

Man in Space Theme Study
Federal Agency Nomination

NPS Form 10-900
(7-81)

United States Department of the Interior
National Park Service

For NPS use only

received

date entered

National Register of Historic Places Inventory—Nomination Form

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic Attitude Control Test Facility

and/or common Spacecraft Magnetic Test Facility

2. Location

street & number Goddard Space Flight Center ___ not for publication

city, town Greenbelt ___ vicinity of congressional district

state Maryland code 24 county Prince Georges code 033

3. Classification

Category	Ownership	Status	Present Use	
<input type="checkbox"/> district	<input checked="" type="checkbox"/> public	<input type="checkbox"/> occupied	<input type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input checked="" type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input type="checkbox"/> site	Public Acquisition	Accessible	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input checked="" type="checkbox"/> government	<input checked="" type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial	<input type="checkbox"/> transportation
		<input type="checkbox"/> no	<input type="checkbox"/> military	<input checked="" type="checkbox"/> other: Space Exploration

4. Owner of Property

name National Aeronautics and Space Administration (NASA)

street & number

city, town Washington ___ vicinity of state D.C. 20546

5. Location of Legal Description

courthouse, registry of deeds, etc. National Aeronautics and Space Administration (NASA)

street & number Real Property Management Office Code NXG

city, town Washington state D.C. 20546

6. Representation in Existing Surveys

title None has this property been determined eligible? yes no

date ___ federal ___ state ___ county ___ local

depository for survey records

7. Description

Condition		Check one	Check one	
<input checked="" type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input checked="" type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site	
<input type="checkbox"/> good	<input type="checkbox"/> ruins	<input type="checkbox"/> altered	<input type="checkbox"/> moved	date _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed			

Describe the present and original (if known) physical appearance

The Spacecraft Magnetic Test Facility was built in 1966 and consists of a 60-foot square building constructed of nonmagnetic materials, which contains a 42-foot-diameter coil system. The coil, a 3-axis Braunbek system of 4 loops on each axis, provides cancellation of the earth's magnetic field over the central 6-foot-diameter spherical volume, uniform to 0.001% and stable to a half nanotesla. Geomagnetic fluctuations up to 16 Hz and ± 750 nanoteslas are eliminated by automatic servo-control from 3 remotely-located rubidium magnetometers. The coil can generate a stable artificial field from zero to 60,000 nanoteslas in steps of 0.1 nanotesla. The artificial magnetic vector can be rotated about any axis at rates of zero to 100 rad/sec.

Accessories include nonmagnetic tracks and dollies to transport the test item in and out of the coil system, and an 8 foot-diameter powered turntable at the coil center for positioning the test item, 9 foot-5 inch Helmholtz coils to provide dc and ac field exposure up to 50×10^{-4} tesla for perm and deperm treatment, and a sensitive nonmagnetic torquemeter capable of measuring magnetic torques of 10×10^{-7} Nm on test items weighing up to 4000 kg.

The coil building is about 2 miles east of the Goddard Space Flight Center. Access is through a truck lock with doors 14 feet by 15 feet high. Material handling is accomplished with a 3-ton monorail hoist in the truck lock and 5000-pound-capacity fixed location hoists on the coil center line and outside the coil. The coil has a 10 foot-3 inch square opening and a clear interior work space 25 feet in diameter x 17 feet-6 inches high. The coil building is air-conditioned to maintain the dew point at 50°F or less. Cleanliness is maintained by passing all air introduced into the building through a bank of HEPA (high-efficiency particulate air) filters. A recirculating air system to maintain a higher degree of contamination control in the work space is available.¹

8. Significance

Period	Areas of Significance—Check and justify below			
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/ humanitarian
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input checked="" type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> theater
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> transportation
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics: government	<input checked="" type="checkbox"/> other (specify) Space Exploration
	<input type="checkbox"/> invention			

Specific dates	1966-Present	Builder/Architect	NASA
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Statement of Significance (In one paragraph)

The Spacecraft Magnetic Test facility is the only facility in NASA's inventory that makes it possible to determine and to minimize the magnetic movement of even the largest unmanned spacecraft and observatories and thereby reduce unwanted torques due to the interaction of magnetic movement with magnetic vector. The limited evaluation of magnetic control systems is also possible as is the final calibration of precision flight magnetometers in orbital configuration.²

Without the use of the Spacecraft Magnetic Test facility and information it provides in the testing of large statellites, the United States would be unable to successfully orbit and maintain the large variety of satellites that have provided information on weather, communications, earth resources and many other fields. The use and operation of this facility is essential to the continuing success of the American Manned and Unmanned Space program. The Spacecraft Magnetic Test facility is unique and is not replicated anywhere else in the United States.

9. Major Bibliographical References

See continuation sheets

10. Geographical Data

Acreeage of nominated property Less than 1 acre

Quadrangle name Laurel

Quadrangle scale 1:24,000

UMT References

A	<u>18</u>	<u>341940</u>	<u>4318900</u>
	Zone	Easting	Northing
C			
E			
G			

B			
	Zone	Easting	Northing
D			
F			
H			

Verbal boundary description and justification

The boundary of the Spacecraft Magnetic Test Facility is defined by the outside perimeter of building 310-20 at the Goddard Space Flight Center.

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title Harry A. Butowsky

organization National Park Service date May 15, 1984

street & number Division of History telephone (202) 343-8168

city or town Washington, D.C. 20240 state

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national state local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title _____ date _____

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I hereby certify that this property is included in the National Register

date _____

Keeper of the National Register

Attest:

date _____

United States Department of the Interior
National Park Service

**National Register of Historic Places
Inventory—Nomination Form**



Continuation sheet

Item number 7, 8

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Footnotes

1. Technical Facilities Catalog Vol. 1 (Washington, D.C.: National Aeronautics and Space Administration, October, 1974), p. 5-15.
2. Technical Facilities Catalog Vol. 1 (Washington, D.C.: National Aeronautics and Space Administration, March, 1967), pp. 7-16, 7-17.

