

SAA09FY12-005  
REV. B

MAR 11 1994

B/L: 389.00  
SYS: 250-TON  
BRIDGE  
CRANE, VAB

**Critical Item:** Level Wind Assembly (2 Total, 1/Crane)  
**Find Number:** 79K16831-5  
**Criticality Category:** 2

<b>SAA No:</b> 09FY12-005	<b>System/Area:</b> 250-Ton Bridge Crane (#1 & #2)/VAB
<b>NASA Part No:</b> NA	<b>PMN/ Name:</b> K60-0533, K60-0534/ 250-Ton Bridge Crane (#1 & #2)/VAB
<b>Mfg/ Part No:</b> Colby Crane/ D27423	<b>Drawing/ Sheet No:</b> 79K16831/2

**Function:** Ensures correct spooling of the wire rope in multiple layers on main hoist drum.

**Critical Failure Mode/Failure Mode No:** Fails to Operate/09FY12-005.001

**Failure Cause:** Guide pin failure, chain failure.

**Failure Effect:** Improper wire rope spooling could cause uneven or uncontrolled lateral shift of a critical load or an uneven or uncontrolled hoisting motion because of the wire rope slipping from a higher wrap to a lower wrap resulting in possible damage to a vehicle system. Time to effect: seconds.

#### ACCEPTANCE RATIONALE

##### Design:

- Hardened guide pin to reduce wear and prevent misalignment (Cam maintains hardness level greater than guide pin to assure cam does not wear).
- This was designed for crane use and selected by the crane manufacturer for this application.

##### Test:

- OMRSD File VI requires verification of level wind assembly operational test annually.
- OMI Q3008, Operating Instructions, requires all crane systems to be operated briefly in all speeds to verify satisfactory operation before lifting operations.

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**Inspection:**

- OMI Q6003 Maintenance Instructions, requires monthly inspection of level wind drive chain tension and sprocket alignment; monthly inspection of chain internal sidebars and sides of sprocket teeth for wear; monthly inspection of cam followers for wear or tooth width of 3/8-inch or less.
- OMI Q3008 Pre-Operation Setup Instructions require inspection of main hoist level wind assembly.

**Failure History:**

- The PRACA database was researched and failure data was found on this component in the critical failure mode.
  - 1) - The failure occurred 7/15/88.
    - The failure cause was worn cam followers and poor adjustment of the level wind carriages.
    - The correcting action was the cam followers were replaced and the carriages were properly adjusted to close the PR.
  - 2) - The failure occurred 7/20/88.
    - The failure cause was improper chain tension.
    - The correcting action was readjustment of the chain.
- The GIDEP failure data interchange system was researched and no failure data was found on this component in the critical failure mode.

**Operational Use:**

- Correcting Action:
  - 1) Level Wind Assy is observed during crane operations where flight hardware is being handled. Observer will notify operator of a failure and hoisting will be stopped.
  - 2) When the failure indication is noticed, the operator can stop all crane operations by returning the Master Control Switch to neutral or pressing the E-Stop button.
  - 3) Operators are trained and certified to operate these cranes and know and understand what to do if a failure indication is present.
  - 4) During all critical lifts, there is at least one remote Emergency Stop (E-Stop) operator observing the load lift, and can stop the crane if a failure indication is noticed.
- Timeframe:
  - Estimated operator reaction time is 3 to 10 seconds.

Attachment  
S050234CK  
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