

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : PURGE, VENT & DRAIN FMEA NO 01-5 -332408-1 REV:09/28/87

ASSEMBLY : WCCS
 P/N RI : V070-383126
 P/N VENDOR:
 QUANTITY : 2
 : TWO
 :

| | | | | |
|--------------|-----|---------|---------|---|
| VEHICLE | 102 | 103 | 104 | |
| EFFECTIVITY: | X | X | X | - |
| PHASE(S): | PL | LO X OO | DO X LS | |

PREPARED BY: DES F A FERRIS
 REL J S MULLEN
 QE *MIS for W. Smith*

REDUNDANCY SCREEN: A-PASS B-N/A C-PASS
 APPROVED BY: DES *J. J. Nevelsky*
 REL *[Signature]*
 QE *[Signature]*

APPROVED BY (NASA): SSM *[Signature]*
 REL *[Signature]*
 QE *[Signature]*

ITEM:
 DESICCANT/FILTER ASSEMBLY

FUNCTION:
 THIS ITEM ACTS TO CONDITION AMBIENT AIR INGESTED FROM THE ATMOSPHERE.

FAILURE MODE:
 CLOGS (HATCH OUTER WINDOW)

CAUSE(S):
 CONTAMINATION.

EFFECT(S) ON:
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE

(A) FUNCTIONAL DEGRADATION DUE TO INTRODUCTION OF MOIST AIR INTO THE OUTER WINDOW CAVITY.

(B) MAY CONTAMINATE WINDOW SURFACES. FOGGING, SHOULD IT OCCUR, WILL NOT BE EVIDENT UNTIL AFTER ROLLOUT WHEN THE VEHICLE COOLS.

(C,D) LOSS OF THE REDUNDANT ASCENT/DESCENT RELIEF VALVES WOULD RESULT IN OVERPRESSURE OF THERMAL PANE. SUBSEQUENT LOSS OF REDUNDANT AND PRESSURE PANES RESULTS IN LOSS OF CREW/VEHICLE.

DISPOSITION & RATIONALE:
 (A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A) DESIGN
 THE VENT OUTLET SIDE OF THE DESICCANT CANISTER ASSEMBLY HAS A WIRE MESH DEBRIS SCREEN (0.028" DIAMETER, 20X20 TO THE INCH). THERE IS ALSO A 40 MICRON FILTER INSTALLED AT THE OTHER END OF THE CANISTER. ALL GROUND PURGE GAS INTRODUCED INTO THE SYSTEM IS FILTERED BY GSE. REDUNDANT FLOW PATHS EXIST (WITH CHECK VALVES IN LINE) IN THE EVENT THE DESICCANT/FILTER ASSEMBLY CLOGS.

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(B) TEST

THE INSTALLED ASSEMBLY UNDERGOES A FLOW VERIFICATION TEST EACH TURNAROUND PER THE OMRSD. THE DESICCANT/FILTER ASSEMBLY IS DISASSEMBLED, CLEANED AND RETESTED EACH TIME THE DESICCANT IS REPLACED. THE DESICCANT/FILTER ASSEMBLY IS CERTIFIED UNDER CR 14-381120F.

(C) INSPECTION

RECEIVING INSPECTION

CANISTER BODY ASSEMBLY MATERIAL AND PROCESS CERTIFICATIONS VERIFIED BY INSPECTION.

ASSEMBLY/INSTALLATION

SEAL AND END CAPS INSTALLATION VERIFIED BY INSPECTION. TORQUE REQUIREMENTS VERIFIED BY INSPECTION.

TESTING

LEAK TEST VERIFIED BY INSPECTION.

HANDLING/PACKAGING

PACKAGING/ BAGGING VERIFIED BY INSPECTION.

(D) FAILURE HISTORY

NO FAILURES DUE TO CLOGGING HAVE BEEN EXPERIENCED TO DATE.

(E) OPERATIONAL EFFECTS

DURING THE ASCENT PHASE, IF ALL REDUNDANCY TO THIS FUNCTION IS LOST, THE THERMAL PANE WILL RUPTURE AND AN RTLS WILL BE DECLARED DEPENDING ON THE FLIGHT STAGE. CREW ACTION - NONE. MISSION CONSTRAINT - NONE.