
S

1
00:00:01,640 --> 00:00:07,439
During America's first human spaceflight program,
Project Mercury, the eyes of the world

2
00:00:07,439 --> 00:00:13,560
often focused on the launch pads at Cape Canaveral
Air Force Station in Florida.

3
00:00:13,560 --> 00:00:20,520
Deke Slayton: "5, 4, 3, 2, 1, zero, ignition,
liftoff."

4
00:00:21,920 --> 00:00:24,240
Alan Shepard: "Roger, liftoff and the clock
has started."

5
00:00:28,480 --> 00:00:33,760
This is Freedom 7. The fuel is go. Oxygen is go.

6
00:00:40,620 --> 00:00:45,720
Another centerpiece facility for astronaut
training, crew quarters and spacecraft

7
00:00:45,739 --> 00:00:50,129
processing was Hangar S at the Cape.

8
00:00:50,129 --> 00:00:55,420
While not as well-known as the Mercury Control
Center and the launch pads, Hangar S

9
00:00:55,420 --> 00:01:01,820
was the location of crucial work supporting
NASA's early human spaceflights.

10
00:01:01,820 --> 00:01:06,990
After the National Aeronautics and Space Administration
was formed in 1958 the new

11
00:01:06,990 --> 00:01:12,159

agency announced the selection of seven military test pilots who would become

12
00:01:12,159 --> 00:01:15,590
America's first astronauts.

13
00:01:15,590 --> 00:01:17,320
Scott Carpenter,

14
00:01:17,320 --> 00:01:18,930
Gordon Cooper,

15
00:01:18,930 --> 00:01:20,820
John Glenn,

16
00:01:20,820 --> 00:01:22,610
Gus Grissom,

17
00:01:22,610 --> 00:01:24,439
Wally Schirra,

18
00:01:24,439 --> 00:01:25,700
Alan Shepard

19
00:01:25,700 --> 00:01:31,170
and Deke Slayton would soon become household names.

20
00:01:31,170 --> 00:01:41,000
From 1959 to 1963, the 61,300-square-foot Hangar S became a hub of activity as

21
00:01:41,000 --> 00:01:46,719
America prepared for the program to send men on their first trips into space.

22
00:01:46,719 --> 00:01:53,500
Hangar S was built in 1957. It housed operations of the U.S. Naval Research

23
00:01:53,500 --> 00:01:59,969
Laboratory's Project Vanguard. The 75-foot
tall rocket was part of the nation's earliest

24
00:01:59,969 --> 00:02:04,329
efforts to launch Earth-orbiting satellites.

25
00:02:04,329 --> 00:02:09,750
In 1959, NASA acquired Hangar S through an
agreement with the Department of

26
00:02:09,750 --> 00:02:16,190
Defense and modified it for use for preflight
processing. This is where the Mercury

27
00:02:16,190 --> 00:02:19,959
space capsules were received and tested.

28
00:02:19,959 --> 00:02:26,730
By the end of 1960, NASA referred to Hangar
S as the "nerve center" of Project Mercury

29
00:02:26,730 --> 00:02:31,980
and home of the Space Task Group's Preflight
Operations Division, which had grown to

30
00:02:31,980 --> 00:02:40,069
over 400 technicians and contractors who prepared
the Mercury capsules for launch.

31
00:02:40,069 --> 00:02:44,810
The processing of the Mercury spacecraft began
with its arrival at the Cape Canaveral

32
00:02:44,810 --> 00:02:52,349
Skid Strip aboard a transport aircraft. It
then was transferred to Hangar S for a capsule

33

00:02:52,349 --> 00:02:53,840
"shake-down."

34
00:02:53,840 --> 00:02:59,730
The hangar contained all the necessary facilities,
storage and work areas required to

35
00:02:59,730 --> 00:03:05,159
prepare the capsule, including a "White Room."
The spotless capsule checkout area

36
00:03:05,159 --> 00:03:09,349
was located in the northeast corner of the
high bay.

37
00:03:09,349 --> 00:03:13,879
Across from the White Room was an altitude
chamber used for Mercury capsule

38
00:03:13,879 --> 00:03:21,040
environmental control system testing and verification
in a space-like environment.

