted*
comment	*127* comment by: *British Gliding Association* A. GENERAL In considering this NPA we note the recent decision to recognise that a similar NPA on 'Flight Testing' was ruled as not to be applied to light, sport and General aviation, as these were not properly accommodated in that NPA. As we find a single reference to sailplanes and motor-sailplanes in this NPA (GM. SPO.SPEC.MCF.115), we must assume that this rule is intended to apply to all classes of aircraft. It is notable that this single reference is clearly one where the rule-maker recognises an issue, and no further references considering the operation of light/sport aviation are to be found. From the text offered it is next to impossible to understand how the rule-makers intend this rule to be applied to Sport and GA operation which do not require AOC's nor specialist personnel, simulators etc. (see further comments below for details). This whole NPA is a clear example of over-regulation of GA as noted by the EASA Strategy for General Aviation. Our proposal, a priority, is that the regulator should exempt all sport and general aviation operating outside CAT from this Sub Part. Should this prove unacceptable to the regulator, then there should, at minimum, provide some semblance of guidance as to which paragraphs of this regulation should be applied. Some ideas for this are offered in the following comments. SPO.SPEC.MCF.100 The distinction between Level A and Level B MCF lacks clarity, in that Level A MCF's are only defined by exclusion (i.e. not B). Correcting this would provide a convenient opportunity of gaining an appropriate inclusion into the rule for Sport/GA aircraft (ELA). - by use of a clause recognising that all MCF on this class of aircraft be defined as Level A. In so doing, the remainder of the document, which is almost totally preoccupied with Level B MCF under AOC rules, remains un-amended, and simpler rules pertinent to Sport/GA can be introduced where necessary. Thus we would only recommend this route after proper, detailed consultation in the Sport/GA sector

SPO.SPEC.MCF.115
The experience levels required for pilots carrying Level B MCF are unworkable for Sport/GA operation of ELA aircraft. Further this paragraph is unclear on whether or what level of experience is required for Level A on non-complex light/GA aircraft. Outside CAT. (An optimist might assume none which while appropriate seems unlikely). Further the GM to this Para is unclear and potentially contradictory. In sport aviation, insurance requirements often specify individual names pilots for economic reasons – there is no justification for additional cost and complication beyond the normal insured pilot/owner for simple maintenance validation (Level A?) of low seat number, simple aircraft outside CAT A suitable criterion for this class would be a pilot's licence and 50 hours in charge of an airframe of the appropriate class.
SPO.SPEC.MCF.120 to 155 (possibly excluding 135, 140)
While these regulations are almost exclusively directed towards Level B MCF, the facilities capabilities and equipments required are invariably outside the remit of Sport/GA TC holders and operators alike. In the Sport/GA market sector there are no maintenance check flight manuals, simulators (.130), flight crew training courses (.120), task specialists (.125) or sophisticated recording equipment (.145...155); neither are they necessary. It should be clearly stated the they are not required for such aircraft (ELA?), and, for preference not required for all Level A MCF on any aircraft.

comment *141* comment by: *DGAC France*

The French DGAC wishes to highlight the six following general comments :

1 Requirement to comply with part SPO for CAT and non commercial operators conducting maintenance check flights (MCF)

When IR OPS fully apply, operators should comply with part CAT, NCC, NCO or SPO depending upon the type of operations they carry out.

MCF technical requirements being exclusively in part SPO, does it imply that CAT or NCO/NCC operators conducting maintenance check flights will have to comply with all part SPO provisions?

From our understanding, when conducting MCF:
- SPO operators should comply with ALL part SPO requirements, including MCF requirements. This is consistent.

- CAT operator should comply with ALL part SPO requirements as per modification proposed in ORO.AOC.125.
Yet, is that provision logical considering that subparts CAT.GEN, CAT.OP, CAT.POL and CAT. IDE respectively and generally supersede subparts SPO.GEN, SPO.OP, SPO.POL and SPO.IDE? Requiring from CAT operators full compliance with part SPO seems useless… It would be much preferable to require CAT operators to only stick to specific MCF provisions instead. See detailed comment in amendment to §ORO.AOC.125

- Do NCO and NCC operators have to comply with ALL part SPO provisions (including SPO.GEN, SPO.OP, SPO.POL and SPO.IDE)? The answer seems "yes" when reading for instance SPO.SPEC.MCF.130, 145, 150 and 155 : those paragraphs implement alleviations from some provisions contained in SPO.OP and SPO.IDE for… NCC operators.
Yet, nowhere is it explicitly written in the NPA that full compliance with part SPO

is required from NCO or NCC operators when they carry out MCF. And the DGAC does not think it would be sound to require that NCO or NCC operator follow the whole part SPO when performing a MCF whereas MCF represent maybe one or less flight a year. It would be much preferable to require NCO and NCC operators to only stick to specific MCF provisions instead (same comment as for CAT operators).

As a conclusion, part SPO compliance should not be required when maintenance check flights (MCF) are performed but only compliance with the specific requirements concerning MCF.
This may need to re-structure SPO.SPEC.MCF to have requirements that are common to CAT, NCC, NCO and SPO operators.

2. Definition of level A and level B maintenance check flights lacks precision.
The French DGAC urges the Agency to provide details allowing a clear distinction through an AMC for instance.
Being able to distinguish between both types of flights is a very important element as long as requirements will be far more stringent for non routine flights than for routine flights.
(*See also comment 3 below*)

3. General aviation requirements
We think a more proportionate approach is needed for other than complex aircraft operators.
This is of utmost importance and should be reflected in the definition of level A and B flights on the one hand.
On the other hand, simpler rules should be implemented for said operators would, e.g. for flight crew requirements criteria.

Besides, it should also be made clear that for private operators, most MCF will be subcontracted and that the responsibility of requirements will be "shared" with maintenance organisations.
As an example, SPO.SPEC.MCF.125 Flight crew requirements indicates that "the operator shall select flight crew members for level B maintenance check flights as follows:…"
Selection of flight crew through the maintenance organisation will obviously occur; this should be explicitly envisaged, through an AMC for instance (see detailed comment)

4. Maintenance check flights for single pilot aircraft should not necessarily be performed with a second pilot, even if the configuration of the aircraft permits: a task specialist may be far more useful than a second pilot.
Yet, provisions as currently foreseen may lead to exclude task specialists from the flight crew compartment, or worse, from the aircraft if the configuration of the aircraft does not permit.

Moreover, and from a more general standpoint, there is no rationale justifying the requirement for a second pilot in that case of MCF performed with single pilot aircraft, neither any associated procedure nor specification about the role awaited from each pilot. Consequently, this requirement should be deleted.

5. The DGAC recommends that a guidance be developed regarding assessment by the operator of the need to perform maintenance check flights. This would be in particular very useful for inexperienced operators.

6. The scope of all paragraphs should be made clearer: applicability for Level B and/or complex aircraft should be more explicit (see detailed comments).

comment *204* comment by: *AEA*

General AEA Comment
We want clarification whether or not it is necessary to comply with all elements of SPO-OPS or only the elements as listed in this NPA?
General AEA Comment (2):
Whereas we welcome EASA's intention to provide a harmonized framework for maintenance check flights (MCF) - which should not be confused with other test flights which go beyond the certified flight envelope - we generally speaking believe the NPA is too restrictive and against the aim to have performance based rules based on actual safety risks and in the field of training taking into account technical competence and experience of pilots rather than hourly based limitations. See detailed AEA comments.
General AEA Comment (3)
The AEA thinks that the flight test requirement by the Operator before maintenance event is completed should be reflected in the text.
Consequently, our proposal for the revision of the new GM M.A.301 (8) would include a paragraph (b) (2) (page 21 of the NPA) dealing with the case when test flight is performed at the operator's request is also "before completion of maintenance ordered ".
Thus, we would keep the last sentence of this paragraph for cases in which the flight happens after the maintenance event and a text similar to paragraph (b) (1) would be included for cases in which the flight happens during the maintenance event.
All the rest of this text GM would remain unchanged.
Apparently, this proposal also would require slight changes in AMC M.A.801 (g) and 145.A.50 (e) (page 20 of the NPA) to reflect that also "operator requirements" may lead to the need "to perform the flight part of the maintenance ... ". Similarly, it would also be necessary to change the settings of Annex I (page 11 of the NPA) at the point (b) should indicate "before or after maintenance completion, those required by the operator ...".

comment *214* comment by: *EFLEVA*

EFLEVA is the European Federation of Light Experimental and Vintage Airacraft, representing National Associations concerned with Light, Amateur Built, Vintage and Classic Aircraft from states which are members of the European Civil Aviation Conference (ECAC). Twelve National Associations from eleven countries currently form the federation.

EFLEVA considers that the proposed regulation is overly complex and disproportionate for application to the lighter end of Sports and Recreational Aviation.

It is EFLEVA's view that Sports and Recreational Aviation with aircraft within the scope of ELA1 and ELA2 processes should be exempt from this regulation.

comment *231* comment by: *UK CAA*

Page No: Whole document.

Paragraph No: Whole document.
Comment: Is there intended to be any additional auditing by the NAA of the operators' MCF processes, e.g. crew training and composition and of the development of the MCF programmes that it is required to create?
Justification: The oversight of these specialised operations needs to be carefully controlled.

response

Accepted

Part ARO of the rules on air operations will contain the authority requirements for commercial and non-commercial operations with complex and other than complex motor-powered aircraft. Part ORO will contain the requirements to declare non-commercial operations with CMPA to the authority.

comment *232* comment by: *UK CAA*

Page No: Whole document.
Paragraph No: Whole document
Comment: Is there any requirement for the operator to make the TCH of the aircraft aware of the MCF activity?
Justification: It would seem logical to include provision for the aircraft's TCH to be at least aware of the activity so that there is some assurance that the tasks being performed are appropriate.

comment *292* comment by: *Swiss International Airlines / Bruno Pfister*

SWISS Intl Air Lines fully supports the AEA comments made to the NPA:

Draft AEA Comments to NPA 2012-08 (Maintenance Check Flights)

General AEA Comment
We want clarification whether or not it is necessary to comply with all elements of SPO-OPS or only the elements as listed in this NPA?

General AEA Comment (2):
Whereas we welcome EASA's intention to provide a harmonized framework for maintenance check flights (MCF) - which should not be confused with other test flights which go beyond the certified flight envelope - we generally speaking believe the NPA is too restrictive and against the aim to have performance based rules based on actual safety risks and in the field of training taking into account technical competence and experience of pilots rather than hourly based limitations. See detailed AEA comments.

Page 11
Amendment of Annex I (Definitions)
'Maintenance check flight' means…
AEA Comment
There is a need to cover demonstration flights as performed by operators when handing over the aircraft to another operator or back to the leasing company.
We therefore suggest adding
(e) to satisfy the demonstration flight requirements from the leasing company and/or next operator
In addition (for editorial reasons), we suggest to amend c) as follows
c) as ~~required~~ **requested** by the maintenance organisation for verification of a successful defect rectification; or …

Page 14

SPO.SPEC.MCF.110 Maintenance check flight manual
(a) Operators intending to conduct level B maintenance check flights with complex motor-powered aircraft shall describe these operations and associated

procedures in the operations manual referred to in ORO.MLR.100 or in a dedicated maintenance check flight manual.
(b) The manual shall be updated when necessary.
(c) All affected personnel shall be made aware of the manual and its changes that are relevant to their duties.
(d) Commercial operators shall submit the manual and its updates to the Competent Authority
AEA Comment:
There is no justification to require approval from the Competent Authority for the manual and all its updates. According to existing rules this is not required, whereas such a new requirement would be a huge administrative burden not justified on safety grounds. It should therefore be sufficient to make the manual available.
AEA therefore request to amend (d) to read as:
(d) Commercial operators shall ~~submit~~ make the manual and its updates available to the competent authority. :

Page 14

SPO.SPEC.MCF.115 Flight crew requirements
(a) The operator shall select the flight crew members for level B maintenance check flights as follows:
(1) For flights with complex motor-powered aircraft, the pilot-in-command shall:
(i) hold a valid type rating, have completed a minimum of 1 000 flight hours as pilot-in-command on aircraft with similar characteristics, and have followed a training course in accordance with SPO.SPEC.MCF.120; or
(ii) hold a valid test pilot rating.
(2) For flights with other-than-complex motor-powered aircraft, the pilot-in-command shall:
(i) have completed a minimum of 1 000 flight hours flown as pilot-in-command in the appropriate aircraft category or, in the case of single piston-engine aircraft, sailplane or balloon, have completed a minimum of 300 flight hours flown as pilot-in-command in the appropriate aircraft category, and
hold a valid type or class rating with a minimum of 50 hours on type or class as pilot-in-command; or
(ii) hold a valid test pilot rating; or
(iii) hold a valid type or class rating and a minimum total experience of 500 flight hours as pilot-in-command and shall have followed a training course in accordance with SPO.SPEC.MCF.120.
(b) The pilot-in-command shall not perform a level B maintenance check flight unless he/she has carried out a maintenance check flight within the preceding 24 months. Recency as pilot-in-command on a level B maintenance check flight is regained after performing a level B flight as observer or pilot monitoring or after acting as pilot-in-command in a full flight simulator level B maintenance check flight.
AEA Comment:
The 1000h requirement is too restrictive and not justified on safety grounds. It is as such also in contradiction with the aim to move to performance based rules in particular in the field of training. The airlines are best placed to select the pilots for maintenance check flights based on their experience and technical competence. This is in particular true since maintenance check flights remain within the normal flight envelopes and should therefore not be confused with other test flights.
For example, some airlines have Senior First Officers with many thousands of hours flight time who have conducted many maintenance level B type flights. When they become commanders they will be very adept at handling these type of flights. By restricting the commanders to 1000h+ in command this will degrade a

pool of highly qualified pilots (contrary to EASA's objective).
In addition similar characteristics shouldn't be used because it is confusing and the text should remain in official use of type and variant according to the EASA OPS and FCL rules.
The AEA therefore proposes to amend the text as below:
SPO.SPEC.MCF.115 Flight crew requirements
(a) The operator shall select the flight crew members for level B maintenance check flights based on their experience and technical competence as follows:
(1) For flights with complex motor-powered aircraft, the pilot-in-command shall:
(i) hold a valid type rating on the type or variant, have completed a minimum of flight hours or leg according to ORO.FC.200 Composition of flight crew (described in Operations Manual) on the aircraft type or variant, and have followed a training course in accordance with SPO.SPEC.MCF.120; or
(ii) hold a valid test pilot rating.
Page 15
SPO.SPEC.MCF.120 Flight crew training course
(a) Level B maintenance check flights training courses shall be conducted in accordance with a detailed syllabus. The operators of complex motor-powered aircraft shall describe this training in the manual referred to in SPO.SPEC.MCF.110.
(b) The training course shall be conducted as follows:
(1) in a full flight simulator followed by at least one maintenance check flight as co-pilot or observer before acting as pilot-in-command on a maintenance check flight; or
(2) during a flight in an aircraft demonstrating maintenance check flight techniques.
(c) The training course referred to in (a) followed on one aircraft category is considered valid for all aircraft types in that category.
(d) Considering the aircraft used for the training and the aircraft to be flown during the maintenance check flight, the operator shall specify if differences or familiarisation training is required and the contents of such training.
AEA Comment:
We suggest remaining consistent with the EASA OPS and EASA FCL definitions and requirements (which refers to types and variants, not categories of aircraft).
Moreover, the case of zero flight time training should be considered. In such case (use of full flight simulator (Cat D)), there is no need to conduct a flight as observer or in a training flight .
Proposal below:
SPO.SPEC.MCF.120 Flight crew training course
(a) Level B maintenance check flights training courses shall be conducted in accordance with a detailed syllabus. The operators of complex motor-powered aircraft shall describe this training in the manual referred to in SPO.SPEC.MCF.110.
(b) The training course shall be conducted as follows:
(1) in a full flight simulator followed by at least one maintenance check flight as co-pilot or observer before acting as pilot-in-command on a maintenance check flight; or
(2) during a flight in an aircraft demonstrating maintenance check flight techniques.
(3) in a zero flight training full flight simulator (cat D)
(c) The training course referred to in (a) followed on one aircraft type ~~category~~ is considered valid for all variants of the considered aircraft type. ~~in that category~~.
(d) Considering the aircraft used for the training and the aircraft to be flown during the maintenance check flight, the operator shall specify if differences or familiarisation training is required and the contents of such training.
Page 16

SPO.SPEC.MCF.155 Data Link Recording
Notwithstanding SPO.IDE.A/H.150, the aircraft shall be equipped with a datalink recording in accordance with the applicable requirements for the aircraft's normal operation NCC.IDE.A.170 or CAT.IDE.A.195
AEA Comment:
There is a need to add a statement that with regard to data link recording, dispatch according MMEL/MEL is allowed.
Page 16
AMC1.SPO.SPEC.MCF.110 Maintenance Check Flight Manual
CONTENTS
The items to be covered in the manual should be as follows:
…
(e) Contents of the flight programme and procedures.
…
AEA Comment:
We understand that the specific flight programmes must NOT be replicated in this manual.
Airlines have several programmes depending upon the checks to be performed and/or the type of aircraft involved. These programmes are extensive and subject to frequent revisions and they want to avoid a duplication of documents in the Manual. Our interpretation is that these individual programmes may be REFERENCED to in the manual.
In addition, there should also be a possibility to reference to so-called ad-hoc programmes (specific programmes developed to cope with a specific problem), which will be developed ad-hoc according to the process described under item (a) General considerations (4) Process to develop a flight programme and procedures
Page 17
GM1 SPO.SPEC.MCF.115 Flight crew requirements
AIRCRAFT WITH SIMILAR CHARACTERISTICS
For the purpose of SPO.SPEC.MCF.115, aircraft with similar characteristics means aircraft with similar architecture, same number and similar type of engines and with similar weights.
AEA Comment:
This GM should be deleted in light of our previous AEA comment to SPO.SPEC.MCF.115 (deletion of 1000h requirement). It is not consistent with the EASA OPS and FCL definitions. (which refer to types and variants). In particular the reference to weight and number of engines has no justification in view of modern fly by wire aircraft and cockpit commonality. Moreover, it should again be stressed that maintenance check flights remain within the certified flight envelope and should therefore not be confused with other test flights.
Page 18
AMC1 SPO.SPEC.MCF.120 Flight crew training course
COURSE CONSIDERATIONS
(a) The training course stipulated in SPO.SPEC.MCF.120(a) should comprise ground training followed by a demonstration of techniques for the checks in flight and failure conditions in a full flight simulator (FFS) or aircraft. In a demonstration performed in an aircraft, the trainer should not simulate a failure condition that could induce a safety risk, e.g., unexpected engine failure.
(b) The ground training should cover the specified training syllabus (see AMC2 SPO.SPEC.MCF.120).
(c) The flight demonstration should include the techniques for the most significant checks covered in the ground training. As part of this demonstration, the pilots under training should be given the opportunity to conduct checks themselves under supervision.
(d) The ground training and flight demonstration should be provided by experienced flight crew with test or maintenance check flight experience. Flight

demonstrations should be instructed by any of the following persons:
(1) a qualified test pilot; or
(2) an aircraft manufacturer's pilot experienced in conducting pre-delivery check flights; or
(3) a type rated pilot, currently authorised by the operator, to conduct maintenance check flights.
(e) Upon successful completion of the training a record should be kept.
AEA Comment:
The case of the introduction of a new aeroplane type within the fleet of an operator has to be considered. In this specific case, the actual NPA implies the need for the operator to ask for help at manufacturer level (test pilot and manufacturer's pilot).
This is too restrictive and we therefore suggest amending this requirement.
Proposal below:
COURSE CONSIDERATIONS
(a) The training course stipulated in SPO.SPEC.MCF.120(a) should comprise ground training followed by a demonstration of techniques for the checks in flight and failure conditions in a full flight simulator (FFS) or aircraft. In a demonstration performed in an aircraft, the trainer should not simulate a failure condition that could induce a safety risk, e.g., unexpected engine failure.
(b) The ground training should cover the specified training syllabus (see AMC2 SPO.SPEC.MCF.120).
(c) The flight demonstration should include the techniques for the most significant checks covered in the ground training. As part of this demonstration, the pilots under training should be given the opportunity to conduct checks themselves under supervision.
(d) The ground training and flight demonstration should be provided by experienced flight crew with test or maintenance check flight experience. Flight demonstrations should be instructed by any of the following persons:
(1) a qualified test pilot; or
(2) an aircraft manufacturer's pilot experienced in conducting pre-delivery check flights; or
(3) a type rated pilot, currently authorised by the operator, to conduct maintenance check flights.
(4) a type rated pilot, with a previous experience in conducting maintenance check flights, in the case of a new type of aircraft operated by the operator.
(e) Upon successful completion of the training a record should be kept.

GM1 SPO.SPEC.MCF.125 Crew composition and persons on board
TASK SPECIALIST'S ASSIGNED DUTIES
GM1 SPO.SPEC.MCF.125 Crew composition and persons on board
TASK SPECIALIST'S ASSIGNED DUTIES
A task specialist is trained and briefed as necessary to perform his/her intended functions. Based on this, the operator is able to determine if a task specialist is suitable to assist the flight crew in the cockpit performing functions, such as:
(a) assistance on ground for flight preparation;
(b) assistance in navigation;
(c) assistance in radio communication/radio navigation means selection;
(d) reading of checklists; and
(e) monitoring of parameters.
If a task specialist's assigned duties are not directly related to the flight operation but related to the maintenance check (e.g. reporting from the cabin on a certain vibration or noise), the required training and briefing should be adequate to this function.

AEA Comment
Editorial comment. Reading of 'check lists' should refer to maintenance check list.

Amend (d) to read as 'reading of maintenance check lists; and'

comment *294* comment by: *ERA*

The European Regions Airline Association [ERA] represents some 60 intra-European airlines which annually carry 70.6m passengers on 1.6m flights to 426 destinations in 61 European countries. ERA welcomes the opportunity to provide comments on NPA-2012-08 "Maintenance check flights (MCFs)" as the NPA will not only impact operators of any aircraft having the need to perform these flights, and crew operating on such flights but also the maintenance organisations involved. There may also be an economic impact for small operators, mainly due to new crew training and qualification requirements, as well as due to inclusion of MCF into the operator's FTL scheme.

comment *333* comment by: *Ralf Keil*

Der Deutsche Aero Club begrüßt die Bemühungen der EASA, auch für Flüge, die nicht den Standardprozeduren entsprechen, einheitliche Regelungen im Sinne der Sicherheit zu schaffen. Leider fällt dem Deutschen Aero Club e.V. dabei wiederholt auf, dass die Bedürfnisse der Allgemeinen Luftfahrt, speziell des Luftsports, wiederholt nicht getroffen werden.

Einige Punkte des Sektion MCF berücksichtigen nicht, dass ELA-Luftfahrzeuge mit entsprechenden Anlagen nicht ausgerüstet sind

Die EASA hat sich zum Ziel gestellt, für einfache Luftfahrzeuge einfache Regelungen zu schaffen. Dazu wurden die Kategorien der ELA1 und ELA2 Luftfahrzeuge eingeführt. Die Unterscheidung nur nach komplexen und nicht-komplexen motorgetriebenen Luftfahrzeugen berücksichtigt unzureichend die einfacheren ELA-Luftfahrzeuge. Es ist nicht verständlich, warum die EASA nicht auf diese Definitionen zurück greift und explizit Vereinfachungen zulässt.

