

CRITICAL ITEMS LIST (CIL)

No. 10-03-04-03/02

SYSTEM:	Space Shuttle RSRM 10	CRITICALITY CATEGORY:	1
SUBSYSTEM:	Ignition Subsystem 10-03	PART NAME:	Igniter Nozzle Insert (1)
ASSEMBLY:	Igniter Assembly 10-03-04	PART NO.:	(See Table A-3)
FMEA ITEM NO.:	10-03-04-03 Rev M	PHASE(S):	Boost (BT)
CIL REV NO.:	M	QUANTITY:	(See Table A-3)
DATE:	31 Jul 2000	EFFECTIVITY:	(See Table 101-6)
SUPERSEDES PAGE:	430-1ff.	HAZARD REF.:	BI-03
DATED:	30 Jul 1999		
CIL ANALYST:	D. J. McGough		
APPROVED BY:		DATE:	

RELIABILITY ENGINEERING: K. G. Sanofsky 31 Jul 2000

ENGINEERING: D. W. Sylte 31 Jul 2000

1.0 FAILURE CONDITION: Failure during operation (D)

2.0 FAILURE MODE: 2.0 Failure to provide the required matched performance

3.0 FAILURE EFFECTS: Igniter nozzle Insert failure results in delay of ignition and/or alteration of pressures/time trace resulting in uncontrollable thrust imbalance between paired SRBs causing loss of RSRM, SRB, crew, and vehicle

4.0 FAILURE CAUSES (FC):

FC NO.	DESCRIPTION	FAILURE CAUSE KEY
2.1	Ballistics inadequacies due to nonconforming dimensions	A

5.0 REDUNDANCY SCREENS:

SCREEN A: N/A
SCREEN B: N/A
SCREEN C: N/A

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6.0 ITEM DESCRIPTION:

1. Igniter Nozzle Insert (Figures 1 and 2). Materials are listed in Table 1.

TABLE 1. MATERIALS

Drawing No.	Name	Material	Specification	Quantity
1U78412	Insert, Igniter	Silica Cloth Phenolic	STW5-2652	1/Motor

6.1 CHARACTERISTICS:

1. The Igniter Nozzle Insert is a thermally resistant structure that contributes to control of pressure rise within the igniter and provides proper distribution of igniter hot gases for RSRM ignition. A laminate billet is molded from silica cloth patterns, preimpregnated with phenolic resin and thermally cured. The Igniter Nozzle Insert is bonded to the Igniter Chamber with adhesive. The Igniter Nozzle Insert is machined from the cured laminate billet to engineering requirements.

7.0 FAILURE HISTORY/RELATED EXPERIENCE:

1. Current data on test failures, flight failures, unexplained failures, and other failures during RSRM ground processing activity can be found in the PRACA Database.

8.0 OPERATIONAL USE: N/A

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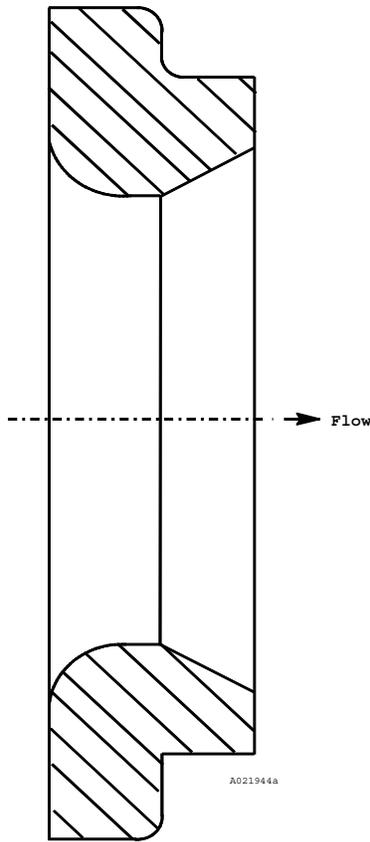


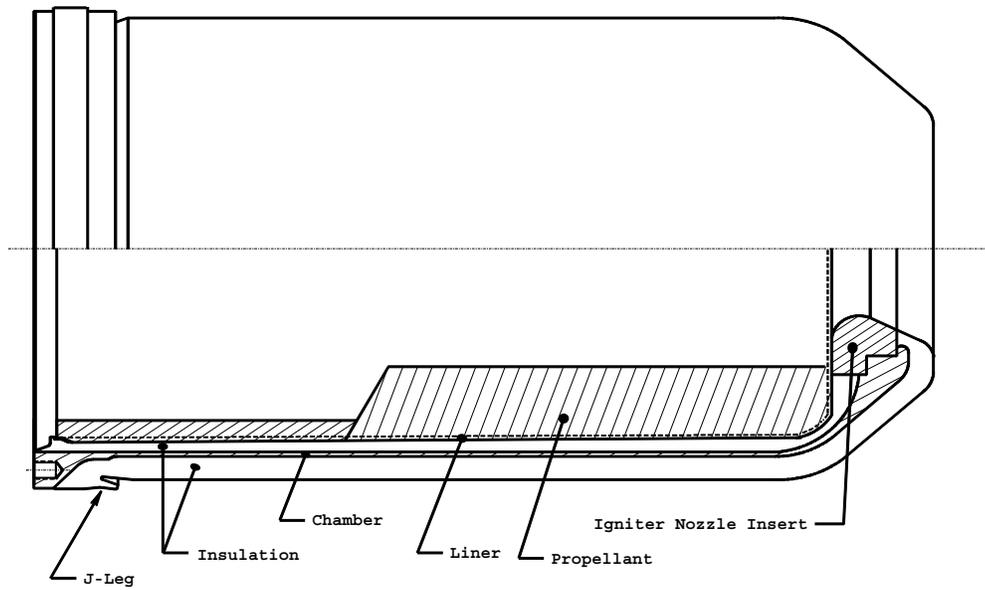
Figure 1. Igniter Nozzle Insert

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Figure 2. Loaded Chamber Assembly

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9.0 RATIONALE FOR RETENTION:

9.1 DESIGN:

DCN FAILURE CAUSES

- A 1. Igniter Insert dimensions are per engineering drawings.
- A 2. Critical dimensions necessary to produce the required ballistic performance were analyzed per TWR-12060 and TWR-61801.

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9.2 TEST AND INSPECTION:

FAILURE CAUSES and
DCN TESTS (T)

CIL CODES

1. For New Igniter Insert, verify:

A	a. Throat diameter	ACG000
A	b. All dimensions throat inlet radius	ACG000A

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