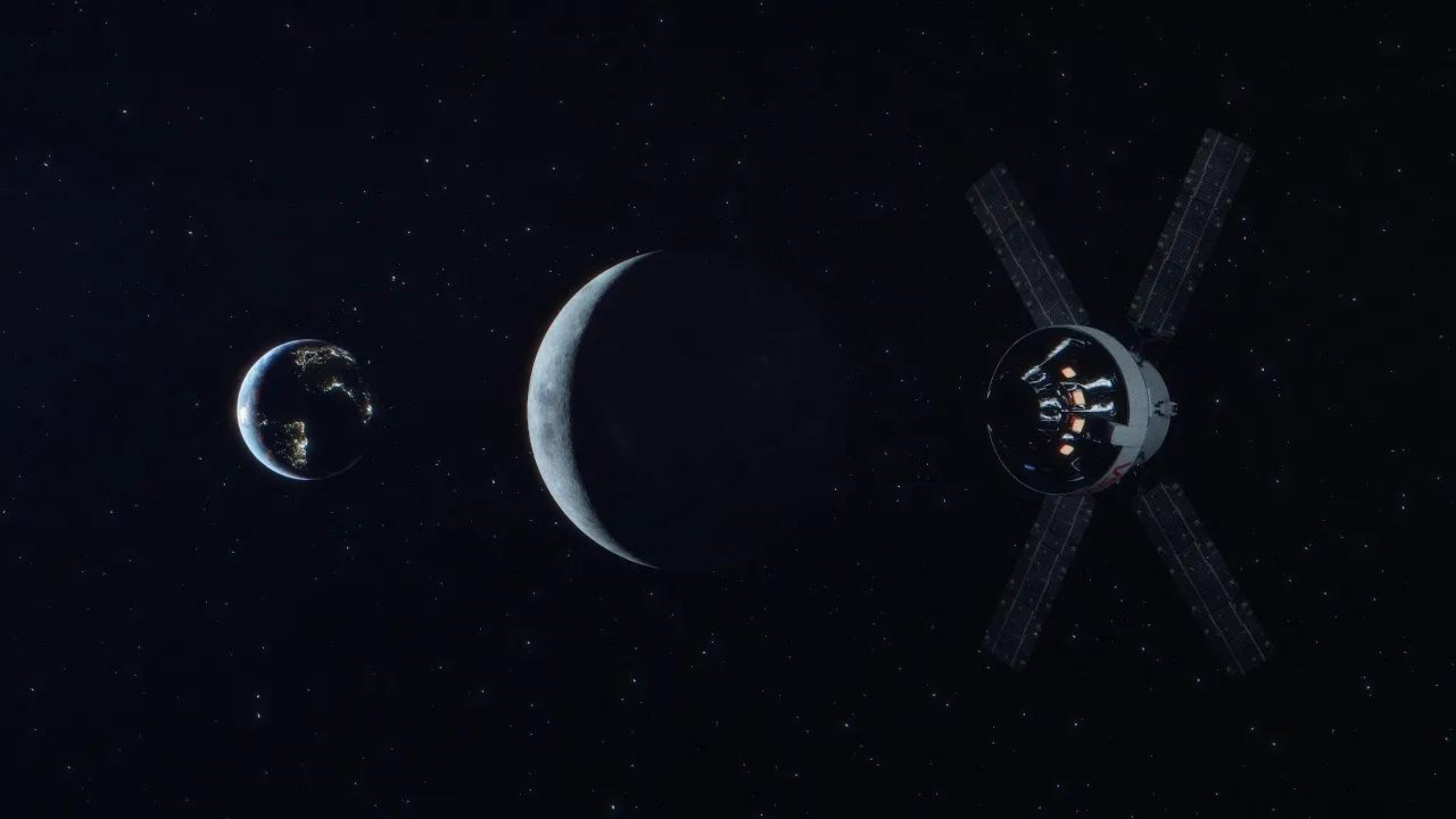

1
00:00:04,980 --> 00:00:17,980
foreign

2
00:00:47,170 --> 00:00:40,690
[Music]

3
00:00:47,180 --> 00:00:56,320
thank you

4
00:00:56,330 --> 00:01:07,370
[Music]

