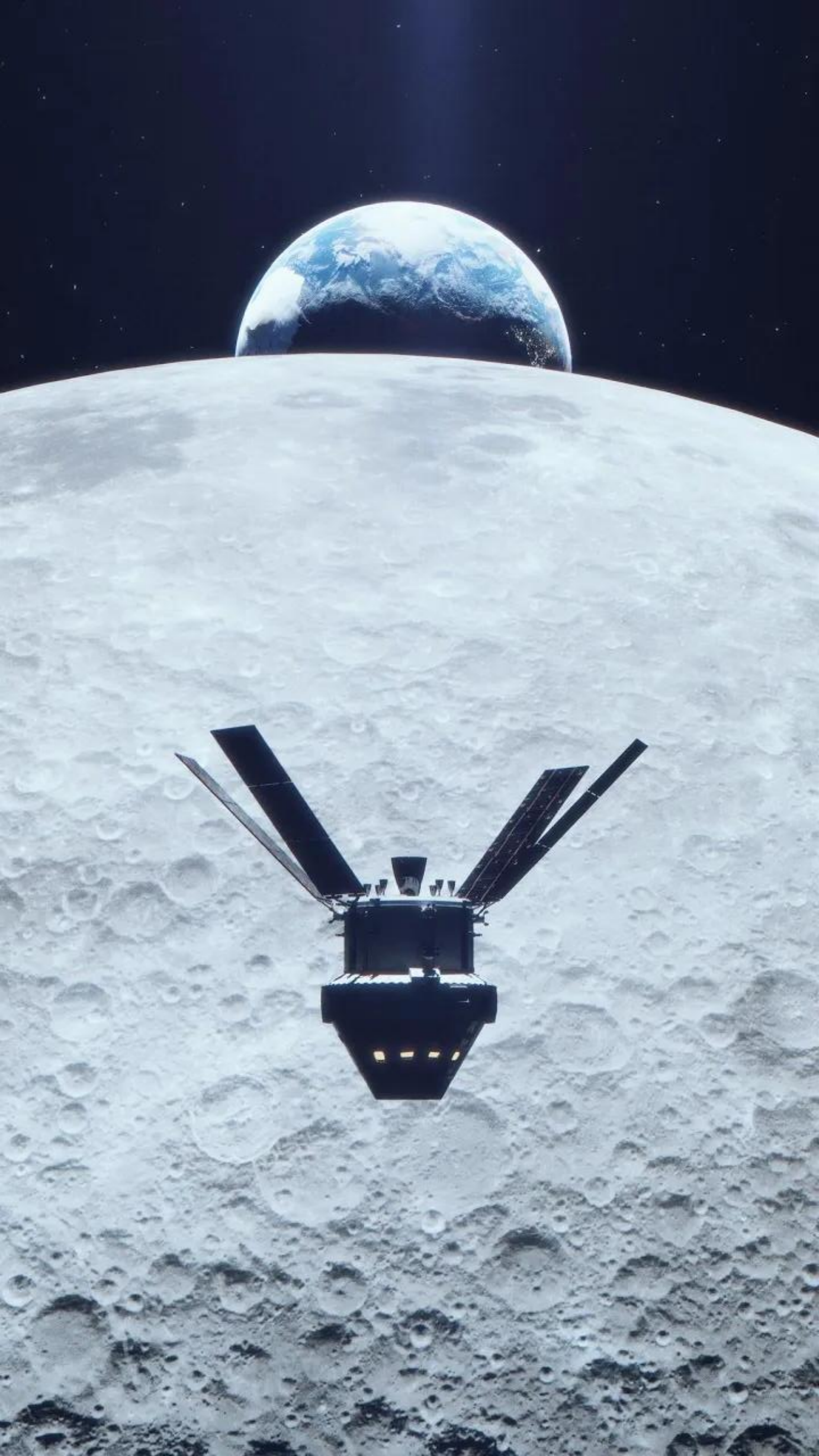

1
00:00:18,470 --> 00:00:16,790
outbound trajectory correction burn was

2
00:00:49,209 --> 00:00:18,480
completed successfully this morning at 1

3
00:00:53,450 --> 00:00:51,529
as I mentioned

4
00:00:56,630 --> 00:00:53,460
Orion continues to grow closer to the

5
00:00:59,029 --> 00:00:56,640
Moon we are now only 7 166 miles away

6
00:01:00,889 --> 00:00:59,039
that's a change of 100 miles since our

7
00:01:04,430 --> 00:01:00,899
first check-in this morning you can

8
00:01:12,830 --> 00:01:04,440
track Orion's uh place in the flight all

9
00:01:17,270 --> 00:01:15,170
as we grow closer to the Moon of course

10
00:01:21,370 --> 00:01:17,280
we continue to distance ourselves from

11
00:01:47,749 --> 00:01:24,109
429 miles away

12
00:01:52,550 --> 00:01:49,910
when Orion conducts the outbound powered

13
00:01:54,590 --> 00:01:52,560

flyby burn this morning it will Propel

14
00:01:57,950 --> 00:01:54,600
it uh it will change the Delta velocity

15
00:02:00,710 --> 00:01:57,960
by 586 feet per second this is a 2

16
00:02:03,469 --> 00:02:00,720
minute and 30 second burn that's longer

17
00:02:06,289 --> 00:02:03,479
in comparison to some of those

18
00:03:45,229 --> 00:02:06,299
OTC Burns we're seeing which lasts

19
00:03:49,850 --> 00:03:47,750
again you're looking at obviously a live

20
00:03:52,789 --> 00:03:49,860
view of our closest Celestial neighbor

21
00:03:54,830 --> 00:03:52,799
the moon as Orion continues to grow

22
00:03:56,930 --> 00:03:54,840
closer for its closest approach this

23
00:04:00,470 --> 00:03:56,940
morning the outbound powered flyby burn

24
00:04:03,649 --> 00:04:00,480
will begin at 7 44 a.m eastern time

25
00:04:06,229 --> 00:04:03,659
that's 7 44. the closest approach itself

26
00:04:10,789 --> 00:04:06,239
will happen about 7 57 will be about 80

27
00:04:15,410 --> 00:04:13,309
the outbound powered flyby is the first

28
00:04:17,449 --> 00:04:15,420
of a pair of Maneuvers that's required

29
00:04:19,310 --> 00:04:17,459
to enter a district distant retrograde

30
00:04:20,330 --> 00:04:19,320
orbit around the Moon

31
00:04:31,430 --> 00:04:20,340
the second will be the distant

32
00:04:35,749 --> 00:04:33,530
distance retrograde insertion will

33
00:04:39,050 --> 00:04:35,759
happen on Friday it's currently slated

34
00:04:41,450 --> 00:04:39,060
for coverage to begin at 4 30 PM eastern

35
00:05:04,070 --> 00:04:41,460
time for distant retrograde insertion

36
00:05:09,110 --> 00:05:06,409
just yesterday we entered the lunar

37
00:05:11,390 --> 00:05:09,120
sphere of influence at 209 PM eastern

38
00:05:13,210 --> 00:05:11,400

time will remain in that sphere of

39
00:05:16,370 --> 00:05:13,220
influence meaning

40
00:05:19,730 --> 00:05:16,380
the moon has the greatest gravitational

41
00:05:22,010 --> 00:05:19,740
pull on Orion until we prepare for

42
00:05:24,290 --> 00:05:22,020
distant retrograde insertion so we

43
00:05:26,570 --> 00:05:24,300
anticipate to exit the gravitational

44
00:05:28,310 --> 00:05:26,580
sphere of influence of the moon on

45
00:05:30,650 --> 00:05:28,320
Thursday

46
00:06:50,749 --> 00:05:30,660
November 24th

47
00:06:56,390 --> 00:06:53,510
as the moon continues to grow larger in

48
00:06:59,469 --> 00:06:56,400
the frame of view Orion is now less than

49
00:07:02,270 --> 00:06:59,479
7 000 miles away approximately

50
00:07:04,629 --> 00:07:02,280
6914 miles away from the moon this

51
00:07:07,730 --> 00:07:04,639
animation again you can watch on

52
00:07:09,890 --> 00:07:07,740
nasa.gov track Artemis any time of the

53
00:07:12,770 --> 00:07:09,900
day or night

54
00:10:18,490 --> 00:07:12,780
the spacecraft is traveling 438 miles

55
00:10:22,550 --> 00:10:21,110
as we grow closer to the moon and it

56
00:10:23,990 --> 00:10:22,560
continues to take up more and more of

57
00:10:25,310 --> 00:10:24,000
the frame it's easier to make out some

58
00:10:27,230 --> 00:10:25,320
of those craters

59
00:10:29,150 --> 00:10:27,240
and again this is a view from a camera

60
00:10:31,670 --> 00:10:29,160
mounted on the tip of one of the wings

61
00:10:34,190 --> 00:10:31,680
of Orion's solar arrays there are four

62
00:10:40,930 --> 00:10:34,200
solar arrays on Orion and in total they

63
00:10:46,550 --> 00:10:44,090

this helps Orion not rely on battery

64
00:10:48,769 --> 00:10:46,560
power the entire time and is a major

65
00:10:50,810 --> 00:10:48,779
difference between the Orion capsule and

66
00:10:53,329 --> 00:10:50,820
the Apollo capsules whereas the Apollo

67
00:11:16,850 --> 00:10:53,339
capsules use fuel cells instead of solar

68
00:12:21,650 --> 00:11:21,350
we're now 6 700 miles away from the Moon

69
00:12:26,810 --> 00:12:24,889
again today we are covering the outbound

70
00:12:29,269 --> 00:12:26,820
powered flyby currently scheduled for

71
00:12:30,230 --> 00:12:29,279
two hours and less than 14 minutes from

72
00:12:31,009 --> 00:12:30,240
now

73
00:12:33,170 --> 00:12:31,019
foreign

74
00:12:36,290 --> 00:12:33,180
that'll be at

75
00:12:39,290 --> 00:12:36,300
7 44 a.m eastern time we'll be targeting

76
00:12:41,630 --> 00:12:39,300
that close-up closest Approach at 7 57

77
00:12:52,670 --> 00:12:41,640
a.m when Orion will be about 80 miles

78
00:12:57,889 --> 00:12:55,069
outbound powered flyby is a two minute

79
00:13:00,470 --> 00:12:57,899
and 30 second burn this is the longest

80
00:13:01,970 --> 00:13:00,480
plan burned for Orion until the return

81
00:13:04,250 --> 00:13:01,980
powered flyby

82
00:13:27,050 --> 00:13:04,260
currently targeted at about three and a

83
00:13:31,310 --> 00:13:29,210
while the outbound powered flyby burn

84
00:13:34,250 --> 00:13:31,320
sets us up for the distant retrograde

85
00:13:36,710 --> 00:13:34,260
insertion maneuver the return powered

86
00:13:38,150 --> 00:13:36,720
flyby will instead prepare us and put us

87
00:18:28,330 --> 00:13:38,160
on the proper trajectory for our

88
00:18:32,870 --> 00:18:30,409

less than two hours and eight minutes

89
00:18:34,730 --> 00:18:32,880
until the outbound powered flyby burn

90
00:18:37,850 --> 00:18:34,740
yeah about powerfly by burn is scheduled

91
00:18:40,610 --> 00:18:37,860
for 7 44 a.m eastern time when Orion

92
00:18:42,610 --> 00:18:40,620
will be 328 statute miles above the moon

93
00:18:46,310 --> 00:18:42,620
traveling at

94
00:18:47,810 --> 00:18:46,320
5023 miles per hour

95
00:18:50,510 --> 00:18:47,820
that's in contrast to the current

96
00:18:53,150 --> 00:18:50,520
positioning Orion is 6400 miles away

97
00:18:55,430 --> 00:18:53,160
from the moon traveling 487 miles per

98
00:18:58,850 --> 00:18:55,440
hour at the time of closest approach

99
00:18:59,570 --> 00:18:58,860
Orion will be 81 statute miles above the

100
00:19:03,049 --> 00:18:59,580
Moon

101
00:19:05,630 --> 00:19:03,059
traveling at 5101 miles per hour again

102
00:20:01,870 --> 00:19:05,640
we're tracking closest approach for 6 57

103
00:20:01,880 --> 00:20:07,190
and even though

104
00:20:11,270 --> 00:20:09,710
Orion will be passing around The Far

105
00:20:14,049 --> 00:20:11,280
Side of the Moon today

106
00:20:17,390 --> 00:20:14,059
we are currently at 233

107
00:20:19,070 --> 00:20:17,400
349 miles away from Earth this will not

108
00:20:20,750 --> 00:20:19,080
be our greatest distance from Earth

109
00:20:22,909 --> 00:20:20,760
during the mission that will occur when

110
00:20:27,350 --> 00:20:22,919
Orion is in the distant retrograde Orbit

111
00:20:33,230 --> 00:20:27,360
on next Monday November 28th at 3 05 PM

112
00:20:41,870 --> 00:20:33,240
Central Time 405 PM Eastern at 268 552

113
00:20:46,789 --> 00:20:44,870

I got everything on track for

114
00:20:50,930 --> 00:20:46,799
the outbound hard flight by burn today

115
00:20:53,750 --> 00:20:50,940
at 7 44 a.m eastern time Orion now less

116
00:22:02,710 --> 00:20:53,760
than 6 300 miles away from the Moon

117
00:22:08,450 --> 00:22:06,049
this view is from the nasa.gov track

118
00:22:11,330 --> 00:22:08,460
Artemis site you can join this site at

119
00:22:14,990 --> 00:22:11,340
any time throughout the mission we are

120
00:22:16,730 --> 00:22:15,000
keeping you updated 24 7 as we continue

121
00:22:18,169 --> 00:22:16,740
our journey around the Moon and back to

122
00:22:19,789 --> 00:22:18,179
Earth you'll be able to track the

123
00:22:21,710 --> 00:22:19,799
velocity distance from the earth and

124
00:22:51,770 --> 00:22:21,720
distance to the Moon at any time you

125
00:22:56,630 --> 00:22:53,690
if you're just joining us you're

126
00:22:59,810 --> 00:22:56,640
watching a live view of our one and only

127
00:23:04,490 --> 00:23:02,270
this view coming from a camera on the

128
00:23:07,970 --> 00:23:04,500
tip of one of Orion's four solar arrays

129
00:23:10,190 --> 00:23:07,980
the spacecraft now 6220 miles away from

130
00:23:14,330 --> 00:23:10,200
our closest Celestial neighbor traveling

131
00:23:21,830 --> 00:23:18,169
Orion launched Atop The SLS on November

132
00:23:23,029 --> 00:23:21,840
16th at 1 47 a.m eastern time this is an

