SSME FMEA/CIL
INSPECTION AND TEST

Component Group: Ducts and Lines
CIL Item: K503-03
Part Number: RS007172
Component: Oxidizer System Purge Line
FMEA Item: K503
Failure Mode: Orifice restricted or blocked.

Prepared: D. Early
Approved: T. Nguyen
Approval Date: 7/25/00
Change #: 2
Directive #: CCBD ME3-01-5638

Failure Causes	Significant Characteristics	Inspection(s) / Test(s)	Document Reference
A	LINE PCA GN2 INLET FILTER		RS007172 RES1090
		THE ORIFICE DIAMETER IS DIMENSIONALLY VERIFIED PER DRAWING REQUIREMENTS.	RS007172
	CLEANLINESS OF PCA COMPONENTS	THE ASSEMBLY AND UPSTREAM COMPONENTS ARE CLEANED PER SPECIFICATION REQUIREMENTS.	RL10001
	PCA GN2 FILTER INTEGRITY	FILTERS ARE INSPECTED TO MEET FLOW AND FILTRATION REQUIREMENTS PER SPECIFICATION REQUIREMENTS.	RC1090
		ASSEMBLY INSTALLATION IS VERIFIED TO BE IN A CONTROLLED ENVIRONMENT.	RQ0711-600
	PRE-FLIGHT CHECKOUT	DURING THE PROPELLANT CONDITIONING, THE OXIDIZER SYSTEM PURGE IS VERIFIED PER SPECIFICATION REQUIREMENTS. (LAST TEST)	OMRSD S00FB0.300

Failure History: Comprehensive failure history data is maintained in the Problem Reporting database (PRAMS/PRACA)
Reference: NASA letter SA21/88/308 and Rocketdyne letter 88RC09761.

Operational Use: Not Applicable.

SSME EA/CIL DESIGN

Component Group:	**Ducts and Lines**	**Prepared:**	**D. Early**
CIL Item:	**K503-03**	**Approved:**	**T. Nguyen**
Part Number:	**RS007172**	**Approval Date:**	**7/25/00**
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Design / Document Reference

FAILURE CAUSE: A: Contamination.

GASEOUS NITROGEN (GN2) PURGE IS USED DURING PROPELLANT CONDITIONING TO REMOVE MOISTURE AND TO DILUTE PROPELLANT LEAKAGE. GASEOUS NITROGEN PURGE PARTICULATES ARE CONTROLLED BY THE INTERFACE CONTROL DOCUMENT (1). CLEANLINESS REQUIREMENTS ARE ESTABLISHED TO REDUCE THE POSSIBILITY OF ORIFICE BLOCKAGE (2). ENGINE SYSTEMS ARE CLEANED TO APPLICABLE MEDIA CLEANLINESS REQUIREMENTS (2). GN2 PURGE IS FILTERED BY THE PNEUMATIC CONTROL ASSEMBLY (PCA). THE GN2 INLET FILTER REMOVES PARTICULATES LARGER THAN 15-MICRON (3). THE PCA DETAIL PARTS AND TEST FIXTURES ARE CLEANED (2) PRIOR TO ASSEMBLY (4). ASSEMBLY AND TEST ARE PERFORMED IN A CLEAN ROOM (5). LUBRICANTS ARE NOT ALLOWED FOR ASSEMBLY OR TEST (4). COMPONENT LEVEL TEST FLUIDS ARE NITROGEN AND HELIUM, WHICH MEET THE HARDWARE CLEANLINESS REQUIREMENTS (2). THE COMPONENT PARTS AND SUBASSEMBLY ARE FREE OF VISIBLE FOREIGN PARTICLES AT THE TIME OF ASSEMBLY (4). THE ORIFICE SIZE IS LARGER THAN ACCEPTABLE PARTICULATES.

(1) ICD13M15000; (2) RL10001; (3) R0019450; (4) RL00226, RL00347; (5) RQ0711-600

SSME FMEA/CIL
REDUNDANCY SCREEN

Component Group:	**Ducts and Lines**	**Prepared:**	**D. Early**
CIL Item:	**K503-03**	**Approved:**	**T. Nguyen**
Part Number:	**RS007172**	**Approval Date:**	**7/25/00**
Component:	**Oxidizer System Purge Line**	**Change #:**	**2**
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Phase	Failure / Effect Description	Criticality Hazard Reference
P 4.1	Reduced flow has no effect on fuel preburner conditioning as purge is accomplished thru fuel preburner purge check valve. Loss of flow through this check valve reduces the purge flow below acceptable limits for inerting propellant leakage at ICD limits. Potential open air fire. Loss of vehicle. Redundancy Screens: SINGLE POINT FAILURE: N/A	1 ME-A1P, ME-A1A

SSME EA/CIL
WELD JOINTS

Component Group: Ducts and Lines
CIL Item: K503
Part Number: RS007172
Component: Oxidizer System Purge Line
FMEA Item: K503

Prepared: D. Early
Approved: T. Nguyen
Approval Date: 7/25/00
Change #: 1
Directive #: CCBD ME3-01-5638
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Component	Basic Part Number	Weld Number	Weld Type	Class	Root Side Not Access	Critical Initial Flaw Size Not Detectable HCF	Critical Initial Flaw Size Not Detectable LCF	Comments
LINE	RS007172	1,1a,2,2a	GTAW	I	X	X		