1
00:00:22,520 --> 00:00:43,330
[Music]

2
00:00:43,340 --> 00:00:48,170
thank you

3
00:00:52,850 --> 00:00:50,090
sounds to pressure water now flowing

4
00:01:00,889 --> 00:00:55,910
and here we go 10 hydrogen burnoff

5
00:01:02,510 --> 00:01:00,899
igniters initiate seven six five four

6
00:01:06,830 --> 00:01:02,520
stage engine start

7
00:01:09,830 --> 00:01:06,840
three two one booster's indignation

8
00:01:20,870 --> 00:01:09,840
and liftoff of Artemis one We rise

9
00:01:25,429 --> 00:01:23,510
R4 rs25 engines on the core stage and

10
00:01:32,030 --> 00:01:25,439
two solid rocket boosters now propelling

11
00:01:35,990 --> 00:01:34,370
very good good control on the role from

12
00:01:37,969 --> 00:01:36,000
teams

13
00:01:40,249 --> 00:01:37,979

good morning and thank you all for

14
00:01:42,230 --> 00:01:40,259
staying up with us at NASA's Kennedy

15
00:01:45,530 --> 00:01:42,240
Space Center I'm NASA press secretary

16
00:01:48,410 --> 00:01:45,540
Jackie McGinnis and this morning at 1 47

17
00:01:51,050 --> 00:01:48,420
a.m NASA's paints launch system rocket

18
00:01:53,590 --> 00:01:51,060
and Orion spacecraft lifted off from

19
00:01:55,670 --> 00:01:53,600
Kennedy's historic launch pad 39b

20
00:01:57,770 --> 00:01:55,680
Orion's on its way and it's just

21
00:01:59,630 --> 00:01:57,780
beginning its Mission it's successfully

22
00:02:01,910 --> 00:01:59,640
completed a number of mission Milestones

23
00:02:03,469 --> 00:02:01,920
so far including the trans lunar

24
00:02:05,450 --> 00:02:03,479
injection burn to put it on its

25
00:02:07,550 --> 00:02:05,460
trajectory to the Moon to provide you

26
00:02:09,949 --> 00:02:07,560
all with an update this morning we have

27
00:02:13,130 --> 00:02:09,959
NASA administrator Bill Nelson

28
00:02:14,869 --> 00:02:13,140
Mike Serafin Artemis Mission manager out

29
00:02:18,050 --> 00:02:14,879
of NASA headquarters

30
00:02:19,910 --> 00:02:18,060
Mike Bulger exploration I'm sorry John

31
00:02:21,710 --> 00:02:19,920
Honeycutt space launch system program

32
00:02:25,850 --> 00:02:21,720
manager at marshall

33
00:02:28,309 --> 00:02:25,860
Howard Hugh Orion program manager

34
00:02:30,650 --> 00:02:28,319
at Johnson and Emily Nelson Chief flight

35
00:02:32,390 --> 00:02:30,660
director at Johnson it's been an

36
00:02:34,010 --> 00:02:32,400
incredible day and so first I'll open it

37
00:02:37,010 --> 00:02:34,020
up to each of our participants to say a

38
00:02:40,970 --> 00:02:37,020

few words administrator

39
00:02:44,170 --> 00:02:40,980
I was standing on the roof of the LCC

40
00:02:46,729 --> 00:02:44,180
with a number of astronauts

41
00:02:50,270 --> 00:02:46,739
and uh

42
00:02:53,350 --> 00:02:50,280
I'm telling you we've never seen such a

43
00:02:56,570 --> 00:02:53,360
a tale of flame

44
00:02:59,530 --> 00:02:56,580
there were a bunch there that would like

45
00:03:02,150 --> 00:02:59,540
to be on that rocket

46
00:03:09,470 --> 00:03:02,160
and I have to say

47
00:03:16,670 --> 00:03:12,350
it's a test flight

48
00:03:17,990 --> 00:03:16,680
took a long time coming to get here

49
00:03:22,910 --> 00:03:18,000
uh

50
00:03:25,790 --> 00:03:22,920
last time we were on the moon Apollo 17.

