

SAAO1FS0...-005
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SAAO1FS041-005
REV. A
OCT 10 1990

SEP Item: Hoist Gear Reduction Box
Find Number:
Criticality Category: 1

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SAA No: O1FS041-005

System/Area: 25-Ton Bridge Crane VPF

NASA Part No: None

PMN/Name: K50-0824

Mfg. Part No: Ederer Corporation/
Model No. NAF
Casting No. NAB3537
Shop No. D-8812

Drawing/Sheet No: Ederer Dwg. No. B-8416
68-K-L-11229/2, 4

Function: Transmits power and reduces hoist motor rotational speed to hoist drum speed.

Critical Failure Mode: Interruption of load path at gearbox.
(FMN O1FS041-005.001)

Cause: Gear disengagement, shaft shear, key/keyway shear

Failure Effect: Load will drop. May cause loss of the payload or death of personnel.

Acceptance Rationale

Design:

- o Shaft and gear design and installation is in accordance with AGMA Standards.
- o Pinions are machined integrally with their shafts.
- o Driven gears are fixed to shafts by keys and pressfit.
- o Gear shafts are fixed at each end by engagement of shaft shoulders against collars which are bolted to the gear case housing.
- o Disengagement would require a structural failure.

Test:

- o File VI OMRSD requires the following tests:
 - Verification of a current load test.
 - An annual load test at 100% rated load

Inspection:

- o OMI E6013 requires:
 - A monthly inspection of gearreducers for mounting security, distortion, cracks, and oil leakage.
 - An annual inspection of hoist gearreducer gears, visible internal bearing ends, and bearing housings.
 - That gearreducer oil be sampled annually for haze, color, water content and particulates.

SENT BY:TM-PCO-3/SMAC/x4825 :10-25-90 : 2:23PM :

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Failure History:

- o This 25-ton bridge crane has performed satisfactorily during 14 years of use in handling large payloads.
- o There have been no failures of the hoist gear reduction box since the crane has been in operation.
- o There are approximately 140 cranes at KSC with similar gear reduction boxes; none of these gear boxes have failed to date.

Operational Use: N/A

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