

International Maintenance Review Board Policy Board (IMRBPB)
Issue Paper (IP)

Date: 27/04/2011

IP Number: 109

Revision / Date:

Title: Handling of failures/degradations evident during pre flight inspection
a) Systems and Powerplant procedure

Submitter: Airbus

Issue:

A consistent approach for handling the types of failures/degradation that justify the required pre-flight inspections (e.g. walk round) should to be identified in MSG-3.

Problem:

Degradation/failures that are evident during the pre-flight inspections must currently be considered 'hidden' by MSG-3 logic in accordance with 2-3-5.1. This leads to FEC8 or 9 analyses depending on consequence of a second failure. Those leading to FEC8 require an MRB task to be developed. Such a task is not necessary if it is obvious that the failure / degradation would be noted pre flight.

Note: If there is any doubt on failure/degradation being evident during pre-flight inspection the current MSG-3 logic is applicable.

Various options have been followed by OEMs to avoid unnecessarily restrictive MRB tasks. Those OEMs that have selected tasks have either quoted the interval as 'daily' (which closely corresponds to the practice) or have taken credit for the pre-flight inspection and have quoted much higher intervals. In both cases the task has no value as a maintenance task. Other OEMs have taken credit for the pre-flight inspection in another way and declared the failure / degradation as evident. This drives FEC 6 or 7 analyses with no maintenance task being selected.

Recommendation (including Implementation):

MSG-3 should acknowledge that:

1. It is a flight crew responsibility to ensure that the pre-flight inspection has been carried out. This is thus part of the crew's 'normal duties'. Evidence of this responsibility is provided under European regulations in JAR OPS 1.085(f)(12) and under US regulations via 14CFR 121.441 (see note below) and 14 CFR 91.7b
Note: 14CFR 61.157(f) Proficiency and competency checks conducted under 14CFR Part 121 and 135 requires the successful completion of a PIC proficiency check under 121.441 (14CFR 121.441 "Proficiency Checks"). This Rule requires a PIC to satisfactorily complete a proficiency check that must include the procedures and manoeuvres set forth in appendix F of that part. Appendix F I(b) under Pre-flight Inspections: The pilot must (1) conduct an actual visual inspection of the exterior and interior of the airplane
2. The definition of 'maintenance' excludes the pre-flight inspection (this is explicitly stated in European regulations under EC 2042/2003 Article 2 Definitions)
3. In regulation M.A.301, European regulations acknowledge that the accomplishment of pre-flight inspections contributes to ensuring 'the aircraft continuing airworthiness and the serviceability of both operational and emergency equipment'.

Pre-flight inspections must be performed prior to each departure for the purpose of ensuring that the aircraft is fit for the intended flight. The person performing the inspection will have received appropriate training and is responsible for highlighting any findings. Departure

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clearance will not be given until these have been addressed. Whether the flight crew, the operator's maintenance staff or a subcontracted third party performs the inspection is not significant. The operational requirement to perform the inspection leads to certain failures / degradations being evident prior to departure. MSG-3 should be updated to allow credit to be taken for these inspections. It is proposed that the following paragraph is added in 2-3-5.1:

The pre-flight inspection is not to be considered as a maintenance function. It is required by Operational rules and may be performed by any appropriately trained person. The content of this inspection is practically identical for all aircraft types. The MSG-3 analyst may justify that certain failures / degradations will definitely be seen and addressed as a result of accomplishment of this operational requirement. Thus, in answering Question 1, a Functional Failure may be answered 'Yes' if it is certain that the Failure Cause(s) will be evident during the pre-flight inspection

Possible examples where the revised logic might be used:

- fuel pipe rupture leading to flow from drain masts
- severe degradation to tyres (cuts / loss of tread / flat spots)
- missing or deformed probes caused by FOD or ground vehicle contact
- obstruction at entrance to NACA air inlet

IMRBPB Position:

Date: 27/04/2011

Position:

MSG-3, rev 2009.1, chapter 2.3.5, states that flight crew normal duties are described in the Airplane Flight Manual (AFM). Working groups may consider these normal duties, as described in the AFM, for the purpose of categorizing failures as evident in the MSG-3 analysis.

A pre-flight inspection performed by flight crew is not part of the normal duties, as described in the AFM. Typically, the manufacturer, operator and National Airworthiness Authority develop the pre-flight inspection. As a result, the content of a pre-flight inspection can and will vary between countries of operation.

Since the pre-flight inspection is not part of the AFM, and MSG-3 only considers flight crew duties that are part of the AFM, the IMRBPB will not allow results from a pre-flight inspection to be used to categorize failures as evident in the MSG-3 analysis.

Also, since there has been many accidents attributed to sources of degradation that should have been evident during a pre-flight inspection, combined with non-standardized pre-flight inspection content/criteria, the IMRBPB will not consider amendments to the MSG-3 analysis process to allow for pre-flight inspections to become part of the flight crew normal duties.

Only flight crew duties described in the AFM may be used during the MSG-3 analysis.

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Status of Issue Paper (when closed state the closure date): closed 27/04/2011

Recommendation Implementation:

Important Note: The IMRBPB positions are not policy. Positions become policy only when the policy is issued formally by the appropriate National Aviation Authority. (EASA, JAA, FAA, or TCCA)