5
00:01:11,450 --> 00:01:09,770
good afternoon and welcome to NASA's

6
00:01:13,250 --> 00:01:11,460
Johnson Space Center I'm Chelsea

7
00:01:15,890 --> 00:01:13,260
ballarte here live in Mission Control

8
00:01:18,230 --> 00:01:15,900
Houston we're on flight day 10 of NASA's

9
00:01:20,030 --> 00:01:18,240
Artemis 1 Mission and today the Orion

10
00:01:22,550 --> 00:01:20,040
spacecraft will conduct a translational

11
00:01:24,950 --> 00:01:22,560
burn to insert the spacecraft into a

12
00:01:27,289 --> 00:01:24,960
distant retrograde orbit or dro

13
00:01:29,330 --> 00:01:27,299

this is a relatively quick burn expected

14
00:01:32,390 --> 00:01:29,340
to fire for one minute 28 seconds

15
00:01:35,330 --> 00:01:32,400
beginning at 352 and 28 seconds PM

16
00:01:36,469 --> 00:01:35,340
Central Time 4 52 pm and 28 seconds

17
00:01:38,149 --> 00:01:36,479
Eastern

18
00:01:40,130 --> 00:01:38,159
distant retrograde orbit is highly

19
00:01:42,469 --> 00:01:40,140
elliptical oval shaped orbit around the

20
00:01:44,270 --> 00:01:42,479
moon this orbit is unique to Artemis 1

21
00:01:47,090 --> 00:01:44,280
and will not be used for Artemis 2

22
00:01:49,490 --> 00:01:47,100
Artemis 3 and Beyond it's highly stable

23
00:01:52,490 --> 00:01:49,500
so a little fuel is required so little

24
00:01:54,649 --> 00:01:52,500
fuel is required to stay there as we use

25
00:01:56,990 --> 00:01:54,659
this Artemis 1 mission to put Orion's

26
00:01:58,969 --> 00:01:57,000
systems to the test and here to talk

27
00:02:01,789 --> 00:01:58,979
about future orbits and just a little

28
00:02:03,710 --> 00:02:01,799
bit is NASA's Dev blood bin she'll be

29
00:02:05,569 --> 00:02:03,720
joining us as a guest shortly on in our

30
00:02:07,550 --> 00:02:05,579
coverage later today

31
00:02:09,290 --> 00:02:07,560
we'll also be joined by NASA's Dan

32
00:02:10,729 --> 00:02:09,300
Hewitt back at the Moon board to explain

33
00:02:26,030 --> 00:02:10,739
a little bit more about what distant

34
00:02:30,050 --> 00:02:28,070
we're here live in Mission control's

35
00:02:32,750 --> 00:02:30,060
white fling white flight control room

36
00:02:34,670 --> 00:02:32,760
with NASA flight director Rick labrode

37
00:02:36,770 --> 00:02:34,680
at the helm overseeing a team of flight

38
00:02:38,990 --> 00:02:36,780

controllers who are getting ready for

39
00:02:41,210 --> 00:02:39,000
the distant retrograde orbit insertion

40
00:02:42,530 --> 00:02:41,220
burn this is the same building as the

41
00:02:44,449 --> 00:02:42,540
International Space Station's flight

42
00:02:51,650 --> 00:02:44,459
control room but it's a separate room

43
00:03:03,589 --> 00:02:53,330
this is a live view that you're getting

44
00:03:08,030 --> 00:03:05,570
so let's talk a little bit more about

45
00:03:10,009 --> 00:03:08,040
how we got to this point the spacecraft

46
00:03:12,470 --> 00:03:10,019
launch on a space launch system rocket

47
00:03:14,089 --> 00:03:12,480
on November 16th and by its third day it

48
00:03:16,490 --> 00:03:14,099
was halfway to the Moon

49
00:03:18,949 --> 00:03:16,500
on November 21st Orion performed an

50
00:03:21,530 --> 00:03:18,959
outbound powered flyby burn the first of

51
00:03:23,330 --> 00:03:21,540
two Maneuvers required to enter dro the

52
00:03:26,089 --> 00:03:23,340
second being today's orbital insertion

53
00:03:30,770 --> 00:03:28,130
at the time of outbound power flyby

54
00:03:32,809 --> 00:03:30,780
Orion was just 81 miles above the lunar

55
00:03:34,130 --> 00:03:32,819
surface and throughout the mission the

56
00:03:36,290 --> 00:03:34,140
spacecraft performed a series of

57
00:03:38,630 --> 00:03:36,300
outbound trajectory correction Burns to

58
00:03:40,850 --> 00:03:38,640
put Orion into the lunar surface

59
00:03:43,550 --> 00:03:40,860
excuse me into the proper configuration

60
00:03:44,869 --> 00:03:43,560
to enter distant retrograde orbit so

61
00:03:47,390 --> 00:03:44,879
remember the number that I just told you

62
00:03:50,990 --> 00:03:47,400
81 miles above the lunar surface on

63
00:03:52,970 --> 00:03:51,000

November 21st and by November 22nd Orion

64
00:03:56,149 --> 00:03:52,980
exited the gravitational sphere of

65
00:03:58,850 --> 00:03:56,159
influence on the moon and was

66
00:03:59,750 --> 00:03:58,860
at a lunar altitude of nearly 40 000

67
00:04:01,490 --> 00:03:59,760
miles

68
00:04:03,470 --> 00:04:01,500
it's going to continue to get farther

69
00:04:06,170 --> 00:04:03,480
and shortly after today's distant

70
00:04:07,970 --> 00:04:06,180
retrograde orbit insertion burn Orion

71
00:04:11,530 --> 00:04:07,980
will reach its maximum distance from the

72
00:04:11,540 --> 00:04:39,710
287.76 statue miles

73
00:04:45,050 --> 00:04:42,950
tomorrow November 26 Orion will pass the

74
00:04:47,629 --> 00:04:45,060
distance record for the human rated

75
00:04:50,830 --> 00:04:47,639
spacecraft originally set by Apollo 13.