Im Bereich der ELA-Luftfahrzeuge ist eine Grenze zwischen MCF der Level A und B schwer bestimmbar, da „Standard-Prozeduren" wie im kommerziellen Bereich nicht stattfinden. In diesem Sinne ist ein MCF immer eine „Nicht-Standard-Prozedur" und müsste nach dem Verständnis der NPA immer in das Level B eingeordnet werden. Dafür sieht das vorliegende NPA keine Regulierung vor.

Die Anforderungen an den PIC und die Forderung nach der Durchführung von MCF in den letzten 24 Monaten, um „current" zu sein, sind für ELA1 und ELA2 ebenso zu restriktiv, wie die Forderung, die Befähigung als begleitender Pilot oder auf einem Simulator wieder zu erwerben.

comment *351* comment by: *Rogério Zacarias*

The expression "Flight test" is used in Part 21 for type-certification intended flights. Denomination of "Check flights" is currently used in Part M, M.A.301(8) and AMC to M.A.904, to address flights with the intent of airworthiness check other than the Part 21 purposes. "Check flights" and "maintenance check flights" wording should either be made uniform or else clearly differentiated.

Both Paragraph 1 in Annex I (Definitions) and GM to M.A.301(8) should included a subparagraph addressing flights required under an airworthiness review.

comment *352* comment by: *Rogério Zacarias*

It is unclear whether or not the maintenance check flight manual will be required for non-AOC operations such as private owned aircraft (corporate and executive jets).

comment *360* comment by: *NFLC, Cranfield University, UK*

Check Flights are more of an attitude to this type of flight than anything else, therefore some of the experience requirements seem unreasonable. There will be pilots who are more than capable of carrying out check flights effectively with a far lower number of hours than written in the NPA. There will be other pilot who will not be capable of carrying out check flights effectively with 2 or 3 times the number of hours listed.

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comment *5* comment by: *E-Plane Ltd*

Is this proportionate to the safety risk for General Aviation aircraft, non complex, non AOC, non turbine and under 5700Kg? The new procedures will increase costs for smaller operators, is there a safety case justifying this? If not a lighter touch process should be established. Again it appears that EASA is seeking to apply simialr procedures to 145 and Part F / Flying Schools/Private operators.

comment *9* comment by: *DRF-Luftrettung*

Remark to Executive Summery, 3. Para.:
To enhance safety in respect to maintenance flights, AMC and/or Guidance instructions are fully sufficient. To add SPO regulation is overly regulating this subject.

comment *70* comment by: *Mertens*

General Remark
The draft is obviously mainly focused on fix-wing aviation. With respect to the quantity of registered aircraft this is understandable. However, it should be considered, that operational requirements (due to aircraft category or -purpose) may differ affecting the applicability of contents of this NPA.

comment *112* comment by: *Howard Torode*

In considering this NPA the European Gliding Union note the recent decision to recognise that a similar NPA on 'Flight Testing' was ruled as not applicable to light, sport and general aircraft outside CAT, , as thse were not propoerly accommodated in that NPA. As we find a single reference to sailplanes ans motor sailplanes in this NPA (GM.SPO.SPEC.MCF.115), we must conclude that this NPA is intended to apply to all classes of aircraft. It is notable that this singlwe reference is clearly one where the rulemaker recognises and issue, an no further references concerning the operation of light/sport aviation are to be found. From the text offered it is next to impossible to understand how the rulemaker intend this rule to be applied to light/sport aviation operations which do not require AOCs nor

specialist personel, simulators etc.(see further comments for details). This whole NPA is a clear example of over-regulation of GA as identified by the EASA strategy for general aviation.
Our proposal, a priori, is that the regulator should exempt all sport and general aviation operating outside CAT from this Sub Part. Should this prove unacceptable to the regulator, then they should, at minimum, provide some semblence of guidance as to which paragraphs of this regulation should be applied to light/GA. Some ideas for this are offered in further comments from this source.

comment *166* comment by: *European Sailplane Manufacturers*

General comment:
The European sailplane manufacturers appreciate the effort undertaken by the Authority for looking deeper into the safety issues for maintenance check flights (MCF).
Nevertheless this resulting NPA does not seem to be proportionate in the case of small and non-complex aircraft as they are defined in the ELA1 or even ELA2 definitions of Part-M or Part-21.
Clearly the proposed regulation was written for typical cases as happening within the commercial air transport (CAT) community. This also makes sense as the first part of aviation in Europe which will be covered by Air Operations regulation will be CAT.
But this must not result into rules which will be not practical to use and/or too onerous and/or greating even additional safety risks for the ELA1/2 communities.
Furthermore the European sailplane manufacturers observe in this NPA again the tendency of ongoing rulemaking activities that even the wording within the proposed rules is only taking CAT into account and not aware of the activities of sport and leisure aviation which is the normal case e.g. with sailplanes.
The use of words like "non-revenue flights", "standard operating procedures", "flight crew training course", "task specialist" certainly makes sense for operations in the CAT communities but are certainly alien to the normal air sport pilot or aero club world.
The sailplane manufacturers propose the definition of a clear "boundary", below which easy to understand rules apply for MCF.
An example where exactly this has been done by EASA rulemaking was the NPA 2008-20 about flight testing where it was clearly said that below MTOW of 2000 kg no test pilot rating is required.

In the proposed wording it is difficult to understand what is required and what is not when dealing with smaller / lighter aircraft.
The concept of requiring a certain minimum experience for the pilot conducting a MCF is therefore not accepted by the manufacturers. Furthermore it is not practical to ask for a certain regularity of MCF and/or for a specialized training course in the air sport communities.

The only item really helpful would be creation of a "MCF guide" which would be a splendid task for EASA to assemble and edit some harmonized safety guidelines for the safe conduct of MCF.
The sailplane manufacturers would of course be willing to contribute to such a publication offering their special knowledge about their products.

comment *185* comment by: *managing director*

General comment
- GEFA-FLUG builds EASA certified hotair airships since 1999 and undertakes

maintenance tasks on them as well as maintenance on hotair balloons (since 1989). My position in the company: Managing director and Head of Design.
- To start with it should be pointed out, that there have been almost no maintenance tasks in almost 25 years of certified maintenence, neither on hotair airships, nor on hotair balloons, where a company maintenance flight was necessary. In the majority of cases the inflation of the envelope is absolutely adequate, even after large repairs. The maintenance work on the gondola (engine, burner, etc.) is checked on the ground.
- The NPA is not adaequate in the case of small and non-complex aircraft as defined in ELA1 or even ELA2 of Part-M or Part-21. The aircrafts in question (next to hotair balloons) are so called "Hotair Airships" which are technically a mixture of hotair balloon technology (envelope, burner) combined with a small engine (up to 65 hp) to give forward speed (20 knts) and manoevrability for max. 2 hrs.
- In my opinion the maintenance testflight it should be handled similar to NPA 2008-20 about flight testing where aircrafts below MTOW of 2.000 kg no test pilot rating is required.
- The minimum required experience of a pilot conducting a maintenance test flight should be 300 hrs.
- An appropiate "MCF guide" is appreciated and should be inserted to the relevant companies maintenance manual.

comment *199* comment by: *FAA*

The FAA does not concur with the perception of safety concerns associated with maintenance check flights (MCF). We do not believe this is a risk that requires a regulatory risk control. MCF activities conducted by air carriers are currently being conducted with a high degree of awareness and attention to detail, ultimately resulting in safe operations.
Air carriers have individual MCF programs that adequately address risks without the need for regulatory activity. As air carriers implement safety management systems (SMS), air carriers will indentify and mitigate any additional risks associated with MCF. The FAA will oversee the air carriers mitigations through the safety assurance process.

comment *247* comment by: *Ian Robinson, Patriot Aerospace Group*

Executive summary;
'A significant number of aviation accidents and serious incidents occur during non-revenue flights. Among them, a particular case is maintenance check flights.'

Can EASA tell us what the statistics are for this? Can it show us where this statistical evidence is published? If not, how is industry and the public in general to know if this rulemaking is appropriate and fair to all those it will affect?

comment *300* comment by: *Bristow (European Operations)*

Remark to Executive Summery, 3. Para.:
To enhance safety in respect to maintenance flights, AMC and/or Guidance instructions are fully sufficient. To add SPO regulation is overly regulating this subject.
Entered on behalf of the EHA Technical Committee

comment *336* comment by: *KLM Engineering & Maintenance*

KLM E&M supports the comments as provided by the Association of European Airlines (AEA).
KLM E&M however have some last minute comments specifically from the maintenance point of view which are provided separate from the AEA comment.

comment *337* comment by: *KLM Engineering & Maintenance*

At several locations in the NPA reference is made to possible "airworthiness" aspects of a Maintenance Check Flight (MCF). To KLM E&M 's opinion an MCF does not have an airworthiness aspect.
Only the OEM of an aircraft type performs Check/Test Flights to demonstrate airworthiness. KLM E&M suggests to remove reference to airworthiness aspects from the NPA or to create a separate level
(level C) for Check/Test Flights which have an airworthiness aspect.

A. Explanatory Note p. 4-8

comment *10* comment by: *DRF-Luftrettung*

Explanatory Note IV, 12 (b):
To add the prcedures required by the regulation, it is overly burocratic to force those to be in the approved part of the OM. Same safety can be achieved by having the procedures described in the none approved part of the OM
Explanatory Note IV, 12 (d):
EASA Involvement is not required. the minimum crew requirements should be operators resposibility only.
Explanatory Note IV, 15 (a):
Flight time regulation need not be covered by this regulation, as already covered by national regulations and later on by EASA-OPS regulations. Confusing/double regulations should be avoided.
Explanatory Note IV, 15 (c):
Very obvious, this proposed regulation had been established with a fixed wing view, not considering the requirements of helicopter operations and/or operations by medium and small organisations. For regularrily dislocated helicopter operations (example HEMS) the proposed regulation is completey impracticabel and to a large part not useable. For this kind of operation maintenance flights are often required on remote sites, can not be scheduled due to to operating profile. Helicopter maintenance flights requirements are far more often than fixed wing maintenance flights. Typically such maintenance flights (mostly not able to be scheduled) are performed after nightly maintenance on the remote operating site by the commercial pilot on duty. Using tthis proposed regulation may lead to massive break down of emergency services to the public.
Therefore the proposed regulation should only be applicable to fixed wing operations only.
Explanatory Note IV, 16:
To chose the OPT-OUT provision should be possible by operator, if approriate risk/safety management is implemented reflecting this issue, which is acceptable to the NAA.

comment *18* comment by: *George Knight*

It is clear from the first ten pages of this NPA that the justification for these new regulations for maintenance check flights has been driven by safety

recommendations resulting from accidents and incidents when these types of flight have been conducted by large commercial organisations operating, usually heavy, complex aircraft. These operators would have been AOC holders.
Unfortunately the drafters of these rules for maintenance check flights have then carried these proposals, which have been developed primarily for heavy, complex commercial aeroplanes, forward into the light general aviation sector, including operators of sailplanes, without realising that they are not really appropriate or understanding the consequences. By not defining the term 'operator' to mean AOC holders the proposed regulation in Annex VIII (Part-SPO) encompasses all operators of all EASA aircraft both commercial and non-commercial.
It seems that the drafters are not aware that for sailplanes, touring motor gliders (TMGs) and small single engined piston aeroplanes (SEPs) the operator is often a single pilot-owner or a small syndicate of perhaps two or three recreational pilots. The proposed rule completely fails to differentiate between the needs of commercial air transport and recreational flying. Once again EASA's reaction to a perceived issue is disproportionate over-regulation.
The regulation should exempt light non-complex aircraft used for flight training and recreational purposes.

comment *88* comment by: *René Meier, Europe Air Sports*

A. Explanatory Note
I. General
12. Background
para. 4
(a)...(d) deal, we think, with accidents/incidents involving large aircraft.
As our members normally operate aircraft of MTOM lower than 2000 kg of non-complex structure, we feel not to be represented in this Explanatory Note.
13. Objectives
The first objective fits well with the commercial air transport/commercial operations world. It does not fit with our operations where in many cases the pilot is the operator and also responsible for the maintenance of the aircraft.

comment *124* comment by: *ASD MRO Working Group*

The Explanatory Note at A. IV. 12. refers to aircraft being flown for reasons 'other than their normal operation' but then goes on to limit the scope of the NPA to 'maintenance check flights'. A significant number of flights take place each year of EU registered large transport aircraft which are transitioning from one operator to another. These flights are described as 'demonstration flights' or 'functional check flights' and may be under the operational control of an organisation specialising in providing this service to the aircraft owner / lessor. It is possible that some of these flights could be categorised as serving to 'assess or demonstrate the serviceability or airworthiness of the aircraft' (see A. IV. 12. (d)). Please clarify if these demonstration or functional check flights fall within the scope of this NPA?

comment *173* comment by: *LHT*

Comment LHT AG to IV. Content of the draft opinion / Decision
" The second objective identified in the ToR is:
- Establish operational requirements and crew competence criteria for the performance of these flights. This will not be limited to operators subject to EU-OPS approval but to any operator performing these flights."
-> This opening (to any operator performing these flights) is not consequently

apparent in the NPA. There are several adjustments to be made with regard to this objective.

comment *174* comment by: *LHT*

Comment LHT AG to IV Content of the draft Opinion / Decision, para 15. (a), subitem 4:
1. standard operating procedures = AFM procedures
2. "the need for an organisation manual for level B maintenance check flights with complex motor-powered aircraft;"
-> What is meant, is rather a procedure manual than an organisation manual.
3. requirements for special task engineer should be added
4. "flight time limitation requirements";
-> The limitations meant are rather environmental and operational limitations (e.g. excluding ETOPS, approach and landing procedures like CAT II, CAT II a/b, sunsets, checks during darkness etc.)
5. "considerations to fly with potentially unreliable systems."
-> differentiation between Maintenance Check Flight (MCF) and Check Flight for Troubleshooting (TS)
- in case of TS: postponement of unreliable system via MEL / HIL
- in case of MCF: no limitation accordingly

comment *201* comment by: *Fédération Française Aéronautique*

The proposed NPA is not compliant with the Safety Strategy report approved by the EASA Managment Board in September 2012.
For aeroplanes up to ELA 2 :

- The proposed text is not based, on a risk assessment analysis, not on proven safety issues according to available or serious incidents data.
- The proposed text aims to derive rules applicable to CAT, instead of applying Building Block Method from the lowest end to more complicated cases.

comment *218* comment by: *CAA-NL*

Comments to Para 15
The proposal to

- consider maintenance check flights as a Specialised Operation (SPO)to be included in the current opinion from EASA;
- change ORO.AOC.125, where this activity when fulfilling Part SPO can be performed under the AOC certificate;
- combined with the second objective from the ToR to encompass all operators performing a maintenance check flight;

means that all non AOC commercial operators need to be certified for the performance of a maintenance check flight, all non commercial operators with complex aircraft need to include this in their declaration.
By the nature of the beast, level B maintenance check flights are never the same. As the operator is responsible, this means that each time a Level B maintenance check flight needs to be to performed, a change of certificate or declaration is needed. Thus leading to a large administrative burden.

Although in principle we do agree with the technical content of Section 5 of Subpart E of Part SPO for the performance of maintenance check flights we disagree with the consequences of including this as a specialised operation in SPO.

comment *233* comment by: *AESA*

It should be explained if including maintenance check flights as a new SPO category will require a specific approval to be issued to perform them.

comment *234* comment by: *UK CAA*

Page No: 6

Paragraph No: 13, second objective
Comment: In order to fully meet this requirement, aircraft operators not involved in CAT and whose aircraft are not managed by a Part M(g) approved organization will require access to an approved MCF schedule. Appropriately approved CAM organizations should be able to create MCF schedules for this purpose or, in the case of recognized bodies, the NAA should have the ability to approve their MCF schedules.

comment *250* comment by: *Ian Robinson, Patriot Aerospace Group*

IV.12. Background.
"Various accidents and serious incidents (see ToR) have occurred when aircraft were being flown for reasons other than their normal operation".

The ToR refers to 2 instances, one an incident involving a Boeing 737, and one an accident to an Airbus A320. However, EASA propose to apply these maintenance check flight rules across the board, CAT and non-CAT, regardless of type, size, complexity etc. Can EASA tell us what instances it can provide for accidents/incidents on maintenance check flights on rotorcraft? On aircraft below 5700kg? On aircraft below 2730kg? Can EASA justify applying these requirements across the board, or is it again EASA making regulations with no statistical basis?

comment *252* comment by: *Ian Robinson, Patriot Aerospace Group*

IV.13. Objectives.
Second objective - "Establish operational requirements and crew competence criteria for the performance of these flights. This will not be limited to operators subject to EU-OPS approval but to any operator performing these flights".

Can EASA provide us with the statistical evidence necessary to justify this 'across the board' action? On aircraft below 5700kg, on aircraft below 2730kg, on ELA1 and ELA 2 aircraft, on rotorcraft, on balloons, gliders, airships?

comment *255* comment by: *Ian Robinson, Patriot Aerospace Group*

IV.15.(a) Description of Proposals
"Two category levels (level A and B)".

Level B maintenance check flights will require an inordinate amount of

administration time for a small to medium operator/Part M/Part 145 (new ops manual, crew training etc). Without secure statistical evidence for smaller aircraft, this is not justified.

comment *293* comment by: *Schroeder fire balloons GmbH*

For ELA1/2 airships/balloons in general Maintenance test flight nnormally do not take place. This requirement is neccessary for big airplanes and/or airplanes in common.
No balloon test flight pilot would be able to keep this license because nearly every maintenace performed can be checked on the ground without any flight necessary.
Hence any comment to SPO.SPEC.MCF.115, ..120, ..125, ..145, ..150, ..155 is not appropriate.

comment *301* comment by: *Bristow (European Operations)*

Explanatory Note IV, 12 (b):
To add the prcedures required by the regulation, it is overly burocratic to force those to be in the approved part of the OM. Same safety can be achieved by having the procedures described in the none approved part of the OM
Explanatory Note IV, 12 (d):
EASA Involvement is not required. the minimum crew requirements should be operators resposibility only.
Explanatory Note IV, 15 (a):
Flight time regulation need not be covered by this regulation, as already covered by national regulations and later on by EASA-OPS regulations. Confusing/double regulations should be avoided.
Explanatory Note IV, 15 (c):
Very obvious, this proposed regulation had been established with a fixed wing view, not considering the requirements of helicopter operations and/or operations by medium and small organisations. For regularrily dislocated helicopter operations (example HEMS) the proposed regulation is completey impracticabel and to a large part not useable. For this kind of operation maintenance flights are often required on remote sites, can not be scheduled due to to operating profile. Helicopter maintenance flights requirements are far more often than fixed wing maintenance flights. Typically such maintenance flights (mostly not able to be scheduled) are performed after nightly maintenance on the remote operating site by the commercial pilot on duty. Using tthis proposed regulation may lead to massive break down of emergency services to the public.
Therefore the proposed regulation should only be applicable to fixed wing operations only.
Explanatory Note IV, 16:
To chose the OPT-OUT provision should be possible by operator, if approriate risk/safety management is implemented reflecting this issue, which is acceptable to the NAA.

comment *324* comment by: *Bristow (European Operations)*

'A significant number of aviation accidents and serious incidents occur during non-revenue flights. Among them, a particular case is maintenance check flights.'
Can EASA tell us what the statistics are for this? Or is this another case of EASA creating rulemaking on no statistical evidence?
Entered on behalf of the EHA.

comment *325* comment by: *Bristow (European Operations)*

'Various accidents and serious incidents (see ToR) have occurred when aircraft were being flown for reasons other than their normal operation'.
The ToR refers to 2 instances, one an incident involving a Boeing 737, and one an accident to an Airbus A320. However, EASA propose to apply these maintenance check flight rules across the board, CAT and non-CAT, regardless of type, size, complexity etc. Can EASA tell us what instances it can provide for accidents/incidents on maintenance check flights on rotorcraft? On aircraft below 5700kg? On aircraft below 2730kg? Can EASA justify applying these requirements across the board, or is it again EASA making regulations with no statistical basis?
Entered on behalf of the EHA.

comment *327* comment by: *Bristow (European Operations)*

'Two category levels (level A and B).
Level B maintenance check flights will require an inordinate amount of administration time for a small to medium operator/Part M/Part 145. Without secure statistical evidence for smaller aircraft, this is not justified.
Entered on behalf of the EHA.

comment *342* comment by: *ADAC Luftrettung GmbH*

This NPA is obviously mainly focused on fix-wing aviation. With respect to the quantity of registered aircraft this is understandable. However, it should be considered, that operational requirements (due to aircraft category or -purpose i.e. helicopter) may differ affecting the applicability of contents of this NPA.
It seems to be established with a fixed wing view, not considering the requirements of helicopter operations and/or operations by medium and small organisations. For regularily dislocated helicopter operations (example HEMS) the proposed regulation is not practicable and often not useable. For HEMS-operation maintenance flights are often required on remote sites and cannot be scheduled due to to operating profile. Often maintenance flights of EMS-Helicopter are performed after nightly maintenance on the remote operating site by the commercial pilot on duty.

A. Explanatory Note — V. Regulatory Impact Assessment p. 8-10

comment *11* comment by: *DRF-Luftrettung*

V.3.1:
Option 2 should be added and used, which is:
Develop regulatory guidance material for maintenance check flights for fixed wing operations and develop guidance material for maintenance check flights for helicopter operations.

