

JUL 1 1996

B/L: 380.00
 SYS: 30-TON
 BRIDGE
 CRANES
 OPF HB-3

Critical Item: Resistor, Bridge/Trolley Tachometer Scaling
 (4 Items Total, 2 per Crane)

Find Number: RN60C

Criticality Category: 2

SAA No: 09FY091-007

System/Area: 30-Ton Bridge Cranes/
 OPF HB-3

NASA

Part No: NA

PMN/

Name: H70-1379-01/
 30-Ton Bridge Crane

Mfg/ Dale, TRW, Mepco/

Part No: RN60C

Drawing/

Sheet No: Ederer EB-2286/
 13, 16

Function: Establishes part of a voltage divider circuit to scale the Bridge/Trolley Tachometer feedback voltage.

Critical Failure Mode/Failure Mode No: Fails Open/09FY091-007.012 (Bridge)
 09FY091-007.015 (Trolley)

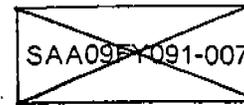
Failure Cause: Corrosion, Fatigue.

Failure Effect: Loss of tachometer feedback voltage to Travel Interface Module. Motor controller will compensate by increasing armature current to increase motor speed and tachometer feedback voltage. Once enabled, the motor controller will cause an uncontrolled acceleration to 10-33% of maximum speed before the motor controller senses an armature overvoltage and shuts down the drive. The shutdown will occur within 1 second of loss of tach feedback voltage. Possible damage to flight hardware if load is within 3 inches of obstruction (trolley) or within 1 1/2 inches (bridge) when failure occurs.

ACCEPTANCE RATIONALE

Design:

- Metal Film Conductor
- Stability 50 ppm/°C



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- 50 samples passed vibration (1000g, max.) and shock (75g, max.) tolerance tests with no failures.
- These resistors are off-the-shelf hardware items selected by the crane manufacturer for this application.

	RATED	ACTUAL BRIDGE	ACTUAL TROLLEY
Power	125mW	9mW	17mW
Max. Working Voltage	200V	33V	43V

Test:

- Pre-operational set up (positioning sling/hook over the load) to support lifting operations in OMI Q3516 verifies proper operation of crane components and all functions.
- A full operational test of the crane is performed monthly (no load) in accordance with OMI Q6331.
- An operational check of the crane is performed under full rated load as part of the annual load test in accordance with OMI Q6331.

Inspection:

- The Bridge and Trolley electrical wiring is visually inspected annually for cracking, damage, or loose screws on terminal strips in accordance with OMI Q3516.

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.