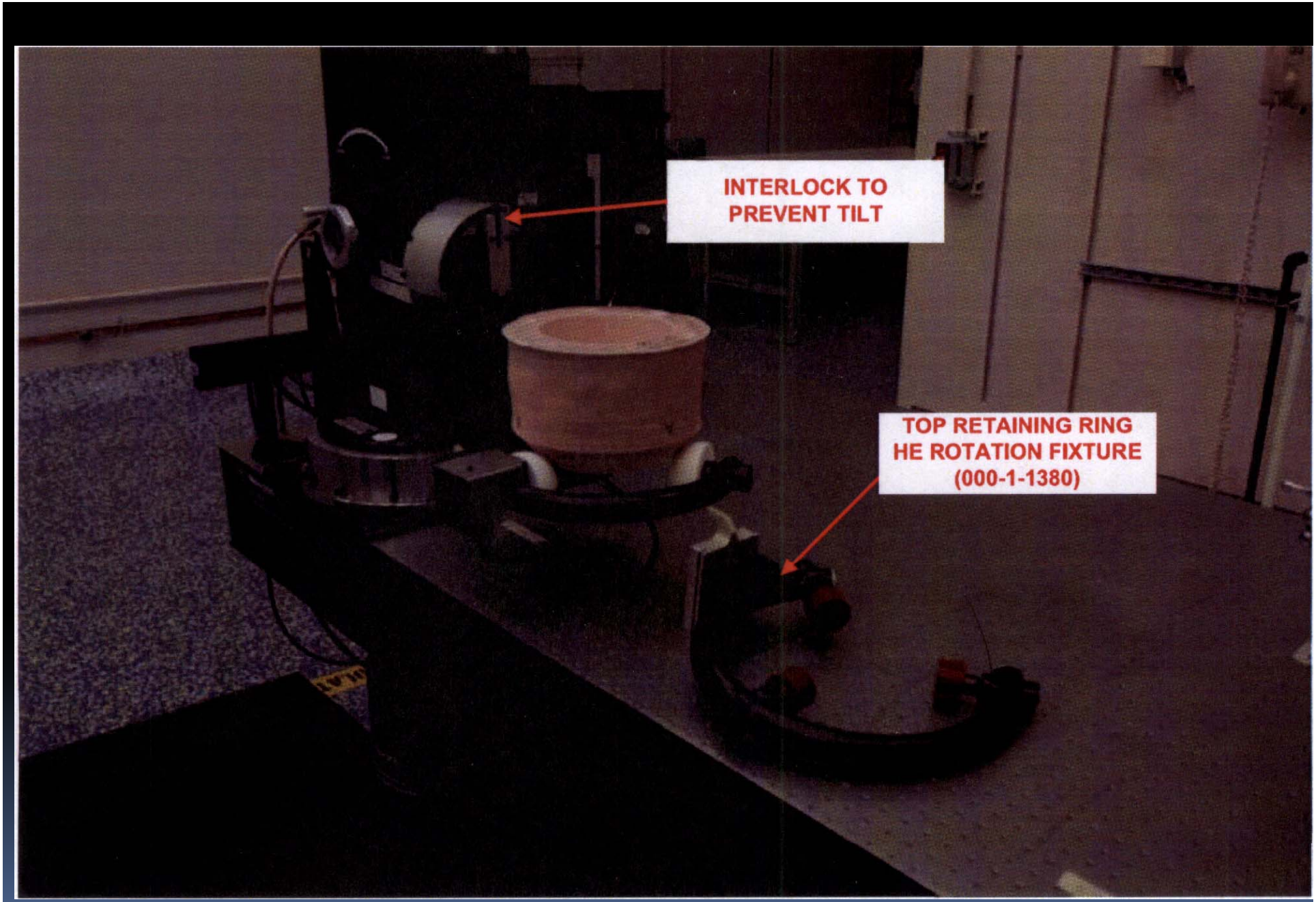
