

NAME P/N QTY	CALL	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
PRESSURE TRANSDUCER, ITEM 213 SW77BAP3-B (1)	2/2	DESIGN: Loss of output. ERROR: Failure in the transducer electrical network.	SW ITEM: False indication of zero SOP pressure. GPE INTERFACE: Loss of SOP pressure reading. EWS will calculate zero time remaining for O2. MISJON: false indication that SOP O2 supply is zero. CORRECTIONS: None.	A. Design - The electronic components in the transducer network are screened to MIL-816-803 and the hybrid assembly (6820-A-21012) receives burn-in and temperature cycle screens per Nullite ATP #2541 to ensure their operational reliability and circuit integrity. B. Test - Component Acceptance Test - The pressure transducer output is checked at the vendor (Nullite Semiconductor Inc.) per section 6B.7 (Error Band Test) of Acceptance Test Procedure ATP 2541. This test consists of checking the transducer output at increments from 0 psig to 7100 psig and back to 0 psig at temperatures of 70 degrees F, 0 degrees F and 100 degrees F. A loss of output signal would be detected at this time. Component Functional Calibration Test Per 15-E-245 the item is pressurized with a known pressure over the ranges of 0-7100 psig and 7100-0 psig. The output of the transducer when compared to the known pressure must be within 250 psig, except at 0 psig it shall be within 185 psig. A loss of output signal would be detected at this test. POA Testing per SEMI-40-087 - The item is checked for proper operation by pressurizing the end item (SOP) to a known pressure of 7200-7400 psig. The SOP is then allowed to bleed down at the rate of 3.26 - 5.14 lbs/hr O2. The item pressure is checked when compared to the known pressure shall be within 250 psig except at 0 psig it shall be within 185 psig. A loss of output signal would be detected at this time. Certification Testing - The item completed the 15 yr structural vibration and shock certification requirement during 1973. Engineering changes 42644-141 (preclude the possibility of a cable entry failure), 42806-301 eliminate a potential interference between transducer and the SOP, 42806-499 (added weld inspection requirements and a more stringent leakage test) and 42806-490 (added a voltage conditioning requirement and a more stringent screening procedure) have been incorporated and verified since this configuration was certified. However, these changes do not pertain to this failure mode. A test specimen survived 4080

280

SEARCHED
 SERIALIZED
 INDEXED
 FILED

CFL
 CRITICAL ITEMS LIST
 FILE: CIL-SOP/2

8/8/88 SUPERSEDES 4/4/88

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
PRESSURE * 2/2 TRANSDUCER ITEM 215 SV778473-4 111		285F107A1 LOSS OF OUTPUT.		<p>CERTIFICATION TESTING - THE ITEM COMPLETED THE 30 YR STRUCTURAL VIBRATION AND SHOCK CERTIFICATION REQUIREMENT DURING 10/83. ENGINEERING CHANGES 42804-248 (PRECLUDE THE POSSIBILITY OF A CABLE ENTRY FAILURE). 42804-301 (ELIMINATE A POTENTIAL INTERFERENCE BETWEEN TRANSDUCER AND THE SOP). 42804-499 (ADDED WELD INSPECTION REQUIREMENTS AND A MORE STRINGENT LEAKAGE TEST) AND 42804-690 (ADDED A VOLTAGE CONDITIONING REQUIREMENT AND A MORE STRINGENT SCREENING PROCEDURE) HAVE BEEN INCORPORATED AND VERIFIED SINCE THIS CONFIGURATION WAS CERTIFIED. HOWEVER, THESE CHANGES DO NOT PERTAIN TO THIS FAILURE MODE. A TEST SPECIMEN SURVIVED 500 OPERATING PRESSURE CYCLES AND 12 PROOF PRESSURE CYCLES AND STILL OPERATED WITH AN ACCEPTABLE OUTPUT.</p> <p>C. INSPECTION - SOLDERING IS DONE PER HALITE SEMICONDUCTOR, INC., SOLDERING PROCEDURE AND REQUIREMENTS NS28054.</p> <p>D. FAILURE HISTORY - NONE.</p> <p>E. GROUND THERMOPOND - TESTED PER FEMU-R-001. SOP PREFLIGHT PROCESSING, AND TRANSDUCER AND DCN GAUGE CALIBRATION CHECK, BOTH WOULD DETECT LOSS OF OUTPUT DURING CALIBRATION.</p> <p>F. OPERATIONAL USE - CREW RESPONSE - EVA: SINCE EVA TERMINATION SHOULD BEGIN AS SOON AS SOP IS FLOWING, CREW RESPONSE IS TO CONTINUE TERMINATION. TRAINING - STANDARD ERM TRAINING COVERS THIS FAILURE MODE. CREWMEMBERS ARE THOROUGHLY TRAINED IN EVA TERMINATION AND ABORT PROCEDURES USING BOTH MANUAL DIVERSITY AND I-O TECHNIQUES. OPERATIONAL CONSIDERATIONS - REFERENCE ROSS/ FAILURE FLIGHT RULES; DEFINE IM ERM AS LOST DICE SOP IS FLOWING. EVA CHECKLIST AND FDP PROCEDURES VERIFY HARDWARE INTEGRITY AND SYSTEMS OPERATIONAL STATUS PRIOR TO EVA. REAL TIME ORCA SYSTEM ALLOWS GROUND MONITORING OF ERM SYSTEMS.</p>

8185-2
 H