

NPS Form 10-900
(7-81)

Man in Space Theme Study
Federal Agency Nomination

United States Department of the Interior
National Park Service

For NPS use only

National Register of Historic Places
Inventory—Nomination Form

received

date entered

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street & number Goddard Space Flight Center ___ not for publication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	
___ district	<input checked="" type="checkbox"/> public	___ occupied	___ agriculture	___ museum
___ building(s)	___ private	___ unoccupied	___ commercial	___ park
<input checked="" type="checkbox"/> structure	___ both	___ work in progress	___ educational	___ private residence
___ site	Public Acquisition	Accessible	___ entertainment	___ religious
___ object	___ in process	<input checked="" type="checkbox"/> yes: restricted	<input checked="" type="checkbox"/> government	<input checked="" type="checkbox"/> scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
		___ no	___ 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

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 satellites, 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

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4	3	1	8	9	0	0
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Zone Easting Northing

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Zone Easting Northing

C

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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

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

For NPS use only

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

Page 1

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.

United States Department of the Interior
National Park Service

**National Register of Historic Places
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Continuation sheet

Item number 9

Page 1

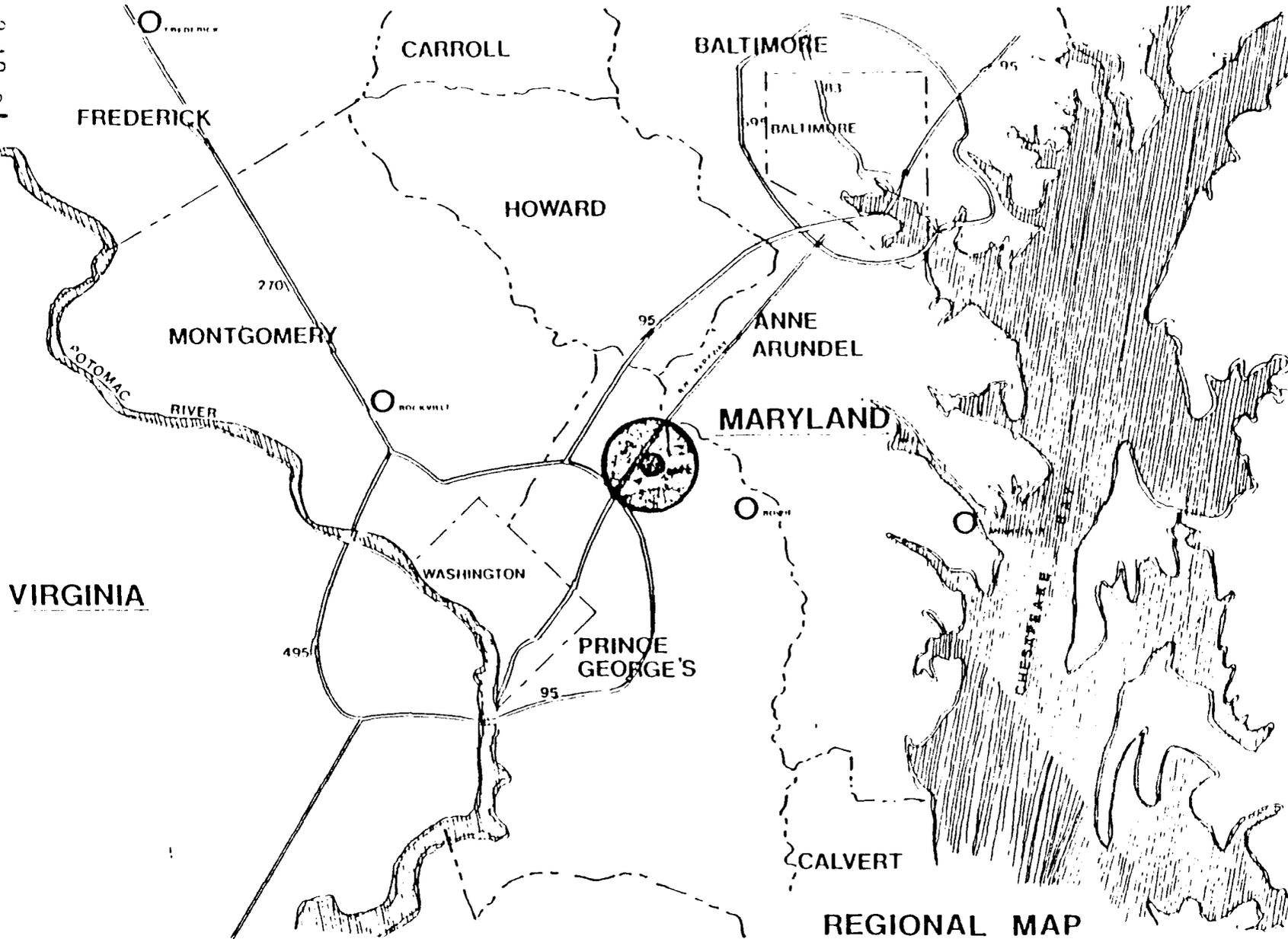
Bibliography

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.

