Man in Space Theme Study
Federal Agency Nomination

NPS Form 10-900
(7-81)

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only
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street & number Goddard Space Flight Center ___ not for publication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	X public	___ occupied	___ agriculture	___ museum
___ building(s)	___ private	___ unoccupied	___ commercial	___ park
X structure	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	X yes: restricted	X government	X scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
		___ no	___ military	X 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
_X_ excellent	___ deteriorated	_X_ unaltered	_X_ original site
___ good	___ ruins	___ altered	___ moved date _____
___ fair	___ 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 $\pm$ 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				
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion	
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science	
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture	
___ 1600–1699	___ architecture	___ education	___ military	___ social/ humanitarian	
___ 1700–1799	___ art	X engineering	___ music	___ theater	
___ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ transportation	
X 1900–	___ communications	___ industry	___ politics/government	X other (specify) Space Exploration	
		___ 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 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

Acreage of nominated property Less than 1 acre

Quadrangle name Laurel

Quadrangle scale 1:24,000

UMT References

	Zone	Easting	Northing
A	18	341940	4318900
B			
C			
D			
E			
F			
G			
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

For NPS use only

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

date

Keeper of the National Register

Attest: date

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(7-81)

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

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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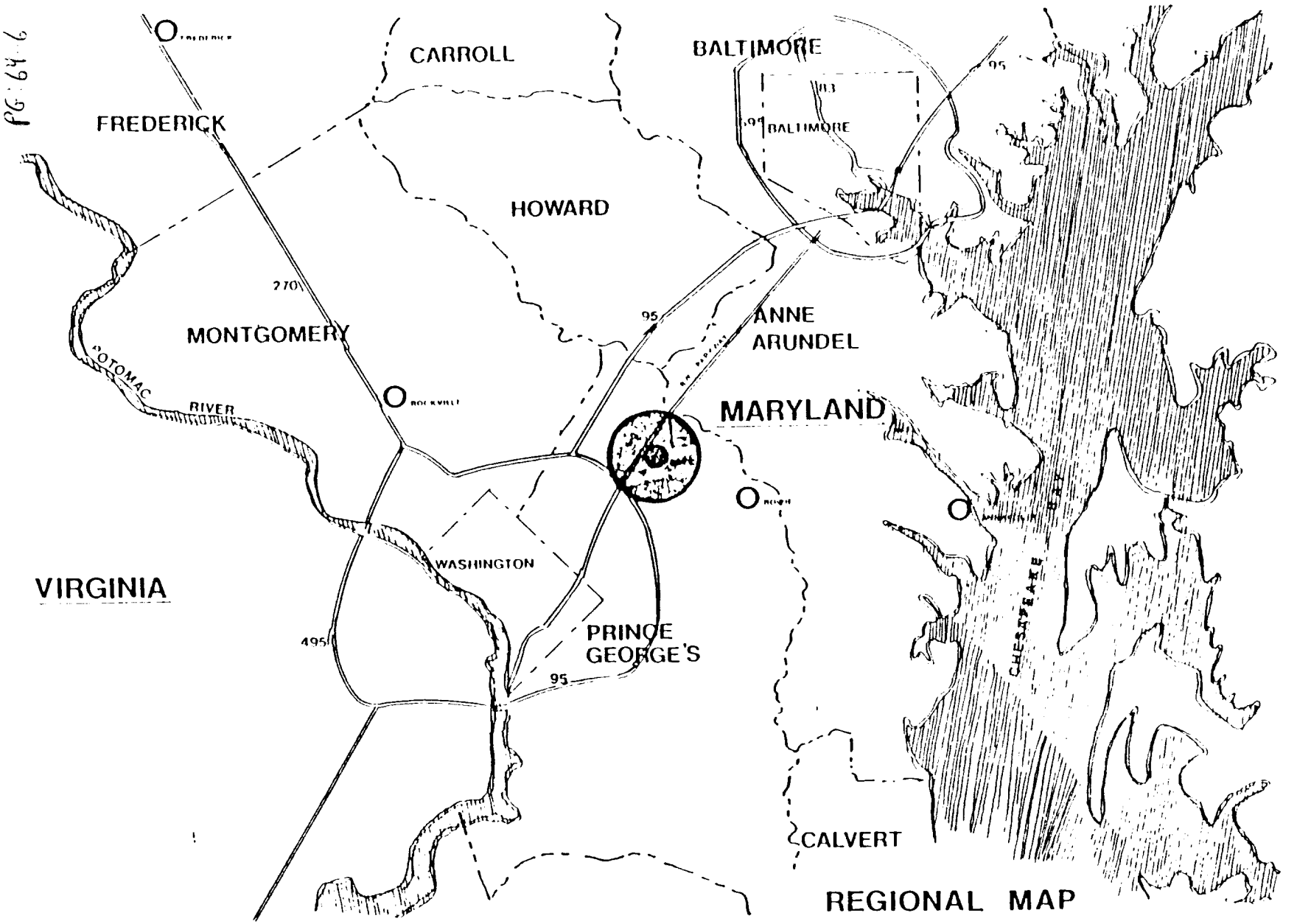
Bibliography

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.