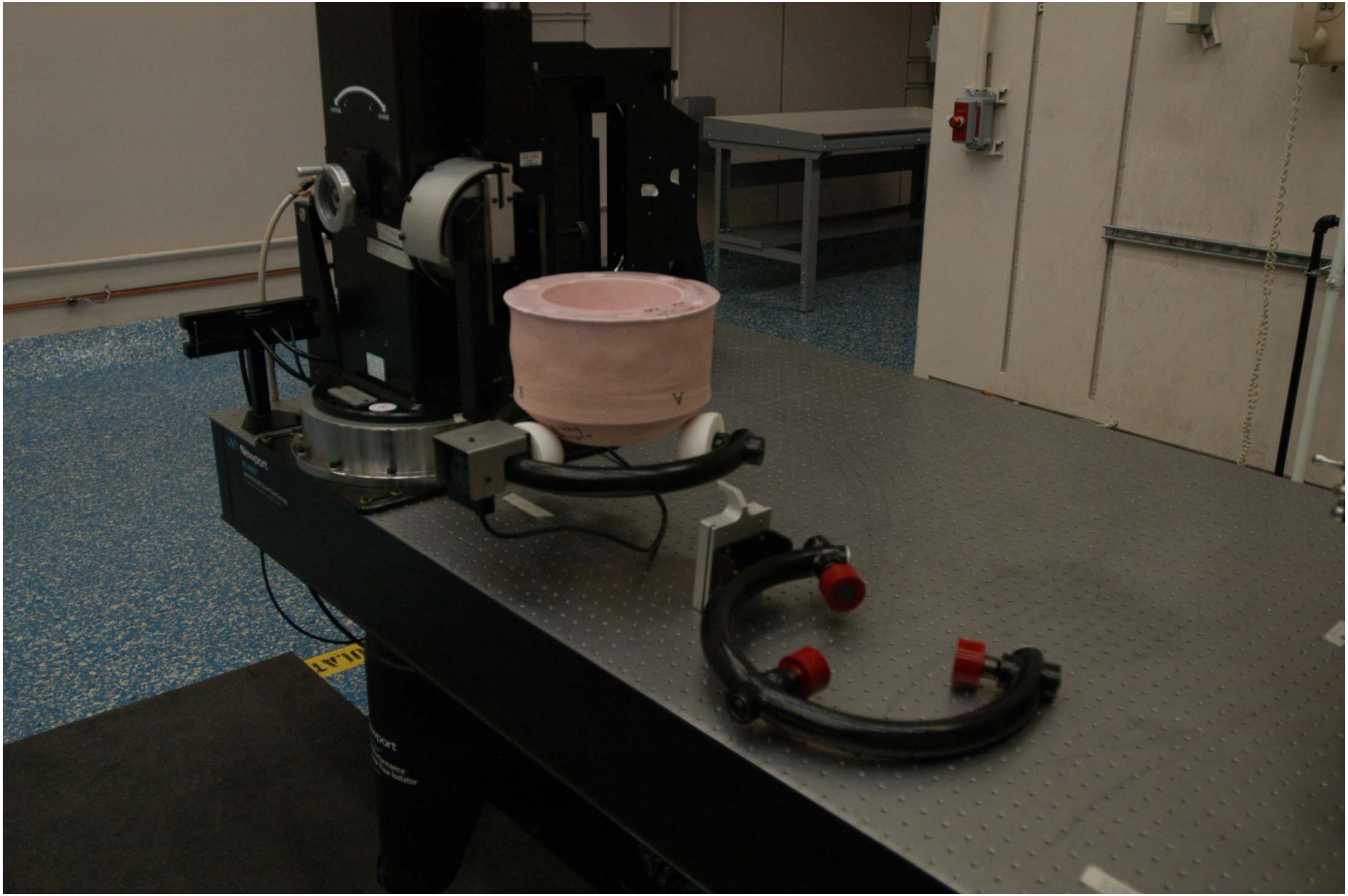
November 18, 2010

