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PRINT DATE: 08/09/89

SHUTTLE CRITICAL ITEMS LIST - ORBITER NUMBER: GO-AA-201000-03-000-X

SUBSYSTEM NAME:

REVISION : 1 89/08/09

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	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
■ SRU :	VOLTAGE CURRENT LOOP TRANSMITTER NEWPORT ELECTRONICS	506-2

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- EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:  
SOLID-STATE, TWO-WIRE, 4-20 MA. CURRENT LOOP TRANSMITTER.  
0.00 VDC=4 MA., 10.00 VDC=20 MA. NEWPORT ELECTRONICS MODEL NO. 506-2
- QUANTITY OF LIKE ITEMS: 2  
TWO; ONE FOR EACH TANK MONITOR CIRCUIT
- FUNCTION:  
IN EACH TANK MONITOR CIRCUIT, THE TRANSMITTER CONDITIONS AND TRANSMITS  
THE EXCITATION VOLTAGE SIGNAL TO THE STATUS MONITOR ASSEMBLY. TR2 IS  
USED IN TANK NO. 1 CIRCUIT, TR4 IS USED IN TANK NO. 2 CIRCUIT.

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PRINT DATE: 08/28/89

SHUTTLE CRITICAL ITEMS LIST - ORBITER

NUMBER: GO-AA-201000-03-000-01

SUBSYSTEM: GALLILEO RPM TANK MONITOR

REVISION# 1 89/08/25

ITEM NAME: <sup>VOLTAGE</sup>  
~~CURRENT~~ LOOP TRANSMITTER

CRITICALITY OF THIS  
FAILURE MODE: 1S

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- FAILURE MODE:  
NO OUTPUT FROM TRANSMITTER IN RESPONSE TO INPUT SIGNAL
  - MISSION PHASE:  
LS LANDING SAFING
  - VEHICLE/PAYLOAD/KIT EFFECTIVITY: 104 ATLANTIS STS-34
  - CAUSE:  
VIBRATION, MECHANICAL SHOCK, ELECTRICAL STRESS, THERMAL STRESS
  - CRITICALITY 1/1 DURING INTACT ABORT ONLY? N

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- REDUNDANCY SCREEN A) N/A
  - B) N/A
  - C) N/A

PASS/FAIL RATIONALE:

- A)
- B)
- C)

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- FAILURE EFFECTS -

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- (A) SUBSYSTEM:  
NO TRANSDUCER EXCITATION VOLTAGE LEVEL DATA. LOSS OF KNOWLEDGE OF ACCURACY OF TANK PRESSURE DATA. POSSIBLE UNDETECTED TANK RUNAWAY OVERPRESSURE.
- (B) INTERFACING SUBSYSTEM(S):  
POSSIBLE TANK RUPTURE, FIRE/EXPLOSION.
- (C) MISSION:  
POSSIBLE LOSS OF THE GALILEO/IUS PAYLOAD

SHUTTLE CRITICAL ITEMS LIST - ORBITER NUMBER: GO-AA-201000-03-000-01

- (D) CREW, VEHICLE, AND ELEMENT(S):  
POSSIBLE LOSS OF THE ORBITER, POSSIBLE LOSS OF LIFE.
- (E) FUNCTIONAL CRITICALITY EFFECTS:  
POSSIBLE UNDETECTED TANK RUNAWAY PRESSURE, TANK RUPTURE, POSSIBLE FIRE/  
EXPLOSION, POSSIBLE LOSS OF THE ORBITER, POSSIBLE LOSS OF LIFE.

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 - DISPOSITION RATIONALE -  
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(A) DESIGN

TRANSMITTER ELECTRONICALLY CONVERTS AN INPUT OF 0 VDC TO 10 VDC TO A CORRESPONDING OUTPUT OF 4 TO 20 ma. THIS DEVICE IS LOOP POWERED, OPERATING OFF OF 9VDC TO 32 VDC.

(B) TEST

CALIBRATION LABORATORY EACH TRANSMITTER TO ITS REQUIREMENTS SPECIFIED ON G073-700181.

(C) INSPECTION

THE UNITS ARE INSPECTED FOR WEIGHT, WORKMANSHIP, FINISH, DIMENSIONS, CONSTRUCTION, CLEANNESS, IDENTIFICATION MARKING AND CERTIFIED MATERIALS AND PROCESSES. ACCEPTANCE TEST PROCEDURE ARE APPROVED BY QUALITY ASSURANCE.

(D) FAILURE HISTORY

NO GENERIC FAILURES

(E) OPERATIONAL USE

CONTINGENCY ONLY. THE TRANSMITTER, LOCATED IN THE G073-700181 DRAWING, CONVERTS THE 10 VDC PRESSURE TRANSDUCER EXCITATION INTO A 50 ma LOOP SIGNAL. USAGE IS ONE TIME ONLY IF MISSION IS ABORTED WITH GALILEO ON BOARD. THIS DEVICE FOR SELF VERIFICATION AND IS NOT CRITICAL TO SYSTEM OPERATION. A SPARE ASSEMBLY WILL BE AVAILABLE AT THE ABORT SITE.

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 - APPROVALS -  
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RELIABILITY ENGINEERING: W. R. MARLOWE  
 DESIGN ENGINEERING : L. COLEMAN  
 QUALITY ENGINEERING : C. ROLLINS  
 NASA RELIABILITY :  
 NASA SUBSYSTEM MANAGER :  
 NASA QUALITY ASSURANCE :

: W. R. Marlowe  
 : L. Coleman  
 : C. Rollins  
 : DD [Signature]  
 : [Signature]