

*Corrected Copy*  
*9 October 1961*

REQUEST FOR HOMOLOGATION

2 WORLD RECORDS



NATIONAL AERONAUTIC ASSOCIATION  
UNITED STATES REPRESENTATIVE FEDERATION AERONAUTIQUE INTERNATIONALE



NON-AIR BREATHING MANNED ROCKET

(a) ALTITUDE WITHOUT EARTH ORBIT

(b) GREATEST MASS LIFTED WITHOUT EARTH ORBIT

Vehicle Commander: Alan B. Shepard, Jr.  
Ballistic Capsule: Project Mercury Spacecraft No. 7  
Launch Vehicle: Mercury Redstone MR-7  
Date: 5 May 1961  
Altitude: ~~614,526 Feet (186,307 Meters)~~  
Mass Lifted: 4,040 Pounds (1,832.51 Kilograms)

*↙ 615,300 feet (187,500 meters)*

INDEX

REVIEW . . . . .	1
DIRECTING OFFICIAL'S REPORT . . . . .	2
CERTIFICATE OF LAUNCH . . . . .	3
CERTIFICATE OF RETURN . . . . .	4
VEHICLE COMMANDER'S REPORT . . . . .	5
CERTIFICATE OF MASS LIFTED . . . . .	6
CERTIFICATE OF VEHICLE MASSES . . . . .	7
SCALE CALIBRATION and MASS CERTIFICATION . . . . .	8
RADAR DATA DETERMINATION . . . . .	9
RADAR FLIGHT PATH . . . . .	10
CERTIFICATE OF APOGEE . . . . .	11
MERCURY TEST FLIGHT CHART . . . . .	12
REPORT OF SPECIAL APPARATUS . . . . .	13
PHOTOGRAPH OF VEHICLE COMMANDER . . . . .	14
PHOTOGRAPH OF ERECTION OF MERCURY CAPSULE #7 . . . . .	15
PHOTOGRAPH OF MERCURY-REDSTONE ON THE PAD . . . . .	16
PHOTOGRAPH OF MERCURY-REDSTONE LAUNCH . . . . .	17
PHOTOGRAPH OF VEHICLE COMMANDER AND CAPSULE RECOVERY . . . . .	18

NATIONAL AERONAUTIC ASSOCIATION  
1025 Connecticut Avenue, N. W.  
Washington, D. C.

REVIEW

Record Classification: WORLD - Non-Air Breathing Manned Rockets

(a) Altitude without Earth Orbit

(b) Greatest Mass Lifted without Earth Orbit

Date of Record Flight: 5 May 1961

Place of Launch: Cape Canaveral, Florida - Complex 56

Place of Return: Atlantic Ocean off coast of Bahama Islands

Name of Vehicle Commander: Commander Alan B. Shepard, Jr.

Nationality: U.S.A. FAI Sporting License No. 80-61

Ballistic Capsule: Project Mercury Spacecraft No. 7

Manufacturer: McDonnell Aircraft Corporation

P. O. Box 516, St. Louis, Missouri

Launch Vehicle: Mercury Redstone MR-7

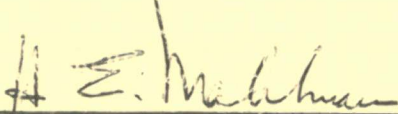
Identification Marks: UNITED STATES - FREEDOM 7

Manufacturer: Chrysler Missile Division of Chrysler Corporation

3811 Van Dyke Road, Detroit, Michigan

RECORD: ALTITUDE: 615,300 187,500  
614,526 Feet (186,307 Meters)

MASS LIFTED: 4,040 Pounds (1,832.51 Kilograms)

  
\_\_\_\_\_  
H. E. "Tony" Mahlman  
Secretary, Contest Board

NATIONAL AERONAUTIC ASSOCIATION  
United States Representative  
FEDERATION AERONAUTIQUE INTERNATIONALE

DIRECTING OFFICIAL'S REPORT

RECORD CLASSIFICATION: WORLD - Non-Air Breathing Manned Rockets

(a) Altitude without Earth Orbit

(b) Greatest Mass Lifted without Earth Orbit

Date of Attempt: May 5, 1961

<u>Vehicle Commander</u>	<u>Nationality</u>	<u>License No.</u>
<u>Mercury Astronaut Alan Bartlett Shepard, Jr. Commander, U. S. Navy)</u>	<u>USA</u>	<u>80-61</u>

Mark and Type of Vehicle: Project Mercury Spacecraft No. 7 (Ballistic Capsule) Mercury-Redstone Launch Vehicle MR-7

Identification Marks or Numbers: United States - Freedom 7

Mark and Type of Engines: Rocketdyne A-7

Number of Engines: One Total Thrust: 78,000 Pounds (35,380.2 Kgs)

Launch Site: Pad 5, Complex 56, AFMTC, Cape Canaveral, Florida

Return Location: 263.1 N.M. downrange in Atlantic Ocean off Bahama Islands  
*(487.6 Kms)*

Time of Launch: 14:34:13.48 (TU) GMT Time of Return: 14:49:27 (TU) GMT

Method of Recovery: Parachute Descent ~~Helicopter Pickup~~ *of Capsule to Earth's surface with Vehicle Commander alive inside.*

Total Elapsed Time (Launch to Return): 15 Minutes, 13.52 Seconds

Total Distance Traveled: 263.1 Nautical Miles (487.6 Kms.)

