
BOEINC

1
00:00:16,790 --> 00:00:14,090
Gemini for the first American spacewalk

2
00:00:18,950 --> 00:00:16,800
and the first mission controlled from

3
00:00:21,410 --> 00:00:18,960
NASA's new manned spacecraft Center

4
00:00:26,090 --> 00:00:21,420
which was later renamed the Johnson

5
00:00:29,240 --> 00:00:26,100
Space Center since then the johnson

6
00:00:31,340 --> 00:00:29,250
space center or JSC has continued its

7
00:00:45,780 --> 00:00:31,350
commitment to the challenges of

8
00:00:51,040 --> 00:00:49,090
with the Gemini program new techniques

9
00:00:56,830 --> 00:00:51,050
such as rendezvous and docking were

10
00:01:03,010 --> 00:00:56,840
developed the Apollo program landed men

11
00:01:05,020 --> 00:01:03,020
on the moon there in skyline three

12
00:01:07,150 --> 00:01:05,030
different crews lived and worked in

13
00:01:15,250 --> 00:01:07,160

America's first space station for a

14
00:01:17,590 --> 00:01:15,260
total of 171 day Lydia had also use test

15
00:01:19,750 --> 00:01:17,600
project American astronauts and Russian

16
00:01:27,370 --> 00:01:19,760
cosmonauts brought their spacecraft

17
00:01:29,469 --> 00:01:27,380
together in Earth orbit recently the

18
00:01:35,530 --> 00:01:29,479
development of a reusable space shuttle

19
00:01:42,630 --> 00:01:35,540
open new avenues into space from

20
00:01:50,020 --> 00:01:45,430
conducting scientific investigations in

21
00:01:52,690 --> 00:01:50,030
a broad range of disciplines to

22
00:01:54,880 --> 00:01:52,700
assembling large structures shuttle

23
00:02:02,800 --> 00:01:54,890
missions have expanded our capability to

24
00:02:04,900 --> 00:02:02,810
work in space as the key component of

25
00:02:06,820 --> 00:02:04,910
the space transportation system the

26
00:02:09,940 --> 00:02:06,830
shuttle will provide the means to carry

27
00:02:14,380 --> 00:02:09,950
men and women into space well into the

28
00:02:18,649 --> 00:02:17,000
the shuttle is essential to the

29
00:02:25,069 --> 00:02:18,659
construction and operation of a

30
00:02:27,229 --> 00:02:25,079
permanently manned space station as an

31
00:02:29,210 --> 00:02:27,239
orbiting laboratory space station

32
00:02:32,089 --> 00:02:29,220
freedom will provide an opportunity for

33
00:02:35,179 --> 00:02:32,099
long-duration research in areas such as

34
00:02:39,530 --> 00:02:35,189
life sciences materials processing and

35
00:02:41,449 --> 00:02:39,540
earth observations it will also serve as

36
00:02:43,879 --> 00:02:41,459
a maintenance and repair facility for

37
00:02:45,679 --> 00:02:43,889
spacecraft and as the checkout and

38
00:02:50,659 --> 00:02:45,689

departure point for future manned

39
00:02:53,330 --> 00:02:50,669
exploration of the solar system recently

40
00:02:55,429 --> 00:02:53,340
a presidential initiative identified two

41
00:03:00,379 --> 00:02:55,439
long-range goals for expanding

42
00:03:02,569 --> 00:03:00,389
humanity's presence in space first

43
00:03:05,479 --> 00:03:02,579
astronauts will return to the moon and

44
00:03:07,099 --> 00:03:05,489
establish a lunar outpost this

45
00:03:10,490 --> 00:03:07,109
experience will provide the necessary

46
00:03:16,129 --> 00:03:10,500
groundwork for the next step a manned

47
00:03:18,379 --> 00:03:16,139
mission to Mars each goal is part of an

48
00:03:20,210 --> 00:03:18,389
evolutionary approach that continues to

49
00:03:25,610 --> 00:03:20,220
strengthen the foundation that will lead

50
00:03:28,189 --> 00:03:25,620
us beyond Earth's boundaries throughout

51
00:03:30,649 --> 00:03:28,199
the years Mission Control has become

52
00:03:34,219 --> 00:03:30,659
