

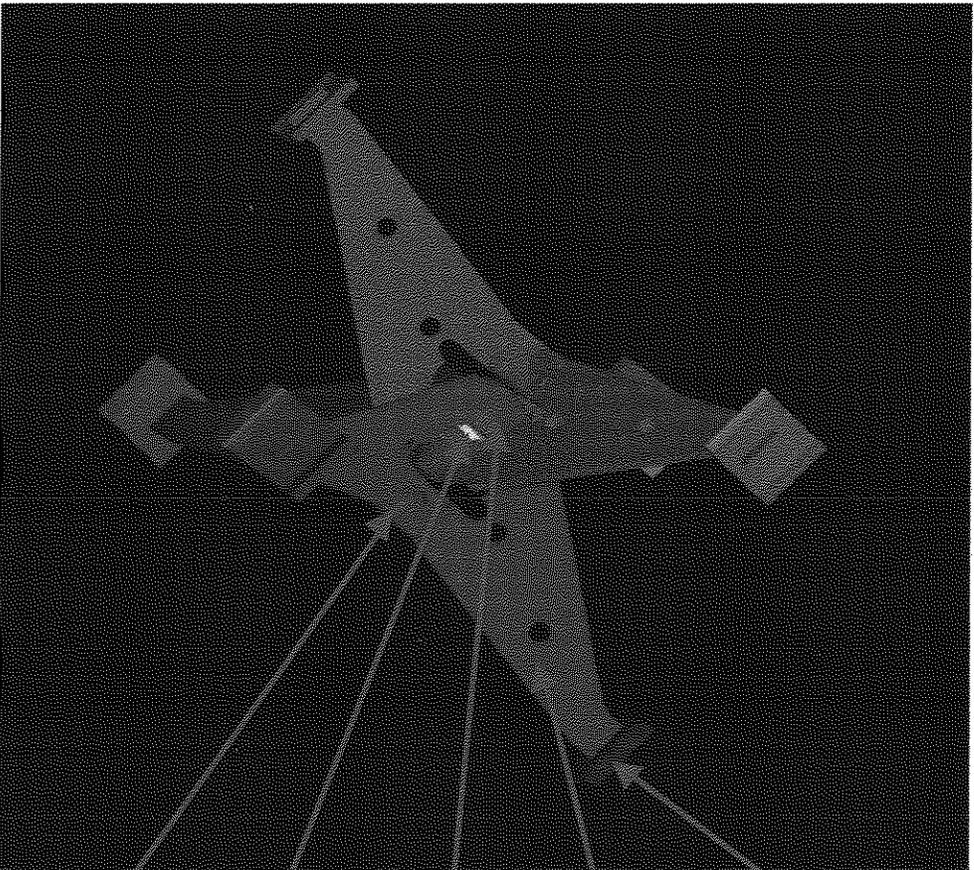
**NASA**

**SECTION 35**

# MPS 17" Feedline Ball Strut Tie Rod Assembly Ball Crack

Presenter:  
David Rigby

Date:  
Orbiter 01/14/03



Interlaced Strut Assembly

Pad (Red - Upstream  
Assy)

Strut (Red - Upstream  
Assy)

Nose Hub (Red - Upstream  
Assy)

Ball (Yellow)

Back Hub (Red - Upstream  
Assy)

(LH2 Configuration Shown)