Maximum Altitude Attained: 101.2 Nautical Miles, 614,526 feet, 187,307 Meters  
*615,300 187,500*

We certify that the above is true and correct and that the Vehicle Commander returned to the Earth's surface and did sign his report.

*Josephine Cochran*  
Directing Official (Steward)

*RBD Dillaway*  
Official Observer

NATIONAL AERONAUTIC ASSOCIATION  
United States Representative  
FEDERATION AERONAUTIQUE INTERNATIONALE

CERTIFICATE OF LAUNCH

RECORD CLASSIFICATION: WORLD - Non-Air Breathing Manned Rockets

(a) Altitude without Earth Orbit

(b) Greatest Mass Lifted without Earth Orbit

Date of Attempt: May 5, 1961

<u>Vehicle Commander</u>	<u>Nationality</u>	<u>License No.</u>
<u>Alan B. Shepard, Jr.</u>	<u>USA</u>	<u>80-61</u>

Mark and Type of Vehicle: Redstone booster with a Mercury Capsule

Identification Marks or Numbers: Booster: Redstone MR7; Capsule: McDonnell #7

This is to certify that the above described vehicle:

Did take off from: Pad 5, Complex 56, AFMTC, Cape Canaveral, Florida

Coordinates of Launch Point:  
Geodetic Latitude: 28°43'91.35 <sup>28°26'20.9" N</sup> Geodetic Longitude: 80°57'35.21 <sup>80°34'24.7" W</sup>

Date of Launch: May 5, 1961 Time of Launch: 14:34:13.48 (TU) GMT

Local vertical height above the earth ellipsoids: 21.9 Feet (6.675 meters)

Geocentric Radius to Launch Point: 3,960.256 miles  
1941.279 (mean value)\* (6,373.427 kms)

Point of Observation: Mercury Control Center and Blockhouse

Official Time Source: WWV

R B Dillaway  
Official NAA Observer-Timer

Ray V. Whitener  
Official Observer

\*NOTE: ~~Based on 1866 Clark Spheroid~~  
Polar radius ~~1,937,983 Feet~~ 3,949.864 mi (6,356.863 kms)  
Equatorial radius ~~1,944,575 Feet~~ 3,963.249 miles (6,378.245 kms)

NATIONAL AERONAUTIC ASSOCIATION  
United States Representative  
FEDERATION AERONAUTIQUE INTERNATIONALE

CERTIFICATE OF RETURN

RECORD CLASSIFICATION: WORLD - Non-Air Breathing Manned Rockets

(a) Altitude without Earth Orbit

(b) Greatest Mass Lifted without Earth Orbit

Date of Attempt: May 5, 1961

<u>Vehicle Commander</u>	<u>Nationality</u>	<u>License No.</u>
<u>Mercury Astronaut Alan Bartlett Shepard, Jr. (Commander, U. S. Navy)</u>	<u>USA</u>	<u>80-61</u>

Mark and Type of Vehicle: Project Mercury Spacecraft No. 7 (Ballistic Capsule) Mercury-Redstone Launch Vehicle MR-7

Identification Marks or Numbers: United States - Freedom 7

This is to certify that the above described vehicle:

Did Return at: Geographic Co-ordinates below in the Atlantic Ocean

Geographic Co-Ordinates: Latitude: 27°13'7" N Longitude: 75°51'14" W  
~~75°53' W~~

On (date): 5 May 1961 At (time): 1449 (TU) GMT

Point of Observation: Retrieval Helicopter #44 Airborn at Landing Site

Official Time Source: WWV Reference Clock in Blockhouse 5

Wayne E. Koors  
Observer  
Yt USMC

George F. Cox  
Observer  
Yt USMC

NATIONAL AERONAUTIC ASSOCIATION  
United States Representative  
FEDERATION AERONAUTIQUE INTERNATIONALE

VEHICLE COMMANDER'S REPORT

RECORD CLASSIFICATION: WORLD - Non-Air Breathing Manned Rockets

(a) Altitude without Earth Orbit

(b) Greatest Mass Lifted without Earth Orbit

Date of Attempt: May 5, 1961

<u>Vehicle Commander</u>	<u>Nationality</u>	<u>License No.</u>
<u>Mercury Astronaut Alan Bartlett Shepard, Jr. Commander, U. S. Navy)</u>	<u>USA</u>	<u>80-61</u>

Mark and Type of Vehicle: Project Mercury Spacecraft No. 7 (Ballistic Capsule) Mercury-Redstone Launch Vehicle MR-7

Identification Marks or Numbers: United States - Freedom 7

I hereby certify that I was aboard the above vehicle at the time it was launched from the earth's surface, remained aboard during the period stated herein, and was returned to the earth's surface at the location indicated below:

Launch Site: Pad 5, Complex 56, AFMTC, Cape Canaveral, Florida

Latitude: ~~28°43'91.35"~~ 28°26'20.9" N Longitude: ~~80°57'35.21~~ 80°34'24.7" W

On (date): May 5, 1961 At (time): 14:34:13.48 (TU) GMT

Return Site: (487.6 Kms) 263.1N.M. downrange from launch site in Atlantic Ocean

at (location): Off Bahama Islands

Latitude: 27°13'7" N Longitude: ~~75°53.0' W~~ 75°51'14" W

On (date): May 5, 1961 At (time): 14:49:27 (TU) GMT

*Alan Bartlett Shepard Jr.*  
Vehicle Commander  
Alan Bartlett Shepard, Jr.