76
00:04:54,590 --> 00:04:50,840
that record is 248

77
00:04:57,050 --> 00:04:54,600
655 miles away from the earth Orion is

78
00:05:00,710 --> 00:04:57,060
expected to break that record at 7 40

79
00:05:02,150 --> 00:05:00,720
a.m Central 8 40 a.m Eastern tomorrow if

80
00:05:04,310 --> 00:05:02,160
you want to hear a little bit more about

81
00:05:06,110 --> 00:05:04,320
that head over to atnas's Twitter feed

82
00:05:08,210 --> 00:05:06,120
or the Artemis blog where you can listen

83
00:05:10,550 --> 00:05:08,220
to an in-depth audio-only conversation

84
00:05:12,409 --> 00:05:10,560
about the Milestone with guests like

85
00:05:19,850 --> 00:05:12,419
Apollo flight director Jerry Griffin

86
00:05:24,529 --> 00:05:21,710
so we're talking about the Apollo 13

87
00:05:26,650 --> 00:05:24,539
record we know that Apollo 13 traveled

88
00:05:28,390 --> 00:05:26,660

here's that number again

89
00:05:31,490 --> 00:05:28,400
248

90
00:05:33,469 --> 00:05:31,500
655 miles away from the earth and Orion

91
00:05:36,050 --> 00:05:33,479
will break that record on November 26th

92
00:05:38,689 --> 00:05:36,060
but Orion isn't going to stop there it's

93
00:05:40,129 --> 00:05:38,699
going to continue on to its maximum

94
00:05:43,810 --> 00:05:40,139
distance from the earth reaching

95
00:05:46,310 --> 00:05:43,820
approximately 272

96
00:05:50,330 --> 00:05:46,320
514.9 miles away from the earth on

97
00:05:54,890 --> 00:05:52,249
we won't be live on air for that

98
00:05:57,230 --> 00:05:54,900
Milestone but later that day on Monday

99
00:05:59,270 --> 00:05:57,240
we'll have a live we'll be live on NASA

100
00:06:01,730 --> 00:05:59,280
TV for a briefing to discuss the Midway

101
00:06:03,950 --> 00:06:01,740
point of the Artemis Mission and finally

102
00:06:06,409 --> 00:06:03,960
on November 30th we'll be at the tail

103
00:06:08,390 --> 00:06:06,419
end of distant retrograde orbit we're

104
00:06:10,430 --> 00:06:08,400
inserting into that orbit today and

105
00:06:12,350 --> 00:06:10,440
Orion will leave Dro on Wednesday

106
00:06:19,909 --> 00:06:12,360
November 30th to prepare for a

107
00:06:23,990 --> 00:06:22,070
so that was a lot of numbers and dates

108
00:06:26,210 --> 00:06:24,000
that I just gave you we're talking about

109
00:06:28,749 --> 00:06:26,220
Orion's distance from the Earth but also

110
00:06:31,430 --> 00:06:28,759
Orion's distance from the lunar surface

111
00:06:33,710 --> 00:06:31,440
gets a little complicated so to get a

112
00:06:36,230 --> 00:06:33,720
visualization of both of these positions

113
00:06:38,450 --> 00:06:36,240

in real time the Orion program has a

114
00:06:40,909 --> 00:06:38,460
great tool online called Arrow or the

115
00:06:42,230 --> 00:06:40,919
Artemis real-time orbit website I'll be

116
00:06:43,430 --> 00:06:42,240
linked to it in the Artemis blog and

117
00:06:45,650 --> 00:06:43,440
it's a way for you to see for yourself

118
00:06:56,270 --> 00:06:45,660
where the spacecraft is relative to

119
00:07:00,529 --> 00:06:58,550
on your screen now is a look at Arrow

120
00:07:10,730 --> 00:07:00,539
this is what would look like on your

121
00:07:16,129 --> 00:07:13,790
so to recap we're in a 25 and a half day

122
00:07:18,290 --> 00:07:16,139
Artemis mission to the moon and we're in

123
00:07:20,629 --> 00:07:18,300
Flight day 10. so far in the mission

124
00:07:22,430 --> 00:07:20,639
Artemis performed an outbound powered

125
00:07:24,469 --> 00:07:22,440
flyby of the Moon and reached its

126
00:07:26,029 --> 00:07:24,479
closest approach to the moon and then it

127
00:07:28,010 --> 00:07:26,039
moved further away from the surface of

128
00:07:29,150 --> 00:07:28,020
the Moon and exited the lunar sphere of

