

BG 0337

The Court
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CAGE Code: K2429

SERVICE INFORMATION LETTER

SUBJECTS: Cargo Net Damages, Repairs and Replacements.

APPLICABILITY:

This SIL is applicable to Single Stud fittings and Webbing used on AmSafe manufactured Underfloor Hold Nets.

1 PURPOSE:

The purpose of this SIL is to clarify information contained within the CMMs that will enable Operators/Airlines to classify damages on the cargo nets and associated actions, which shall be taken. It also provides a procedure for the replacement of springs on Single Stud Fittings.

2 BACKGROUND:

The Aviation Agency (UK CAA) has experienced situations where the springs on Single Stud fittings are damaged or missing. The Agency has requested that AmSafe advises them and Operators on how this damage should be classified.

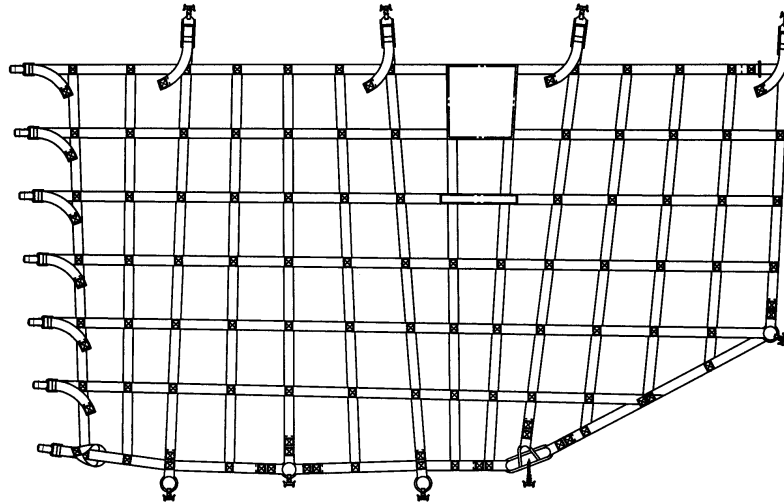
Operational evidence has shown that Underfloor Hold Nets are being used with Webbing that would be classified as damaged. The industry has requested that AmSafe advises Stakeholders and Operators on how this damage should be classified.

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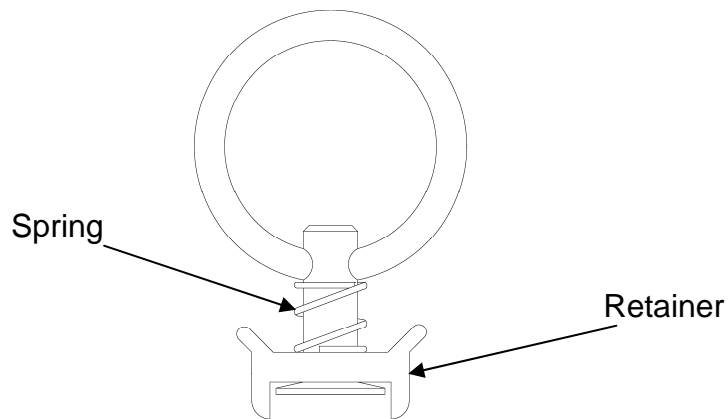
3 DESCRIPTION – DAMAGE AND REPAIR

A. Single Stud Fittings

Underfloor Hold Nets (often referred to as Bellyhold Nets or Bulk Hold Nets), that are used in the Lower Hold of aircraft for the restraint of bulk cargo typically use Single Stud fittings to attach the Net to the Aircraft.



Net
(typical example)



Single Stud Fitting

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(1) Damage

Typically a CMM will detail that Net Hardware (Metalwork, e.g. Single Stud) that is 'missing or damaged preventing connection to the airframe' or 'missing or damaged that joins nets to one another' is classified as MAJOR damage and therefore the Net is not airworthy*. i.e. The Net must be repaired or replaced.

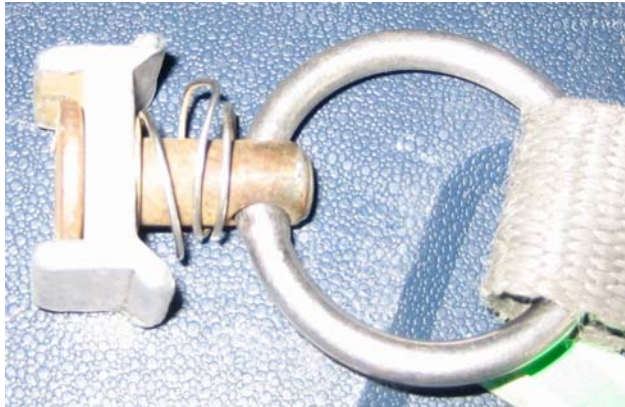
* "MAJOR" damage will affect the function of the Net, however, the net may remain on the aircraft with restrictions. For operational restriction refer to the applicable Weight and Balance Manual.