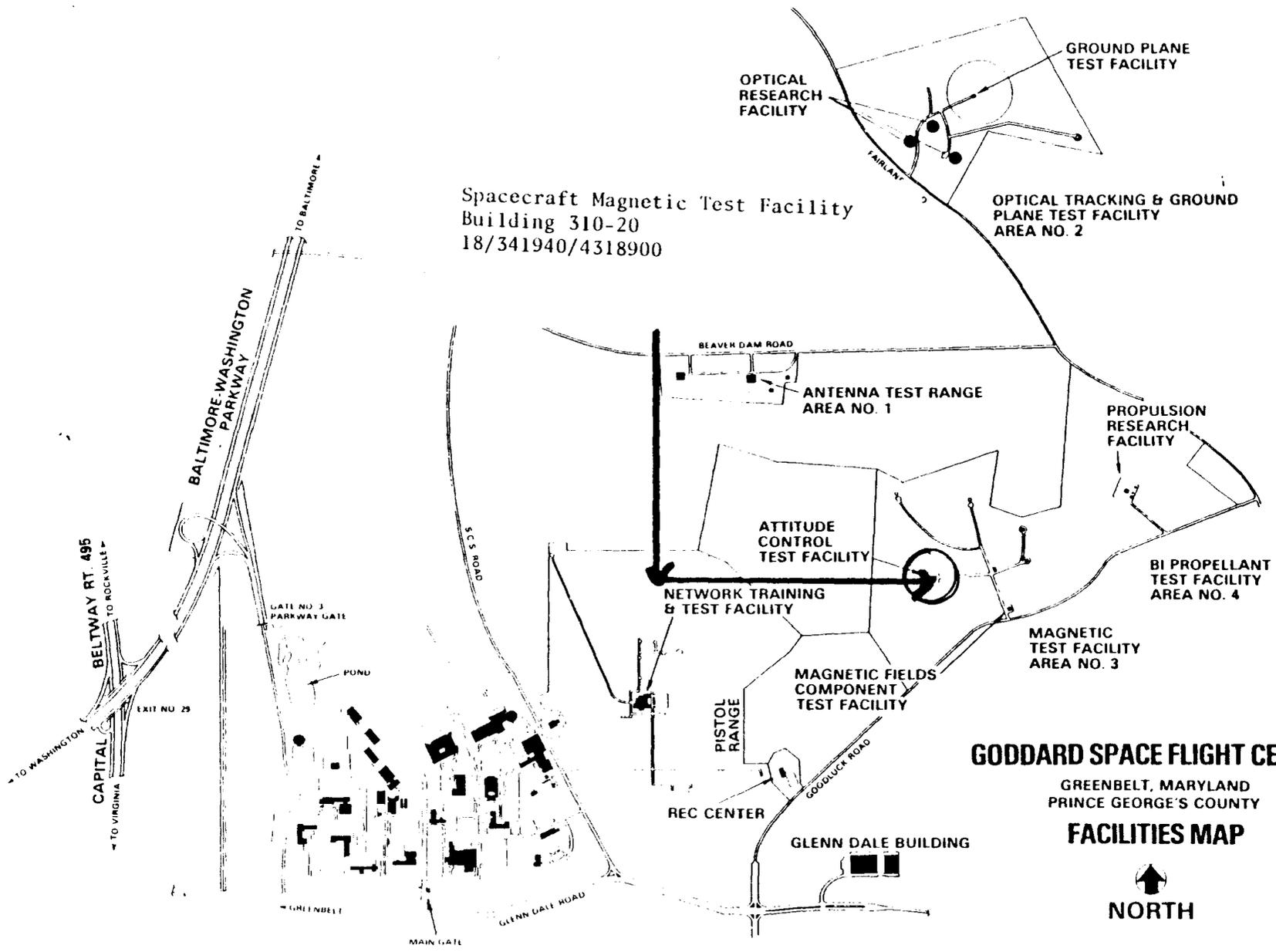
Technical Facilities Catalog Vol. 1. Washington, D.C.: National Aeronautics and Space Administration, October 1974.

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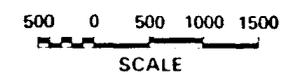


GODDARD SPACE FLIGHT CENTER
 GREENBELT, MARYLAND 20770

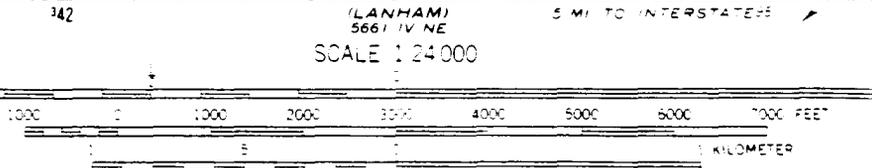
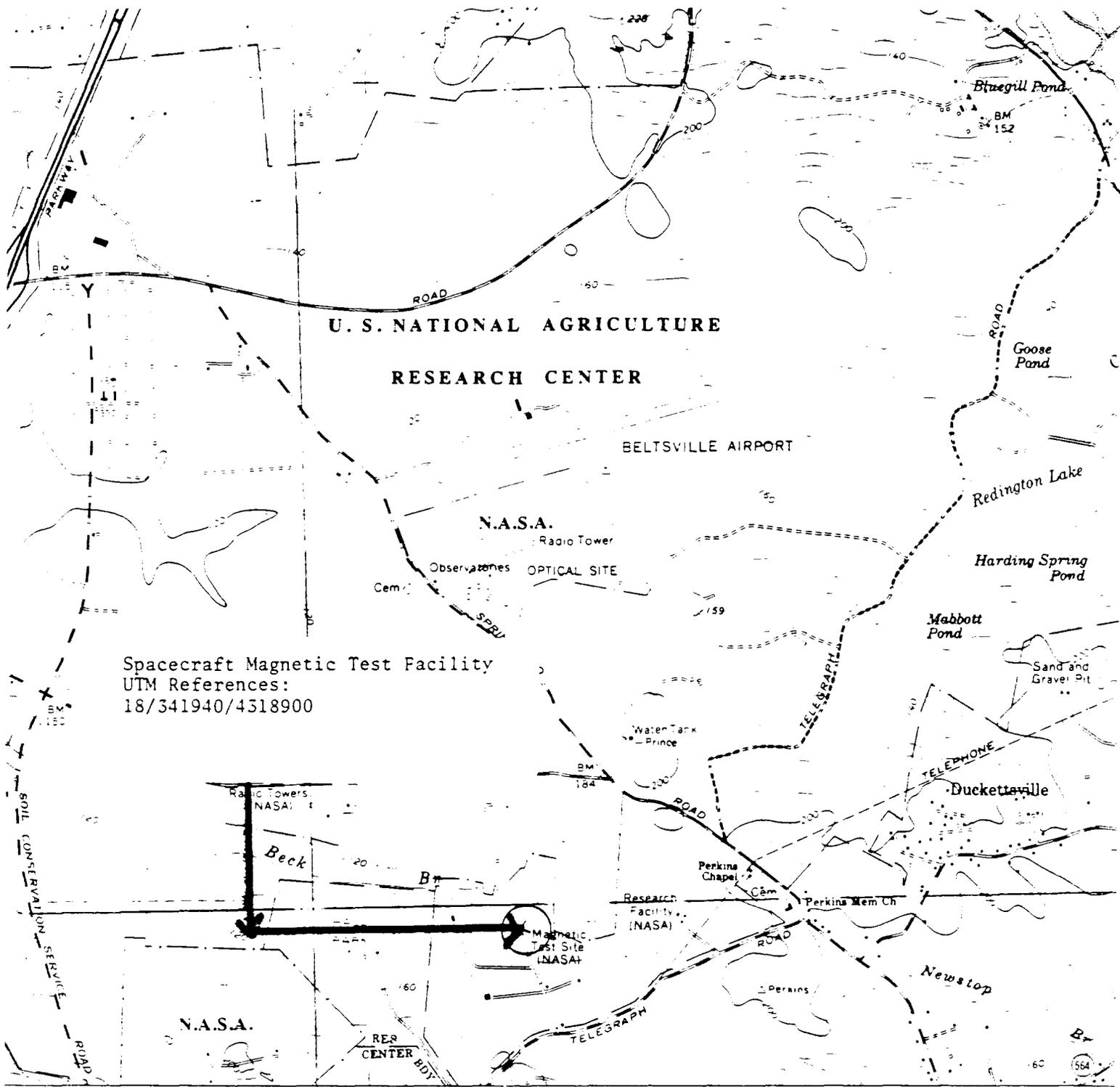




