

Service Bulletin

MANDATORY

P0928-SB-R3

1. PLANNING INFORMATION

1.1. Effectivity

All operators of rotorcraft MDHI 369 D, E, FF, HE, HS and 500N fitted with External Cargo Pod DG500 embodied by CAANZ STC 11/21E/2 in accordance with NTech MB 25.00.129 up to and including R3.

1.2. Reason

- 1) If used in conjunction with an approved external cargo hook: possible structural damage of the external cargo hook attachment or its surrounding structure.
- 2) Verify if bolts of adequate strength have been installed.

1.3. Background

Insufficient consideration was made of combined loading with the cargo pod installed when the rotorcraft operates with the external cargo hook under Part 133. This may have caused, or risks causing, structural overloading of the cargo hook attachment or its surrounding structure when both the pod and cargo hook are loaded close to their rated limits.

The installation document (before 6 March 2020) provides insufficient detail on fastener type and length to be used for fitting the inboard attachment.

1.4. Weight and Balance

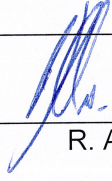
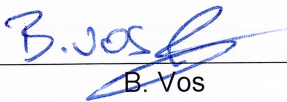
No change.

1.5. Purpose

- Identification of bolt type and dash length used to fit the cargo pod and relay this information back to NTech if inadequate bolts are used or if type is unclear, potentially to be replaced with bolt type of minimum strength and adequate length.
- Provide instructions to lockwire the bolts if required by an STC approved cargo hook.
- For the D, E, FF, HE and 500N Versions (*not* the 369 HS): structural inspection of hook attachment and surrounding structure for possible damage and remedial action if necessary.
- Discard Flight Manual Supplement P 928-1 Rev 1 (dated 17 May 2011) and incorporate Flight Manual Supplement P0928-FMS-R2 into the Flight Manual of the rotorcraft.

1.6. Compliance Date

Before further flight.

Checked: 	Date: <u>17-03-2020</u>
Released:  (SOC authorised) B. Vos	Date: <u>17-03-2020</u>

Revision Changes

Rev	Description of Change	Status
R0	Initial Release	Obsolete
R1	Updated to reflect comments from CAANZ prior to AD issuance.	Obsolete
R2	Correction to bolt diameter size in § 3.1. Rewording of requirement to lockwire attaching bolts when required. Rewording of instruction to establish correct bolts used and addition of note how to establish adequate bolt length.	Obsolete
R3	Correction of instruction to establish adequate bolt length on page 7	Current
Document changes are shown by change bars and coloured text.		

2. TECHNICAL DESCRIPTION

2.1. Reference documentation

The most recent version of the following MD Helicopter manuals is to be consulted.

#	Models	Publication	Title
1	369H Series	CSP-H-4	Periodic Inspections
2		CSP-H-6	Structural Maintenance and Repair Manual
3	369D, E, FF,	CSP-HMI-2	Handbook of Maintenance Instructions
4	500N	CSP-SRM-6	Structural Repair Manual

The cargo hook is fitted under the belly of the fuselage at FS 99.3, see Figure 2-1.

2.2. Identification of attachment bolts

The hook provided by MDHI is attached using bolts NAS1304-6 (Qty 4, item 9 in Figure 2-1) and washer AN960-416L (Qty 4, item 10 in Figure 2-1).

