

# HISTORIC AMERICAN ENGINEERING RECORD

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NASA JOHNSON SPACE CENTER, BUILDING NO. 32, SPACE  
ENVIRONMENT SIMULATION LABORATORY, CHAMBERS  
A & B  
2101 NASA Parkway  
Houston  
Harris County  
Texas

HAER TX-109-B

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Photographic Operations Group - Johnson Space Center, photographer

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|------------|---|
| TX-109-B-1 | Detail view looking at the rack supporting the lamps used for the solar-simulator array inside of Chamber A. Originally these were carbon-arc lamps and access was needed for maintenance and repair on the lamps while the array was in operation.   |
| TX-109-B-2 | Close-up view of the top portion of the solar array with post-Apollo configuration catwalks and platforms in view. The circular top of the chamber is partially shown.  |
| TX-109-B-3 | Slightly oblique view of the top portion of the solar array with post-Apollo configuration catwalks and platforms in view. The circular top of the chamber is partially shown.  |
| TX-109-B-4 | Elevated view looking down at some of the more recent post-Apollo catwalks and access platforms.  |
| TX-109-B-5 | Detail view of a curved catwalk near one of the air-locked access points. The dark backdrop consists of cryogenic panels that created a liquid nitrogen shroud for the interior space.  |
| TX-109-B-6 | Elevated view looking down at the test article floor, referred to as the lunar plane, which was initially designed to rotate. The concept behind this was to expose the test articles to the heating and cooling and solar exposure cycles. It was quickly determined that rotation would not be necessary and the platform was subsequently modified to be stationary. |

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- TX-109-B-7 Additional view looking down at the lunar plane. See previous image (HAER TX-109-B-6) and caption for more detail.
- TX-109-B-8 View of a semi-circular catwalk along the interior perimeter of test Chamber A. Also in view is the partially-open forty-foot diameter chamber access door.
- TX-109-B-9 Detail view of catwalks and access platforms located near the top of Chamber A.
- TX-109-B-10 Close-up view of the catwalks, ladders and access platforms located near the top of Chamber A.
- TX-109-B-11 View of a semi-circular catwalk and access platforms along the interior perimeter of test Chamber A. Cryo panels are shown in the background. Additionally, note the access port for crane hooks to extend into the interior of the chamber. There are four of these at 90 degrees to each other around the top of the chamber.
- TX-109-B-12 General view taken from on the lunar plane looking at the lenses of the lamps of the solar array.
- TX-109-B-13 General view looking at the upper segment of the lamps of the solar array.
- TX-109-B-14 View looking at the top of Chamber A and the lamp openings for the top solar array. Several lamps are extant in this photo; however, a number of them have been removed and were used as cable and equipment access for testing articles subsequent to the Apollo-era testing.
- TX-109-B-15 Close up view on the exterior top of the chamber showing the drive motor and winch for one of the four hoists that extend into the chamber interior to assist in moving and positioning equipment and test articles.
- TX-109-B-16 General view on the exterior top of the chamber. This view shows the support structure for the hoist. In the view, beneath the large I-beam, the access port for the hoist is visible.
- TX-109-B-17 Close-up oblique view of the drive motor, clutch, gear housing and winch for one of the four hoists.

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- TX-109-B-18      General view of a diffusion pump. A bank of these pumps were used to bring the pressure of the test chamber down to approximately ten to the minus three Torr, which approximates the vacuum present at about 63 miles above sea level.
- TX-109-B-19      View looking at the top of Chamber A and the lamp openings for the top solar array. Several lamps are extant in this photo, but a number of them were removed and used as cable and equipment access for testing articles subsequent to the Apollo-era testing. Also note in this view three of the access ports for hoists to extend into the interior of the chamber.
- TX-109-B-20      General view of a diffusion pump. The large pipe in front of the pump is under a vacuum and is part of the pumping process to evacuate the chamber. Also note the coils on the exterior of the pump's chamber wall. Coolant is circulated through them to prevent thermal run away and to condense the entrapment oil on the interior walls to continue the pumping cycle.
- TX-109-B-21      General view of one of the access levels constructed around the chamber to provide convenient locations for access to equipment, pumps and air locks while the chamber is under a vacuum.
- TX-109-B-22      Detail view looking at the rack supporting the lamps used for the solar-simulator array inside Chamber A. Originally these were carbon-arc lamps and access was needed for maintenance and repair on the lamps while the array was in operation.
- TX-109-B-23      View of the top of Chamber A showing its reconfiguration in preparation for the testing of the James Webb Telescope.
- TX-109-B-24      View looking across the floor of Chamber A toward the 40-foot diameter chamber door. This shot was taken after modifications had been made to the chamber in preparation for the testing of the James Webb Telescope.
- TX-109-B-25      Duplicate shot of image number HAER TX-109-B-24.

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- TX-109-B-26      Elevated view looking down at the floor of Chamber A after modifications were made in preparation for the reconfiguration of the chamber for the anticipated James Webb Telescope testing program.
- TX-109-B-27      View of the wall baffles of Chamber A and interior perimeter catwalks. The view shows some of the modifications made to the chamber in preparation for reconfiguration of the chamber for the anticipated James Webb Telescope testing program.
- TX-109-B-28      General view in the high-bay of Building 32 looking at the 40-foot diameter door of Chamber A. The area in front of the chamber door is where a clean room will be constructed to accept and prepare the James Webb Telescope for testing in Chamber A.