



Issue Paper (IP)

IP Number: CIP EASA 2025-01\_R00

Initial Date (DD/MMM/YYYY):

Revision - Date (DD/MMM/YYYY):

Effective Date (DD/MMM/YYYY):

Retroactivity (Y/N): N

<b>Title:</b>	Realignment of SSI definitions in MSG-3 Vol 1 & Vol 2
<b>Submitter:</b>	EASA

<b>Applies To:</b>	
MSG-3 Vol 1	
MSG-3 Vol 2	X
IMPS	

**Issue:**

The IP 147 [Clarification of “human occupant” in Volume 2] recommended the following changes for MSG-3 Vol 2:

Structural Significant Item (SSI) is any detail, element or assembly, which contributes significantly to carrying flight, ground, pressure or control loads **or external load**, and whose failure could affect the structural integrity necessary for the safety of the aircraft **and/or might cause serious or fatal injury to human occupants**.

**NOTE: the term “human occupants” includes people supported by external load carrying systems (i.e. hoist/cargo hook etc).**

There are currently different definitions for SSI in MSG-3 Vol 1 & Vol 2.

Considerations of “**serious or fatal injury to people supported by external load carrying systems**” could have been addressed differently without changing the definitions of SSI for MSG-3 Vol 2.

**Problem:**

Since MSG-3 2015.1, the recommendations of the IP 147 [Clarification of “human occupant” in Volume 2] have been endorsed in Volume 2 with an update of the SSI definition highlighted in yellow (in the Structures section and in the Appendix 4) as follows:

MSG-3 2022.1 Vol 2

**2-4-1. Aircraft Structure Defined**

[...]

**1. Significant and Other Structure**

Structure can be subdivided into items according to the consequences of their failure to aircraft safety as follows

- a. A **Structural Significant Item (SSI)** is any detail, element or assembly, which contributes significantly to carrying flight, ground, pressure or control loads **or external load**, and whose failure could affect the structural integrity necessary for the safety of the aircraft **and/or might cause serious or fatal injury to human occupants**.



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## Appendix A Glossary

### Structural Significant Item - (SSI)

Any detail, element or assembly, which contributes significantly to carrying flight, ground, pressure or control loads or external load, and whose failure could affect the structural integrity necessary for the safety of the aircraft and/or might cause serious or fatal injury to human occupants.

NOTE: the term “human occupants” includes people supported by external load carrying systems (i.e. hoist/cargo hook etc).

Following the above update, the SSI definition is currently different between the MSG-3 2022.1 Vol 1 and Vol 2. In fact:

MSG-3 2022.1 Vol 1

#### 2-4-1. Aircraft Structure Defined

[...]

##### 1. Significant and Other Structure

Structure can be subdivided into items according to the consequences of their failure to aircraft safety as follows

a. A **Structural Significant Item (SSI)** is any detail, element or assembly, which contributes significantly to carrying flight, ground, pressure or control loads and whose failure could affect the structural integrity necessary for the safety of the aircraft.

## Appendix A Glossary

### Structural Significant Item - (SSI)

Any detail, element or assembly, which contributes significantly to carrying flight, ground, pressure or control loads and whose failure could affect the structural integrity necessary for the safety of the aircraft.

Considerations of “*serious or fatal injury to people supported by external load carrying systems*” could have been differently addressed without changing the definitions of SSI for MSG-3 Vol 2. but simply considering, as SSI, structural components of a system whose function includes Human External Cargo (HEC) carrying and whose failure might cause serious or fatal injury to HEC through coordination between Systems and Structures Working Groups in accordance with established transfer policies and procedures.

The MSG-3 [2-3-1 Step 1, NOTE] already includes for the MSI selection the possibility to address some items through coordination between Systems and Structures Working Groups in accordance with established transfer policies and procedures, as follows:



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MSG-3 2022.1 Vol1 [2-3-1 Step 1, NOTE]:

**1. Step 1.**

The manufacturer partitions the aircraft into major functional areas; ATA Systems and Subsystems. This process continues until all on-aircraft replaceable components have been identified.