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NPS Form 10-900-a
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Continuation sheet

Item number 9

Page 1

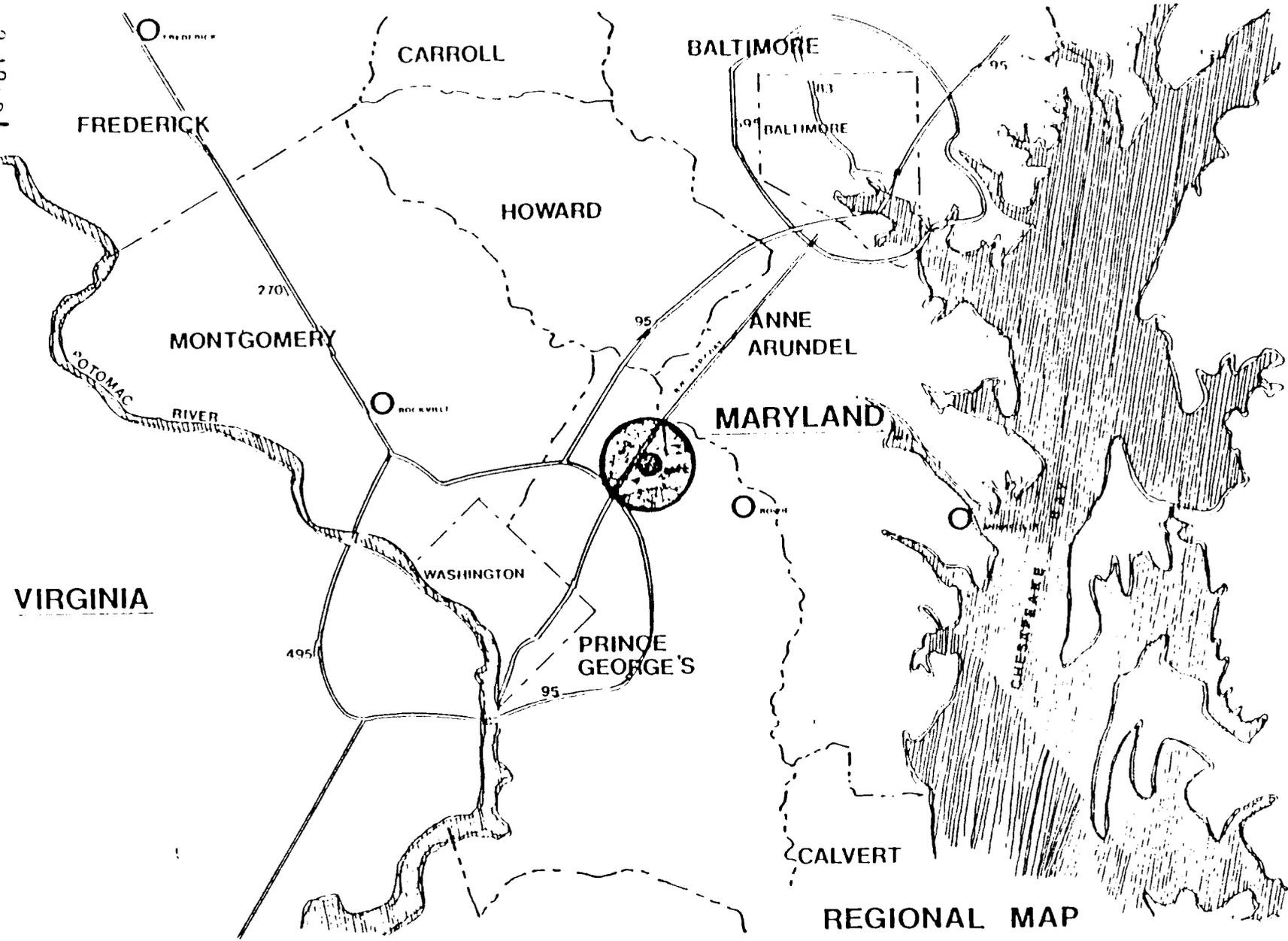
Bibliography

Boyle, J.C. Lunar Roving Vehicle Magnetic Test X-325-72. Greenbelt, Maryland:
Goddard Space Flight Center, October 1971.

Technical Facilities Catalog Vol. 1. Washington, D.C.: National Aeronautics
and Space Administration, March 1967.

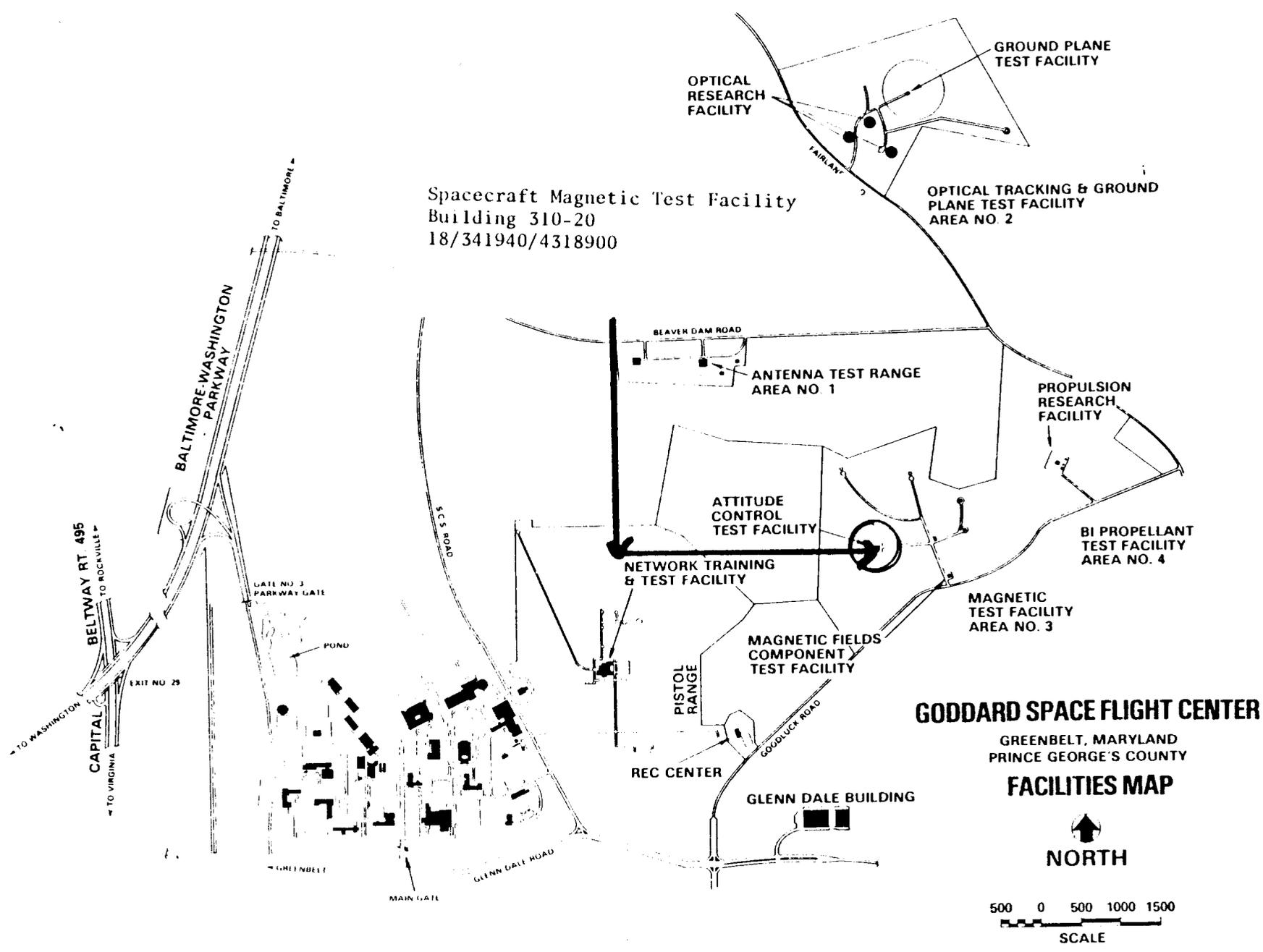
Technical Facilities Catalog Vol. 1. Washington, D.C.: National Aeronautics
and Space Administration, October 1974.