PG 64-6

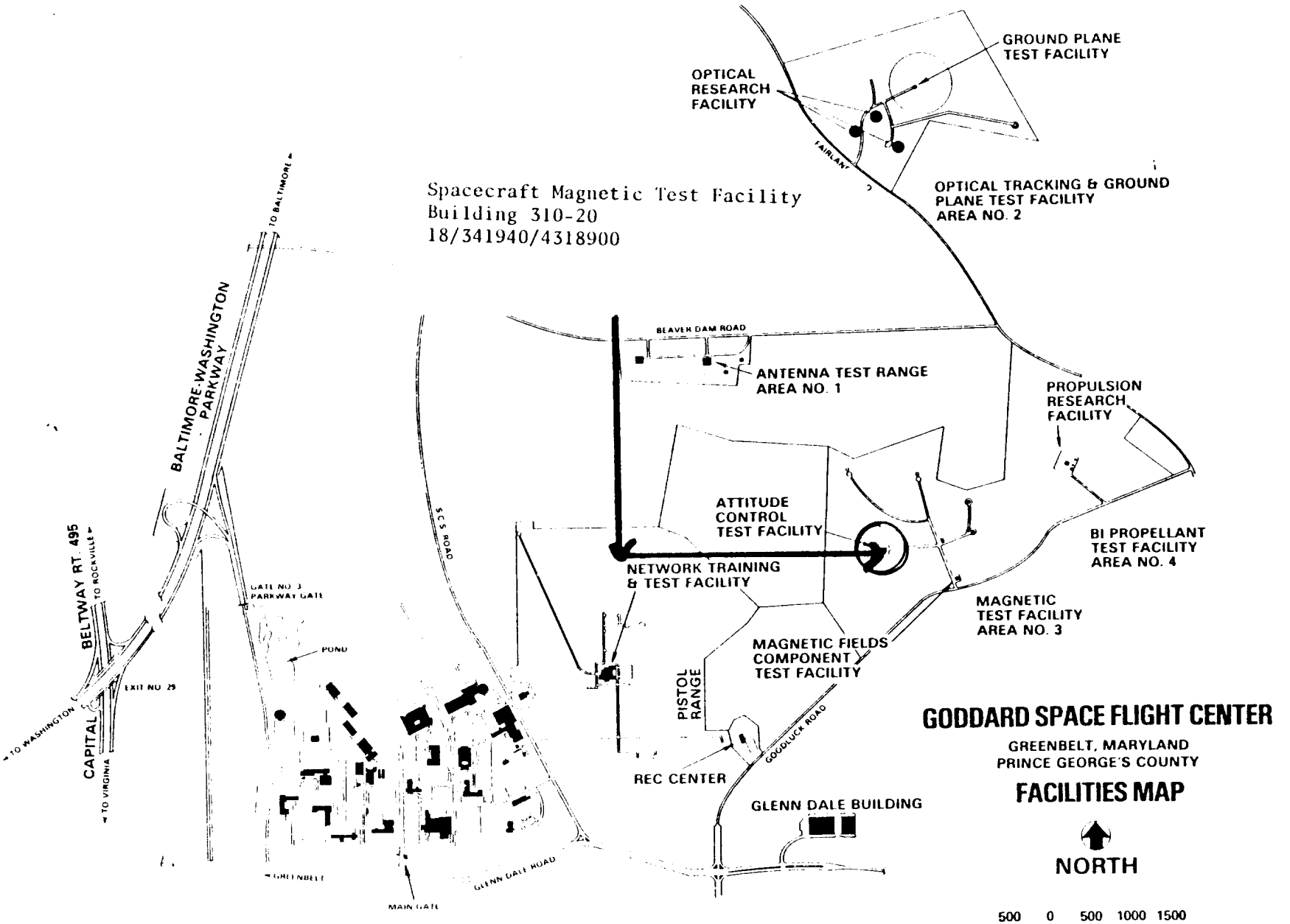


REGIONAL MAP

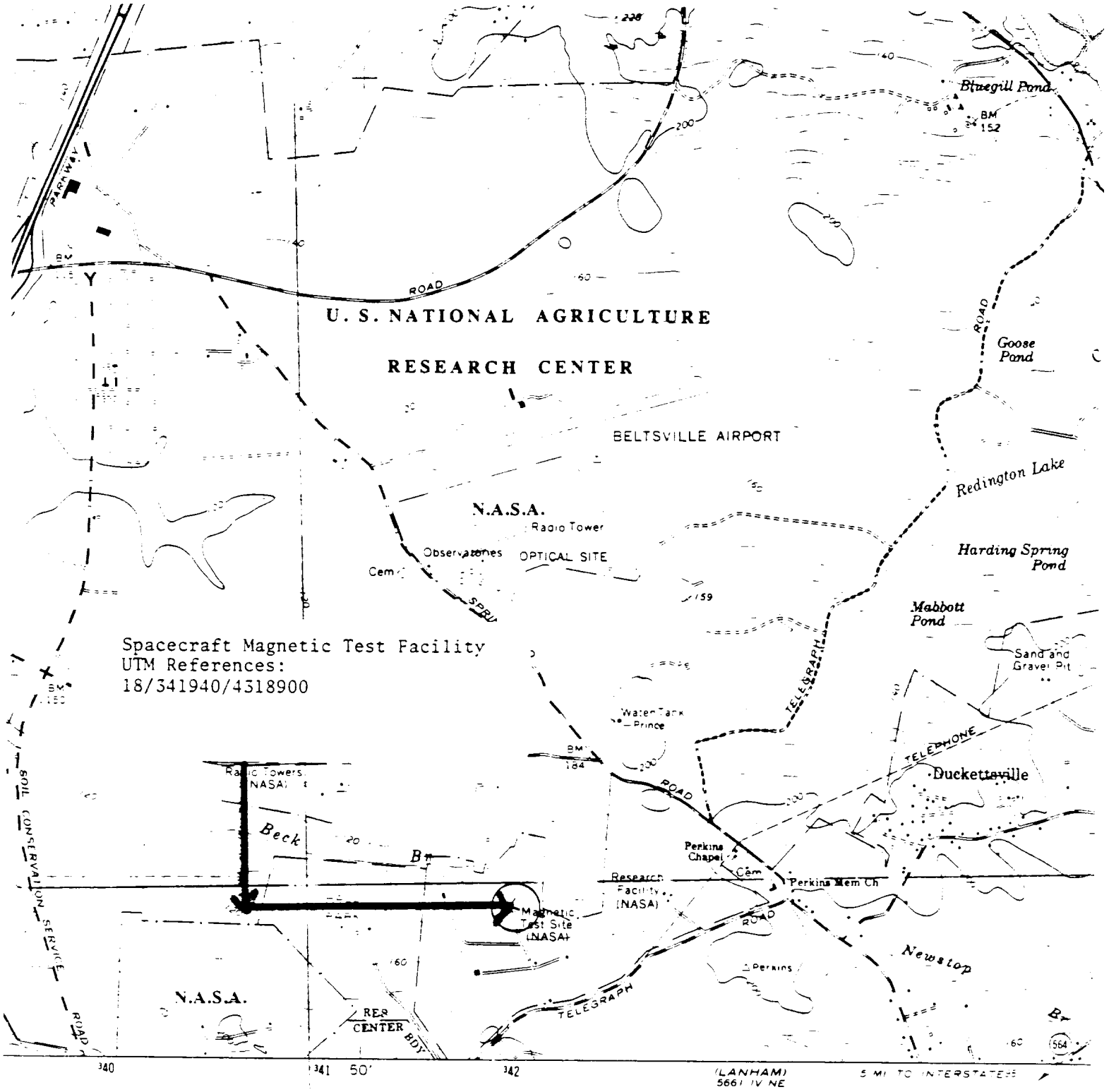
NASA GSFC

GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND 20770

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