129
00:07:31,490 --> 00:07:29,160
influence

130
00:07:33,230 --> 00:07:31,500
Orion has conducted a number of burns to

131
00:07:36,650 --> 00:07:33,240
get ready for distant retrograde orbit

132
00:07:38,629 --> 00:07:36,660
insertion and at 3 52 PM the burn is

133
00:08:23,270 --> 00:07:38,639
expected to begin just less than 15

134
00:08:27,170 --> 00:08:25,850
so today the milestone for the Orion

135
00:08:30,110 --> 00:08:27,180
spacecraft that we're talking about

136
00:08:32,209 --> 00:08:30,120
today is the burn to get into a distant

137
00:08:34,969 --> 00:08:32,219
retrograde orbit the distant retrograde

138
00:08:36,649 --> 00:08:34,979

orbit insertion burn so to talk a little

139
00:08:38,570 --> 00:08:36,659
bit more about this orbit let's go to

140
00:08:40,250 --> 00:08:38,580
Dan Hewitt at the Moon board who can

141
00:08:46,269 --> 00:08:40,260
explain a little bit more about what

142
00:08:51,170 --> 00:08:49,130
so the outbound powered flyby has been

143
00:08:54,410 --> 00:08:51,180
complete we are on our way now to

144
00:08:56,210 --> 00:08:54,420
distant retrograde orbit or Dro now

145
00:08:57,889 --> 00:08:56,220
we're going to do a maneuver to put

146
00:09:00,170 --> 00:08:57,899
ourselves into this orbit and to

147
00:09:02,870 --> 00:09:00,180
maintain it we're going to be about 38

148
00:09:04,550 --> 00:09:02,880
000 miles away from the lunar surface as

149
00:09:06,350 --> 00:09:04,560
we orbit around that's part of why we're

150
00:09:09,290 --> 00:09:06,360
calling it distant and we call it

151
00:09:11,389 --> 00:09:09,300
retrograde because the moon orbiting the

152
00:09:13,250 --> 00:09:11,399
Earth in this direction and then we're

153
00:09:16,430 --> 00:09:13,260
entering into our orbit in this

154
00:09:18,350 --> 00:09:16,440
direction opposites retrograde now we're

155
00:09:20,690 --> 00:09:18,360
choosing this orbit because it's

156
00:09:22,790 --> 00:09:20,700
extremely stable it doesn't cost a lot

157
00:09:25,370 --> 00:09:22,800
of fuel to maintain your position there

158
00:09:27,470 --> 00:09:25,380
and that gives all of our Engineers our

159
00:09:30,290 --> 00:09:27,480
flight controllers the chance to really

160
00:09:33,230 --> 00:09:30,300
learn about Orion systems in deep space

161
00:09:35,389 --> 00:09:33,240
learn about flying a spacecraft farther

162
00:09:37,790 --> 00:09:35,399
than we've ever sent one intended for

163
00:09:40,070 --> 00:09:37,800

humans we're going Beyond anywhere we

164
00:09:42,889 --> 00:09:40,080
ever went for Apollo and so we're going

165
00:09:44,810 --> 00:09:42,899
to be in that orbit test out all of

166
00:09:46,670 --> 00:09:44,820
those systems eventually we'll do a

167
00:09:49,430 --> 00:09:46,680
maneuver to break out of that do another

168
00:09:51,949 --> 00:09:49,440
flyby and come home but for now looking

169
00:09:54,050 --> 00:09:51,959
forward to getting into Dro and really

170
00:10:03,410 --> 00:09:54,060
getting our chance to learn about Orion

171
00:10:07,850 --> 00:10:05,870
so that was a little primer on what this

172
00:10:10,250 --> 00:10:07,860
orbit is and why we want to use it this

173
00:10:12,590 --> 00:10:10,260
mission to meet our test objectives of

174
00:10:14,810 --> 00:10:12,600
the Orion spacecraft but DRL will not be

175
00:10:17,389 --> 00:10:14,820
used in future Artemis missions I'm

176
00:10:19,610 --> 00:10:17,399
joined Now by Deb ludman with NASA's

177
00:10:22,070 --> 00:10:19,620
Gateway program

178
00:10:25,190 --> 00:10:22,080
hey John thanks for joining us thanks so

179
00:10:26,750 --> 00:10:25,200
much Chelsea so Deb Gateway is not going

180
00:10:27,530 --> 00:10:26,760
to be in a distant retrograde orbit is