51
00:03:28,309 --> 00:03:25,800
and we still have a long ways to go and

52
00:03:31,250 --> 00:03:28,319
this is just the test flight

53
00:03:35,170 --> 00:03:31,260
and we are stressing it and testing it

54
00:03:39,890 --> 00:03:35,180
in ways that we will not do to a rocket

55
00:03:42,470 --> 00:03:39,900
that has a human crew on it

56
00:03:46,070 --> 00:03:42,480
but that's the purpose

57
00:03:48,770 --> 00:03:46,080
to make it as safe as possible

58
00:03:52,789 --> 00:03:48,780
as reliable as possible

59
00:03:56,570 --> 00:03:52,799
for when our astronauts crawl on board

60
00:04:02,330 --> 00:03:58,789
uh

61
00:04:04,970 --> 00:04:02,340
the enthusiasm throughout

62
00:04:08,089 --> 00:04:04,980
not only this Space Center

63
00:04:09,710 --> 00:04:08,099

even though a lot of America was in bed

64
00:04:15,289 --> 00:04:09,720
asleep

65
00:04:23,629 --> 00:04:19,550
and the Legacy that this professional

66
00:04:24,650 --> 00:04:23,639
crew put together in getting us to this

67
00:04:26,830 --> 00:04:24,660
day

68
00:04:30,850 --> 00:04:26,840
over the years

69
00:04:34,570 --> 00:04:30,860
is a legacy that indeed

70
00:04:40,129 --> 00:04:34,580
has been well earned and will continue

71
00:04:42,950 --> 00:04:40,139
as we now explore the heavens

72
00:04:44,150 --> 00:04:42,960
as we go back to the moon and then we go

73
00:04:47,510 --> 00:04:44,160
to Mars

74
00:04:49,790 --> 00:04:47,520
thanks Jackie never do you make surfing

75
00:04:52,249 --> 00:04:49,800
yeah good morning and thank you again

76
00:04:54,010 --> 00:04:52,259
for continuing to follow our program in

77
00:04:56,150 --> 00:04:54,020
the Artemis One mission

78
00:04:58,150 --> 00:04:56,160
we've talked to you a number of times

79
00:05:00,409 --> 00:04:58,160
about our four mission priorities

80
00:05:02,150 --> 00:05:00,419
demonstrate the vehicle at lunar reenter

81
00:05:04,070 --> 00:05:02,160
and conditions demonstrate the vehicle

82
00:05:06,650 --> 00:05:04,080
in the space flight environment as

83
00:05:08,689 --> 00:05:06,660
priority to retrieve the spacecraft as

84
00:05:10,070 --> 00:05:08,699
as priority three and then bonus

85
00:05:14,210 --> 00:05:10,080
objectives associated with science

86
00:05:16,490 --> 00:05:14,220
Outreach and Technology demonstrations

87
00:05:18,710 --> 00:05:16,500
we have a priority One mission in play

88
00:05:20,749 --> 00:05:18,720

right now we had the rocket do its job

89
00:05:24,050 --> 00:05:20,759
and deliver the spacecraft to the point

90
00:05:26,570 --> 00:05:24,060
of translunar injection and I want to

91
00:05:29,330 --> 00:05:26,580
thank John Honeycutt and the SLS program

92
00:05:31,490 --> 00:05:29,340
for putting that Priority One mission in

93
00:05:33,110 --> 00:05:31,500
play as well as Jody singer at the

94
00:05:34,490 --> 00:05:33,120
Marshall space flight center and the

95
00:05:37,370 --> 00:05:34,500
Marshall space flight center team they

96
00:05:39,950 --> 00:05:37,380
did an amazing job getting us to this

97
00:05:42,710 --> 00:05:39,960
point as well as our friends and family

98
00:05:45,590 --> 00:05:42,720
here in America's Spaceport under Jana

99
00:05:47,090 --> 00:05:45,600
petro and Mike Bulger and his EGS

100
00:05:49,249 --> 00:05:47,100
program team and our launch director

101
00:05:51,110 --> 00:05:49,259
Charlie Blackwell Thompson did an

102
00:05:54,770 --> 00:05:51,120
amazing job applying Lessons Learned and

103
00:05:56,270 --> 00:05:54,780
getting us to this point we do have a

104
00:05:58,790 --> 00:05:56,280
priority One mission in play because of

105
00:06:02,629 --> 00:05:59,810
um

106
00:06:04,850 --> 00:06:02,639
today we got to witness the world's most