The fixed wing orientated proposed regulation so not practicable for remote helicopter operations.
V.4.3:
Overall low negative economic impact may be true for airline operators.
For helicopter operations, especially HEMS operations, the economic impact is enormous.
Basically, every pilot would have to be qualified for maintenance flights, as such flights are regularily performed on site at remote bases after nightly maintenance actions. Helicopter maintenance flights are far more often required as for fixed wings (basically for nearly any maintenance action).
The proposed regulation is far from being practicable for helicopter operations. Very obvious, helicopter ops. procedures and requirements had not been respected properly.

comment *29* comment by: *Ian Wilson*

It is not correct to say "This NPA has an overall low economic impact". For most if not all Small to Medium Enterprises (SME) it will have an appreciable economic impact. They will have to maintain new records and maintain recency of check flying which is a new burden. How will a on-man AOC be able to comply when that one man may not have a thousand hours on type especially if a new type aircraft has been added to an existing AOC

comment *80* comment by: *NetJets Europe*

4.3
Please note that we do not have a fixed based operator status, our MCFs may occur anywhere and the pre-MCF maintenance invariably be carried out by third party contract. This means that we will very rarely be in a position to fly:
a) maintenance personnel on board
b) frequently be unable to return to the departure airport because the maintenance personnel are no longer there
c) insurance and third party liability will often preclude the presence of a maintenance person on board.
Saying this NPA has no additional economic impact on operators is simplistic and only one sided in it's consideration of all the various operation types in aviation.

comment *86* comment by: *René Meier, Europe Air Sports*

V. Regulatory Impact Assessment
Europe Air Sports supports Option 1, but insists on the creation of really proportionate rules for all aircraft up to the ELA 2 category.
Rationale:
We ask for a bottom-up process to avoid what we experienced with the original Part-M. We could therefore not support a top-down solution proposing MCF regulations for the aircraft our members operate based on provisions appropriate to much larger aircraft.

comment *111* comment by: *CAO-Omiecinska*

I would like to stress that in AMC M.A.710 (b) and (c) p.2 we have "fisical inspection sholud include tests which are prepared in flight" - I suggest to add in this proposal and in amendment to PART M changes: "fisical inspection must include tests in flight, which have to be performed every 3 years during the

airworthiness review".

comment *215* comment by: *EFLEVA*

V. Regulatory Impact Assessment.
EFLEVA is of the view that whilst Option 0 would be inappropriate, the rules as presented are the normal watering down of rules created to suit the complex requirements of Commercial Air Transport and are disproportionate for aircraft within the scope of the ELA1 and ELA2 process. This is a repeat of the situation with Part M where rules were generated for the higher categories leaving Sports and Recreational Aviation interests disproportionately regulated.

comment *219* comment by: *CAA-NL*

Comments to RIA 4.3 Economic Impacts
We do not see an Impact of MCF on the operators FTL scheme. As a maintenance check flight has always been a flight duty performed for the operator, it has always been included in the FTL scheme.
However with every individual level B maintenance check flight we see an emerging need for an application of a change of the certificate with the Competent Authority or to notify to the competent authority a change of a declaration.

comment *236* comment by: *UK CAA*

Page No: 8/9

Paragraph No: V 2.1
Comment:
a) In the first paragraph, the following text in the RIA seems to be the reverse of a safe condition and is in itself not well worded:
"(e.g. trying to reproduce in flight a fault discovered on ground for troubleshooting)."
It is suggested that you would not be trying to reproduce a fault discovered on the ground 'in flight' but you may well try to reproduce a fault found in flight 'on the ground'.
b) In the third paragraph on page 9, the text refers to the "*assumed* ratio for accidents …". Should this not be more factual than assumed for the purposes of the RIA?
Justification: Robustness and justification within the impact assessment.

comment *257* comment by: *Ian Robinson, Patriot Aerospace Group*

V. RIA
23. "What are the safety risks'. 'it is unlikely that the high frequency of these events will be reduced"

Can EASA describe what the frequency of these events are by showing us the statistics? And what category of aircraft are affected? If not, there is no justificationn for this rulemaking action.

comment *261* comment by: *Ian Robinson, Patriot Aerospace Group*

V. RIA.
4.3 Economic impacts.
"This NPA has an overall low negative negative economic impact since the proposal affects a minority of operators"

Can EASA explain this statement, bearing in mind the statement in IV.13 Objectives - 'This will not be limited to operators subject to EU-OPS approval but to any operator performing these flights' There seems to be a direct and profound contradiction. If the statement 'but to any operator performing these flights' is correct, the RIA is completely wrong. There will be a huge negative economic impact on smaller operators.

comment *309* comment by: *Bristow (European Operations)*

V.3.1
Option 2 should be added and used, which is:
Develop regulatory guidance material for maintenance check flights for fixed wing operations and develop guidance material for maintenance check flights for helicopter operations.
The fixed wing orientated proposed regulation so not practicable for remote helicopter operations.
V.4.3:
Overall low negative economic impact may be true for airline operators.
For helicopter operations, especially HEMS operations, the economic impact is enormous.
Basically, every pilot would have to be qualified for maintenance flights, as such flights are regularily performed on site at remote bases after nightly maintenance actions. Helicopter maintenance flights are far more often required as for fixed wings (basically for nearly any maintenance action).
The proposed regulation is far from being practicable for helicopter operations. Very obvious, helicopter ops. procedures and requirements had not been respected properly.
Entered on behlaf of the EHA Technical Committee

comment *328* comment by: *Bristow (European Operations)*

'What are the safety risks'. 'it is unlikely that the high frequency of these events will be reduced'
Can EASA describe what the frequency of these risks are by showing us the statistics? And what category of aircraft are affected? If not, there is no justificationn for this rulemaking action.
Entered on behalf of the EHA.

comment *329* comment by: *Bristow (European Operations)*

'This NPA has an overall low negative negative economic impact since the proposal affects a minority of operators'
Can EASA explain this statement, bearing in mind the statement in IV.13 Objectives - 'This will not be limited to operators subject to EU-OPS approval but

to any operator performing these flights' There seems to be a direct and profound contradiction. If the statement 'but to any operator performing these flights' is correct, the RIA is completely wrong.
Entered on behalf of the EHA.

comment *346* comment by: *Southern Cross International*

It is suggested to add under 2.2 *Who is affected*? aircraft owners (lessors). They will be affected in those cases where an aircraft is in transit between two lessees or will be kept in storage by a maintenance organisation.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 1. Amendment of the cover regulation p. 11

comment *28* comment by: *Ian Wilson*

What is the definition of "close to the surface"? For a helicopter it is normal to be "close to the surface" until "out of ground effect"

comment *87* comment by: *René Meier, Europe Air Sports*

1. Amendment of the cover regulation
This paragraph should be adjusted to SPO.GEN.005.
Rationale
As per today, not much is clear about "Specialised Operations". What is proposed here does not fit with what is written in the relevant provisions of Part-SPO.
Furthermore, we urgently need precise definitions for commercial air transport, commercial operations, aerial work, non-commercial operations [e.g. thinking of the proposed "commercial air transport with sailplanes (and ballons)", we are of the opinion that some work remains to be done.]

comment *128* comment by: *KLM Cityhopper*

Change 'maintenance check flight' to 'functional check flight'

comment *220* comment by: *CAA-NL*

Draft Opinion Cover Regulation on OPS
We do not agree with the inclusion of maintenance check flight as a special operation where a certification process, or a change of declaration is needed. For the current proposal based on the opinion of SPO from EASA we would suggest to make maintenance check flights a new annex IX to the cover regulation (Part MCF) applicable for all operators without the obligation of the activity to be part of a certification process or a declaration.
Depending on the outcome of the discussion on Part SPO within the EASA committee, and the possible exclusion of some activities from certification and/or declaration, we could accept the inclusion of MCF in this section of Annex VIII, Part SPO, activities without certification and declaration.

comment *235* comment by: *AESA*

The amendment of the cover Regulation needs to be consistent with the text

resultant from the discussions being held currently on SPO.

comment *295* comment by: *ERA*

ERA members' have observed that the proposal suggests including the maintenance check flights in SPO. ERA strongly question this option, as maintenance check flights are (for the majority) absolutely standard in an airline. Requesting each and every airline to fulfil the requirement of Part SPO is establishing a highly complicated procedure. ERA has noticed that there are already 45/67 pages of general requirement and most are a copy and paste of the general requirements of Part CAT or part ORO. However, the checking process of this by an NAA could take up to one week.
ERA notes that this may be justified for test flights performed by Aircraft Manufacturers, but the new requirements seem much too complicated for "regular" operators.
ERA is suggesting EASA place these requirements in Part ORO (Operator Required Organisation) which is the general requirements for CAT and NCO or in Part SPA (Specific Approvals) which are both well known by operators.

comment *353* comment by: *Southern Cross International*

It is proposed to use the term Functional Check Flight in lieu of maintenance check flight. Functional Check Flight is the industry-wide accepted term for check flights, such as maintenance check flights, troubleshooting flights and flights as part of a delivery or redelivery contract between two parties. EASA SIB 2011-07 is also referring to Functional Check Flights.

By addressing only maintenance check flights, this NPA will not affect delivery or redelivery flights that usually use the same test schedule to provide reassurance of the aircraft's performance or to establish the correct functioning of the aircraft's systems. However many times maintenance organisations have no direct involvement in these flights.

In this respect it should be noted that one of the trigger events of this NPA is the redelivery flight of an Airbus A320 at the end of a leasing contract, a non-revenue flight that ended in a fatal accident, as a result of stalling.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 2. Amendment of Annex I (Definitions) p. 11

comment *1* comment by: *Association of Dutch Aviation Technicians NVLT*

The term: 'Maintenance check' is very confusing and In the opinion of the NVLT in conflict with Regulation (EC) 2042/2003).
Formally (see (EC) 2042/2003) there is only <u>one</u> definition of "maintenance", it should be perfectly clear that <u>any</u> work or task covered by the term 'maintenance' including a maintenance check, simple test', 'trouble shooting' and deactivation of a component or system has to be dealt adequately according 145.A.50 Certification of maintenance(b):
' A certificate of release to service shall be issued before flight at the completion of <u>any</u> maintenance'.

comment *57* comment by: *NetJets Europe*

We agree with this definition.

comment *73* comment by: *FAT-HON*

At the moment, the scope of the maintenance check flight is limited to post maintenance activities or post defect scenario's; where maintenance has been carried out or a defect already has been found. In our opinion, a check flight may be desired in the following scenario's:
- pre/post-lease delivery/acceptance flights;
- check flights performed on behalf of aircraft owners, lessors or operators who wish to (periodically) verify and confirm the serviceability of aircraft systems that can only be checked in flight (for example: stall warning system behavior, pressurization system performance). Such checks can for example be done on the positioning flight to a heavy maintenance facility, where scheduled maintenance is going to be carried out; The objective of such flights is to search and discover (hidden) malfunctions.
- check flight requested as part of an airworhtiness review.
All such check flights are now not covered in the Paragraph 1 of Annex I.
We propose to consider the wording "Continuing Airworthiness Check Flight" or "Serviceability Check Flight" instead of restricting it to maintenance flights.

comment *125* comment by: *ASD MRO Working Group*

2. (b) definition of a 'maintenance check flight' includes "after maintenance, as required by the operator". Per earlier comment under 'Explanatory Note', does this definition include 'demonstration flights' or 'functional check flights' conducted as part of acceptance of an aircraft by an new owner/lessee if conducted after maintenance?

comment *129* comment by: *KLM Cityhopper*

Add definitions for other functional check flights:

- Pre maintenance check flights
- Delivery flights
- Demo flights at end of lease or sale

Justification:
We perform almost the same FCF prior to base maintenance as we do after base maintenance; even though the risk is a little less because maintenance errors are ruled out, it should fall in the same category of flights
EASA SIB 2011-07 gives three examples of accidents/incidents regarding FCF's, two of which are flights at end of lease. So why not include these kind of flights?

comment *178* comment by: *DGAC France*

Comment/proposition concerning point (b) of MCF definition

The French DGAC recommends that a guidance be developed regarding assessment by the operator of the need to perform maintenance check flights. This would be in particular very useful for inexperienced operators.

Note: see also first comment associated to GM M.A.301(8) (b)(2) suggesting that

MA302 and/or AMC MA302 be amended; the aim would be to provide that the policy of each operator regarding the needs of Maintenance check flights be described in the MA302 aircraft maintenance programme.

comment *205* comment by: *AEA*

AEA Comment
There is a need to cover demonstration flights as performed by operators when handing over the aircraft to another operator or back to the leasing company.
We therefore suggest adding
(e) to satisfy the demonstration flight requirements from the leasing company and/or next operator
In addition (for editorial reasons), we suggest to amend c) as follows
c*) as ~~required~~ **requested** by the maintenance organisation for verification of a successful defect rectification; or …*

comment *237* comment by: *UK CAA*

Page No: 11

Paragraph No: 2(a)
Comment: Suggest the text is changed as proposed below.
Justification: Clarity.
Proposed Text: "…,as required by the aircraft maintenance manual (AMM) or any other maintenance data issued **from an approved design organization with responsibility** for continued airworthiness of the aircraft or product; or"

comment *238* comment by: *UK CAA*

Page No: 11

Paragraph No: 2(b)
Comment: Suggest the text is changed as proposed below.
Justification: Clarity.
Proposed Text: "after maintenance, as required by the operator, **CAMO, competent authority or agency**; or"

comment *290* comment by: *René Meier, Europe Air Sports*

2. Amendment of Annex I (Definitions)
The Agency proposes (d) to assist with fault isolation or troubleshooting. We think this should be deleted.
Rationale
Fault isolation and/or troubleshooting activities should be undertaken on ground, not in the air.

comment *354* comment by: *Southern Cross International*

It is proposed to use the term Functional Check Flight in lieu of maintenance check flight.

Add:

(e) as part of a delivery or redelivery contract between two parties.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 3. Amendment of Annex III (Organisation requirements — Part ORO) p. 12

comment *142* comment by: *DGAC France*

Comment/proposition
It would seem appropriate to at least introduce an AMC stating that, for AOC holders, compliance with Annex IV (part CAT) and with SPO.SPEC.MCF (and associated AMC/GM) is equivalent to compliance with Annex VIII.
This AMC would also indicate that when alleviations of/supplemental requirements are implemented as per SPO.SPEC.MCF, the same alleviations/supplemental requirements for AOC holders should also be considered valid in the corresponding provisions of part CAT [E.g : "SPO.SPEC.MCF.130 Simulated abnormal situations" in flight alleviates the requirement laid down in SPO.OP.185 for MCF also concerning simulation of abnormal situations in flight; AOC holders should consequently be alleviated from CAT.OP.MPA.275 Simulated abnormal situations in flight]

An alternative to this proposition exists : the solution consisting in requiring CAT operators to just stick to specific MCF provisions (instead of requiring compliance with the whole part SPO) is far much preferred. The same solution would also be adequate for NCO or NCC operators performing MCF.
Besides, this solution would allow deletion of at least:
- alleviation from SPO.OP.230 (concerning standard operating procedures) that is referred to in SPO.SPEC.MCF.100 §(c)
- SPO.SPEC.MCF.145, 150 and 155

Justification
CAT operator should comply with ALL part SPO requirements as per modification proposed in ORO.AOC.125.
Yet, is that provision logical considering that subparts CAT.GEN, CAT.OP, CAT.POL and CAT. IDE respectively supersede subparts SPO.GEN, SPO.OP, SPO.POL and SPO.IDE? Requiring from CAT operators full compliance with part SPO seems useless…

(See also general comment #1)

comment *221* comment by: *CAA-NL*

ORO.AOC.125
Depending on the outcome of our remark on the Cover regulation, the proposed ORO.AOC.125 needs amending.

comment *355* comment by: *Southern Cross International*

Small operators and operators introducing a new type into their fleet may not have flight crew that fulfil the SPO.SPEC.MCF.115 flight crew requirements for level B check flights. Small companies may also elect to outsource such flights because of the little exposure that their flight crew have to level B check flights.

In such cases specialised companies, like ours or the OEM, may be able provide experienced and proficient flight crew for such flights.

ORO.AOC.125 should give the possibility to AOC holders to outsource level B check flights to a contracted party specialising in such flights.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.1. Paragraph 'SPO.GEN.005 Scope' p. 13

comment *56* comment by: *NetJets Europe*

The NPA covers Maintenance Check Flights, but leaves open other types of flights that require a similar approach and make use of similar flight techniques, eg pre-delivery check flights and acceptance flights carried out at the beginning and end of a lease period.
The similarity between these types is implicitly acknowledged in AMC1 SPO.SPEC.MCF.120 (d)(2), as a manufacturer's pilot may serve as MCF instructor.
We propose to add flights for the purpose of accepting the aircraft where similar flight techniques are used.

comment *91* comment by: *René Meier, Europe Air Sports*

Europe Air Sports take note of the inclusion SPO.GEN.005 with para. 20 "maintenance check flights" added.
We refer to our comment nr. 87 where we insist on the deletion of glider towing from this list.
Furthermore we believe to know that discussions are actually going on as regards the future contents of SPO.GEN.005 as this paragraph is heavily contested by the sports and recreational community as a whole as beeing not well-balanced, not considering what sports activities, e.g. compared with commercial acitivities represent.

comment *120* comment by: *IACA International Air Carrier Association*

IACA comment
Typically, air operations by CAT operators are not affected by Part-SPO, but only by Part-CAT and Part-SPA.
To avoid unnecessary regulatory complexity, it would be advisable that CAT operators typically remain unaffected by Part-SPO.

IACA proposal
Maintenance check flights should not be considered as specialised operations, but should be transferred from Part-SPO to Part-SPA (special approvals), being already applicable to CAT operators.

comment *196* comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on SPO.GEN.005 (b) Scope
(b) Any other activity falling under the definition of 'Specialised Operations' shall be regulated by this Part.
Dassault would like EASA to confirm that the 2 following categories fall under point (b): Training flights and flights with a "No Technical Objection" from the

OEM.

comment *222* comment by: *CAA-NL*

SPO.GEN.005 Scope
Depending on the outcome of our remark on the Cover regulation, the proposed SPO.GEN.005 needs amending.

comment *239* comment by: *AESA*

The resultant text of SPO.GEN.005 needs to be consistent with the outcome of the discussions currently being held on Part SPO. The list of tasks could be moved to an AMC.

comment *326* comment by: *Bristow (European Operations)*

Second objective - 'Establish operational requirements and crew competence criteria for the performance of these flights. This will not be limited to operators subject to EU-OPS approval but to any operator performing these flights'.
Can EASA provide us with the statistical evidence necessary to justify this 'across the board' action? On aircraft below 5700kg, on aircraft below 2730kg, on ELA1 and ELA 2 aircraft, on rotorcraft, on balloons, gliders, airships?
Entered on behalf of the EHA.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' p. 13-14

comment *12* comment by: *DRF-Luftrettung*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.100 (b)(1):
Definition of a level a flight is unclear.
Question: is meant as standard operating procedure the flight manual procedures ? or the maintenance manual procedures ?. The procedures may be different (example for OEI performance checks, etc...)

comment *19* comment by: *George Knight*

SPO.SPEC.MCF.100
This paragraph assumes that the operator has 'standard operating procedures'. Non-commercial operators of light aircraft and sailplanes (such as owner pilots) do not, and are not required to, have SOPs.

Since by the definition in this paragraph no flight is a Level A flight unless conducted in accordance with SPOs then all flights by such operators will be Level B. This is totally unacceptable.

Such operators should be exempted from the requirement to treat trivial MCFs as SPOs under this regulation and to carry on as they have in the past with no demonstrated risk to themselves or others.

This proposal is disproportionate in its impact on light aviation and gliding.

comment *43* comment by: *HELOPS*

We believe that operators should perform only Level A maintenance check flight in accordance with TC holder maintenance and operating data.
Level B should be better defined: in our opinion seems related to operating procedure outside of standard that should be avoided to operator unless in TC or STC holder environment

comment *50* comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on SPO.SPEC.MCF.100 :
The NPA introduces the notion of maintenance check flight level A and Level B
A level A maintenance check flight is defined as "flight intended to be performed using operating procedure for routine flight". There is no AMC defining what is a routine flight. DASSAULT-AVIATION fear this will be the subject of many discussions and inconsistent interpretation.
DASSAULT-AVIATION propose to create an AMC SPO.SPEC.MCF.100 : *"A routine flight is a flight operated according to Standard Operating Procedure or a flight identified as such in the AMM. Any flight where Abnormal or Emergency procedures are used or simulated, or any flight outside of the normal flight envelop (e.g Stall Warning check, MMO/VMO warning check, bank angle above 45°, pitch attitude above +20°/-10°) should be considered as non routine"*

comment *51* comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on SPO.SPEC.MCF.100.
In the NPA 2008-20 concerning flight test 4 categories have been identified from 1 to 4., 1 being most demanding in terms of crew competence. This is confusing with maintenance check flights where B is the most demanding.
DASSAULT-AVIATION recommend to define level A as non routine flight and level B as routine flight

comment *59* comment by: *NetJets Europe*

We agree with the division between Level A and B. We also agree with SPO.OP.230 not being applicable, as the specifics of MCFs are impossibile to cover in a straightforward set of SOPs.

comment *69* comment by: *Mertens*

SPO.SPEC.MCF.100 Applicability
The differentiation between Level A and Level B maintenance check flights is inappropriate. Standard maintenance check flights may defer from standard operating procedures, but nevertheless comply with the standard requirements of the manufacturer's basic maintenance documentation. As a consequence, the interpretation of definitions as of this NPA should be clarified such, that maintenance flights i.a.w. the manufacturer's maintenance documentation are "Level A maintenance checkflights".
At the very least it is recommended to either
· oblige the operator to specify the detailed characteristics as part of the MCF documentation being subject to approval or
· specify the characteristics of the different levels more detailed

comment *72* comment by: *AS Miller*

SPO.SPEC.MCF.100 must make it clear that all MCFs in Sport/ GA aircraft, gliders in particular, should be considered Level A.

Reasoning: this NPS is a clear example of 'big aircraft' requirements being applied, needlessly, to small aircraft.
The Executive Summary claims "a set of proportionate rules, depending on the complexity of the aircraft used and foreseen flight procedures." Wrong: this proposal is not proportionate.

Damage to GA could be limited if it were clear that all MCFs in Sport/ GA aircraft, gliders in particular, should be considered Level A.

comment *93* comment by: *René Meier, Europe Air Sports*

SPO.SPEC.MCF.100 Applicability
(b)(1) "Level A maintenance check flights"
is not sufficiently clear to us because of the terms "standard operating procedure" and "routine flights" used. Our questions are:
1) Does this provision also cover e.g. aerobatic manoeuvres if required?
2) Does the Agency agree with our perception that, some rare exceptions besides, most of the maintenance check flights of our community will be "Level A maintenance check flights"?
In our view there is a clear lack of clarity about what should distinct Level A an Level B MCF. For this reason we posted our remark 2) above. All MCF performed in our environment should clearly be earmarked as Level A MCF. Our organisation will gladly assist the Agency in preparing apporpriate provisions really fitting our operations.
We wish to add that Level-A MCF definition must include ALL procedures listed in an AFM and then a Level-A MCF can be operated by a "standard" pilot.

comment *101* comment by: *Helikopter Air Transport GmbH / Christophorus Flugrettungsverein*

SPO.SPEC.MCF.100 (b)(1): the definition of the levels for a flight is unclear.
Should be more detailed
Are standard operating procedure the flight manual procedures and/ or the maintenance manual procedures.
Anyway these procedures may be different (example for OEI performance checks, etc...)

comment *113* comment by: *Howard Torode*

The distinction between Level A and Level B MCF lacks clarity, in that Level A MCF's are only defined by exclusion (i.e. NOT B). Correcting this would provide a convenient opportunity to gain an appropriate inclusion into the rule for Sport/GA aircraft outside CAT (ELA) using a statement recognising that ALL MCF on these classes of aircraft be defined as level A. In so doing, there remainder of the document which is almost totally preoccupied with Level B MCF under AOC rules, remains unamended, and simpler rules pretinent to sport/GA can be introduced where necessary. We would only recommend this route after proper, detailed consultation with the sport/GA sector.

comment *123* comment by: *Light Aircraft Association UK*

For light aircraft, we read this as meaning Level A is any manoeuvre or stage of flight within the normal, approved flight envelope/operator's manual. Level B would be flight outside of the flight envelope or a manoeuvre normally prohibited by the operator's manual. Could EASA confirm that this is the case?

comment *143* comment by: *DGAC France*

Comment/proposition
The definitions of level A and level B MCF should be clarified in an AMC.
(both definitions should clearly be distinct from the categorisation foreseen in the CRD to NPA 2012-08 on flight testing)

Moreover, different definitions could be envisaged depending upon the complexity of the aircraft.
For instance, MCF where abnormal or emergency procedures are used could be considered non-routine MCF for complex motor powered aircraft (CMPA) whereas routine for other than CMPA.