*15 May 1961*

F.A.I. License No. 80-61

NATIONAL AERONAUTIC ASSOCIATION  
United States Representative  
FEDERATION AERONAUTIQUE INTERNATIONALE

CERTIFICATE OF MASS LIFTED

RECORD CLASSIFICATION: WORLD - Non-Air Breathing Manned Rockets

(a) Altitude without Earth Orbit

(b) Greatest Mass Lifted without Earth Orbit

Date of Attempt: May 5, 1961

Vehicle Commander

Nationality

License No.

Alan B. Shepard, Jr.

USA

80-61


Mark and Type of Vehicle: Redstone booster with a Mercury Capsule

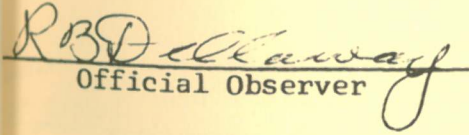
Identification Marks or Numbers: Booster Redstone MR7-Capsule McDonnell #7

Total Mass Lifted: Spacecraft 4040 lbs, Spacecraft plus Booster at

lift-off 66,101 lbs. (29,982.9 Kgs)

We certify that the above is true and correct as indicated on the  
accompanying official "Mass" (Weight) Report.

  
Directing Official (Steward)

  
Official Observer



NATIONAL AERONAUTIC ASSOCIATION  
United States Representative  
FEDERATION AERONAUTIQUE INTERNATIONALE

CERTIFICATE OF VEHICLE MASSES

WORD CLASSIFICATION: WORLD - Non-Air Breathing Manned Rockets

(a) Altitude without Earth Orbit

(b) Greatest Mass Lifted without Earth Orbit

Time of Attempt: May 5, 1961

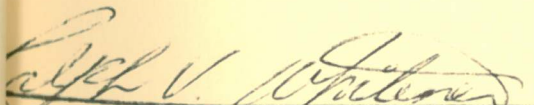
<u>Vehicle Commander</u>	<u>Nationality</u>	<u>License No.</u>
<u>Mercury Astronaut Alan Bartlett Shepard, Jr. (Commander, U. S. Navy)</u>	<u>USA</u>	<u>80-61</u>


Make and Type of Vehicle: Project Mercury Spacecraft No. 7 (Ballistic  
Capsule) Mercury-Redstone Launch Vehicle MR-7

Page Identification Marks or Numbers: United States - Freedom 7

Mass of each Stage:      FIRST : 62,061 Pounds (28,150.4 Kgs)  
                                 SECOND: DNA  
                                 THIRD : DNA  
                                 FOURTH: DNA

We certify that the above is true and correct as indicated on the accompanying "Mass" (Weight) Report.

  
Official Observer

  
Official Timer



# Revere CORPORATION OF AMERICA

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 HEAT AND AIRFLOW PRODUCTS  
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CALIBRATION RECORD  
 ELECTRONIC WEIGHING KIT  
 COX & STEVENS DIVISION  
 Model No. C-41320  
 Serial No. 3160

WALLINGFORD, CONNECTICUT  
 TELEPHONE COLONY 8-7701

December 22, 1959

True Load - lbs.	Red Cell S/N 44210	Yellow Cell S/N 44186	Blue Cell S/N 44211
1,000	0	0	0
*1,000	0	0	0
2,000	0	0	0
*2,000	0	0	0
3,000	-1	0	0
*3,000	0	+1	+1
4,000	0	+1	0
*4,000	+1	+1	+1
5,000	0	0	0
*5,000	+1	+1	+1
6,000	-1	0	0
*6,000	0	+2	+1
7,000	0	0	-2
*7,000	+1	0	2
8,000	0	-1	-2
*8,000	+1	0	0
9,000	-2	-3	-3
*9,000	+1	-3	-3
10,000	-1	-3	-4
*10,000	0	-3	2

\*Switch Point  
 Positive reading means cell is reading less than actual weight.

  
 Inspector

NATIONAL  
AERONAUTICS  
AND SPACE  
ADMINISTRATION



NASA HEADQUARTERS  
1520 H STREET NORTHWEST  
WASHINGTON 25, D. C.  
TELEPHONE: EXECUTIVE 3-3260 TWX: WA 755

IN REPLY REFER TO  
DA-1 (WJN:rfr)

May 19, 1961

Mr. H. E. Mahlman  
Secretary, Contest Board  
National Aeronautic Association  
1025 Connecticut Avenue, N. W.  
Washington 6, D. C.

Dear Mr. Mahlman:

The attached reproduction is a copy of the plot made in the Mercury Control Center at Cape Canaveral during the flight of Mercury-Redstone Spacecraft No. 7. This chart was machine-plotted, in real time, from radar data. The predicted and actual curves are shown for the following flight conditions:

1. Launch. Inertial flight path angle (left ordinate) is plotted against inertial velocity (abscissa) during launch.
2. Zero-gravity and Reentry Phases. Ten seconds after booster burnout the computer-driven plotter was changed to the reentry mode and plotted altitude (right ordinate) against inertial velocity. The altitude is noted to rise from 44 nautical miles, at a velocity of 7480 ft/sec., to an apogee of 101.2 nautical miles at which point the retro-rockets fired and the velocity decreased from 5700 ft/sec. to 5350 ft/sec. The velocity then increases to 7400 ft/sec. before the spacecraft is decelerated by the atmosphere.