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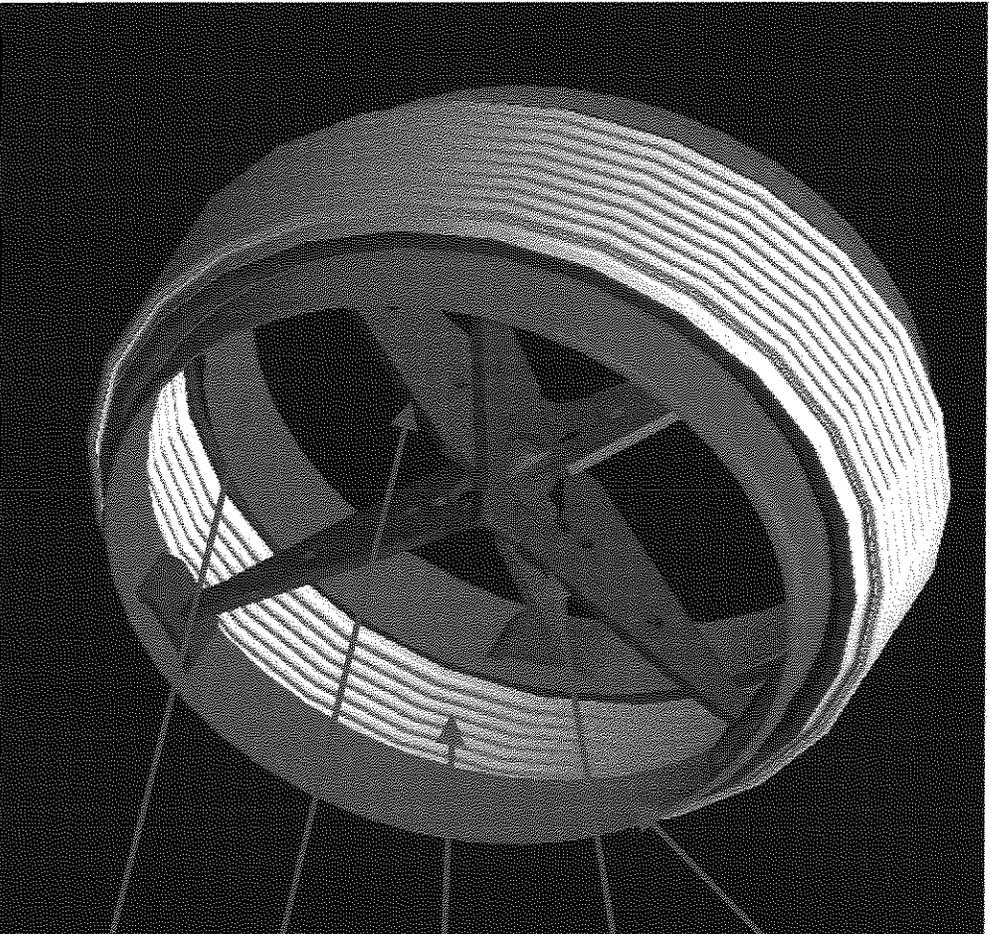
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# MPS 17" Feedline Ball Strut Tie Rod Assembly Ball Crack

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## BSTRA Components

Upstream Housing

Upstream Strut Assy (Red)

Bellows

Downstream Strut Assy  
(Blue)

Downstream Housing

(LH2 Configuration Shown)