Justification
Being able to distinguish between level A and level B MCF is a founding element of this NPA as requirements associated to each of this type of flights are very different.
As the proposition stands today, it is too ambiguous : for example, should one consider that when a maintenance organisation requests to take a landing gear out during a MCF, this constitutes a non routine flight?

comment *145* comment by: *DGAC France*

Comment/proposition
For MCF, it would seem appropriate that Level A MCF be the most stringent (non routine flights)

Justification
For flight testing, the most stringent category in terms of requirements is category 1 and the less stringent is category 4.

comment *182* comment by: *Ballonbau Wörner*

Ballonbau Wörner would highly appreciate if the ELA1/2 balloon community would be spared of this SPO/MCF.
Justification:
The idea of this SPO fits perfectly to large aircrafts but not for non complex balloons.
Proposal:
We support all arguments included in the statement of the sailplane manufacturers communicated by Mr. Scholz. .

comment *183* comment by: *LHT*

Comment LHT AG to "Section 5 - Maintenance check flights (MCF)"
SPO.SPEC.MCF.100 Applicability (b):
(1) [...] to be performed using the standard operating procedure for routine flights."
-> to be added: e.g. acceptance flights in accordance with AFM
SPO.SPEC.MCF.105 Flight programme (d):
Who is responsible for developping the flight programme? The owner / the operator?
SPO.SPEC.MCF.115 Maintenance check flight manual
"Commercial operators" needs to be amended (example with regard to Comment 173)

comment *202* comment by: *Fédération Française Aéronautique*

From our view, all Technical Certificate holders, which have elaborated an item Maintenance Check Flights (MCFs) in their "Maintenance Manual", have not mentioned any dedicated procedure to MCFs.
Then, we recommend the EASA to give a more precise definitions for MCFs which could say :
For aeroplanes up to ELA 2:

- "Level A Maintenance Check Flights are flights intended to be performed using no other procedure than the existing ones in the Aeroplane Flight Manual".
- "Level B Maintenance Check Flights are Maintenance Check Flights which require operations other than already described procedures in the Aerqplane Flight Manual". This means that a Level B MCF is a consequence of heavy maintenance operation conducted by the maintenance organisation in close contact with the TC holder.

comment *216* comment by: *EFLEVA*

SPO.SPEC.MCF.100 Applicability.
EFLEVA is of the view that the term "standard operating procedures for routine flights" in not sufficiently clear.
Many Sport and Recreation Aircraft will be used for the purpose of Aerobatics, and a maintenance check flight may be required to prove the operation of such items as, for example, smoke systems and inverted fuel and oil systems during aerobatic maneouvres. Could the Agency confirm that such operations would be classified as Level A MCFs.

comment *240* comment by: *UK CAA*

Page No: 13
Paragraph No: Section 5 SPO.SPEC.MCF.100 (b)
Comment: Suggest the text is changed as proposed below.
Justification: Clarity.
Proposed Text: "Before conducting maintenance check flights, the operator **/ CAMO** shall determine the applicable level of the maintenance check flight, where necessary, in liaison with the maintenance provider, as follows: "

comment *241* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.100 (b)(1)
Comment: A Level 'A' maintenance check flight (MCF) is associated with "the standard operating procedure (SOP) for routine flights". There may be no such SOP for a "routine" flight so this statement could be misleading.
It is suggested that the sentence is amended as indicated below.
Furthermore, paragraph (c) of this section states that SPO.OP.230 (Standard Operating Procedures) is not applicable to MCF, which contradicts paragraph (b)(1) and supports the proposed text below.
Justification: Clarification and improvement of text.
Proposed Text: Amend to read:
(1) Level A maintenance check flights are flights intended to be performed using the ~~standard operating procedure for routine flights~~ **normal operating procedures.**

comment *244* comment by: *AESA*

SPO.SPEC.MCF.100 (b)(1) appears not to be consistent with SPO.SPEC.MCF.100.(c). An explanation should be added to the latter for clarity.

comment *264* comment by: *Ian Robinson, Patriot Aerospace Group*

SPO.SPEC.MCF.100 Applicability
Level A and Level B maintenance check flights.

Much better definition of these flights is required. This commenter comes from a rotorcraft background, and it is not clear to me where the following will fall - helicopter main rotor track and balance, engine power assurance, check of main rotor autorotational speeds. These seem to me to be level B, however these items are a part and parcel of normal maintenance, and may be required on a very high frequency basis - the simple replacement of a worn bearing in a main rotor head necessitates track and balance and autorev checks.

comment *296* comment by: *ERA*

SPO.SPEC.MCF.100 Applicability
Definition of Level A/B
ERA understands that it is proposed that the A and B levels be based on application of "SOP for routine flights". This segmentation places in Level B flights the following drills:

- stick shaker/pusher activation (below the minimum standard speeds)
- test of de-icing system when used outside of routine envelope (for example: forced in VMC)
- abnormal landing gear extensions

all of which are part of a standard C check flight for example. ERA would like confirm the fact that most of what operators call "check flights" or "test flights", even minor, are indeed Level B flights.

comment *310* comment by: *Bristow (European Operations)*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.100 (b)(1):
Definition of a level a flight is unclear.
Question: is meant as standard operating procedure the

flight manual procedures ? or the maintenance manual procedures ?. The procedures may be different (example for OEI performance checks, etc...)
Entered on behalf of the EHA Techncical Committee

comment *311* comment by: *Bristow (European Operations)*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.100 (b)(1):
Definition of a level a flight is unclear.
Question: is meant as standard operating procedure the flight manual procedures ? or the maintenance manual procedures ?. The procedures may be different (example for OEI performance checks, etc...)
Entered on behalf of the EHA Techncial Committee.

comment *334* comment by: *Ralf Keil*

SPO.SPEC.MCF.100 – Anwendbarkeit
(a) Hinzufügen:
… für komplexe motorgetriebene Luftfahrzeuge
Hinzufügen:
(d) Für ELA1 und ELA2-Luftfahrzeuge werden Umfang und Inhalt der MCF und deren Dokumentation durch das freigabeberechtigte Personal unter Berücksichtigung des Umfanges der durchgeführten Instandhaltungsarbeiten festgelegt, soweit die Wartungsunterlagen keine Regelungen enthalten. Dier Halter bestimmt das durchführende Personal nach Umfang und Inhalt des MCF und stellt das Vorhandensein ausreichender Erfahrung und der notwendigen Berechtigung für die jeweilige Aufgabe sicher.

SPO.SPEC.MCF.100 - Applicability
(a) Add:
... for complex motor-powered aircraft
Add:
(d) For ELA1 and ELA2 aircraft the scope, content of the MCF and its documentation will be determined by certifying staff, in response to the scope of maintenance performed or as available the maintenance manual.
The holder of aircraft determines the flying MCF-staff taking into account the scope. He is responsible for availability of experience and the necessary permission for the task.

comment *344* comment by: *ADAC Luftrettung GmbH*

It is nearly impossible to comment this NPA because the definition and differentiation between Level A an Level B Maintenance check flights is not clear enough defined.
Do the term "standard operating procedures for routine flights" refer to flights which are described in the respective Flight Manual, Chapter 4 (normal procedures) of the helicopter or to Maintenance Flights described in the respective helicopter manufacturer (autorotation, topping, Vne-flights)?
Were ends a Level A maintenance check flight and were begins a Level B maintenance check flight ? Who is defining that distinction?
Standard maintenance check flights may defer from standard operating procedures, but nevertheless comply with the standard requirements of the manufacturer's basic maintenance documentation. As a consequence, the

interpretation of definitions as of this NPA should be clarified such, that maintenance flights i.a.w. the manufacturer's maintenance documentation are "Level A maintenance checkflights".
At the very least it is recommended to either oblige the operator to specify the detailed characteristics as part of the MCF documentation being subject to approval or specify the characteristics of the different levels more detailed

comment *356* comment by: *Southern Cross International*

It is proposed to use the term Functional Check Flight (FCF) in lieu of maintenance check flight. Functional Check Flight is the industry-wide accepted term for check flights, such as maintenance check flights, troubleshooting flights and flights as part of a delivery or redelivery contract between two parties.

comment *357* comment by: *Southern Cross International*

It is stated that SPO.OP.230 is not applicable to mainenance check flights. SPO.OP.230 states that before commencing a specialised operation, the operator shall carry out a risk assessment and shall develop an appropriate SOP. The risk assessment and SOP shall address at least the following:(....)

However, EASA SIB 2011-07 recommends:
The operator should also establish:

- A flight operational risk assessment specific to functional check flights;
- Risk mitigation measures including operating procedures for such flights as expanded in the Operating Manual.

We do not find this recommendation addressed in the NPA.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — SPO.SPEC.MCF.105 Flight programme p. 14

comment *82* comment by: *NetJets Europe*

Can this written flight programme have elements spead out in different company manuals, eg:

- OM A
- Maintenance Procedure
- Scheduling Handbook

As long as the operator ensures that all items in AMC1 SPO.SPEC.MCF.110 (e) are covered.

comment *92* comment by: *René Meier, Europe Air Sports*

SPO.SPEC.MCF.115

(a)(2)(i)

We propose 100 flight hours experience for MCF on single engine piston aircraft.
For other categories we are of the opinion the the requirement should be 300 flight hours experience.
As regards the minimum of 50 flight hours on a type or a class of aircraft the Agency proposes we see this minimum at 25 hours only.
(a)(2)(iii)
We invite the Agency to reduce also this requirement to 100 flight hours.
Rationale:
Thinking of the very low complexity of the aircraft we operate the figures we propose are proportionate. In our view flight hours only are not necessarily a proof of experience.

comment *146* comment by: *DGAC France*

Comment/proposition
Amend title to reflect the scope of requirement SPO.SPEC.MCF.105 as follows :
"SPO.SPEC.MCF.105 Flight programme - Level B maintenance check flight with CMPA"

Justification
The scope of the paragraph should be made clearer: applicability for Level B flights performed with complex motor powered aircraft should be more explicit.
Note: the same comment is made for some of the next paragraphs of the NPA for which said comment is probably more important and relevant.

comment *348* comment by: *ADAC Luftrettung GmbH*

SPO.SPEC.MCF.105 Flight programme
Please, define the expression "Level B maintenance check flight" clear and explicitly.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — SPO.SPEC.MCF.110 Maintenance check flight manual p. 14

comment *77* comment by: *FAT-HON*

(d) It is mentioned that commercial operators shall submit their manuals and the updates to the competent authority. Please specifiy if approval of such document by the competent authority is required.

comment *81* comment by: *NetJets Europe*

Is there a minimum number of pilots required per aircraft? Or is this at the discretion of the operator?

comment *97* comment by: *René Meier, Europe Air Sports*

SPO.SPEC.MCF.110 Maintenance check flight manual

This para. is not clear to us: Do all operators, also the non-commercial operator one's have to follow this provision? And: Do commercial operators operating ELA 2 aircraft and below have to follow the same rules?
Rationale:
(d) only deals with "commercial operators" in general.

comment *130* comment by: *KLM Cityhopper*

· State in Guidance Material which parts of the functional check flight manual are Acceptance or Approval, so that not every small change needs to be send to the authorities in advance.

comment *147* comment by: *DGAC France*

Comment/proposition
Amend title to reflect the scope of requirement SPO.SPEC.MCF.110 as follows :
"SPO.SPEC.MCF.110 Maintenance check flight manual - Level B maintenance check flight with CMPA"

Justification
Scope of (a) is limited to level B MCF with CMPA.
From our understanding, the scope of (b), (c) and (d) is also implicitly level B MCF with CMPA.
This should be clarified, hence our proposition to amend the title of SPO.SPEC.MCF.110

comment *206* comment by: *AEA*

AEA Comment:
There is no justification to require approval from the Competent Authority for the manual and all its updates. According to existing rules this is not required, whereas such a new requirement would be a huge administrative burden not justified on safety grounds. It should therefore be sufficient to make the manual available.
AEA therefore request to amend (d) to read as:
(d) Commercial operators shall ~~submit~~ make the manual and its updates available to the competent authority. :

comment *223* comment by: *CAA-NL*

SPO.SPEC.MCF.110 Maintenance check flight manual
As level B check flights are always different and difficult to predict, it is difficult for an operator to decide if and when he has the 'intent' to perform MCF with complex motor powered aircraft. The need will emerge sometime or not. It might be better to include certain items from the MCF manual as part of each written flight programme. The programme to be coordinated with the maintenance organisation, not to be individual approved by the Competent Authority.
Proposed text:
SPO.SPEC.MCF.105 Flight programme
Before conducting a level B maintenance check flight with a complex motor-powered aircraft, the operator shall develop a written flight programme.
~~**SPO.SPEC.MCF.110 Maintenance check flight manual**~~

~~(a) Operators intending to conduct level B maintenance check flights with complex motor-powered aircraft shall describe these operations and associated procedures in the operations manual referred to in ORO.MLR.100 or in a dedicated maintenance check flight manual.~~
~~(b) The manual shall be updated when necessary.~~
~~(c)~~ All affected personnel shall be made aware of the ~~manual and its changes~~ written flight programme that are relevant to their duties.
~~(d) Commercial operators shall submit the manual and its updates to the competent authority.~~

comment *243* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.105
Comment: The draft rule requires an operator to develop a "written flight programme" before conducting a level B MCF. It is not clear what is meant by this statement and as it is very general, the intent might not be met. It is suggested that either AMC/GM is added to allow the intent to be met or the rule is amplified such that what is assumed to mean a 'flight test schedule', or equivalent, is achieved.
Additionally, it might be prudent to extend this requirement to all types of aircraft, not just complex motor powered aircraft.
Justification: Clarification, standardisation and meeting the intent of the rule.

comment *245* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.110(a)
Comment: Clarification is sought that for other than complex motor powered aircraft (other than the pilot-in-command requirements in SPO.SPEC.MCF.115), that no manuals or procedures are required to support the maintenance check flight process?
Justification: It may be beneficial to provide some proportionate guidance for maintenance check flights for other than complex motor powered aircraft.

comment *246* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.110 (d)
Comment: Clarity is required as to the basis of the check flight manual submission to the competent authority, i.e. for information or review and formal acceptance.
Justification: If the basis of the submission is not specific, confusion could arise with operators and competent authorities alike as to the process to be followed on submission of a check flight manual.
Proposed Text: Add '***for acceptance***' to the end of the paragraph.

comment *316* comment by: *Bristow (European Operations)*

Does the manual have to be approved by the competent authority, or just

submitted to it? It is assumed that a manual submitted to any EASA competent authority will be accepted in any other EASA state.
Entered on behalf of the EHA

comment *330* comment by: *Bristow (European Operations)*

SPO.SPEC.MCF.100 Applicability
Level A and Level B maintenance check flights.
Much better definition of these flights is required. This commenter comes from a rotorcraft background, and it is not clear to me where the following will fall - helicopter main rotor track and balance, engine power assurance, check of main rotor autorotational speeds. These seem to me to be level B, however these items are a part and parcel of normal maintenance, and may be required on a very high frequency basis - the simple replacement of a worn bearing in a main rotor head necessitates track and balance and autorev checks.
Entered on behalf of the EHA.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — SPO.SPEC.MCF.115 Flight crew requirements p. 14-15

comment *6* comment by: *INAER*

Applicable flight test ratings should be included in SPO.SPEC.MCF.115.
Flight test ratings considered in Part FCL (Regulation 1178/2011) are only category 1 and category 2. Definitions are nowhere but NPA 2008-20 "Flight testing". Is it supposed that definitions therein remains valid?
It is our understanding that neither category 1 nor category 2 are directly applicable although they would be valid; and category 3 (iaw NPA 2008-20) could be a minimum.

comment *13* comment by: *DRF-Luftrettung*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.115 (a)(1)(ii):

Definition of a test pilot rating unclear. Will operator define such rating ?
A test pilot rating should not be required for simple level B flights. Example: Part-21 approved modification for new EFIS instrument (newer generation), or installation of tactical radio with NVIS approval flight, or external search light/etc. installation, etc...
Operator own definition of a pilot test flight rating is fully sufficient.
Amount of Part-21 modifications which require a maintenance check flight for is very large (compare to the amount of minor/major mods in the helicopter industry, which mostly require (other than for fixed wings) maintenance verification flights).

comment *20* comment by: *George Knight*

SPO.SPEC.MCF.115
The operator of a sailplane may be its only pilot, or may be part of a very small syndicate of two or three pilots. It is likely that in many/most cases none of the

pilots will meet the prescribed level of experience and neither hold a test pilot rating or have been trained in accordance with SPO.SPEC.MCF.120.

comment *38* comment by: *AIRBUS*

SPO.SPEC.MCF.115 Flight crew requirements (a) (1) (i)
Modify the text as follows:
(a) The operator shall select the flight crew members for level B maintenance check flights as follows:
(1) For flights with complex motor-powered aircraft, the pilot-in-command shall:
(i) hold a valid type rating, have completed a minimum of 1 000 flight hours as pilot-in-command on aircraft ~~with similar characteristics~~, and have followed a training course in accordance with SPO.SPEC.MCF.120; or
Reason:
The definition of "similar characteristics" is not adequate.
As an example, it would mean that with 10 000 hours on A320 but only 900 hours as PIC on A330, you would not be allowed to performed a check flight on A330 Same situation with the number of engines: 5000 hours on A340 but only 900 on A330.
"With similar characteristics" has been added by EASA and leads to undue burden.
SPEC.MCF.115 Flight crew requirements (a) (2)
Modify the text as follows:
(2) For flights with other-than-complex motor-powered aircraft, the pilot-in-command shall:
(i) have completed a minimum of 1 000 flight hours flown as ~~pilot-in-command~~ in the appropriate aircraft category or, in the case of single piston-engine aircraft, sailplane or balloon, have completed a minimum of 300 flight hours flown as ~~pilot-in-command~~ in the appropriate aircraft category, and
hold a valid type or class rating with a minimum of 50 hours on type or class as ~~pilot-in-command~~; or
(ii) hold a valid test pilot rating; or
(iii) hold a valid type or class rating and a minimum total experience of 500 flight hours as ~~pilot-in-command~~ and shall have followed a training course in accordance with SPO.SPEC.MCF.120.
Reason:
The requirements for minimum flight hours (or experience), have been modified by adding pilot-in-command everywhere, and should be re-established as proposed. Otherwise, it will create difficulties for some operators Pilot-in-command, should be removed, as some well experienced pilots with limited time as PIC could be able to perform these tests.
SPO.SPEC.MCF.115 Flight crew requirements (b)
This validity of authorisation is applicable only to complex aircraft, as for non-complex, only flight hours experience is required. Therefore it should be referenced as (a) (1) (iii) or a reference to complex aircraft should be added in (b).

comment *44* comment by: *HELOPS*

The sentence on recency "has carried out a maintenance check flight within the preceding 24 months" is acceptable if related to level A and B; if not, recency on a level B check flight should be extended over 24 months as we presume that such activity should be extremely rare.

comment *52* comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on SPO.SPEC.MCF.115 (a)(1)(ii) Flight crew requirements
This NPA addresses Maintenance check Flights on behalf of an AOC operator. It is mentioned that a Test Pilot has the privilege to perform such a flight without any additional knowledge. However, very few airlines employ Test Pilots and on the opposite today, it is a normal task for Test pilots to perform Maintenance Check Flights on behalf of the manufacturers for Maintenance Centers. This NPA will remove this possibility. It should be noted that a Test Crew may perform MCF under the Manufacturer POA privileges so DASSAULT-AVIATION propose to add an **AMC to SPO.SPEC.MCF.115** "Test pilots are not required to be part of the AOC."

comment *55* comment by: *NetJets Europe*

SPO.SPEC.MCF.115(a)(1): Grandfather rights should be acceptable to the Authority for individuals who clearly meet/exceed the training requirements based on previous experience and/or training. For example: military MCF training and experience, UK prior CAA CofA renewal air test authorisation, NTPS Technical Pilot Course.
We agree with the currency requirement in (b).

comment *66* comment by: *airberlin*

Flight Crew requirements.
We would prefer a condition that permits to act as pilot-in-command within 36 month in stead of 24 month.
If necessary under certain conditions: e.g.
- multiple crew
- the 2nd CM is within 24 month

comment *74* comment by: *AS Miller*

SPO.SPEC.MCF.115 (a) (2)(i) is unfortunate: it demands a valid type or class rating when conducting level B MCF in a sailplane: wrong.

1. SPL and LAPL(S) licences do not have class or type ratings.
2. No pilot, for any sort of flying, may operate without a valid type or class rating.

I have proposed that SPO.SPEC.MCF.100 should confirm that all MCFs for Sport/ GA, gliders in particular, should be considered to be Level A. All references to gliders could then be removed from SPO.SPEC.MCF.115; GM2.SPO.SPEC.MCF.115 could be deleted altogether

comment *75* comment by: *Wideroe*

(ii) operators nominate check pilots after training course. ("Test pilots" are not available for operators.

comment *83* comment by: *NetJets Europe*

If at the time of adoption, the operator already has an established Maintenance Check Flight program with qualified crew members, does it get any sort of "Grandfather Rights"? An if so, could you please describe what these will be. The point I am trying to highlight is that the introduction of any new system will cause

disruptions and we would like to minimize these as much as possible by being allowed to continue using the existing procedures until new ones are introduced fully.

comment *94* comment by: *René Meier, Europe Air Sports*

SPO.SPEC.MCF.115 Flight Crew Requirements
(a)(2)(i)
For other than complex motor-powered aircraft we propose 300 flight hours experience.
100 flight hours experience in the case of single engine piston aircraft, 25 hours on sailplanes and balloons could be appropriate.
Rationale:
With this amount of flight hours we believe a pilot is experienced enough e.g. to perform a maintenance test flight on a Pilatus PC-12.
Some air forces consider 300 flight hours on fast jets to be sufficient for maintenance test flight. This number of flight hours should serve as benchmark for aircraft operated by our community.

comment *102* comment by: *Helikopter Air Transport GmbH / Christophorus Flugrettungsverein*

SPO.SPEC.MCF.115 (a)(1)(ii):
Definition of a test pilot rating unclear.
A test pilot rating should not be required for simple level B flights, like OEI test and for minor Part 21 mods.
It should be sufficent to hold a valid CHPL
The amount of Part-21 modifications which require a (maintenance) check flight is very large (compare to the
amount of minor/major mods in the helicopter industry, which mostly require (other than for fixed wings) maintenance verification flights).

comment *107* comment by: *Light Aircraft Association UK*

The text implies that for a level A maintenance check flight, there are no minimum requirements. Could EASA confirm that this is the case?
LAA feels that for light aircraft (e.g. falling within the definition of ELA1 or ELA2), the requirement is too stringent and should be amended to 100 hours pilot-in-command and 10 hours on type or class. We have used this minimum level of experience for annual Check Flights for many years with no significant problems.

comment *108* comment by: *CAO-Omiecinska*

I will suggest to delete the sentence regarding the validity of flight test licence (a.1.ii and a.2.ii - hold valid test pilot rating) - this sentence drastically limited operators and put high charges on them. In my opinion it is sufficient: valid training

comment *109* comment by: *CAO-Omiecinska*

According to SPO.SPEC.MCF.115.b - suggest to delete this sentence or give longer period; for small organisations it is impossible to keep authorisation/validity of

documents and in economical point of view it is too expensive and not practical.

comment *114* comment by: *Howard Torode*

The experience levels required for pilots carrying out Level B MCF are unworkable for Sport/GA operation of ELA aircraft. Further this paragraph is unclear on whether or what level of experience is required for Level A on non-complex light/GA aircraft. Outside CAT. (An optimist might assume none which while appropriate seems unlikely). Further the GM to this Para is unclear and potentially contradictory. In sport aviation, insurance requirements often specify individual names pilots for economic reasons – there is no justification for additional cost and complication beyond the normal insured pilot/owner for simple maintenance validation (Level A?) of low seat number, simple aircraft outside CAT. A suitable criterion for sailplane pilots would be a pilot's licence and 50 hours in charge of an airframe of the appropriate class.

comment *131* comment by: *KLM Cityhopper*

Comments:

- A co-pilot may log PiC hours, any flight time flown as PiCus; statement in AMC if these hours may be part of the 1000 flight hours. In our opinion this would be acceptable as PiCus hours or PiC hours constitute the same time in handling the aircraft.
- What are the demands on the co-pilot? We would have the co-pilot follow the same training course as the PiC and have for instance 500 flight hours. In our FCF's, the co-pilot usually performs the system switching and thus needs the theoretical course, and sometimes the co-pilot acts as pilot-flying and thus needs the sim-session and some experience handling the aircraft.
- Consider to replace "with similar characteristics" with "within the same aircraft category".
- We would like to have grandfather rights for the current functional check pilots.

comment *132* comment by: *KLM Cityhopper*

Comment:

- In our opinion 24 months is too long for recency. Consider to bring this down to 12 months.
- Consider to state in Guidance Material that recency is related to individual "complex" tests. (e.g. one check flight in which only a couple of relatively easy tests are performed gives no recency for a stall test)

comment *148* comment by: *DGAC France*

Comment/proposition
Amend title as follows: "SPO.SPEC.MCF.115 Flight crew requirements - Level B Maintenance check flights"

Justification
Scope of SPO.SPEC.MCF.115 is limited to level B MCF. For more clarity, its title should refect this.

comment *149* comment by: *DGAC France*

Comment/proposition concerning (a)
(a) mentions that the "operator" is responsible for the selection of flight crew members.