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GODDARD SPACE FLIGHT CENTER
 GREENBELT, MARYLAND 20770



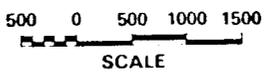


Spacecraft Magnetic Test Facility
 Building 310-20
 18/341940/4318900

GODDARD SPACE FLIGHT CENTER

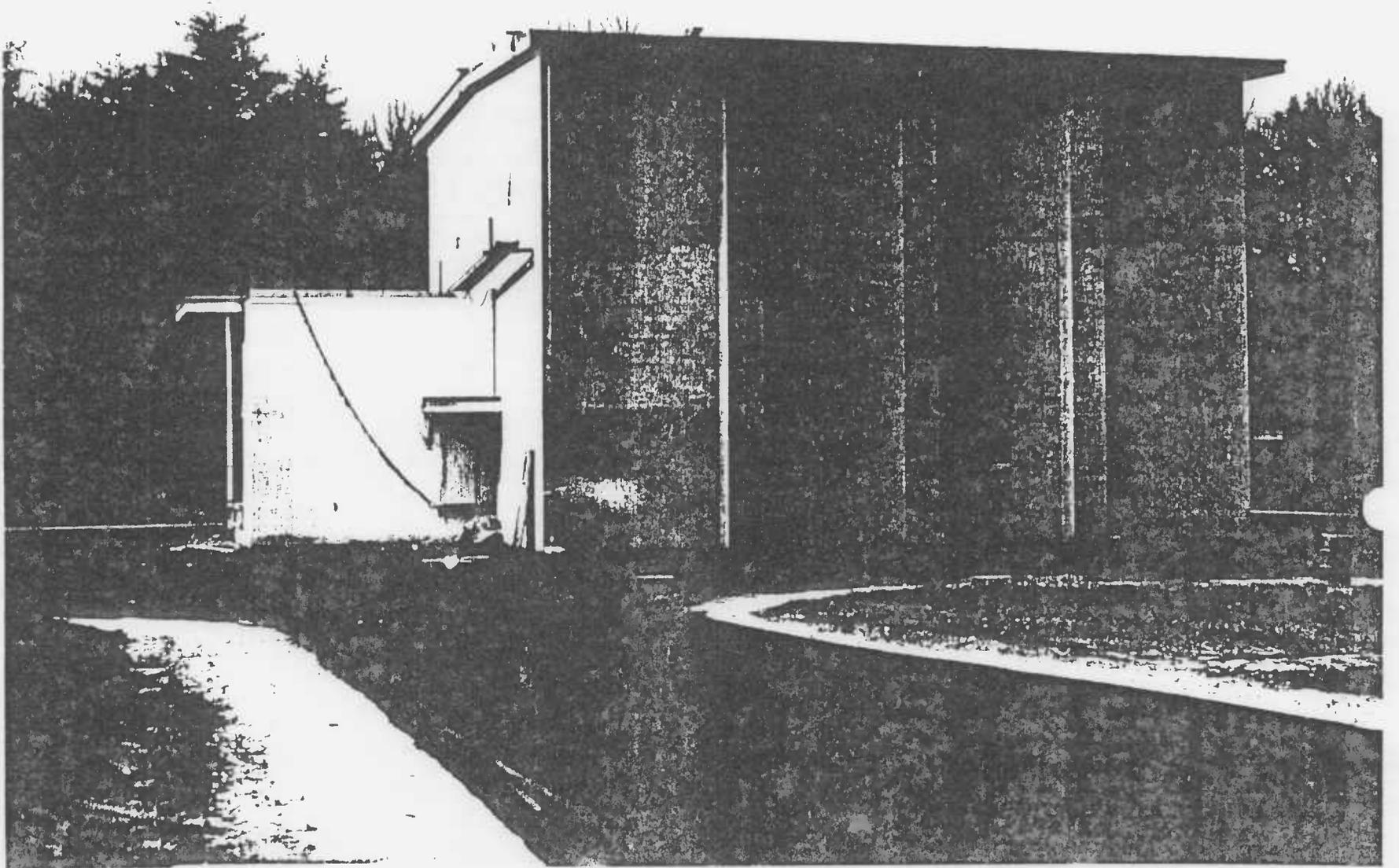
GREENBELT, MARYLAND
 PRINCE GEORGE'S COUNTY

FACILITIES MAP



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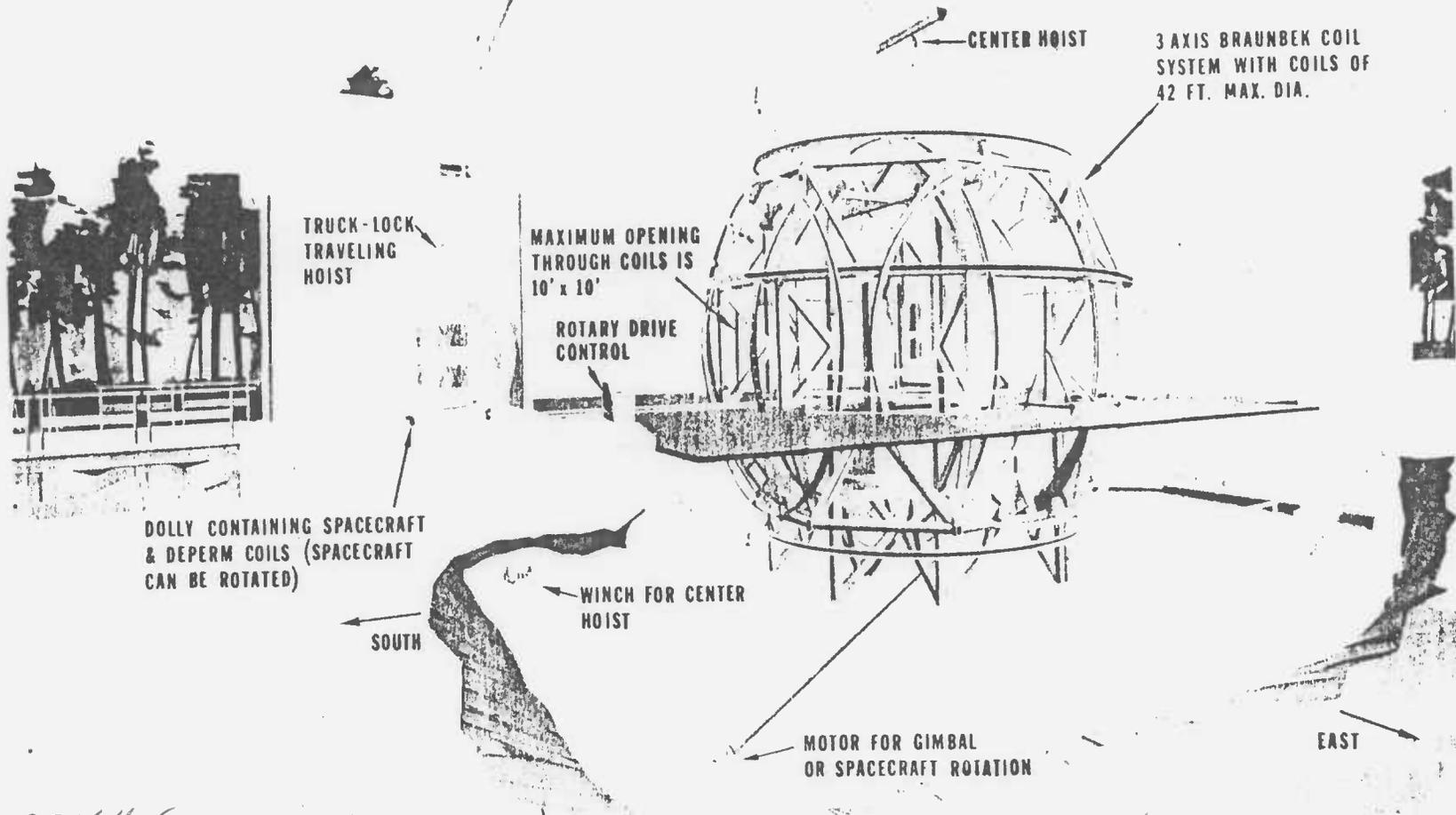
1. Spacecraft Magnetic Test Facility
2. Greenbelt, Maryland
3. NASA
4. 1965
5. NASA, Goddard Space Flight Center Facilities Office
6. Exterior View of Spacecraft Magnetic Test Facility



