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SAA29AF13-005

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Critical Item: Sprocket, Drive
 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	PMN/ Name:	H77-1505 112.5 Ton Mobile Gantry Crane
Mfg/ Part No:	Shuttlefit Inc. 701613	Drawing/ Sheet No:	Plate M6442 1

Function: Transfer motive power from the hoist gear reducer to the roller chain.

Critical Failure Mode/Failure Mode No: Disengages / 29AF13-005.002

Failure Cause:

- Structural failure.
- Key shears

Failure Effect: One hoist drive sprocket 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: Immediate.

ACCEPTANCE RATIONALE

Design:

- Designed to ANSI requirements.
- Keyed to output shaft of gear reducer. Would require structural failure for disengagement. Material of key is AISI 1016 cold draw.
- Per the requirements of the Control Specification, 80K58314, 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.

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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.

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.