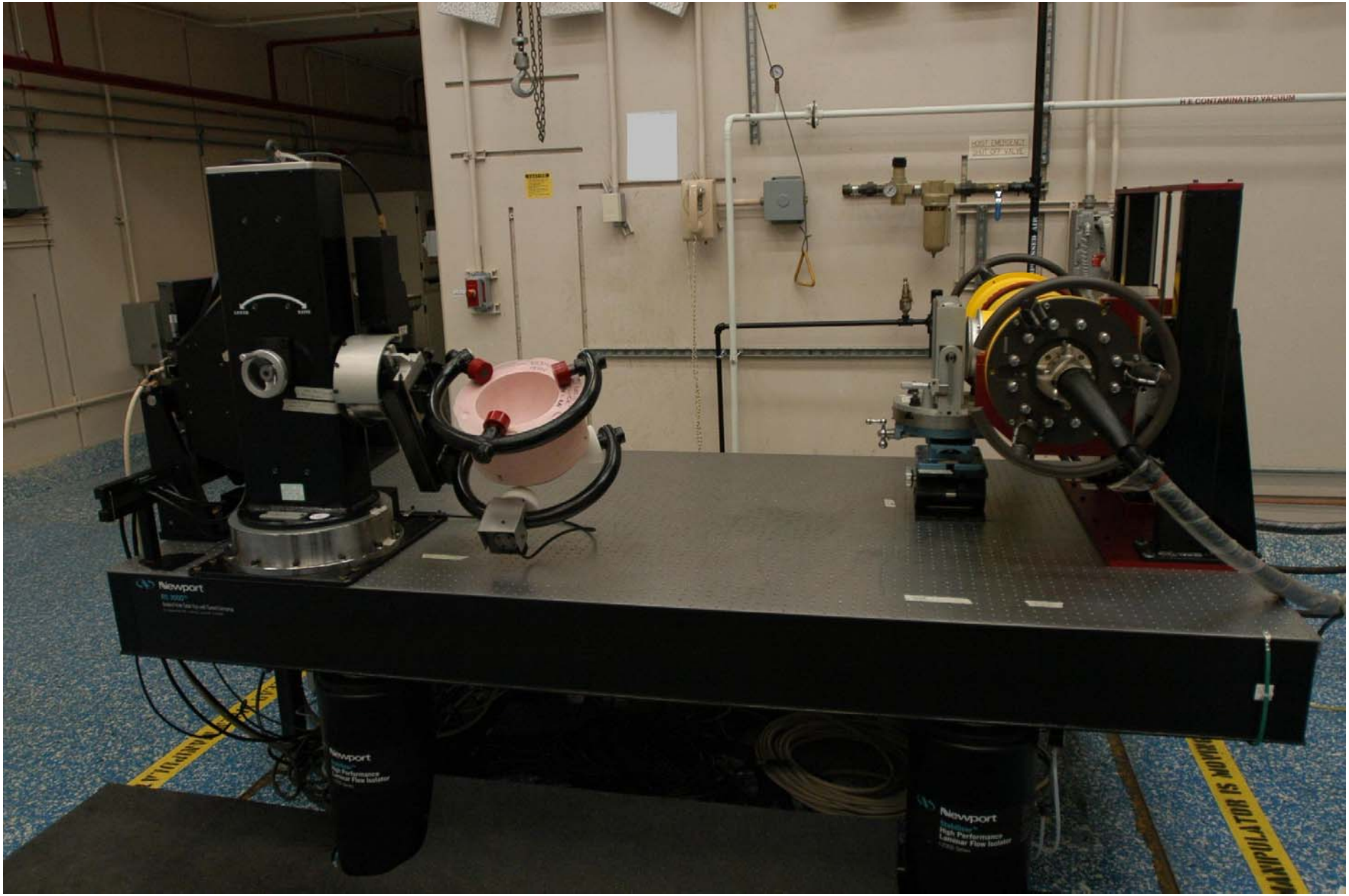
PANTEX DROPPED PIECE OF HIGH EXPLOSIVES

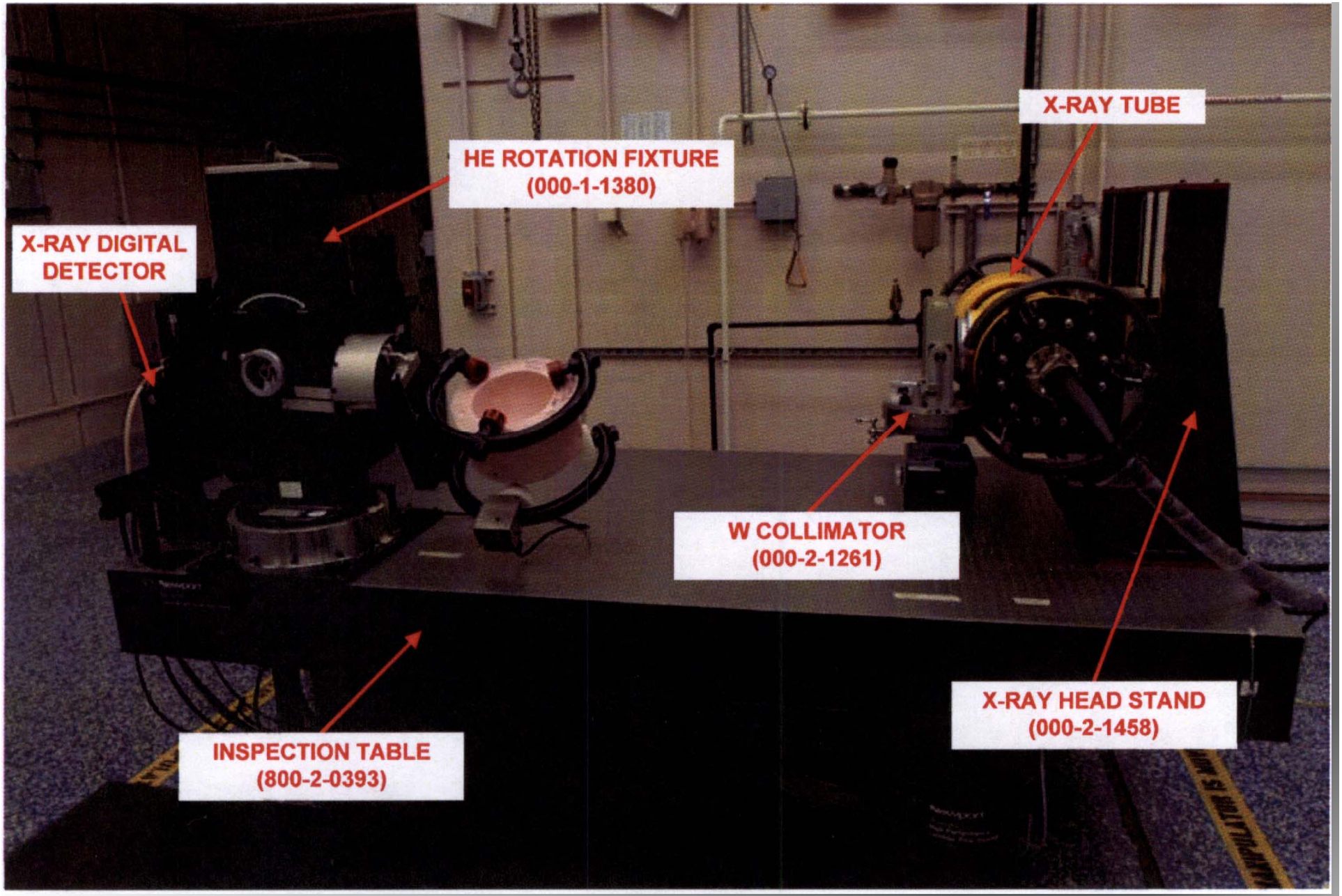
The Event

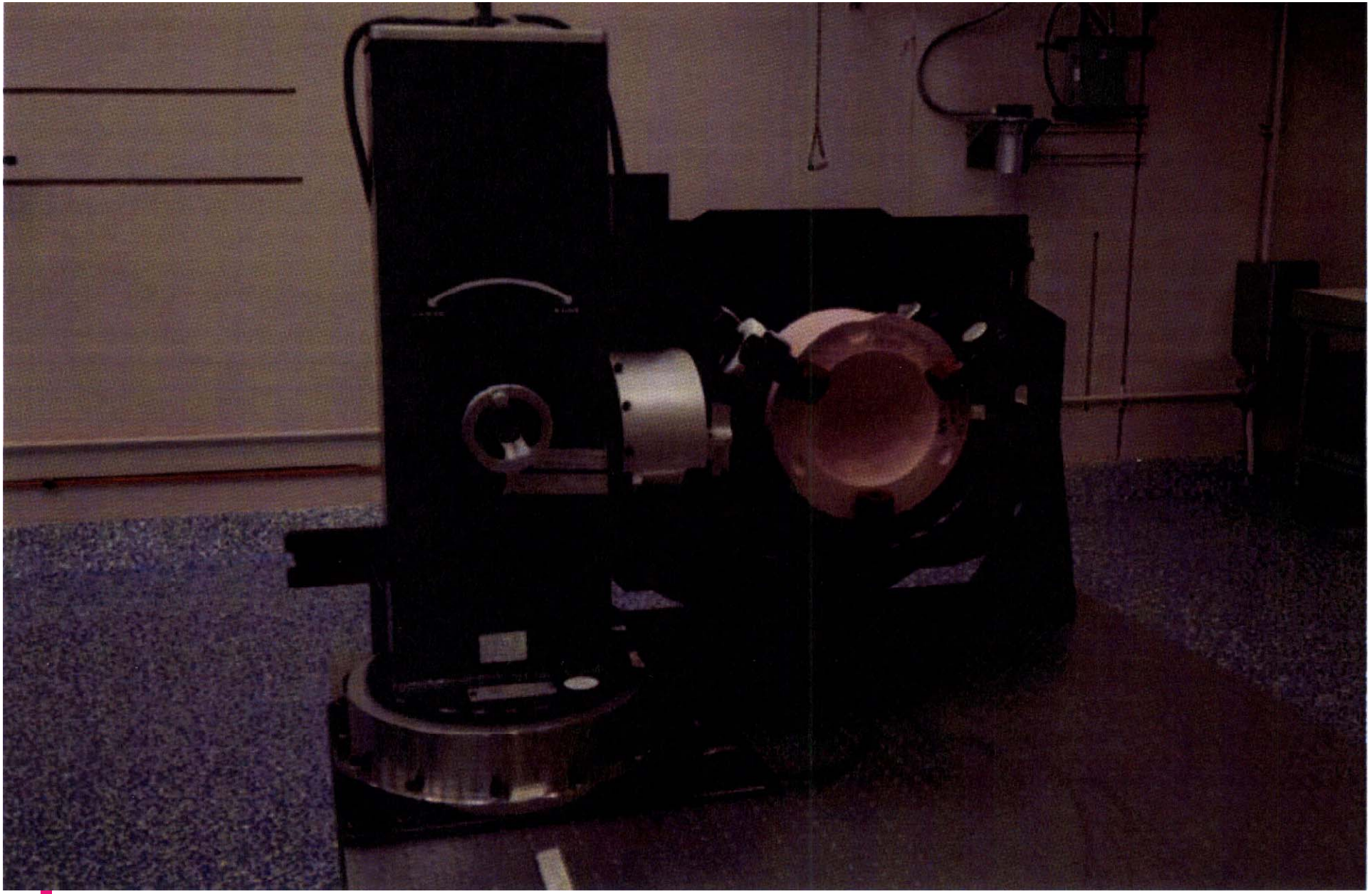
- Quality Assurance Technicians (QATs) Performing Radiography of a High Explosives (HE) Part.
- HE manipulated through automated sequence to preset positions.
- Holding fixture designed to allow positioning of the HE for x-ray shots.
- Remote Operation, observed by closed circuit camera.
- QATs Noted HE Movement Within the Holding Fixture, Stopped Operation, But HE Part Slipped Out of Holding Fixture Onto a Padded Work Surface.