133
00:23:25,010 --> 00:23:23,039
uncrewed

134
00:23:27,770 --> 00:23:25,020
flight test however we do have some

135
00:23:30,230 --> 00:23:27,780
purposeful passengers on board one of

136
00:23:34,430 --> 00:23:30,240
those is munichin Campos named after

137
00:23:36,409 --> 00:23:34,440
Arturo campus who was a valuable player

138
00:23:42,850 --> 00:23:36,419

during the Apollo 13 mission in Mission

139
00:23:46,730 --> 00:23:45,110
Commander Munich and Campos is a

140
00:23:48,710 --> 00:23:46,740
mannequin that will allow us to measure

141
00:23:50,690 --> 00:23:48,720
radiation acceleration and vibration

142
00:23:54,409 --> 00:23:50,700
data throughout the mission

143
00:23:56,630 --> 00:23:54,419
the info gathered from him and the other

144
00:24:00,169 --> 00:23:56,640
two Phantom mannequins Helga and sohar

145
00:24:01,549 --> 00:24:00,179
will help us prepare for future crude

146
00:26:34,570 --> 00:24:01,559
missions

147
00:26:39,490 --> 00:26:36,830
we're now two hours from the outbound

148
00:26:42,409 --> 00:26:39,500
powered flyby burn Orion is

149
00:26:44,750 --> 00:26:42,419
6034 miles away from the Moon we've

150
00:26:47,570 --> 00:26:44,760
already increased uh we are we have

151
00:26:49,310 --> 00:26:47,580
already grown 1 000 miles closer since

152
00:26:52,850 --> 00:26:49,320
when we began our broadcast this morning

153
00:26:58,250 --> 00:26:55,070
we've also continued to increase in

154
00:26:59,690 --> 00:26:58,260
velocity now 530 miles per hour for the

155
00:27:02,870 --> 00:26:59,700
spacecraft on the maiden voyage of

156
00:27:05,510 --> 00:27:02,880
Artemis 1 at the time of the OPF burn at

157
00:27:16,130 --> 00:27:05,520
7 44 a.m eastern time Orion will be

158
00:27:19,610 --> 00:27:18,049
the mission management team gave the go

159
00:27:21,169 --> 00:27:19,620
for Orion to conduct the outbound

160
00:27:24,789 --> 00:27:21,179
powered flyby maneuver on Saturday

161
00:27:27,049 --> 00:27:24,799
during their daily meeting

162
00:27:28,970 --> 00:27:27,059
teams are tracking no issues that would

163
00:32:03,769 --> 00:27:28,980

prevent the spacecraft from entering

164
00:32:09,350 --> 00:32:06,950
5 800 miles away from the Moon and

165
00:32:11,090 --> 00:32:09,360
continuing to grow closer as we prepare

166
00:32:29,750 --> 00:32:11,100
for the outbound powered flyby burn

167
00:32:33,710 --> 00:32:31,909
again the outbound powered flyby burn is

168
00:32:35,389 --> 00:32:33,720
the first of a pair of Maneuvers that we

169
00:32:37,870 --> 00:32:35,399
need to enter that distant retrograde

170
00:32:41,269 --> 00:32:37,880
orbit beyond the Moon

171
00:32:44,090 --> 00:32:41,279
today's burn at 7 44 will bring Orion

172
00:32:48,830 --> 00:32:44,100
closest to the moon about 80 miles above

173
00:32:50,690 --> 00:32:48,840
it at 7 57 a.m Eastern Time

174
00:32:52,730 --> 00:32:50,700
we also expect to lose communication

175
00:32:55,730 --> 00:32:52,740
with the spacecraft as it passes behind

176
00:32:58,370 --> 00:32:55,740
the moon for 34 minutes starting at 7 26

177
00:33:00,590 --> 00:32:58,380
a.m but we will stay on air until it

178
00:33:02,269 --> 00:33:00,600
re-emerges and we regain Communications

179
00:33:03,950 --> 00:33:02,279
it'll be with the Goldstone ground

180
00:33:36,970 --> 00:33:03,960
station as part of NASA's deep space

181
00:33:42,529 --> 00:33:39,169
Orion entered the lunar sphere of

182
00:33:46,070 --> 00:33:42,539
influence yesterday at 209 PM Eastern

183
00:33:50,090 --> 00:33:47,990
that means the Moon instead of the earth

184
00:33:51,830 --> 00:33:50,100
is the main gravitational force acting

185
00:33:53,690 --> 00:33:51,840
on the spacecraft

186
00:33:55,789 --> 00:33:53,700
additionally this morning Orion

187
00:33:58,130 --> 00:33:55,799
completed the fourth outbound trajectory

188
00:33:59,870 --> 00:33:58,140

correction burn

189
00:34:02,269 --> 00:33:59,880
these are pre-planned Burns to keep

190
00:34:04,250 --> 00:34:02,279
Orion on course throughout the mission

191
00:34:08,869 --> 00:34:04,260
and that fourth burn

192
00:34:12,409 --> 00:34:08,879
was executed at 7 44 a.m oh sorry

193
00:38:02,930 --> 00:34:12,419
144 a.m eastern time we are targeting 7

194
00:38:07,130 --> 00:38:04,630
now just

195
00:38:10,430 --> 00:38:07,140
5520 miles from the Moon and approaching

196
00:38:13,849 --> 00:38:10,440
again this is nasa.gov track Artemis you

197
00:38:16,250 --> 00:38:13,859
can keep up with Orion's Mission and its

198
00:38:18,349 --> 00:38:16,260
location during the flight at any time

199
00:38:21,170 --> 00:38:18,359
we continue to increase the velocity as

200
00:38:23,510 --> 00:38:21,180
well now approaching 600 miles per hour

201
00:38:26,030 --> 00:38:23,520
and at the time of the outbound powered

202
00:38:28,430 --> 00:38:26,040
flyby burn will be traveling at 5023

203
00:38:32,270 --> 00:38:28,440
miles per hour outbound powered flyby

204
00:42:42,849 --> 00:38:32,280
burn will be executed 744 a.m Eastern

205
00:42:47,569 --> 00:42:45,950
6 a.m eastern time and we are now one

206
00:42:55,550 --> 00:42:47,579
hour and 44 minutes away from the

207
00:43:01,849 --> 00:42:59,450
Orion is now 5 335 miles away from the

208
00:43:05,089 --> 00:43:01,859
Moon and continuing to grow closer

209
00:45:05,109 --> 00:43:05,099
traveling 619 miles per hour

210
00:45:09,950 --> 00:45:08,089
again you are watching live coverage

211
00:45:12,470 --> 00:45:09,960
ahead of the outbound powered flyby burn

212
00:45:15,050 --> 00:45:12,480
as we prepare to make our closest

213
00:45:17,450 --> 00:45:15,060

Approach To The Moon it'll be about 80

214
00:45:19,069 --> 00:45:17,460
miles above the Illinois surface this is

215
00:45:20,870 --> 00:45:19,079
the second burn that was will be

216
00:45:23,930 --> 00:45:20,880
executed this morning the first occurred

217
00:45:26,690 --> 00:45:23,940
successfully at 144 a.m eastern time

218
00:45:28,550 --> 00:45:26,700
that was the otc-4 burn which stands for

219
00:45:31,250 --> 00:45:28,560
outbound trajectory correction burn

220
00:51:25,450 --> 00:45:31,260
ensuring Orion is on the proper path for

221
00:51:30,950 --> 00:51:29,089
now approaching 4 900 miles away from

222
00:51:33,109 --> 00:51:30,960
the Moon again

223
00:51:34,910 --> 00:51:33,119
a large distance changed in the time

224
00:51:38,690 --> 00:51:34,920
that we've been on air less than an hour

225
00:51:41,750 --> 00:51:38,700
now we originally started at over 7 000

226
00:51:46,490 --> 00:51:44,270
we're traveling at 684 miles per hour

227
00:51:48,549 --> 00:51:46,500
and just to put it in perspective we are

228
00:51:55,970 --> 00:51:48,559
now 233

229
00:51:59,809 --> 00:51:57,410
this is all in preparation for the

230
00:52:02,630 --> 00:51:59,819
outbound powered flyby burn that'll be

231
00:52:06,530 --> 00:52:02,640
at 7 44 a.m Eastern one hour and 34

232
00:52:10,730 --> 00:52:08,930
teams are tracking no issues ahead of

233
00:52:13,549 --> 00:52:10,740
the outbound powered flyby burn this is

234
00:52:15,170 --> 00:52:13,559
the first of two Maneuvers that will put

235
00:52:16,970 --> 00:52:15,180
us in the distant retrograde orbit

236
00:55:21,970 --> 00:52:16,980
beyond the Moon

237
00:55:28,730 --> 00:55:24,530
you're looking at a view from nasa.gov

238
00:55:31,670 --> 00:55:28,740

track Artemis also known as Arrow the

239
00:55:34,130 --> 00:55:31,680
Artemis real-time orbit website you can

240
00:55:35,870 --> 00:55:34,140
log on at any time day or night and any

241
00:55:37,730 --> 00:55:35,880
phase of the mission and check out what

242
00:55:39,530 --> 00:55:37,740
Orion is doing and where it is in

243
00:55:42,130 --> 00:55:39,540
relation to the Moon and the Earth

244
00:55:44,990 --> 00:55:42,140
you can see here we are now

245
00:55:48,349 --> 00:55:45,000
4722 miles from the Moon and continuing

246
00:56:46,549 --> 00:55:48,359
to grow closer traveling 715 miles per

247
00:56:50,809 --> 00:56:48,470
now less than an hour and a half until

248
00:56:52,849 --> 00:56:50,819
the outbound powered flyby burn again

249
00:56:55,130 --> 00:56:52,859
this is a two minute and 30 second burn

250
00:56:57,950 --> 00:56:55,140
it'll take place around The Far Side of

251
00:57:00,530 --> 00:56:57,960
the Moon and commits Orion to entry into

252
00:57:02,270 --> 00:57:00,540
distant retrograde orbit there's a

253
00:57:03,950 --> 00:57:02,280
second part that's necessary the distant

254
00:57:06,950 --> 00:57:03,960
retrograde insertion burn that'll happen

255
00:57:08,809 --> 00:57:06,960
on Friday November 25th and that'll put

256
01:00:45,230 --> 00:57:08,819
us in the proper distant retrograde

257
01:00:50,390 --> 01:00:48,530
now less than 4 500 miles away from the

258
01:00:52,069 --> 01:00:50,400
Moon continuing to grow closer ahead of

259
01:00:53,569 --> 01:00:52,079
the outbound powered flyby burn again

260
01:00:56,870 --> 01:00:53,579
we're looking for that burn in an hour

261
01:01:00,349 --> 01:00:56,880
and 25 minutes from now 7 44 a.m eastern