9-49-64



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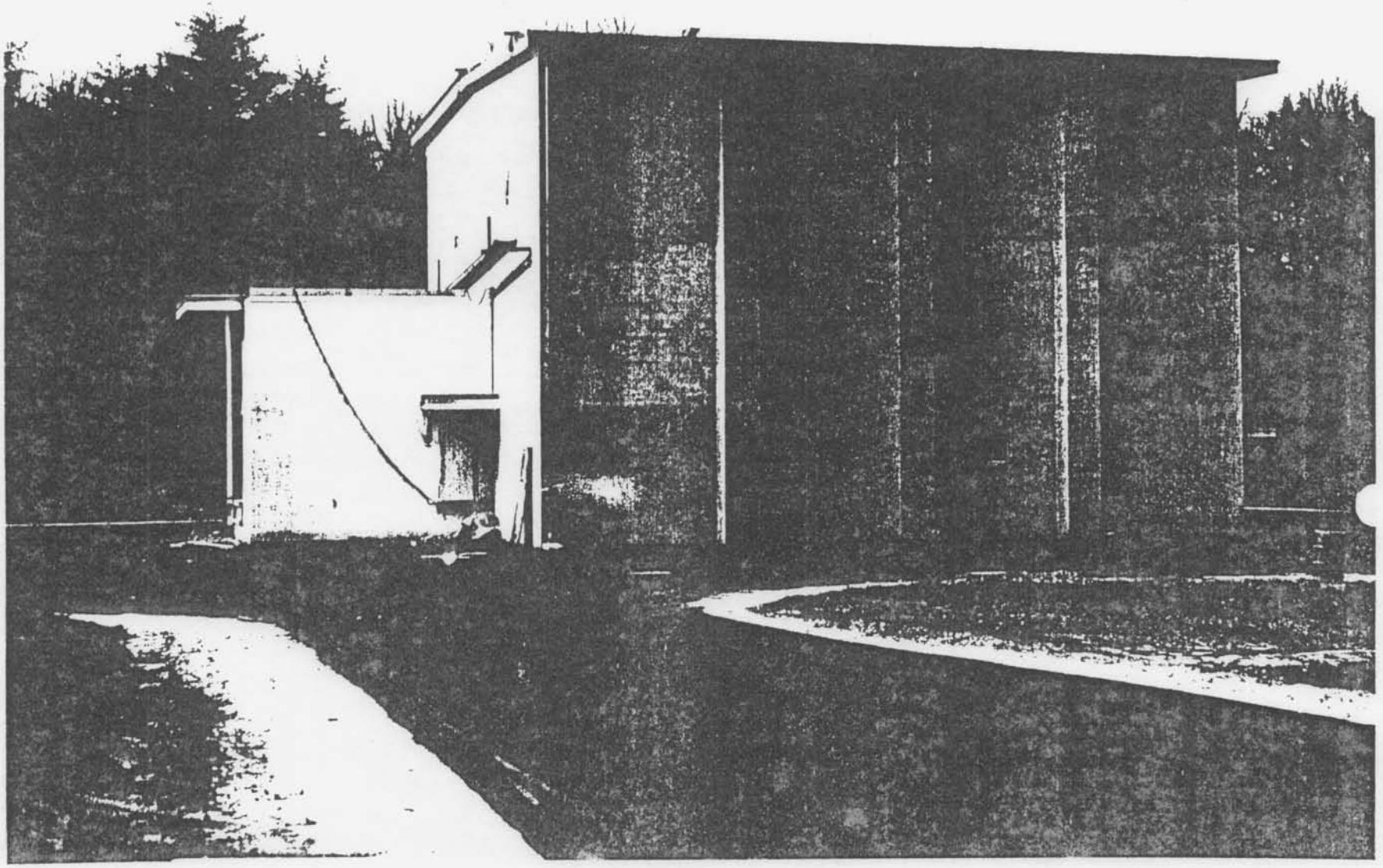
FOR SALE BY U S GEOLOGICAL SURVEY RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