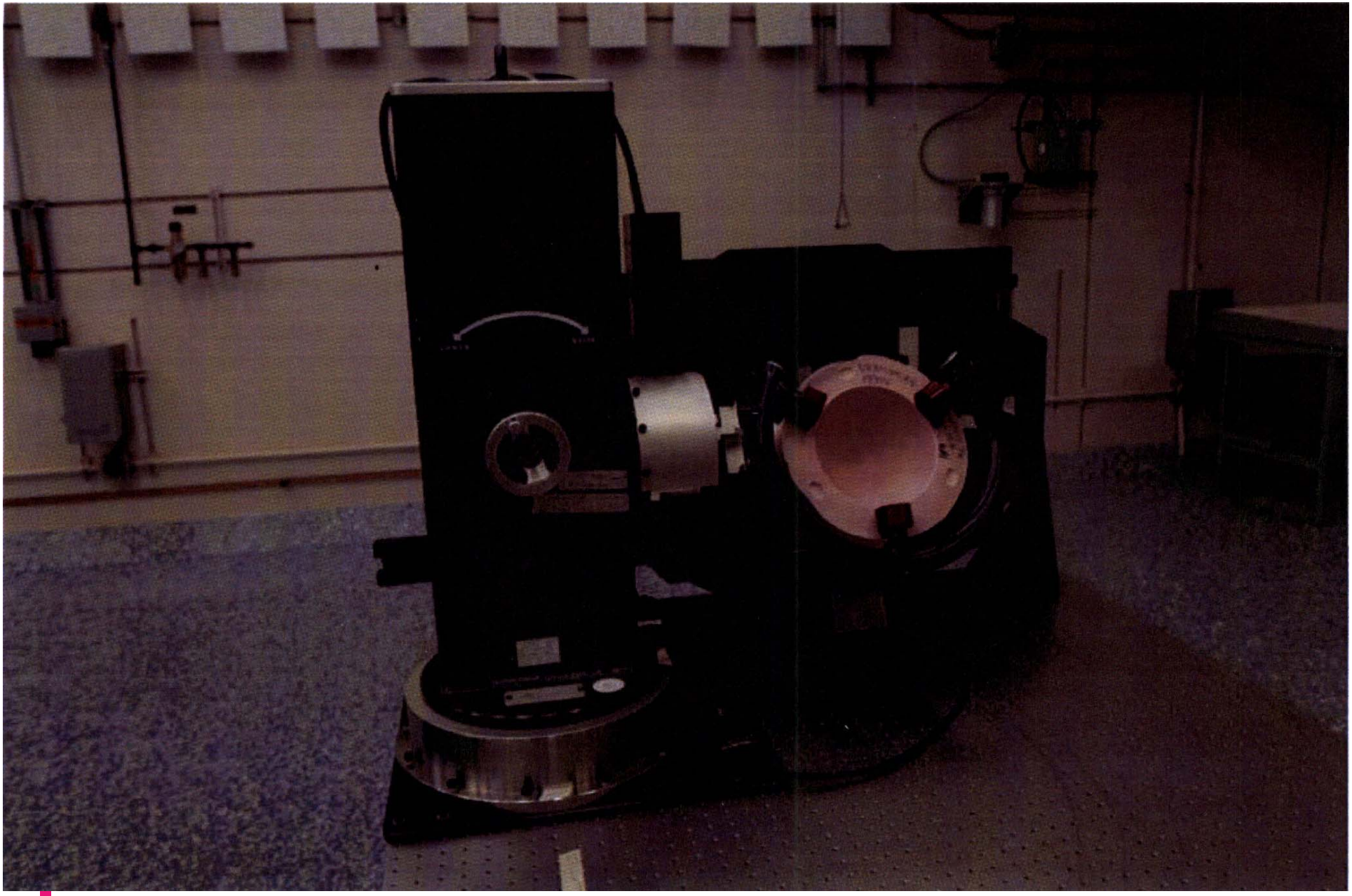

INTERLOCK TO
PREVENT TILT
TOP RETAINING RING
HE ROTATION FIXTURE
(000-1-1380)