Sincerely yours,

Warren J. North  
Head, Manned Satellites

Enclosure

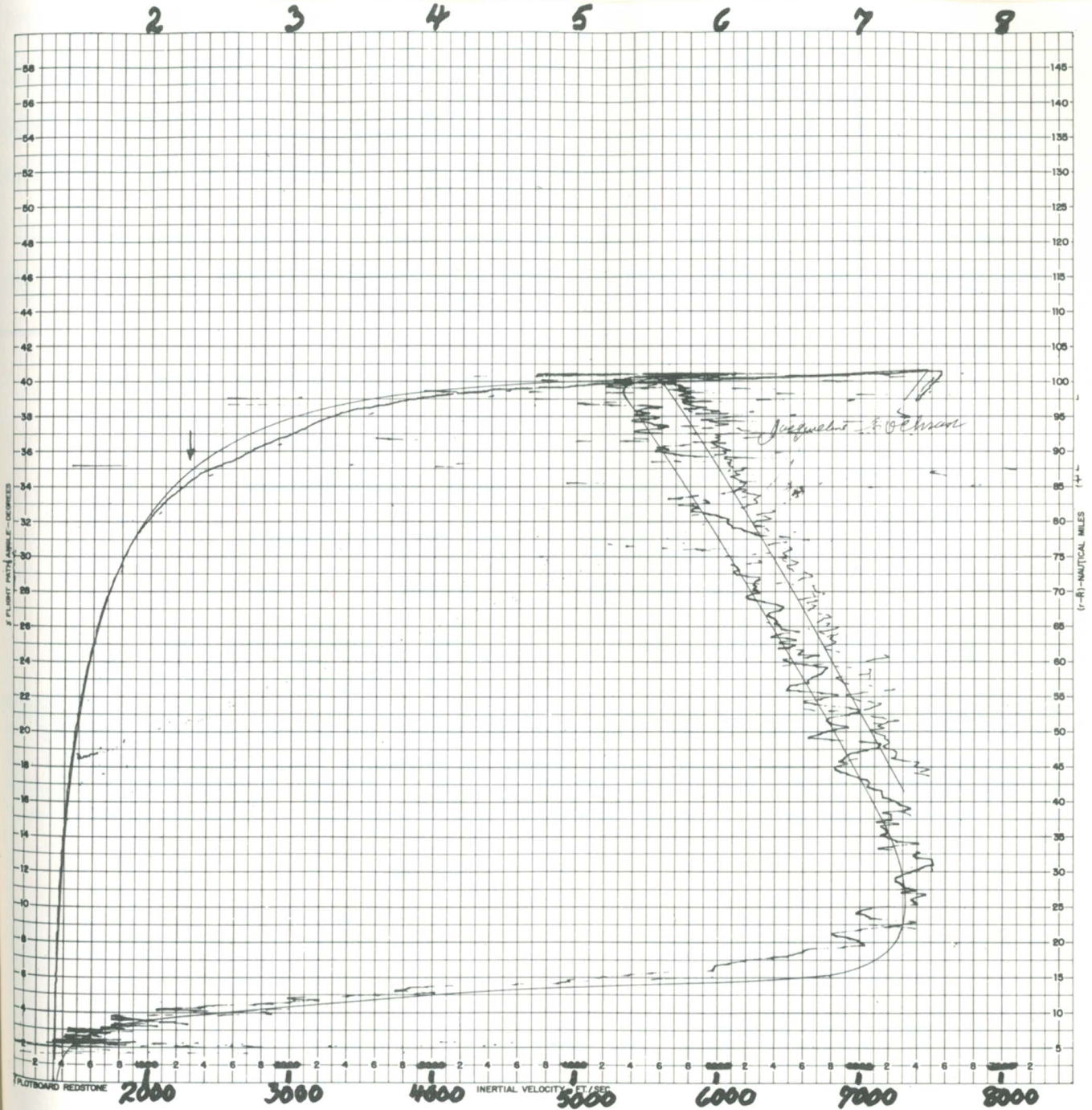
RADAR DATA DETERMINATION

NATIONAL AERONAUTIC ASSOCIATION  
 United States Representative  
 FEDERATION AERONAUTIQUE INTERNATIONALE

RADAR FLIGHT PATH

RA Apogee was determined using radars located at Cape Canaveral  
 Tr and the Grand Bahama Island in conjunction with a 7090 IBM computer  
 Ge located at Goddard Space Flight Center. The following Radars were  
 used:

- |    |           |                  |           |                       |
|----|-----------|------------------|-----------|-----------------------|
| Lo | a. Type   | - FPS-16         | b. Type   | - FPS-16              |
|    | Location  | - Cape Canaveral | Location  | - Grand Bahama Island |
|    | Latitude  | - 28°28'52.79"N  | Latitude  | - 26°36'54.98"N       |
|    | Longitude | - 80°34'36.23"W  | Longitude | - 78°20'53.19"W       |



NATIONAL AERONAUTIC ASSOCIATION  
United States Representative  
FEDERATION AERONAUTIQUE INTERNATIONALE

CERTIFICATE OF APOGEE

RECORD CLASSIFICATION: WORLD - Non-Air Breathing Manned Rockets

(a) Altitude without Earth Orbit

(b) Greatest Mass Lifted without Earth Orbit

Date of Attempt: May 5, 1961

<u>Vehicle Commander</u>	<u>Nationality</u>	<u>License No.</u>
<u>Alan B. Shepard, Jr.</u>	<u>USA</u>	<u>80-61</u>

