

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE

NUMBER: GO-AF-100000-X

S05C270M
ATTACHMENT
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SUBSYSTEM NAME: EDO CRYO KIT CAP AND PLUG SET

REVISION : 1 06/17/91

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
■ LRU :	INLINE FILTERS	ME286-0066-0010
■	WINTEC	14228-63-10

PART DATA

- EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
INLINE FILTER, 25 MICRON FILTRATION, LOCATED BETWEEN PNEUMATIC PRESSURE PANEL AND MANUAL VALVE.
- QUANTITY OF LIKE ITEMS: 2
TWO
- FUNCTION:
FILTER REMOVES PARTICLES FROM THE FACILITY DISTRIBUTION SYSTEM (HELICH) WHOSE DIMENSIONS EXCEED 25 MICRONS IN SIZE. THE FILTER IS LOCATED BETWEEN THE PNEUMATIC PRESSURIZATION UNIT AND EDO TANKS.

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SUBSYSTEM: EDO CRYO KIT CAP AND PLUG SET
LRU : INLINE FILTERS
ITEM NAME: INLINE FILTERS

CRITICALITY OF THIS
FAILURE MODE: 2

FAILURE MODE:
FILTER PASSES CONTAMINATION (INCLUDES FILTER ELEMENT BREAKDOWN)

MISSION PHASE:
GT GROUND TURNAROUND

VEHICLE/PAYLOAD/KIT EFFECTIVITY: EDO MISSION ONLY

CAUSE:
HARDWARE FAILURE WITHIN THE ASSEMBLY FILTER ELEMENT, SMALL OR MOLECULAR
CONTAMINANTS FROM FACILITY DISTRIBUTION

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

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

PASS/FAIL RATIONALE:

- A)
- B)
- C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
GSE FILTER BREAKDOWN

(B) INTERFACING SUBSYSTEM(S):
FILTER BREAKDOWN ALLOWS CONTAMINANTS INTO EDO TANKS.

(C) MISSION:
POSSIBLE EDO MISSION ABORT DUE TO FILTER CONTAMINANTS CAUSING EDO *OR PAID*
SUBSYSTEM, COMPONENTS TO MALFUNCTION.

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(D) CREW, VEHICLE, AND ELEMENT(S):

~~NO EFFECT~~

*EAD PALLET REAGENTS UNUSABLE
DUE TO CONTAMINANTS PLUGGING
EOD TRUNK SUPPLY FILTERS.*

(E) FUNCTIONAL CRITICALITY EFFECTS:

N/A

- DISPOSITION RATIONALE -

(A) DESIGN:

FILTER ELEMENTS AND OTHER WELDED PARTS ARE COMPOSED OF CORROSION RESISTANT STEEL. FILTER ELEMENT IS DUTCH WEAVE WIRE MESH CLOTH WHICH REMOVES PARTICLES OF GREATER THAN 25 MICRONS IN SIZE. NON-METAL PARTS ARE TEFLON. THE FILTER IS DESIGNED TO OPERATE WITHIN SPECIFICATIONS FOR GHE. FILTER WILL WITHSTAND DIFFERENTIAL PRESSURE UP TO 1,500 PSI IN DIRECTION OF FLOW BEFORE COLLAPSE. OCCURRENCE OF FILTER CLOGGING IS MINIMIZED BY SAMPLING THE MEDIA (GHE) FOR CLEANLINESS PRIOR TO LOADING.

(B) TEST:

ACCEPTANCE TESTS:

ACCEPTANCE TESTS PER ME286-0066 INCLUDE PRODUCT EXAMINATION, PROOF PRESSURE, ELEMENT CLEANLINESS, BUBBLE POINT TEST, ELEMENT DRYING, CASE CLEANLINESS AND EXTERNAL LEAKAGE.

CHECK-OUT TESTS:

CHECK-OUT TESTS PER ME286-0066 INCLUDE SHIPPING CAPABILITY TEST, CLEAN PRESSURE DROP TEST, REVERSE FLOW, FILTRATION AND CONTAMINATION CAPACITY TEST, COLLAPSE PRESSURE TEST AND LOT ACCEPTANCE TEST.

CERTIFICATION OR QUALIFICATION TESTS:

THE FILTER IS IN COMPLIANCE WITH SOURCE CONTROL DRAWING ME286-0066. NO CERTIFICATION OR QUALIFICATION TESTS WERE CONDUCTED ON THIS FILTER.

(C) INSPECTION:

FILTERS ARE SUBJECT TO CLEANLINESS VERIFICATION PER LEVEL 100A OF MA0110-3010 PRODUCT CLEANLINESS REQUIREMENTS; ALSO INSPECTION OF FILTER FOR SEALING, PACKING, AND SHIPPING.

THE FILTER IS REQUIRED TO BE CLEANED ~~ONCE A YEAR~~ *every 5 years* BEFORE USE OR WHEN DIFFERENTIAL PRESSURE ACROSS THE FILTER EXCEEDS 12 PSI.

(D) FAILURE HISTORY:

THERE HAVE BEEN NO FAILURES RECORDED AGAINST THIS FAILURE MODE.

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(E) OPERATIONAL USE:

NONE

- APPROVALS -

RELIABILITY ENGINEERING: M. P. RAGUSA
DESIGN ENGINEERING : C. J. BARNETT
QUALITY SUPERVISOR : O. J. BUTTNER
NASA RELIABILITY : *Thompson 8/27/91*
NASA SUBSYSTEM MANAGER :
NASA QUALITY ASSURANCE :

M. P. Ragusa 5/21/91
C. J. Barnett 6/3/91
O. J. Buttner 5/16/91
Thompson 8/27/91
For Review For Approval 8/27/91, D215
For Review For Approval with WAIVER 8/27/91, 1014
Thompson 8/27/91