GODDARD SPACE FLIGHT CENTER
 GREENBELT, MARYLAND
 PRINCE GEORGE'S COUNTY
FACILITIES MAP



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CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

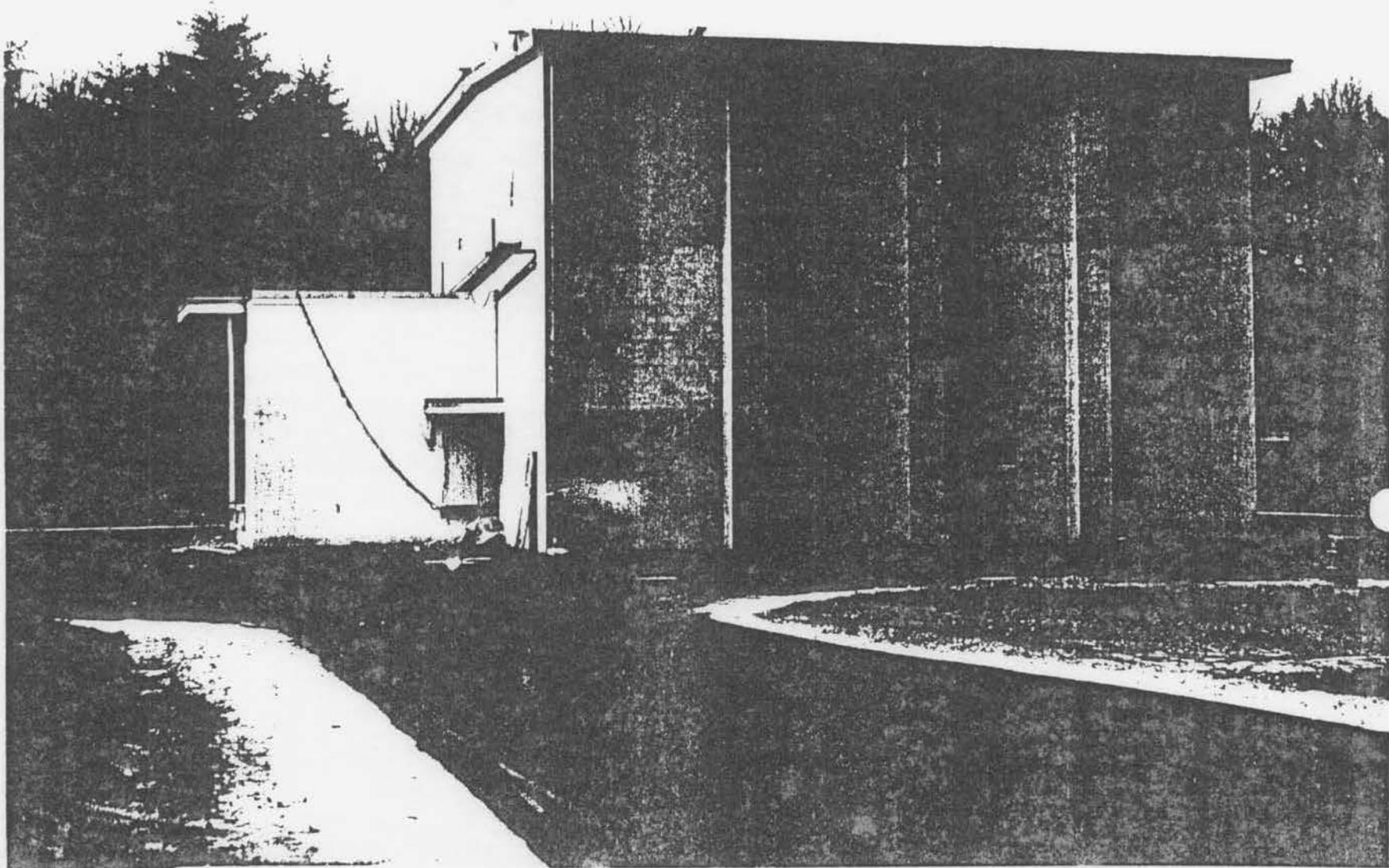
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where
unchecked
shown

UTM GRID AND 1979 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

FOR SALE BY U.S. GEOLOGICAL SURVEY RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

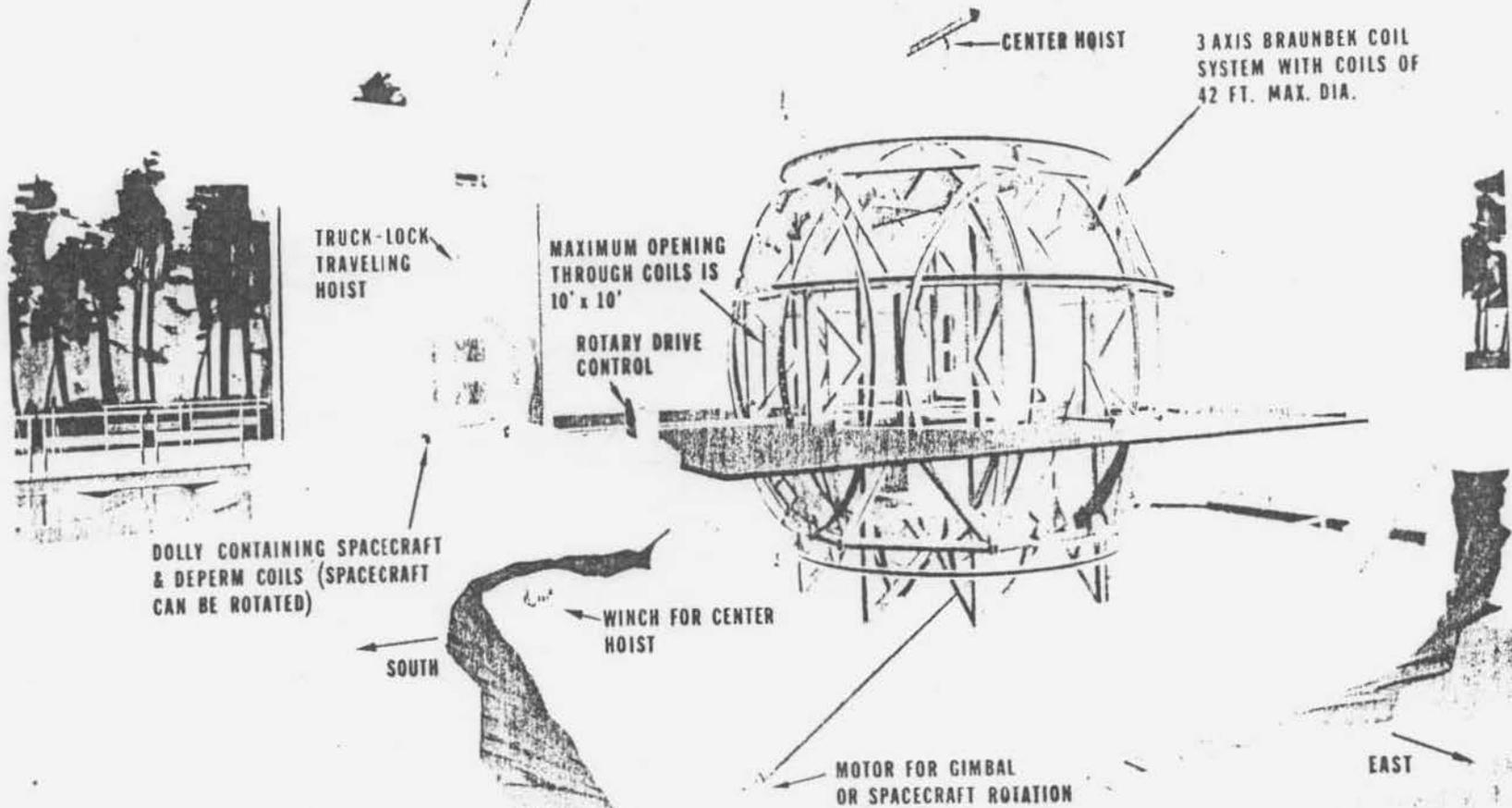
1. Spacecraft Magnetic Test Facility
2. Greenbelt, Maryland
3. NASA
4. 1965
5. NASA, Goddard Space Flight Center Facilities Office
6. Exterior View of Spacecraft Magnetic Test Facility