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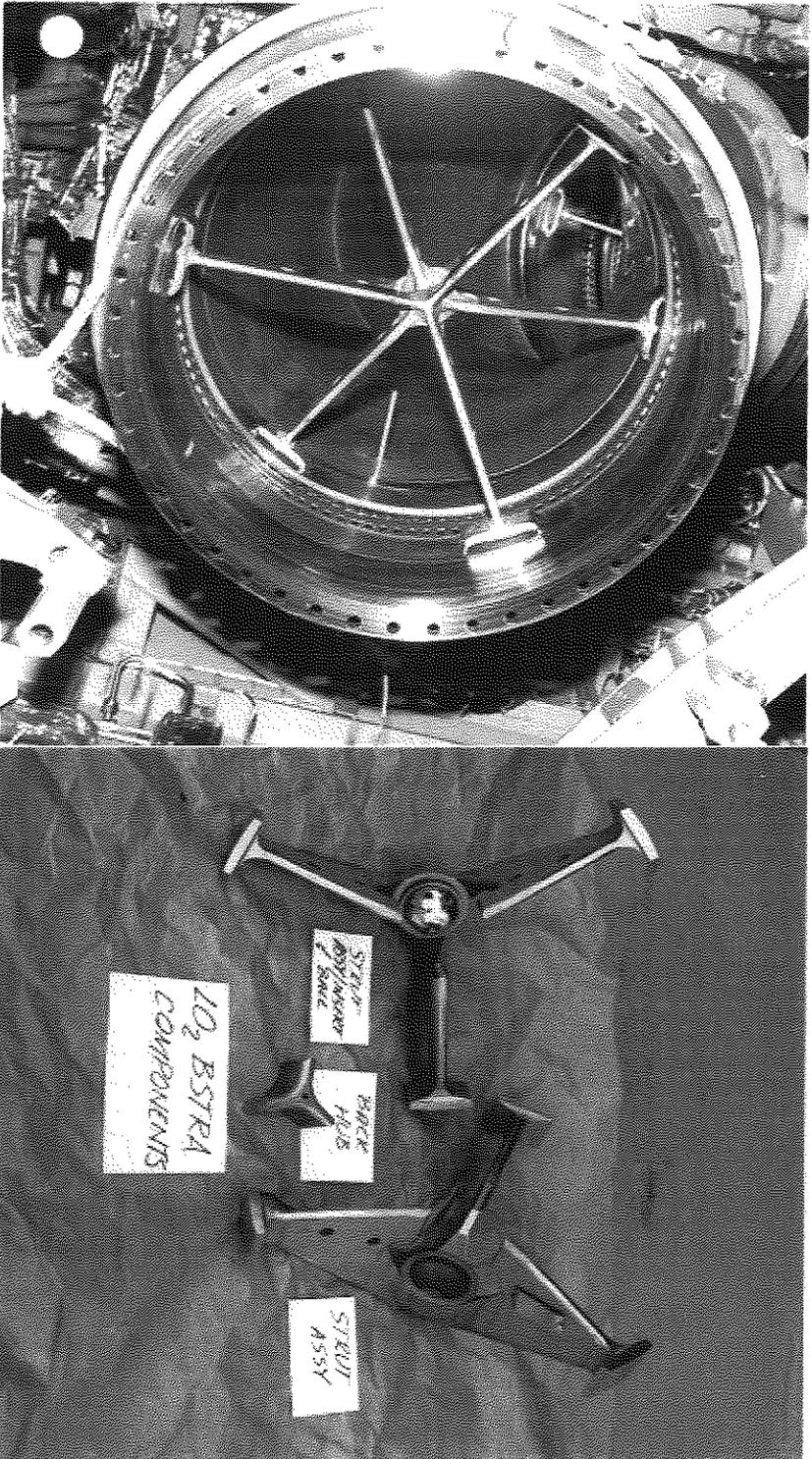


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## Typical BSTRA Assembly



LH2 Feedline Shown

LH2 BSTRA Piece Parts

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## MPS 17" Feedline Ball Strut Tie Rod Assembly Ball Crack

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### Vehicle Inspection Summary

- OMRSD inspection history
  - OV-105 "Big Bang" anomaly in mid-1990s raised concerns over BSTRA binding
    - Eventually cleared as an MLP-related noise
  - OMM borescope inspections implemented in 1995
    - Visual access limited to less than 25% of the surface
    - Ball is not rotated during the inspection
    - New borescope used for the first time during this inspection resulting in improved inspection capability
    - Closer inspection of balls possible due to decreased risk of damage from borescope
    - Better access to all sides of the balls / BSTRAs
  - Previous OMRSD inspections may not have seen similar indications on the ball due to access and the type of borescope used

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**MPS 17" Feedline Ball Strut Tie  
Rod Assembly Ball Crack**

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**Vehicle Inspection Summary (cont)**

Orbiter (Mission #)	OV-102 (28)	OV-103 (31)	OV-104 (27)	OV-105 (20)
LH2 12 Inch Engine Feedlines	TBD	Complete No Indications	Complete No Indications	Complete No Indications
LO2 12 Inch Engine Feedlines	TBD	Complete No Indications	Complete No Indications	Complete No Indications
LH2 17 Inch Feedlines	TBD	Complete No Indications	Complete No Indications	Complete No Indications
LO2 17 Inch Feedlines	TBD	Complete 1 Crack Indication	Complete No Indications	Complete No Indications
Previous OMRSD Inspection	Flight 27 Mar 2002	Flight 22 Feb 1997	Flight 21 May 2000	Flight 12 Jan 1998

