

EN  
ENW CRITICAL ITEMS (10)

09/01/00 EXPERIENCE 06/02/00

ANALYSIS

Page: 9  
Date: 12/14/00

| NAME<br>P/N<br>BY                                  | CRIT | FAILURE<br>MODE &<br>CAUSES   | FAILURE EFFECT   | RAISONNIE FOR ACCEPTANCE   |
|--|------|---|--|--|
| PRESSURE GAUGE 1/4" NPT<br>672<br>SYD2495-0<br>(1) | 1/1  | 4929001:<br>Rupture of the<br>Bourdon tube.<br><br>CAUSE:<br>Structural<br>failure. | END ITEM:<br>Nuts gas leakage<br>to ambient<br>(airlock).<br><br>4/E (SUBFADE):<br>Unable to<br>pressurize unit.<br><br>MISBEHC:<br>Loss of BIA, loss<br>of beads treatment<br>capability.<br><br>CRW/MEN122:<br>Possible loss of<br>crewmn from<br>decompression<br>sickness. | A. Design -<br>The Be Cu Bourdon tube rupture is precluded by utilizing a<br>configuration whose yield strength is 1.4, and ultimate<br>strength is 4.2, times the (less than 30,000 psi) stress at<br>normal operating conditions.<br>Predicted design life is in excess of 10 <sup>6</sup> pressure cycles.<br>Actual expected use is less than 50 cycles.<br><br>B. Test -<br>Component Acceptance Test -<br>The item is leakage tested per vendor test sheets to 15 psig<br>(0 psi to normal pressure) where a maximum leakage of 2 x<br>10 <sup>-5</sup> cc/sec He is allowed.<br><br>PDA Test -<br>The item is leakage tested per TEMU-60-016, Para. 4.8 where<br>a maximum leakage of 25.0 cc/min O <sub>2</sub> at 7.0 x 10 <sup>5</sup> psig is<br>allowed.<br><br>Certification Test -<br><br>C. Inspection -<br>All detail parts are 100% inspected for dimensional and<br>surface finish requirements. After the Bourdon tube is<br>soldered to its mating parts, the assembly undergoes a<br>helium sniff (leakage test at 45 psig).<br><br>D. Failure History -<br>None.<br><br>E. Ground Turnaround -<br>Tested for leakage per TEMU-6-001.<br><br>F. Operational Use -<br>Erm Response -<br>PartEVA: For minor leaks, cycle the O <sub>2</sub> actuator more<br>frequently to strain treatment conditions. For greater<br>leaks, consider manual plugging of pressure gauge and<br>estimating the pressure achieved.<br>--ending |

501

12/14/00  
Page 9 of 10  
SYD2495-0

EMU  
EMU CRITICAL STING LOSS

01/01/89 SUPERSEDED 06/02/89

MMIRES:

Page: 2  
Date: 12/14/89

NAME  
P/N  
MT

CALL

FAILURE  
MODE &  
CAUSE

FAILURE EFFECT

REASON FOR ACCEPTANCE

1/0 04270041

Standard EMU training covers this failure mode.  
Operational considerations -  
No maintenance for single failure.

502