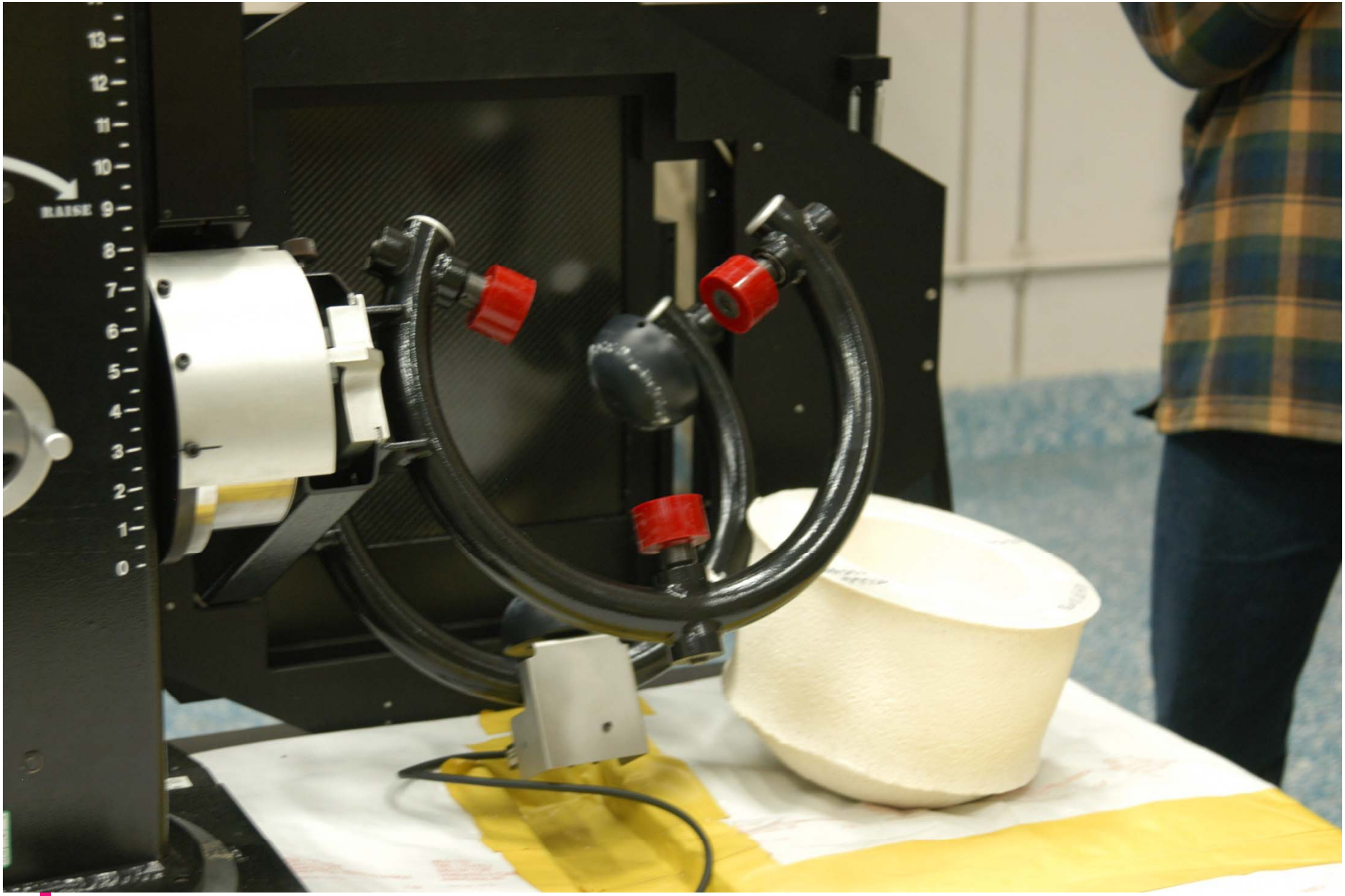



Newport
Newport
Newport


X-RAY TUBE
HE ROTATION FIXTURE
(000-1-1380)
X-RAY DIGITAL
DETECTOR
W COLLIMATOR
(000-2-1261)
X-RAY HEAD STAND
(000-2-1458)
INSPECTION TABLE
(800-2-0393)