Mark and Type of Vehicle: Redstone booster with a Mercury Capsule

Identification Marks or Numbers: Booster: Redstone MR-7; Capsule: McDonnell #7

This is to certify that the above described vehicle: \*

Reached apogee at:

Geocentric Latitude: ~~27.64~~<sup>0</sup> N 27° 38' 24" N

Geocentric Longitude: ~~78.11~~<sup>0</sup> W 78° 06' 36" W

Geocentric Radius: ~~1,941,279 Feet~~ 3,960.408 miles (6,373.673 Kms)

ON (Date): May 5, 1961 TIME AT APOGEE: 1439:34.48 GMT (TV)

*See preceding page for*  
NOTE: Certification of the instrumentation used to establish the coordinates of apogee ~~must be attached~~. This ~~must~~ include the coordinates of the location of instrumentation used to measure apogee and the essential data from which apogee determination is made. It is not necessary that apogee itself must have been observed, but on extrapolation of measured data to apogee must be verified.

*Ray W. Whitener*  
Official Observer

*J. B. DeLaway*  
Official Timer

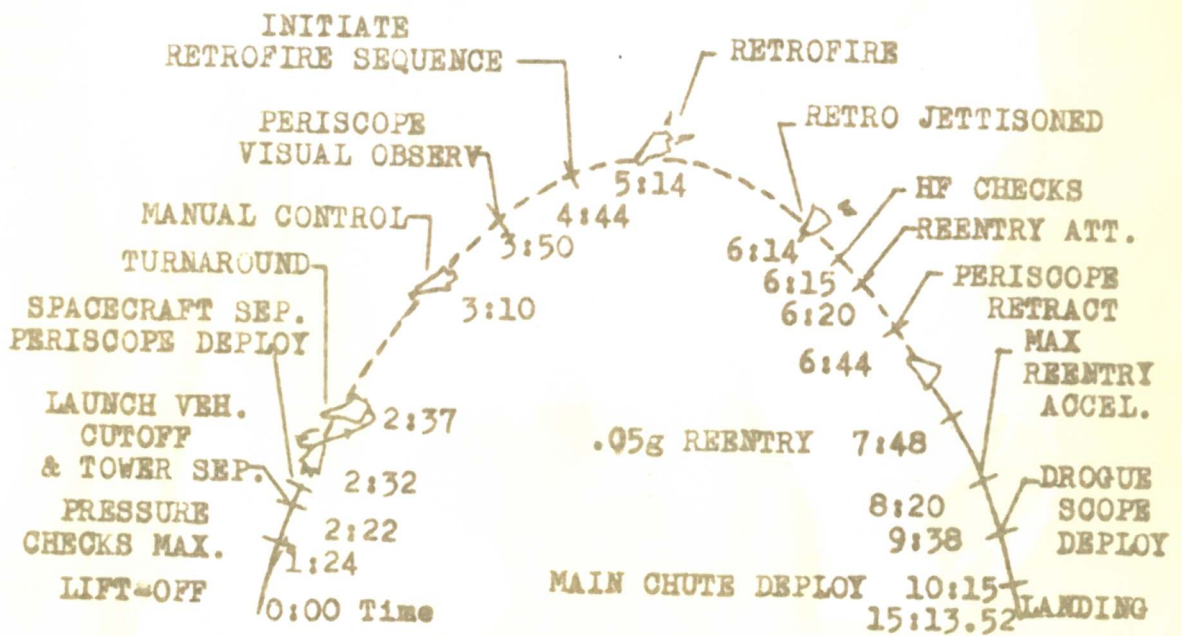
In reply refer to:  
DA-1 (RJW;vr)