181
00:10:32,030 --> 00:10:27,540
it

182
00:10:34,310 --> 00:10:32,040
will not be in a distant retrograde

183
00:10:36,889 --> 00:10:34,320
orbit the Gateway will actually be in a

184
00:10:40,910 --> 00:10:36,899
near rectilinear Halo orbit which is a

185
00:10:43,070 --> 00:10:40,920
lot of words we say nrho and that is a

186
00:10:44,329 --> 00:10:43,080
very different orbit than the dro

187
00:10:47,350 --> 00:10:44,339
would you like me to explain a little

188
00:10:50,569 --> 00:10:47,360

bit about it yeah sure okay so the the

189
00:10:53,269 --> 00:10:50,579
nrho neurorectalinear Halo orbit is much

190
00:10:54,949 --> 00:10:53,279
more long and skinny like a long oval so

191
00:10:56,329 --> 00:10:54,959
it actually looks if you're looking at

192
00:10:59,090 --> 00:10:56,339
the moon more like a necklace hanging

193
00:11:01,130 --> 00:10:59,100
down from the Moon it is a sort of a

194
00:11:02,630 --> 00:11:01,140
combination between two types of orbits

195
00:11:05,810 --> 00:11:02,640
that have a lot of things going for it

196
00:11:08,329 --> 00:11:05,820
so the low lunar orbit is more similar

197
00:11:09,889 --> 00:11:08,339
to what Apollo did and that's a an orbit

198
00:11:11,930 --> 00:11:09,899
that goes sort of around the center of

199
00:11:14,389 --> 00:11:11,940
the Moon and it's very close and it it

200
00:11:16,550 --> 00:11:14,399
provides great access to the moon and

201
00:11:18,590 --> 00:11:16,560
then the dro the distant retrograde

202
00:11:20,090 --> 00:11:18,600
orbit is a much broader and it usually

203
00:11:22,370 --> 00:11:20,100
takes about two weeks to get around in

204
00:11:24,889 --> 00:11:22,380
an orbit and it's very circular and and

205
00:11:26,690 --> 00:11:24,899
it has great stability which means you

206
00:11:28,970 --> 00:11:26,700
don't need a lot of fuel to stay in

207
00:11:31,550 --> 00:11:28,980
orbit but it also is not very close to

208
00:11:34,430 --> 00:11:31,560
the moon so what we have for the Gateway

209
00:11:37,069 --> 00:11:34,440
is we have a near near rectilinear Halo

210
00:11:39,829 --> 00:11:37,079
orbit nrho and that orbit has the

211
00:11:42,470 --> 00:11:39,839
benefits of both so it is both access

212
00:11:45,050 --> 00:11:42,480
close to the moon for some of its orbit

213
00:11:47,030 --> 00:11:45,060

where we get to about 90 miles away from

214
00:11:49,370 --> 00:11:47,040
the lunar surface but it also has the

215
00:11:51,829 --> 00:11:49,380
stability of a distant retrograde orbit

216
00:11:54,470 --> 00:11:51,839
so its overall orbit takes about a week

217
00:11:56,930 --> 00:11:54,480
six and a half days or so and that orbit

218
00:11:59,449 --> 00:11:56,940
offers both the stability of a distant

219
00:12:02,030 --> 00:11:59,459
retrograde orbit as well as the uh

220
00:12:03,829 --> 00:12:02,040
access to the lunar surface that alolan

221
00:12:05,449 --> 00:12:03,839
orbit would have wow that's really cool

222
00:12:07,730 --> 00:12:05,459
and you're seeing the Gateway that we're

223
00:12:09,829 --> 00:12:07,740
talking about now on your screen and I

224
00:12:11,329 --> 00:12:09,839
also see Orion in this graphic so we

225
00:12:13,730 --> 00:12:11,339
heard that Gateway is going to be in

226
00:12:16,190 --> 00:12:13,740
this nrho orbit does that mean Orion's

227
00:12:18,350 --> 00:12:16,200
going to have to be too sure will so

228
00:12:20,930 --> 00:12:18,360
Orion will do lots of things for Gateway

229
00:12:23,210 --> 00:12:20,940
Orion is the crude system that will

230
00:12:24,949 --> 00:12:23,220
bring crew out to the Gateway so that we

231
00:12:27,050 --> 00:12:24,959
can live and work and and test out those

232
00:12:28,250 --> 00:12:27,060