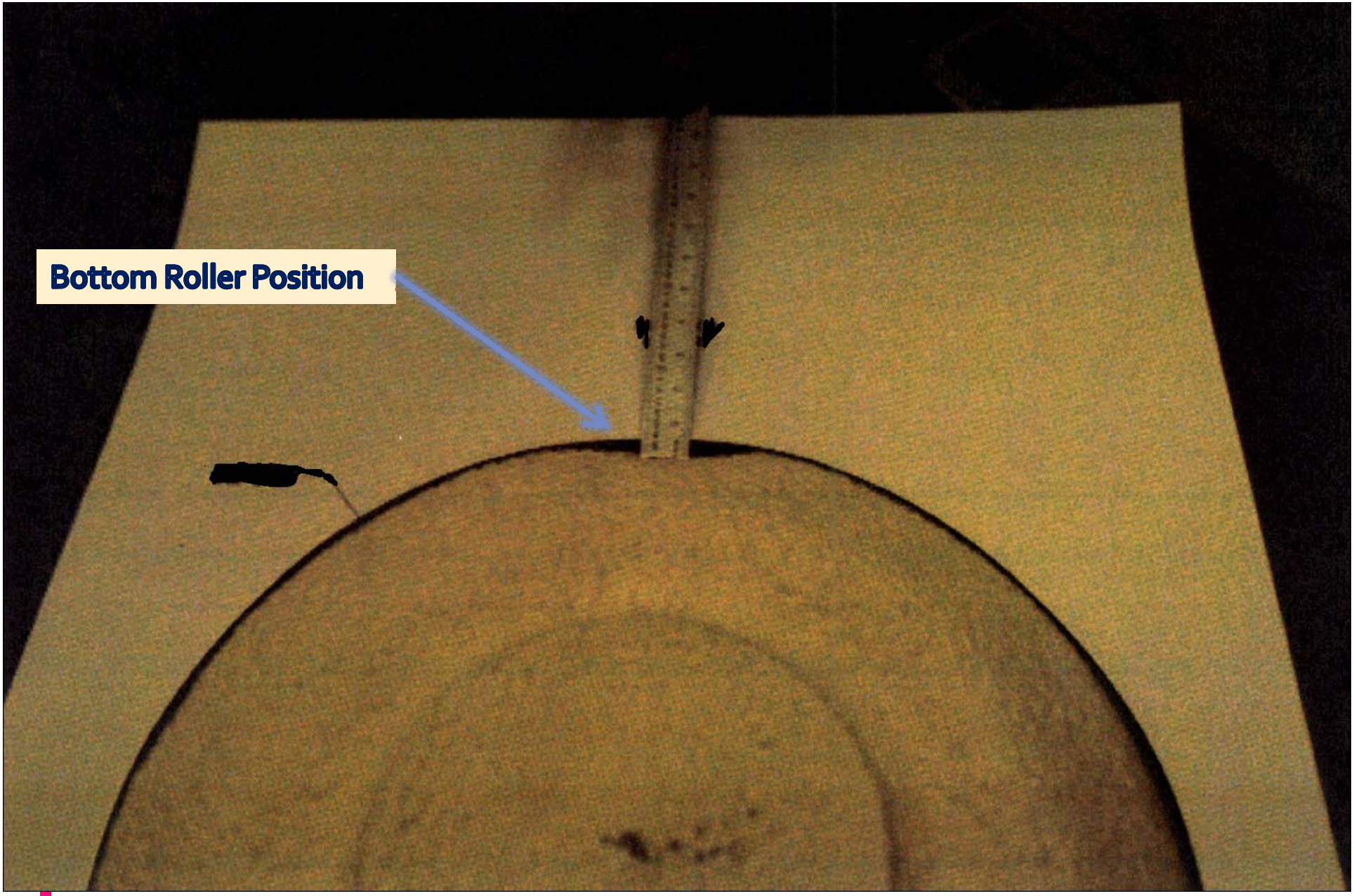


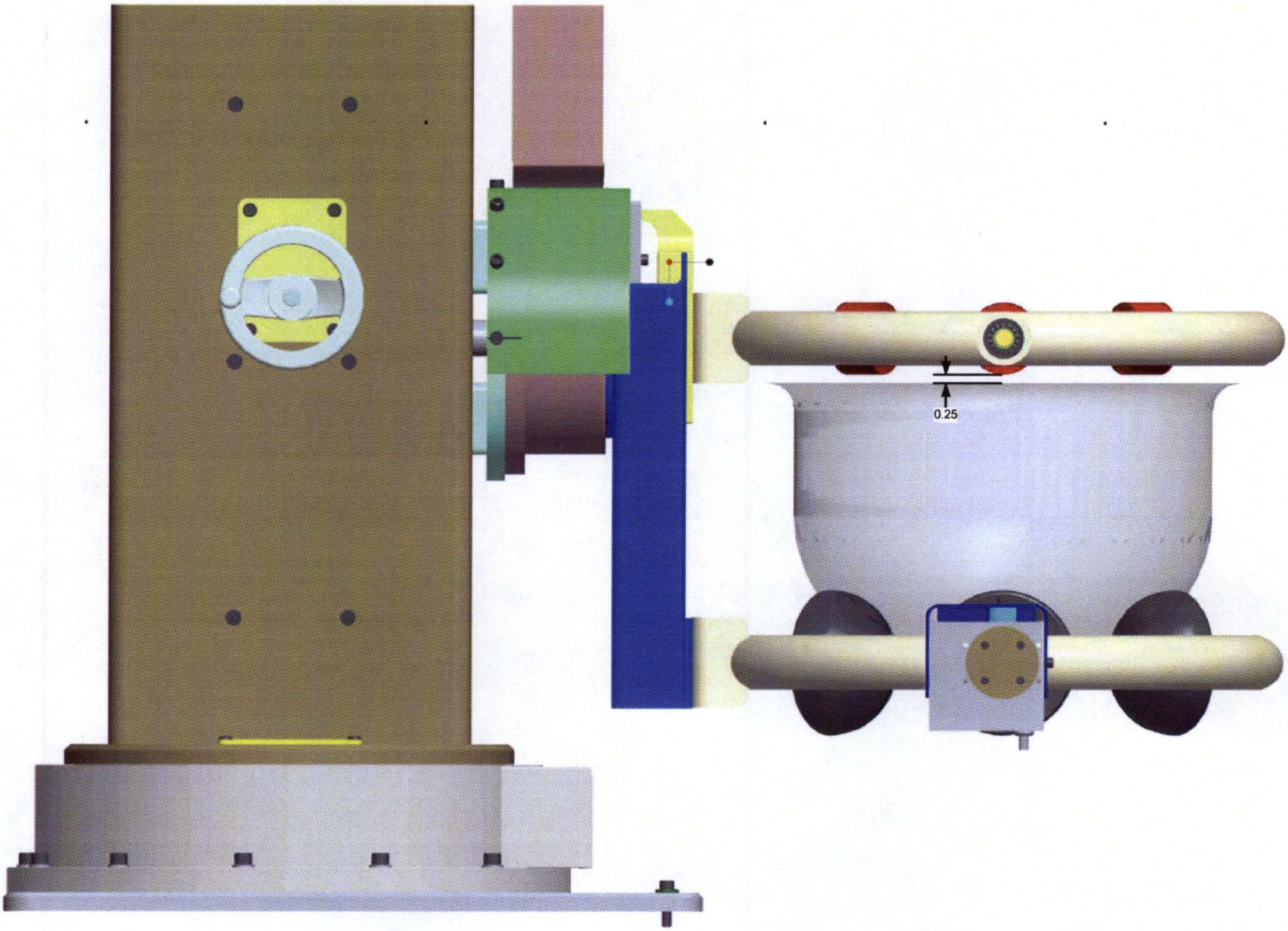



RAISE
13
12
11
10
9
8
7
6
5
4
3
2
1
0

Causes

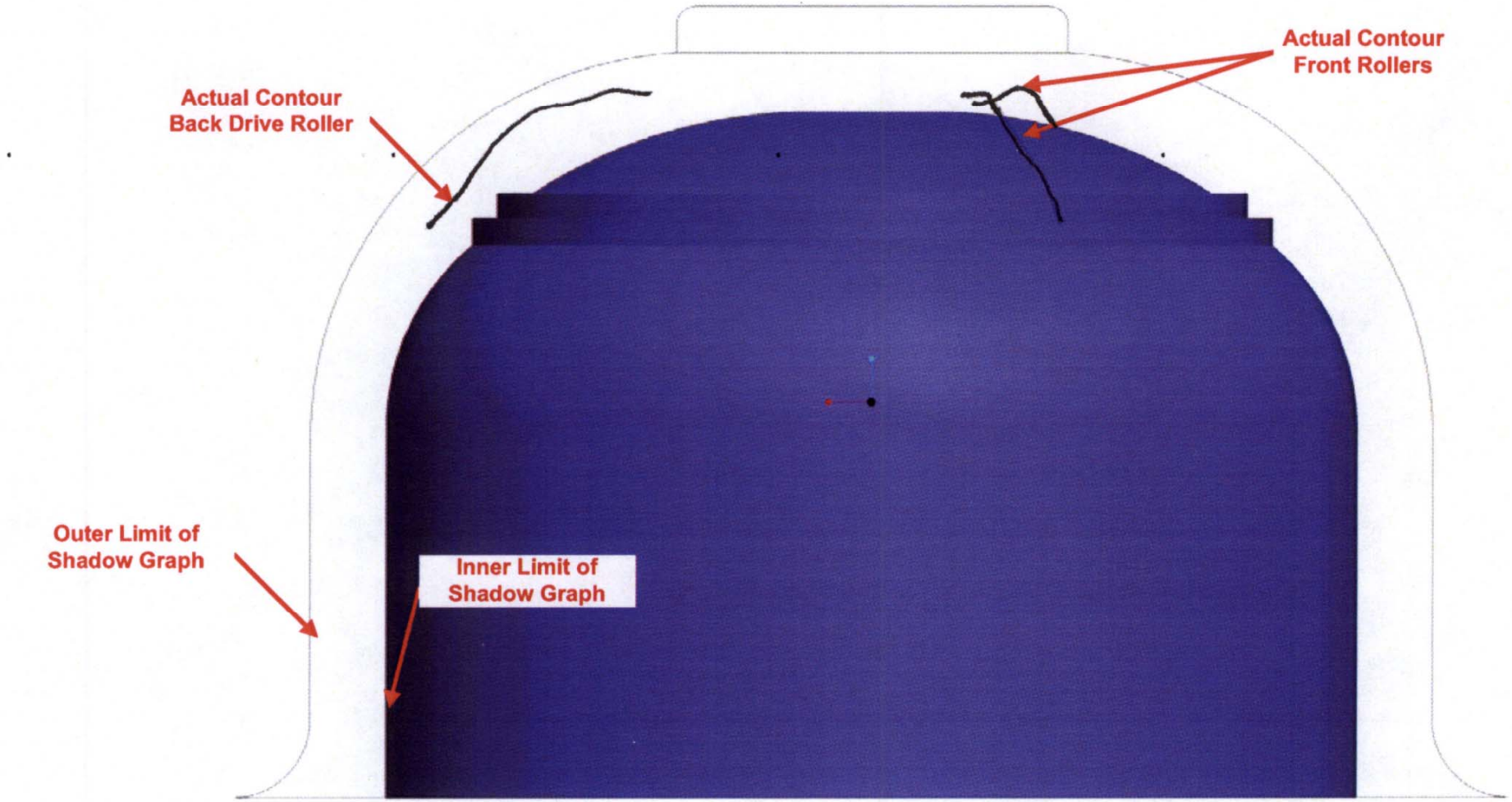
- The roller on the fixture rolled into an undulation in the HE surface and allowed the HE Part to drop enough to become dislodged.
- The Holding Fixture did not prevent the HE Part from falling to the table.


Bottom Roller Position


0.25

Causes (Continued)

- The undulations in HE surface were not out of tolerance for the measurement method (Shadow Graph) in use.


Actual Contour
Front Rollers
Actual Contour
Back Drive Roller
Outer Limit of
Shadow Graph
Inner Limit of
Shadow Graph

Causes (Continued)

- X-ray being used was not capable of shooting through an entire HE Part. Required part to be manipulated.

Corrective Actions

Re-Engineer process to address Holding Fixture being able to secure the HE Part for the whole range of acceptable dimensions and surface imperfections.

- Redesign HE Rotation Fixture.
- Evaluate other methods to identify undulations on HE Part.
- (Long-Term) Design and Construct New Facility.