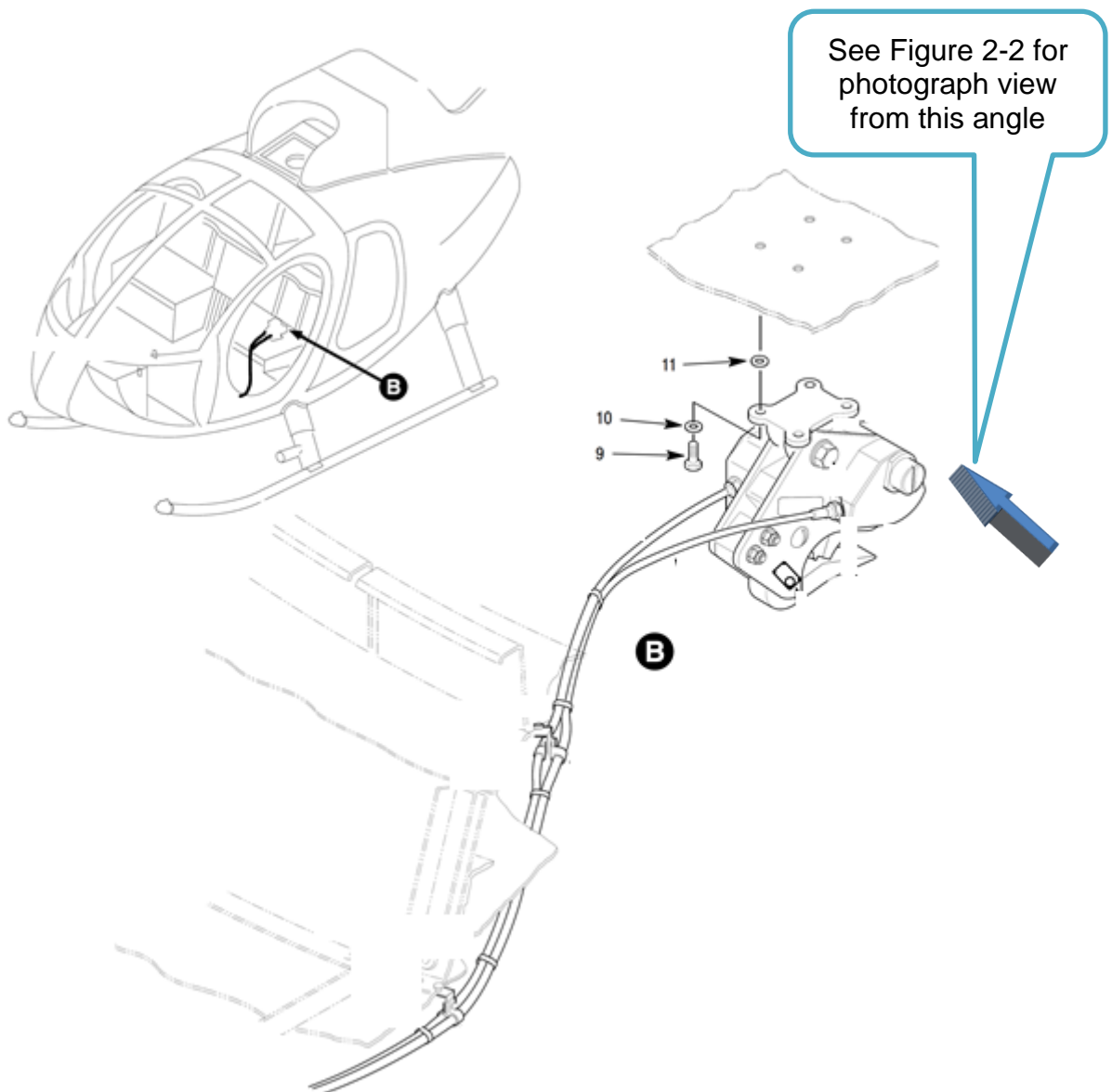


Figure 2-1: Typical Cargo Hook Installation

Modification Bulletin MB 25.00.129 installs the cargo pod with an inboard fitting that shares the hard point attachment with the cargo hook, see Figure 2-2. The fitting is fabricated from 5 mm thick stainless-steel sheet, which required replacement of the attaching bolts for a longer dash length.

Cargo attachment bolts (see Figure 2-2) are replaced in accordance with § 3.3 step 1 of MB 25.00.129, without explicit specification of bolts or length.

