

E01-SAA01FSD41-004
Sheet 4 of 6

SAA01FSD41-004
Rev. 8

OCT 10 1990

S040244
ATTACHMENT
Page 64 of 83

Critical Item: Intermediate Gear Reduction Box

Find Number: None System/Area: 10-Ton Monorail Hoist - VPF Airlock

Failure Category: 1 SAA No: O1FSD41-004

NASA Part No.: None PMN/Name: None

Mfr's Part No.: Various Drawing/Sheet No: ACCO (Wright Div.) Parts Bulletin 306.2.2, Page 2.11

Function: Transmits torque/power from the motor input shaft to the drum.

Critical Failure Mode: Interruption of load path at gearbox.
(PMN O1FSD41-004.003)

Cause: Gear disengagement, shaft shear, key/keyway shear, bearing failure.

Failure Effect: Torque for holding load will be lost. Load will drop, possibly resulting in loss of life or of payload.

Acceptance Rationale

Design:

- o Gearing design to AGMA Standards.
- o Gear and pinion are splined to their shafts and held in place by retainer rings.
- o Structural failure would be required for disengagement.

Test:

- o File VI OMRSD requires:
 - Verification of a current load test tag prior to each use.
 - A load test at 100% of rated load be performed annually. This is accomplished per OMI E6014.

Inspection:

- o OMI E6014 requires:
 - A visual inspection of gear reducers be performed quarterly to check oil leaks, visible damage.
 - That gear reducer oil be sampled annually for contaminants, metal filings, sludge or other foreign materials.

Failure History:

- o This hoist has performed satisfactorily for more than 15 years of use in the Viking, Voyager and STS Programs, during which time, no failures of brakes or gear box have been reported.

EOI-SAO1FS041-004
Sheet 4 of 6

SAO1FS041-004
Rev. B

OCT 10 1990

S040244
ATTACHMENT -
Page 65 of 23

- o Vendor states that, of approximately 200 of this model hoist manufactured since 1954, only three have required gear service. Two of the three required service because of misuse; the third was described as questionable. There have been over 1500 of the complete line of this type of hoists manufactured since 1954 with similar repair history.

Operational Use:

- o N/A