

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : PURGE, VENT & DRAIN FMEA NO 01-5 -332404-1 REV: 09/28/87

ASSEMBLY : WCCS
 P/N RI : V070-381120
 P/N VENDOR:
 QUANTITY : 6
 : SIX
 :

	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

not for U. Shuttle

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

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

ITEM:

DESICCANT/FILTER ASSY

FUNCTION:

THESE ITEMS ACT TO CONDITION AMBIENT AIR INGESTED FROM THE ATMOSPHERE.

FAILURE MODE:

CLOGS

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 CAVITIES.

(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 PANES. 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.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : PURGE, VENT & DRAIN FMEA NO 01-5 -332404-1 REV: 09/28/87

(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

MATERIAL AND PROCESSES ARE VERIFIED BY INSPECTION.

CONTAMINATION CONTROL

CLEANLINESS VERIFIED BY INSPECTION.

ASSEMBLY/INSTALLATION

ASSEMBLY OF CANISTER BODY COMPONENTS VERIFIED BY INSPECTION.

INSTALLATION OF THREADED FASTENERS, SAFETY WIRE AND TORQUING VERIFIED BY INSPECTION. DESICCANT LOADING VERIFIED BY INSPECTION.

TESTING

UNIT TESTING VERIFIED BY INSPECTION.

(D) FAILURE HISTORY

NO FAILURES DUE TO CLOGGING HAVE BEEN EXPERIENCED TO DATE.

(E) OPERATIONAL USE

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.