262
01:01:02,569 --> 01:01:00,359
time Orion is traveling at 757 miles per

263
01:01:04,370 --> 01:01:02,579

hour this is a live view from the

264
01:01:09,109 --> 01:01:04,380
spacecraft itself it is from a camera

265
01:01:17,930 --> 01:01:11,569
we will lose communication with the

266
01:01:22,670 --> 01:01:20,329
that loss of communication will occur

267
01:01:25,609 --> 01:01:22,680
for approximately 34 minutes and again

268
01:01:27,650 --> 01:01:25,619
we're tracking that here

269
01:01:30,289 --> 01:01:27,660
that loss of communication will start at

270
01:01:34,010 --> 01:01:30,299
7 26 a.m so one hour and seven minutes

271
01:01:39,230 --> 01:01:36,289
we'll remain on air throughout the time

272
01:01:41,690 --> 01:01:39,240
that Orion is Out Of Reach from our

273
01:07:21,970 --> 01:01:41,700
satellites here on Earth

274
01:07:28,910 --> 01:07:24,250
Orion is now

275
01:07:31,250 --> 01:07:28,920
4182 miles away from the Moon 233 089

276
01:07:34,490 --> 01:07:31,260
miles away from our home of planet Earth

277
01:07:37,370 --> 01:07:34,500
this is a live view from the track

278
01:07:39,410 --> 01:07:37,380
Artemis or the nasa.gov track Artemis

279
01:07:41,390 --> 01:07:39,420
feature it's a Telemetry driven

280
01:07:42,950 --> 01:07:41,400
animation called Arrow the Artemis

281
01:07:45,170 --> 01:07:42,960
real-time orbit website that you can

282
01:07:47,990 --> 01:07:45,180
access anytime during the mission that

283
01:07:50,870 --> 01:07:48,000
allows you to keep a look at where Orion

284
01:07:52,910 --> 01:07:50,880
is and what phase of the mission it's in

285
01:07:56,150 --> 01:07:52,920
as well as take a look at what's coming

286
01:07:57,710 --> 01:07:56,160
up next for the spacecraft

287
01:08:01,490 --> 01:07:57,720
coming up next this morning is the

288
01:08:04,430 --> 01:08:01,500

outbound powered flyby burn at 7 44 A.M

289
01:08:06,710 --> 01:08:04,440
eastern time when Orion will be 328

290
01:08:09,170 --> 01:08:06,720
statute miles above the Moon this

291
01:08:12,890 --> 01:08:09,180
prepares us for the closest Approach at

292
01:08:15,890 --> 01:08:12,900
6 at 7 57 a.m eastern time when Orion

293
01:08:19,010 --> 01:08:15,900
will be just 81 statute miles above our

294
01:08:25,090 --> 01:08:21,410
currently spacecraft's traveling 824

295
01:08:28,450 --> 01:08:25,100
miles per hour and during the time of

296
01:13:18,790 --> 01:08:28,460
OPF the spacecraft will be traveling at

297
01:13:25,729 --> 01:13:21,590
we are now less than 4 000 miles away

298
01:13:29,270 --> 01:13:25,739
from the Moon actually 309 3900 to be

299
01:13:31,550 --> 01:13:29,280
exact traveling at 876 miles per hour we

300
01:13:33,050 --> 01:13:31,560
are one hour and 12 minutes away from

301
01:13:36,410 --> 01:13:33,060
the outbound powered flyby burn

302
01:13:38,090 --> 01:13:36,420
scheduled for 7 44 a.m eastern time

303
01:13:40,430 --> 01:13:38,100
everything on track for the burn this

304
01:13:42,530 --> 01:13:40,440
morning that closest approach after the

305
01:13:44,990 --> 01:13:42,540
burn we will be just 80 miles above the

306
01:13:47,090 --> 01:13:45,000
lunar surface again this is an uncrewed

307
01:13:51,410 --> 01:13:47,100
flight test we have no astronauts aboard

308
01:13:53,570 --> 01:13:51,420
the Artemis 1 Mission we're doing

309
01:13:56,390 --> 01:13:53,580
we're doing this mission in preparation

310
01:13:58,370 --> 01:13:56,400
for astronauts to fly aboard for Artemis

311
01:16:50,149 --> 01:13:58,380
2 and our future missions in the Artemis

312
01:16:55,070 --> 01:16:52,370
again this is a Telemetry driven

313
01:16:57,350 --> 01:16:55,080

animation you can track Artemis anytime

314
01:16:59,750 --> 01:16:57,360
at nasa.gov track Artemis through the

315
01:17:02,209 --> 01:16:59,760
Artemis real-time orbit website also

316
01:17:04,790 --> 01:17:02,219
known as Arrow that'll give you the

317
01:17:07,189 --> 01:17:04,800
stats on the spacecraft as well as where

318
01:17:08,870 --> 01:17:07,199
we are during the mission

319
01:17:10,850 --> 01:17:08,880
this is live anytime of the day or night

320
01:18:55,270 --> 01:17:10,860
so when we're not on air you can still

321
01:19:01,550 --> 01:18:57,830
at the start of our broadcast just an

322
01:19:03,770 --> 01:19:01,560
hour and 20 minutes ago Orion was over 7

323
01:19:05,410 --> 01:19:03,780
000 miles away from the Moon we're now

324
01:19:09,290 --> 01:19:05,420
coming up on

325
01:19:11,090 --> 01:19:09,300
3630 miles away from the Moon 233 000

326
01:19:14,330 --> 01:19:11,100
miles away from Earth and traveling at

327
01:19:15,890 --> 01:19:14,340
940 miles per hour that velocity has

328
01:19:18,590 --> 01:19:15,900
increased as well and will continue to

329
01:19:21,290 --> 01:19:18,600
do so at the time of the OPF or outbound

330
01:19:23,570 --> 01:19:21,300
powered flyby burn at 7 44 a.m Eastern

331
01:20:22,669 --> 01:19:23,580
Orion will be traveling at over five

332
01:20:26,750 --> 01:20:24,950
we're tracking outbound powered flyby

333
01:20:28,729 --> 01:20:26,760
burn to take place one hour and six

334
01:20:30,110 --> 01:20:28,739
minutes from now the go for that burn

335
01:20:31,910 --> 01:20:30,120
came two days ago from the mission

336
01:25:38,030 --> 01:20:31,920
manage management team when they met for

337
01:25:43,850 --> 01:25:40,729
now one hour from the outbound power to

338
01:25:45,590 --> 01:25:43,860

flyby maneuver targeted for 7 44 a.m

339
01:25:48,290 --> 01:25:45,600
Eastern Time

340
01:30:05,930 --> 01:25:51,649
Orion is 3 300 miles away from the moon

341
01:30:09,470 --> 01:30:07,850
thanks for joining us for our live

342
01:30:11,990 --> 01:30:09,480
coverage this morning this is a live

343
01:30:14,629 --> 01:30:12,000
view from a camera on the tip of Orion's

344
01:30:18,410 --> 01:30:14,639
solar array Wing aimed at our

345
01:30:20,570 --> 01:30:18,420
destination the moon we are now 3098

346
01:30:23,629 --> 01:30:20,580
miles away from the moon traveling at

347
01:30:26,030 --> 01:30:23,639
1085 miles per hour just 56 minutes away

348
01:30:27,950 --> 01:30:26,040
from the outbound powered flyby that

349
01:30:34,669 --> 01:30:27,960
outbound powered flyby is targeted for 7

350
01:30:38,149 --> 01:30:36,050
we're happy to have brought you this

351
01:30:39,890 --> 01:30:38,159
extended coverage this morning and for

352
01:30:41,810 --> 01:30:39,900
now I'm going to pass it off to my

353
01:32:48,070 --> 01:30:41,820
colleague Sandra Jones to take you all

354
01:32:52,790 --> 01:32:50,810
we're continuing to bring you live

355
01:32:56,209 --> 01:32:52,800
coverage of the upcoming outbound

356
01:32:59,270 --> 01:32:56,219
outbound powered flyby of Orion now

357
01:33:04,010 --> 01:32:59,280
scheduled for 53 minutes and 30 seconds

358
01:33:08,990 --> 01:33:06,830
Orion is already in the moon's sphere of

359
01:33:11,330 --> 01:33:09,000
influence

360
01:33:12,830 --> 01:33:11,340
and yesterday the team completed a

361
01:33:16,610 --> 01:33:12,840
successful outbound trajectory

362
01:33:22,189 --> 01:33:19,610
this burn helps set us up for the OPF

363
01:33:28,430 --> 01:33:22,199

burn again coming up in about 53 minutes

364
01:33:37,810 --> 01:33:31,610
at the time of the OPF burn Orion will

365
01:33:43,370 --> 01:33:41,390
and then just a short time from then

366
01:33:46,129 --> 01:33:43,380
Orion will complete its closest approach

367
01:33:47,450 --> 01:33:46,139
to the moon at 81 miles above the lunar

368
01:33:49,490 --> 01:33:47,460
surface

369
01:33:51,470 --> 01:33:49,500
now during this time we will not have

370
01:33:54,110 --> 01:33:51,480
signal with Orion because it will be

371
01:33:56,149 --> 01:33:54,120
traveling behind the back side of the

372
01:33:58,430 --> 01:33:56,159
moon however we expect to regain

373
01:34:01,250 --> 01:33:58,440
Communications once Orion swings back

374
01:34:23,530 --> 01:34:01,260
around to the other side and is back on

375
01:34:28,550 --> 01:34:26,209
the outbound powered flyby will send

376
01:34:30,709 --> 01:34:28,560
Orion close enough to the lunar surface

377
01:34:33,470 --> 01:34:30,719
to leverage the moon's gravitational

378
01:34:35,990 --> 01:34:33,480
force and swing the spacecraft once

379
01:34:39,290 --> 01:34:36,000
around the Moon toward entry into what

380
01:34:41,990 --> 01:34:39,300
we call a distant retrograde orbit

381
01:34:44,209 --> 01:34:42,000
following this Orion will remain in the

382
01:34:46,910 --> 01:34:44,219
distant retrograde orbit for one long

383
01:34:49,729 --> 01:34:46,920
elliptical orbit around the Moon lasting

384
01:34:52,010 --> 01:34:49,739
about six days now this orbit is called

385
01:34:54,590 --> 01:34:52,020
distant due to the High Altitude from

386
01:34:56,930 --> 01:34:54,600
the moon it's about 40 000 miles past

387
01:34:59,450 --> 01:34:56,940
the moon in its orbit which is actually

388
01:35:02,390 --> 01:34:59,460

30 000 miles farther than the previous

389
01:35:04,310 --> 01:35:02,400
record set during Apollo 13.