To: Ralph V. Whitener

From: George Low

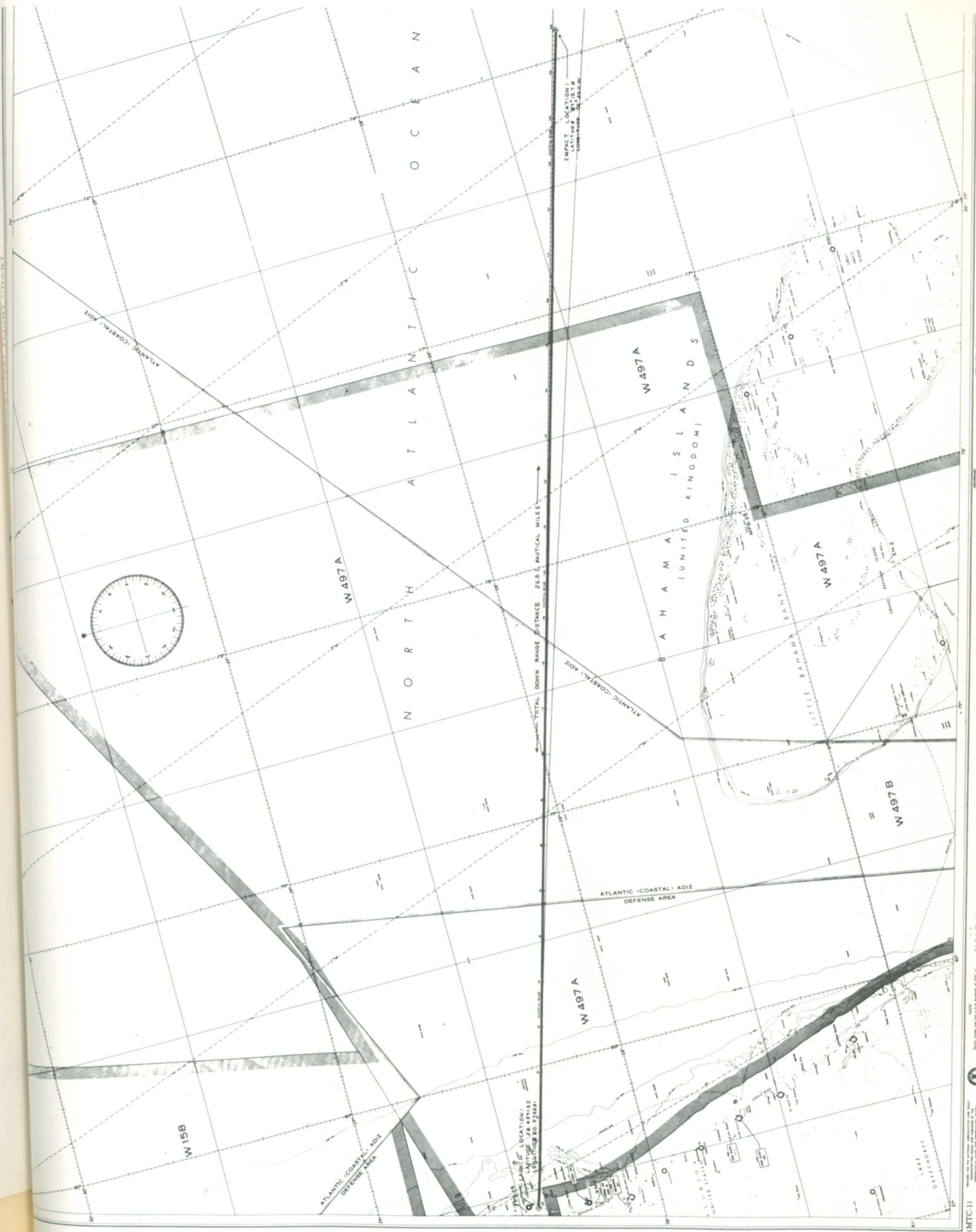
You will note that total downrange distance for Shepard's flight is approximately four miles greater than the scale on the map indicates. This discrepancy is due to the fact that the map scale does not take into account the curvature of the earth.

MR - 3 FLIGHT



Launch time: 14:34:13.48 GMT

Return time: 14:49:27 GMT



MERCURY TEST FLIGHT CHART  
12

ALTITUDE CONTROL

H<sub>2</sub>O<sub>2</sub> Thrusters - Bell Aerosystems, Inc.

L Yaw	45-61700-1105	28	-	Man 4-24 lb	Thrust
	45-61700-1111	32	-	Auto 1 lb	Thrust
	45-61700-1113	159	-	Auto 24 lb	Thrust
R Yaw	45-61700-1105	18	-	Man 4-24 lb	Thrust
	45-61700-1111	5	-	Auto 1 lb	Thrust
	45-61700-1113	105	-	Auto 24 lb	Thrust
Pitch Up	45-61700-1105	26	-	Man 4-24 lb	Thrust
	45-61700-1111	8	-	Auto 1 lb	Thrust
	45-61700-1113	212	-	Auto 24 lb	Thrust
Pitch Down	45-61700-1105	92	-	Man 4-24 lb	Thrust
	45-61700-1111	7	-	Auto 1 lb	Thrust
	45-61700-1113	149	-	Auto 24 lb	Thrust
Roll CCW	45-61700-1115	12	-	Man 1-6 lb	Thrust
	45-61700-1110	19	-	Auto 6 lb	Thrust
	45-61700-1110	26	-	Auto 1 lb	Thrust
Roll CW	45-61700-1108	2	-	Man 1-6 lb	Thrust
	45-61700-1109	7	-	Auto 1 lb	Thrust
	45-61700-1109	7	-	Auto 6 lb	Thrust