The Agency and Operators are seeing Single Stud fittings with their Springs either damaged or missing.

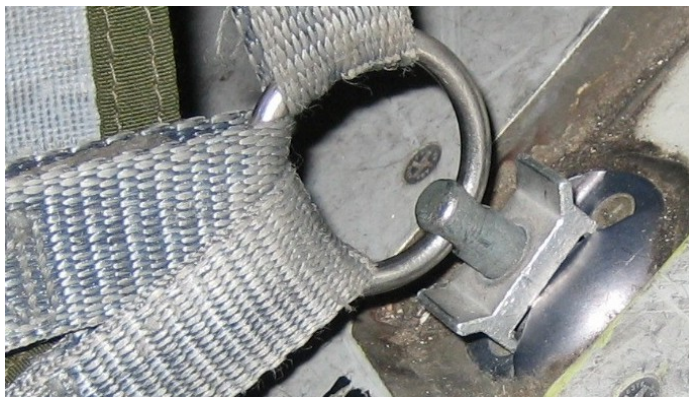


Single Stud Fitting
No Damage to Spring

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Single Stud Fitting
Damaged Spring



Single Stud Fitting
Missing Spring

Single Stud fittings with damaged springs or no springs, as shown in paragraph 3, fall into the category of MAJOR damage and therefore the Net is not airworthy* (see page 3).

The function of the “Spring” is to ensure that the “Retainer” is positively held into the mating Aircraft Seat Track or Anchor Plate. If the Spring is damaged or missing then this positive retention is not there and the Single Stud could be inadvertently released from the Aircraft Seat Track or Anchor Plate. This means that the Net could become partially detached in flight with potential consequences. This is the reason why such damage to the Single Stud is classified as MAJOR damage and therefore the Net is not airworthy* (see page 3).

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(2) Action

The classification of damaged or missing springs is self evident to the operators, as this is clearly a ‘damaged peripheral fitting preventing proper connection to the airframe’, as detailed in the Check section of the CMMs. However, the purpose of this SIL is to clarify the matter. i.e. It is classified as MAJOR damage and therefore the Net is not airworthy*. The Net must be repaired or replaced.

* “MAJOR” damage will affect the function of the Net, however, the net may remain on the aircraft with restrictions. For operational restriction refer to the applicable Weight and Balance Manual.

(3) Procedure for Replacement of Springs on Single Stud Fittings when Damaged or Missing

Note: The following procedure will be incorporated into CMMs at their next revision.

Single Stud Fitting Part Number	Replacement Spring Part Number
HA48-0146802 Optional PN 71133 or 230504-21	FS95-0867521
HA48-0868701 Optional PN 75018 or 230505-21	
HA48-0868702 Optional PN 75019 or 230506-11	

(a) Removal of Damaged Spring from Single Stud Fitting

- (i) Using pliers, remove damaged spring from the single stud fitting and discard.

(b) Attaching a New Spring to a Single Stud Fitting

- (i) Place the spring onto the top of the stud.
- (ii) Pull open the lower end of the spring and then rotate the spring around the stud and under the ring, see Figures 1 and 2.

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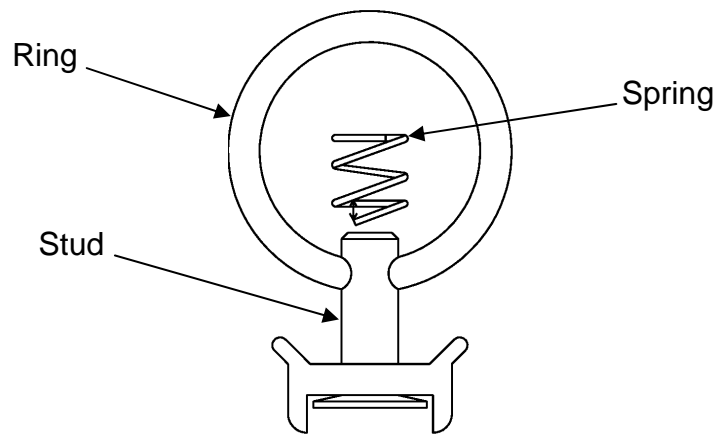