390
01:35:06,530 --> 01:35:04,320
and this will be the farthest in space

391
01:35:08,209 --> 01:35:06,540
any spacecraft built for humans will

392
01:35:10,430 --> 01:35:08,219
have ever flown

393
01:35:13,189 --> 01:35:10,440
this orbit is also called retrograde

394
01:35:15,350 --> 01:35:13,199
because Orion will be traveling around

395
01:35:18,229 --> 01:35:15,360
the Moon opposite the direction the moon

396
01:35:21,890 --> 01:35:18,239
travels around the Earth

397
01:35:23,750 --> 01:35:21,900
this Dro provides a highly stable orbit

398
01:35:26,270 --> 01:35:23,760
where little fuel is required to stay

399
01:35:28,850 --> 01:35:26,280
for an extended trip in deep space in

400
01:35:30,770 --> 01:35:28,860
order to put Orion's systems through its

401
01:39:05,290 --> 01:35:30,780
paces and to the tests in an environment

402
01:39:10,970 --> 01:39:08,270
here in Mission Control Houston things

403
01:39:14,330 --> 01:39:10,980
remain relatively calm now five hours

404
01:39:16,850 --> 01:39:14,340
five days five hours since Orion's

405
01:39:18,830 --> 01:39:16,860
liftoff aboard the space launch system

406
01:39:21,410 --> 01:39:18,840
from the Kennedy Space Center in Florida

407
01:39:24,530 --> 01:39:21,420
the next major Milestone that we're

408
01:39:27,169 --> 01:39:24,540
tracking ahead of today's burn will be a

409
01:39:29,270 --> 01:39:27,179
go no-go poll where flight director Rick

410
01:39:32,149 --> 01:39:29,280
lebrode will pull the team here in

411
01:39:40,030 --> 01:39:32,159
mission control on key systems required

412
01:39:46,189 --> 01:39:42,950
on your screen you're continuing to get

413
01:39:49,310 --> 01:39:46,199

a live view of the Moon taken from one

414
01:39:56,990 --> 01:39:49,320
of the solar array Wing or saw cameras

415
01:40:05,030 --> 01:40:01,189
Orion is traveling at 1 248 miles per

416
01:40:07,850 --> 01:40:05,040
hour and is only 2 600 miles away from

417
01:40:11,149 --> 01:40:07,860
the moon at this time

418
01:40:13,970 --> 01:40:11,159
again upon closest approach Orion will

419
01:40:17,570 --> 01:40:13,980
be about 80 miles off of the surface of

420
01:40:22,970 --> 01:40:20,330
now we will be in that anticipated and

421
01:40:25,370 --> 01:40:22,980
expected loss of signal during that

422
01:40:28,550 --> 01:40:25,380
closest approach however we do expect to

423
01:40:30,770 --> 01:40:28,560
regain signal with Orion just about two

424
01:40:33,470 --> 01:40:30,780
minutes after the closest approach where

425
01:43:16,609 --> 01:40:33,480
we will regain Communications with the

426
01:43:21,290 --> 01:43:18,709
if you're just joining us we're bringing

427
01:43:23,990 --> 01:43:21,300
you live coverage of today's upcoming

428
01:43:26,689 --> 01:43:24,000
outbound powered flyby burn which will

429
01:43:29,450 --> 01:43:26,699
slingshot us around the back side of the

430
01:43:31,370 --> 01:43:29,460
moon you are continuing to get views of

431
01:43:34,370 --> 01:43:31,380
the moon in real time here on your

432
01:43:36,609 --> 01:43:34,380
screen from a solar array Wing camera on

433
01:43:39,590 --> 01:43:36,619
board Orion

434
01:43:41,870 --> 01:43:39,600
today's burn will take place with the

435
01:43:44,450 --> 01:43:41,880
orbital maneuvering system or ohms

436
01:43:46,790 --> 01:43:44,460
engine this engine has been used several

437
01:43:49,370 --> 01:43:46,800
times throughout Orion's five-day

438
01:43:52,070 --> 01:43:49,380

439
01:43:55,970 --> 01:43:52,080
this is that large engine located on the

440
01:44:03,530 --> 01:43:58,129
and the engine can provide six thousand

441
01:44:08,990 --> 01:44:06,350
today's burn will last two minutes and

442
01:44:18,350 --> 01:44:09,000
30 seconds but the burn can be used for

443
01:44:23,209 --> 01:44:21,410
the ohms engine onboard Orion is a

444
01:44:25,729 --> 01:44:23,219
repurposed space shuttle orbital

445
01:44:28,070 --> 01:44:25,739
maneuvering system engine that has flown

446
01:44:31,250 --> 01:44:28,080
in space before

447
01:44:34,550 --> 01:44:31,260
it flew on 19 space shuttle flights

448
01:44:38,570 --> 01:44:34,560
beginning with sts-41g in October of

449
01:44:41,810 --> 01:44:38,580
1984 and ending with sts-112 in October

450
01:44:45,950 --> 01:44:44,090
now the ohms engine is not the only

451
01:44:49,129 --> 01:44:45,960
engine on board the Orion spacecraft

452
01:44:51,050 --> 01:44:49,139
there are also eight auxiliary engines

453
01:44:53,810 --> 01:44:51,060
these are located on the bottom of the

454
01:44:55,729 --> 01:44:53,820
service module in as well but in four

455
01:44:57,770 --> 01:44:55,739
sets of two

456
01:44:59,990 --> 01:44:57,780
these are used to provide trajectory

457
01:45:03,109 --> 01:45:00,000
Corrections and as a backup to the main

458
01:45:11,870 --> 01:45:03,119
engine and each engine provides about 1

459
01:45:16,850 --> 01:45:14,510
in total there are 33 engines aboard

460
01:45:18,950 --> 01:45:16,860
Orion and here on your screen you are

461
01:45:26,750 --> 01:45:18,960
getting a quick glimpse of

462
01:45:31,790 --> 01:45:29,209
we do expect to get regain those videos

463
01:45:33,770 --> 01:45:31,800

and imagery here shortly but for now

464
01:45:36,890 --> 01:45:33,780
you're looking at a Telemetry driven

465
01:45:38,689 --> 01:45:36,900
animation of Orion and its location as

466
01:45:41,590 --> 01:45:38,699
you can see here on your screen speed

467
01:45:44,570 --> 01:45:41,600
continuing to pick up now at 1

468
01:45:45,790 --> 01:45:44,580
369 miles per hour

469
01:45:47,330 --> 01:45:45,800
over

470
01:45:50,270 --> 01:45:47,340
232

471
01:45:52,430 --> 01:45:50,280
000 miles from home but only 2 000 miles

472
01:45:55,070 --> 01:45:52,440
away from the Moon

473
01:45:57,669 --> 01:45:55,080
again at closest approach will be just

474
01:46:00,770 --> 01:45:57,679
over 80 miles above the lunar surface

475
01:46:40,250 --> 01:46:00,780
continuing to close in on the back side

476
01:46:46,729 --> 01:46:43,490
at this time we're 15 minutes away from

477
01:46:48,770 --> 01:46:46,739
the planned go no-go poll where flight

478
01:46:50,870 --> 01:46:48,780
director Rick labrode will pull the team

479
01:48:09,129 --> 01:46:50,880
here in Mission Control ahead of today's

480
01:48:14,330 --> 01:48:12,229
and you're looking at a live view inside

481
01:48:16,609 --> 01:48:14,340
Mission Control Houston we're in the

482
01:48:18,229 --> 01:48:16,619
white flight control room today they're

483
01:48:20,870 --> 01:48:18,239
in the center of your screen who just

484
01:48:22,490 --> 01:48:20,880
sat down is flight director Rick labrode

485
01:48:26,030 --> 01:48:22,500
who is leading the team here in Mission

486
01:48:31,490 --> 01:48:28,250
sitting next to him is another flight

487
01:48:33,770 --> 01:48:31,500
director Zeb Scoville

488
01:48:35,990 --> 01:48:33,780

we'll have the opportunity to speak with

489
01:50:10,790 --> 01:48:36,000
Zeb here in just a few minutes about the

490
01:50:10,800 --> 01:50:38,169
thank you

491
01:50:44,149 --> 01:50:41,629
Orion is now 2 000 miles away from the

492
01:50:46,250 --> 01:50:44,159
Moon continuing to close in on its

493
01:50:47,750 --> 01:50:46,260
destination for this particular burn the

494
01:50:50,689 --> 01:50:47,760
back side of the moon

495
01:50:54,950 --> 01:50:50,699
the outbound powered flyby is the goal

496
01:50:59,149 --> 01:50:57,109
this outbound powered flyby will send

497
01:51:01,310 --> 01:50:59,159
Orion close enough to the lunar surface

498
01:51:04,310 --> 01:51:01,320
to leverage the moon's gravitational

499
01:51:06,229 --> 01:51:04,320
force and swing the spacecraft once

500
01:51:10,070 --> 01:51:06,239
around the Moon toward entry into

501
01:51:14,149 --> 01:51:12,290
following this Orion will remain in the

502
01:51:16,070 --> 01:51:14,159
distant retrograde orbit for one long

503
01:51:20,709 --> 01:51:16,080
elliptical orbit around the Moon which

504
01:51:24,890 --> 01:51:23,390
following this Orion will perform a

505
01:51:27,590 --> 01:51:24,900
similar maneuver called the return

506
01:51:30,530 --> 01:51:27,600
powered flyby which will put it on the

507
01:51:33,410 --> 01:51:30,540
trajectory to return back to Earth ahead

508
01:51:50,590 --> 01:51:33,420
of a Splashdown in the Pacific Ocean on

509
01:51:56,090 --> 01:51:53,870
now the first time a NASA vehicle flew

510
01:51:58,070 --> 01:51:56,100
behind the backside of the Moon with

511
01:52:02,450 --> 01:51:58,080
crew on board was first done during

512
01:52:05,030 --> 01:52:02,460
Apollo 8. and here you are looking at a

513
01:52:09,169 --> 01:52:05,040

live view of the Orion spacecraft from

514
01:52:12,229 --> 01:52:09,179
the solar array wing with the Moon

515
01:52:14,510 --> 01:52:12,239
in the distance of the screen

516
01:52:17,030 --> 01:52:14,520
the Earth in the distant frame of the

517
01:52:19,729 --> 01:52:17,040
screen and the Moon up close again we

518
01:52:23,270 --> 01:52:19,739
are now less than 2 000 miles away from

519
01:52:28,090 --> 01:52:23,280
the moon but over 200 000 miles away

520
01:52:33,950 --> 01:52:30,010
here

521
01:52:36,229 --> 01:52:33,960
Orion started its Journey five days ago

522
01:52:38,090 --> 01:52:36,239
from the Kennedy Space Center in Florida

523
01:52:40,689 --> 01:52:38,100
where it launched aboard the space

524
01:52:43,129 --> 01:52:40,699
launch system

525
01:52:45,470 --> 01:52:43,139
Orion has been traveling to the moon

526
01:52:47,810 --> 01:52:45,480
ever since performing checkouts of its

527
01:52:50,930 --> 01:52:47,820
systems as this is an uncrewed test

528
01:52:55,490 --> 01:52:53,030
critical that NASA tests out the

529
01:52:57,649 --> 01:52:55,500
hardware and systems aboard Orion the

530
01:54:25,010 --> 01:52:57,659
head of flying a crew on board Artemis

531
01:54:25,020 --> 01:54:54,410
foreign

532
01:54:54,420 --> 01:55:01,669
pick one two three four five

533
01:55:01,679 --> 01:58:11,410
thank you

534
01:58:16,669 --> 01:58:13,850
good morning and welcome to the Johnson

535
01:58:18,830 --> 01:58:16,679
Space Center in Houston Texas I'm NASA's

536
01:58:21,109 --> 01:58:18,840
Sandra Jones and we're bringing you live

537
01:58:24,350 --> 01:58:21,119
coverage from Mission Control Houston of

538
01:58:26,750 --> 01:58:24,360

the upcoming outbound powered flyby in

539
01:58:28,970 --> 01:58:26,760
which Orion will fly behind the moon and

540
01:58:31,070 --> 01:58:28,980
perform a burn utilizing the orbital

541
01:58:33,229 --> 01:58:31,080
maneuvering system engine which was

542
01:58:35,510 --> 01:58:33,239
checked out on Tuesday following launch

543
01:58:38,149 --> 01:58:35,520
of Orion atop the space launch system

544
01:58:40,250 --> 01:58:38,159
the engine has been performing well and

545
01:58:43,129 --> 01:58:40,260
has completed a series of additional

546
01:58:45,169 --> 01:58:43,139
expected trajectory correction Burns and

547
01:58:47,810 --> 01:58:45,179
all spacecraft systems are performing

548
01:58:50,450 --> 01:58:47,820
well now over five days into the flight

549
01:58:52,129 --> 01:58:50,460
of Artemis 1. today we're in the white

550
01:58:53,810 --> 01:58:52,139
flight control room where flight

551
01:58:56,149 --> 01:58:53,820
director Rick labrode is leading the

552
01:58:58,669 --> 01:58:56,159
team on console for today's flyby and

553
01:59:01,370 --> 01:58:58,679
burn just moments ago flight director

554
01:59:04,070 --> 01:59:01,380
Rick labrode pulled the team here in

555
01:59:07,250 --> 01:59:04,080
mission control and we are go for the

556
01:59:09,530 --> 01:59:07,260
OPF burn we do expect to lose signal of

557
01:59:11,510 --> 01:59:09,540
Orion as it travels behind the back side

558
01:59:13,490 --> 01:59:11,520
of the moon as the moon will be blocking

559
01:59:15,770 --> 01:59:13,500
the direct site to the deep space

560
01:59:17,629 --> 01:59:15,780
Network we're tracking that loss of

561
01:59:20,870 --> 01:59:17,639
signal to begin just about 10 minutes

562
01:59:24,290 --> 01:59:20,880
from now at 6 25 a.m Central and and

563
01:59:26,209 --> 01:59:24,300