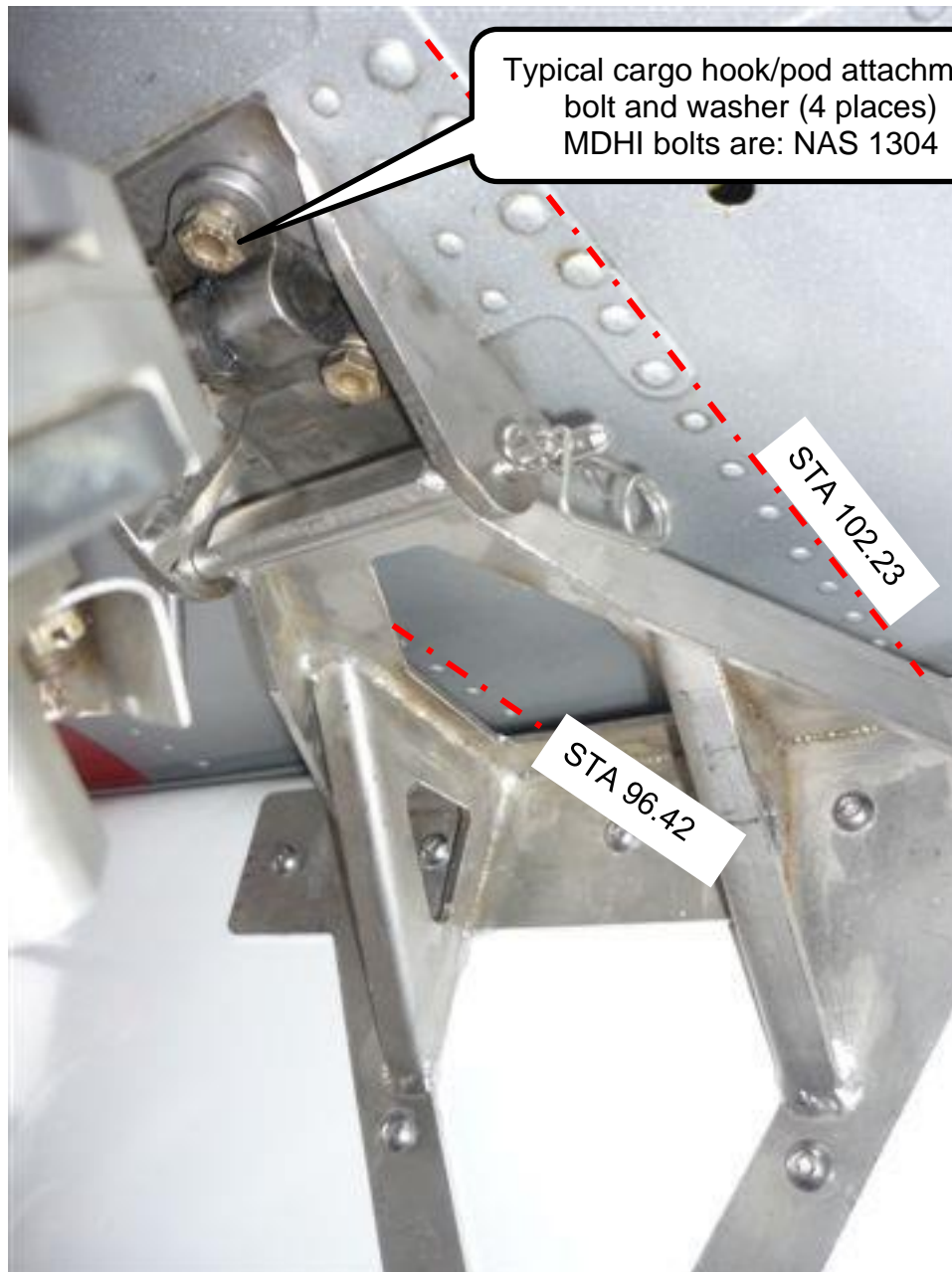


Figure 2-2: Inboard fitting of DG500 Cargo Pod

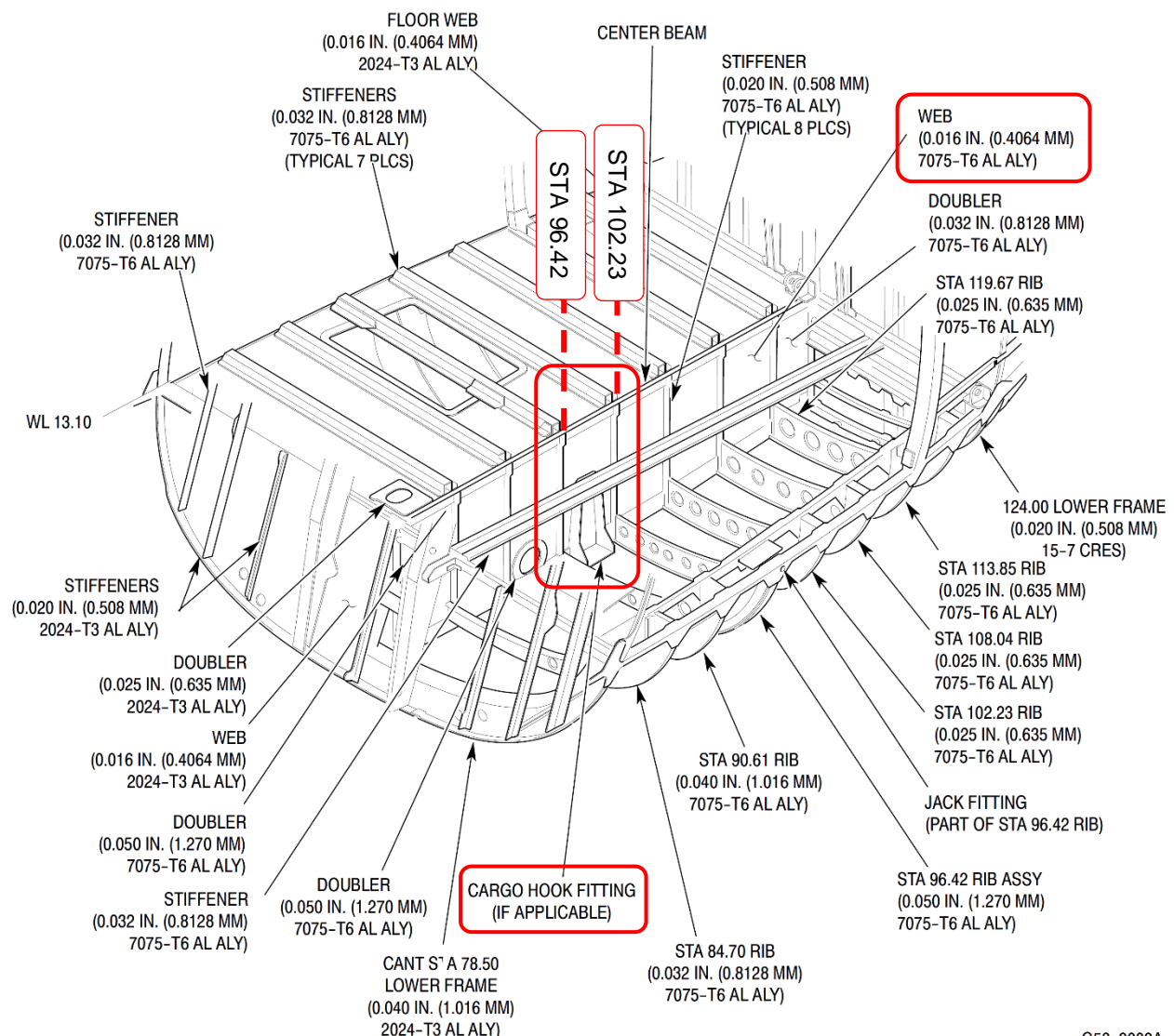
2.3. Surrounding structure

The attaching point behind the fuselage skin is internally carried by 2 tension fittings on either side of a longitudinal floor beam at BL0.

The pod attachment bracket applies a local offset moment to the cargo hook point, which is reacted by tensile load on two of the four bolts and compressive bearing at the opposite side.