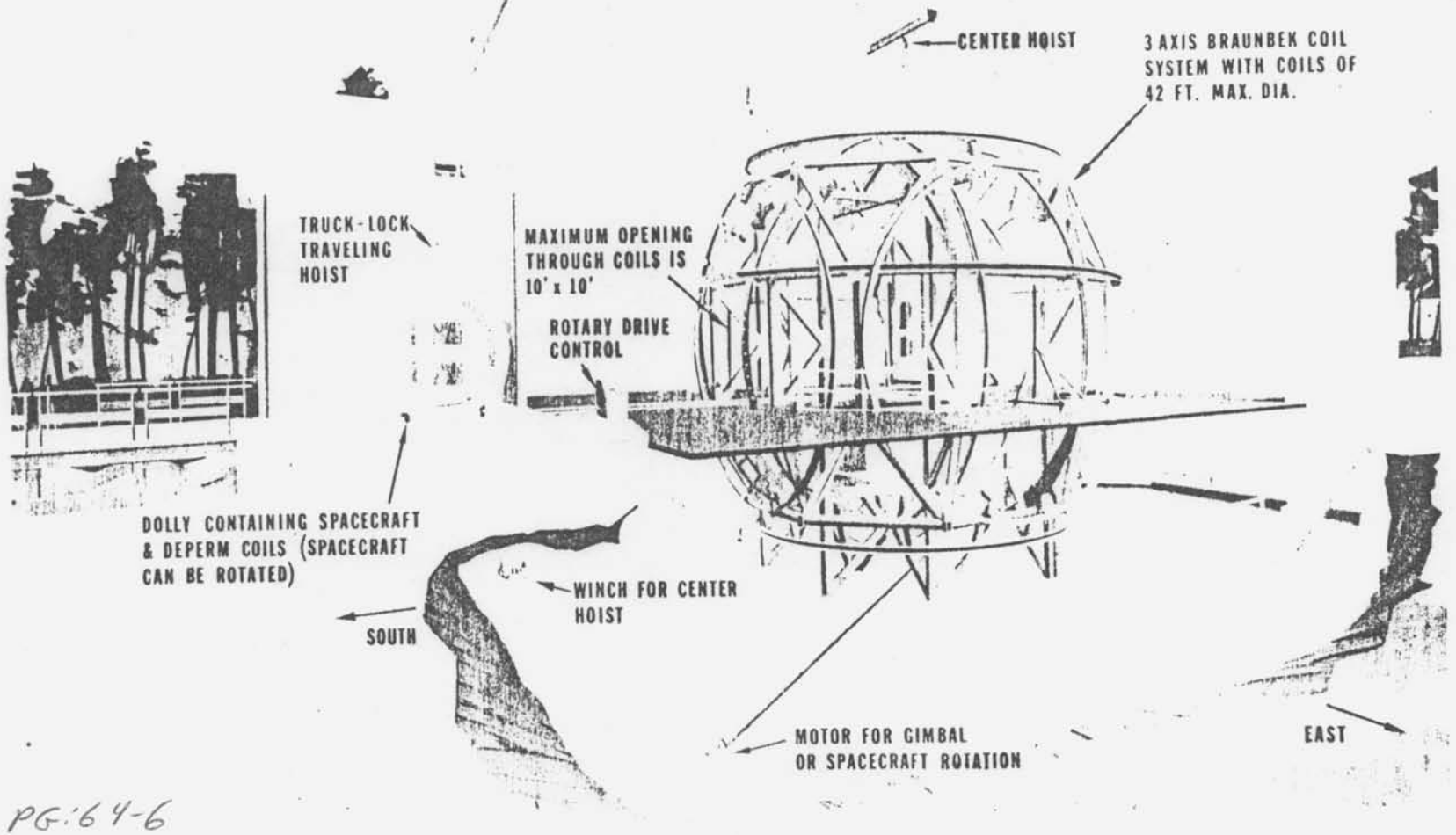
1. Spacecraft Magnetic Test Facility
2. Greenbelt, Maryland
3. NASA
4. 1965
5. NASA, Goddard Space Flight Center Facilities Office
6. Exterior View of Spacecraft Magnetic Test Facility