synonymous with spaceflight in the eyes

53
00:03:36,289 --> 00:03:34,229
of the general public however Mission

54
00:03:43,159 --> 00:03:36,299
Control is only one segment of this

55
00:03:45,229 --> 00:03:43,169
center's program activities months of

56
00:03:47,740 --> 00:03:45,239
careful planning are necessary before a

57
00:03:50,210 --> 00:03:47,750
spacecraft ever clears the launch tower

58
00:03:53,360 --> 00:03:50,220
each phase of the mission must be

59
00:03:55,699 --> 00:03:53,370
planned in precise in-depth detail in

60
00:03:59,539 --> 00:03:55,709
order to make the missions safe as well

61
00:04:02,360 --> 00:03:59,549
as productive activities and procedures

62
00:04:05,800 --> 00:04:02,370
must be evaluated tested and retested

63
00:04:11,899 --> 00:04:09,559

okay it's pretty simple today flight

64
00:04:17,629 --> 00:04:11,909
crew training is an important aspect of

65
00:04:22,670 --> 00:04:17,639
any mission from classroom training to

66
00:04:30,890 --> 00:04:22,680
full-scale mock-ups to high fidelity

67
00:04:38,330 --> 00:04:30,900
mission simulators to simulated

68
00:04:42,020 --> 00:04:38,340
weightlessness in an aircraft or in a

69
00:04:44,090 --> 00:04:42,030
large water tank astronauts continually

70
00:04:49,700 --> 00:04:44,100
work on developing and maintaining the

71
00:04:51,890 --> 00:04:49,710
skills necessary for mission success in

72
00:04:54,110 --> 00:04:51,900
addition to mission related activities

73
00:04:56,270 --> 00:04:54,120
this Center is currently involved in the

74
00:04:58,820 --> 00:04:56,280
development of medical scientific and

75
00:05:00,439 --> 00:04:58,830
engineering experiments as well as in

76
00:05:09,560 --> 00:05:00,449
the design and development of Space

77
00:05:11,480 --> 00:05:09,570
Station freedom basic to the success of

78
00:05:13,490 --> 00:05:11,490
any program are the resources and

79
00:05:18,200 --> 00:05:13,500
talents of the people involved in each

80
00:05:21,170 --> 00:05:18,210
project approximately 3,500 civil

81
00:05:26,960 --> 00:05:21,180
service and over 11,000 contractor

82
00:05:29,300 --> 00:05:26,970
personnel formed the JSC team a majority

83
00:05:32,000 --> 00:05:29,310
of contractor support is located beyond

84
00:05:34,610 --> 00:05:32,010
the center's fenced boundaries in some

85
00:05:37,399 --> 00:05:34,620
cases program concepts and prototypes

86
00:05:43,200 --> 00:05:37,409
are developed off-site by a specialized

87
00:05:51,460 --> 00:05:45,640
these new developments are then tested

88
00:05:53,650 --> 00:05:51,470

in facilities located on site the

89
00:05:55,600 --> 00:05:53,660
advancement of science and technology is

90
00:06:00,460 --> 00:05:55,610
critical to the success of America's

91
00:06:03,130 --> 00:06:00,470
space program the technology developed

92
00:06:07,500 --> 00:06:03,140
today for one program will become part

93
00:06:14,440 --> 00:06:10,840
in space the human body changes as it

94
00:06:17,080 --> 00:06:14,450
adapts to the lack of gravity with

95
00:06:21,820 --> 00:06:17,090
long-duration spaceflight new medical

96
00:06:23,710 --> 00:06:21,830
challenges will have to be met a crew

97
00:06:26,110 --> 00:06:23,720
healthcare system is currently being

98
00:06:28,240 --> 00:06:26,120
developed to provide the total spectrum

99
00:06:33,810 --> 00:06:28,250
of health care including environmental

100
00:06:39,600 --> 00:06:33,820
monitoring exercise countermeasures and

101
00:06:45,280 --> 00:06:42,520
life-support system technology continues

102
00:06:54,850 --> 00:06:45,290
to expand and be refined as we learn new

103
00:06:56,680 --> 00:06:54,860