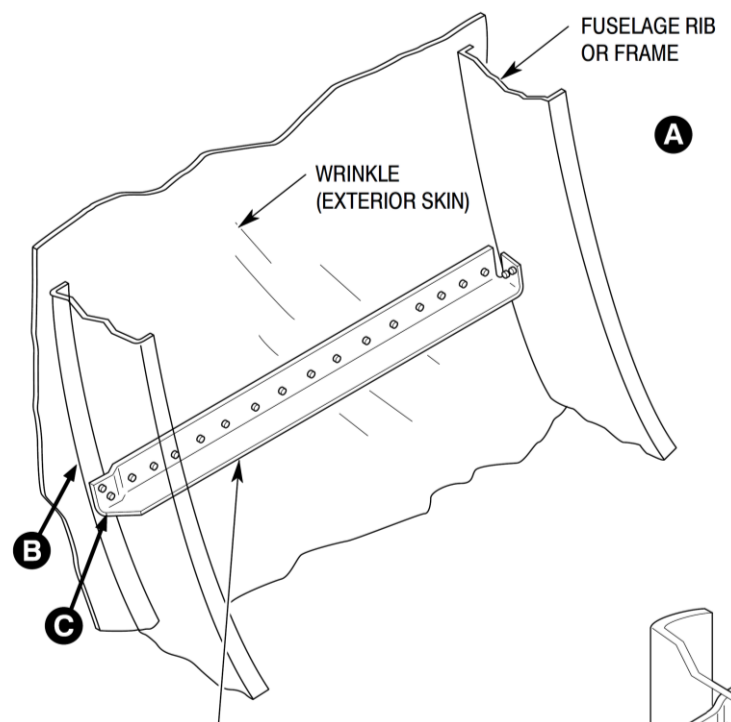
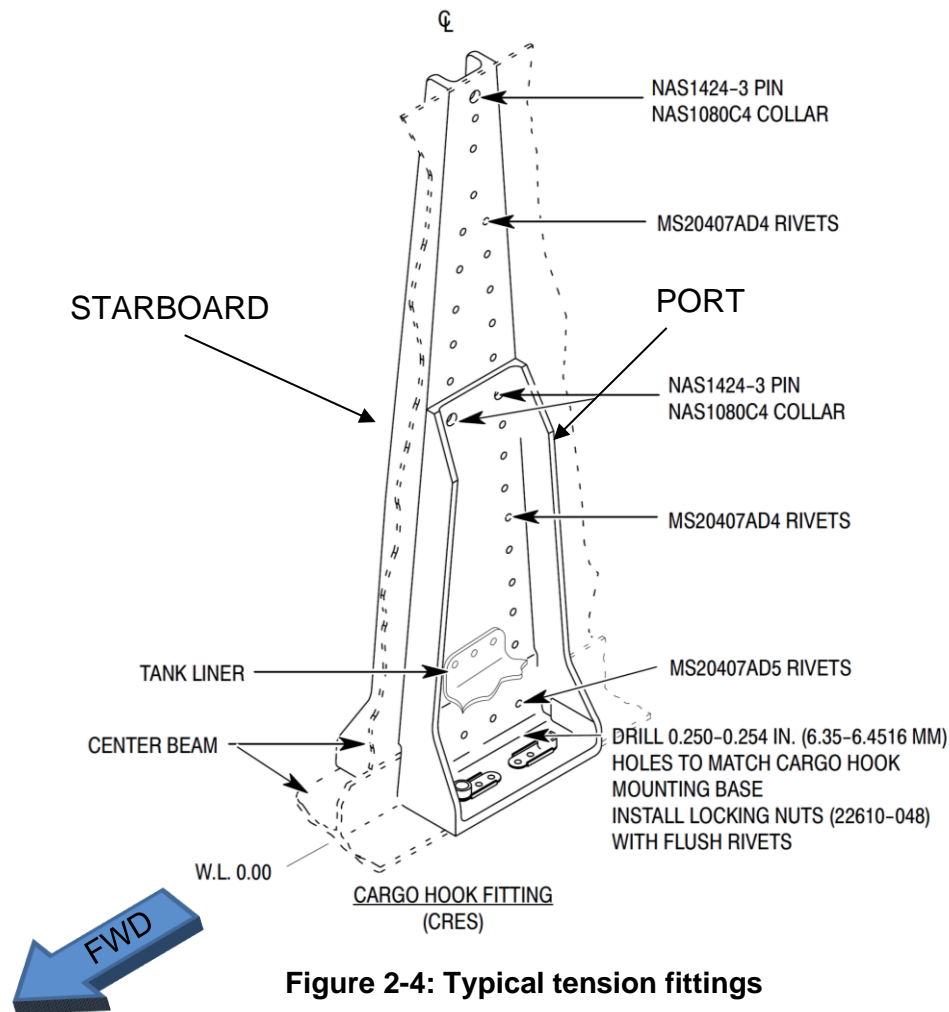
The floor beam and the skin are manufactured from 0.016" aluminium sheet, the tension fittings are manufactured from corrosion resistant steel (aluminium in earlier versions of the H Series), see Figure 2-3 and Figure 2-4.

The skins are vulnerable to wrinkle ("Oil Canning"), see Figure 2-5; the internal floor beam and/or reinforcing stiffeners are vulnerable to buckling, see Figure 2-3.



G53-2002A

Figure 2-3: Typical lower fuselage structure



3. ACCOMPLISHMENT ISNTRUCTIONS

3.1. Identification of Bolts

Identify the cargo hook/pod attachment bolt type (refer Figure 2-2). This should be clearly visible on the bolt head.