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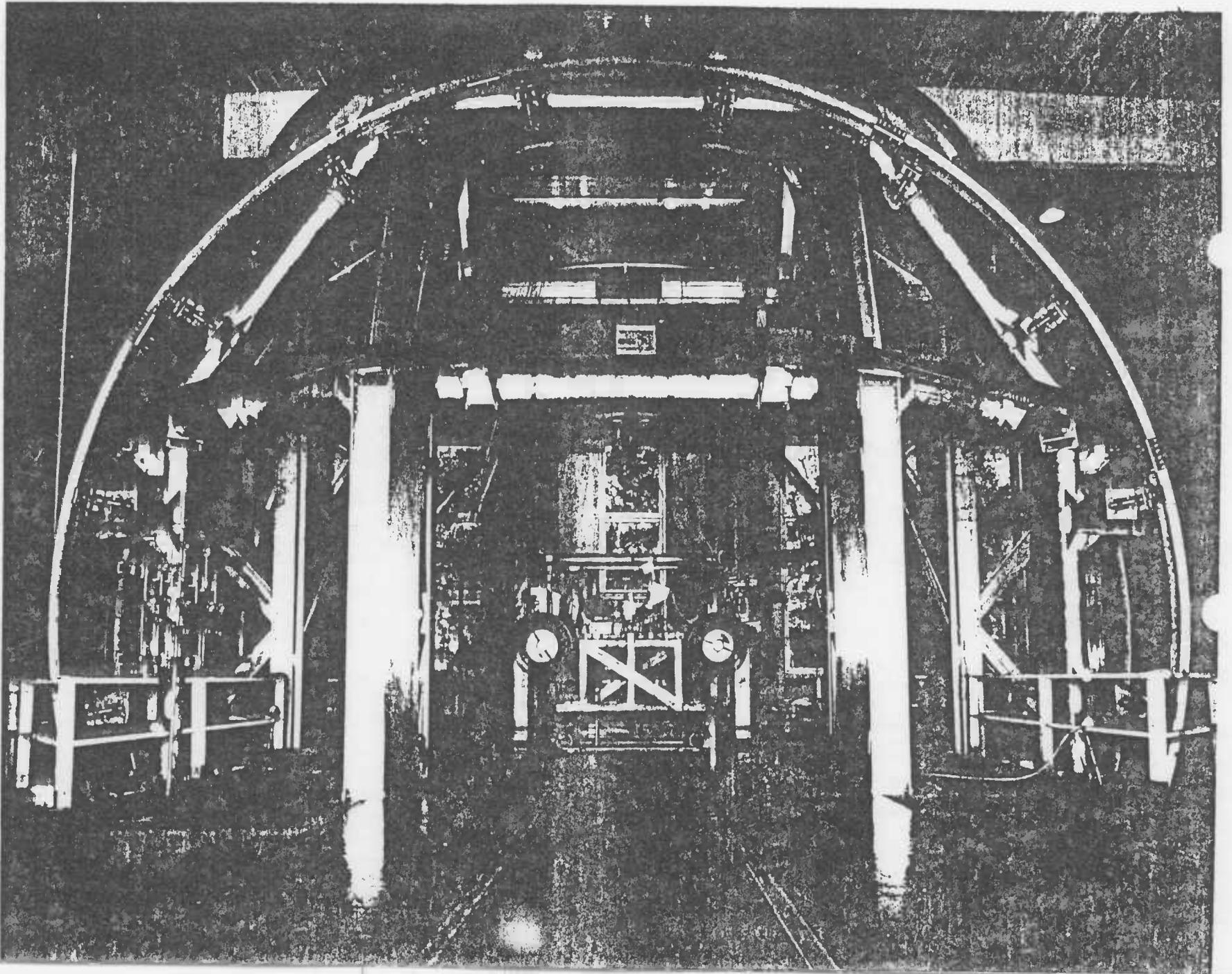
1. Spacecraft Magnetic Test Facility
2. Greenbelt, Maryland
3. NASA
4. 1971
5. NASA, Goddard Space Flight Center Facilities Office
6. Cutaway View of Spacecraft Magnetic Test Facility

SPACECRAFT MAGNETIC TEST FACILITY



1. Spacecraft Magnetic Test Facility
2. Greenbelt, Maryland
3. NASA
4. 1971
5. NASA, Goddard Space Flight Center Facilities Office
6. Interior View of Spacecraft Magnetic Test Facility
showing Lunar Rover Vehicle Test

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UNMANNED SPACECRAFT TEST FACILITIES

19. Spacecraft Magnetic Test Facility (Goddard Space Flight Center)
20. Twenty-Five Foot Space Simulator (Jet Propulsion Laboratory)



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Spacecraft Magnet Test Facility



