CIVIL AVIATION SAFETY AUTHORITY OF PAPUA NEW GUINEA

SAFETY ALERT BULLETIN

NO: 03/2017

DATE: 13/04/2017

A SAB contains important safety information and may include recommended action. SAB content should be especially valuable to air carriers in meeting their statutory duty to provide service with the highest degree of safety in the public interest. Besides the specific action recommended in a SAB, an alternative action may be as effective in addressing the safety issue named in the SAB.

TITLE: Cargo Hooks Systems – Inspection and Maintenance Requirements.

OBJECTIVE: This Safety Alert Bulletin (SAB) serves to alert Operators and Maintainers that compliance with manufacturer provided Instructions for Continuing Airworthiness (ICA) is required to ensure the hook system is kept in an airworthiness condition. This SAB focuses on wear and damage found on Onboard Systems Cargo Hooks. Cargo Hook Systems from other manufacturers (e.g. Breeze Eastern) suffer the same wear and damage as identified in this SAB. All Cargo Hook Systems must be maintained in accordance with the applicable manufacturer ICA.

This SAB contains information and recommended Inspection and Maintenance actions that the Civil Aviation Safety Authority of Papua New Guinea (CASA PNG) recommends, for Air Operator Maintenance Controllers, Maintenance Organizations and Maintenance Personnel to ensure the hook system is kept in an airworthiness condition.

APPLICABILITY: This SAB is applicable to all Cargo Hook Systems.

BACKGROUND: The Civil Aviation Safety Authority of New Zealand (CAA NZ) has received reports of finding excessively worn and damaged parts on numerous Onboard Systems Cargo Hooks, prior to scheduled Overhaul. Worn/damaged parts found include, but are not limited to load beams, keepers and cams. Load beams have been found with excessive wear. Keepers have been found bent, excessively worn and cracked. Service experience has found that if the cam is worn, the required force to release the load beam can be up to 60% higher than the release force specified by the manufacturer. For further detail of a worn/damaged load beam and a keeper, refer to the enclosed photographs.

Furthermore, reports have been also received of an inadvertent load release during an external load operation. Investigation revealed that the outer conduit of the manual release cable had broken approximately 50mm forward of the cargo hook with the cable free-play taken up by the cable conduit break. With subsequent in-flight motion of the cargo hook suspension system, the release cable moved sufficiently to activate the hook release mechanism, which resulted in inadvertent load release. Further

investigation revealed that the outer cable conduit may have broken due to cargo hook movement, age hardening/fatigue.

DISCUSSION: Incorrect rigging adjustment of the mechanical release cable can lead to an inadvertent load release. This can be caused during external load operations where the motion of the cargo hook and suspension system can move the cable sufficiently to activate the hook release mechanism. It is critical that the manual release cable rigging be set each time the hook is installed on the aircraft. As each cargo hook installation has unique requirements for the rigging setup, the appropriate manual should be referenced for proper instructions. The manufacturer ICA requires careful adjustment of the cable free play, the need to check that the release cable is not a stop which prevents the cargo hook from swinging freely in all directions, and also requires a check for condition of release cables prior to every external load operation. Mechanical release cables are wearable items and must be replaced as condition requires.

In the PNG operational environment cargo hooks may be used for many types of external load operations and subjected to arduous working conditions. CASA PNG recommends compliance with manufacturer specified inspection/maintenance requirements for cargo hook systems, and recommends the use of manufacturer approved load rings. During any cargo hook system inspection, if defects are found, accomplish correctives actions before commencing an external load operation.

CASA PNG RECOMMENDED ACTIONS: Based on the above, CASA PNG recommends the following action(s):

1. **Prior to Every External Load Operation:**

   Prior to every external load operation the cargo hook manual release must be inspected for following and if any defects found, accomplish corrective actions before commencing an external load operation in accordance with appropriate CMM/ICA:

   (i) Broken or kinked conduit.
   (ii) Inner cable kinks.
   (iii) Frays and sticky operation.

2. **Overhaul Requirements:**

   The overhaul requirements specified in the overhaul schedule of the applicable Component Maintenance Manual (CMM) must be adhered to and complied with at intervals as specified in the CMM. For Onboard Systems cargo hooks, overhaul is required every 1000 hours Time In Service (TIS) for external load beam operations, or 5 years Time Since New (TSN), or 5 years since overhaul, whichever occurs first.

3. **Annual/100 Hour Inspection Requirements:**

   The cargo hook should be removed and cleaned and inspected for following in accordance with applicable manufacturers Component Maintenance Manual (CMM) annually or every 100 hours TIS (whichever occurs first) or at intervals as specified in the applicable CMM.

(i) Cracks
(ii) Gouges
(iii) Dents
(iv) Nicks
(v) Corrosion
(vi) Missing or loose fasteners

The CMM provides the wear, gouge and nick limits which are acceptable to the manufacturer.