107
00:06:07,010 --> 00:06:04,860
powerful rocket take the Earth by its

108
00:06:10,129 --> 00:06:07,020
edges and shake the wicked out of it and

109
00:06:12,170 --> 00:06:10,139
it was quite a sight it's quite a say

110
00:06:15,590 --> 00:06:12,180
we're going to learn a lot more as we go

111
00:06:17,570 --> 00:06:15,600
we've got four weeks of Mission to go we

112
00:06:19,969 --> 00:06:17,580
are just barely starting to scratch the

113
00:06:23,330 --> 00:06:19,979

surface of the Artemis program and

114
00:06:25,909 --> 00:06:23,340
gather data we've learned a few things

115
00:06:28,670 --> 00:06:25,919
along the way mostly that this is this

116
00:06:31,370 --> 00:06:28,680
system is performing exactly as we

117
00:06:33,590 --> 00:06:31,380
intended it to we've had a few funnies

118
00:06:36,650 --> 00:06:33,600
along the way we had some dropouts in

119
00:06:39,409 --> 00:06:36,660
the flight instrumentation on the on the

120
00:06:41,330 --> 00:06:39,419
SLS rocket we've had some Funnies and

121
00:06:43,249 --> 00:06:41,340
some um

122
00:06:45,290 --> 00:06:43,259
um in the star trackers and then we had

123
00:06:47,390 --> 00:06:45,300
some funnies in some micro switches on

124
00:06:49,070 --> 00:06:47,400
the Solar Ray wings but the systems are

125
00:06:50,749 --> 00:06:49,080
performing and and we are pressing

126
00:06:52,610 --> 00:06:50,759
outbound toward the Moon

127
00:06:54,350 --> 00:06:52,620
we are going to continue to gather data

128
00:06:55,850 --> 00:06:54,360
as part of those Mission priorities and

129
00:06:58,790 --> 00:06:55,860
mission objectives as we described

130
00:07:00,110 --> 00:06:58,800
earlier and um you know speaking for

131
00:07:01,850 --> 00:07:00,120
myself

132
00:07:03,590 --> 00:07:01,860
there's definitely relief that we're

133
00:07:04,490 --> 00:07:03,600
underway

134
00:07:07,430 --> 00:07:04,500
um

135
00:07:10,490 --> 00:07:07,440
but we also have a high heightened sense

136
00:07:13,070 --> 00:07:10,500
of awareness that this mission is

137
00:07:16,010 --> 00:07:13,080
underway and I personally am not going

138
00:07:17,570 --> 00:07:16,020

to rest well until we get safely to

139
00:07:19,490 --> 00:07:17,580
splash down in recovery so with that

140
00:07:21,830 --> 00:07:19,500
I'll pass it back to Jackie

141
00:07:23,390 --> 00:07:21,840
and now we can hear from Mike Bulger the

142
00:07:26,029 --> 00:07:23,400
ground systems

143
00:07:27,950 --> 00:07:26,039
yeah thank you what what an amazing day

144
00:07:29,809 --> 00:07:27,960
and what an amazing launch I'm actually

145
00:07:31,969 --> 00:07:29,819
envious of y'all because many of you are

146
00:07:33,230 --> 00:07:31,979
outside watching it and we're sitting

147
00:07:34,790 --> 00:07:33,240
inside the firing room you know looking

148
00:07:36,710 --> 00:07:34,800
through the glass panes and it was a

149
00:07:38,330 --> 00:07:36,720
little bit um some moisture on the glass

150
00:07:40,370 --> 00:07:38,340
panes and so we didn't I think have

151
00:07:42,710 --> 00:07:40,380
nearly the view that y'all had but um

152
00:07:44,510 --> 00:07:42,720
from everything that I could tell it was

153
00:07:46,010 --> 00:07:44,520
well worth the visit here to the county

154
00:07:47,330 --> 00:07:46,020
Space Center in Florida to see the

155
00:07:49,129 --> 00:07:47,340
mission

156
00:07:51,589 --> 00:07:49,139
um Mike talked about the four priority

157
00:07:53,089 --> 00:07:51,599
goals that we have I would add a fifth

158
00:07:55,670 --> 00:07:53,099
and that was to prove that our ground

159
00:07:56,870 --> 00:07:55,680
systems and our ground team was prepared

160
00:07:58,370 --> 00:07:56,880
and was ready to launch this Mission