39
00:03:21,040 --> 00:03:25,620
The altitude chamber allowed engineers and
technicians to ensure the capsule would

40
00:03:25,620 --> 00:03:31,819
not leak in space, and it also helped verify
that the environmental control system along

41
00:03:31,819 --> 00:03:36,430
with other equipment all worked as designed.

42
00:03:36,430 --> 00:03:41,159
Hangar S was the location for final assembly
and checkout of the spacecraft's escape

43
00:03:41,159 --> 00:03:47,019
tower. Placed on top of the capsule for launch,

the tower was designed to pull the

44
00:03:47,019 --> 00:03:52,439
capsule clear of the launch vehicle in the
event of a mishap on the launch pad or during

45
00:03:52,439 --> 00:03:58,549
ascent. It jettisoned from the rocket when
a safe altitude had been reached.

46
00:03:58,549 --> 00:04:04,049
Once all assembly, checkouts and testing were
complete, the Mercury spacecraft was

47
00:04:04,049 --> 00:04:09,900
transported a short distance to Cape Canaveral's
Launch Pad 5 to be mounted atop a

48
00:04:09,900 --> 00:04:18,220
Redstone rocket for suborbital missions or
to Launch Pad 14 for mating to an Atlas booster

49
00:04:18,220 --> 00:04:21,570
for the flights to Earth orbit.

50
00:04:21,570 --> 00:04:26,820
While astronauts prepared for their eventual
trips into space, a group of chimpanzees

51
00:04:26,820 --> 00:04:32,510
also were undergoing training to ensure humans
could withstand the physical strain and

52
00:04:32,510 --> 00:04:35,720
g-forces during a rocket launch.

53
00:04:35,720 --> 00:04:39,910
The chimpanzees' training began at the Holloman
Aerospace Medical Center in New

54
00:04:39,910 --> 00:04:46,530
Mexico, but their preparations were completed
at Hangar S. The task of responding to

55
00:04:46,530 --> 00:04:51,390
lights by flipping a lever would demonstrate
that the chimps could not only survive in

56
00:04:51,390 --> 00:04:56,140
space, but also perform tasks throughout the
flight.

57
00:04:56,140 --> 00:05:01,970
The first chimpanzee to fly was named Ham.
He launched on Mercury Redstone-2 on

58
00:05:01,970 --> 00:05:03,680
January 31, 1961.

59
00:05:03,680 --> 00:05:14,440
During the 16-minute flight, the chimp flew
157 miles high and 420 miles downrange.

60
00:05:14,440 --> 00:05:19,940
After his recovery, a happy and healthy Ham
proved the way was clear for an astronaut

61
00:05:19,940 --> 00:05:23,230
to follow about four months later.

62
00:05:23,230 --> 00:05:31,780
On May 5, 1961, Alan Shepard became the first
American to fly in space during a 15-

63
00:05:31,780 --> 00:05:33,590
minute suborbital flight.

64
00:05:33,590 --> 00:05:39,400
Ike Rigell: "So this was a very significant

flight, because the country needed this.

65
00:05:39,400 --> 00:05:43,880
The whole free world needed this flight at
this time."

66
00:05:43,880 --> 00:05:50,840
Two months later, Gus Grissom flew a similar
suborbital mission aboard the Mercury

67
00:05:50,840 --> 00:05:53,960
capsule he named Liberty Bell 7.

68
00:05:53,960 --> 00:05:59,560
Throughout Project Mercury, Hangar S served
as not only a spacecraft preparation

69
00:05:59,560 --> 00:06:05,150
facility but it also was the base of operation
for the astronauts after they arrived at the

70
00:06:05,150 --> 00:06:10,280
Cape, especially in the days and weeks just
prior to launch.

71
00:06:10,280 --> 00:06:15,590
The astronauts often spent 12-hour days or
even longer at Hangar S rehearsing their

72
00:06:15,590 --> 00:06:22,180
missions in the "procedures trainer," an exact
mockup of the Mercury capsule's interior.

73
00:06:22,180 --> 00:06:27,340
The simulations would help prepare astronauts
and ground controllers for the real thing.