4. **Monthly Preventative Maintenance:**

Certain monthly maintenance actions are required on cargo hooks which are provided in the applicable CMM and should be complied with as required at intervals as specified in the CMM.

OTHER REFERENCE INFORMATION: Other related information on the above can be found in:

1. Onboard Systems ICA Website http://www.onboardsystems.com/
2. Civil Aviation Safety Authority of New Zealand Continuing Airworthiness Notice (CAN) – 05-006 – 1 March 2017.
3. Civil Aviation Safety Authority of New Zealand Continuing Airworthiness Notice (CAN) – 05-005 – 13 September 2016.

ENQUIRIES: Enquiries with regard to the content of this Safety Alert Bulletin should be made via the direct link e-mail address:

airworthiness@casapng.gov.pg

or in writing, to:

Manager Airworthiness
Airworthiness Section
Civil Aviation Safety Authority of PNG
PO Box 1941, Boroko, NCD, Papua New Guinea

Load beam in the left of the photo – A new replacement part.

Load beam in the right of the photo – Worn beyond manufacturer acceptable limits.

Load beam – Wear beyond manufacturer acceptable limits.

Civil Aviation Safety Authority of PNG
P O Box 1941
Boroko
National Capital District

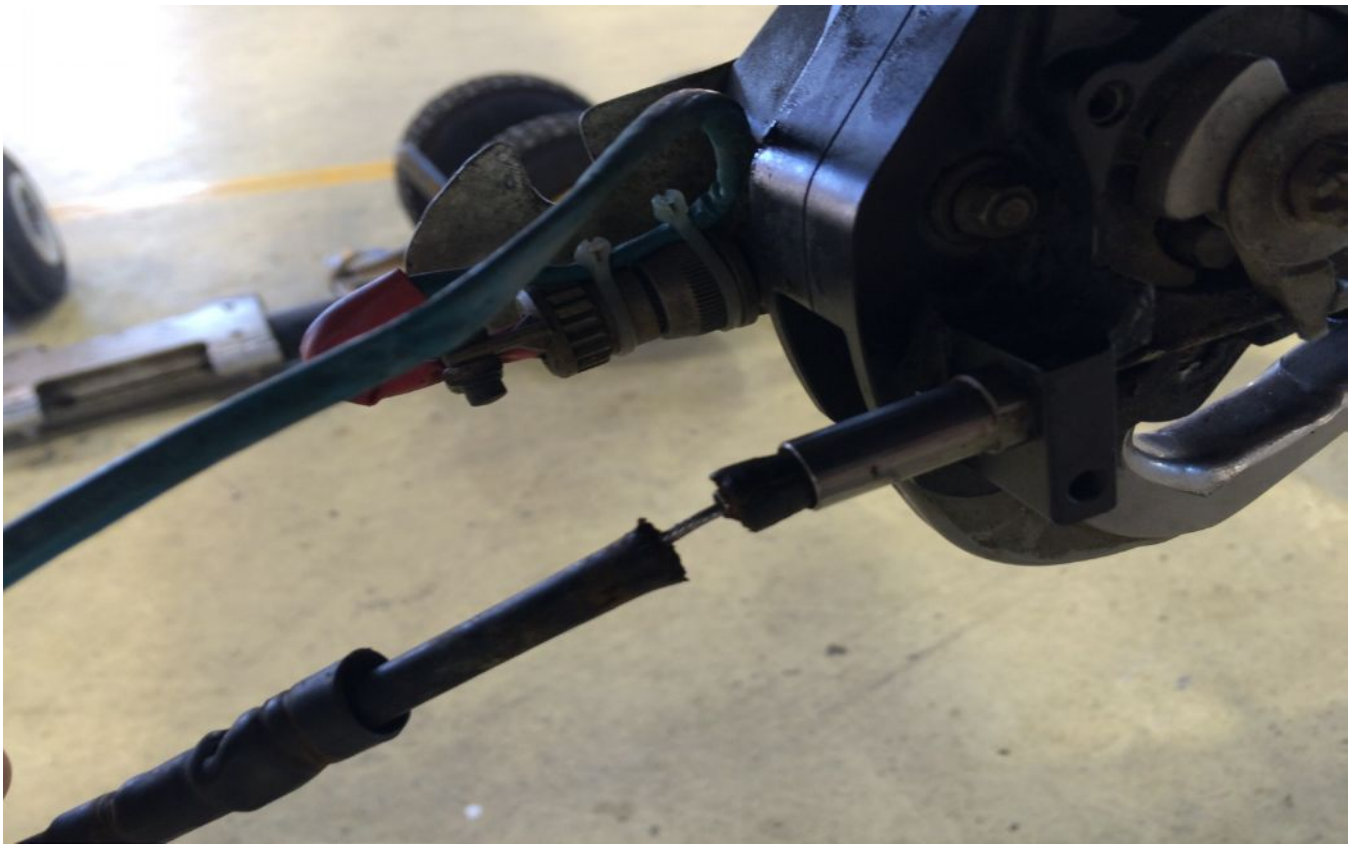
Telephone: + 675 325 7320
Fax: + 675 325 1919
Website: www.casapng.gov.pg

Keeper wear.