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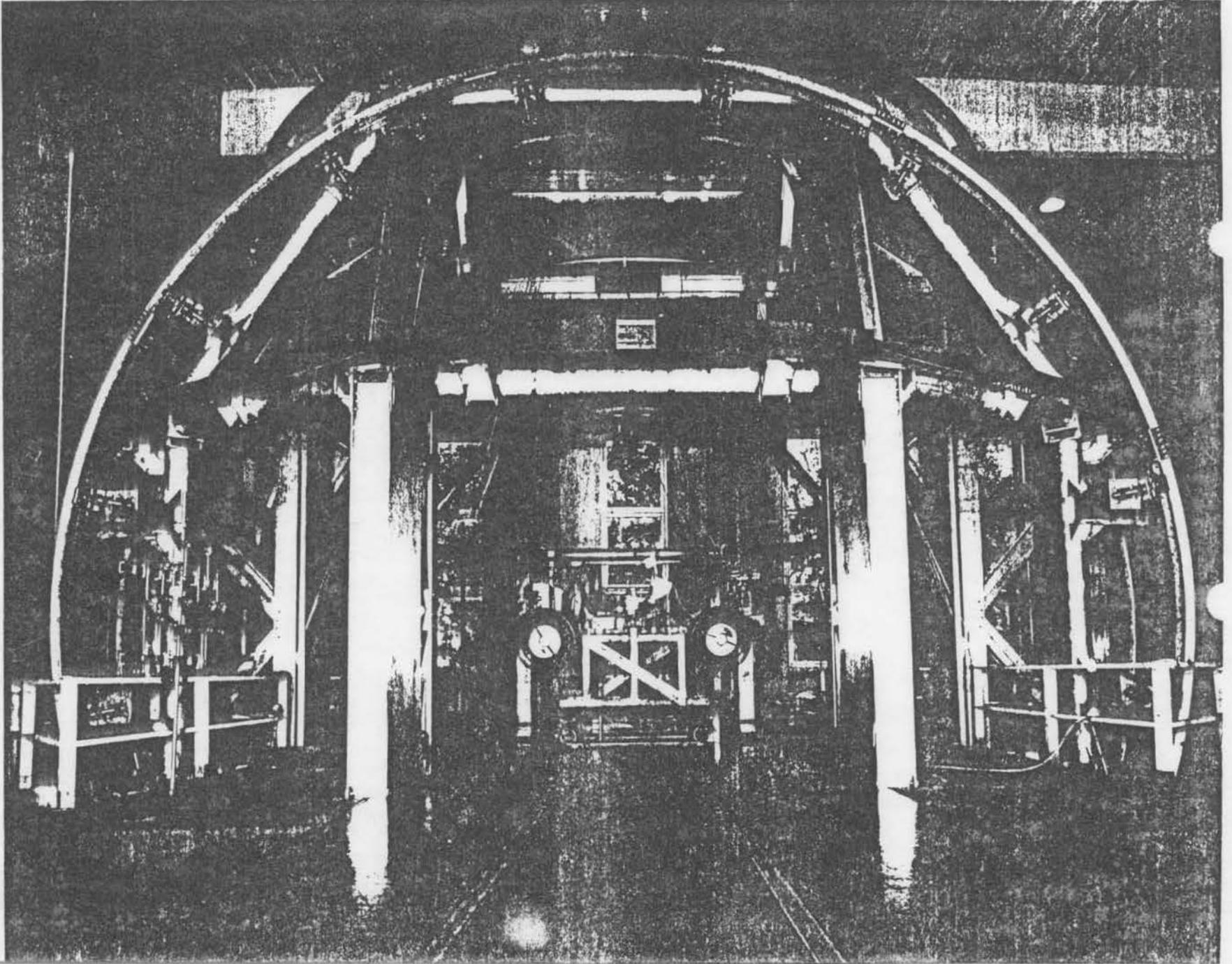
1. Spacecraft Magnetic Test Facility
2. Greenbelt, Maryland
3. NASA
4. 1971
5. NASA, Goddard Space Flight Center Facilities Office
6. Cutaway View of Spacecraft Magnetic Test Facility

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)



NASA
National Aeronautics and Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01625

EAST ELEVATION

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Spacecraft Magnet Test Facility