74
00:06:27,340 --> 00:06:33,060
Scott Carpenter: "Climbing into that spacecraft
and sitting on the top of the rocket was

75
00:06:33,060 --> 00:06:39,730
something we had simulated time and time and
time again."

76
00:06:39,730 --> 00:06:45,190
The hangar also was the location of the crew
quarters located on the second floor.

77
00:06:45,190 --> 00:06:50,980
The astronauts slept, ate, suited-up, and
underwent medical examinations in the days

78
00:06:50,980 --> 00:06:56,120
and weeks before flight. But, on occasion
astronauts described the crew quarters as

79
00:06:56,120 --> 00:06:59,530
simply austere and uncomfortable.

80
00:06:59,530 --> 00:07:04,710
A primary goal of Project Mercury was to determine
how humans would respond to trips

81
00:07:04,710 --> 00:07:10,320
into the environment of space, so a regular
part of preparations for launch were medical

82
00:07:10,320 --> 00:07:14,220
exams by the astronaut's medical team.

83
00:07:14,220 --> 00:07:18,710
Once the health checkup was complete on launch
day, it was time for the complex

84
00:07:18,710 --> 00:07:23,970
process of donning the space suit that would
protect the astronaut in the event of a

85

00:07:23,970 --> 00:07:27,050
capsule depressurization.

86
00:07:27,050 --> 00:07:31,800
The next step was the astronaut climbing into
an apparatus with a seat similar to the

87
00:07:31,800 --> 00:07:37,400
Mercury spacecraft. Technicians then checked
out the suit to ensure it would pressurize

88
00:07:37,400 --> 00:07:39,690
and work as designed.

89
00:07:39,690 --> 00:07:44,660
With the suit up complete, it was time to
head to the launch pad. In the glare of

90
00:07:44,660 --> 00:07:50,530
television lights, the astronaut departed
Hangar S for the Transfer Van.

91
00:07:50,530 --> 00:07:56,660
The specially outfitted truck would make the
trip to Launch Pad 5 or Pad 14 where the

92
00:07:56,660 --> 00:07:59,230
astronaut would prepare for the final countdown.

93
00:07:59,230 --> 00:08:07,750
Scott Carpenter: "5, 4, 3, (ignition) 2, 1,
zero."

94
00:08:07,760 --> 00:08:12,240
John Glenn: "Liftoff, the clock is operating.
We're underway."

95
00:08:12,240 --> 00:08:16,600
Alan Shepard: "Roger, reading you loud and
clear, John."

96
00:08:16,620 --> 00:08:24,390
Three days after John Glenn's historic mission
on February 20, 1962, President John F.

97
00:08:24,390 --> 00:08:29,800
Kennedy visited Cape Canaveral to see facilities
such as Launch Pad 14 where Glenn

98
00:08:29,800 --> 00:08:31,710
lifted off.

99
00:08:31,710 --> 00:08:37,120
The presidential tour included Hangar S where
Mercury spacecraft were being prepared

100
00:08:37,120 --> 00:08:39,200
for future missions.

101
00:08:39,200 --> 00:08:44,120
And during a special ceremony outside the
hangar, President Kennedy congratulated

102
00:08:44,120 --> 00:08:50,880
America's first person to orbit the Earth
and those who supported his historic mission.

103
00:08:50,880 --> 00:08:55,900
Glenn's mission was followed by three more
orbital flights by astronauts Carpenter,

104
00:08:55,900 --> 00:09:02,060
Schirra and Cooper, each with longer missions
and increasingly sophisticated capsule

105
00:09:02,060 --> 00:09:05,630
maneuvers and experiments.

106
00:09:05,630 --> 00:09:09,760

Following completion of the Mercury missions, the spacecraft would be returned to

107
00:09:09,760 --> 00:09:15,800
Hangar S for post-flight inspections. Key parts would be removed for study so lessons

108
00:09:15,800 --> 00:09:20,280
learned could be applied to future designs.

109
00:09:20,280 --> 00:09:27,610
After the 22-orbit mission of Gordon Cooper aboard Mercury Atlas-9 in 1963, America's

110
00:09:27,610 --> 00:09:32,970
first human spaceflight program came to an end.