BOOSTER DATA

Manufacture Type Chrysler Corporation S/N MR-7  
Modified Redstone

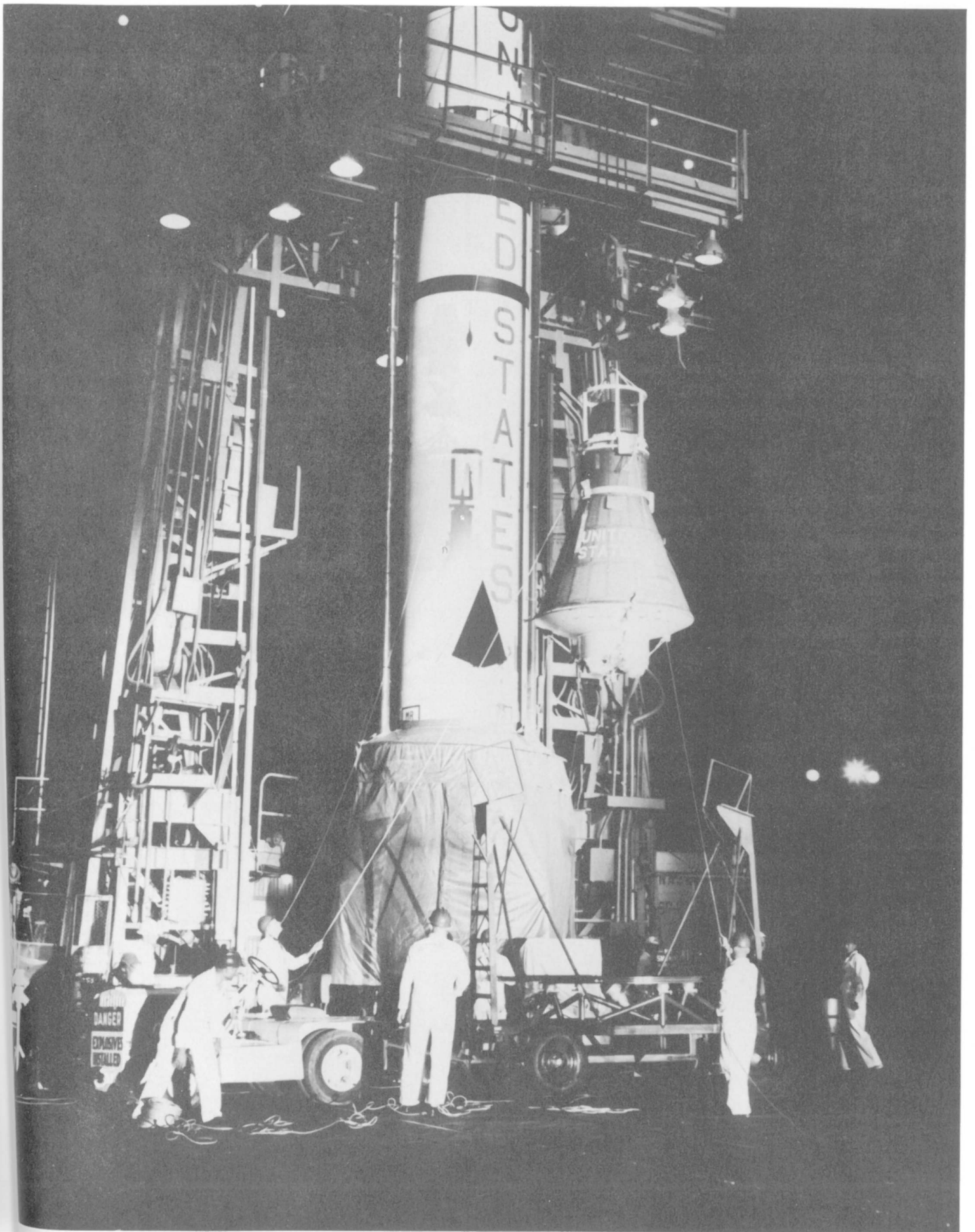
POWERPLANT DATA

Manufacturer Rocketdyne S/N RE 7115  
Model A-7  
Part No. 8943944-A  
Thrust 78,000 lb (35,380.2 Kgs)  
Propellants Liquid oxygen alcohol and H<sub>2</sub>O<sub>2</sub>