Is the possibility to use flight crew members not pertaining to the operator for whom the MCF is performed clearly maintained (as it currently exists)?
It should be the case and the way (a) is phrased does not seem to prohibit that. Confirmation would be needed through an AMC.

Justification
For private operators, Level B MCF will sometimes/often be subcontracted and the responsibility of selection of the crew members will be "shared" with maintenance organisations.

comment *150* comment by: *DGAC France*

Comment/proposition concerning (a)(1) and (a)(2) (COMMENT NOT SPECIFICALLY LINKED TO THIS NPA)
Introduction of (a)(1) and (a)(2) refer to complex motor powered aircraft and (CMPA) and other than CMPA.

The French DGAC wishes the Agency completed its Type rating/class rating list so as to incorporate the CMPA/non CMPA information.

Justification
This would ease the work of Members States' Authorities.

comment *151* comment by: *DGAC France*

Comment/proposition concerning (a)(1)(i)
What does "similar characteristics" mean?

Note: see comment in associated GM

comment *152* comment by: *DGAC France*

Comment/proposition concerning (a)(2)
Simpler rules should be implemented for selection of flight crew members performing level B MCF with other than CMPA.
The use of flight instructors could be envisaged for instance, as an alternative.

Justification
The need to require that a pilot is experienced is recognised of course.
Yet, relying on other types of qualifications than those proposed in the NPA could constitute an acceptable solution.
Taking into account the current situation, it is thought that flight instructors could

perfectly perform such MCF for instance. This alternative possibility should be implemented in the proposed text.

comment *153* comment by: *DGAC France*

Comment/proposition concerning (a)(2):

The use of and/or is not clear.
"(2) For flights with other-than-complex motor-powered aircraft, the pilot-in-command shall:
(i) have completed a minimum of 1 000 flight hours flown as pilot-in-command in the appropriate aircraft category or, in the case of single piston-engine aircraft, sailplane or balloon, have completed a minimum of 300 flight hours flown as pilot-in-command in the appropriate aircraft category, and hold a valid type or class rating with a minimum of 50 hours on type or class as pilot-in-command; or ..."

Line break is proposed before "or" so as to read:
"...hold a valid type or class rating with a minimum of 50 hours on type or class as pilot-in-command;

or ..."

comment *154* comment by: *DGAC France*

Comment/proposition concerning (a)(2)(i) and MCF for sailplanes

There is no type or class rating for sailplanes. Introduce "if applicable" after "type or class rating"

Furthermore an AMC should indicate that the required 300 flight hours should be completed with a glider or a motor glider

comment *155* comment by: *DGAC France*

Comment/proposition concerning (a)(2)(i) and MCF for balloons

For balloons, there are only classes or groups.

Furthermore an AMC should indicate if the required 300 flight hours might comprise any class or group of balloons.

comment *156* comment by: *DGAC France*

Comment/proposition concerning (a)(2)(iii)
The requirement on 500 fight hours should be clarified: are these hours required on the type/class of aircraft or required on the type of aircraft (helicopter, aeroplane…)

comment *184* comment by: *LHT*

Comment LHT AG:
SPO.SPEC.MCF.115 Flight crew requirements
(a) (1) (i): "[...] a minimum of 1.000 flight hours [...].
-> should be more than 1.000 flight hours
(a) (1) (ii): "hold a valid test pilot rating"
-> to be added: with valid type rating

comment *187* comment by: *managing director*

SPO.SPEC.MCF.115 (a) (2) (i)

- "balloon" should be replaced by " ELA1/2 airships/balloons"

comment *197* comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on SPO.SPEC.MCF.115 (a)(1)(i) Flight crew requirements
Dassault would suggest a grandfather rule to SPO.SPEC.MCF.115 (a)(1)(i). Manufacturer's pilots who do not hold a valid test pilot with MFC experience should be exempted from the requirement to undergo training course defined in SPO.SPEC.MCF.120

comment *200* comment by: *European Sailplane Manufacturers*

The requirements for minimum flight experience for the pilots conducting MCF are nor accepted.

Within the NPA / CRD 2008-20 it was defined that below 2000 kg MTOW no dedicated rating is required for conducting flight test operations.
It was correctly assumed that regarding organisations / pilots would not take such a task lightly and that introduction of a dedicated rating would be too stringent for the ELA1/2 communities.

With the same reasoning it should be stated in the NPA 2012-08 about MCF, that below 2000 kg MTOW no minimum requirements should be asked for.

Again: typically no pilot is forced within the air sport environment to conduct such a flight as might be the case in a commercial environment.

comment *203* comment by: *Fédération Française Aéronautique*

For aeroplane up to ELA 2:
For operating a Level B MCF, it seems sufficient that the pilot in command should have a 300 flight hour experience, without any complementary training/rating.

comment *207* comment by: *AEA*

AEA Comment:
The 1000h requirement is too restrictive and not justified on safety grounds. It is as such also in contradiction with the aim to move to performance based rules in particular in the field of training. The airlines are best placed to select the pilots for maintenance check flights based on their experience and technical

competence. This is in particular true since maintenance check flights remain within the normal flight envelopes and should therefore not be confused with other test flights.
For example, some airlines have Senior First Officers with many thousands of hours flight time who have conducted many maintenance level B type flights. When they become commanders they will be very adept at handling these type of flights. By restricting the commanders to 1000h+ in command this will degrade a pool of highly qualified pilots (contrary to EASA's objective).
In addition similar characteristics shouldn't be used because it is confusing and the text should remain in official use of type and variant according to the EASA OPS and FCL rules.
The AEA therefore proposes to amend the text as below:
SPO.SPEC.MCF.115 Flight crew requirements
(a) The operator shall select the flight crew members for level B maintenance check flights based on their experience and technical competence as follows:
(1) For flights with complex motor-powered aircraft, the pilot-in-command shall:
(i) hold a valid type rating on the type or variant, have completed a minimum of flight hours or leg according to ORO.FC.200 Composition of flight crew (described in Operations Manual) on the aircraft type or variant, and have followed a training course in accordance with SPO.SPEC.MCF.120; or
(ii) hold a valid test pilot rating.

comment *226* comment by: *EFLEVA*

SPO.SPEC.MCF.115 Flight Crew Requirements.
The whole text of this section appears to refer to Level B maintenance check flights. Could the Agency confirm that there are no experience or recency requirements for Level A check flights.

(a) (1) (i) and (ii). EFLEVA is of the view that the experience requirements for complex motor powered aircraft are written with commercial air transport operations in mind. Certain Historic aircraft will be affected by this rule, and pilots associated with these aircraft may not be able to reach the experience levels suggested. However since they are regularly operating these aircraft they have a better understanding of the special requirements for their operation (eg a large tail wheel aircraft) than say a highly experienced pilot with little time on this specific type. Again this is a top down rule, where there is actually a need for a specific rule for these rare historic types.

(a) (2) (i) to (iii). Once again EFLEVA is of the view that in the case of Historic aircraft falling within this section the rules need to be adaptable for these types. Further for Sport and Recreational Aircraft within the scope of the ELA1 and ELA2 process an experience level of 100 hours pilot-in-command and 10 hours on type or class would be appropriate.

comment *248* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.115 (a)
Comment: Suggest the text is changed as proposed below.
Justification: Clarity.
Proposed Text: "Before conducting any level B maintenance check flight with a complex motor-powered aircraft, the operator, in conjunction with the responsible CAMO and where necessary, the applicable maintenance organization shall

develop a detailed, tailored, written flight programme."

comment *251* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.115 (a)(1)(ii)
Comment: This sub-paragraph states that the holder of a test pilot rating can carry out maintenance check flights in lieu of having to comply with the experience and qualifications specified in SPO.SPEC.MCF.115 flight crew requirements. That being the case, could for example a 'test pilot' working for an airline but only rated on the 737 do an MCF on an A320 or A330 without any experience on the type? Would that be appropriate?
In any case, it is not clear how the privileges of a test pilot rating as defined in FCL.820 can be extended to maintenance check flights in this way.
Justification: The privileges of the flight test rating are defined in FCL.820(c):-
(c) The privileges of the holder of a flight test rating are to, within the relevant aircraft category:
(1) in the case of a category 1 flight test rating, conduct all categories of flight tests, as defined in Part-21, either as PIC or co-pilot;
(2) in the case of a category 2 flight test rating:
(i) conduct category 1 flight tests, as defined in Part-21:
- as a co-pilot; or
- as PIC, in the case of aeroplanes referred to in (b)(2)(ii), except for those within the commuter category or having a design diving speed above 0.6 mach or a maximum ceiling above 25 000 feet;
(ii) conduct all other categories of flight tests, as defined in Part-21, either as PIC or co-pilot;
(3) in addition, for both category 1 or 2 flight test ratings, to conduct flights specifically related to the activity of design and production organisations, within the scope of their privileges, when the requirements of Subpart H may not be complied with.
Sub-paragraph (c) (3) above offers some flexibility to the scope of the privileges. However, maintenance check flights are not by definition test flights, so unless the design or production organisation which employs the test pilot also has a maintenance approval, maintenance check flights are not part of its activities and therefore the test pilot rating cannot be extended to include them.

comment *253* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.115 (a)(1)(ii)
Comment: The text needs to clarify that the test pilot must be current within the test pilot rating currency criteria specified in Part 21.
Justification: Clarification.

comment *254* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.115 (a)(1)(ii)
Comment: Suggest the text is changed as proposed below.
Justification: Clarity.

Proposed Text: "hold a valid test pilot rating **on the aircraft type or category**."

comment *256* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.115(a)(1)(ii) & (a)(2)(ii)
Comment: Suggest clarification of test pilot rating is required.
Justification: It would be helpful to clarify the ratings of the test pilot to ensure they are appropriate to the activity, i.e. are all test pilots with a rating of 1-4 included? The assumption is all ratings are acceptable and if so this could be included in GM?

comment *258* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.115 (a)(2)(i)
Comment: For all helicopters, this rule requires a minimum of 50 hours on type (unless a test pilot rating is held); this can be quite onerous on some older, rarer types of helicopters because all helicopters require a type rating. The ability to gain the required experience with the same class of helicopter (i.e. not on the specific type) is not available. We recommend that in these circumstances, it should allow 50 hours on type or on a helicopter with similar characteristics.
Justification: All helicopters require a type rating so the ability to gain the proposed experience on another helicopter with similar characteristics is not available as written in the NPA (as it is with fixed wing aircraft). Perhaps a solution would be to offer in the AMC the same flexibility for older, rarer examples of helicopter as that proposed for gliders.

comment *260* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.115 (a)(2)(i) paragraph 2
Comment: Suggest the text is changed as proposed below.
Justification: Clarity.
Proposed Text: "hold a valid type or class rating with a minimum of 50 hours on type or class as pilot in command **with appropriate recency**; or"

comment *262* comment by: *UK CAA*

Page No: 14

Paragraph No: SPO.SPEC.MCF.115(b)
Comment: Suggest consideration to check flight recency period should be increased.
Justification: UK-CAA's Check Flight Handbook allows 48 months as the recency period for the pilot-in-command. EASA to review rationale for deriving and defining a period of 24 months.
Proposed Text: Delete '*24 months'* and replace with *'48 months'*.

comment *289* comment by: *Schroeder fire balloons GmbH*

SPO.SPEC.MCF.115 (a) (2) (i)

The level of demand of 300 flight-hours for PICs in balloons , which should be named: ELA1/2 airships/balloons, (in the appropriate aircraft category) is much to high. We would suggest 100 hours max.

comment *312* comment by: *Bristow (European Operations)*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.115 (a)(1)(ii):

Definition of a test pilot rating unclear. Will operator define such rating ?
A test pilot rating should not be required for simple level B flights. Example: Part-21 approved modification for new EFIS instrument (newer generation), or installation of tactical radio with NVIS approval flight, or external search light/etc. installation, etc...
Operator own definition of a pilot test flight rating is fully sufficient.
Amount of Part-21 modifications which require a maintenance check flight for is very large (compare to the amount of minor/major mods in the helicopter industry, which mostly require (other than for fixed wings) maintenance verification flights).
Entered on behalf of the EHA Technical Committee.

comment *317* comment by: *Bristow (European Operations)*

Operators will need to consider the process used for selection of flight crew - how many per type/base - and ensure appropriate training. Norway already does this ("Maintenance Test Pilot" course).
Entered on behalf of the EHA.

comment *318* comment by: *Bristow (European Operations)*

Recency in a "full flight simulator". Does this need to be defined further?
"Approved" flight simulator? Approved by the Operator?
Entered on behalf of the EHA.

comment *335* comment by: *Ralf Keil*

SPO.SCEC.MCF.115 Fligt crew requirements
Löschen (a) (2):
(i)… or, in case of single …. category
Hinzufügen (a) (2):
(iiii) Im Falle von ELA1 und ELA2-Luftfahrzeugen soll der PIC eine gültige Lizenz der jeweiligen Luftfahrzeugkategorie und ausreichend Erfahrung für die Durchführung des Werkstattfluges besitzen

SPO.SCEC.MCF.115 Fligt crew requirements
Delete (a) (2):

(i)… or, in case of single …. Category
Add(a) (2):
(iiii) in case of ELA1 and ELA2-aircraft the pilot in command shall have a current rating in the appropriate aircraft category and sufficient experience for carrying out the task

comment *345* comment by: *ADAC Luftrettung GmbH*

The Definition of a test pilot rating unclear. Is the operator able to define such rating?
A test pilot rating should not be required for simple level B flights. Example: Part-21 approved modification for new EFIS instrument (newer generation), or installation of tactical radio with NVIS approval flight, or external search light/etc. installation.
Operators own definition of a pilot test flight rating is fully sufficient. The amount of Part-21 modifications which require a maintenance check flight for is very large in comparison to the amount of minor/major mods in the helicopter industry, which mostly require - other than for fixed wings - maintenance verification flights.

comment *347* comment by: *ADAC Luftrettung GmbH*

SPO.SPEC.MCF.115 Flight Crew requirements (a)(1)(i) and (2)(i)(ii)
We in ADAC have the opinion that 500 flight hours flown as pilot-in-command in the appropriate aircraft with similar characteristics should be acceptable. If one pilot is not able to perform MCF with this experience he hardly will learn it ever.
What do you mean with the expression "test pilot rating"?

comment *361* comment by: *NFLC, Cranfield University, UK*

SPO.SPEC.MCF.115 a (1)
The 1000 hours P1 seems unreasonably high for the smaller complex motor-powered aircraft (small twin-engined turboprop). It is possible to be a TRI(aircraft) on these types with 1500 multi-pilot hours and 30 route sectors as P1, although the TRI needs to be able to demonstrate that they can manage the flight as P1 whilst acting as a TRI. The TRI can then go off and carry out engine shutdowns / stalling / Vmca / Vmo / Vne flight with another pilot not rated on that aircraft type. So I would suggest that 500 hours P1 on similar types is more than sufficient with 1000 hours total experience on similar types for the smaller CMPA, particularly those operators which fly short sectors (approx. 30 minutes). For large long haul aircraft, 1000 hours P1 may not be sufficient as this will be a very limited number of sectors and a limited number of landings. In both cases, it would be better to take a competency based approach as opposed to a hard flying hours limit. A FO who has spent a long time as FO on check flights will be well placed to carry out check flights well before reaching 1000 hours P1 on that type.
The regulation seems to work for operators who fly a lot (a regular airline) but does not work for low utilisation operators who carry out a lot of short sectors (non-airline flying), and takes no account of other relevant experience in the 1000 hours P1 requirement.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — p. 15

SPO.SPEC.MCF.120 Flight crew training course

comment *21* comment by: *George Knight*

SPO.SPEC.MCF.120
It is unrealistic to assume that the operator of a sailplane will have access to a simulator or be able to get the required training from elsewhere.

comment *31* comment by: *Ian Wilson*

Helicopter track & balance measurement is carried out to ensure proper functioning but until it is identifed it should not be assumed to be "potentially unreliable" and what mitigation could possibly exist?

comment *39* comment by: *AIRBUS*

SPEC.MCF.120 Flight crew training course (b) (1)
Modify the text as follows:
(b) The training course shall be conducted as follows:
(1) in a full flight simulator. If the training referred in (a) took place in a full flight simulator, the pilot should participate to at least one maintenance check flight as co-pilot or observer before being pilot in command on such type of flight. This is not necessary if the demonstration of check flight techniques has been partly performed in an aircraft or followed by a specific training flight. ~~followed by at least one maintenance check flight as co-pilot or observer before acting as pilot in command on a maintenance check flight~~; or
Reason: The training course may be conducted in a full flight simulator but does not need to be followed by a flight as co-pilot or observer. This flight is necessary to be pilot in command. The full course has to be followed in an approved organization, but the flight may be performed at the opportunity of a flight with the operator, out of the approved organization. Therefore the flight is not included in the approved course.
SPEC.MCF.120 Flight crew training course (c)
Modify the text as follows:
(c) The training course referred to in (a) followed on one aircraft category is considered valid for all aircraft types in ~~that~~ all categories.
Reason: The training course must be valid for all aircraft types and not only for a category.

comment *45* comment by: *HELOPS*

(b)(1) Training requirements are too expensive: the flight simulator activity could be performed during type training but how and when can we be observer on one maintenance check flight?
(b) (2) which kind of maintenance flight techniques?

comment *60* comment by: *NetJets Europe*

(c) "aircraft category" in this paragraph seems to be a very broad term, covering a wide range of types that may conform to different certification specifications.

comment *95* comment by: *René Meier, Europe Air Sports*

SPO.SPEC.MCF.120 Flight Crew Training
Are we right when we say that these provisions are clearly outside the sports and recreational aviation acitivites?

comment *115* comment by: *Howard Torode*

While this regulation is are almost exclusively directed towards Level B MCF, the facilities and capabilities required are invariably outside the remit of Sport/GA TC holders and operators alike. In the Sport/GA market sector there are no flight crew training courses (.120), neither are they necessary. It should be clearly stated the they are not required for such aircraft (ELA?). There is no reference to conditions under level A. The opportunity should be taken up to define Level A as not requiring these measures.

comment *157* comment by: *DGAC France*

Comment/proposition
Amend title to reflect the scope of requirement SPO.SPEC.MCF.120 as follows :
"SPO.SPEC.MCF.120 Flight crew training course - Level B maintenance check flight"

Justification
The scope of the paragraph should be made clearer

comment *167* comment by: *European Sailplane Manufacturers*

SPO.SPEC.MCF.120
A dedicated flight crew training course for MCF is not practically possible in the air sport communities. Typically the aircraft are private owned either by a club or a syndicate or a single person. In those cases due to insurance reasons it will often not be possible to operate this aircraft by someone outside of this group of owners. On the other side MCF are rather seldom conducted. This would mean that a very large number of pilots (all owners) would need such a training because a MCF might be happening sometimes. Another option would be to require such a training course before the MCF is done which will often result into an unacceptable delay of this flight.
Neither solution is practical nor is it proportionate.
The sailplane manufacturers propose to require the minimum pilot experience levels as given in SPO.SPEC.MCF.115 and to require a dedicated flight crew training course as defined in SPO.SPEC.MCF.120 only above 2000 kg of MTOW.
This makes sense as the "Flight testing NPA / CRD also does not require any rating for conducting test flights with aircraft below 2000 kg.

Additionally it is proposed that EASA shall develop a "MCF guide" which would give useful hints to a MCF pilot and also offers some recommendations how to train for a MCF without a mandatory requirement for such training.
Due to the fact that within the air sport community nobody is really forced to conduct a MCF this would help the interested pilot but would not impose undue pressure upon the pilots conducting such flights.

comment *188* comment by: *managing director*

SPO.SPEC.MCF.120
- Dedicated flight crew training for MCF could be practically achieved by a

companies training course.
- The creation of an "EASA MCF guide" would be appreciated which would give useful hints to a MCF pilot and offers recommendations how to train for a MCF without a mandatory requirement for such training.