111
00:09:32,970 --> 00:09:38,030
Beginning the next year, Project Gemini would be NASA's bridge from the Mercury

112
00:09:38,030 --> 00:09:42,490
missions, learning how to meet President John F. Kennedy's goal to send astronauts to

113
00:09:42,490 --> 00:09:44,170
the moon.

114
00:09:44,170 --> 00:09:50,130
The first Gemini spacecraft also were processed for flight in Hangar S.

115
00:09:50,130 --> 00:09:54,530
The new program would allow humans to emerge from their spacecraft and begin to

116
00:09:54,530 --> 00:10:01,170
walk in space as well as rendezvous and dock with other orbiting spacecraft.

117
00:10:01,170 --> 00:10:05,970
But as NASA began opening new facilities at
the Kennedy Space Center on adjacent

118
00:10:05,970 --> 00:10:11,820
Merritt Island, Gemini processing moved to
the Manned Spacecraft Operations Building

119
00:10:11,820 --> 00:10:18,020
now known as the Neil Armstrong Operations
and Checkout Building.

120
00:10:18,020 --> 00:10:24,470
The interior of the Hangar S high bay was
modified later in 1965 with the construction of a

121
00:10:24,470 --> 00:10:30,510
satellite processing area. These spacecraft
included the Franco-German Symphonie

122
00:10:30,510 --> 00:10:35,860
communications satellite and the agency's
Lunar Orbiter spacecraft that mapped the

123
00:10:35,860 --> 00:10:41,430
moon prior to the Apollo missions taking humans
to work on the lunar surface during the

124
00:10:41,430 --> 00:10:45,950
late 1960s and early 1970s.

125
00:10:45,960 --> 00:10:50,360
Hugh Harris: "5, 4, we've gone for main engine
start. We have main engine start, we

126
00:10:51,800 --> 00:10:59,010
have liftoff, liftoff of America's first space
shuttle and the shuttle has cleared the tower."

127
00:10:59,010 --> 00:11:06,130
As the space shuttle era began in 1981, work
at Hangar S supported the new effort.

128
00:11:06,130 --> 00:11:11,040
During the Shuttle Program many types of equipment,
such as SCAPE suits, were

129
00:11:11,040 --> 00:11:17,380
maintained and repaired at the Life Support
Facility inside Hanger S.

130
00:11:17,380 --> 00:11:22,810
The rubber-coated Self-Contained Atmospheric
Protective Ensembles, were worn by

131
00:11:22,810 --> 00:11:29,060
technicians at Kennedy and Cape Canaveral
for protection during processing activates

132
00:11:29,060 --> 00:11:35,130
that involved hazardous chemicals such as
rocket propellants, or in the event of a spill.

133
00:11:35,130 --> 00:11:38,650
Much of the operational
area was used to maintain equipment

134
00:11:38,660 --> 00:11:43,720
associated with the retrieval of the shuttle's
solid rocket boosters.

135
00:11:43,720 --> 00:11:50,350
George Diller: "2, 1, zero and liftoff, the
final liftoff of Atlantis. On the shoulders

136
00:11:50,350 --> 00:11:50,920
of the

137

00:11:50,920 --> 00:11:55,670
space shuttle, America will continue the dream."

138
00:11:55,680 --> 00:12:03,240
Following STS-135, the final space shuttle
mission in July of 2011 work inside Hangar S

139
00:12:03,240 --> 00:12:05,600
came to an end.

140
00:12:05,610 --> 00:12:12,740
Cape Canaveral's Hangar S was America's starting
point for human space exploration.

141
00:12:12,740 --> 00:12:17,810
NASA at the Kennedy Space Center now has transitioned
from a historically

142
00:12:17,810 --> 00:12:23,700
government-only launch facility to a multi-user
spaceport for both federal and

143
00:12:23,700 --> 00:12:25,190
commercial customers.

144
00:12:25,190 --> 00:12:31,240
NASA's team on Florida's Space Coast continues
to work to meet the nation's

145
00:12:31,240 --> 00:12:35,190
spacefaring needs for the 21st century.

146
00:12:35,200 --> 00:12:41,080
These advances will include the Orion spacecraft
and the Space Launch System super