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SAA09FTAB31-001

OCT 1 3 1993

B/L: 252.00
SYS: PAYLOAD
       GROUND HAN-
       DLING MECH-
       ANISM

Critical Item: COUPLING (8 Items Total)

Find Number: 157

Criticality Category: 2

SAA No: 09FTAB31-001   System/Area: UPPER FLOATING BEAM
                                                 ASSEMBLY/ PADS A & B

NASA   PMN/   H70-0534
Part No: NONE   Name: PAYLOAD GROUND HANDLING
                                                 MECHANISM

Mfg/   Duff Norton   Drawing/   79K22693
Part No: SK-2449   Sheet No: 1 TO 5

Function:

Provides mechanical connection between one 50 Ton actuator and Gear Reducer.

Critical Failure Mode/Failure Mode No:

Disengages/09FTAB31-001.004

Failure Cause:

Structural Failure of coupling/keys.

Failure Effect:

The affected actuator could backdrive resulting in a shift of the payload. This could cause
loss (damage) to a vehicle system. Detection Method : Visual. Time to Effect : Seconds.

ACCEPTANCE RATIONALE

Design:

*   Coupling is a Continuous Sleeve Gear type and keyed.

*   Housing and bore have teeth that mesh to assure even distribution of power transmission
    through the coupling.

Attachment
SD502348K
Sheet 12 of 25

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- With a 71,000 lb load on the front end consisting of a 65,000 lb. payload and 6,000 lbs of support equipment, the coupling safety factor based on the manufacturers maximum torque is greater than 12.5:1 (ultimate) and the key 13.5:1 (ultimate).

Test:

The couplings connected to the actuators in the Upper Floating Beam Assembly are operationally checked (without a load) monthly per OMI V6F09 except during a payload flow.

Inspection:

OMRSD File VI requires the couplings to be inspected annually for corrosion, cracks, loose, or missing hardware.

Failure History:

- The PRACA database was researched and no failure data was found on this component in the critical failure mode.

- 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:

  There is no action which can be taken to mitigate the failure effect.

- Timeframe:

  Since no correcting action is available, timeframe does not apply.

Attachment
SD50234BK
sheet 13 of 25