161
00:08:01,070 --> 00:07:58,380
today and I think they passed with fine

162
00:08:03,710 --> 00:08:01,080
colors and we really had a terrific day

163
00:08:06,110 --> 00:08:03,720

it's been it's been a journey for us as

164
00:08:07,850 --> 00:08:06,120
a ground operations team the team has

165
00:08:10,010 --> 00:08:07,860
shown a ton of resilience you know we've

166
00:08:11,330 --> 00:08:10,020
worked in a coveted environment we've

167
00:08:13,670 --> 00:08:11,340
dealt with hurricanes we've been through

168
00:08:15,710 --> 00:08:13,680
first-time Ops the team has shown the

169
00:08:17,089 --> 00:08:15,720
resilience and the resolve to do

170
00:08:19,550 --> 00:08:17,099
something really special and that's what

171
00:08:21,350 --> 00:08:19,560
we did today I think a lot of us come to

172
00:08:22,850 --> 00:08:21,360
so you know you kind of dream about it

173
00:08:24,350 --> 00:08:22,860
when you're a kid I can't tell you how

174
00:08:26,089 --> 00:08:24,360
many people I work with who dream about

175
00:08:27,170 --> 00:08:26,099
it when they're 10 or 11 years old and

176
00:08:29,629 --> 00:08:27,180
they kind of make it a point I'm going

177
00:08:31,909 --> 00:08:29,639
to come work for NASA someday and part

178
00:08:33,889 --> 00:08:31,919
of that reason is to make an impact or

179
00:08:36,709 --> 00:08:33,899
to be a part of changing the world and I

180
00:08:38,930 --> 00:08:36,719
think today we did exactly that you know

181
00:08:41,389 --> 00:08:38,940
we really helped um jump start this

182
00:08:43,250 --> 00:08:41,399
nation's manned exploration program to

183
00:08:44,630 --> 00:08:43,260
keep it going really to move further and

184
00:08:46,250 --> 00:08:44,640
further into the solar system it's a

185
00:08:49,550 --> 00:08:46,260
really great day for us here and really

186
00:08:51,290 --> 00:08:49,560
proud of the team today thank you

187
00:08:53,750 --> 00:08:51,300
now we'll go to John Honeycutt with the

188
00:08:55,970 --> 00:08:53,760

SLS program

189
00:08:59,030 --> 00:08:55,980
yeah um

190
00:09:02,449 --> 00:08:59,040
hey I just I just want to say I I am

191
00:09:06,350 --> 00:09:02,459
envious too like Mike talked about but

192
00:09:08,570 --> 00:09:06,360
you know the few seconds that we did get

193
00:09:11,870 --> 00:09:08,580
to look out the LCC I'm looking at this

194
00:09:14,570 --> 00:09:11,880
big ball of fire and I'm thinking you

195
00:09:17,269 --> 00:09:14,580
know it's been a little over 12 years

196
00:09:20,810 --> 00:09:17,279
since I got to experience this

197
00:09:22,509 --> 00:09:20,820
and it's so awesome to be back in the

198
00:09:27,350 --> 00:09:22,519
business doing it

199
00:09:30,650 --> 00:09:27,889
um

200
00:09:33,050 --> 00:09:30,660
for the Artemis program and many

201
00:09:34,870 --> 00:09:33,060
generations to come team just did an

202
00:09:37,910 --> 00:09:34,880
outstanding job

203
00:09:41,269 --> 00:09:37,920
as you heard the administrators say

204
00:09:41,930 --> 00:09:41,279
the rocket performed outstandingly

205
00:09:46,850 --> 00:09:41,940
um

206
00:09:52,009 --> 00:09:49,430
performance on the hardware all day

207
00:09:52,790 --> 00:09:52,019
today and

208
00:09:55,370 --> 00:09:52,800
um

209
00:09:57,650 --> 00:09:55,380
of course I'm looking at those really

210
00:09:59,090 --> 00:09:57,660
Dynamic events as we get down into the

211
00:10:01,790 --> 00:09:59,100
last seconds for

212
00:10:03,650 --> 00:10:01,800
when the rs-25s fire up and then we get

213
00:10:05,449 --> 00:10:03,660

booster ignition and then watching the

214
00:10:06,410 --> 00:10:05,459
performance of the core stage especially

215
00:10:08,570 --> 00:10:06,420