ways to live and work in space currently

104
00:06:59,200 --> 00:06:56,690
engineers are working on a space station

105
00:07:05,740 --> 00:06:59,210
suit with a higher operating pressure

106
00:07:09,730 --> 00:07:07,240
the new suit would eliminate

107
00:07:11,950 --> 00:07:09,740
time-consuming pre-breathing operations

108
00:07:14,050 --> 00:07:11,960
while providing easier on orbit

109
00:07:19,660 --> 00:07:14,060
maintenance greater mobility and

110
00:07:21,280 --> 00:07:19,670
simplicity and operation historically

111
00:07:24,900 --> 00:07:21,290
the development of computer technology

112
00:07:27,820 --> 00:07:24,910
has been crucial to manned space flight

113
00:07:30,940 --> 00:07:27,830

astronauts engineers and technicians use

114
00:07:35,830 --> 00:07:30,950
a variety of computerized systems which

115
00:07:38,140 --> 00:07:35,840
are unique to space flight from a

116
00:07:40,570 --> 00:07:38,150
real-time mainframe computer complex

117
00:07:42,550 --> 00:07:40,580
which provides Mission Control with

118
00:07:45,070 --> 00:07:42,560
several functions including the

119
00:07:48,460 --> 00:07:45,080
processing of command trajectory and

120
00:07:50,580 --> 00:07:48,470
telemetry data to the shuttles five

121
00:07:53,560 --> 00:07:50,590
identical general-purpose computers

122
00:07:56,260 --> 00:07:53,570
which perform guidance navigation and

123
00:07:59,110 --> 00:07:56,270
control functions systems management and

124
00:08:03,930 --> 00:07:59,120
payload operations these systems are

125
00:08:08,409 --> 00:08:05,980
computer-aided graphics software

126
00:08:11,770 --> 00:08:08,419
packages provide useful tools for

127
00:08:14,980 --> 00:08:11,780
engineers to use in Mission Plan extra

128
00:08:21,430 --> 00:08:14,990
vehicular simulations and Space Station

129
00:08:23,830 --> 00:08:21,440
design the addition of artificial

130
00:08:26,140 --> 00:08:23,840
intelligence provides engineers with a

131
00:08:31,390 --> 00:08:26,150
smart computer program which has

132
00:08:34,120 --> 00:08:31,400
decision-making abilities in the hybrid

133
00:08:36,250 --> 00:08:34,130
vision laboratory an optical system is

134
00:08:38,589 --> 00:08:36,260
being developed which uses artificial

135
00:08:41,560 --> 00:08:38,599
intelligence to determine the identity

136
00:08:43,450 --> 00:08:41,570
and location of an object eventually

137
00:08:45,820 --> 00:08:43,460
this capability will allow the computer

138
00:08:51,220 --> 00:08:45,830

to process the information and decide

139
00:08:52,660 --> 00:08:51,230
the course of action another area which

140
00:08:54,760 --> 00:08:52,670
has benefited from artificial

141
00:09:00,240 --> 00:08:54,770
intelligence capabilities is the

142
00:09:03,610 --> 00:09:00,250
advancement of robotics technology on

143
00:09:06,550 --> 00:09:03,620
freedom astronauts will use robots for a

144
00:09:15,650 --> 00:09:06,560
variety of jobs such as construction and

145
00:09:22,650 --> 00:09:20,220
retriever activate here a

146
00:09:25,620 --> 00:09:22,660
voice-activated autonomous robot is

147
00:09:27,720 --> 00:09:25,630
tested on the air bearing table this

148
00:09:29,790 --> 00:09:27,730
demonstration is part of the crew and

149
00:09:31,530 --> 00:09:29,800
equipment retrieval system currently

150
00:09:39,900 --> 00:09:31,540
being designed as a joint project

151
00:09:41,699 --> 00:09:39,910
involving five divisions the Johnson

152
00:09:44,639 --> 00:09:41,709
Space Center provides an arena for

153
00:09:46,290 --> 00:09:44,649
ongoing studies as scientists continue

154
00:09:51,990 --> 00:09:46,300
to reap the benefits from the Apollo