- Depending ot the type of maintenance work an additional person on board might be helpful (not to be a pilot). This person could assist with doing the protocol of the items to be checked.
- Mandatory cockpit voice recorder, flight data recorder and data link are not necessary for any ELA1/2 aircraft.

comment *189* comment by: *LHT*

Comment LHT AG: SPO.SPEC.MCF.120 Flight crew training course
(b) (1): - "[...] at least one maintenance check flight [...]" -> should be at least two
- "[...] or observer before acting acting as a pilot-in-command [...]" -> not sufficient
(b) (2): "during a flight in an aircraft demonstrating maintenance check flight techniques." -> not sufficient; acting as a co-pilot should be required mandatory before
acting as pilot-in-command

comment *190* comment by: *LHT*

Comment LHT AG: SPO.SPEC.MCF.120 Flight crew training course
(c) "The training course referred to in (a) followed on one aircraft category is considered valid for all aircraft types in that category."
-> clarification nessesary: What is meant by "aircraft category". Is it either large aircraft or aircraft family?

comment *208* comment by: *AEA*

AEA Comment:
We suggest remaining consistent with the EASA OPS and EASA FCL definitions and requirements (which refers to types and variants, not categories of aircraft).
Moreover, the case of zero flight time training should be considered. In such case (use of full flight simulator (Cat D)), there is no need to conduct a flight as observer or in a training flight .
Proposal below:
SPO.SPEC.MCF.120 Flight crew training course
(a) Level B maintenance check flights training courses shall be conducted in accordance with a detailed syllabus. The operators of complex motor-powered aircraft shall describe this training in the manual referred to in SPO.SPEC.MCF.110.
(b) The training course shall be conducted as follows:
(1) in a full flight simulator followed by at least one maintenance check flight as co-pilot or observer before acting as pilot-in-command on a maintenance check flight; or
(2) during a flight in an aircraft demonstrating maintenance check flight techniques.
(3) in a zero flight training full flight simulator (cat D)

(c) The training course referred to in (a) followed on one aircraft type ~~category~~ is considered valid for all variants of the considered aircraft type. ~~in that category~~.
(d) Considering the aircraft used for the training and the aircraft to be flown during the maintenance check flight, the operator shall specify if differences or familiarisation training is required and the contents of such training.

comment *224* comment by: *CAA-NL*

SPO.SPEC.MCF.120 Flight crew training course
It is nice to train a (Level B) MCF in a simulator, but as they are always different, we wonder how large the added value is.

comment *263* comment by: *UK CAA*

Page No: 15

Paragraph No: SPO.SPEC.MCF.120 (b)(1)
Comment: The operator should be required to qualify and approve MCF training staff for both simulator and in flight training/examination. For non AOC operators, training and examination requirements needs clarification.

comment *265* comment by: *UK CAA*

Page No: 15

Paragraph No: SPO.SPEC.MCF.120 (d)
Comment: It is suggested that this paragraph would be better phrased as shown below.
Justification: Textual improvement
Proposed Text: (d) ***When considering*** ~~Considering~~ …….

comment *291* comment by: *Schroeder fire balloons GmbH*

For ELA1/2 airships balloons flight crew training is not appropriate and the minimum pilot experience should be joined to SPO.SPEC.MCF.115.

comment *297* comment by: *ERA*

SPO.SPEC.MCF.120 Flight crew training course
In the NPA paragraph (b) is as follows:
(b) The training course shall be conducted as follows:
(1) in a full flight simulator followed by at least one maintenance check flight as co-pilot or observer before acting as pilot-in-command on a maintenance check flight; or
(2) during a flight in an aircraft demonstrating maintenance check flight techniques.
ERA suggest there is a need to make it clear in (2) that a MCF Level B can be used as a training flight and therefore would request to modify (2) as follows:
(2) during a flight, ***or a Maintenance Check Flight level B****, in an aircraft demonstrating maintenance check flight techniques.*
The justification for this is that ERA members consider that the difficulties (and decrease in safety) of MCFs do not lie in the abnormal or emergency situations that may arise from the MCF itself. These situations are commonly practised

during type ratings and recurrent trainings by all pilots. The real challenge is to mitigate the likelihood of such abnormal or emergency situations by proper preparation and flight performance and to be able to cope with them adequately. And the difference with routine flights lies with the different environment, pre-flight and during flight in addition to the increased workload during flight.
Pre-flight, it is necessary to prepare, check, have an exhaustive walk-around, understand the maintenance achieved on the aircraft and the purpose of the flight.
During flight the workload is higher than usual because of specific manoeuvres, cockpit communication and ATC communication (especially when no dedicated "flight test" ATC is used: accurate frequency monitoring and multiple frequency changes are necessary).
ERA agrees that MCFs require adequate training or experience. However, such training does not need to focus on the type of aircraft and its actual handling which is supposed to be of acceptable level by means of Parts FCL and other Part CAT requirements, but much more on the specificity of MCFs. That is the reason why, for the flight training phase, ERA suggests focusing on training during actual MCF and not FFS as the latter will not be really representative of the actual MCF environment and workload. This also is why ERA believes it is reasonable to allow a large flexibility under the definition of "aircraft with similar characteristics" as such flexibility will not affect flight safety because flight safety in MCF is not directly linked to the handling of the aircraft itself.

comment *308* comment by: *CAA-NL*

How will the flight crew member to be able to prove his training during inspection by an Authority, being inspected at a MCF?

comment *313* comment by: *Bristow (European Operations)*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.125 (a):

This requirement is to be cancelled, as not practicable and partly not possible for helicopter maintenance check flights.
The flight manual and or the design holders procedure for the maintenance check flight will define the minimum crew. Smaller helicopters (example R22) will have no room to take technician, if two pilots are required. This is impracticable and obviously not reflecting the real requirements of the helicopter industry. Pilots performing under this proposed regulations would require a in depth technical training or even a certified technical staff B licence to perform many kinds of maintenance check flights (example: track an balance flights, engine performance checks, etc....
B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.125 (b/c):
see argument ...125 (a)
Minimum crew and crew composition is defined by the maintenance check flight requirement and should be in accordance with the Ops Manual. A general definition as proposed may work for airliners but is impracticable and partly not possible for helicopter maintenance check flights.
Entered on bhalf odf the EHA Technical Committee

comment *358* comment by: *Southern Cross International*

SPO.SPEC.MCF.120
The difference between (b)(1) and (2) is not clear.

comment *362* comment by: *NFLC, Cranfield University, UK*

SPO.SPEC.MCF.120
There will be pilots who will be experienced at carrying out maintenance check flights but won't meet the experience requirements in this document, specifically the 1000 hours P1 on similar aircraft for CMPA. What grandfather rights are proposed?

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — SPO.SPEC.MCF.125 Crew composition and persons on board p. 15

comment *2* comment by: *E-Plane Ltd*

The requirement in SPO.SPEC.MCF120 Crew compositions and persons on board (a) for a minimum flight crew of 2 is not proportionate for GA aircraft, non complex, non AOC, which require simple checks such as heading or altitude autopilot hold check, or a timed climb to confirm engine performance

comment *14* comment by: *DRF-Luftrettung*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.125 (a):

This requirement is to be cancelled, as not practicable and partly not possible for helicopter maintenance check flights.
The flight manual and or the design holders procedure for the maintenance check flight will define the minimum crew. Smaller helicopters (example R22) will have no room to take technician, if two pilots are required. This is impracticable and obviously not reflecting the real requirements of the helicopter industry. Pilots performing under this proposed regulations would require a in depth technical training or even a certified technical staff B licence to perform many kinds of maintenance check flights (example: track an balance flights, engine performance checks, etc....
B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.125 (b/c):
see argument ...125 (a)
Minimum crew and crew composition is defined by the maintenance check flight requirement and should be in accordance with the Ops Manual. A general definition as proposed may work for airliners but is impracticable and partly not possible for helicopter maintenance check flights.

comment *22* comment by: *George Knight*

SPO.SPEC.MCF.125
(a (a) Although some gliders and the majority of light SEP aircraft have two pilot positions they are designed for single pilot operation and may indeed be owned and operated by a single pilot-owner. It is totally unjustifiable to demand that two

pilots are on board for such flights – especially when the operator may only have one pilot – the owner.

(f) It is unrealistic to expect operators of sailplanes to have such a manual. The point that the minimum number of people should be on board conflicts with paragraph (a) for sailplanes and small SEPs.

comment *27* comment by: *EUROCOPTER*

If our understanding is correct, the combination of paragraph (a) and (d), as written in the proposed text will lead to the following situation: on a single pilot certified helicopter fitted with two pilot stations, it is necessary to remove the copilot controls in order to make a Maintenance Check Flight with one pilot and one task specialist in the cockpit.
This is not practical and does not refelect the current best practice as exercised by most operators.
The requirement of paragraph (a) should apply to multi-pilot certified aircraft only.

comment *30* comment by: *Ian Wilson*

It is common for the engineer carrying out track and balance measurement to sit in the second pilots seat (with dual controls removed) to be able to complete his work, this does not seem to be possible with the wording used in these paragraphs

comment *46* comment by: *HELOPS*

The minimum flight crew shall be two pilots one of this is the maintenance flight pilot. For a little company is too expensive to train and maintain current two pilots on this rare activity.

comment *49* comment by: *Ian HEY*

For simple aircraft, such as TMG and simple single engined aircraft, the requirement for two pilots is excessive. This requirement should be deleted for these classes of aircraft.

comment *53* comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on SPO.SPEC.MCF.125 (b) :
The definition of a task specialist for maintenance check flight is very close to the definition of Lead Flight Test Engineer. The words "assist" and "conduct" should be avoided here. The task specialist is an observer recording data or having a technical experience of this type of flight. "assisting" may authorize to touch commands, which is not authorized to non rated crew, "conduct" the flight may require a Lead FTE training.
DASSAULT-AVIATION propose : "… a task specialist is required in the flight crew compartment **as observer and recorder.**

comment *61* comment by: *NetJets Europe*

We believe that the requirements regarding task specialists are too restrictive. We

propose that the level B MCF may be carried out without task specialist, provided that the training course caters for such crew composition. We believe that there is insufficient data to justify this through a risk analysis with any statistical significance.

comment *71* comment by: *Mertens*

SPO.SPEC.MCF.125 Crew composition and persons on board
(a) this requirement does not consider the certification status of an aircraft, since -even when the aircraft is certified for single-pilot operation- dual pilot mode operation could become mandatory due to a dual flight controls design only. This may unnecessarily…..lead to a cancellation of maintenance checkflights because of non-availability of pilots and to a situation, where flight crews, normally operating as single pilots, are forced to operate in a dual pilot environment, which may affect safety.
(b) the requirement for the presence of a task specialist in certain aircraft (e.g. the EC135- and BK117 family) is incompatible with the dual pilot requirement of SPO.SPEC.MCF.125 (a), because in case of dual pilot operation there is no space left for a task specialist in the flight compartment.
Considering this, the requirement as listed in (b) *either* becomes unconvertible, since the use of this specialist is dependent on the aircraft design (dual flight controls) and not on the requirements of a specific maintenance check flight (as it should be) *or* the presence of a second pilot is seen primary in relation to the presence of a task specialist, which does not make any sense.

comment *96* comment by: *René Meier, Europe Air Sports*

APO.SPEC.MCF.125 Crew Composition and Persons on Board
(a)...(f) do not well fit with the operations of our members. We do not know maintenance check flight manuals, nor do we know task specialists.
With regards to (e) we think, it is not the operator's task to identify "additional task specialists".
Rationale:
This is an obligation of the maintainer of the aircraft.
Reading (f) we ask in which manual the policies mentioned above should be defined.
Rationale:
According to our understanding of the Agency's Strategy for General Aviation we wish to keep paperwork at a strict minimum.

comment *104* comment by: *Helikopter Air Transport GmbH / Christophorus Flugrettungsverein*

SPO.SPEC.MCF.125 (a):
This requirement is not practicable and partly not possible for helicopter maintenance check flights.
The flight manual and or the design holders procedure for the maintenance check flight will define the minimum crew. Smaller helicopters will have no room to take technician, if two pilots are required. This is impracticable and obviously not reflecting the real requirements of the helicopter industry. Pilots performing under this proposed regulations would require a in depth technical training or even a certified technical staff B licence to perform many kinds of maintenance check flights (example: track an balance flights, engine performance checks, etc....)
A general definition as proposed may work for airliners but is impracticable and

partly not possible for helicopter maintenance check flights.

comment *116* comment by: *Howard Torode*

While this regulation is are almost exclusively directed towards Level B MCF, the facilities and capabilities required are invariably outside the remit of Sport/GA TC holders and operators alike. In the Sport/GA market sector typically with low seat numbers (one or two) most of these items on crew composition are unnecessary or just plain unworkable (in the case of single seat). It should be clearly stated the they are not required for such aircraft (ELA?). There is no reference to conditions under level A. The opportunity should be taken up to define Level A as not requiring these measures.

comment *139* comment by: *KLM Cityhopper*

Current text:
For level B maintenance check flights on complex motor-powered aircraft, a task specialist is required in the flight crew compartment assist the flight crew to conduct the maintenance check flight if permitted by the aircraft configuration.
Proposed text:
For level B maintenance check flights on complex motor-powered aircraft, a task specialist is required in the flight crew compartment to assist the flight crew to conduct the maintenance check flight if permitted by the aircraft configuration.

comment *158* comment by: *DGAC France*

Comment/proposition
The requirements contained in SPO.SPEC.MCF should be clarified and amended.

The French DGAC understands from combination of (a), (b) and (c) that, in case there are two pilot stations, priority is given to the second pilot (see requirement (a)), rather than to the task specialist (see requirement (b) or (c)).
Is this choice consistent for complex motor powered aircraft certified for single pilot?

Same comment is valid for (d) : a task specialist may be far more useful than a second pilot, in particular :
- if the aircraft is certified for single pilot
- if the capacity of aircraft only allows to carry two persons including the pilot-in-command.

comment *159* comment by: *DGAC France*

Comment/proposition
The requirement contained in (a) should be removed

Justification
The requirement poses more problems than it solves.
Why should a second pilot be required in this NPA if the aircraft is not certified for two pilots (hence if the aircraft is other than CMPA)
What would be the role of the second pilot?
How should the crew cooperation be envisaged?
Again, the French DGAC does not see the point for such a requirement. It needs to be removed.

Note: see also comment about SPO.SPEC.MCF.125 Crew composition and persons on board (c)

comment *168* comment by: *European Sailplane Manufacturers*

SPO.SPEC.MCF.125
The concept of requiring an additional person on board (i.e. the task specialist and/or a second pilot) is not carried by the sailplane manufacturers.
First of all it is of course already impractical for most sailplanes as they are single seaters anyway.
Second in the case of two-seaters it may be in many cases more safe to operate at a as light as possible weight, which is of course not the case if two persons are required on board.
Third the concepts of flight crew coordination and or "crew resource managements" are not instructed or trained in the air sport communities on a regular basis.
Therefore it makes of course sense to offer this option (of a second person on board) to the pilot conducting a MCF but the sailplane manufacturers are opposing the requirement of a second person as a "must have".

comment *172* comment by: *DGAC France*

Comment/proposition
In (f), one can read :
"As a general principle, only personnel essential to complete the flight (crew and task specialists) should be on board."
This sentence should be included in a guidance material.

Justification: use of "should"

comment *191* comment by: *LHT*

Comment LHT AG: SPO.SPEC.MCF.125 Cew composition and persons on board
(c) "[...] when the operator can justify as part of its risk analysis that [...]".
-> amendment nessesary: risk analysis should be described in / required for procedures manual
(e) "The operator shall identify the need for additional task specialists as required for the intended flight."
-> amendment nessesary: the need should be be described in / required for procedures manual
-> example for Comment 173 by LHT AG
(f) not applicable for Level A flights (acc. to standard AFM procedures)

comment *227* comment by: *EFLEVA*

SPO.SPEC.MCF.125 Crew Composition and Persons on Board.

(a). There is no need for two pilots in Sports & Recreational aircraft when carrying out Level A test flights.
Since there are in fact single seat aircraft where the pilot is expected to deal with the whole workload, why introduce a requirement for two pilots, just because there are two seats?

(f) Could the Agency confirm that this paragraph refers to Level B test flights only.

comment *266* comment by: *UK CAA*

Page No: 15

Paragraph No:SPO.SPEC.MCF.125
Comment: Who is intended to approve the crew composition and training requirements etc, and is it sufficiently clear that this will be driven by safety criteria?
Justification: Clarification.

comment *267* comment by: *UK CAA*

Page No: 15

Paragraph No: SPO.SPEC.MCF.125 (a)
Comment: The requirement for two pilots may be disproportionate where controls or flight instruments have not been affected and where the aircraft may be flown by one pilot in accordance with the Aircraft Flight Manual (AFM). A pilot and engineer often suffice.
Justification: The fitment of two pilot stations is not a good discriminant for requiring a two-pilot crew. Amendment would retain proportionality.
Proposed Text: Amend paragraph to read:
(a) The minimum flight crew shall be no less than that required by the Aircraft Flight Manual (AFM).

comment *268* comment by: *UK CAA*

Page No: 15

Paragraph No: SPO.SPEC.MCF.125 (b) to (e), (f)
Comment: Sub-paragraphs (b) to (e) are confusing and can be simplified to require the operator to establish the need for, and to assign, task specialists to assist the flight crew. It might also be suitable to supply an additional AMC/GM to support the proposed new sub-paragraph (b) to aid clarification if necessary.
Sub-paragraph (f) includes the statement "as a general principle" which is not considered specific enough for an IR and this sentence would be better deleted from this section and placed as an AMC or GM.
Justification: Simplification and clarity of purpose. Correct use of rule material.
Proposed Text: Delete paragraphs (b) to (d). Amend (e) to (b) and to read:
(b) The operator shall identify the need for, and assign, task specialists as necessary to assist the flight crew on the intended MCF.

comment *319* comment by: *Bristow (European Operations)*

Where aircraft are certified for single pilot operations there may only be one pilot available even though there are two pilot stations (for example single pilot EMS operations). This requirement should permit a Technical Crewmember or Technician as an alternative.

(a) The minimum flight crew shall be two pilots, whenever the aircraft has at

least two pilot stations and is normally operated with 2 pilots by the operator.
Entered on behalf of the EHA.

comment *320* comment by: *Bristow (European Operations)*

It is unreasonable to require a task specialist for all level B MCFs, even if there were a suitable space in the flight crew compartment for him to sit, which in most aircraft there is not.

(b) For level B maintenance check flights on complex motor-powered aircraft operated by two pilots, the operator should consider requiring a task specialist on the jump seat or in the forward part of the cabin to assist the flight crew to conduct the maintenance check flight, if permitted by the aircraft configuration.
Entered on behalf of the EHA

comment *321* comment by: *Bristow (European Operations)*

The wording is unclear and does not take account of aircraft that may be certified for single or dual pilot operation but which are normally operated single pilot.

(d) For level B maintenance check flights on aircraft certified for single pilot and which are normally operated single pilot by the operator, a task specialist is required to assist the pilot to conduct the maintenance check flight, if permitted by the aircraft configuration.
Entered on behalf of EHA.

comment *339* comment by: *KLM Engineering & Maintenance*

SPO.SPEC.MCF.125 Crew compositions and persons on board
SPO.SPEC.MCF.125 states under (c) that for level B MCF the operator may fly without a task specialist in the flight crew compartment if de operator can justify that the flight crew would not require additional assistance. This may lead to the conclusion that the task specialist might be outside the flight crew compartment but should be in the cabin. KLM E&M suggests to change the text to "the operator may fly without a task specialist".

comment *340* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

The current text of SPO.SPEC.MCF.125(f) may be understood as not including appropriately trained personnel of the Competent Authority among the "other persons" which may be on board during MCF. It is important to clarify this point which otherwise may be questioned from the operator. Today participation of Authority during maintenance Check Flights is part of the current audit/inspection oversight activities

comment *349* comment by: *ADAC Luftrettung GmbH*

SPO.SPEC.MFC.125 Crew composition and persons on board
Are you in earnest? You demand two pilots, if the aircraft has two pilot stations? I think you must define "pilot stations" exactly. I cannot believe that you really demand to fly helicopter typs like EC 135 or BK 117 with two pilot for MCF.

This requirement is to be cancelled, as not practicable and partly not possible for helicopter maintenance check flights. The flight manual and or the design holders procedure for the maintenance check flight will define the minimum crew. Smaller helicopters (example R22) will have no room to take technician, if two pilots are required. This is impracticable and obviously not reflecting the real requirements of the helicopter industry.
Minimum crew and crew composition is defined by the maintenance check flight requirement and should be in accordance with the Ops Manual. A general definition as proposed may work for airliners but is impracticable and partly not possible for helicopter maintenance check flights.
(a) this requirement does not consider the certification status of an aircraft, since - even when the aircraft is certified for single-pilot operation - dual pilot mode operation could become mandatory due to a dual flight controls design only. This may unnecessarily lead to a cancellation of maintenance checkflights because of non-availability of pilots and to a situation, where flight crews, normally operating as single pilots, are forced to operate in a dual pilot environment, which may affect safety.
(b) the requirement for the presence of a task specialist in certain aircraft (e.g. the EC135- and BK117 family) is incompatible with the dual pilot requirement of SPO.SPEC.MCF.125 (a), because in case of dual pilot operation there is no space left for a task specialist in the flight compartment.
Considering this, the requirement as listed in (b) either becomes unconvertible, since the use of this specialist is dependent on the aircraft design (dual flight controls) and not on the requirements of a specific maintenance check flight (as it should be) or the presence of a second pilot is seen primary in relation to the presence of a task specialist, which does not make any sense.

comment *363* comment by: *NFLC, Cranfield University, UK*

SPO.SPEC.MCF.125 (a)
Is it right that a SEP(Land) training aircraft require two pilots for maintenance check flights?
Many thanks for the opportunity to comment.

Kind regards,
Jim Gautrey

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — SPO.SPEC.MCF.130 Simulated abnormal situations in flight p. 15

comment *160* comment by: *DGAC France*

Comment/proposition
It seems that CAT, NCC and NCO operators should also be alleviated from requirements concerning simulated abnormal situations in flight.

Note: if our proposition (in general comment #1) were agreed to require CAT, NCC and NCO operators to only comply with the specific SPOC.SPEC.MCF provisions, alleviations from requirements concerning simulated abnormal situations in flight would also be needed for said operators (alleviations from parts CAT, NCC and NCO respectively).

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — SPO.SPEC.MCF.135 Flight limitations and rest requirements p. 15

comment *175* comment by: *DGAC France*

Comment/proposition
The French DGAC fails to understand the requirement.

Was the intent to require that any time spent by a crew member for MCF should count for the purpose of flight time limitations applicable to CAT operators?
If the answer is yes, this sentence should be rephrased

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — SPO.SPEC.MCF.140 Systems and equipment p. 16

comment *98* comment by: *René Meier, Europe Air Sports*

SPO.SPEC.MCF.140 Systems and equipment
This provision is not adapted to our operations.
Rationale:
We see no possibility to fulful these requirements looking at the specifications of the aircraft our members fly. There is normally no such equipment available.
We also would like to ask the question if it would not be more appropriate to put all kinds of special equipment needed to get the required results in the center of the two definitions, i.e. define Level A MCF in adding "No special equipment is needed to perform the tests in order to get the required results", and to add to Level B MCF "Special equipment is required to perform the test in order to get the required results."

comment *133* comment by: *KLM Cityhopper*

Comment:
State in Guidance Material that this is not applicable for flights after maintenance or delivery flights (because in those cases that would mean that almost the entire aircraft is unreliable).

comment *140* comment by: *KLM Cityhopper*

Current text:
When a maintenance check flight is intended to check the proper functioning of a system or equipment, this shall be identified as potentially unreliable, and appropriate mitigation means shall be agreed prior to the flight in order to minimise risks to flight safety.
Proposed text:
When a maintenance check flight is intended to check the proper functioning of a system or equipment, this shall be identified as potentially unreliable, and appropriate mitigation means shall be agreed upon between involved parties prior to the flight in order to minimise risks to flight safety.

B. Draft Opinion(s) and Decision(s) — I. Draft Opinion — Regulation on Air Operations — 4. Amendment of Annex VIII to Part SPO (Specialised Operations) — 4.2. A new 'Section 5 — Maintenance Check Flights (MCF)' — SPO.SPEC.MCF.145/SPO.SPEC.MCF.150/SPO.SPEC.MCF.155 p. 16

comment *3* comment by: *E-Plane Ltd*

Clarification should be added to make it clear that this type of equipment is not required for GA aircraft, non complex, non AOC, <5700Kg

comment *15* comment by: *DRF-Luftrettung*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.145 / 150 /155:

???? !!!! ????
Fully ridiculous for helicopters, especially smaller /older types, where such a provisioning is otherwise not required or in many cases not even available.
Example: For twin turbine engine helicopter type BO105 there is no CVR/FDR or data link available. Even for larger helicopters (example BK117 B-2), where a CVFDR is available, a data link system does not exist. The installation of such system, even if available, sometimes will be more expensive as the value of the helicopter (e.g. BO105, R22, etc..) and requires about 1200 man hours (example BK117).
Again, obviously it was not considered that a helicopter is no airliner, when establishing the proposed regulation !

comment *33* comment by: *EUROCOPTER*

Paragraph SPO.SPEC.MCF.145 states:
Notwithstanding SPO.IDE.A/H.140, the aircraft shall be equipped with a cockpit voice recorder in accordance with the applicable requirements for the aircraft's normal operation NCC.IDE.A.160 or CAT.IDE.A.185.
1. The requirements of SPO.IDE.A.140 and NCC.IDE.A.160 appear to be identical, therefore the meaning of the above paragraph is not understood.
2. The second part of the sentence refers to aeroplane requirements, therefore it is not clear what would be required for helicopters.
The same comment applies for Paragraph SPO.SPEC.MCF.150 and Paragraph SPO.SPEC.MCF.155

comment *40* comment by: *AIRBUS*

SPEC.MCF.155 Data link recording
Delete this requirement
Reason: The requirements for cockpit voice recorder and flight data recorder have been added. There is no added value to have a requirement on the data link.

comment *47* comment by: *HELOPS*

CVR FDR or DLR equipment are related to a/c certification.

comment *78* comment by: *FAT-HON*

It is mentioned that the aircraft shall be equipped with an CVR, FDR, data link.