those

216
00:10:10,970 --> 00:10:08,580
Dynamic events associated with the

217
00:10:13,850 --> 00:10:10,980
pressurization system and the

218
00:10:15,769 --> 00:10:13,860
in the auxiliary power units all

219
00:10:17,810 --> 00:10:15,779
performed outstandingly

220
00:10:22,449 --> 00:10:17,820
core stage

221
00:10:27,070 --> 00:10:22,459
with boosters and the rs-25 engines

222
00:10:29,750 --> 00:10:27,080
delivered Orion and icps

223
00:10:32,090 --> 00:10:29,760
part of the requirements

224
00:10:34,850 --> 00:10:32,100
and then uh

225
00:10:36,290 --> 00:10:34,860
we had

226
00:10:40,370 --> 00:10:36,300
the

227
00:10:42,530 --> 00:10:40,380
that uh

228
00:10:46,850 --> 00:10:42,540
gives us the raise

229
00:10:50,449 --> 00:10:46,860
was outstanding and then the tli burn

230
00:10:54,110 --> 00:10:50,459
um performed outstandingly so uh

231
00:10:55,490 --> 00:10:54,120
right now I I can't say I'm more proud

232
00:10:57,710 --> 00:10:55,500
of the way the hardware performed and

233
00:10:59,030 --> 00:10:57,720
even more proud of the team

234
00:11:01,130 --> 00:10:59,040
Jackie

235
00:11:02,870 --> 00:11:01,140
thank you very much now over to Howard

236
00:11:05,389 --> 00:11:02,880
with the Ryan program

237
00:11:07,610 --> 00:11:05,399
yeah good evening or morning I think to

238
00:11:09,470 --> 00:11:07,620

everybody uh what a terrific day we've

239
00:11:11,150 --> 00:11:09,480
had uh first I want to thank the

240
00:11:13,850 --> 00:11:11,160
gentleman to my right

241
00:11:15,590 --> 00:11:13,860
um John and Mike I mean they're

242
00:11:17,389 --> 00:11:15,600
just terrific team

243
00:11:19,250 --> 00:11:17,399
um getting us off the ground and headed

244
00:11:22,069 --> 00:11:19,260
to the Moon I mean I can't thank them

245
00:11:24,650 --> 00:11:22,079
enough for their team's efforts and uh

246
00:11:26,630 --> 00:11:24,660
now we get uh start the journey and

247
00:11:28,250 --> 00:11:26,640
learning more about our spacecraft and

248
00:11:30,530 --> 00:11:28,260
and accomplishing these missions that

249
00:11:34,009 --> 00:11:30,540
Mike talked about uh just a little bit

250
00:11:35,990 --> 00:11:34,019
over 26 days and along the way we've got

251
00:11:38,449 --> 00:11:36,000
the rocket the most powerful rocket

252
00:11:40,670 --> 00:11:38,459
we've built at Nasa taking us to the

253
00:11:42,590 --> 00:11:40,680
moon and then as as we go forward we'll

254
00:11:44,210 --> 00:11:42,600
have the European service module they'll

255
00:11:46,970 --> 00:11:44,220
be providing the power and propulsion

256
00:11:49,310 --> 00:11:46,980
that we need to get into lunar orbit and

257
00:11:50,930 --> 00:11:49,320
of course return safely home and I want

258
00:11:52,730 --> 00:11:50,940
to also thank the European team they

259
00:11:54,889 --> 00:11:52,740
worked very hard uh producing the

260
00:11:56,990 --> 00:11:54,899
European service module for us and in

261
00:11:59,630 --> 00:11:57,000
partnership with NASA and certainly a

262
00:12:02,269 --> 00:11:59,640
great opportunity for us as we explore

263
00:12:04,970 --> 00:12:02,279

and learn more about the spacecraft and

264
00:12:06,590 --> 00:12:04,980
going forward with Artemis and and I

265
00:12:09,710 --> 00:12:06,600
would say personally for me I am one of

266
00:12:11,990 --> 00:12:09,720
those uh uh men that has a little boy I

267
00:12:14,569 --> 00:12:12,000
dreamed of working for NASA and uh going

268
00:12:16,250 --> 00:12:14,579
Beyond uh low earth orbit and today was

269
00:12:17,030 --> 00:12:16,260
a fabulous day for me and I can't tell

270
00:12:19,190 --> 00:12:17,040
you

271
00:12:21,829 --> 00:12:19,200
just thinking about watching the rocket