will last just over 34 minutes while in

564
01:59:28,250 --> 01:59:26,219
the loss of signal the outbound powered

565
01:59:31,250 --> 01:59:28,260
flyby will take place with the orbital

566
01:59:32,390 --> 01:59:31,260
maneuvering system engine at 6 44 a.m

567
01:59:34,250 --> 01:59:32,400
Central

568
01:59:36,290 --> 01:59:34,260
the outbound powered flyby will send

569
01:59:38,209 --> 01:59:36,300
Orion close enough to the lunar surface

570
01:59:40,790 --> 01:59:38,219
to leverage the moon's gravitational

571
01:59:42,410 --> 01:59:40,800
force and swing the spacecraft once

572
01:59:44,810 --> 01:59:42,420
around the Moon toward entry into

573
01:59:46,790 --> 01:59:44,820
distant retrograde orbit following this

574
01:59:49,370 --> 01:59:46,800
Orion will remain in the distant

575
01:59:51,950 --> 01:59:49,380
retrograde orbit for one long elliptical

576
02:00:00,850 --> 01:59:51,960
orbit around the Moon lasting about six

577
02:00:08,629 --> 02:00:05,990
at this time Orion is only 1 600 miles

578
02:00:11,750 --> 02:00:08,639
away from the Moon

579
02:00:13,850 --> 02:00:11,760
and you see this view on your screen as

580
02:00:17,169 --> 02:00:13,860
Orion continues to approach the back

581
02:00:21,169 --> 02:00:17,179
side of the moon now traveling at over 1

582
02:00:28,810 --> 02:00:24,229
and on the lower middle of your screen

583
02:00:33,410 --> 02:00:28,820
you do see that's us that's home

584
02:00:35,750 --> 02:00:33,420
232 000 miles away from Earth

585
02:00:39,649 --> 02:00:35,760
Orion launched from the Kennedy Space

586
02:00:42,410 --> 02:00:39,659
Center in Florida five days ago

587
02:00:55,070 --> 02:00:42,420
and we are now 25 minutes away from the

588
02:01:00,770 --> 02:00:58,189

today's burn will occur with the orbital

589
02:01:03,169 --> 02:01:00,780
maneuvering system or ohms engine which

590
02:01:05,450 --> 02:01:03,179
has been used several times already in

591
02:01:08,030 --> 02:01:05,460
Orion's flight

592
02:01:10,010 --> 02:01:08,040
the Ohm's engine is located on the

593
02:01:13,669 --> 02:01:10,020
bottom of the service module and is the

594
02:01:18,109 --> 02:01:16,310
it can provide 6 000 pounds of thrust

595
02:01:20,870 --> 02:01:18,119
and is equipped to help steer the

596
02:01:23,510 --> 02:01:20,880
spacecraft and can be used in some abort

597
02:01:26,149 --> 02:01:23,520
cases if necessary to safely return

598
02:01:28,370 --> 02:01:26,159
Orion to Earth

599
02:01:30,470 --> 02:01:28,380
now today's burn will last for two

600
02:01:36,530 --> 02:01:30,480
minutes and 30 seconds but the Ohm's

601
02:01:41,089 --> 02:01:39,530
the ohms engine is a repurposed space

602
02:01:43,189 --> 02:01:41,099
shuttle orbital maneuvering system

603
02:01:46,430 --> 02:01:43,199
engine that has flown in space several

604
02:01:48,669 --> 02:01:46,440
times before 19 times in fact beginning

605
02:01:52,850 --> 02:01:48,679
on Space Shuttle flight

606
02:02:14,050 --> 02:01:52,860
sts-41g in October of 1984 and ending

607
02:02:20,330 --> 02:02:17,149
now just about five minutes from now we

608
02:02:23,209 --> 02:02:20,340
do expect to lose signal from Orion as

609
02:02:25,850 --> 02:02:23,219
it travels behind the Moon that loss of

610
02:02:28,250 --> 02:02:25,860
signal will last for 34 minutes however

611
02:02:30,649 --> 02:02:28,260
once Orion emerges from the back side of

612
02:02:33,169 --> 02:02:30,659
the moon and regains Communications on

613
02:02:38,930 --> 02:02:33,179

the deep space Network we do expect to

614
02:02:45,169 --> 02:02:42,290
the burn will occur at 6 44 a.m Central

615
02:02:47,450 --> 02:02:45,179
while we are in that loss of signal

616
02:02:49,729 --> 02:02:47,460
and we'll also have the closest Approach

617
02:02:52,250 --> 02:02:49,739
at that time period when we are in the

618
02:02:55,729 --> 02:02:52,260
loss of signal as well that closest

619
02:02:58,370 --> 02:02:55,739
Approach at 6 57 a.m Central when Orion

620
02:03:40,609 --> 02:02:58,380
will be just 81 miles above the lunar

621
02:03:46,430 --> 02:03:43,609
again if you're just joining us you are

622
02:03:49,250 --> 02:03:46,440
looking at a view from the solar array

623
02:03:52,850 --> 02:03:49,260
Wing or saw camera on board the Orion

624
02:03:57,410 --> 02:03:52,860
spacecraft which is five days into its

625
02:03:59,530 --> 02:03:57,420
Mission just 1 400 miles away from the

626
02:04:01,850 --> 02:03:59,540
Moon

627
02:04:03,589 --> 02:04:01,860
we'll continue to see the moon grow

628
02:04:05,510 --> 02:04:03,599
larger in the frame here in the next

629
02:04:08,990 --> 02:04:05,520
couple of minutes before we do lose

630
02:04:10,669 --> 02:04:09,000
signal from Orion as it flies behind the

631
02:04:12,950 --> 02:04:10,679
Moon

632
02:04:15,470 --> 02:04:12,960
now you are seeing the Earth you are

633
02:04:20,089 --> 02:04:15,480
seeing home you are seeing yourself in

634
02:05:06,310 --> 02:04:20,099
that image right there as Orion is 232

635
02:05:12,290 --> 02:05:09,770
now less than four minutes away from our

636
02:05:15,649 --> 02:05:12,300
expected loss of signal as Orion travels

637
02:05:20,390 --> 02:05:18,050
while behind the moon Orion will perform

638
02:05:22,370 --> 02:05:20,400

the outbound powered flyby which the

639
02:05:23,390 --> 02:05:22,380
team here in Mission Control is ready

640
02:05:25,370 --> 02:05:23,400
for

641
02:05:28,490 --> 02:05:25,380
flight director Rick labrode pulled the

642
02:05:30,410 --> 02:05:28,500
team everyone is pulling go

643
02:05:32,750 --> 02:05:30,420
everything still on track for the

644
02:05:33,830 --> 02:05:32,760
outbound powered flyby burn now 20

645
02:05:36,290 --> 02:05:33,840
minutes

646
02:05:40,310 --> 02:05:38,270
this outbound powered flyby will send

647
02:05:42,290 --> 02:05:40,320
Orion close enough to the lunar surface

648
02:05:45,109 --> 02:05:42,300
to leverage the moon's gravitational

649
02:05:47,089 --> 02:05:45,119
force and swing the spacecraft once

650
02:05:50,149 --> 02:05:47,099
around the Moon toward entry into

651
02:05:51,830 --> 02:05:50,159
distant retrograde orbit following this

652
02:05:54,229 --> 02:05:51,840
Orion will remain in the distant

653
02:05:56,270 --> 02:05:54,239
retrograde orbit for one long elliptical

654
02:05:59,089 --> 02:05:56,280
around the Moon which will last about

655
02:06:01,490 --> 02:05:59,099
six days now this is different than what

656
02:06:04,430 --> 02:06:01,500
was done during the Apollo program when

657
02:06:06,589 --> 02:06:04,440
the spacecraft orbited much closer to

658
02:06:08,689 --> 02:06:06,599
the moon now this orbit is called

659
02:06:11,750 --> 02:06:08,699
distant due to the High Altitude from

660
02:06:13,729 --> 02:06:11,760
the moon it's about 40 000 miles past

661
02:06:16,790 --> 02:06:13,739
the moon in its orbit

662
02:06:18,470 --> 02:06:16,800
this is actually 30 000 miles farther

663
02:06:21,169 --> 02:06:18,480

than the previous record set during

664
02:06:23,330 --> 02:06:21,179
Apollo 13 and will be the farthest in

665
02:06:25,970 --> 02:06:23,340
space any spacecraft built for humans

666
02:06:28,910 --> 02:06:25,980
will have ever flown

667
02:06:30,830 --> 02:06:28,920
this orbit is called retrograde because

668
02:06:33,470 --> 02:06:30,840
Orion will travel around the Moon

669
02:06:36,290 --> 02:06:33,480
opposite the direction the moon travels

670
02:06:40,669 --> 02:06:38,629
distant retrograde orbit provides a

671
02:06:43,669 --> 02:06:40,679
highly stable orbit where little fuel is

672
02:06:46,550 --> 02:06:43,679
required to stay for an extended trip in

673
02:06:49,550 --> 02:06:46,560
deep space and allows the opportunity to

674
02:06:51,830 --> 02:06:49,560
put Orion's systems to the test in an

675
02:06:54,229 --> 02:06:51,840
environment far from Earth

676
02:06:56,510 --> 02:06:54,239
we are now less than two minutes away

677
02:07:38,450 --> 02:06:56,520
from our anticipated loss of signal as

678
02:07:43,189 --> 02:07:41,089
as we continue to get live views here

679
02:07:45,890 --> 02:07:43,199
for the next minute or so we will

680
02:07:48,589 --> 02:07:45,900
potentially see the Earth start to go

681
02:07:52,490 --> 02:07:48,599
just behind the moon as Orion travels

682
02:07:56,390 --> 02:07:54,589
we will not have Earth views of course

683
02:07:58,669 --> 02:07:56,400
because the moon will be blocking the

684
02:08:02,149 --> 02:07:58,679
Orion spacecraft however we do

685
02:08:04,550 --> 02:08:02,159
anticipate in acquisition of signal at 6

686
02:08:07,310 --> 02:08:04,560
59 a.m Central

687
02:08:08,930 --> 02:08:07,320
it's about a 34 Minute loss of signal at

688
02:08:37,330 --> 02:08:08,940

which point we hope to regain

689
02:08:43,910 --> 02:08:39,770
five seconds away from our anticipated

690
02:08:49,490 --> 02:08:46,910
and we do have loss of signal again this

691
02:09:06,970 --> 02:08:49,500
is a 33

692
02:09:12,229 --> 02:09:10,070
Orion is now behind the moon and we are

693
02:09:16,370 --> 02:09:12,239
in a period of anticipated loss of

694
02:09:21,350 --> 02:09:18,890
this is because the Moon is blocking the

695
02:09:22,910 --> 02:09:21,360
signal to the deep space Network we are

696
02:09:24,950 --> 02:09:22,920
looking ahead to the outbound powered

697
02:09:28,550 --> 02:09:24,960
flyby burn which will take place with

698
02:09:31,850 --> 02:09:28,560
the orbital maneuvering system in less

699
02:10:38,030 --> 02:09:31,860
than 17 minutes from now at 6 44 a.m

700
02:10:43,189 --> 02:10:40,310
if you're just joining us Orion

701
02:10:46,010 --> 02:10:43,199
continues to fly behind the moon we are

702
02:10:49,669 --> 02:10:46,020
now 31 minutes away from our anticipated

703
02:12:19,030 --> 02:10:52,070
and just 15 minutes away from today's

704
02:12:23,689 --> 02:12:22,250
so as we continue to make our way behind

705
02:12:25,010 --> 02:12:23,699
the moon we do have that anticipated

706
02:12:26,990 --> 02:12:25,020
loss of signal that we've been

707
02:12:28,729 --> 02:12:27,000
discussing but right now I do have a

708
02:12:31,550 --> 02:12:28,739
very special guest joining me we have

709
02:12:32,930 --> 02:12:31,560
NASA flight director Zeb Scoville who is

710
02:12:35,149 --> 02:12:32,940
going to chat with us a little bit about

711
02:12:37,189 --> 02:12:35,159
this moment what it means to him and

712
02:12:39,169 --> 02:12:37,199
what we can look forward to upcoming so

713
02:12:40,790 --> 02:12:39,179

Zeb I can't imagine how special this

714
02:12:42,589 --> 02:12:40,800
moment must feel tell me a little bit

715
02:12:45,589 --> 02:12:42,599
about what this is like

716
02:12:46,850 --> 02:12:45,599
this is one of those days that you've

717
02:12:50,330 --> 02:12:46,860
been thinking about and dreaming about

718
02:12:53,149 --> 02:12:50,340
for a long long time I remember when I

719
02:12:55,010 --> 02:12:53,159
was a kid just dreaming about being an

720
02:12:57,169 --> 02:12:55,020
astronaut and going to work at Nasa and

721
02:12:58,490 --> 02:12:57,179
when I got here we were flying shuttle

722
02:13:00,050 --> 02:12:58,500
and we were building a space station and

723
02:13:02,030 --> 02:13:00,060
flying it and you know that is an

724
02:13:03,890 --> 02:13:02,040
incredible vehicle but on the horizon

725
02:13:05,510 --> 02:13:03,900
was always

726
02:13:07,609 --> 02:13:05,520
how Humanity was going to get back to

727
02:13:10,669 --> 02:13:07,619
the moon and this morning we just saw

728
02:13:14,209 --> 02:13:10,679
the Earth set behind the moon as we take

729
02:13:15,350 --> 02:13:14,219
the next human rated vehicle around the

730
02:13:17,390 --> 02:13:15,360
Moon

731
02:13:19,669 --> 02:13:17,400
preparing to bring humans back there

732
02:13:21,830 --> 02:13:19,679
within a few years this is this is game

733
02:13:23,930 --> 02:13:21,840
changer

734
02:13:27,050 --> 02:13:23,940
and so we are

735
02:13:31,010 --> 02:13:29,209
antly OPF burn can you talk to us a

736
02:13:32,689 --> 02:13:31,020
little bit about what that burn is the

737
02:13:36,109 --> 02:13:32,699
purpose of it and why it's important