NASA
National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

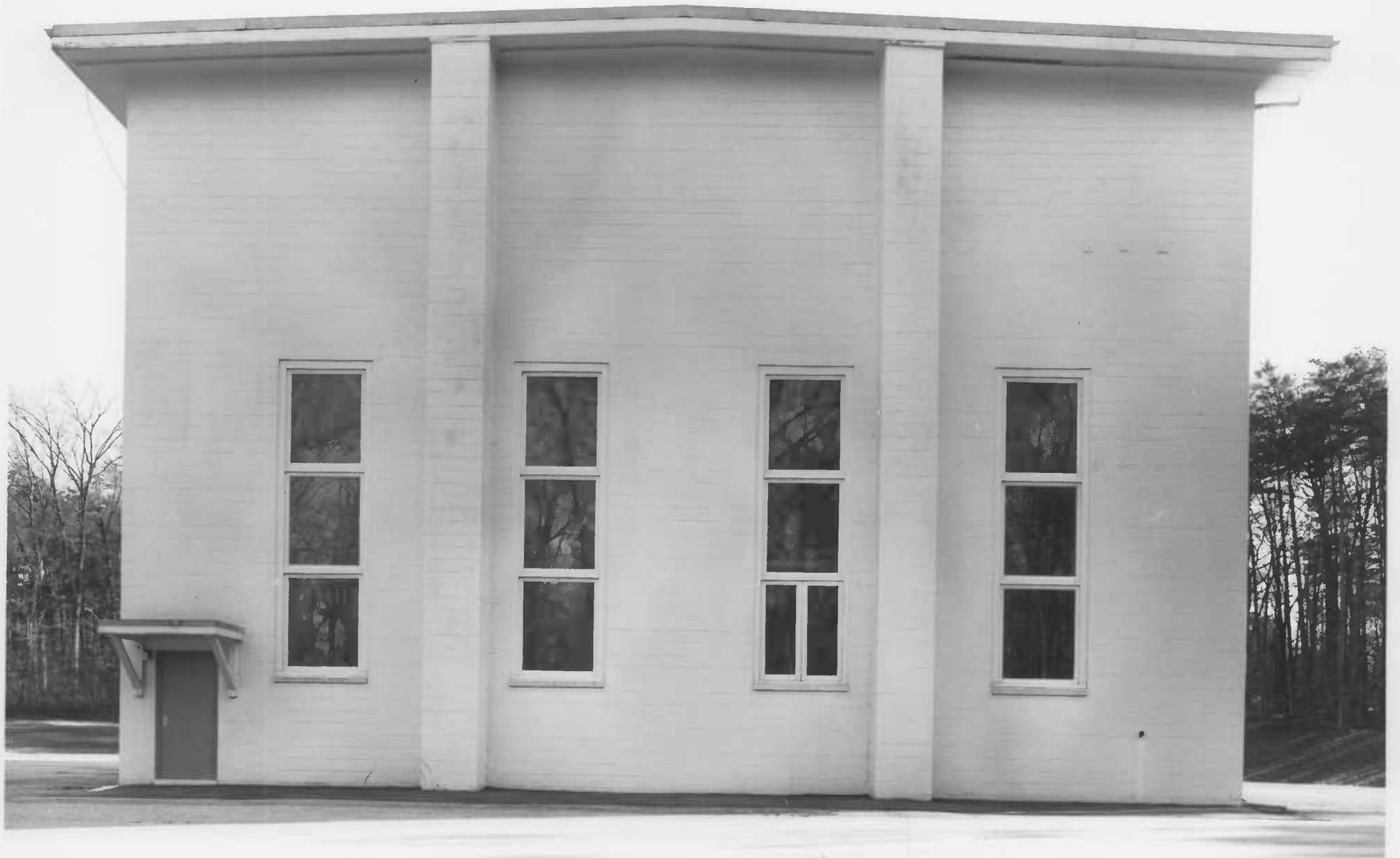
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WEST ELEVATION

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Spacecraft

Magnet Test Facility



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NORTH ELEVATION

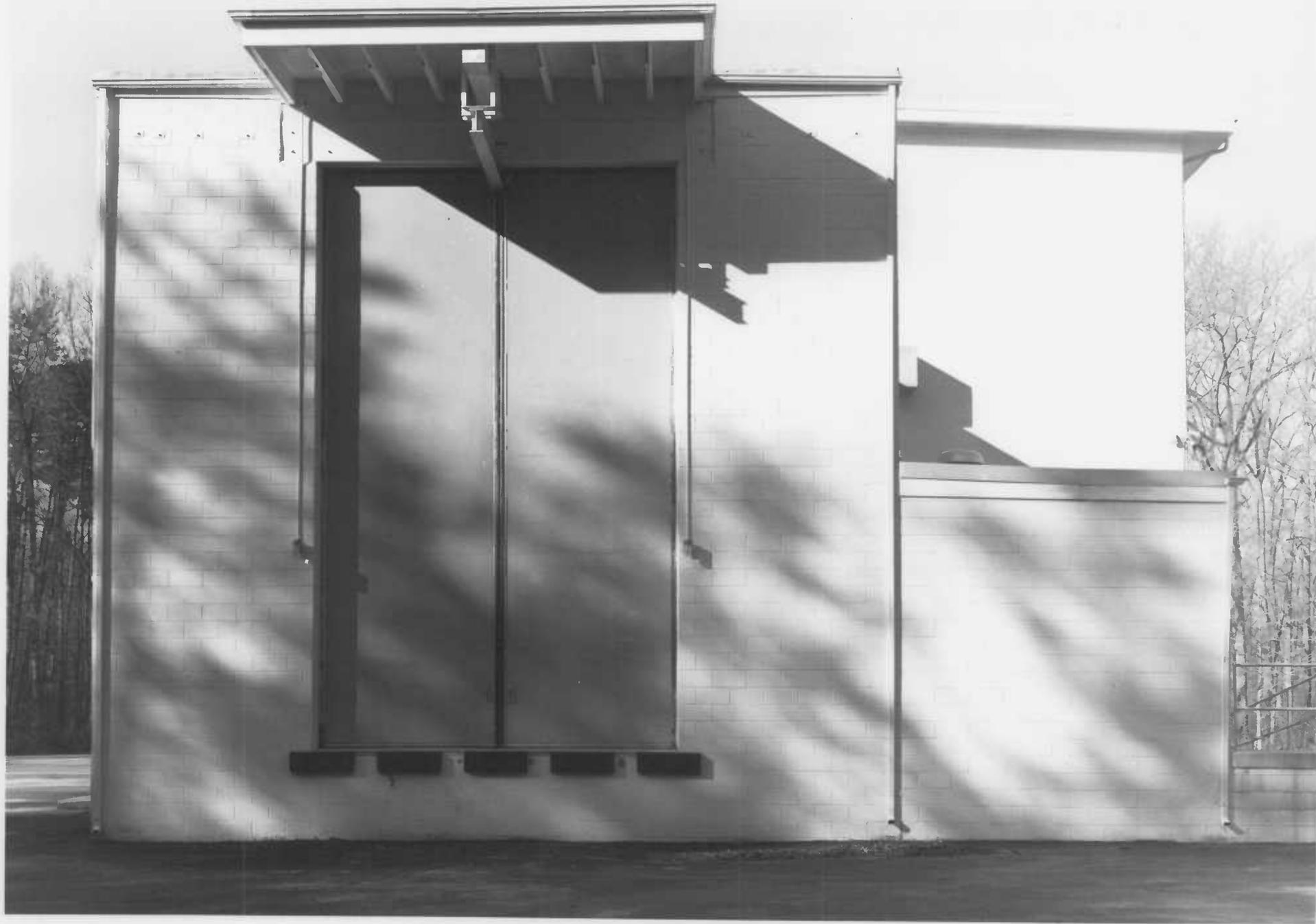
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Spacecraft

