

SAA09FY02-006  
Rev. B

Critical Item: Hoist  
 Total Quantity: 16  
 Find Number: None  
 Criticality Category: 1

SAA No:	09FY02-006	System/Area:	Extensible and Auxiliary Access Platforms/VAB HB 1&3
NASA Part No:	None	PMN/ Name:	K80-0555/ Extensible and Auxiliary Access Platforms
Mfg/ Part No:	Olympic/ GW-20-2	Drawing/ Sheet No:	79K09164/ sheet 181

Function: Provide mechanical advantage to raise, lower, and hold the load.

Critical Failure Mode/Failure Mode No: Gear disengagement/09FY02-006.010

Failure Cause: Worn or damaged gear

Failure Effect: Load will drop without means of control resulting in possible loss of life, and/or loss (damage) of a vehicle system. The gearbox failure is detectable by abnormal noises and movements. Detection method: Visual. Time to effect: immediate.

#### ACCEPTANCE RATIONALE

##### Design:

- The worm gear is self locking, designed to hold the rated load.
- The hoist has a manufacturers rated capacity of 2000 lbs.
  - AP 48 (HB 1) has a peak line pull of 269 lbs. which gives an operational safety factor of 7.4:1. Two hoists north and south side (four total).
  - AP 48 (HB 3) has a peak line pull of 1555 lbs. which gives an operational safety factor of 1.3:1. Two hoists north and south side (four total).
  - AP 50 (HB 1) has a peak line pull of 481 lbs. which gives an operational safety factor of 4.2:1. Two hoists north and south side (four total).
  - AP 93 (HB 1) has a peak line pull of 468 lbs. which gives an operational safety factor of 4.2:1. Two hoists north and south side (four total).
- These hoists are subjected to a low number of cycles compared to commercial use. This diminished usage should provide for better long term reliability.
- Per NSS/GO-1740.9, manual hoists shall have at least one brake. Worm gears can be used as a brake if the lead angle is sufficient to prevent back driving. The hoists meet this requirement.

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Attachment  
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**Test**

- OMI Q6152 requires operation of the hoist annually to verify no abnormal noise and movement.
- OMRSD File VI requires performance of an operational load test annually.
- Braking mechanisms (worm gear) are tested for evidence of slippage during the operational load test.

**Inspection:**

- Current load test validation tag is verified prior to operation.
- Per OMI Q6152 semiannually check hoist, drums and sheaves for wear, deformation, scored surfaces, cracks, fastening, and lubrication.

**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.

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