738
02:13:38,990 --> 02:13:36,119

yeah the outbound powered flyby is the

739
02:13:43,790 --> 02:13:42,229
adjust the trajectory of Orion so as

740
02:13:45,589 --> 02:13:43,800
we've been flying towards it from Earth

741
02:13:47,149 --> 02:13:45,599
we're going to loop around behind it use

742
02:13:49,250 --> 02:13:47,159
the gravity to sort of give us a boost

743
02:13:51,229 --> 02:13:49,260
and then this burn will put us into a

744
02:13:53,089 --> 02:13:51,239
trajectory that brings us out to what's

745
02:13:55,550 --> 02:13:53,099
called a distant retrograde orbit so

746
02:13:58,550 --> 02:13:55,560
this is about a 50 000 mile orbit above

747
02:14:00,229 --> 02:13:58,560
the surface of the Moon where we can get

748
02:14:01,910 --> 02:14:00,239
set up in a stable War but Russia going

749
02:14:05,209 --> 02:14:01,920
to spend several days in that orbit

750
02:14:08,149 --> 02:14:05,219
before we come back around the Moon once

751
02:14:11,089 --> 02:14:08,159
again and do another burn on the return

752
02:14:12,830 --> 02:14:11,099
end to bring us back towards Earth

753
02:14:14,569 --> 02:14:12,840
great well we're really looking forward

754
02:14:17,030 --> 02:14:14,579
to that burn it's now just about 12

755
02:14:19,609 --> 02:14:17,040
minutes away everything's still uh go

756
02:14:21,950 --> 02:14:19,619
for that burn which is great news now I

757
02:14:23,689 --> 02:14:21,960
think the question on everyone's mind is

758
02:14:25,669 --> 02:14:23,699
the next time we do this we're gonna

759
02:14:27,290 --> 02:14:25,679
have crew on board so how is that going

760
02:14:28,609 --> 02:14:27,300
to be different or is it going to be

761
02:14:30,709 --> 02:14:28,619
different

762
02:14:32,510 --> 02:14:30,719
yeah I mean the crew really puts human

763
02:14:33,649 --> 02:14:32,520

in in the human space flight right and

764
02:14:37,609 --> 02:14:33,659
that's the whole reason why we're doing

765
02:14:38,930 --> 02:14:37,619
this is to get uh get Humanity back on

766
02:14:41,089 --> 02:14:38,940
the surface of moon there's just an

767
02:14:43,370 --> 02:14:41,099
incredible amount that we have to learn

768
02:14:45,229 --> 02:14:43,380
this is not like

769
02:14:46,790 --> 02:14:45,239
um uh Apollo this is not a repeat of

770
02:14:48,169 --> 02:14:46,800
Apollo what we're going to do in the

771
02:14:49,609 --> 02:14:48,179
architectures we're going to be setting

772
02:14:53,030 --> 02:14:49,619
up the locations we're going to go to

773
02:14:54,410 --> 02:14:53,040
are going to really unlock a lot of the

774
02:14:56,569 --> 02:14:54,420
the capabilities of the Moon the

775
02:14:59,450 --> 02:14:56,579
research on the moon ability to go

776
02:15:01,550 --> 02:14:59,460
explore beyond the moon and and the

777
02:15:05,030 --> 02:15:01,560
solar system onto Mars there's areas of

778
02:15:07,310 --> 02:15:05,040
the South Pole that will have

779
02:15:10,129 --> 02:15:07,320
um volatile resources locked ice from

780
02:15:11,870 --> 02:15:10,139
4.6 billion years ago last time I

781
02:15:13,550 --> 02:15:11,880
checked the recipe for ice was hydrogen

782
02:15:15,350 --> 02:15:13,560
and oxygen which by the way is also

783
02:15:18,350 --> 02:15:15,360
Rocket Fuel and you can breathe it and

784
02:15:20,390 --> 02:15:18,360
you can drink it and it really enables

785
02:15:22,370 --> 02:15:20,400
sort of a long-term architecture on the

786
02:15:24,470 --> 02:15:22,380
moon and so this is the first step when

787
02:15:28,069 --> 02:15:24,480
we come back with crew on on Artemis 2

788
02:15:30,410 --> 02:15:28,079

they're going to be doing a a real crew

789
02:15:31,910 --> 02:15:30,420
test Rundown out of the vehicle testing

790
02:15:33,530 --> 02:15:31,920
all the life support systems and making

791
02:15:35,510 --> 02:15:33,540
sure they function with the human in the

792
02:15:37,669 --> 02:15:35,520
loop elements of it and so that mission

793
02:15:38,990 --> 02:15:37,679
will bring it and and do a short flyby

794
02:15:40,550 --> 02:15:39,000
of the Moon before it comes back and

795
02:15:41,629 --> 02:15:40,560
then Artemis 3 will get us onto the

796
02:15:43,669 --> 02:15:41,639
surface

797
02:15:46,609 --> 02:15:43,679
and we are really looking forward to

798
02:15:48,109 --> 02:15:46,619
that but first today's OPF burn so I

799
02:15:50,149 --> 02:15:48,119
really appreciate you taking some time

800
02:15:52,370 --> 02:15:50,159
to chat with me about this I know you're

801
02:15:54,770 --> 02:15:52,380
very busy so I'll let you get back to

802
02:15:57,050 --> 02:15:54,780
your console position but really thank

803
02:15:58,430 --> 02:15:57,060
you so much Seb we really appreciate it

804
02:16:59,990 --> 02:15:58,440
you're very welcome thank you it's a

805
02:17:08,209 --> 02:17:02,509
we're now less than 10 minutes away from

806
02:17:12,889 --> 02:17:10,669
as you see in this graphic on your

807
02:17:15,770 --> 02:17:12,899
screen that is driven by real-time

808
02:17:17,330 --> 02:17:15,780
Telemetry we are about 830 miles away

809
02:17:19,490 --> 02:17:17,340
from the Moon

810
02:17:21,589 --> 02:17:19,500
now we do not have

811
02:17:24,169 --> 02:17:21,599
signal with Orion right now because the

812
02:17:25,730 --> 02:17:24,179
Moon is blocking its ability to

813
02:17:28,009 --> 02:17:25,740

communicate with the deep space Network

814
02:17:30,230 --> 02:17:28,019
however we do anticipate regaining the

815
02:17:35,750 --> 02:17:30,240
communication with Orion in about 25

816
02:17:40,790 --> 02:17:38,629
but before then will be the moment we've

817
02:17:44,030 --> 02:17:40,800
all been waiting for the OPF burn which

818
02:19:21,009 --> 02:17:44,040
is slated to occur at 6 44 a.m Central

819
02:19:26,629 --> 02:19:24,349
we're now 23 minutes away from our

820
02:19:29,570 --> 02:19:26,639
anticipated acquisition of signal with

821
02:19:33,290 --> 02:19:29,580
Orion again the vehicle continues to fly

822
02:19:35,629 --> 02:19:33,300
behind the Moon it is now 764 miles

823
02:19:38,030 --> 02:19:35,639
above the lunar surface but at the time

824
02:19:40,490 --> 02:19:38,040
of closest approach will be 81 miles

825
02:19:42,889 --> 02:19:40,500
above the surface now we do have the

826
02:19:43,730 --> 02:19:42,899
outbound powered flyby burn coming up in

827
02:19:46,849 --> 02:19:43,740
about

828
02:19:48,530 --> 02:19:46,859
6 minutes and 40 seconds from now but

829
02:19:52,130 --> 02:19:48,540
this maneuver was first done during

830
02:19:54,889 --> 02:19:52,140
Apollo 8 on Christmas Eve 54 years ago

831
02:19:56,870 --> 02:19:54,899
Apollo 8 was the first crude spacecraft

832
02:19:59,570 --> 02:19:56,880
to leave low earth orbit in the first

833
02:20:02,030 --> 02:19:59,580
human space flight to reach the moon the

834
02:20:04,490 --> 02:20:02,040
crew of Frank Borman James Lovell and

835
02:20:07,190 --> 02:20:04,500
Bill Anders orbited the moon 10 times

836
02:20:10,070 --> 02:20:07,200
without Landing before splashing down on

837
02:20:12,830 --> 02:20:10,080
December 27 1968.

838
02:20:15,050 --> 02:20:12,840

while Apollo 8 completed 10 orbits

839
02:20:18,110 --> 02:20:15,060
around the Moon about 60 miles above the

840
02:20:20,270 --> 02:20:18,120
surface once Orion emerges from The Far

841
02:20:23,389 --> 02:20:20,280
Side of the Moon it will slingshot out

842
02:20:25,790 --> 02:20:23,399
to distant retrograde orbit about 30 000

843
02:20:27,950 --> 02:20:25,800
miles away from the earth this orbit is

844
02:20:30,770 --> 02:20:27,960
critical for key tests and to evaluate

845
02:20:32,389 --> 02:20:30,780
how Orion performs in deep space and

846
02:20:34,610 --> 02:20:32,399
this will be the furthest any human

847
02:20:37,370 --> 02:20:34,620
rated spacecraft will have ever traveled

848
02:20:39,770 --> 02:20:37,380
away from Earth but for now let's take a

849
02:20:42,230 --> 02:20:39,780
quick look back on that historic Apollo

850
02:20:44,690 --> 02:20:42,240
8 mission now

851
02:20:46,910 --> 02:20:44,700
well Apollo 8 originally was an earth

852
02:20:49,250 --> 02:20:46,920
orbital mission that exercising a lunar

853
02:20:51,770 --> 02:20:49,260
module but the lunar module was way

854
02:20:54,110 --> 02:20:51,780
behind the people in NASA came up with

855
02:20:56,630 --> 02:20:54,120
the idea of moving Apollo 8 with lunar

856
02:20:59,929 --> 02:20:56,640
orbital Mission why don't we send the

857
02:21:02,450 --> 02:20:59,939
command service module of Apollo 8 to

858
02:21:04,849 --> 02:21:02,460
orbit the Moon and we could learn a lot

859
02:21:08,210 --> 02:21:04,859
about the communication system the

860
02:21:10,610 --> 02:21:08,220
navigation system how the moon's gravity

861
02:21:13,969 --> 02:21:10,620
would affect the orbiting spacecraft

862
02:21:16,610 --> 02:21:13,979
looked for a suitable Landing spots well

863
02:21:18,770 --> 02:21:16,620

I got into the big Saturn V this would

864
02:21:22,010 --> 02:21:18,780
be the first time that man had actually

865
02:21:23,870 --> 02:21:22,020
launched on Saturn V that I thought to

866
02:21:25,490 --> 02:21:23,880
myself after this four months of heavy

867
02:21:27,840 --> 02:21:25,500
training I guess thank you

868
02:21:34,370 --> 02:21:27,850
I'm actually gonna go to the Moon

869
02:21:38,510 --> 02:21:36,410
we had orbited the Earth first of all to

870
02:21:39,889 --> 02:21:38,520
check our spacecraft out then when

871
02:21:41,990 --> 02:21:39,899
everything was line and the spacecraft

872
02:21:43,490 --> 02:21:42,000
would climbed to go to the Moon we live

873
02:21:46,670 --> 02:21:43,500
in third stage for a second time

874
02:21:49,790 --> 02:21:46,680
trajectory and guidance we can actually

875
02:21:51,469 --> 02:21:49,800
Coast all the way to the Moon

876
02:21:53,030 --> 02:21:51,479
and after a while you could look back

877
02:21:54,290 --> 02:21:53,040
and see the Earth getting smaller and

878
02:21:56,210 --> 02:21:54,300
smaller

879
02:21:57,650 --> 02:21:56,220
people on Earth tend to follow The Far

880
02:22:00,710 --> 02:21:57,660
Side of the Moon the dark side but

881
02:22:02,990 --> 02:22:00,720
that's a misnomer on our flight the moon

882
02:22:06,230 --> 02:22:03,000
was between the Earth and the Sun The

883
02:22:08,150 --> 02:22:06,240
Far Side was lit by the sun we saw The

884
02:22:09,770 --> 02:22:08,160
Far Side you know we're like three

885
02:22:12,309 --> 02:22:09,780
school kids looking to do a candy store

886
02:22:15,770 --> 02:22:12,319
window I guess just staring at the

887
02:22:19,250 --> 02:22:15,780
unnamed craters as they slowly passed us

888
02:22:22,750 --> 02:22:19,260

by uh we were busy shooting pictures of

889
02:22:26,510 --> 02:22:22,760
lunar surface for an older Landing sites

890
02:22:28,250 --> 02:22:26,520
for upcoming lunar Landings and then

891
02:22:33,050 --> 02:22:28,260
suddenly I looked out the window and

892
02:22:35,809 --> 02:22:33,060
here was this gorgeous orb coming up and

893
02:22:37,910 --> 02:22:35,819
I thought holy moly

894
02:22:38,990 --> 02:22:37,920
and they're over the lunar landscape was

895
02:22:42,349 --> 02:22:39,000
the Earth

896
02:22:43,130 --> 02:22:42,359
thing in the whole universe that had any

897
02:22:46,790 --> 02:22:43,140
color

898
02:22:49,309 --> 02:22:46,800
I had fought to have a long lens in

899
02:22:53,230 --> 02:22:49,319
Color Film I didn't have a light meter

900
02:22:56,990 --> 02:22:53,240
just banged off a dozen or so pictures

901
02:22:59,929 --> 02:22:57,000
changing the f-stop each click I put my

902
02:23:02,950 --> 02:22:59,939
thumb up to the window of the spacecraft

903
02:23:06,349 --> 02:23:02,960
and I could completely hide the Earth

904
02:23:07,730 --> 02:23:06,359
behind my thumb the Earth is a mere

905
02:23:10,170 --> 02:23:07,740
Speck

906
02:23:17,150 --> 02:23:10,180
in the Milky Way galaxy

907
02:23:22,490 --> 02:23:19,130
a Merry Christmas

908
02:23:23,820 --> 02:23:22,500
God bless all of you all of you on The

909
02:23:28,090 --> 02:23:23,830
Good Earth

910
02:23:31,010 --> 02:23:28,100
[Music]