Magnet

Test

Facility

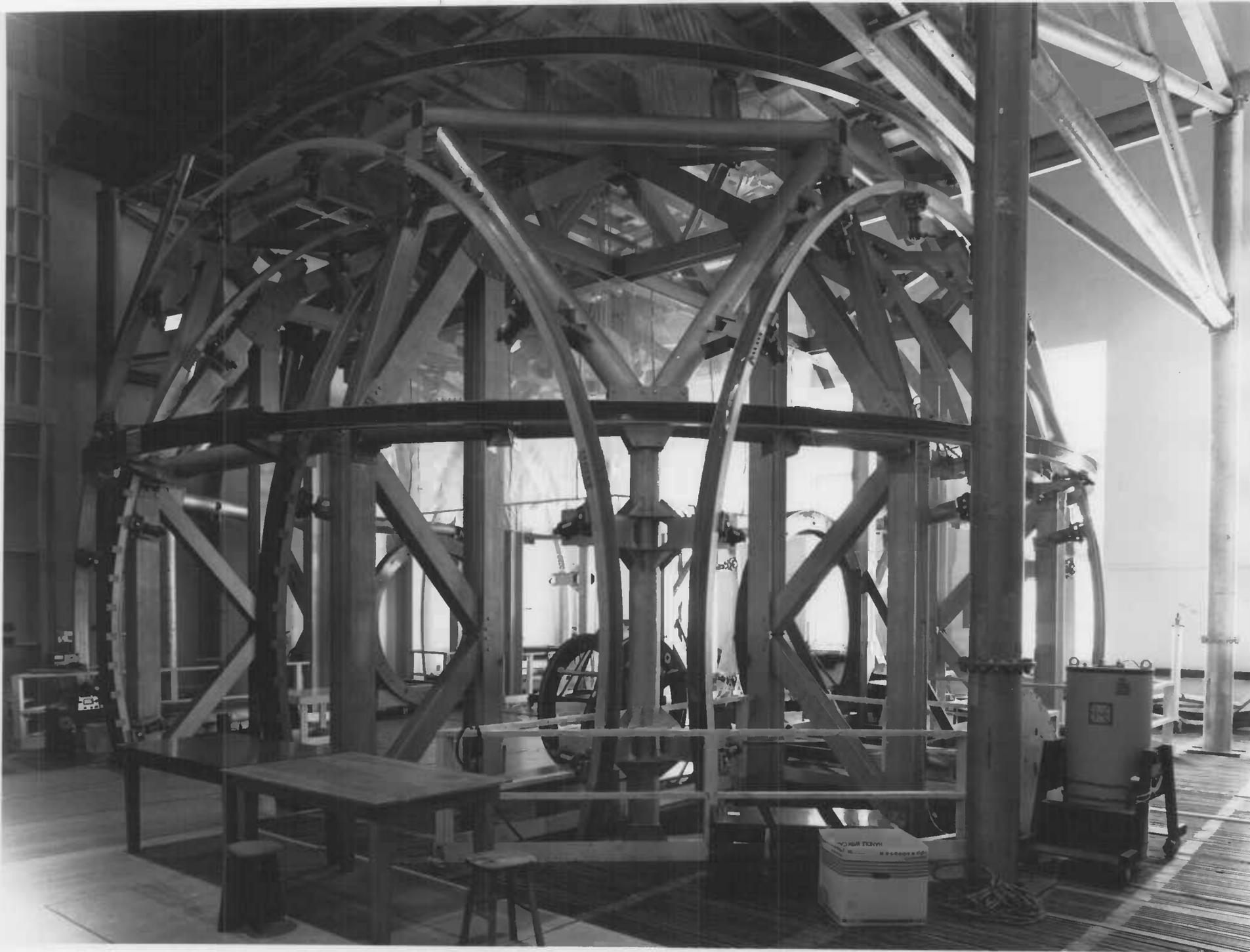


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Greenbelt, Maryland 20771

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SOUTH ELEVATION



NASA
National Aeronautics and
Space Administration

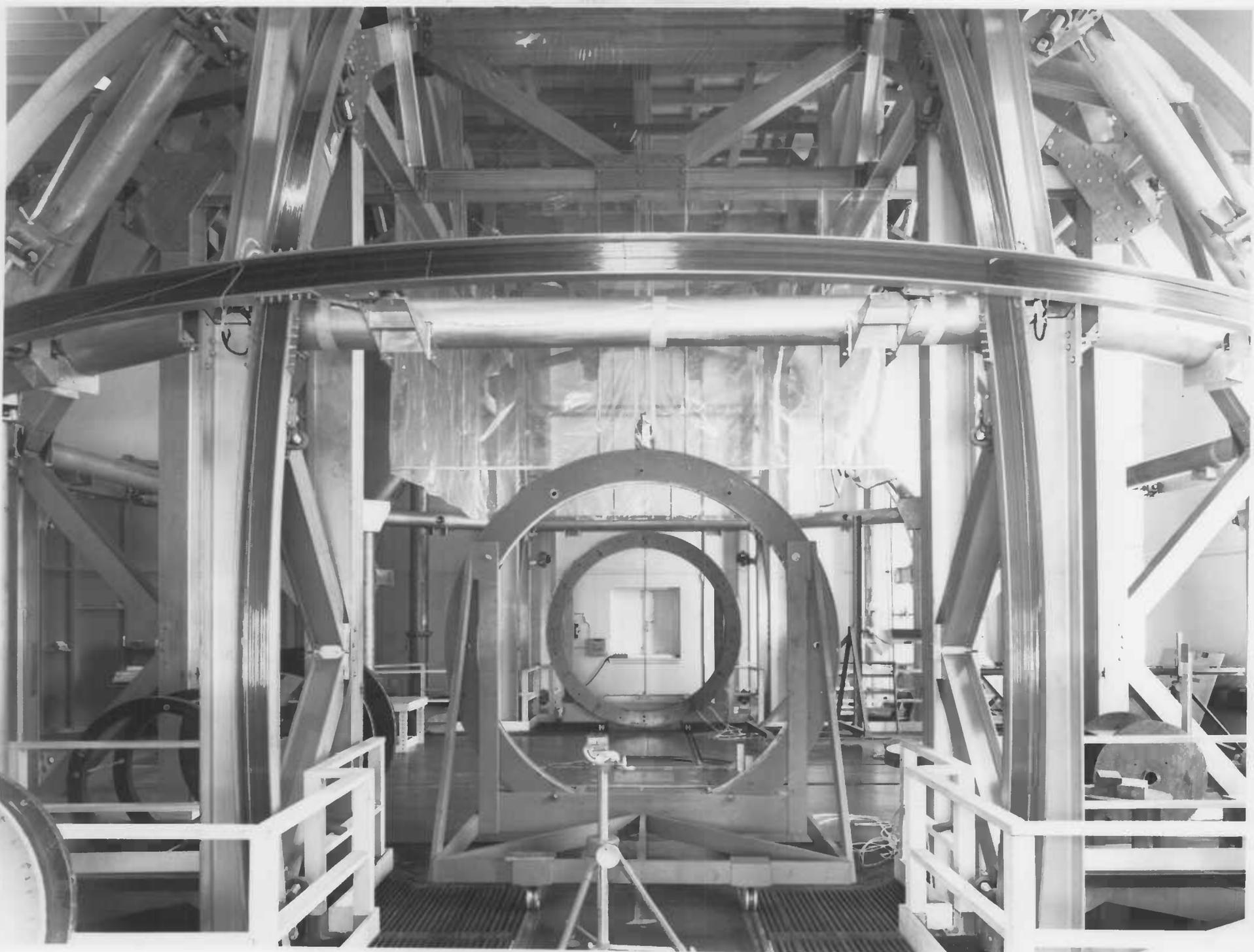
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40' COIL LOOKING NORTH