Please clarify if such equipment is allowed to be unserviceable as per operator's approved MEL.

comment

105 comment by: *Helikopter Air Transport GmbH / Christophorus Flugrettungsverein*

this is not practical on small helicopters and therefor it should be cancled or reworked

comment

110 comment by: *Light Aircraft Association UK*

The language used here is not very clear. If an aircraft is not normally fitted with a cockpit voice recorder, flight data recorder and/or data link recording, then it shouldn't be a requirement for a maintenance check flight.

comment

117 comment by: *Howard Torode*

While this regulation is are almost exclusively directed towards Level B MCF, the facilities and capabilities required are invariably outside the remit of Sport/GA TC holders and operators alike. In the Sport/GA market sector there are no cockpit voice recorders, or flight data recorders, or data links fitted, and neither are they necessary. It should be clearly stated the they are not required for such aircraft (ELA?). There is no reference to conditions under level A. The opportunity should be taken up to define Level A as not requiring these measures.

comment

134 comment by: *KLM Cityhopper*

Comment:
Statement in GM that they may be u/s according (M)MEL

comment

161 comment by: *DGAC France*

Comment proposition
Remove SPO.SPEC.MCF.145

Justification
This alleviation is not understood.

For NCC operators :
- Nowhere is it said that they should comply with all part SPO requirements. Why then indicate that NCC aircraft are alleviated from SPO.IDE.A/H.140. There seems to be some confusion… See also general comment #1
- Anyway, NCC.IDE.A/H.160 (reference to NCC.IDE.H.160 seems to be missing by the way in SPO.SPEC.MCF.145) and SPO.IDE.A/H.140 are strictly the same.

For AOC holders:
We proposed to include an AMC to "ORO.AOC.125 Non-commercial operations of aircraft listed in the operations specifications by the holder of an AOC", indicating that for AOC holders, compliance with Annex IV (part CAT) would be "equivalent" to part SPO compliance.
If this proposition were followed, the requirement in SPO.SPEC.MCF.145 would be useless, at least for AOC holders.

Above all, the solution consisting in requiring CAT, NCO or NCC operators performing MCF to only comply with specific MCF provisions (instead of requiring compliance with the SPO.GEN, SPO.OP, SPO.POL and SPO.IDE) would render SPO.SPEC.MCF.145 useless.
This solution should be given the priority.

comment *162* comment by: *DGAC France*

Comment proposition
Remove SPO.SPEC.MCF.150

Justification
See justification in comment to SPO.SPEC.MCF.145

comment *163* comment by: *DGAC France*

Comment proposition
Remove SPO.SPEC.MCF.155

Justification
See justification in comment to SPO.SPEC.MCF.145

comment *169* comment by: *European Sailplane Manufacturers*

SPO.SPEC.MCF.145
SPO.SPEC.MCF.150
SPO.SPEC.MCF.155
The requirement for a mandatory cockpit voice recorder, flight data recorder and data link recording do not make sense in case of a sailplane as neither types of equipment are existing for sailplanes and also probably not for most of any ELA1/2 aircraft.

Therefore we propose to drop this requirement for aircraft below MTOW 2000 kg.

comment *192* comment by: *LHT*

Comment LHT AG to SPO.SPEC.MCF.155 Data link recording
-> not all do have this

comment *209* comment by: *AEA*

SPO.SPEC.MCF.155 Data Link Recording
Notwithstanding SPO.IDE.A/H.150, the aircraft shall be equipped with a datalink recording in accordance with the applicable requirements for the aircraft's normal operation NCC.IDE.A.170 or CAT.IDE.A.195
AEA Comment:
There is a need to add a statement that with regard to data link recording, dispatch according MMEL/MEL is allowed.

comment *228* comment by: *EFLEVA*

SPO.SPEC.MCF.145 Cockpit Voice Recorder.

The wording of this paragraph is extremely difficult to follow. Can the Agency clarify this paragraph and confirm that it does not require the installation of a CVR in a complex or non complex motor powered aircraft which is not used for commercial operation.

comment *229* comment by: *EFLEVA*

SPO.SPEC.MCF.150 Flight Data Recorder.

The wording of this paragraph is extremely difficult to follow. Can the Agency clarify this paragraph and confirm that it does not require the installation of a FDR in a complex or non complex motor powered aircraft which is not used for commercial operation.

comment *230* comment by: *EFLEVA*

SPO.SPEC.MCF.145 Data Link Recording.

The wording of this paragraph is extremely difficult to follow. Can the Agency clarify this paragraph and confirm that it does not require the installation of DLR apparatus in a complex or non complex motor powered aircraft which is not used for commercial operation.

comment *269* comment by: *UK CAA*

Page No: 16

Paragraph No: SPO.SPEC.MCF.145
Comment: Suggest amend text as indicated below.
Justification: Textual improvement.
Proposed Text: Notwithstanding SPO.IDE.A/H.140, the aircraft shall be equipped with a cockpit voice recorder in accordance with the applicable requirements for the aircraft's normal operation ***in accordance with*** NCC.IDE.A.160 or CAT.IDE.A.185.

comment *270* comment by: *UK CAA*

Page No: 16

Paragraph No: SPO.SPEC.MCF.150
Comment: Suggest amend text as indicated below.
Justification: Textual improvement.
Proposed Text: Notwithstanding SPO.IDE.A/H.145, the aircraft shall be equipped with a flight data recorder in accordance with the applicable requirements for the aircraft's normal operation ***in accordance*** with NCC.IDE.A.165 or CAT.IDE.A.190.

comment *271* comment by: *UK CAA*

Page No: 16

Paragraph No: SPO.SPEC.MCF.155
Comment: Suggest amend text as indicated below.

Justification: Textual improvement.
Proposed Text : Notwithstanding SPO.IDE.A/H.150, the aircraft shall be equipped with a data link recording in accordance with the applicable requirements for the aircraft's normal operation ***in accordance with*** NCC.IDE.A.170 or CAT.IDE.A.195.

comment *314* comment by: *Bristow (European Operations)*

B.I.4. 4.2, Subpart E: SPO.SPEC.MCF.145 / 150 /155:

???? !!!! ????
Fully ridiculous for helicopters, especially smaller /older types, where such a provisioning is otherwise not required or in many cases not even available.
Example: For twin turbine engine helicopter type BO105 there is no CVR/FDR or data link available. Even for larger helicopters (example BK117 B-2), where a CVFDR is available, a data link system does not exist. The installation of such system, even if available, sometimes will be more expensive as the value of the helicopter (e.g. BO105, R22, etc..) and requires about 1200 man hours (example BK117).
Again, obviously it was not considered that a helicopter is no airliner, when establishing the proposed regulation !
Entered on behalf of the EHA Technical Committee

comment *322* comment by: *Bristow (European Operations)*

Helicopters with a MCTOM of less than 3175 kg are not required to have a CVR installed. To require installation of a CVR to allow these aircraft to carry out any maintenance check flights is totally unreasonable.

Notwithstanding SPO.IDE.A/H.140, the aircraft shall be equipped with a cockpit voice recorder in accordance with the applicable requirements for the aircraft's normal operation NCC.IDE.A.160 or CAT.IDE.A.185, if required by the operating rules.
Entered on behalf of EHA.

comment *323* comment by: *Bristow (European Operations)*

Helicopters with a MCTOM of less than 3175 kg are not required to have an FDR installed. To require installation of an FDR to allow these aircraft to carry out any maintenance check flights is totally unreasonable.

Notwithstanding SPO.IDE.A/H.145, the aircraft shall be equipped with a flight data recorder in accordance with the applicable requirements for the aircraft's normal operation NCC.IDE.A.165 or CAT.IDE.A.190, if required by the operating rules.
Entered on behalf of EHA.

B. Draft Opinion(s) and Decision(s) — II. Draft Decision — AMC/GM to Regulation on Air Operations: Annex VIII (Specialised Operations — Part SPO) — 5. Amendment to Subpart E — Specific requirements — AMC1 p. 16-17

SPO.SPEC.MCF.110 Maintenance check flight manual CONTENTS

comment *16* comment by: *DRF-Luftrettung*

AMC1.SPO.SPEC.MCF.110
For simple mods., example: new NVIS Instrument testing (NVIS maintenance flight), EFIS display installation maintenance test flight, extern camera installation maintenance test flight (all i.a.w. Part-21 test procedure) is the proposed regulation completely overdone.
All required procedures are already defined either in the maintenance procedures of the design holder, the OPS manual and/or the PART-21 test procedure.
Therefore an extra maintenance check flight manual is fully redundant.
In the best case, this proposed regulation may reflect procedures reasonable possible for airline operations, but is far from being acceptable for medium and small helicopter operation.

comment *23* comment by: *George Knight*

AMC1 SPO.SPEC.MCF.110
Maintenance Check Flight Manual (MCFM)
This page and a half of required headings for a mandatory MCFM is a complete joke for sailplanes and light SEPs used for recreational purposes. It will never happen and should be required only from AOC holders of complex aircraft.

comment *42* comment by: *AIRBUS*

AMC1 SPO SPEC.MCF.110 Maintenance check flight manual
Content (e): The first sentence should be reworded as unclear.

comment *99* comment by: *René Meier, Europe Air Sports*

The Europe Air Sports writer is probably bit rude, but: Are these contents not SOP for any flight, probably exept (g)(4)?

comment *106* comment by: *Helikopter Air Transport GmbH / Christophorus Flugrettungsverein*

Fully ridiculous for helicopters, especially smaller /older types, where such a provisioning is otherwise not required
or in many cases not even available.
Example: For some twin turbine engine helicopter type there is no CVR/FDR or data link available. Even for larger helicopters, where a CVFDR is available, a data link system does not exist. The installation of such system, even if available, sometimes will be more expensive as the value of the helicopter
Again, obviously it was not considered that a helicopter is no airliner, when establishing the proposed regulation !

comment *121* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Proposed new text
AMC1 SPO.SPEC.MCF.110
- - - -

a) General considerations
- - - -
(4) Process to develop a flight programme and, procedures and risk analyzes as relevant to the mission.
- - - -
(d) Briefings
- - - -
(2) Specific pre-flight briefing topics:
- - - -
(iii) Flight programme, specific procedures and, limitations and risk analyzes as relevant to the mission,
Justification: A maintenace check flight manual should cover risk analyzes in relevant parts and should be covered in a briefing.

comment *135* comment by: *KLM Cityhopper*

Comments:
Provide more information on:

- (a)(3) Flight authorization (who may authorize an FCF?)
- (a)(4) Process to develop... (what is meant by this?)
- (b)(4) Specific test and... (when is this applicable?)
- (g)(2) In-flight recordings (is meant here with test equipment or written down on the FCF program?)

comment *193* comment by: *LHT*

Comment LHT AG to Section III - Maintenance check flights (MCF), AMC 1 SPO SPEC.MCF.110 Maintenance check flight manual
-> CAMO should have approved procedure(s) by their NAA that describe(s) the creating of the maintenance check flight manual as well as for performing a maintenance check flight

comment *210* comment by: *AEA*

CONTENTS
The items to be covered in the manual should be as follows:
...
(e) Contents of the flight programme and procedures.
...
AEA Comment:
We understand that the specific flight programmes must NOT be replicated in this manual.
Airlines have several programmes depending upon the checks to be performed and/or the type of aircraft involved. These programmes are extensive and subject to frequent revisions and they want to avoid a duplication of documents in the Manual. Our interpretation is that these individual programmes may be REFERENCED to in the manual.
In addition, there should also be a possibility to reference to so-called ad-hoc programmes (specific programmes developed to cope with a specific problem), which will be developed ad-hoc according to the process described under item (a) General considerations (4) Process to develop a flight programme and procedures

comment *225* comment by: *CAA-NL*

Section III — Maintenance check flights (MCF)
AMC1 SPO.SPEC.MCF.1~~1~~05 Flight Programme ~~Maintenance check flight manual~~
CONTENTS
The items to be ~~covered~~ considered while developing in the ~~manual~~ flight programme should be as follows:
(a) General considerations
~~(1) Conditions requiring a maintenance check flight (e.g. heavy maintenance);~~
(1~~2~~) Appropriate maintenance release before the maintenance check flight;
(2~~3~~) Flight authorisation;
~~(4) Process to develop a flight programme and procedures~~.
(b) Aircraft status
(1) Requirements about the status of the aircraft prior to departure (e.g. MEL, CDL) for the maintenance check flight;
(2) Fuel loading, if applicable;
(3) Weight and balance, if applicable;
(4) Specific test and safety equipment.
(c) Crew selection and other persons on board
(1) Qualifications;
(2) Experience and recency;
(3) Training;
(4) Persons on board;
(d) Briefings
(1) Briefing participants;
(2) Specific pre-flight briefing topics:
(i) Aircraft status,
(ii) Summary of maintenance,
(iii) Flight programme, specific procedures and limitations,
(iv) Crew members' responsibilities and coordination,
(v) Documents on board;
(3) Information to ATC;
(4) Post-flight briefing.
(e) Contents of the flight programme and procedures The procedure containing the checks to be performed in flight should be thoroughly developed by the operator using applicable current data would be available as read-and-do checklist, including:
(1) In-flight briefings;
(2) Limits (not to be exceeded);
(3) Specific-entry-conditions;
(4) Task sharing and call-outs;
(5) Contingency plans;
(6) Information to additional crew and ATC.
(f) External conditions
(1) Weather and light conditions;
(2) Terrain;
(3) ATC, airspace;
(4) Airport (runway, equipment)/operating site.
(g) Documentation
(1) Specific documentation on board;
(2) In-flight recordings;
(3) Result of the maintenance check flight and related data;
(4) Accurate recording of required maintenance actions after the flight.

comment *272* comment by: *UK CAA*

Page No: 16

Paragraph No: AMC1 SPO.SPEC.MCF.110 (a)
Comment: Suggest add new paragraph (5) to the list.
Justification: Completeness.
Proposed Text: "(5) Operators/CAMO's requirements for accurate recording of maintenance check flights in aircraft records."

comment *273* comment by: *UK CAA*

Page No: 16

Paragraph No: AMC1 SPO.SPEC.MCF.110 (a)
Comment: Suggest add new paragraph (6) to the list.
Justification: Completeness.
Proposed Text: "(6) Policy for determination of maintenance check flight between A or B check flight."

comment *274* comment by: *UK CAA*

Page No: 16

Paragraph No: AMC1 SPO.SPEC.MCF.110 (a)
Comment: Suggest add new paragraph (7) to the list.
Justification: Completeness.
Proposed Text: "(7) Limitations i.e. OPS manual, FM, TCDS, OEM supplied data."

comment *275* comment by: *UK CAA*

Page No: 16

Paragraph No: AMC1 SPO.SPEC.MCF.110 (b)
Comment: Suggest add 2 new paragraphs (5) and (6) to the list.
Justification: Completeness.
Proposed Text: "(5) Multiple defects;
(6) Configuration control;"

comment *276* comment by: *UK CAA*

Page No: 16

Paragraph No: AMC1 SPO.SPEC.MCF.110
Comment: This AMC as drafted provides a table of contents for a maintenance check flight manual and as such would be better described as GM rather than AMC.
Recommend that this section is re-categorised as: ***GM1 SPO.SPEC.MCF.110***
Justification: More accurate representation of content.

comment *277* comment by: *UK CAA*

Page No: 17

Paragraph No: AMC1 SPO.SPEC.MCF.110

Comment: Other than contacting ATC, is there any requirement to ensure that the airspace used for the MCF is suitable for flight profile that is being conducted? If not, there is a danger that any liaison will be limited to informing ATC that 'this is a maintenance check flight' only.
Justification: Experience has shown that comprehensive coordination with ATC is necessary for the safe and efficient conduct of MCFs.

comment *315* comment by: *Bristow (European Operations)*

AMC1.SPO.SPEC.MCF.110
For simple mods., example: new NVIS Instrument testing (NVIS maintenance flight), EFIS display installation maintenance test flight, extern camera installation maintenance test flight (all i.a.w. Part-21 test procedure) is the proposed regulation completely overdone.
All required procedures are already defined either in the maintenance procedures of the design holder, the OPS manual and/or the PART-21 test procedure.
Therefore an extra maintenance check flight manual is fully redundant.
In the best case, this proposed regulation may reflect procedures reasonable possible for airline operations, but is far from being acceptable for medium and small helicopter operation.
Entered on behlaf of the EHA Technical Committee.

comment *359* comment by: *Southern Cross International*

It is proposed to use the term Functional Check Flight (FCF) in lieu of maintenance check flight. Functional Check Flight is the industry-wide accepted term for check flights, such as maintenance check flights, troubleshooting flights and flights as part of a delivery or redelivery contract between two parties.

B. Draft Opinion(s) and Decision(s) — II. Draft Decision — AMC/GM to Regulation on Air Operations: Annex VIII (Specialised Operations — Part SPO) — 5. Amendment to Subpart E — Specific requirements — GM1 SPO.SPEC.MCF.115 Flight crew requirements AIRCRAFT WITH SIMILAR CHARACTERISTICS p. 17

comment *37* comment by: *AIRBUS*

GM1 SPO SPEC.MCF.115 Flight crew requirements
Paragraph “Aircraft with similar characteristics” to be removed for the reasons explained in SPEC.MCF.115 (a) (1) (i)

comment *62* comment by: *NetJets Europe*

We agree that there should be no requirement to repeat training. We propose however to replace "similar weights" by "Certification Specification". The reasoning is that CS23 commuter aircraft may have a weight similar to some of the smaller CS25 aircraft but require different flight techniques (eg during stall testing), whereas CS25 aircraft share the same flight techniques over a wider range of weights.

comment *136* comment by: *KLM Cityhopper*

Comments:

- Make a statement about which weights are considered similar (we would suggest the same weight brackets as are used for airplane categories)
- Delete 'same number of engines'.
- Make a statement about what is meant with similar architecture (a Fokker 100 with T-tail and engines on the fuselage is in our opinion not too different from an Embraer 190, a turboprop would be)

comment *138* comment by: *KLM Cityhopper*

Currecnt text:
(e) Contents of the flight programme and procedures
The procedure containing the checks to be performed in flight should be thoroughly developed by the operator using applicable current data would be available as read-and-do checklist, including:
Proposed text:
(e) Contents of the flight programme and procedures
The procedure containing the checks to be performed in flight should be thoroughly developed by the operator, preferably in concert with the type certificate holder, using applicable current data.
The procedure should be available as a read-and-do checklist, including:

comment *164* comment by: *DGAC France*

Comment/proposition
Information are given to explain the term "similar characteristics".
- Yet, in "similar architecture":
What does "architecture" stands for? (Aerodynamics, cockpit design…?)
What does "similar" mean?

- What does "similar weights" mean?

This GM really lacks clarity

comment *211* comment by: *AEA*

AEA Comment:
This GM should be deleted in light of our previous AEA comment to SPO.SPEC.MCF.115 (deletion of 1000h requirement). It is not consistent with the EASA OPS and FCL definitions. (which refer to types and variants). In particular the reference to weight and number of engines has no justification in view of modern fly by wire aircraft and cockpit commonality. Moreover, it should again be stressed that maintenance check flights remain within the certified flight envelope and should therefore not be confused with other test flights.

comment *278* comment by: *UK CAA*

Page No: 17

Paragraph No: GM1 SPO.SPEC.MCF.115
Comment: Clarification required, i.e. would Boeing 737 Ng and Airbus A320 series be considered similar or would all Boeing 737 Ng be one class and Airbus A318/319/320/321 be a separate class (ED2011/008/R)?
Justification: Clarity.

comment *299* comment by: *ERA*

GM1 SPO.SPEC.MCF.115 Flight crew requirements
AIRCRAFT WITH SIMILAR CHARACTERISTICS
ERA understands that for the purpose of SPO.SPEC.MCF.115, aircraft with similar characteristics means aircraft with similar architecture, same number and similar type of engines and with similar weights.
The ERA interprets the requirement to have 1000 FH as PIC on aircraft with similar characteristic as defined above means on the same Type Rating. ERA members consider that this will create problems when introducing a new type or for experienced pilot changing to another Type (example ATR => E90) and could create a lack of adequate pilot available in smaller operators. Therefore, ERA members request EASA to consider the following additional GM:
For the purpose of SPO.SPEC.MCF.115, aircraft with similar characteristics means aircraft certified according to the same Certification Specifications (e.g. CS 23 or CS 25) and with similar weight category (e.g. L, M, H, SH).

B. Draft Opinion(s) and Decision(s) — II. Draft Decision — AMC/GM to Regulation on Air Operations: Annex VIII (Specialised Operations — Part SPO) — 5. Amendment to Subpart E — Specific requirements — GM2 SPO.SPEC.MCF.115 Flight crew requirements MEANING OF CLASS RATING FOR GLIDERS IN SPO.SPEC.MCF.115 p. 17

comment *103* comment by: *René Meier, Europe Air Sports*

GM2 SPO.SPEC.MCF.115 Flight crew requirements
Thank you for specifying the sailplanes and powered sailplanes (excluding TMG)versus the TMG aircraft types.
This provokes a question: Do we have to assume that the other proposed rules apply to all types and classes of aircraft? We ask this because GM2 SPO.SPEC.MCF.115 is the only reference we found, addressing sailplanes and powered sailplanes.

B. Draft Opinion(s) and Decision(s) — II. Draft Decision — AMC/GM to Regulation on Air Operations: Annex VIII (Specialised Operations — Part SPO) — 5. Amendment to Subpart E — Specific requirements — AMC1 SPO.SPEC.MCF.120 Flight crew training course CONSIDERATIONS p. 18

comment *4* comment by: *E-Plane Ltd*

(d) (3) should be amended to include "group or type rated as appropriate" as GA aircraft non complex, non turbine, do not have type ratings

comment *17* comment by: *Federal Office of Civil Aviation FOCA*

AMC1 SPO.SPEC.MCF.120 Flight crew training course (par. a): "...the trainier should not stimulate a failure condition not being within the scope for maintenance flights, that could induce safety risk, e.g. engine failure." Proposition: replace "unexpected enginge failure" by "engine failure". Reasoning: Enginge failure is under all circumstances an unexpected event, the term "unexpected" is therefore superfluous.

comment *24* comment by: *George Knight*

AMC1 SPO.SPEC.MCF.120
As commented against SPO.SPEC.MCF.120 the concept of this training is totally alien for sailplanes and non-complex SEPs. This paragraph should not apply.

comment *48* comment by: *HELOPS*

(d)(3) Flight demonstration instructed by pilot authorised by the operator to conduct maintenance flight is in contrast with the requirement of level B check.

comment *63* comment by: *NetJets Europe*

(d): Grandfather rights should be acceptable to the Authority for individuals who clearly meet/exceed the training requirements based on previous experience and/or training. For example: military MCF training and experience, UK prior CAA CofA renewal air test authorisation, NTPS Technical Pilot Course.

comment *165* comment by: *DGAC France*

Comment/proposition concerning (e)
"(e) Upon successful completion of the training a record should be kept." An attestation should be delivered to flight crew members upon successful completion of the training.