155
00:09:54,470 --> 00:09:52,000
program a specially designed lunar

156
00:09:57,090 --> 00:09:54,480
curatorial facility provides storage

157
00:09:59,579 --> 00:09:57,100
testing and distribution capabilities

158
00:10:01,949 --> 00:09:59,589
for the soil and rock samples gathered

159
00:10:08,519 --> 00:10:01,959
from the moon as well as for the study

160
00:10:11,490 --> 00:10:08,529
of meteorites at the lunar planetary

161
00:10:13,350 --> 00:10:11,500
institute scientists from around the

162
00:10:15,689 --> 00:10:13,360
world combined their talents with the

163
00:10:17,730 --> 00:10:15,699

resources of the Institute to study the

164
00:10:20,040 --> 00:10:17,740
evolution of the solar system it's

165
00:10:23,189 --> 00:10:20,050
particular detail notice we've got one

166
00:10:24,930 --> 00:10:23,199
creator to crater three craters the

167
00:10:27,000 --> 00:10:24,940
method of management is a basic

168
00:10:32,220 --> 00:10:27,010
ingredient to the success of any of

169
00:10:33,900 --> 00:10:32,230
these programs overseeing the financial

170
00:10:37,980 --> 00:10:33,910
management of this multi-billion dollar

171
00:10:43,199 --> 00:10:37,990
operation to providing basic necessities

172
00:10:45,240 --> 00:10:43,209
for overall operations JSC has

173
00:10:47,610 --> 00:10:45,250
instituted a management structure which

174
00:10:52,650 --> 00:10:47,620
ensures direct involvement and quality

175
00:10:54,689 --> 00:10:52,660
control in program activities the

176
00:10:57,269 --> 00:10:54,699
Johnson Space Center has been a part of

177
00:11:00,000 --> 00:10:57,279
the Houston community for over 25 years

178
00:11:01,949 --> 00:11:00,010
during that time it has continued to be

179
00:11:07,309 --> 00:11:01,959
a significant factor in the local

180
00:11:09,329 --> 00:11:07,319
economy in 1988 JSC and its employees

181
00:11:11,220 --> 00:11:09,339
provided the Houston area with

182
00:11:13,429 --> 00:11:11,230
approximately eight hundred sixty

183
00:11:19,400 --> 00:11:13,439
million dollars which amounts to about

184
00:11:24,810 --> 00:11:22,440
however JSC's contributions to the

185
00:11:27,480 --> 00:11:24,820
community go beyond any dollar amount a

186
00:11:29,600 --> 00:11:27,490
mutual dedication to the space program

187
00:11:33,330 --> 00:11:29,610
has resolved in a beneficial

188
00:11:38,730 --> 00:11:33,340

relationship between JSC and Houston's

189
00:11:42,180 --> 00:11:38,740
business and academic community also

190
00:11:43,890 --> 00:11:42,190
when in direct sunlight if the Sun is

191
00:11:45,360 --> 00:11:43,900
directly in your eyes this relationship

192
00:11:47,730 --> 00:11:45,370
has led to the development of

193
00:11:50,430 --> 00:11:47,740
educational programs which involve both

194
00:11:54,750 --> 00:11:50,440
faculty and students solid center

195
00:11:56,910 --> 00:11:54,760
sunshade the Johnson Space Center is

196
00:11:59,760 --> 00:11:56,920
committed to communicating its programs

197
00:12:01,650 --> 00:11:59,770
to the general public a visitor's

198
00:12:04,050 --> 00:12:01,660
program provides an opportunity for

199
00:12:17,190 --> 00:12:04,060
people from all over the world to view

200
00:12:23,860 --> 00:12:21,580
project by project year by year NASA

201
00:12:28,900 --> 00:12:23,870
space science effort will continue to

202
00:12:32,230 --> 00:12:28,910
provide a wealth of new knowledge the

203
00:12:34,780 --> 00:12:32,240
JSC team of government contractors and

204
00:12:37,030 --> 00:12:34,790
academia forms a valuable national

205
00:12:39,220 --> 00:12:37,040
resource which is ready to meet the