

12/08/97 12:53

P004

SEP 29 1997

SAA29AF13-005

8050294HM

Attachment

Sheet 15 of 18

Critical Item: Chain, Roller
 Total Quantity: 4
 Find Number: None
 Criticality Category: 2

SAA No:	SAA29AF13-005	System/Area:	112.5 Ton Mobile Gantry Crane / SRB Retrieval and Disassembly Facility
NASA Part No:	None	PBN/ Name:	H77-1506 112.5 Ton Mobile Gantry Crane
Mfg/ Part No:	Whitney 140	Drawing/ Sheet No:	Plate M5442 1

Function: Transfer motive power from the drive sprocket to the sprocket integral to the hoist drum.

Critical Failure Mode/Failure Mode No: Disengages / 29AF13-005.003

Failure Cause: Broken links.

Failure Effect: One hoist drive roller chain failure will cause one end of the SRB to drop, resulting in possible loss (damage) of major SRB hardware. Detection method: Visual. Time to effect: Inmate-data.

ACCEPTANCE RATIONALE

Design:

- ANSI standard roller chain.
- Per the requirements of the Control Specification, 20K6314, the crane assembly is rated at 225,000 lbs. However, this crane assembly is an off-the-shelf unit that is commercially rated at 440,000 lbs. with a 4:1 safety factor.
- The applied load of the SRB is approximately 200,000 lbs. Based on the maximum sling angle expected, the maximum line pull is approximately 55,000 lbs. at each lower load block. This results in an operational factor of 2.0 and a resultant multiplied safety factor of 8:1.

12/08/97 12:53

P003.

SEP 29 1997

SAA29AF13-008

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Attachment

Sheet 16 of 18

Test:

- An acceptance proof load test at 125% of the rated load of 225,000 lbs. was performed in September 1997.
- An operational test is performed weekly per OMI B6402. All hoists are operated in the up and down mode at both speeds.
- OMRS File VI requires annual performance of a load test at 100% of rated load. A load test at 100% of rated load is performed annually per OMI B6269.001.

Inspection:

- Weekly visual inspection for corrosion, cracks, and abnormal wear patterns is performed per OMI B6402.
- Pre-mission visual inspection for proper chain tension and lubrication is performed per OMI B6402.

Failure History:

- Current data on test failures, unexplained anomalies, and other failures experienced during ground processing activities can be found in the PRACA database. The PRACA database was researched and no failure data was found on this component in the critical failure mode.
- The GIDEP failure data interchange was researched and no failure data was found on this component in the critical failure mode.

Operational Use:

- Correcting Action:
There is no action which can be taken to mitigate the failure effect.
- Timeframe:
Since no correcting action is available, timeframe does not apply.