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Spacecraft Magnet Test Facility



NASA

National Aeronautics and
Space Administration

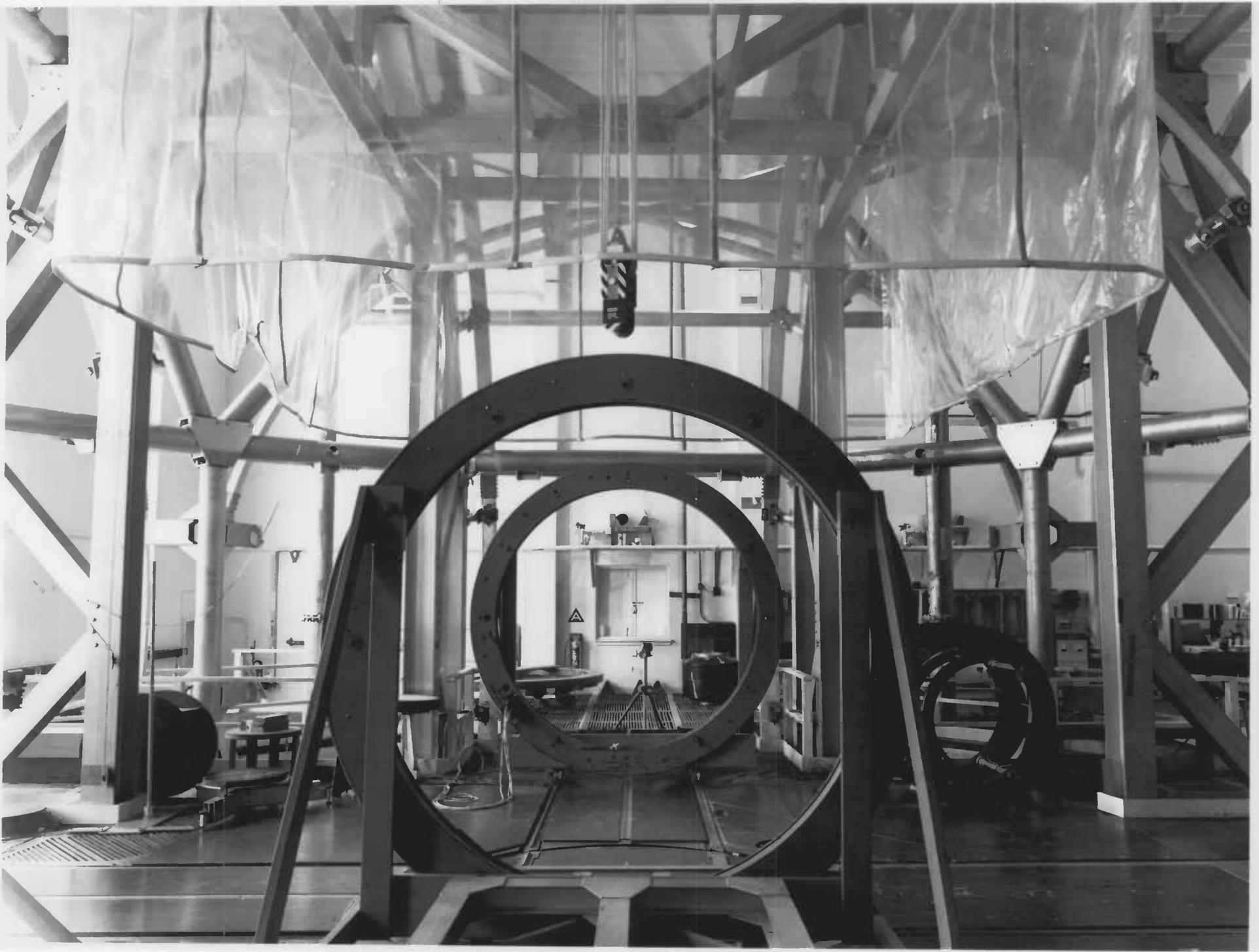
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40' COIL LOOKING WEST

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Spacecraft Magnet Test Facility