systems but at the same time Orion is

233
00:12:30,110 --> 00:12:28,260
going to be bringing some other things

234
00:12:32,389 --> 00:12:30,120
out to lunar orbit for us too so it's

235
00:12:34,310 --> 00:12:32,399
very important that the Gateway is in an

236
00:12:36,590 --> 00:12:34,320
orbit that both Orion and the human

237
00:12:38,810 --> 00:12:36,600
Landing system can both access and Orion

238
00:12:40,730 --> 00:12:38,820

will will come right up to us

239
00:12:42,530 --> 00:12:40,740
so we know that Orion's going to need to

240
00:12:44,329 --> 00:12:42,540
be in the same orbit as Gateway during

241
00:12:46,550 --> 00:12:44,339
future missions as you just told us but

242
00:12:48,710 --> 00:12:46,560
can you tell us about Orion as a whole

243
00:12:50,329 --> 00:12:48,720
what's its relationship to Gateway and

244
00:12:52,850 --> 00:12:50,339
what's the goal of Gateway and how does

245
00:12:55,129 --> 00:12:52,860
Orion help absolutely so like I said

246
00:12:57,170 --> 00:12:55,139
Orion is the only way right now that we

247
00:12:59,870 --> 00:12:57,180
have to get crew to the Gateway so that

248
00:13:01,910 --> 00:12:59,880
is our number one uh reason for making

249
00:13:05,090 --> 00:13:01,920
sure that we have the staging point of

250
00:13:06,949 --> 00:13:05,100
the Gateway uh small space station in

251
00:13:09,050 --> 00:13:06,959
lunar orbit we can use that as a staging

252
00:13:10,910 --> 00:13:09,060
point for Orion to come out and for the

253
00:13:12,530 --> 00:13:10,920
human Landing system to come out and

254
00:13:14,269 --> 00:13:12,540
everything can meet together there we

255
00:13:16,490 --> 00:13:14,279
can do system checkouts on all of the

256
00:13:19,250 --> 00:13:16,500
systems that we will need to go down to

257
00:13:20,990 --> 00:13:19,260
the lunar surface and the Orion crew

258
00:13:22,790 --> 00:13:21,000
which is the Artemis crew at that point

259
00:13:25,430 --> 00:13:22,800
can learn what it's like to live and

260
00:13:27,829 --> 00:13:25,440
work farther away from from Earth and

261
00:13:29,930 --> 00:13:27,839
and learn what it's like to be longer in

262
00:13:31,550 --> 00:13:29,940
space and what happens to people when

263
00:13:33,650 --> 00:13:31,560

we're farther away from Earth when we're

264
00:13:35,930 --> 00:13:33,660
uh significantly farther away from

265
00:13:37,430 --> 00:13:35,940
phoning home and calling for help and so

266
00:13:39,650 --> 00:13:37,440
we're using this opportunity with the

267
00:13:41,629 --> 00:13:39,660
gateway to test out all of those systems

268
00:13:43,490 --> 00:13:41,639
both Technical and human systems to make

269
00:13:44,810 --> 00:13:43,500
sure that that we can work together as

270
00:13:48,470 --> 00:13:44,820
an integrated system which will

271
00:13:49,790 --> 00:13:48,480
absolutely be necessary for Mars

272
00:13:51,590 --> 00:13:49,800
that's right so we're talking about

273
00:13:53,990 --> 00:13:51,600
going to the moon going to the mar going

274
00:13:56,269 --> 00:13:54,000
to Mars The Gateway overall

275
00:13:58,850 --> 00:13:56,279
um why is Gateway important part of the

276
00:14:00,889 --> 00:13:58,860
Artemis missions Gateway is imperative

277
00:14:03,350 --> 00:14:00,899
in figuring out how we do a sustainable

278
00:14:06,230 --> 00:14:03,360
lunar Mission the Gateway is crew tended

279
00:14:08,389 --> 00:14:06,240
it is not uh crew habited crew

280
00:14:09,769 --> 00:14:08,399
habitation all the all year round we

281
00:14:11,810 --> 00:14:09,779
have crew there for about a month at a

282
00:14:14,150 --> 00:14:11,820
time and for our longer missions the

283
00:14:16,670 --> 00:14:14,160