272
00:12:23,449 --> 00:12:21,839
go up and seeing Orion go ahead towards

273
00:12:26,329 --> 00:12:23,459
the moon has been a dream of mine and

274
00:12:28,550 --> 00:12:26,339
and today is a start of that uh a great

275
00:12:32,269 --> 00:12:28,560
journey I would say for the agency and

276
00:12:36,110 --> 00:12:32,279
for Artemis so thank you thanks Howard

277
00:12:40,430 --> 00:12:38,509
let's see this evening we got to see a

278
00:12:41,750 --> 00:12:40,440
truly exciting launch that I think is

279
00:12:43,030 --> 00:12:41,760
the beginning of a really exciting

280
00:12:46,009 --> 00:12:43,040
Mission

281
00:12:48,410 --> 00:12:46,019
the LCC team just did a Flawless job

282
00:12:50,750 --> 00:12:48,420
getting through tanking and getting to

283
00:12:53,449 --> 00:12:50,760
lift off and then the MCC Houston team

284
00:12:57,050 --> 00:12:53,459
had a seamless Handover and executed the

285
00:12:58,190 --> 00:12:57,060
remainder of that um that ascent and up

286
00:12:58,730 --> 00:12:58,200
to orbit

287
00:13:00,650 --> 00:12:58,740
um

288
00:13:02,870 --> 00:13:00,660

it was really great to get to see those

289
00:13:04,310 --> 00:13:02,880
teams get the opportunity to use the

290
00:13:06,610 --> 00:13:04,320
expertise that they've developed over

291
00:13:09,650 --> 00:13:06,620
years of training and preparation

292
00:13:11,329 --> 00:13:09,660
this mission is not only going to test

293
00:13:12,829 --> 00:13:11,339
the spacecraft but it's going to test

294
00:13:15,710 --> 00:13:12,839
the teams as well

295
00:13:17,449 --> 00:13:15,720
and you know as we've mentioned we've

296
00:13:20,810 --> 00:13:17,459
already had some opportunities to work

297
00:13:22,490 --> 00:13:20,820
through some of those tests and I I am

298
00:13:23,990 --> 00:13:22,500
fairly confident that as we progress

299
00:13:26,210 --> 00:13:24,000
farther to the Moon we're going to run

300
00:13:28,430 --> 00:13:26,220
into a few more

301
00:13:30,290 --> 00:13:28,440
um as we

302
00:13:31,910 --> 00:13:30,300
the exciting thing about this flight is

303
00:13:33,530 --> 00:13:31,920
getting to see how this ship is going to

304
00:13:35,269 --> 00:13:33,540
behave in space how its systems are

305
00:13:38,389 --> 00:13:35,279
going to react to the deep space

306
00:13:40,610 --> 00:13:38,399
environment and so next step right about

307
00:13:42,949 --> 00:13:40,620
now the team is characterizing

308
00:13:45,350 --> 00:13:42,959
performance of the solar array structure

309
00:13:48,530 --> 00:13:45,360
so that we have a good understanding of

310
00:13:50,810 --> 00:13:48,540
how the the spacecraft reacts when we do

311
00:13:52,550 --> 00:13:50,820
burns and then here in several hours

312
00:13:54,470 --> 00:13:52,560
we'll do our first outbound trajectory

313
00:13:55,850 --> 00:13:54,480

correction burn using the Orion engine

314
00:13:57,710 --> 00:13:55,860
so that we'll get to see how those

315
00:13:59,930 --> 00:13:57,720
systems behave we'll get to characterize

316
00:14:02,210 --> 00:13:59,940
that performance as well it's going to

317
00:14:03,590 --> 00:14:02,220
be a really exciting ride and kind of

318
00:14:05,150 --> 00:14:03,600
like Mike I'm not sure we'll get a whole

319
00:14:07,310 --> 00:14:05,160
lot of sleep in the next 26 days but

320
00:14:08,750 --> 00:14:07,320
it'll certainly be worth it

321
00:14:10,610 --> 00:14:08,760
um so really looking forward to

322
00:14:13,310 --> 00:14:10,620
everything we're going to learn here

323
00:14:15,170 --> 00:14:13,320
back to you Jackie thanks Emily and

324
00:14:16,490 --> 00:14:15,180
before we open it up for questions we

325
00:14:19,430 --> 00:14:16,500