Figure 1

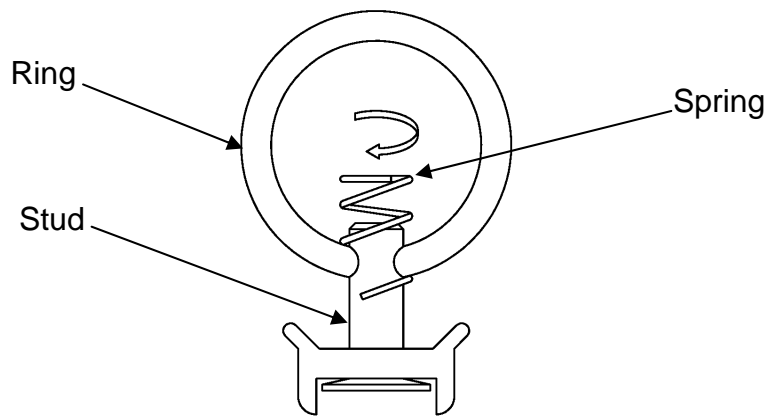


Figure 2

- (iii) Continue to rotate the spring until it is wound completely onto the stud and under the ring. See Figure 3.

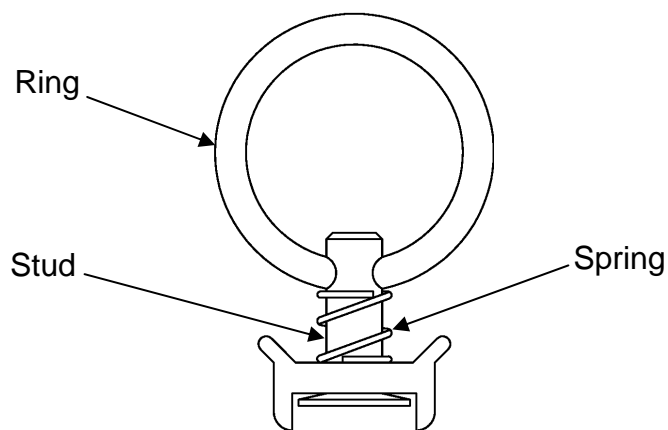


Figure 3

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(4) Procurement

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B. Webbing:

Underfloor Hold Nets (often referred to as Bellyhold Nets or Bulk Hold Nets), that are used in the Lower Hold of aircraft for the restraint of bulk cargo typically use Webbing in the construction of the Nets.

(1) Damage

Typically a CMM will detail the following in respect of Webbing:

Allowable	Minor	Major	Allowable - No Restrictions Minor - Restrictions Major - Not Airworthy*
*			Webbing 25mm (1in) Wide Discolouration
*			Webbing 25mm (1in) Wide Soiling, fluffing and slight abrasion.
		*	Webbing 25mm (1in) Wide Webbing cut or severed.
	*		Webbing 25mm (1in) Wide Broken stitching or severely abraded stitching at web intersection. Not more than two flag stitch patterns at intersections affected per net.
		*	Webbing 25mm (1in) Wide Broken stitching or severely abraded stitching on flag patterns that attach peripheral fittings.

* "MAJOR" damage will affect the function of the Net, however, the net may remain on the aircraft with restrictions. For operational restriction

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refer to the applicable Weight and Balance Manual.

The above identifies what is 'Allowable', 'Minor' and 'Major'.

The purpose of this SIL is to provide some additional guidance on the various 'damage classifications'.

The first picture shows an Underfloor Hold Net that has been in service for a number of years. The Net is in good condition and is serviceable. Discolouration of the Webbing can be seen, there is some Soiling (Label and Webbing), these are ALLOWABLE and there is No Restriction on the Nets use.



Discolouration of Webbing / Soiled Label

The next two pictures show further examples of Underfloor Hold Nets that have been in service for a number of years. These Nets are in good condition and serviceable. Again Discolouration, Soiling and some Fluffing and Slight Abrasion (close-up picture shows the Fluffing and Slight Abrasion) of the Webbing can be seen. These are ALLOWABLE and there is No Restriction on the Nets use.

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Webbing - Discolouration / Soiling / Fluffing / Slight Abrasion



Webbing – Slight Abrasion

The next Damage aspect is that of Cut or Severed Webbing. The obvious and clearly identified cut or severed webbing is when the webbing is completely cut or severed. i.e. It is in two pieces rather than one. This is classified as MAJOR damage and therefore the Net is Not Airworthy* (see page 7). i.e. The Net must be repaired or replaced.

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Webbing that is partially cut or severed is also damaged and needs to be classified as MAJOR and therefore the Net is Not Airworthy* (see page 7). i.e. The Net must be repaired or replaced. This includes webbing where there is clear evidence that the webbing yarn has been cut or severed. The next three pictures show examples of cut or severed webbing / yarns.