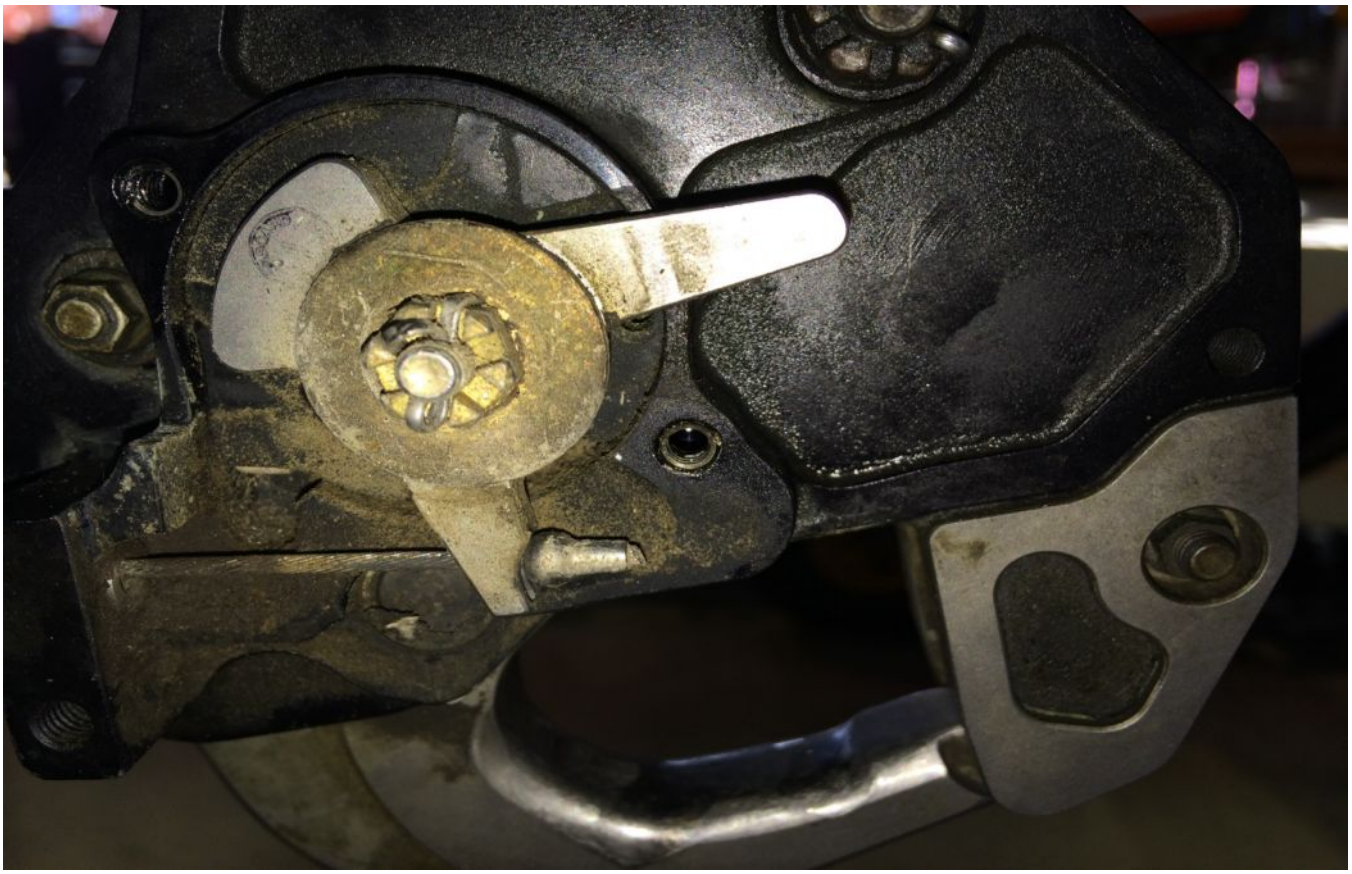
Keeper wear.

Civil Aviation Safety Authority of PNG
P O Box 1941
Boroko
National Capital District

Telephone: + 675 325 7320
Fax: + 675 325 1919
Website: www.casapng.gov.pg



Cable conduit fractured approximately 50mm forward of the cargo hook.



Due to fractured cable conduit, no cable free-play present.