PG. 64-6

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

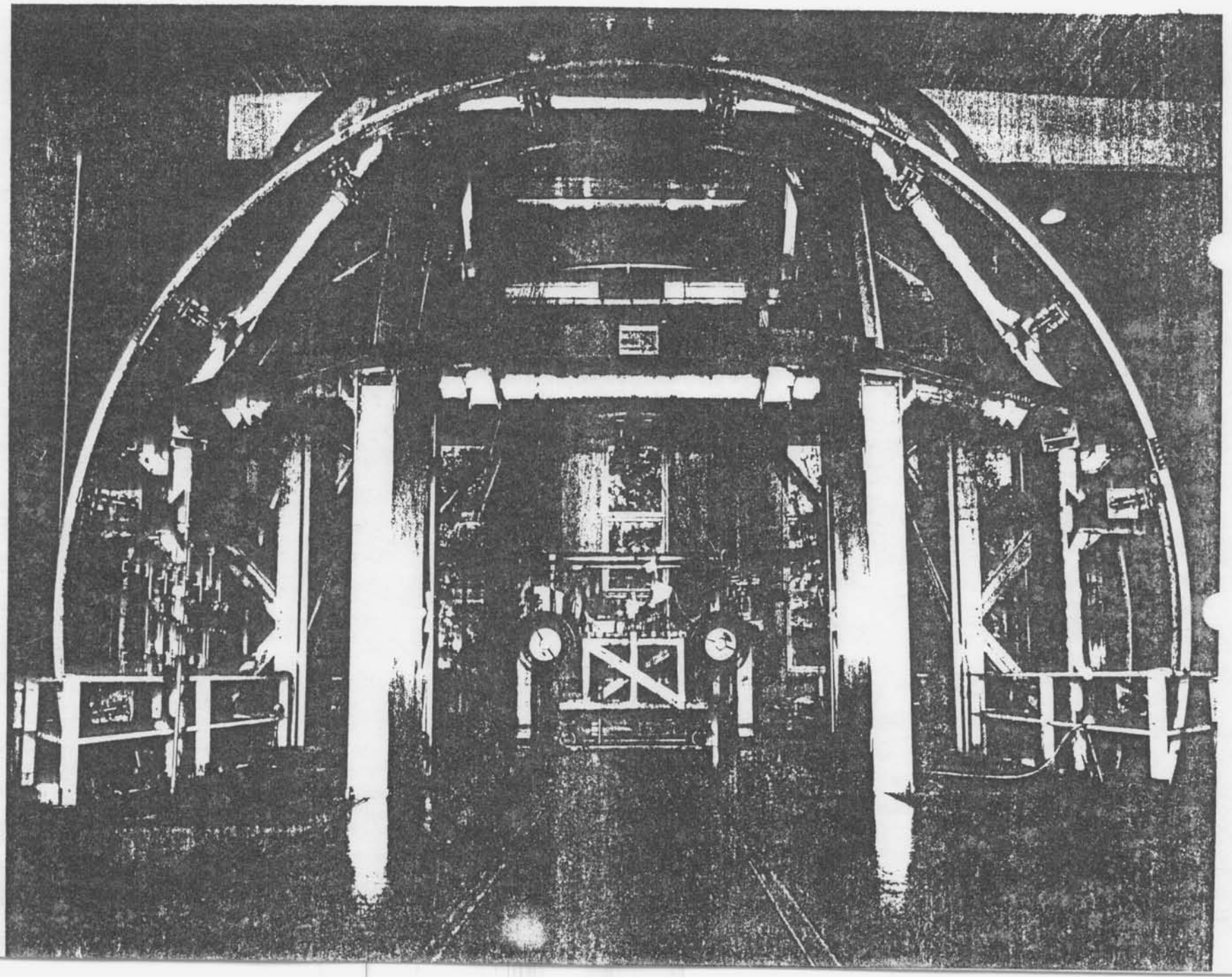
SPACECRAFT MAGNETIC TEST FACILITY



PG. 64-6

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

PG: 64-6



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

PG: 64-6

Spacecraft Magnet Test Facility

NASA
National Aeronautics and Space Administration

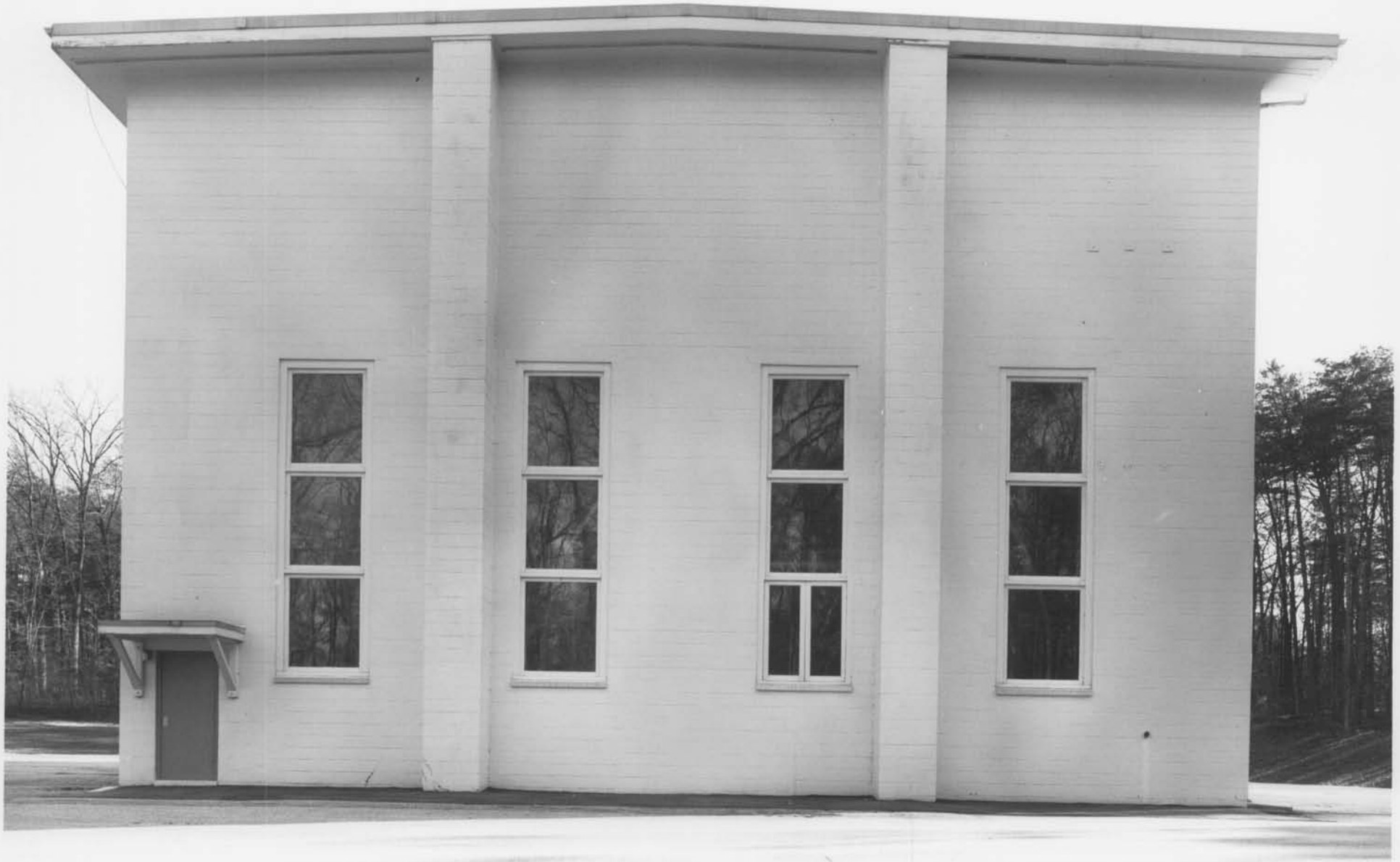
Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01627