farther we get away from Earth the more

284
00:14:19,190 --> 00:14:16,680
independent these systems have to be so

285
00:14:20,990 --> 00:14:19,200
we utilize the time on Gateway and

286
00:14:22,670 --> 00:14:21,000
learning more about what our systems

287
00:14:24,530 --> 00:14:22,680
will do what our people will do and it's

288
00:14:26,990 --> 00:14:24,540

also a great staging point for future

289
00:14:29,690 --> 00:14:27,000
missions we could actually launch a Mars

290
00:14:31,190 --> 00:14:29,700
mission from a system at Gateway do all

291
00:14:33,410 --> 00:14:31,200
of the staging all the checkouts there

292
00:14:35,690 --> 00:14:33,420
and then have it move on to Mars and at

293
00:14:37,190 --> 00:14:35,700
the same time we do tons of science so

294
00:14:39,590 --> 00:14:37,200
the good thing about Gateway being there

295
00:14:42,050 --> 00:14:39,600
all the time and it being a sustainable

296
00:14:43,490 --> 00:14:42,060
system is that we can use that to do

297
00:14:45,350 --> 00:14:43,500
science experiments and learn about

298
00:14:47,569 --> 00:14:45,360
space weather learn about radiation

299
00:14:49,310 --> 00:14:47,579
learn about what systems are going to do

300
00:14:51,470 --> 00:14:49,320
when they're 10 hidden when they're not

301
00:14:53,389 --> 00:14:51,480
tended for for significant periods of

302
00:14:57,110 --> 00:14:53,399
time so the Gateway is an imperative

303
00:14:59,569 --> 00:14:57,120
path uh imperative position for us

304
00:15:01,610 --> 00:14:59,579
enabling sustainable lunar orbit as well

305
00:15:02,870 --> 00:15:01,620
as moving forward to Mars

306
00:15:04,370 --> 00:15:02,880
and that's what it's all about a

307
00:15:05,810 --> 00:15:04,380
sustainable presence on the moon and the

308
00:15:07,430 --> 00:15:05,820
science that we can achieve from it Deb

309
00:15:56,269 --> 00:15:07,440
thank you so much for joining us thank

310
00:16:17,870 --> 00:15:58,009
we're now coming up on about six minutes

311
00:16:22,430 --> 00:16:20,210
shortly before our coverage began today

312
00:16:24,710 --> 00:16:22,440
flight director Rick labrode conducted a

313
00:16:26,030 --> 00:16:24,720

go no-go Poll for the burn Consulting

314
00:16:27,889 --> 00:16:26,040
with flight controllers here in the

315
00:16:29,810 --> 00:16:27,899
white flight control room and they all

316
00:17:25,850 --> 00:16:29,820
concurred that they are go to proceed

317
00:17:33,590 --> 00:17:28,429
this distant retrograde insertion burn

318
00:17:36,590 --> 00:17:33,600
is expected at 3 52 PM Central Time 4 52

319
00:18:06,470 --> 00:17:36,600
PM Eastern it's going to fire for one

320
00:19:23,270 --> 00:18:08,630
four minutes now until the expected

321
00:20:02,330 --> 00:19:24,950
now less than three minutes away from

322
00:20:06,190 --> 00:20:04,490
you're looking now at an animation of

323
00:20:09,230 --> 00:20:06,200
the Orion spacecraft

324
00:20:10,850 --> 00:20:09,240
we intermittently have live views of the

325
00:20:14,210 --> 00:20:10,860
Orion spacecraft

326
00:20:17,150 --> 00:20:14,220
from its onboard cameras

327
00:20:18,590 --> 00:20:17,160
when they're available to us it's still

328
00:21:09,049 --> 00:20:18,600
to be determined whether we'll get live

329
00:21:13,669 --> 00:21:11,870
and with one minute left to go until the

330
00:21:35,029 --> 00:21:13,679
burn it looks like we do have our live

331
00:22:37,669 --> 00:21:37,070
30 seconds away from the expected start

332
00:22:37,679 --> 00:23:13,909
is nominal so far

333
00:23:13,919 --> 00:23:30,230
everything proceeding nominally

334
00:23:33,649 --> 00:23:32,210
we're continuing to hear good call outs

335
00:23:53,210 --> 00:23:33,659
from flight controllers monitoring the