NASA
National Aeronautics and Space Administration

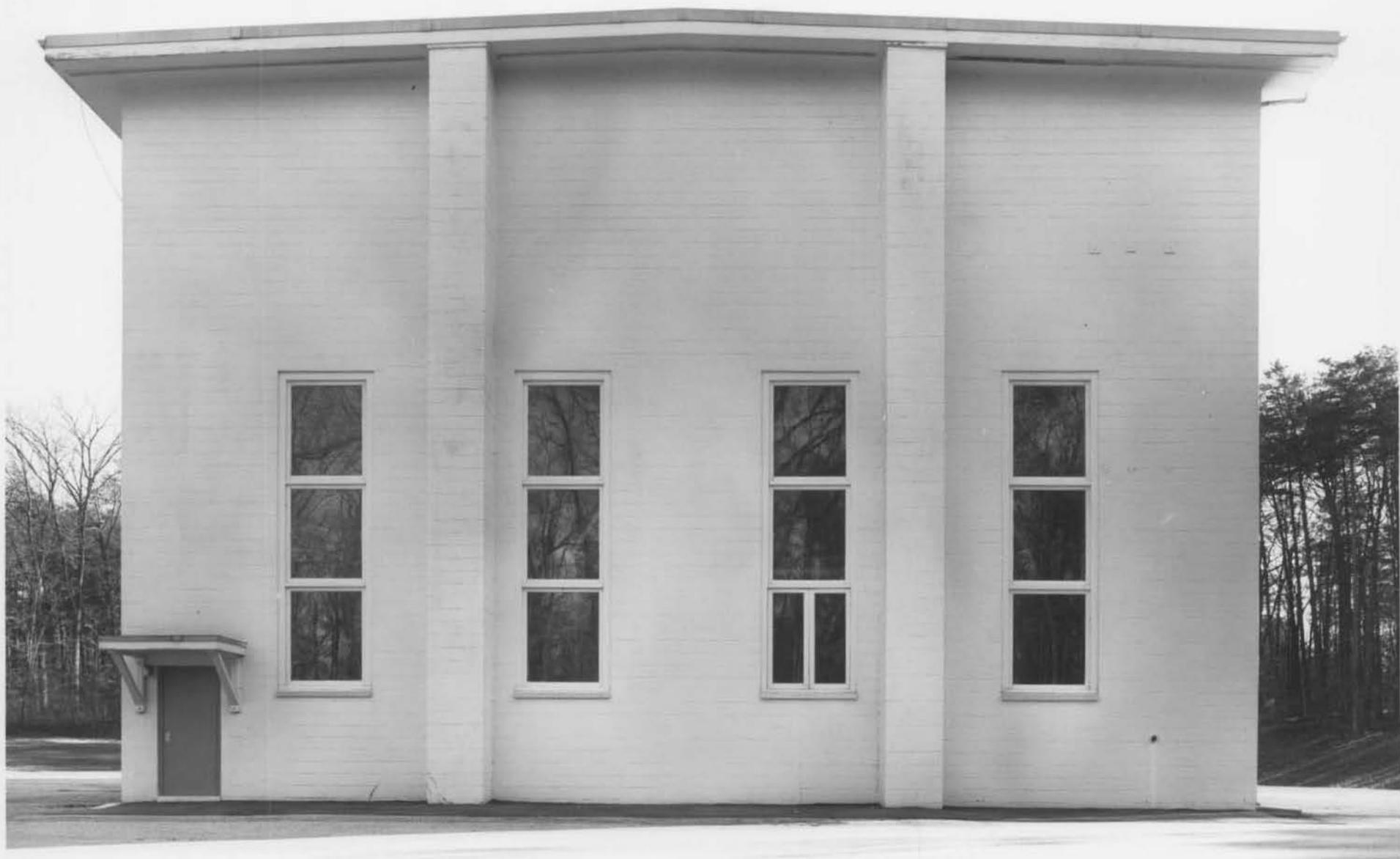
Goddard Space Flight Center
Greenbelt, Maryland 20771

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WEST ENTRANCE

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Spacecraft Magnet Test Facility



NASA
National Aeronautics and
Space Administration

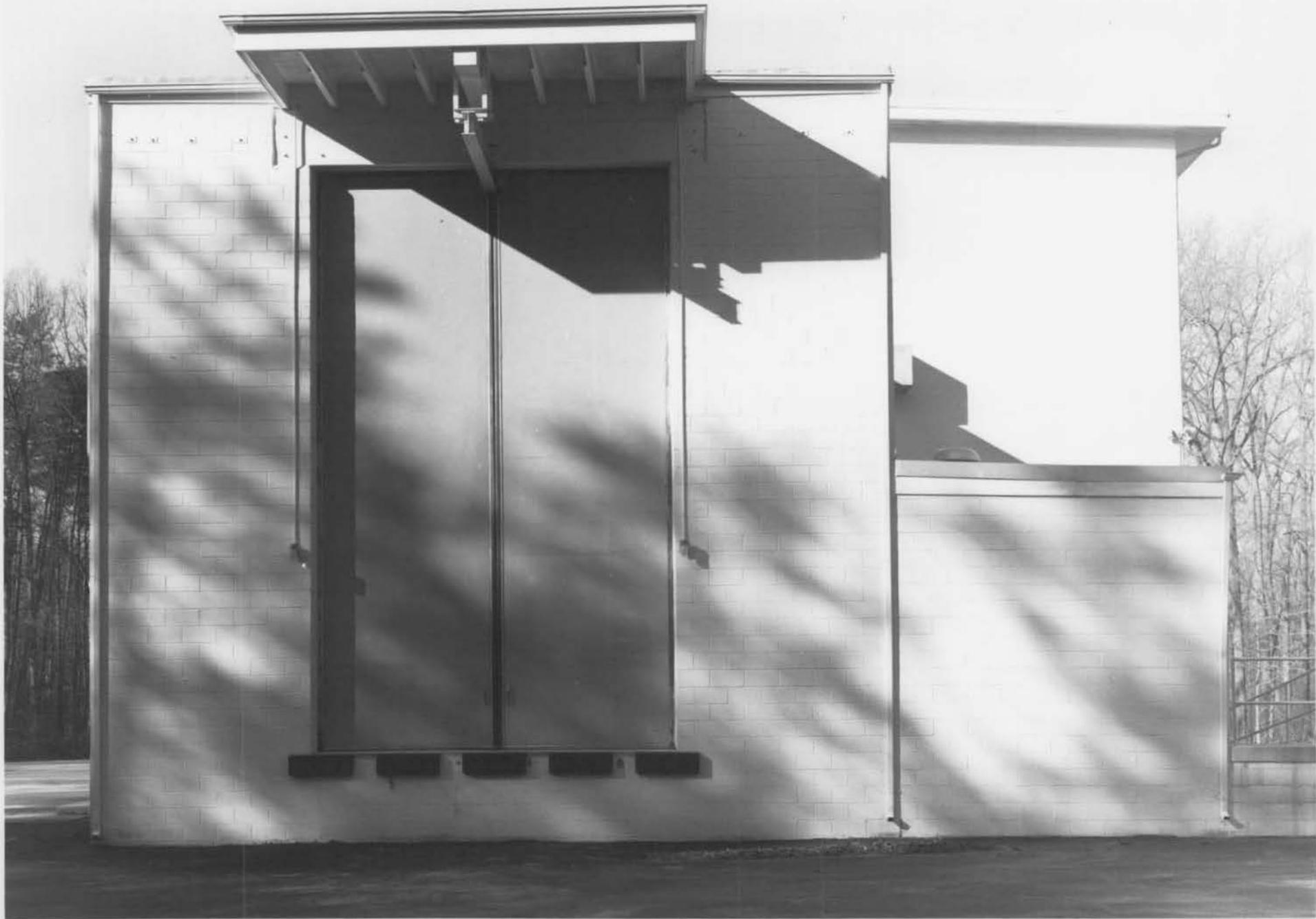
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Greenbelt, Maryland 20771