WEST ELEVATION

PG: 64-6

Spacecraft Magnet Test Facility



NASA
National Aeronautics and Space Administration

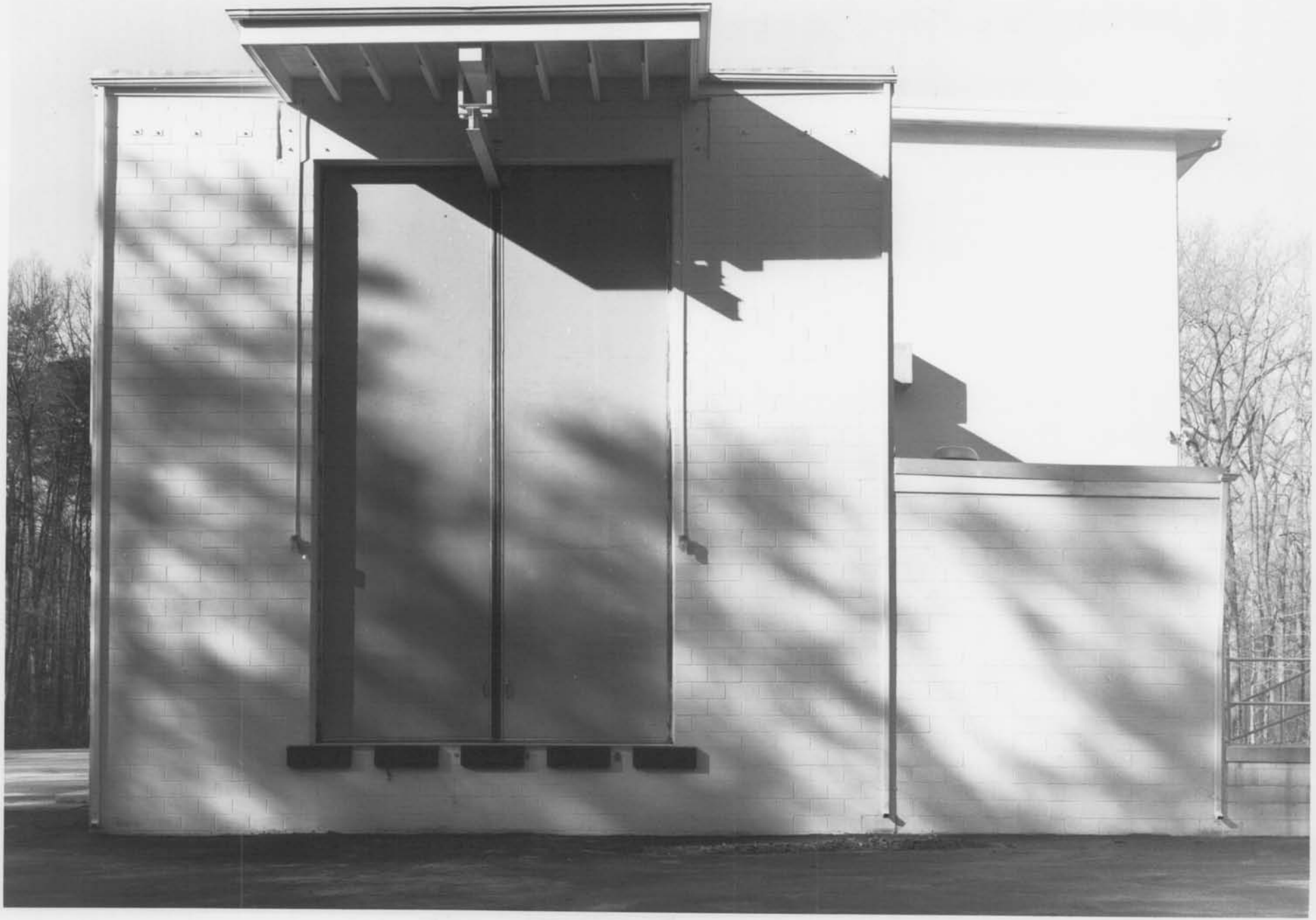
Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01628

NORTH ELEVATION

PG: 64-6

Spacecraft Magnet Test Facility

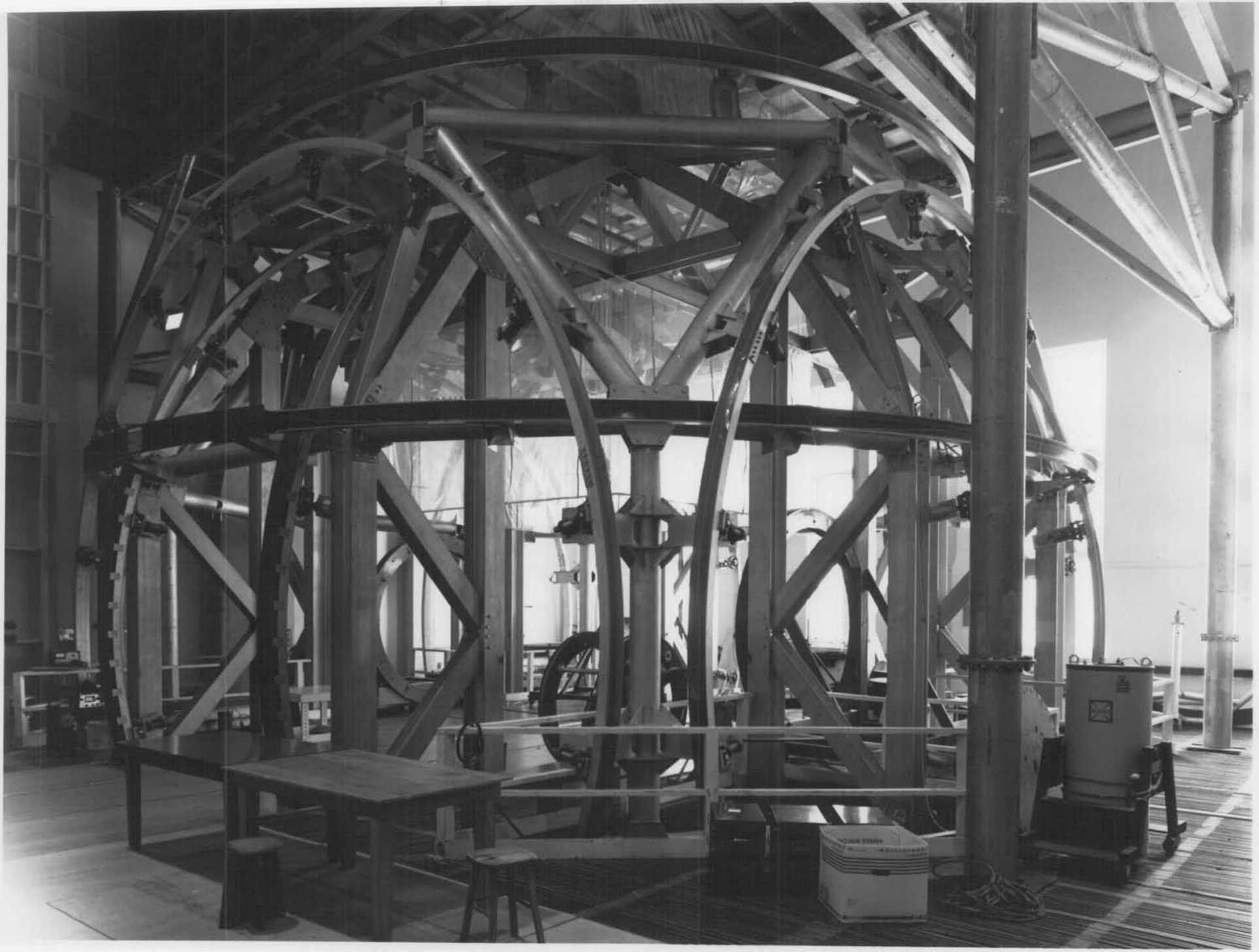


NASA National Aeronautics and Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01626