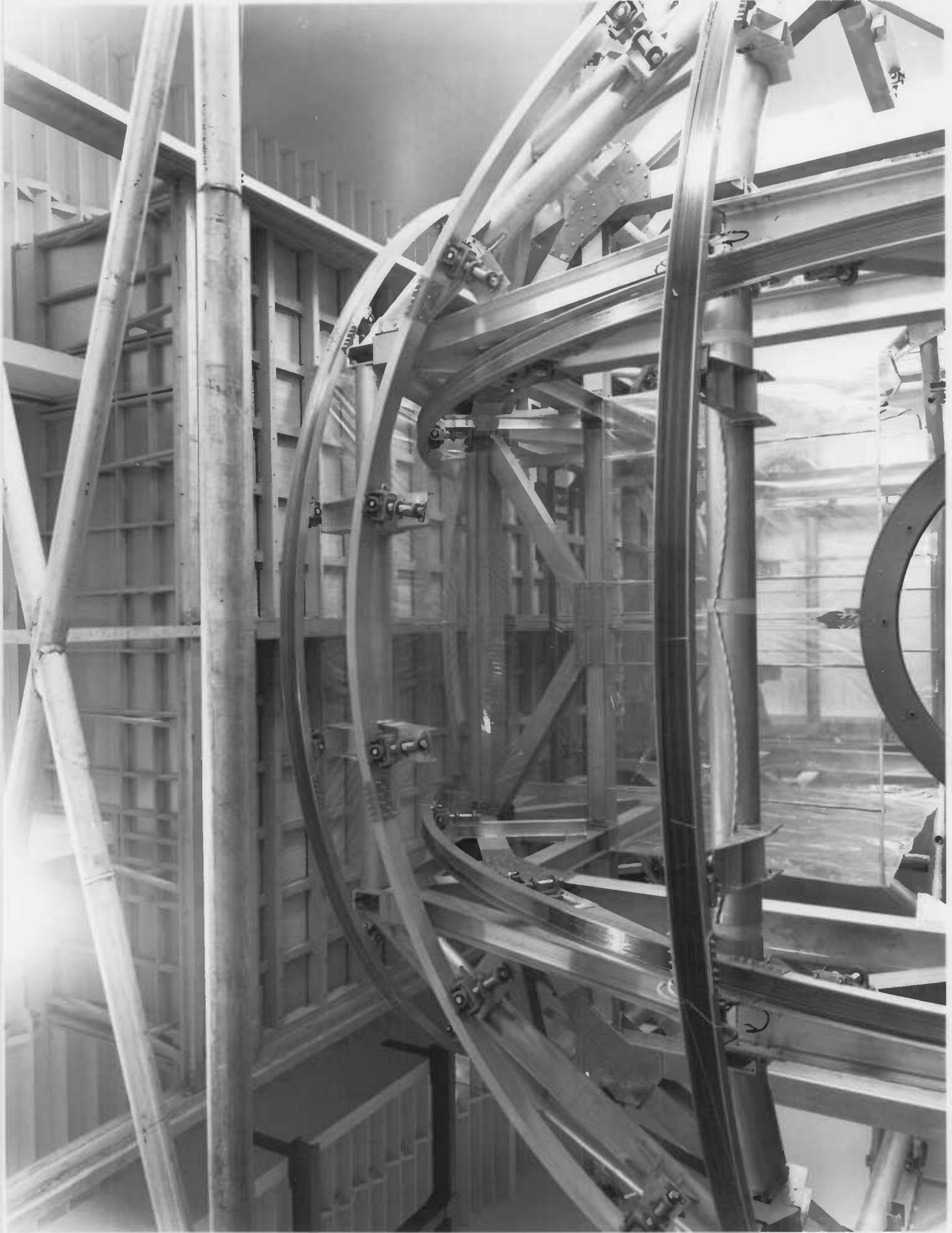
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National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01629 40' COIL LOOKING EAST

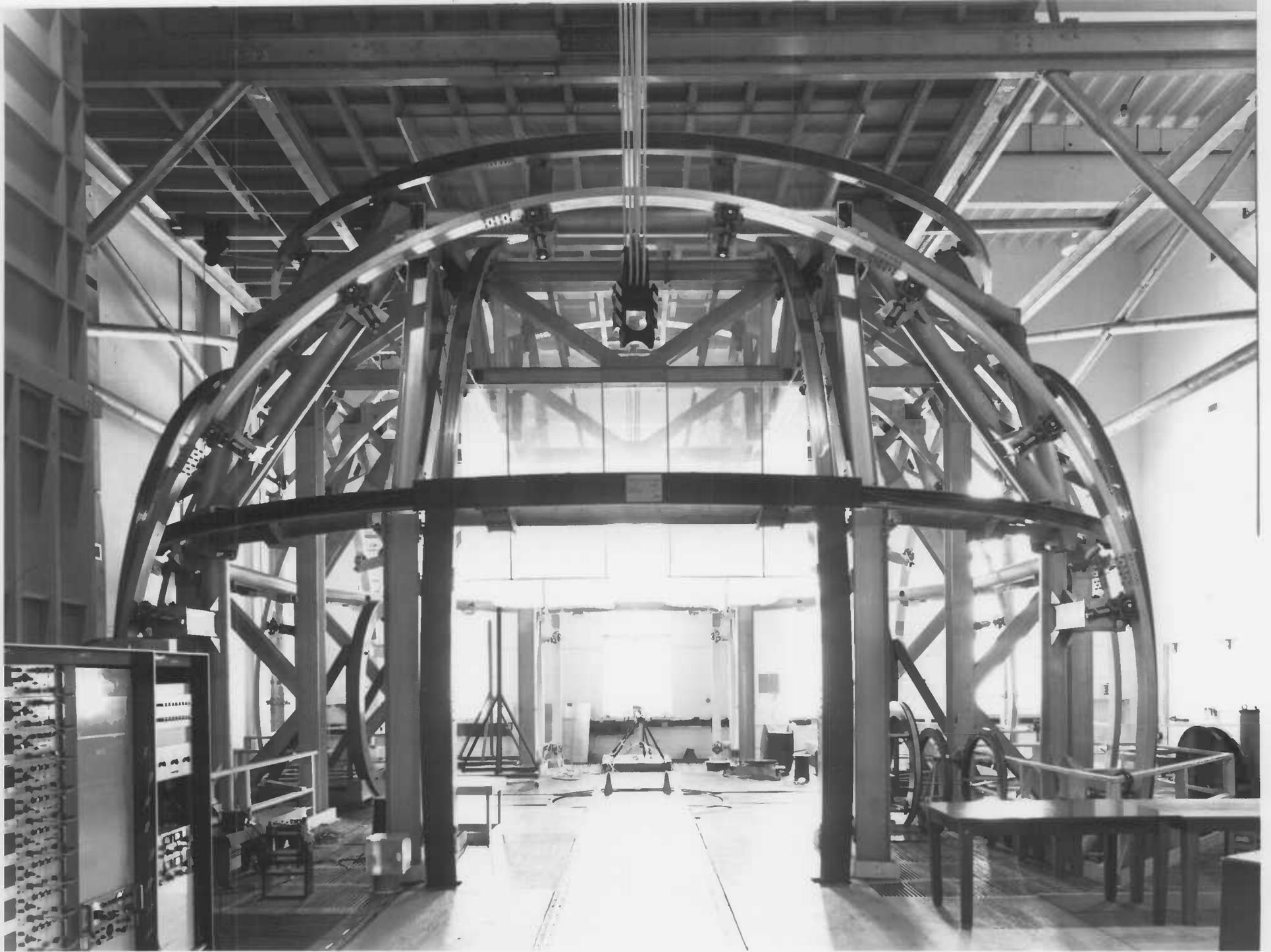
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Spacecraft Magnet Test Facility



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Spacecraft Magnet ← test Facility



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Spacecraft Magnet Test Facility



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40' COIL LOOKING N. W.

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Spacecraft Magnet Test Facility