Webbing yarn has been cut or severed



Webbing Yarn Cut

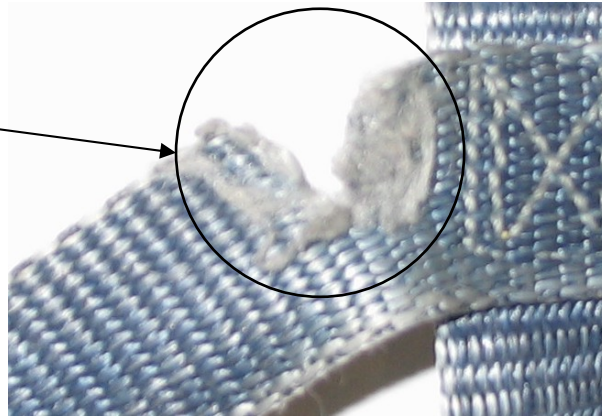
Webbing yarn has been cut or severed



Webbing Yarn Cut

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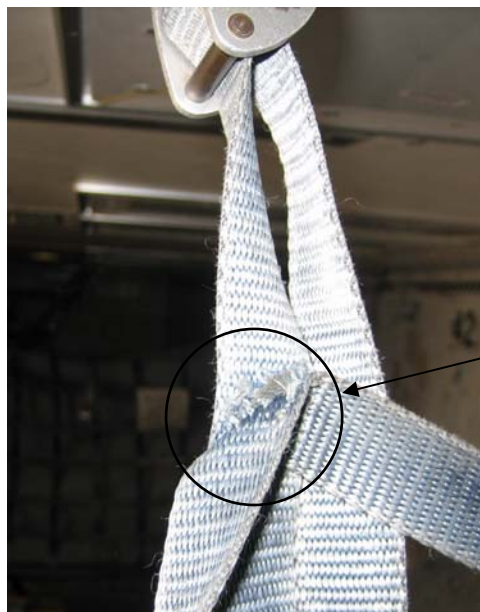
Webbing has been cut or severed



Cut / Severed Webbing

The next damage aspect is that of broken stitching or severely abraded stitching at the webbing intersections or the stitching flag patterns that attach the peripheral fittings (Net hardware or Net metalwork) to the net. Depending on the location of the broken stitching this is classified as either MAJOR or MINOR damage. In the case of 'MAJOR' the Net is not airworthy* (see page 7) and it must be repaired or replaced. In the case of MINOR, restrictions must be imposed on the Net and the Net shall be marked appropriately to notify operating personnel. This damage should be repaired at the earliest possible opportunity to avoid increase of damage and/or malfunction.

The following pictures show examples of broken stitching.



Broken stitching

Broken Stitching

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Broken Stitching

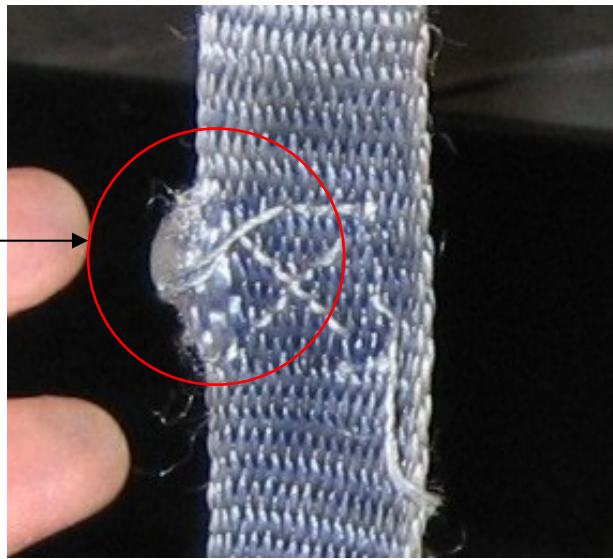


Broken Stitching

With damage that is classified as 'broken stitching' as shown in the above 3 pictures, it is easy to overlook the fact that actually the webbing is cut or severed. Closer examination of the pictures shows this to be the case - the picture below also shows this. If two criteria of damage are evident the most severe classification must be adhered to.

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Webbing Yarn is cut or severed and also there is broken stitching



Broken Stitching and Webbing Yarn Cut

(2) Action

The purpose of this SIL in respect of Webbing has been to provide some additional guidance on the various 'damage classifications'. It is important that this guidance is adhered to.

Underfloor Hold Nets carry out a safety critical function for aircraft. Their maintenance is an important aspect. If there is any doubt on whether a Net is Airworthy or not, take the safe option, remove the Net from service and get it checked, or impose the operational restrictions as detailed in the applicable Weight and Balance Manual.

Underfloor Hold Nets do not have an infinite life, like many other aircraft components they do wear out and need to be replaced. Nets in narrow bodied aircraft have a typical 5 year life and Nets in a wide bodied aircraft have a typical 8 year life. Nets beyond these ages are typically recommended for replacement or overhaul/re-web.



S Mark Trafford
Head of Engineering

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