90-01628

NORTH ELEVATION

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Spacecraft Magnet Test Facility



NASA
National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01626

SOUTH ELEVATION



NASA
National Aeronautics and
Space Administration

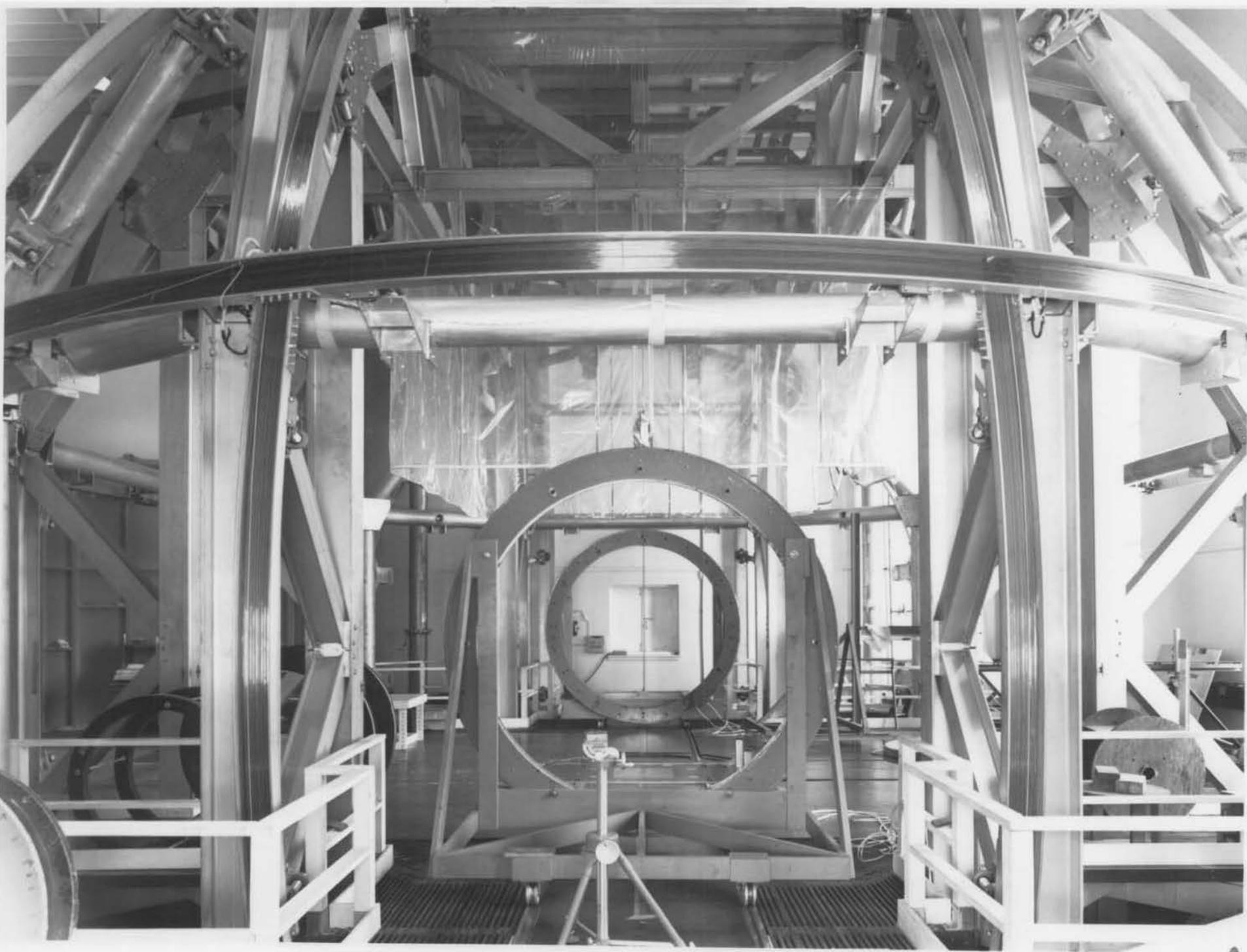
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Greenbelt, Maryland 20771

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40' COIL LOOKING NORTH

P6: 64-6

Spacecraft Magnet Test Facility



NASA

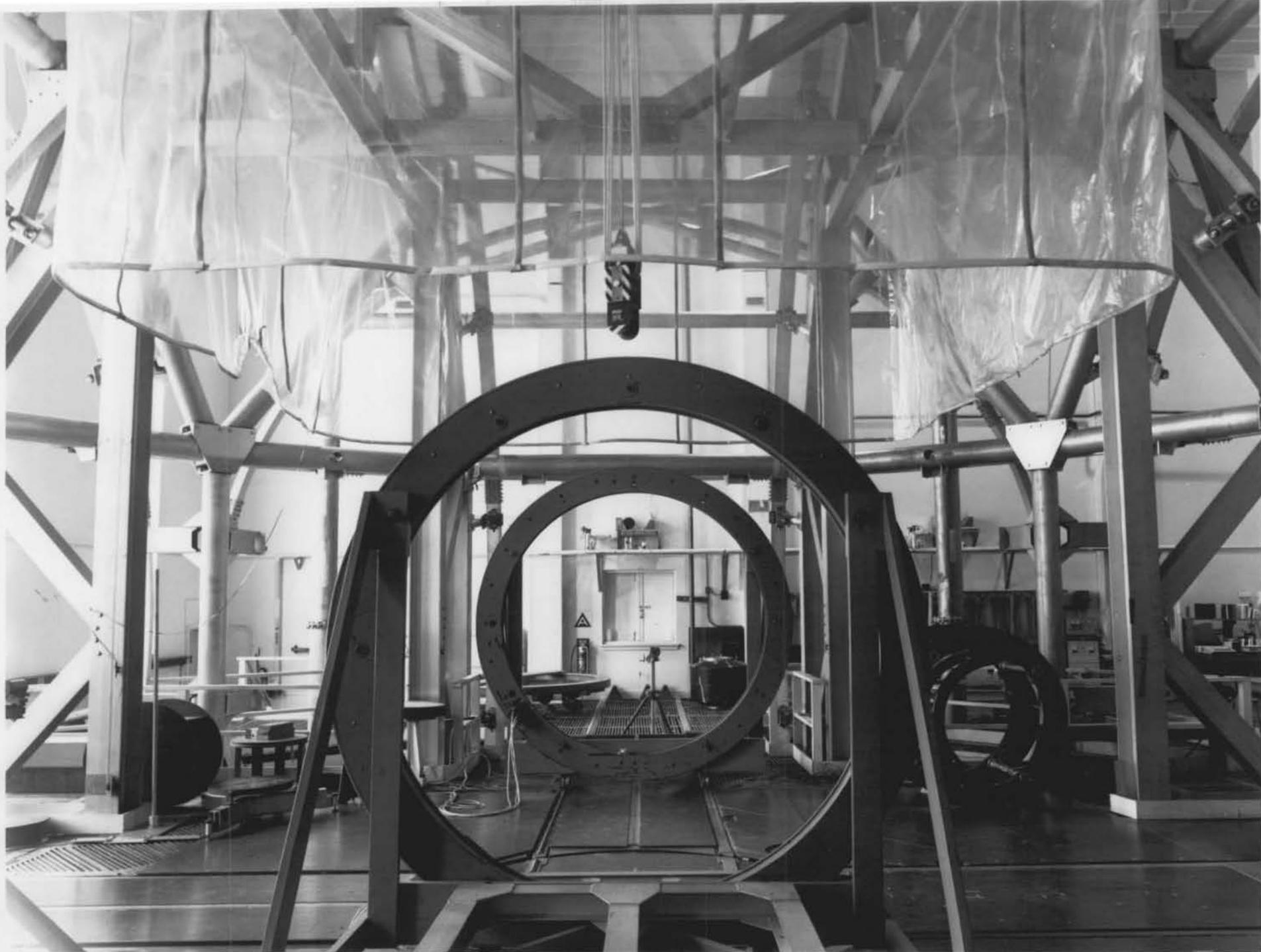
Goddard Space Flight Center
Greenbelt, Maryland 20771