336
00:24:39,230 --> 00:23:55,370
we've reached the end of the burn it has

337
00:24:43,130 --> 00:24:40,850
you're getting live views from Mission

338
00:24:45,169 --> 00:24:43,140

Control now while we received good call

339
00:24:46,370 --> 00:24:45,179
outs of the burn while the burn itself

340
00:24:48,110 --> 00:24:46,380
was going on

341
00:27:01,490 --> 00:24:48,120
flight controllers are just confirming

342
00:27:06,649 --> 00:27:03,950
our coverage today is all about distant

343
00:27:09,529 --> 00:27:06,659
retrograde orbit insertion burn which

344
00:27:12,529 --> 00:27:09,539
just commenced minutes ago and concluded

345
00:28:31,850 --> 00:27:12,539
about just a little over a minute

346
00:29:43,730 --> 00:28:33,409
we're back with live views of the

347
00:29:48,110 --> 00:29:46,130
flight controllers here in the white

348
00:29:49,850 --> 00:29:48,120
flight control room looked at all the

349
00:29:51,409 --> 00:29:49,860
data from the burn and confirmed that it

350
00:29:54,289 --> 00:29:51,419
was a good burn

351
00:29:56,330 --> 00:29:54,299
the burn began as scheduled at 3 52 PM

352
00:32:03,350 --> 00:29:56,340
Central Time burning for almost a minute

353
00:32:10,610 --> 00:32:06,529
so it looks like we had a good burn it

354
00:32:12,649 --> 00:32:10,620
began at 3 52 p.m Central Time 4 52 PM

355
00:32:15,950 --> 00:32:12,659
Eastern warning burning for one minute

356
00:32:17,450 --> 00:32:15,960
and 28 seconds this burn occurred the

357
00:32:21,110 --> 00:32:17,460
burn the start of the burn began about

358
00:32:22,690 --> 00:32:21,120
10 minutes ago Orion is now traveling at

359
00:32:27,710 --> 00:32:22,700
a velocity of

360
00:32:29,870 --> 00:32:27,720
2252 miles per hour 57 000 miles above

361
00:32:31,789 --> 00:32:29,880
the surface of the Moon and you can

362
00:32:35,510 --> 00:32:31,799
follow all of this data in real time

363
00:32:38,389 --> 00:32:35,520

using the Aero Artemis Real Time online

364
00:32:39,350 --> 00:32:38,399
tracker yourself we link to this in the

365
00:32:41,990 --> 00:32:39,360
blog

366
00:32:44,330 --> 00:32:42,000
we're going to continue to have imagery

367
00:32:47,570 --> 00:32:44,340
and videos in high definition from this

368
00:32:49,370 --> 00:32:47,580
Mission as well as we go on this is a 25

369
00:32:51,350 --> 00:32:49,380
and a half day mission to the moon and

370
00:32:53,630 --> 00:32:51,360
back and we're on flight day 10 having

371
00:32:57,169 --> 00:32:53,640
just completed the

372
00:32:59,149 --> 00:32:57,179
distant retrograde insertion burn

373
00:33:00,950 --> 00:32:59,159
many important Milestones are expected

374
00:33:02,750 --> 00:33:00,960
we'll be live on air to discuss the

375
00:33:05,750 --> 00:33:02,760
midpoint of the mission and for distant

376
00:33:07,549 --> 00:33:05,760
retrograde departure as well when the

377
00:33:09,230 --> 00:33:07,559
Orion spacecraft departs this distant

378
00:33:17,990 --> 00:33:09,240
retrograde Orchid bit that it just

379
00:33:22,490 --> 00:33:20,690
until then the next Milestone that we

380
00:33:24,950 --> 00:33:22,500
have coming up will actually focus on

381
00:33:27,409 --> 00:33:24,960
the International Space Station live

382
00:33:30,289 --> 00:33:27,419
coverage of the SpaceX Commercial

383
00:33:32,810 --> 00:33:30,299
resupply Services 26th Mission it's a

384
00:33:35,630 --> 00:33:32,820
cargo Mission with the dragon resupply

385
00:33:37,909 --> 00:33:35,640
spacecraft begins at 2 pm on Saturday

386
00:33:40,909 --> 00:33:37,919
November 26th with a launch scheduled

387
00:33:42,710 --> 00:33:40,919
for 2 20 p.m Eastern Time

388
00:33:53,660 --> 00:33:42,720

that's concludes our coverage for today