<b>NOTE:</b>	<ol style="list-style-type: none"><li>1. Structural items, whether designated as SSI or Other Structure, having system related functionality (e.g. firewalls, shields, integral fuel tank boundaries, flight control hinge bearings, drains, door hinges) need to be addressed in the MSI selection through coordination between Systems and Structures Working Groups in accordance with established transfer policies and procedures.</li><li>2. System components that contribute significantly to carrying flight, ground, pressure or control loads and whose failure could affect the structural integrity necessary for the safety of the aircraft should be analyzed in consultation with the Structures Working Group in accordance with established transfer policies and procedures</li><li>3. All safety/emergency systems or equipment should also be included.</li></ol>
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MSG-3 2022.1 Vol2 [2-3-1 Step 1, NOTE]:

**1. Step 1.**

The manufacturer partitions the aircraft into major functional areas; ATA Systems and Subsystems. This process continues until all on-aircraft replaceable components have been identified.

<b>NOTE:</b>	<ol style="list-style-type: none"><li>1. Structural items, whether designated as SSI or Other Structure, having system related functionality (e.g. firewalls, shields, integral fuel tank boundaries, flight control hinge bearings, drains, door hinges) need to be addressed in the MSI selection through coordination between Systems and Structures Working Groups in accordance with established transfer policies and procedures.</li><li>2. Except for those items within the Rotor / Drive systems ATA chapters (61 – 65) which should be analyzed using the dedicated process (Section 2-3-9) system components that contribute significantly to carrying flight, ground, pressure or control loads and whose failure could affect the structural integrity necessary for the safety of the aircraft should be analyzed in consultation with the Structures Working Group in accordance with established transfer policies and procedures.</li><li>3. All safety/emergency systems or equipment should also be included.</li></ol>
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A similar approach could have been used.

Additionally, in view of the development of the MSG-4 and considering the current discussions on one unique volume for MSG-4, the differences between fixed wing and rotorcraft should be reconsidered and minimized, if feasible.



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**Recommendation (including Implementation):**

Based on the described Issue/Problem the following changes are recommended:

A. To realign the SSI definition of MSG-3 2022.1 Vol 2 with Vol 1 as follows:

**1. Significant and Other Structure**

Structure can be subdivided into items according to the consequences of their failure to aircraft safety as follows

a. A **Structural Significant Item (SSI)** is any detail, element or assembly, which contributes significantly to carrying flight, ground, pressure or control loads ~~or external load~~, and whose failure could affect the structural integrity necessary for the safety of the aircraft ~~and/or might cause serious or fatal injury to human occupants~~.

~~NOTE: the term “human occupants” includes people supported by external load carrying systems (i.e. hoist/cargo hook etc).~~

**Appendix A Glossary**

**Structural Significant Item - (SSI)**

Any detail, element or assembly, which contributes significantly to carrying flight, ground, pressure or control loads ~~or external load~~, and whose failure could affect the structural integrity necessary for the safety of the aircraft ~~and/or might cause serious or fatal injury to human occupants~~.

~~NOTE: the term “human occupants” includes people supported by external load carrying systems (i.e. hoist/cargo hook etc).~~

B. To give consideration, as SSI, to structural components of a system whose function includes Human External Cargo (HEC) carrying and whose failure might cause serious or fatal injury to HEC as follows [MSG-3 2022.1 Vol 2 [2-4-1. Aircraft Structure Defined]:

**IS:**

Consideration should be given to any structure that, if failed or detached in flight could, through secondary damage, compromise continued safe flight and landing. The selection of such structure items as SSI should be based on inputs from the design office through simulations, safety hazard analysis, fatigue test results, and in-service experience with similar designs.

**PROPOSED:**

Considerations, as SSI, should be given to:

- any structure that, if failed or detached in flight could, through secondary damage, compromise continued safe flight and landing. The selection of such structure items as SSI



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should be based on inputs from the design office through simulations, safety hazard analysis, fatigue test results, and in-service experience with similar designs.

- structural components of a system whose function includes Human External Cargo (HEC) carrying and whose failure might cause serious or fatal injury to HEC, through coordination between Systems and Structures Working Groups in accordance with established transfer policies and procedures.



## International MRB Policy Board

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<b>IMRBPB Position:</b>	
<b>Date:</b>	
<b>Position:</b>	
<b>Recommendation for Implementation:</b>	

<b>Status of the Issue Paper:</b>	<input type="checkbox"/>	Active
	<input type="checkbox"/>	Incorporated in MSG-3 / IMPS (with details)
	<input type="checkbox"/>	Archived