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40' COIL LOOKING WEST

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Spacecraft Magnet Test Facility



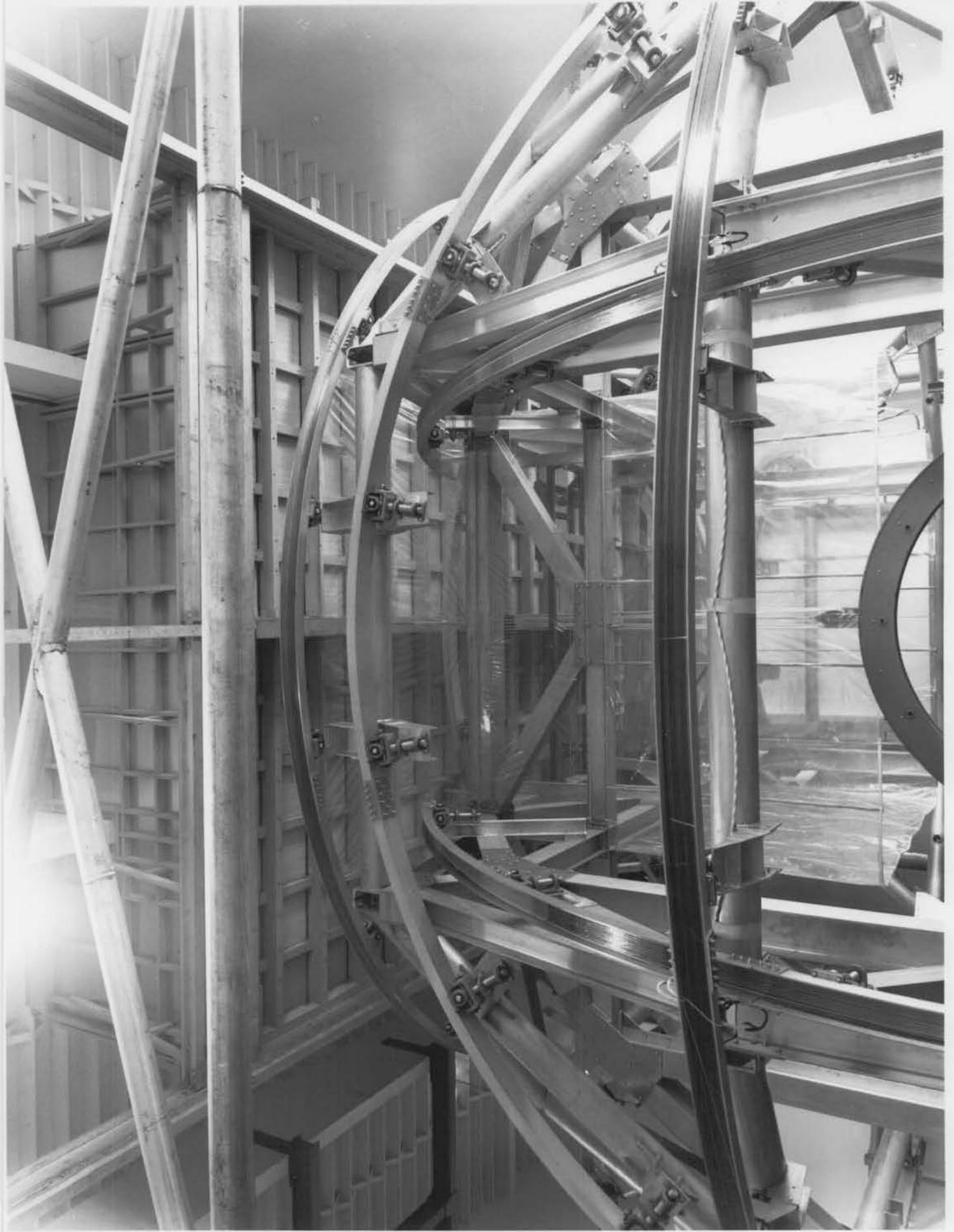
NASA
National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01629 40' COIL LOOKING EAST

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Spacecraft Magnet Test Facility



