

SSME FMEA/CIL
REDUNDANCY SCREEN

Component Group: Orifices
 CIL Item: N709-01
 Part Number: RS007352
 Component: GCV GOX Outlet Orifice (O26)
 FMEA Item: N709
 Failure Mode: Orifice restricted or blocked.

Prepared: D. Early
 Approved: T. Nguyen
 Approval Date: 7/25/00
 Change #: 1
 Directive #: CCBD ME3-01-5638

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Phase	Failure / Effect Description	Criticality Hazard Reference
SM 4.1	Loss of Pogo accumulator flow. Loss of vehicle. Redundancy Screens: SINGLE POINT FAILURE: N/A	1 ME-B3A,M,C, ME-G8M
C 4.1	Loss of Pogo shutdown charge at zero G condition and minimum NPSP will result in cavitation/overspeed of HPOTP and/or LPOTP. Loss of vehicle. Redundancy Screens: SINGLE POINT FAILURE: N/A	1 ME-B3A,M,C

SSME 1EA/CIL
DESIGN

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Design / Document Reference

FAILURE CAUSE: A: Contamination.

THE LOX SUPPLY SYSTEM IS DESIGNED TO FILTER LOX IN TWO STEPS, AN 800-MICRON FILTER AT THE E.T. INTERFACE (1) AND A 100- MICRON FILTER AT THE ANTI-FLOOD VALVE (2). CLEANLINESS REQUIREMENTS ARE ESTABLISHED TO REDUCE THE POSSIBILITY OF ORIFICE BLOCKAGE (3). ENGINE SYSTEMS ARE CLEANED TO APPLICABLE MEDIA CLEANLINESS REQUIREMENTS (3). THE ANTI-FLOOD VALVE DETAIL PARTS AND TEST FIXTURES ARE CLEANED PRIOR TO ASSEMBLY (3). ASSEMBLY AND TEST ARE PERFORMED IN A CLEAN ROOM (4). LUBRICANTS ARE NOT ALLOWED FOR ASSEMBLY OR TEST (4). COMPONENT LEVEL TEST FLUIDS ARE NITROGEN AND HELIUM WHICH MEET THE HARDWARE CLEANLINESS REQUIREMENTS (3). 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) RS007083; (3) RL10001; (4) RL00460

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INSPECTION AND TEST

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Failure Causes	Significant Characteristics	Inspection(s) / Test(s)	Document Reference
A	LINE		RS007283
	CLEANLINESS OF COMPONENTS	THE ASSEMBLY AND UPSTREAM COMPONENTS ARE CLEANED PER SPECIFICATION REQUIREMENTS.	RL10001
		ASSEMBLY INSTALLATION IS VERIFIED TO BE IN A CONTROLLED ENVIRONMENT.	RQ0711-600
	PRE-FLIGHT CHECKOUT	FLOW THROUGH ORIFICE IS VERIFIED PER SPECIFICATION REQUIREMENTS. (LAST TEST)	OMRSD V41BP0.015

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.