SOUTH ELEVATION



NASA
National Aeronautics and Space Administration

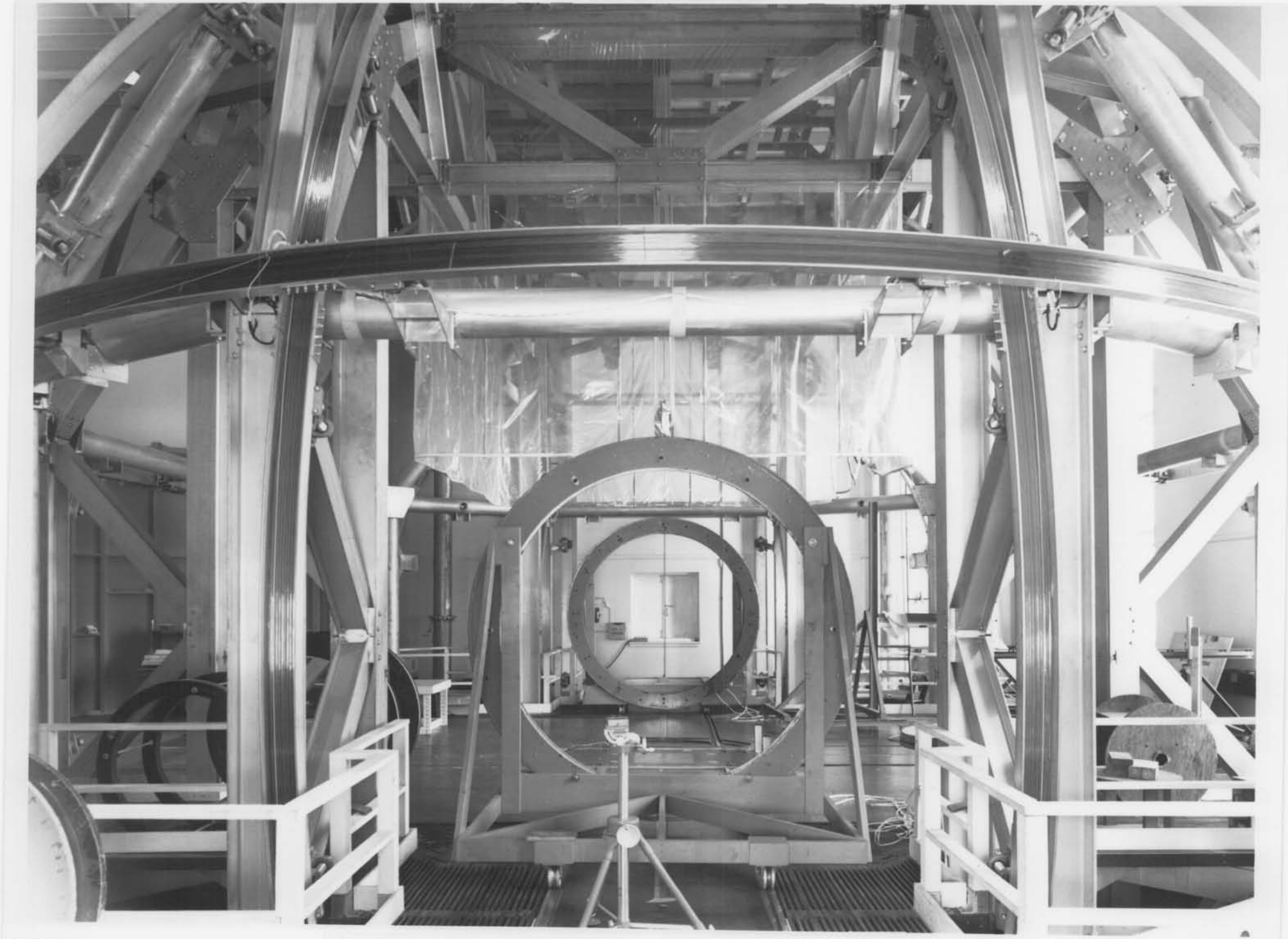
Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01632

40' COIL LOOKING NORTH

PG: 64-6

Spacecraft Magnet Test Facility



NASA

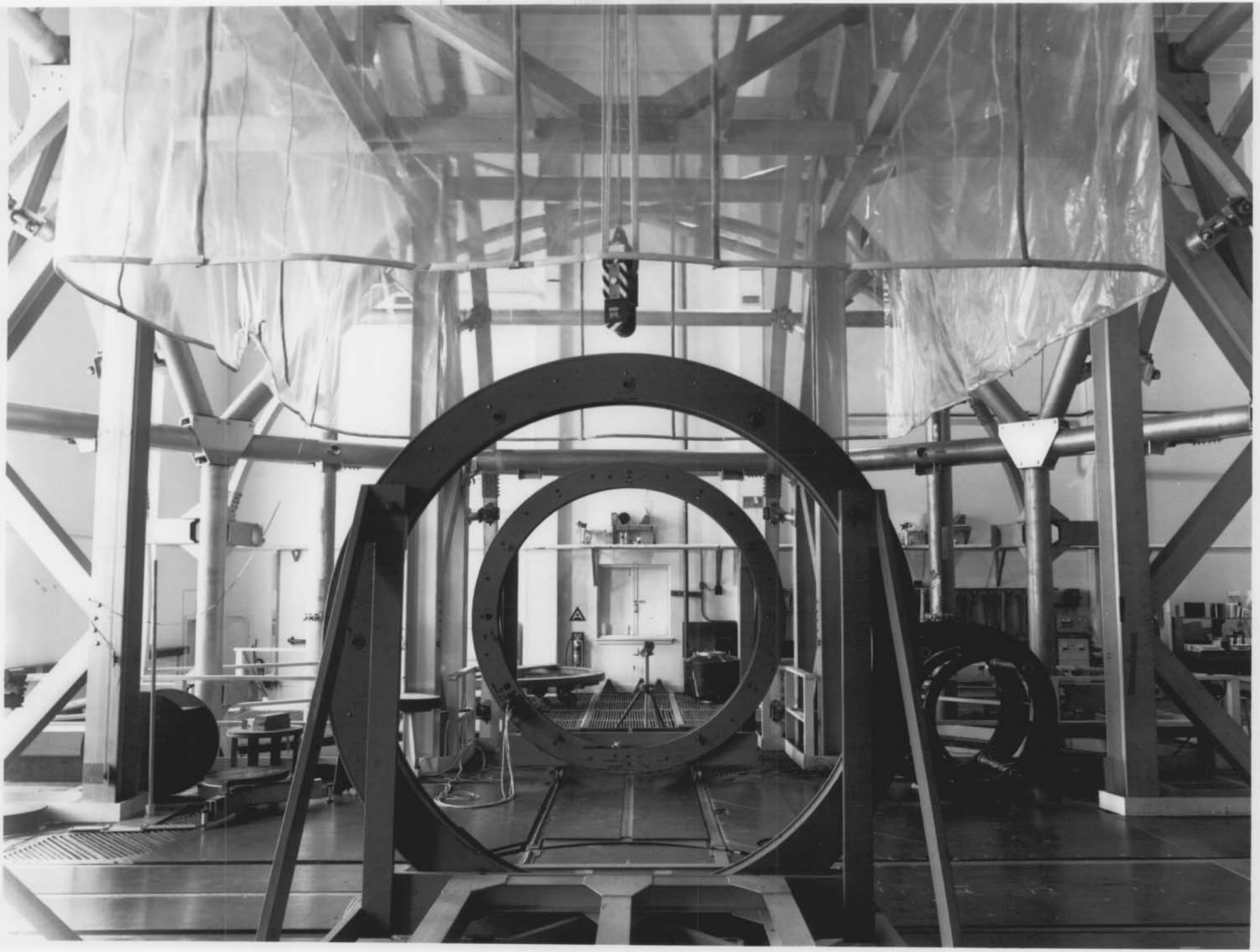
Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01630