40' COIL LOOKING UP

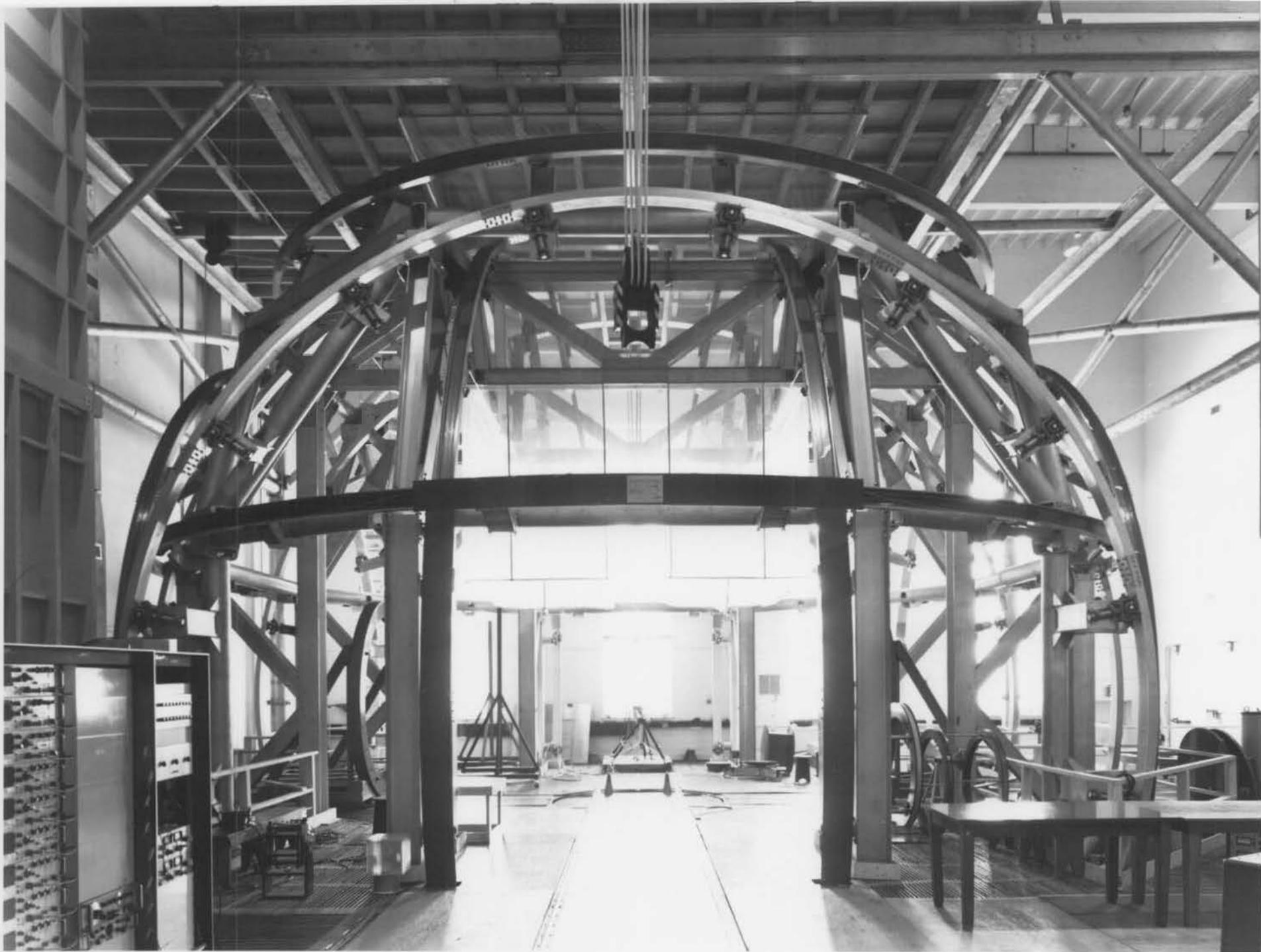
90 - 01631

Cassini Mission Flight Center
Chesapeake, Maryland 20711

NASA
National Aeronautics and Space Administration

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Spacecraft Magnet Test Facility



NASA
National Aeronautics and Space Administration

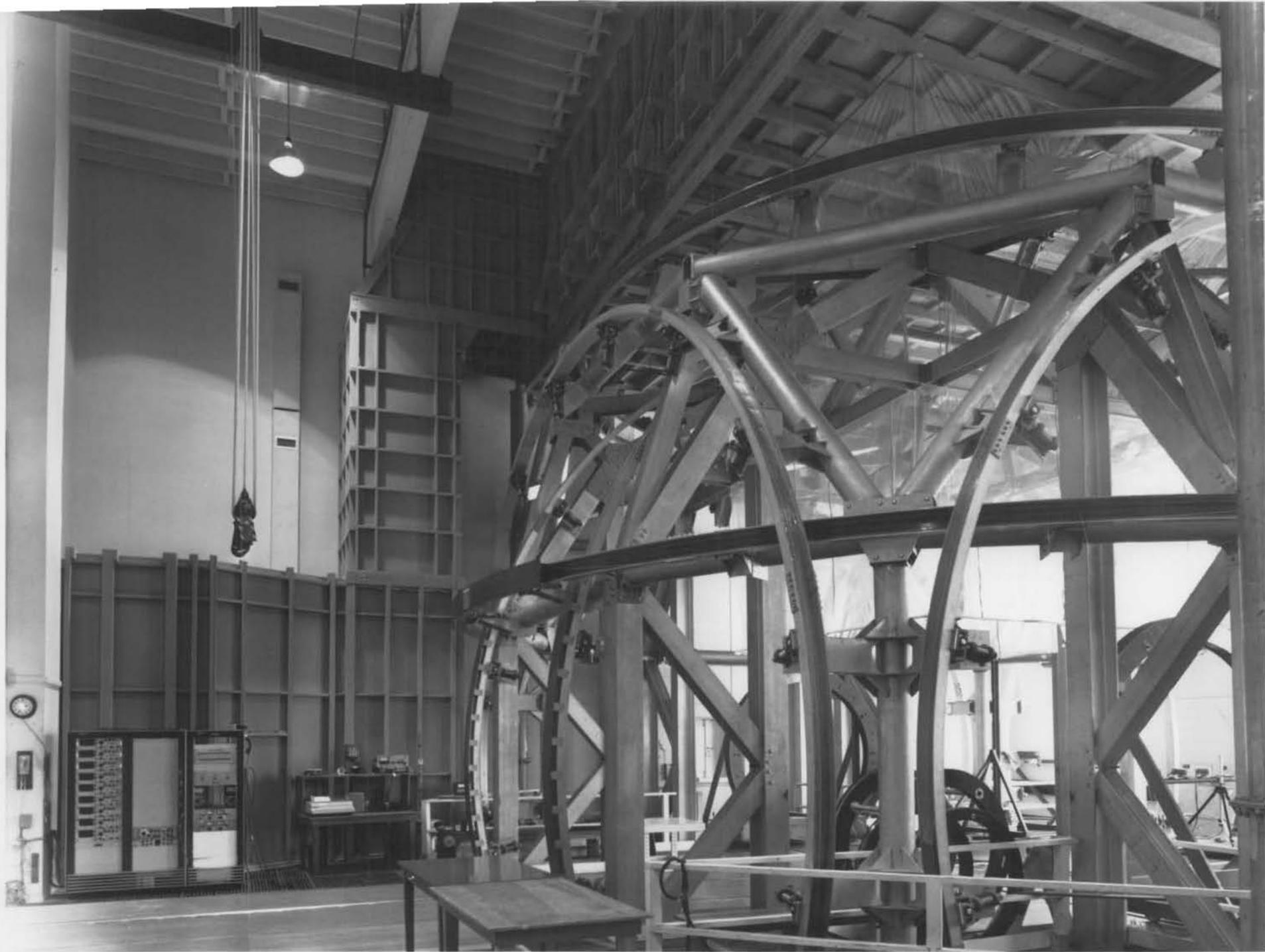
Goddard Space Flight Center
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40° COIL LOOKING NORTH

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Spacecraft Magnet Test Facility



NASA
National Aeronautics and Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01633

40' COIL. LOOKING N. W.

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Spacecraft Magnet Test Facility