

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
EVA POSITION SWITCH, ITEM 116 ----- SV789111-4 (1)	2/2	116FM01 Fails open. Electrical open in the wire leads or connections, switch mechanism fractured.	END ITEM: Fails to open when O2 actuator (115) is in the EVA position. GFE INTERFACE: Fails to detect when the O2 actuator (115) is in the EVA position. MISSION: Unable to verify that the SOP valve is open. Unable to continue or initiate EVA on affected EMU, CWS warning and fault message to SET O2 EVA. CREW/VEHICLE: None. TIME TO EFFECT /ACTIONS: Seconds. TIME AVAILABLE: N/A TIME REQUIRED: N/A REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - The switch is a standard hermetically sealed aerospace microswitch controlled per MS-8805/8. Electrical leads are soldered to the switch and then potted to provided protection from external mechanical loads. B. Test - Component Acceptance Test - The vendor submits a certified report for lot acceptance tests. The switch position is set and verified during shear plate assembly. PDA Test - None. Certification Test - Certified for a useful life of 20 years (ref EMUM1-0027). C. Inspection - Electrical failure is prevented by vendor testing and inspection per requirements of MIL-S-8805/8 for P/N MS 27216-6. The vendor submits a certified report for lot acceptance. D. Failure History - J-EMU-300-009 (3-25-85) Fails open. The EVA microswitch mounting hardware did not have the capability to adjust the switch properly under all expected tolerance conditions of the switch mechanism. Corrective action was to change from holes to slots in the switch mounting bracket, add washers under microswitch mounting screws and revise specifications for switch actuator roller. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, SOP Functional Test. None for EET processing. F. Operational Use - Crew Response - PreEVA: Trouble-shoot problem, if no success consider EMU 3 if available. If failure can be determined to be switch, continue. PostEVA: N/A. EVA: When CWS data confirms the EMU is out of configuration, trouble shoot problem. If failure can be determined to be switch, continue. Otherwise terminate EVA. Training - Standard EMU training covers this failure. Crewman are trained for one man EVA scenario. Operational Considerations - Flight rules define go/no criteria related to operational SOP. EVA checklist and FDF procedures verify hardware integrity and operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-116 EVA POSITION SWITCH
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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