40' COIL LOOKING WEST

PG: 64-6

Spacecraft Magnet Test Facility



NASA
National Aeronautics and Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01629 40' COIL LOOKING EAST

PG: 64-6

Spacecraft Magnet Test Facility

NASA

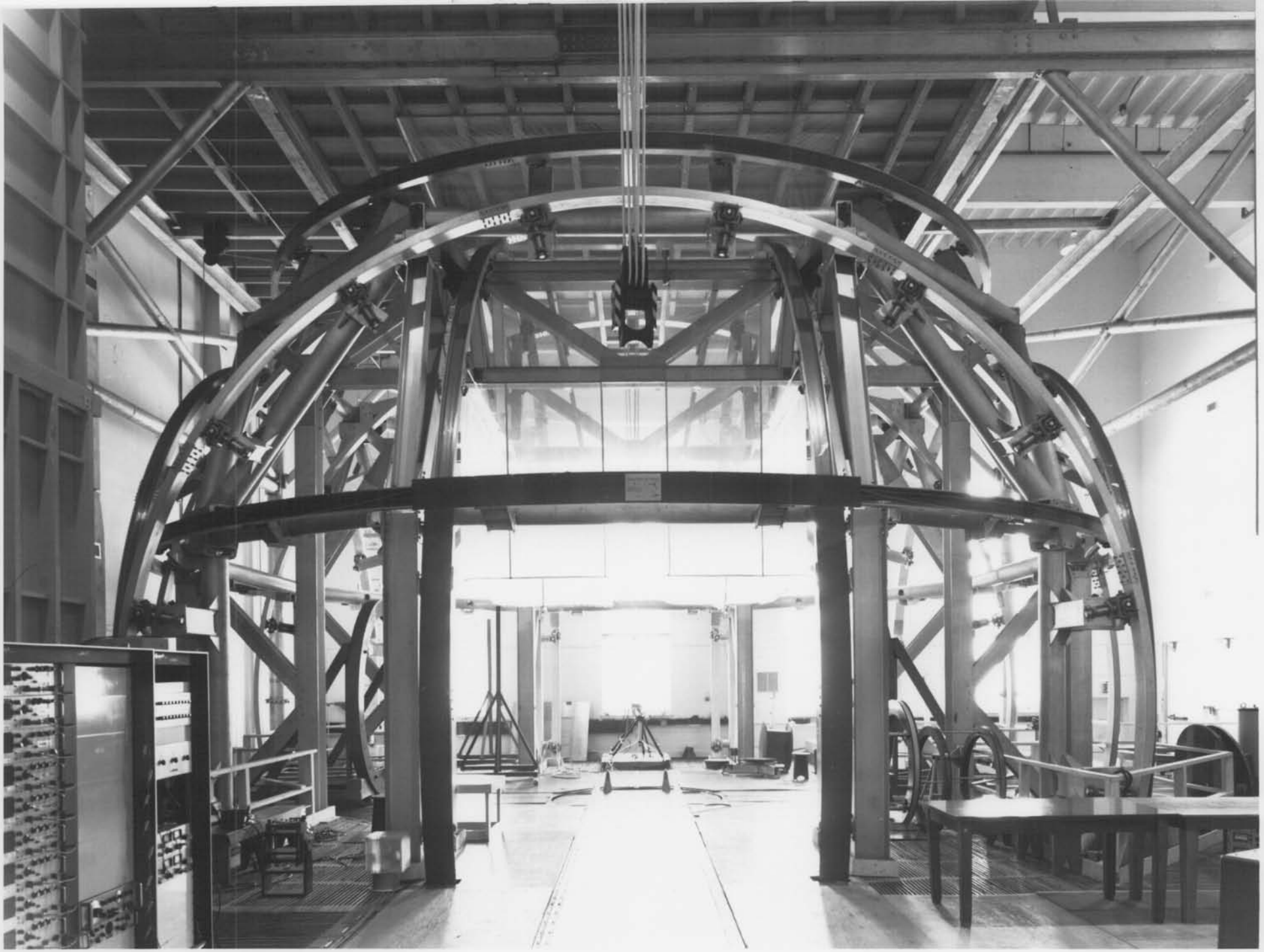
Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01631

40' COIL LOOKING UP

PG: 64-6

Spacecraft Magnet Test Facility



NASA National Aeronautics and Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01634

40' COIL LOOKING NORTH

PG: 64-6

Space craft Magnet Test Facility

NASA

Goddard Space Flight Center
Greenbelt, Maryland 20771

90-01633

40' COIL LOOKING N. W.

PG: 64-6

Spacecraft Magnet Test Facility