911
02:23:33,410 --> 02:23:31,020
if you're just joining us Orion is

912
02:23:35,809 --> 02:23:33,420
currently behind the moon and we are in

913
02:23:38,210 --> 02:23:35,819

a period of anticipated loss of signal

914
02:23:40,130 --> 02:23:38,220
as the moon blocks the signal of the

915
02:23:42,650 --> 02:23:40,140
deep space Network

916
02:23:44,570 --> 02:23:42,660
we are looking ahead to the outbound

917
02:23:46,130 --> 02:23:44,580
powered flyby burn which will take place

918
02:23:49,429 --> 02:23:46,140
with the orbital maneuvering system

919
02:23:52,190 --> 02:23:49,439
about two minutes from now at 6 44 a.m

920
02:23:59,750 --> 02:23:55,969
at this time Orion is about 670 miles

921
02:24:04,670 --> 02:24:01,849
during its time of closest approach

922
02:24:40,730 --> 02:24:04,680
Orion will be about 81 miles above the

923
02:24:47,450 --> 02:24:43,670
we're now 1 minute and 45 seconds away

924
02:24:49,910 --> 02:24:47,460
from today's outbound powered flyby burn

925
02:24:50,910 --> 02:24:49,920
this burn will last for two minutes and

926
02:24:59,929 --> 02:24:50,920
30 seconds

927
02:25:04,429 --> 02:25:02,450
this burn will occur with Orion's

928
02:25:06,530 --> 02:25:04,439
orbital maneuvering system or Ohm's

929
02:25:09,410 --> 02:25:06,540
engine which was successfully checked

930
02:25:11,690 --> 02:25:09,420
out on Tuesday following the liftoff of

931
02:25:16,550 --> 02:25:11,700
Orion aboard the space launch system

932
02:25:23,570 --> 02:25:19,550
the ohms engine performing spectacularly

933
02:25:28,670 --> 02:25:26,690
while this is the first flight for the

934
02:25:31,370 --> 02:25:28,680
ohms engine as a part of the Artemis

935
02:25:34,309 --> 02:25:31,380
program it actually flew on 19 space

936
02:25:38,330 --> 02:25:34,319
shuttle flights beginning with sts-41g

937
02:25:43,670 --> 02:25:38,340
in October 1984 and ending with sts-112

938
02:25:49,490 --> 02:25:46,550

we're now just 40 seconds away from the

939
02:25:52,070 --> 02:25:49,500
ohms engine getting to flex its firing

940
02:25:58,330 --> 02:25:52,080
capabilities on the back side of the

941
02:25:58,340 --> 02:26:09,950
less than 30 seconds until today's burn

942
02:26:09,960 --> 02:26:28,190
15 seconds until the burn begins

943
02:26:34,070 --> 02:26:31,190
and we anticipate the outbound powered

944
02:26:36,830 --> 02:26:34,080
flyby burn to have begun

945
02:26:38,330 --> 02:26:36,840
again because we are behind the back

946
02:26:40,670 --> 02:26:38,340
side of the moon we do not have

947
02:26:43,490 --> 02:26:40,680
communications with the Orion spacecraft

948
02:26:46,370 --> 02:26:43,500
just yet but we do anticipate acquiring

949
02:26:47,809 --> 02:26:46,380
that signal in 15 minutes and 50 seconds

950
02:26:49,730 --> 02:26:47,819
from now

951
02:26:52,969 --> 02:26:49,740
at that time we should be able to

952
02:26:54,889 --> 02:26:52,979
evaluate performance of the OPF burn and

953
02:26:56,630 --> 02:26:54,899
have some more information about how the

954
02:26:58,610 --> 02:26:56,640
burn went

955
02:27:00,650 --> 02:26:58,620
30 seconds into the burn two minutes

956
02:27:23,889 --> 02:27:00,660
remaining in today's outbound powered

957
02:27:39,889 --> 02:27:26,510
one minute into the outbound powered

958
02:27:44,389 --> 02:27:42,230
this outbound powered flyby will send

959
02:27:46,790 --> 02:27:44,399
Orion close enough to the lunar surface

960
02:27:49,550 --> 02:27:46,800
to leverage the moon's gravitational

961
02:27:52,309 --> 02:27:49,560
force and swing the spacecraft once

962
02:27:55,250 --> 02:27:52,319
around the Moon toward entry into that

963
02:27:57,710 --> 02:27:55,260

distant retrograde orbit

964
02:27:59,929 --> 02:27:57,720
Orion will remain in the distant

965
02:28:02,450 --> 02:27:59,939
retrograde orbit for one long elliptical

966
02:28:05,990 --> 02:28:02,460
orbit around the Moon lasting about six

967
02:28:10,670 --> 02:28:08,870
this orbit is called distant due to the

968
02:28:13,309 --> 02:28:10,680
High Altitude from the moon it's about

969
02:28:16,130 --> 02:28:13,319
40 000 miles past the moon in its orbit

970
02:28:17,750 --> 02:28:16,140
which is actually 30 000 miles farther

971
02:28:20,330 --> 02:28:17,760
than the previous record set during

972
02:28:22,309 --> 02:28:20,340
Apollo 13 and will be the farthest in

973
02:28:24,950 --> 02:28:22,319
space any spacecraft built for humans

974
02:28:28,670 --> 02:28:24,960
will have ever flown

975
02:28:30,830 --> 02:28:28,680
30 seconds remaining in today's burn

976
02:28:33,650 --> 02:28:30,840
now once in this distant retrograde

977
02:28:35,929 --> 02:28:33,660
orbit the orbit will is called distant

978
02:28:37,849 --> 02:28:35,939
is called retrograde because Orion will

979
02:28:40,969 --> 02:28:37,859
travel around the Moon opposite the

980
02:28:43,309 --> 02:28:40,979
direction the moon travels around Earth

981
02:28:45,710 --> 02:28:43,319
distant retrograde orbit provides a

982
02:28:47,870 --> 02:28:45,720
highly stable orbit where little fuel is

983
02:28:50,030 --> 02:28:47,880
required to stay for an extended trip in

984
02:28:51,950 --> 02:28:50,040
deep space in order to put Orion's

985
02:28:56,469 --> 02:28:51,960
systems to the test in an environment

986
02:29:14,030 --> 02:28:59,450
and the outbound powered flyby burn

987
02:29:20,630 --> 02:29:17,150
and we are less than 14 minutes away

988
02:29:31,150 --> 02:29:20,640

from our anticipated acquisition of our

989
02:29:35,929 --> 02:29:33,770
the next Milestone will look ahead

990
02:29:38,330 --> 02:29:35,939
towards in our coverage today is when

991
02:29:41,150 --> 02:29:38,340
Orion will complete its closest approach

992
02:29:44,690 --> 02:29:41,160
to the lunar surface in 10 minutes from

993
02:29:46,429 --> 02:29:44,700
now Orion will be flying 81 miles above

994
02:29:49,070 --> 02:29:46,439
the lunar surface

995
02:29:53,809 --> 02:29:49,080
that closest approach occurring at 6 57

996
02:29:56,450 --> 02:29:53,819
a.m Central 7 57 a.m Eastern

997
02:29:58,490 --> 02:29:56,460
then just two minutes from the time of

998
02:30:38,690 --> 02:29:58,500
closest approach we do anticipate our

999
02:30:44,690 --> 02:30:41,929
if you are just joining us the Orion

1000
02:30:46,490 --> 02:30:44,700
spacecraft is currently flying behind

1001
02:30:49,849 --> 02:30:46,500
the Moon

1002
02:30:52,370 --> 02:30:49,859
we are in a period of loss of signal

1003
02:30:54,770 --> 02:30:52,380
due to the fact that the Moon is

1004
02:30:57,349 --> 02:30:54,780
blocking Orion's ability to communicate

1005
02:30:59,690 --> 02:30:57,359
with the deep space network but we do

1006
02:31:02,389 --> 02:30:59,700
anticipate gaining signal on the deep

1007
02:31:06,110 --> 02:31:02,399
space Network in 11 minutes and 30

1008
02:31:12,349 --> 02:31:10,370
at 6 44 a.m Central Time Orion's

1009
02:31:18,010 --> 02:31:12,359
orbital maneuvering system engine

1010
02:31:23,330 --> 02:31:20,929
this burn is called the outbound powered

1011
02:31:25,070 --> 02:31:23,340
flyby burn now again because we are

1012
02:31:28,490 --> 02:31:25,080
behind the moon we will not be able to

1013
02:31:30,950 --> 02:31:28,500

have data from the Orion spacecraft to

1014
02:31:32,990 --> 02:31:30,960
evaluate how the burn performance was

1015
02:31:35,630 --> 02:31:33,000
but we do expect to learn a little bit

1016
02:31:36,650 --> 02:31:35,640
more about that once we come back behind

1017
02:32:20,590 --> 02:31:36,660
the Moon

1018
02:32:27,349 --> 02:32:23,150
on this graphic you see on your screen

1019
02:32:31,010 --> 02:32:27,359
that is of course the Orion spacecraft

1020
02:32:33,590 --> 02:32:31,020
and the large engine that you see in the

1021
02:32:35,750 --> 02:32:33,600
middle of the spacecraft there is the

1022
02:32:39,110 --> 02:32:35,760
orbital maneuvering system that was the

1023
02:32:41,330 --> 02:32:39,120
engine that just performed the burn

1024
02:32:47,090 --> 02:32:41,340
we anticipate that burn to have lasted

1025
02:32:52,130 --> 02:32:49,790
the ohms engine or orbital maneuvering

1026
02:32:54,530 --> 02:32:52,140
system engine provides six thousand

1027
02:32:56,929 --> 02:32:54,540
pounds of thrust and can steer the

1028
02:33:02,389 --> 02:32:56,939
spacecraft and can be used in some abort

1029
02:33:08,030 --> 02:33:05,330
and in this animation you're also seeing

1030
02:33:09,530 --> 02:33:08,040
some of the auxiliary engines on board

1031
02:33:11,570 --> 02:33:09,540
Orion

1032
02:33:13,610 --> 02:33:11,580
these are all also located on the bottom

1033
02:33:16,030 --> 02:33:13,620
of the service module in four sets of

1034
02:33:33,530 --> 02:33:18,950
each of these engines provides about 100

1035
02:33:38,090 --> 02:33:36,230
there are also 24 smaller engines

1036
02:33:40,969 --> 02:33:38,100
grouped into six pods which provide

1037
02:33:43,250 --> 02:33:40,979
attitude control for Orion

1038
02:33:44,750 --> 02:33:43,260

they can be fired individually as needed

1039
02:33:46,790 --> 02:33:44,760
to move the spacecraft in different

1040
02:33:49,429 --> 02:33:46,800
directions and rotate it into different

1041
02:33:52,250 --> 02:33:49,439
positions so in total the service module

1042
02:33:55,190 --> 02:33:52,260
has 33 engines

1043
02:33:56,030 --> 02:33:55,200
but today's burn again we anticipate to

1044
02:33:59,510 --> 02:33:56,040
have

1045
02:34:04,010 --> 02:34:01,730
we anticipate the burn to occurred with

1046
02:34:25,450 --> 02:34:04,020
the orbital maneuvering system or ohms

1047
02:34:31,130 --> 02:34:28,429
we are now five minutes away from

1048
02:35:27,830 --> 02:34:31,140
Orion's closest approach to the lunar

1049
02:35:32,750 --> 02:35:31,309
as Orion continues to travel behind the

1050
02:35:35,450 --> 02:35:32,760
moon we are still in a period of

1051
02:35:37,610 --> 02:35:35,460
anticipated loss of signal as the moon

1052
02:35:39,830 --> 02:35:37,620
blocks the signal to the a deep space

1053
02:35:42,650 --> 02:35:39,840
Network

1054
02:35:44,990 --> 02:35:42,660
we are anticipating the acquisition of

1055
02:35:53,650 --> 02:35:45,000
signal in less than seven minutes from

1056
02:36:00,410 --> 02:35:57,889
at 6 44 a.m Central just about 9 minutes

1057
02:36:02,990 --> 02:36:00,420
and 30 seconds ago commands were sent

1058
02:36:05,809 --> 02:36:03,000
for the outbound powered flyby burn tour

1059
02:36:07,730 --> 02:36:05,819
occur with the orbital maneuvering

1060
02:36:10,429 --> 02:36:07,740
system engine or ohms engine onboard

1061
02:36:12,650 --> 02:36:10,439
Orion which sends Orion close enough to

1062
02:36:14,870 --> 02:36:12,660
the lunar surface to leverage the moon's

1063
02:36:17,330 --> 02:36:14,880

gravitational force and swing the

1064
02:36:20,889 --> 02:36:17,340
spacecraft once around the Moon toward

1065
02:36:23,630 --> 02:36:20,899
entry into distant retrograde orbit

1066
02:36:25,790 --> 02:36:23,640
following this Orion will remain in the

1067
02:36:28,070 --> 02:36:25,800
distant retrograde orbit for one half

1068
02:36:34,090 --> 02:36:28,080
elliptical orbit around the Moon which

1069
02:36:38,809 --> 02:36:36,710
the orbit is called distant due to the

1070
02:36:41,270 --> 02:36:38,819
High Altitude from the Moon which is

1071
02:36:43,849 --> 02:36:41,280
about 40 000 miles past the moon in its

1072
02:36:47,510 --> 02:36:45,469
this will be thirty thousand miles

1073
02:36:50,030 --> 02:36:47,520
farther than the previous record set

1074
02:36:52,190 --> 02:36:50,040
during Apollo 13 and will also be the

1075
02:36:55,610 --> 02:36:52,200
farthest in space any spacecraft built

1076
02:36:59,630 --> 02:36:58,070
the orbit is called retrograde because

1077
02:37:01,490 --> 02:36:59,640
Orion will travel around the Moon

1078
02:37:05,210 --> 02:37:01,500
opposite the direction the moon travels

1079
02:37:09,290 --> 02:37:07,370
distant retrograde orbit provides a

1080
02:37:12,050 --> 02:37:09,300
highly stable orbit where little fuel is

1081
02:37:14,510 --> 02:37:12,060
required to stay for an extended trip in

1082
02:37:16,610 --> 02:37:14,520
deep space in order to put Orion's

1083
02:37:19,849 --> 02:37:16,620
systems to the test in an environment

1084
02:37:24,170 --> 02:37:21,650
now this orbit is different than the

1085
02:37:26,150 --> 02:37:24,180
orbit done during the Apollo program in

1086
02:37:28,190 --> 02:37:26,160
which the spacecraft and its crew

1087
02:37:37,250 --> 02:37:28,200
orbited much closer to the lunar surface

1088
02:37:42,110 --> 02:37:39,950

distant retrograde orbit is important

1089
02:37:44,090 --> 02:37:42,120
because it helps us to learn about how a

1090
02:37:47,270 --> 02:37:44,100
spacecraft functions in a deep space

1091
02:37:51,530 --> 02:37:49,730
as part of the Artemis program The

1092
02:37:53,809 --> 02:37:51,540
Gateway program is building a small

1093
02:37:55,790 --> 02:37:53,819
human-tended space station which will

1094
02:37:58,190 --> 02:37:55,800
orbit the Moon and provide extensive

1095
02:38:03,010 --> 02:37:58,200
capabilities to support NASA's Artemis

1096
02:38:07,550 --> 02:38:05,330
gateway's capabilities for supporting

1097
02:38:09,830 --> 02:38:07,560
sustained exploration and research in

1098
02:38:12,349 --> 02:38:09,840
deep space include docking ports for a

1099
02:38:14,450 --> 02:38:12,359
variety of visiting spacecraft space for

1100
02:38:16,370 --> 02:38:14,460
crew to live and work and onboard

1101
02:38:18,889 --> 02:38:16,380
science investigations to study

1102
02:38:27,670 --> 02:38:18,899
heliophysics human health and Life

1103
02:39:19,030 --> 02:38:30,889
we are expecting the acquisition of

1104
02:39:24,469 --> 02:39:22,130
at this time we do expect Orion to be