Justification
The pilot could provide the attestation to the Authority upon request.

comment *170* comment by: *European Sailplane Manufacturers*

AMC1 SPO.SPEC.MCF.120
This AMC clearly shows that the extend and format of the required flight crew training course is by far too onerous for ELA1/2 aircraft, especially when operated within the air sport community.
Again, the sailplane manufacturers propose to forego the requirement for a mandatory training and that EASA shall develop a "MCF guide" instead to give the MCF pilots regarding information.

comment *198* comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on AMC1 SPO.SPEC.MCF.120 (d) (3) Flight crew training course
For the point (d)(3), Dassault would suggest to replace "type rated pilot" by "Type Rated Instructor".

comment *212* comment by: *AEA*

AEA Comment:
The case of the introduction of a new aeroplane type within the fleet of an operator has to be considered. In this specific case, the actual NPA implies the need for the operator to ask for help at manufacturer level (test pilot and manufacturer's pilot).
This is too restrictive and we therefore suggest amending this requirement.
Proposal below:
COURSE CONSIDERATIONS
(a) The training course stipulated in SPO.SPEC.MCF.120(a) should comprise ground training followed by a demonstration of techniques for the checks in flight and failure conditions in a full flight simulator (FFS) or aircraft. In a demonstration performed in an aircraft, the trainer should not simulate a failure condition that could induce a safety risk, e.g., unexpected engine failure.
(b) The ground training should cover the specified training syllabus (see AMC2 SPO.SPEC.MCF.120).
(c) The flight demonstration should include the techniques for the most significant checks covered in the ground training. As part of this demonstration, the pilots under training should be given the opportunity to conduct checks themselves under supervision.
(d) The ground training and flight demonstration should be provided by experienced flight crew with test or maintenance check flight experience. Flight demonstrations should be instructed by any of the following persons:
(1) a qualified test pilot; or
(2) an aircraft manufacturer's pilot experienced in conducting pre-delivery check flights; or
(3) a type rated pilot, currently authorised by the operator, to conduct maintenance check flights.
(4) a type rated pilot, with a previous experience in conducting maintenance check flights, in the case of a new type of aircraft operated by the operator.
(e) Upon successful completion of the training a record should be kept.

comment *279* comment by: *UK CAA*

Page No: 18

Paragraph No: AMC1 SPO.SPEC.MCF.120 (a)
Comment: Suggest this paragraph would be better phrased as shown below.
Justification: Textual improvement
Proposed Text: (a) The training course stipulated in SPO.SPEC.MCF.120(a) should ***be*** comprise***d of*** ground training followed by a demonstration ***in a full flight simulator (FFS) or aircraft*** of the techniques for the checks in flight and failure conditions ~~in a full flight simulator (FFS) or aircraft~~. In a demonstration …..

comment *280* comment by: *UK CAA*

Page No: 18

Paragraph No: AMC1 SPO.SPEC.MCF.120(d)(3)
Comment: Suggest the text is changed as proposed below.
Justification: Clarity.
Proposed Text: "a type rated pilot, currently authorised by the operator, **competent authority, or agency** to conduct, instruct, and/or examine maintenance check flights."

comment *302* comment by: *ERA*

AMC1 SPO.SPEC.MCF.120 Flight crew training course
COURSE CONSIDERATIONS
ERA suggests adding the words in red to paragraph (a):
(a) The training course stipulated in SPO.SPEC.MCF.120 (a) should comprise ground training followed by a demonstration of techniques for the checks in flight and failure conditions in a full flight simulator (FFS) or aircraft ***during dedicated flight or Maintenance Check Flight level B***. In a demonstration performed in an aircraft, the trainer should not simulate a failure condition that could induce a safety risk, e.g., unexpected engine failure.

B. Draft Opinion(s) and Decision(s) — II. Draft Decision — AMC/GM to Regulation on Air Operations: Annex VIII (Specialised Operations — Part SPO) — 5. Amendment to Subpart E — Specific requirements — AMC2 SPO.SPEC.MCF.120 Flight crew training course SYLLABUS p. 18-19

comment *7* comment by: *NHAF Technical committee*

i. Helicopters:
In this list «flight controls» should be included.

Justification: Track and balance, autopilot and autorotation who is already included in the list, does not cover all aspects, after maintenance under ATA 67; flight controls, who may need maintenance check flight.

comment *25* comment by: *George Knight*

AMC2 SPO.SPEC.MCF.120
As commented against SPO.SPEC.MCF.120 the concept of this training is totally alien for sailplanes and non-complex SEPs. This paragraph should not apply.

comment *64* comment by: *NetJets Europe*

Basic understanding of Certification Specifications and airworthiness standards may be in place.

comment *281* comment by: *UK CAA*

Page No: 19

Paragraph No: AMC2 SPO.SPEC.MCF.120
Comment: It is not clear what is intended by "anemometry"? Furthermore it is suggested that the paragraphs would be better phrased if amended as shown below.
Justification: Textual improvements
Proposed Text:
COURSE SYLLABUS
In the case of aeroplanes and helicopters, the training course syllabus ~~includes~~ ***should include*** the following subjects:
(a) Legal aspects: regulations concerning maintenance check flights.
(b) Organisation of maintenance check flights: crew composition, persons on

board, definition of tasks and responsibilities, briefing requirements for all participants, decision-making, ATC, development of a flight programme.
(c) Environmental conditions: weather and light requirements for all flight phases.
(d) Flight preparation: aircraft status, weight and balance, flight profile, airfield limitations, list of checks.
(e) Equipment and instrumentation: on board access to various parameters.
(f) Organisation on board: CRM, crew coordination and response to emergency situations.
(g) Ground checks and engine runs: review of checks and associated techniques.
(h) Taxi and rejected take-off: ~~specificities~~ ***specifications*** and techniques.
(i) Techniques for checks of various systems:
Aeroplanes: flight controls, high speed and low speed checks, autopilot and auto-throttle, depressurisation, hydraulic, electricity, air conditioning, APU, fuel, anti-ice, navigation, landing gear, engine parameters and relight ~~anemometry~~.
Helicopters: engine power topping, track and balance, high wind start, autopilot, performance measurement, hydraulic, electricity, air conditioning, APU, fuel, anti-ice, navigation, landing gear, engine checks and relight, autorotation ~~anemometry~~.
(j) Review of failure cases specific to these checks.
(k) Post-flight analysis.

B. Draft Opinion(s) and Decision(s) — II. Draft Decision — AMC/GM to Regulation on Air Operations: Annex VIII (Specialised Operations — Part SPO) — 5. Amendment to Subpart E — Specific requirements — GM1 SPO.SPEC.MCF.125 Crew composition and persons on board TASK SPECIALIST'S ASSIGNED DUTIES p. 19

comment *8* comment by: *NHAF Technical committee*

Regarding the training for the task specialist, a clarification of minimum training program should be developed and incorporated in the operations procedures. This training shold minimum cover emergency procedures as example; Emergency landing, ditching, pressure loss, evacuation etc.

For helicopters operating over open water during maintenance check flight (offshore operations), the task specialist should be proper equipped, for safe evacuation, in case of ditching on water.

Justification: As part of the crew during the flight, the task specialist should have a minimum of training regarding unforseen emergency situations.

comment *26* comment by: *George Knight*

GM1 SPO.SPEC.MCF.125
A task specialist is not relevant to sailplanes and non-complex SEPs.

comment *54* comment by: *Dassault Aviation*

DASSAULT-AVIATION comment on SPO.SPEC.MCF.125 (c)
This article is contradiction the article (b). DASSAULT-AVIATION propose to change article (b) to :" … a task specialist **may be** required in the flight crew compartment as support to the flight crew for performing the maintenance check flight. **The presence or absence of task specialist shall be justified by the**

operator as part of its risk analysis" .
Then article (c) should be deleted.

comment 65 comment by: *NetJets Europe*

We propose that the level B MCF may be carried out without task specialist, provided that the training course caters for such crew composition. We believe that there is insufficient data to justify this through a risk analysis with any statistical significance.
When a TS is carried, simulator/flight training should be carried out with the task specialist being part of the crew due to the difference in crew coordination procedures.

comment 122 comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

Proposal
GM1 SPO.SPEC.MCF.125 Crew composition and persons on board
TASK SPECIALIST'S ASSIGNED DUTIES
A task specialist is trained and briefed as necessary, including communication and relevant CRM elements, to perform his/her intended functions. Based on this, the operator is able to determine if a task specialist is suitable to assist the flight crew in the cockpit performing functions, such as:
- - - - - -
Justification: A task specialist will probably communicate with the flight crew and should have adequate knowledge of the proposed subjects.

comment 137 comment by: *KLM Cityhopper*

Proposed text:
If a task specialist's assigned duties are not directly related to the flight operation but related to the maintenance check (e.g. reporting from the cabin on a certain vibration or noise), the required training and briefing should be adequate to this function, but should at least include a flight safety training.

comment 194 comment by: *LHT*

Comment LHT AG: GM1 SPO.SPEC.MCF.125 Crew composition and persons on board
Article has to be reworked:
1. MUST for task specialist cabin: training / instruction should be required with regard to emergency equipment in emergency case during flight, evacuation, fire etc.
2. bisection / segregation would be helpful: assistant cockpit and assistant cabin

comment 213 comment by: *AEA*

AEA Comment
Editorial comment. Reading of 'check lists' should refer to maintenance check list.
Amend (d) to read as 'reading of maintenance checklists; and'

comment 282 comment by: *UK CAA*

Page No: 19

Paragraph No: GM1 SPO.SPEC.MCF.125
Comment: Suggest the leading paragraph is revised to improve intent of guidance and add to Task Specialist duties the opportunity to record parameters in addition to monitoring them.
Justification: Clarification and reduction of flight crew workload.
Proposed Text:
TASK SPECIALIST'S ASSIGNED DUTIES
~~A task specialist is trained and briefed as necessary to perform his/her intended functions. Based on this, the operator is able to determine if a task specialist is suitable to assist the flight crew in the cockpit performing functions, such as:~~
The operator should ensure that the task specialist is trained and briefed as necessary to assist the flight crew including performing functions such as:
(a) assistance on ground for flight preparation;
(b) assistance in navigation;
(c) assistance in radio communication/radio navigation means selection;
(d) reading of checklists; and
(e) monitoring and ***recording*** of parameters.
If a task specialist's assigned duties are not directly related to the flight operation but related to the maintenance check (e.g. reporting from the cabin on a certain vibration or noise), the required training and briefing should be adequate to this function.

B. Draft Opinion(s) and Decision(s) — III. Draft amendment to Decision 2003/19/RM — 6. Amendment to Annex I — Acceptable Means of Compliance to Part M p. 20

comment *298* comment by: *UK CAA*

Page No: 20

Paragraph No: AMC M.A.801(g), paragraph 1
Comment: Suggest the leading paragraph is revised to improve readability and meaning.
Justification: Clarification.
Proposed Text:
"…..or by virtue of the condition of the aircraft requiring additional maintenance downtime or because the maintenance data ~~require to perform a flight~~ ***requires a flight to be performed*** as part of the maintenance, …."

B. Draft Opinion(s) and Decision(s) — III. Draft amendment to Decision 2003/19/RM — 7. Amendment to Annex II — Acceptable Means of Compliance to Part 145 p. 20

comment *303* comment by: *UK CAA*

Page No: 20

Paragraph No: AMC 145.A.50(e), paragraph 1
Comment: Suggest the leading paragraph is revised to improve readability and

meaning.
Justification: Clarification.
Proposed Text:
"…..or by virtue of the condition of the aircraft requiring additional maintenance downtime or because the maintenance data ~~require to perform a flight~~ ***requires a flight to be performed*** as part of the maintenance, …."

comment *304* comment by: *UK CAA*

Page No: 20

Paragraph No: AMC 145.A.50(e), paragraph 4
Comment: Suggest the text is changed as proposed below.
Justification: Clarity.
Proposed Text: "certifying staff **member"**

comment *332* comment by: *TNT AIRWAYS/NORBERT VANREYTEN*

The word incomplete maintenance seems to be not correct and in contradiction with the 145.A.50 (a) because the test flight cannot be ordered at the Part 145 organization so there is no incomplete maintenance (with respect to the Part 145 organization) when the test flight is not performed. We propose that the maintenance organization makes a release to service that becomes valid after successful performance of the test flight as confirmed by the entry in the aircraft technical log by the flight crew. In the case of no findings, the crew does not have to return to the maintenance station for a new release to service and can continue to the airport for the next commercial flight. This has an important economical and environmental advantage and has no impact on the airworthiness of the aircraft.
GM M.A. 301 (8) (b) (1) : same remark.

B. Draft Opinion(s) and Decision(s) — III. Draft amendment to Decision 2003/19/RM — 8. Amendment to Annex VIII — Guidance Material to Part M p. 20-21

comment *79* comment by: *FAT-HON*

Comment concerning the last paragraph.
In case the maintenance organisation has to rely on the feedback from pilots before to close a defect and issue the CRS, clarification is required on how this feedback will be recorded and certified. Is a verbal feedback sufficient, does such pilot feedback need to be certified on the technical logs, is a special statement required, etc?

comment *100* comment by: *René Meier, Europe Air Sports*

GM M.A.301(B) Maintenance Check Flights
(4)
We simply wish to add that (EC) No. 1702/2003 is now replaced by (EU) No. 784/2012.

comment *119* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

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GM M.A.301(8)
Proposal: Make the GM to an AMC instead.
GM M.A.301(8) b 3
- Clarification needed
"An open entry requesting this flight may be recorded ….".
When should this be done?
The troubleshooting is performed and the aircraft is OK according to approved maintenance data.
When/why do you need the check flight?
- What is the AMOs responsibility?
E.g. when the AMO decide to not propose a maintenance check flight and the aircraft get a problem during the first flight after maintenance. Can the AMO be held responsible for not having had proposed a maintenance check flight?
- Describe the operator's responsibility and the operator decision for a maintenance check flight after a proposal from a maintenance organization (or a Part-66 certifying staff?). Can the operator refuse a proposal (of a maintenance check flight)? Clarification is needed.
- Is it possible for a "stand alone"-Part-66 certifying staff to propose a maintenance check flight after troubleshooting and CRS?

comment *126* comment by: *ASD MRO Working Group*

GM M.A.301(8) (a) refers to the involvement of the maintenance organisation with the maintenance check flight process. Should reference be added here to the CAMO responsible for the continuing airworthiness management of the aircraft which may also have a role in the identification of the need for a maintenance check flight?

comment *177* comment by: *DGAC France*

Comment/proposition
Maintenance check flights required by the operators (Definition of Maintenance check flight in GM M.A.301(8) (b)(2))
It is recommended to revise MA302 and/or AMC MA302 to provide that the policy of each operator regarding the needs of Maintenance check flights shall be described in the MA302 aircraft maintenance programme.
The DGAC further recommends that a guidance be developed regarding assessment by the operator of the need to perform maintenance check flights. This would be in particular very useful for inexperienced operators.

Note: see also comment in Annex 1, point (b) of MCF definition (page 11)

comment *179* comment by: *DGAC France*

Comment/proposition
Aircraft certificate of release to service (GM M.A.301(8) (b)(1) to (b)(4)) :

It is considered that the aircraft release to service process shall be the same for the 4 scenarios described in GM M.A.301(8) (b):

- A certificate of release to service (CRS) shall be issued before the maintenance check flight, covering all maintenance performed on ground. This shall also be applicable to the scenario (b)(4), in order to cover the troubleshooting performed

on ground before the maintenance check flight (and of course any other maintenance performed before the flight, as applicable). The fact that further in-flight troubleshooting is needed to restore airworthiness shall not prevent issuing a CRS; indeed the CRS is primarily a statement of compliance with a work order, as shown for example by the CRS issued after non destructive tests when cracks have been detected.

- Regarding the issuance of a CRS after the maintenance check flight, the scenarios (b)(2) to (b)(4) shall be handled in the same way as the scenario (b)(1) . Indeed, the fact that the maintenance check flight has not been triggered by the AMM (or other applicable maintenance data) as in scenario (b)(1), but has been identified as necessary by the CAMO or the maintenance organisation, is not relevant

Note: see next French DGAC comment concerning the need for a CRS when the maintenance check flight has been satisfactory.

comment *180* comment by: *DGAC France*

Comment/proposition
Request for an aircraft certificate of release after the maintenance check flight (GM M.A.301(8) (b)(1)) :

The requirement for an aircraft certificate of release after each maintenance check flight is considered too restrictive when the results of the maintenance check flight are satisfactory. In particular, it could be a problem if the aircraft has landed on another airport after the maintenance check flight.
An alternative to the 2-step CRS (one before the flight, one after) would be, as per the current practice in France, to consider the CRS issued before flight as a the final CRS " conditioned by a satisfactory maintenance check flight" (or other equivalent wording).
At the end of the flight, the report from the flight crew attesting that the flight was satisfactory would be attached to the CRS.
If, on the contrary, the maintenance check flight has identified the need for further maintenance actions (or even only maintenance *interpretations*), another CRS would be needed.

Note: see also previous comment about the fact that this question shall not be limited to scenario (b)(1).

comment *181* comment by: *DGAC France*

Comment/proposition
Requirement for a flight permit to perform troubleshooting flights (GM M.A.301(8) (b)(4)) :

It is considered that the requirement for a flight permit in all cases of troubleshooting maintenance flight is too demanding (cost, delay).
When the "troubleshooting flight" is only to confirm an unclear/imprecise flight crew report or when troubleshooting on ground has allowed to eliminate all critical causes of the reported defect, we consider that the maintenance check flight should be performed under the Certificate of Airworthiness as per scenario (b)(3) (see also our comment above about the need for a CRS to cover the troubleshooting performed on ground before the flight). The Air operations

requirements regarding flight crew composition, qualification and training and regarding operation (flight without passengers) are considered as sufficient restrictions to ensure adequate safety for these cases.

comment *195* comment by: *LHT*

Comment LHT AG to 8. Amendment to Annex VIII -Guidance Material to Part-M, GM M.A.301 (8) Maintenance check flights
"(4) An aircraft system has been found to fail, the dispatch of the aircraft is not possible in accordance with maintenance data and the satisfactory diagnosis of the cause of the fault can only be performed in flight. The process for this troubleshooting is not described in the maintenance data and therefore scenario (1) does not apply. Since the aircraft cannot fly under its airworthiness certificate because it has not been released to service after maintenance, a permit to fly issued in accordance with Regulation (EC) No 1702/2003 is required."
-> release to service is always required, even if the aircraft is operated under a PtF
-> No 1702/2003 replaced by 748/2012

comment *249* comment by: *AESA*

The NPA considers the involvement of the operator and the maintenance organisation, but it appears the case the continued airworthiness is managed by a CAMO is not considered.

comment *259* comment by: *AESA*

The guidance for the CAME should also be modified acordingly, since check flights are included in the content of the CAME, as per Appendix V to AMC M.A.704, which says:
"**1.13 Check flight procedures**
(The criteria for performing a check flight are normally included in the aircraft maintenance programme. This paragraph should explain how the check flight procedure is established in order to meet its intended purpose [for instance after a heavy maintenance check, after engine or flight control removal installation, etc..], and the release procedures to authorise such a check flight.)"

comment *305* comment by: *UK CAA*

Page No: 20

Paragraph No: GM M.A.301(8)(a)
Comment: Suggest the text change proposed below be made at the end of the paragraph.
Justification: Clarity
Proposed Text: Add '/**CAMO**' after the word 'operator'.

comment *306* comment by: *UK CAA*

Page No: 20

Paragraph No: GM M.A.301(8)(a)
Comment: The proposed text for Part M does not provide an indicator for

Airworthiness Organisations that there are Operational Requirements (Part-SPO) that have to be met when a Maintenance Check Flight is required. There is a potential that the smaller organisations, and aircraft owners, not involved in Commercial Operations will therefore not comply with Part-SPO.
Justification: Additional wording to the text will provide the necessary pointer for approved airworthiness organisations that there are operational requirements to be considered when planning and carrying out a maintenance check flight.
Proposed Text: "**The definition and operational requirements for** Maintenance check flights~~, as~~ **are** defined in the Regulation on Air Operations, **and** are carried out under the control and responsibility of the aircraft operator. During the flight preparation, the flight, and the post-flight activities and for the aircraft hand over, the processes requiring the involvement of the maintenance organisations or their personnel should be agreed in advance with the operator."

comment *307* comment by: *UK CAA*

Page No: 21

Paragraph No: GM M.A.301(8)(b)(1)
Comment: Whilst it is recognised, that due to the scenario, the airworthiness certificate is still valid, it is proposed in line with the intent of the proposed release wording in new AMC M.A.801(g)(4) and AMC 145.A.50(e)(4), that the words *'to service'* are deleted.
Justification: The removal of the words 'to service' from the proposed GM will remove any doubt that service re-entry is possible until all phases of maintenance are completed.
Proposed Text: Remove *'to service'* from the second sentence.

comment *338* comment by: *KLM Engineering & Maintenance*

GM M.A.301(8) Maintenance check flights
(2) Based on its own experience and for safety considerations and/or quality assurance, an operator
may wish to perform a maintenance check flight after the aircraft has undergone certain
maintenance while maintenance data does not call for such flight. Therefore, after the maintenance
has been properly carried out, a certificate of release to service is issued and the aircraft
airworthiness certificate remains valid for this flight.
As already mentioned KLM E&M does not agree with safety/airworthiness aspects in level A or level B
MCF. For this reason KLM E&M suggests to replace in this paragraph the text "safety considerations
and/or quality assurance" by "reliability considerations and/or quality assurance".
(3) After troubleshooting of a system on ground, a maintenance check flight is proposed by the
maintenance organisation as confirmation that the solution applied has restored the airworthiness of
the aircraft. During the maintenance performed the maintenance instructions were followed for the
complete restoration of the system and therefore a certificate of release to service is issued before
the flight. The airworthiness certificate is valid for the flight. An open entry requesting this flight

may be recorded in the aircraft technical log.
As already mentioned KLM E&M does not agree with airworthiness aspects in level A or level B MCF. For
this reason KLM E&M suggests to replace in this paragraph the text "airworthiness of the aircraft" by
"normal system operation".

comment *341* comment by: *ENAC - Ente Nazionale per l'Aviazione Civile*

It is necessary to add a new scope in Part-21 that clearly cover the case of maintenance check flights, or to specify under which of the scopes already listed in 21.A.701, issuing a Permit to Fly, should be included the case of a Maintenance check flight. Considering the new provision about necessity of a Permit to Fly issue in some scenario of MCF and the fact that Operator's CAMO may be tipically the organization issuing such Permit to Fly and the Permit to Fly Holder as well, it could be taken this occasion to reintroduce the privilege for CAMO organizations to approve directly the related flight conditions