3.1.1. MDHI cargo hook installed

- 1) Inspect cargo hook/pod bolts.
- 2) If NAS 1304 bolts are installed with correct length (refer note 1 below), continue to § 3.2.
- 3) If alternative fasteners used, replace immediately with NAS1304 or NAS6604 with correct length (refer notes [1](#) and [2](#) below) and report the fasteners being replaced using Form NT10 attached.

3.1.2. STC cargo hook installed

- 1) Ensure the bolts are the correct type as per the approved STC of the hook and length is suitable (refer note 1 below).
- 2) If the bolts are too short, replace the bolts immediately with the correct length ([refer note 2 below](#)). Lockwire the bolts if required as per the approved cargo hook STC and report to NTech on the bolts removed and installed using form NT10 attached.

3.1.3. No cargo hook installed

- 1) Inspect cargo pod bolts.
- 2) If NAS 1304 bolts are installed with correct length (refer notes [1](#) and [2](#) below), continue to § 3.2.
- 3) If alternative fasteners used, replace immediately with NAS1304 or NAS6604 with correct length (refer notes [1](#) and [2](#) below) and report the fasteners being replaced using Form NT10 attached.

Note 1: In order to establish the correct bolt length, i.e. minimum 2 clear threads upon assembly [of the pod bracket, hook bracket \(if fitted\) and washer](#):

- A Hilok or Cherrymax gauge can be used to measure the depth of the anchor nuts that mate with the bolts on the inside of the structure, or.
- Alternatively if no Hilok or Cherrymax gauge is available: fit a longer bolt ([5 in-lb more than the drag torque of the nut](#)), wind it in until it becomes threadbound ([i.e. the bolt shank hitting the internal thread of the anchor nut and stops further engagement](#)), subtract the length of the bolt still exposed and [subtract a 2/16th \(or two dash lengths\)](#).
- [See further guidance and explanation on bolt grip length in AC 43.13-1B Chapter 7, Sub 7-37.](#)

Note 2: [Torque the bolts as per reference 3 \(section 20-10-00\) or AC 43.13-1B Chapter 7 section 3.](#)

3.2. Structural Inspection of Surrounding Structure

3.2.1. Skin Wrinkles

Inspect the fuselage skin visually around the direct vicinity of the hook attachment point in between the two frames at STA 96.42 and STA 102.23 (shown in Figure 2-2) and laterally within 5" away from the saddle bracket, for any signs of wrinkles as depicted in Figure 2-5 (not gouges or local dents).

- If wrinkles are observed: proceed in accordance with reference 2 (HE/HS variant), or reference 4 (D, E, FF or 500N versions) and proceed with § 3.2.2 and report to NTech using NT10 attached.
- If no wrinkles are observed, inspect for any other signs of (suspected) damage caused by overloading from combined hook operations and cargo carried in the pod, if any: proceed with § 3.2.2 and report to NTech using NT10 attached.
- If no damage is found, no further action is required.

3.2.2. Floor Beam / Stiffener Buckling

Gain access to the Cargo Compartment Centre Beam in accordance with reference 2 (HE/HS variant) or reference 4 (D, E, FF or 500N versions). Inspect for any signs of buckling of the beam and/or reinforcing stiffeners at, or in between, the stiffeners at STA 96.42 and STA 102.23 (shown in Figure 2-3).

This will require low pressure in the fuel bladder to push the bladder aside by hand to allow visual inspection of the web around the fitting; drain fuel if necessary.

Observe the area around the tension fitting on the STBD side of the beam (see Figure 2-4), this may provide a first clear visual of suspected damage.

- If signs of buckling are observed: proceed as per the Structural Repair Manual referenced, which may require a temporary restriction of floor loading limited to 400 lb maximum, in which case discontinue conducting cargo hook operations until permanent repairs are performed.
- If no buckling is observed, inspect for any other signs of (suspected) damage caused by overloading from combined hook operations and cargo carried in the pod and report to NTech using NT10 attached.
- If no other damage is observed, no further action is required.

4. DEFECT REPORTING

Any failure, impending failure, evidence of excessive wear or anomaly must be brought to the attention of NTech Ltd using the Customer Feedback Form (NT10) attached. This form is also available from www.ntech.co.nz (to download in pdf format), or via phone, post or email request ¹.

¹ Contact details:

NTech Ltd, PDC 14, Papakura 2244, Auckland New Zealand, info@ntech.co.nz, +64 9 296 1950 (UTC +12).