1105
02:39:27,110 --> 02:39:24,479
completing its closest approach to the

1106
02:39:29,450 --> 02:39:27,120
lunar surface Orion should be just about

1107
02:39:48,370 --> 02:39:29,460
81 miles above the surface of our

1108
02:39:53,389 --> 02:39:51,110
at this time of closest approach Orion

1109
02:39:56,809 --> 02:39:53,399
flying at a lunar latitude of 6.5

1110
02:39:59,270 --> 02:39:56,819
degrees and a lunar longitude of 120

1111
02:40:29,030 --> 02:39:59,280
degrees Orion is fairly close to the

1112
02:41:09,370 --> 02:40:31,429
now just two minutes away from our

1113
02:41:16,550 --> 02:41:12,349

one minute and 30 seconds until the

1114
02:41:20,030 --> 02:41:16,560
anticipated acquisition of signal

1115
02:41:22,429 --> 02:41:20,040
again Orion is currently flying behind

1116
02:41:25,309 --> 02:41:22,439
the back side of the moon having

1117
02:41:28,190 --> 02:41:25,319
completed its closest Approach at 6 57

1118
02:42:11,389 --> 02:41:28,200
a.m Central just 81 miles above the

1119
02:42:16,969 --> 02:42:14,450
less than 30 minutes 30 seconds rather

1120
02:42:21,349 --> 02:42:16,979
until our anticipated acquisition of

1121
02:42:26,389 --> 02:42:23,570
the mood's certainly a bit suspenseful

1122
02:42:28,309 --> 02:42:26,399
here in mission control as we await to

1123
02:42:58,150 --> 02:42:28,319
Orion to emerge from the back side of

1124
02:43:44,950 --> 02:43:00,830
we're standing by for acquisition of

1125
02:43:50,990 --> 02:43:48,530
and we do have confirmation of an

1126
02:44:02,950 --> 02:43:51,000
acquisition acquisition of signal on the

1127
02:44:10,250 --> 02:44:06,770
this view on your screen of planet Earth

1128
02:44:18,849 --> 02:44:10,260
taken from Orion's solar array Wing

1129
02:44:24,230 --> 02:44:21,590
standing on the shoulders of the Giants

1130
02:44:26,870 --> 02:44:24,240
of the Apollo generation Orion now

1131
02:44:29,510 --> 02:44:26,880
carries forward the torch of the Artemis

1132
02:44:32,929 --> 02:44:29,520
generation as it emerges from behind the

1133
02:44:36,170 --> 02:44:32,939
moon and earthrise of our pale blue dot

1134
02:44:57,849 --> 02:44:36,180
and it's 8 billion human inhabitants now

1135
02:45:02,990 --> 02:45:00,830
with this successful acquisition of

1136
02:45:04,610 --> 02:45:03,000
signal from the Orion spacecraft the

1137
02:45:08,950 --> 02:45:04,620
team here in Mission Control Houston

1138
02:45:11,690 --> 02:45:08,960

will evaluate the spacecraft systems to

1139
02:45:14,270 --> 02:45:11,700
evaluate performance of the outbound

1140
02:47:34,570 --> 02:45:14,280
power to fly by burn which occurred 18

1141
02:47:40,429 --> 02:47:37,429
and you're looking at this view on your

1142
02:47:42,469 --> 02:47:40,439
screen from the Orion spacecraft as it

1143
02:47:45,770 --> 02:47:42,479
looks back at Planet Earth having

1144
02:47:47,990 --> 02:47:45,780
launched just five days ago Orion is now

1145
02:47:51,950 --> 02:47:48,000
over 230

1146
02:48:00,290 --> 02:47:56,990
Orion emerged from the back side of the

1147
02:48:03,230 --> 02:48:00,300
moon just minutes ago after completing

1148
02:48:15,050 --> 02:48:03,240
the outbound powered flyby burn

1149
02:48:20,330 --> 02:48:18,050
while behind the moon Orion completed

1150
02:49:16,250 --> 02:48:20,340
its closest approach to the moon at a

1151
02:49:21,170 --> 02:49:18,530
and you're looking at a live view inside

1152
02:49:24,170 --> 02:49:21,180
the Orion spacecraft this is of course

1153
02:49:26,210 --> 02:49:24,180
an uncrewed test flight but we do have a

1154
02:49:29,030 --> 02:49:26,220
couple of purposeful passengers that

1155
02:49:31,010 --> 02:49:29,040
have hopped a ride on board Orion you're

1156
02:49:32,929 --> 02:49:31,020
looking at one there on the left of your

1157
02:49:36,349 --> 02:49:32,939
screen

1158
02:49:39,349 --> 02:49:36,359
that is a moon Akin wearing the Orion

1159
02:49:41,570 --> 02:49:39,359
crew survival suit

1160
02:49:44,210 --> 02:49:41,580
this is the space this is the space suit

1161
02:49:46,790 --> 02:49:44,220
that crew will wear during Dynamic

1162
02:49:49,309 --> 02:49:46,800
phases of flight once we do have a crew

1163
02:50:15,349 --> 02:49:51,710

particularly during launch and entry

1164
02:50:20,929 --> 02:50:18,590
the ox or Orion crew survival suit can

1165
02:50:22,849 --> 02:50:20,939
help keep astronauts alive if Ryan were

1166
02:50:25,870 --> 02:50:22,859
to lose cabin pressure during the

1167
02:50:35,270 --> 02:50:31,490
Orion is the ox rather is equipped to

1168
02:50:36,889 --> 02:50:35,280
up to six days of life support systems

1169
02:50:44,090 --> 02:50:36,899
as the crew makes their way back to

1170
02:50:49,969 --> 02:50:46,670
and as part of this uncrewed test flight

1171
02:50:51,950 --> 02:50:49,979
there's a variety of sensors and data

1172
02:50:53,210 --> 02:50:51,960
that will be pulled from the Orion crew

1173
02:50:56,030 --> 02:50:53,220
survival suit

1174
02:54:48,610 --> 02:50:56,040
to inform further design ahead of crude

1175
02:54:53,990 --> 02:54:51,830
and this view of our home planet taken

1176
02:54:56,690 --> 02:54:54,000
from 229

1177
02:54:58,190 --> 02:54:56,700
000 miles away from the Orion spacecraft

1178
02:55:01,969 --> 02:54:58,200
following

1179
02:55:11,870 --> 02:55:01,979
it's outbound powered flyby burn behind

1180
02:55:31,370 --> 02:55:16,130
at its closest approach Orion flew 81

1181
02:55:31,380 --> 02:56:26,929
foreign

1182
02:56:26,939 --> 02:57:34,309
yourself

1183
02:57:40,070 --> 02:57:37,910
we're now five days six hours and 27

1184
02:57:41,809 --> 02:57:40,080
minutes into the historic flight of

1185
02:57:44,990 --> 02:57:41,819
Artemis one

1186
02:57:47,150 --> 02:57:45,000
the Orion spacecraft just recently

1187
02:57:49,190 --> 02:57:47,160
emerged from the back side of the moon

1188
02:57:53,150 --> 02:57:49,200

after completing the outbound powered

1189
02:57:59,990 --> 02:57:56,990
coming up at met five days six hours and

1190
02:58:03,830 --> 02:58:00,000
52 minutes which is about 54 minutes

1191
02:58:06,349 --> 02:58:03,840
after the OPF burnout Orion is slated to

1192
02:58:11,210 --> 02:58:06,359
fly extremely close to the Apollo 11

1193
02:58:16,550 --> 02:58:14,150
the Apollo 11 Landing site named

1194
02:58:18,889 --> 02:58:16,560
Tranquility base was where Commander

1195
02:58:22,090 --> 02:58:18,899
Neil Armstrong and lunar module pilot

1196
02:59:01,210 --> 02:58:22,100
Buzz Aldrin touched down on July 20th

1197
02:59:06,769 --> 02:59:05,150
as Orion continues to swing around the

1198
02:59:08,990 --> 02:59:06,779
Moon toward entry into distant

1199
02:59:11,510 --> 02:59:09,000
retrograde orbit

1200
02:59:14,929 --> 02:59:11,520
we were just getting some views of the

1201
02:59:16,670 --> 02:59:14,939
Earth from about 220 000 miles away we

1202
02:59:18,950 --> 02:59:16,680
do expect to get those views again here

1203
02:59:20,929 --> 02:59:18,960
momentarily but you are looking at a

1204
02:59:23,690 --> 02:59:20,939
live view inside Mission Control Houston

1205
02:59:47,230 --> 02:59:23,700
where NASA flight director Judd frieling

1206
02:59:52,610 --> 02:59:50,269
33 minutes ago Orion completed the

1207
02:59:55,250 --> 02:59:52,620
outbound powered flyby burn which lasted

1208
02:59:57,230 --> 02:59:55,260
two minutes and 30 seconds which sent

1209
02:59:59,030 --> 02:59:57,240
Orion close enough to the lunar surface

1210
03:00:01,790 --> 02:59:59,040
to leverage the moon's gravitational

1211
03:00:04,130 --> 03:00:01,800
force and swing the spacecraft around

1212
03:00:07,510 --> 03:00:04,140
the Moon toward entry into distant

1213
03:00:14,210 --> 03:00:12,110

next up for Orion we'll be ins will be

1214
03:00:17,269 --> 03:00:14,220
insertion into distant retrograde orbit

1215
03:00:19,790 --> 03:00:17,279
where it will remain for one half long

1216
03:00:29,210 --> 03:00:19,800
elliptical orbit around the moon this

1217
03:00:33,530 --> 03:00:31,730
following this Orion will complete a

1218
03:00:36,710 --> 03:00:33,540
similar maneuver in which it flies

1219
03:00:39,230 --> 03:00:36,720
behind the moon in a return power flyby

1220
03:00:41,150 --> 03:00:39,240
and as you might expect just the

1221
03:00:43,849 --> 03:00:41,160
opposite of the outbound powered flyby

1222
03:00:46,550 --> 03:00:43,859
this maneuver will help put Orion on a

1223
03:00:48,710 --> 03:00:46,560
trajectory to return back to Earth and

1224
03:01:50,290 --> 03:00:48,720
splash down in the Pacific Ocean on

1225
03:01:55,250 --> 03:01:53,269
and another view of the flight director

1226
03:02:04,790 --> 03:01:55,260
on Console today during today's Opera

1227
03:02:09,050 --> 03:02:07,130
and coming in to your view on your

1228
03:02:11,510 --> 03:02:09,060
screen right there in the Reddit jacket

1229
03:04:22,610 --> 03:02:11,520
is the Johnson Space Center Senate

1230
03:04:22,620 --> 03:04:30,230
thank you

1231
03:04:30,240 --> 03:05:00,769
foreign

1232
03:05:00,779 --> 03:05:10,490
020

1233
03:05:10,500 --> 03:06:01,250
General number

1234
03:06:01,260 --> 03:06:43,670
foreign

1235
03:06:43,680 --> 03:08:13,370
thank you

1236
03:08:13,380 --> 03:08:27,550
foreign

1237
03:08:34,130 --> 03:08:31,730
and if you're just joining us Orion has

1238
03:08:36,469 --> 03:08:34,140

emerged from the back side of the moon

1239
03:08:42,769 --> 03:08:36,479
after completing the outbound powered

1240
03:08:48,530 --> 03:08:45,830
this burn lasted two minutes and 30

1241
03:08:50,690 --> 03:08:48,540
seconds and sent Orion close enough to

1242
03:08:52,969 --> 03:08:50,700
the lunar surface to leverage the moon's

1243
03:08:55,250 --> 03:08:52,979
gravitational force and swing the

1244
03:09:00,969 --> 03:08:55,260
spacecraft once around the Moon toward

1245
03:09:05,929 --> 03:09:03,650
once inserted in the distant retrograde

1246
03:09:08,510 --> 03:09:05,939
orbit Orion will remain in the distant

1247
03:09:10,370 --> 03:09:08,520
retrograde orbit for one half elliptical

1248
03:10:04,849 --> 03:09:10,380
orbit around the Moon

1249
03:10:04,859 --> 03:10:29,510
everything

1250
03:10:29,520 --> 03:10:39,849
and um

1251
03:10:39,859 --> 03:13:20,150
are here

1252
03:13:25,730 --> 03:13:22,550
we're just six minutes away from the

1253
03:13:28,730 --> 03:13:25,740
anticipated flyover of the Apollo 11

1254
03:13:31,670 --> 03:13:28,740
Landing site Tranquility base

1255
03:13:36,050 --> 03:13:31,680
we anticipate that flyover to occur at 7

1256
03:15:19,330 --> 03:13:39,950
during the flyover Orion will be 1 384

1257
03:15:25,250 --> 03:15:22,370
and you are looking at a live view

1258
03:15:28,130 --> 03:15:25,260
inside Mission Control Houston where

1259
03:15:29,389 --> 03:15:28,140
NASA flight director Rick labrode is on

1260
03:15:31,250 --> 03:15:29,399
console

1261
03:15:33,530 --> 03:15:31,260
leading the team here in Mission Control

1262
03:15:37,490 --> 03:15:33,540
following the outbound powered flyby

1263
03:15:39,590 --> 03:15:37,500

burn which occurred 49 minutes ago

1264
03:15:41,929 --> 03:15:39,600
this two minute and 30 second burn

1265
03:15:44,090 --> 03:15:41,939
utilized the orbital maneuvering system

1266
03:15:46,010 --> 03:15:44,100
or Ohm's engine onboard the Orion

1267
03:15:48,769 --> 03:15:46,020
spacecraft

1268
03:17:57,230 --> 03:15:48,779
and help set the stage for decent

1269
03:17:57,240 --> 03:18:06,130
recovery

1270
03:18:11,210 --> 03:18:08,809
we're now two minutes away from the

1271
03:18:14,809 --> 03:18:11,220
anticipated flyover of the Apollo 11

1272
03:18:19,309 --> 03:18:14,819
Landing site Tranquility base

1273
03:19:39,410 --> 03:18:19,319
Orion will be 1 384 statute miles above

1274
03:19:45,950 --> 03:19:43,130
and at this time we do expect Orion to

1275
03:19:49,670 --> 03:19:45,960
be flying over the Apollo 11 Landing

1276
03:19:54,590 --> 03:19:51,610
Orion is

1277
03:20:02,269 --> 03:19:54,600
1384 statute miles above the landing

1278
03:20:06,710 --> 03:20:04,550
Tranquility base was where Commander

1279
03:20:09,170 --> 03:20:06,720
Neil Armstrong and lunar module pilot

1280
03:20:13,910 --> 03:20:09,180
Buzz Aldrin landed on the moon for the

1281
03:21:26,110 --> 03:20:13,920
very first time on July 20th 1969 53

1282
03:21:26,120 --> 03:21:36,410
thank you

1283
03:21:36,420 --> 03:22:59,150
okay

1284
03:22:59,160 --> 03:23:50,269
foreign

1285
03:25:24,849 --> 03:23:52,250
405

1286
03:25:30,710 --> 03:25:28,070
and with the outbound powered flyby burn

1287
03:25:32,929 --> 03:25:30,720
now complete and Orion having completed

1288
03:25:35,150 --> 03:25:32,939

its closest approach to the moon at a

1289
03:25:37,550 --> 03:25:35,160
distance of 80 miles above the surface

1290
03:25:40,130 --> 03:25:37,560
that will wrap up our coverage for today

1291
03:25:43,269 --> 03:25:40,140
but we'll continue to post daily updates

1292
03:25:46,250 --> 03:25:43,279
about the mission on the Artemis blog at

1293
03:25:48,170 --> 03:25:46,260
blogs.nasa.gov Artemis and and we'll

1294
03:25:50,750 --> 03:25:48,180
also be posting updates on our social

1295
03:25:53,809 --> 03:25:50,760
media accounts as well later today we'll

1296
03:25:56,090 --> 03:25:53,819
have a briefing at 4 pm Central 5 PM

1297
03:25:58,429 --> 03:25:56,100
Eastern where representatives from NASA

1298
03:26:00,769 --> 03:25:58,439
will discuss the outbound power to flyby

1299
03:26:02,990 --> 03:26:00,779
which we hope you'll tune in for and

1300
03:26:04,790 --> 03:26:03,000
we'll be live on NASA TV covering the

1301
03:26:08,210 --> 03:26:04,800
distant retrograde orbit insertion

1302
03:26:11,450 --> 03:26:08,220
Friday beginning at 3 30 PM Central 4 30

1303
03:26:22,070 --> 03:26:11,460
PM eastern time until then this is