

SAA09FTAB3-004

B/L: 252.00  
SYS: 650 LB. TIE  
DOWN JIB  
BOOM HOIST

Critical Item: Winch Assembly (1 Item Total)  
Find Number: None  
Criticality Category: 2

JAN 24 1995

SAA No:	09FTAB3-004	System/Area:	Pads A & B Payload Changeout Room
NASA Part No:	None	PMN/ Name:	H70-1210 650 lb. Tie Down Jib Boom Hoist
Mfg/ Part No:	Thern Inc./ Model 4771	Drawing/ Sheet No:	SD1617 1

Function: Provides lifting, lowering, and holding capability to maneuver and suspend Flight Hardware and GSE over the Payload Bay Area of the Orbiter.

Critical Failure Mode/Failure Mode No: Gears Disengage/09FTAB3-004.001

Failure Cause: Structural Failure

Failure Effect: Torque for holding load will be lost. Suspended load will drop resulting in possible loss (damage) of a vehicle system. Detection Method : Visual. Time to effect : Immediate.

#### ACCEPTANCE RATIONALE

##### Design:

- The gearbox is an off-the shelf item manufactured by Thern Inc..
- Design is based on ANSI B30.7, Base Mounted Drum Hoists.
- The gears are keyed to shafts.
- Design rating of 2000 lbs has been operationally downgraded to 650 lbs.
- The safety factor based on the downgraded rated load of 650 lbs. is greater than 9.2:1 (ultimate).

##### Test:

The following tests will be required and performed through a Test Preparation Sheet before a critical lift if it has been over a year since the tests were last performed.

WORKSHEET 5122-012  
930914ehPS0015



B/L: 252.00  
SYS: 650-LB TIE  
DOWN JIB  
BOOM HOIST

JAN 24 1995

**Winch Assembly (continued)**

- A load test at 100% of the rated load ( 650 lbs ) will be performed.
- Preoperational set up verifies proper operation of the winch assembly.
- OMRSD File VI requires verification of the current rated load test prior to critical lifts.
- The system is for payload contingency operations only and rarely used.

**Inspection:**

The following inspections will be required and performed through a Test Preparation Sheet for critical lifts if it has been over a year since the last inspection.

- Visually inspect all surface components for looseness and corrosion.
- Check lubrication of the winch assembly and lubricate as required.

**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.