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STS-107 FLIGHT READINESS REVIEW

<b>MPS 17" Feedline Ball Strut Tie Rod Assembly Ball Crack</b>	
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**OV-103 17" BSTRRA Ball Crack Indication**



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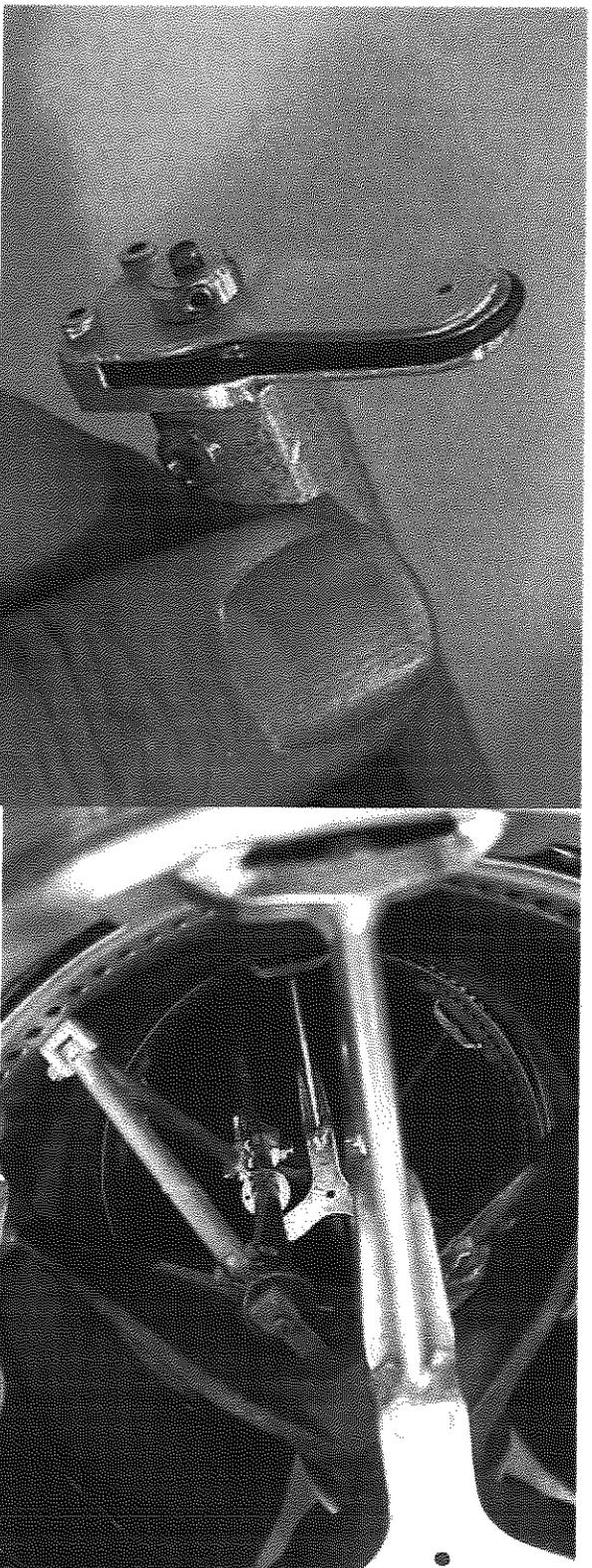
## MPS 17" Feedline Ball Strut Tie Rod Assembly Ball Crack

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### BSTRA Ball Inspection Tool

- Under development at JSC with KSC involvement
- Designed to unload BSTRA joint and allow full rotation and inspection of the OV-103 cracked BSTRA ball
- CHIT will be brought forward to the SSP when all design and implementation issues are resolved



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