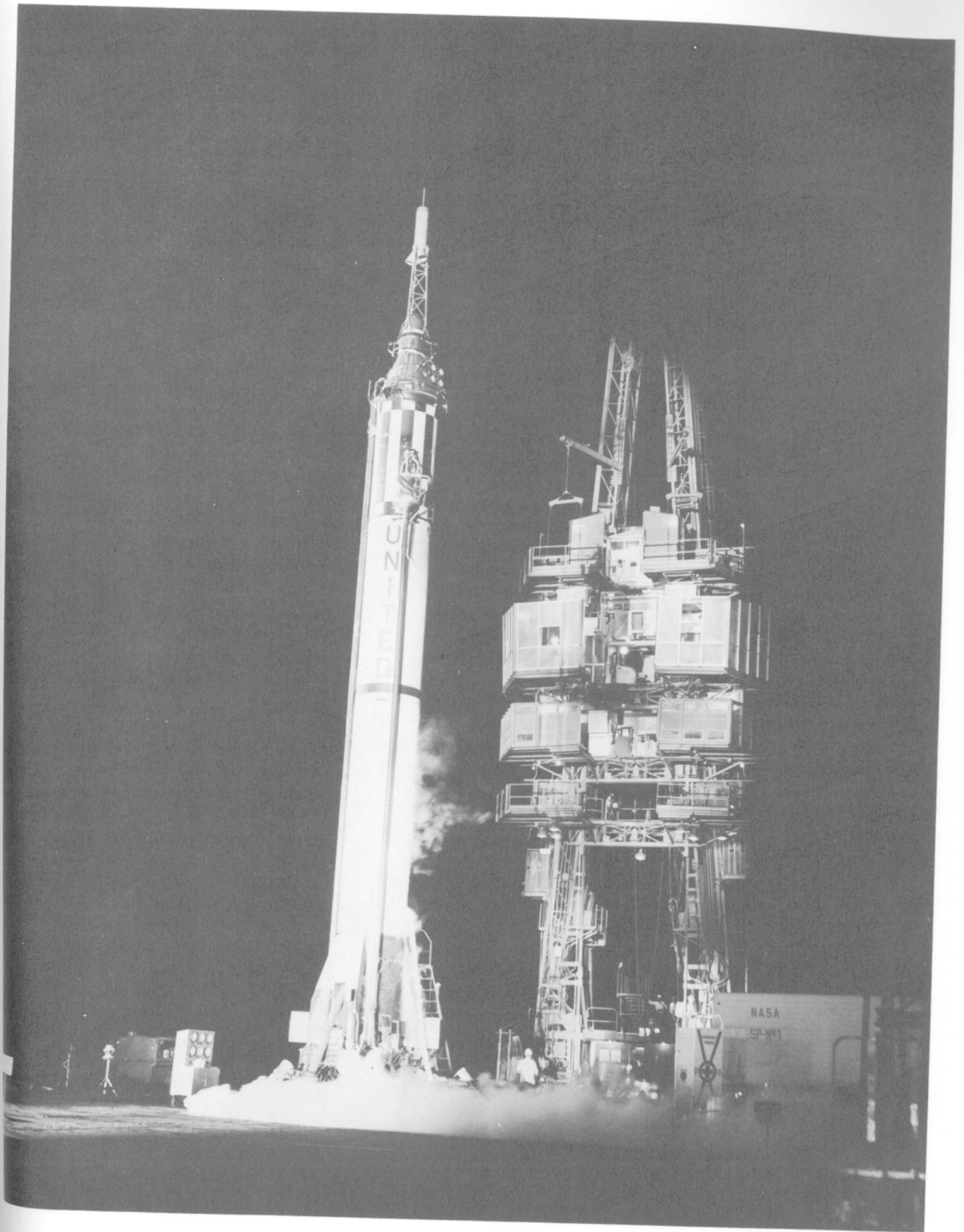




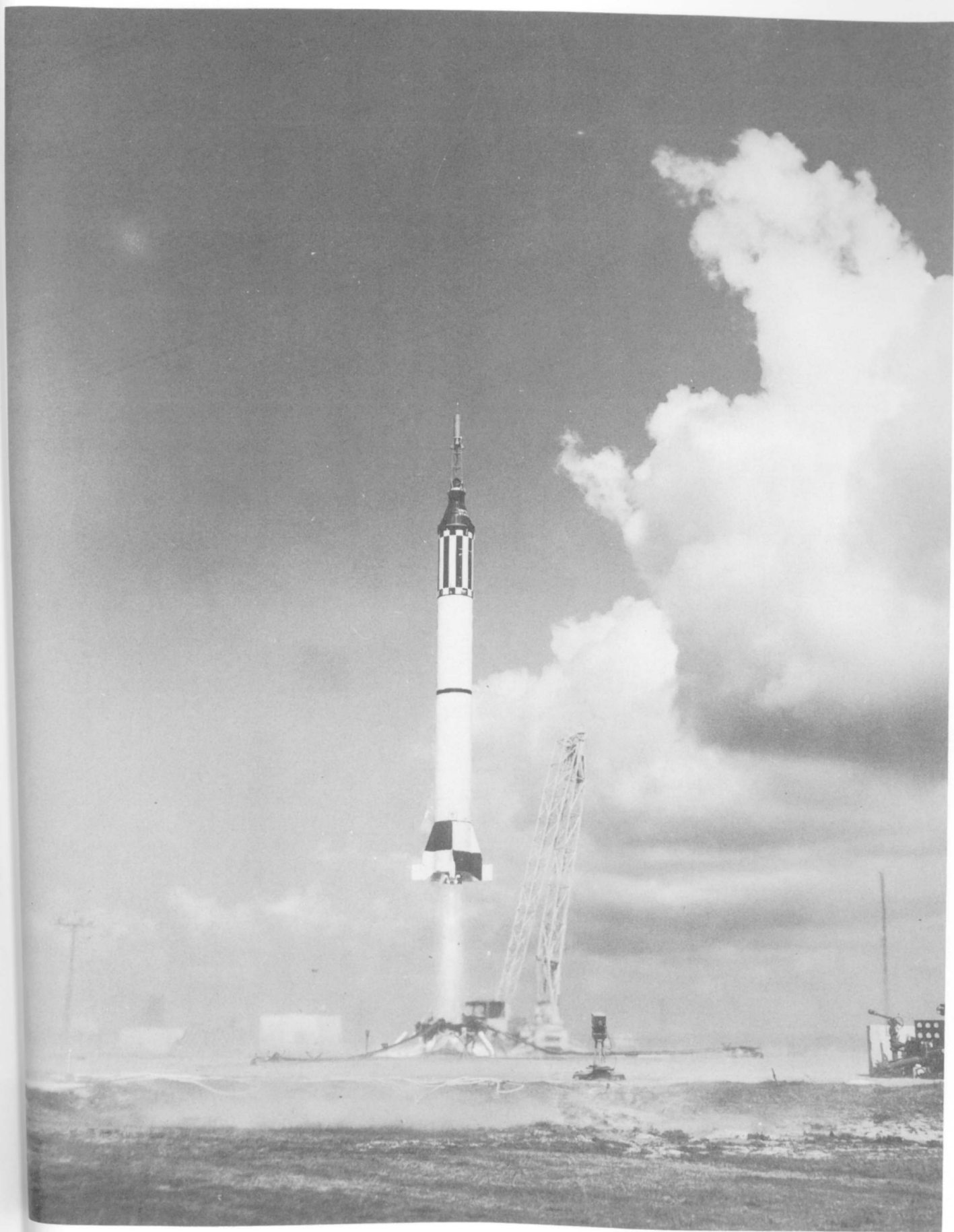
PHOTOGRAPH OF VEHICLE COMMANDER  
14



PHOTOGRAPH OF ERECTION OF MERCURY CAPSULE #7



PHOTOGRAPH OF MERCURY-REDSTONE ON THE PAD



PHOTOGRAPH OF MERCURY-REDSTONE LAUNCH  
17



PHOTOGRAPH OF VEHICLE COMMANDER AND CAPSULE RECOVERY