want to show you some of the first

326
00:14:47,389 --> 00:14:19,440
images of Earth from Orion as it heads

327
00:14:52,430 --> 00:14:50,629
all right now for the fun part if you

328
00:14:54,949 --> 00:14:52,440
could please raise your name I mean your

329
00:14:58,370 --> 00:14:54,959
hand I'm sorry

330
00:15:03,590 --> 00:15:01,009
Associated Press for Mr Nelson

331
00:15:06,769 --> 00:15:03,600
um Apollo is a tough act to follow and

332
00:15:09,470 --> 00:15:06,779
and looking back on what has gone before

333
00:15:13,370 --> 00:15:09,480
uh with the moon what were your emotions

334
00:15:15,110 --> 00:15:13,380
at liftoff and how do you see what

335
00:15:18,829 --> 00:15:15,120
happened today is going down in space

336
00:15:24,530 --> 00:15:20,629
um

337
00:15:27,110 --> 00:15:24,540
one of the emotions I had was that I

338
00:15:30,470 --> 00:15:27,120

wish that members of

339
00:15:32,449 --> 00:15:30,480
the crew that I had participated in

340
00:15:33,829 --> 00:15:32,459
were here

341
00:15:37,490 --> 00:15:33,839
uh

342
00:15:38,990 --> 00:15:37,500
a group of professionals The Best of the

343
00:15:44,150 --> 00:15:39,000
Best

344
00:15:46,850 --> 00:15:44,160
and to see the culmination of a lot of a

345
00:15:52,610 --> 00:15:46,860
lifetime that of

346
00:15:58,910 --> 00:15:54,530
I think

347
00:16:01,730 --> 00:15:58,920
back to the real sacrifices the

348
00:16:05,569 --> 00:16:01,740
astronauts that we've lost

349
00:16:09,769 --> 00:16:05,579
not only in flight and Apollo 1 but in

350
00:16:15,949 --> 00:16:13,490
all of those emotions welled up in me

351
00:16:19,269 --> 00:16:15,959
today

352
00:16:21,889 --> 00:16:19,279
and you should have heard the other

353
00:16:24,790 --> 00:16:21,899
astronauts that I was standing with we

354
00:16:29,329 --> 00:16:24,800
were down in the launch control center

355
00:16:33,410 --> 00:16:29,339
and all went up on the roof

356
00:16:38,030 --> 00:16:33,420
so that we can feel that acoustic shock

357
00:16:41,509 --> 00:16:38,040
wave and and and see undiminished that

358
00:16:43,850 --> 00:16:41,519
tale of a flame of fire

359
00:16:45,889 --> 00:16:43,860
and then to see that pillar of smoke

360
00:16:47,689 --> 00:16:45,899
even in the dark

361
00:16:53,210 --> 00:16:47,699
of night

362
00:17:00,710 --> 00:16:55,129
thank you

363
00:17:05,510 --> 00:17:03,769

thanks a question for John Honeycutt um

364
00:17:07,189 --> 00:17:05,520
this rocket it's been a decade in the

365
00:17:08,929 --> 00:17:07,199
making there's been you know billions in

366
00:17:10,669 --> 00:17:08,939
cost overruns and there's been a lot of

367
00:17:11,990 --> 00:17:10,679
engineering challenges to get to this

368
00:17:14,210 --> 00:17:12,000
point if you could just kind of tell us

369
00:17:17,270 --> 00:17:14,220
a little bit how it feels to finally see

370
00:17:18,770 --> 00:17:17,280
this thing come alive and launch uh what

371
00:17:20,689 --> 00:17:18,780
does that feel like and then quick one

372
00:17:21,829 --> 00:17:20,699
for uh Mike

373
00:17:23,750 --> 00:17:21,839
um can you kind of go into details about

374
00:17:26,630 --> 00:17:23,760
the funnies that you said you you guys

375
00:17:28,909 --> 00:17:26,640
saw uh during the mission and um whether

376
00:17:31,669 --> 00:17:28,919
there was any debris that was created

377
00:17:33,650 --> 00:17:31,679
from the uh Orion and the RTV issue that

378
00:17:36,169 --> 00:17:33,660
you guys might have expected as a risk

379
00:17:40,789 --> 00:17:38,510
yeah I'll tell you it feels great

380
00:17:42,529 --> 00:17:40,799
to get through to get to get to Rocket

381
00:17:44,210 --> 00:17:42,539
eye and it feels even better to have it

382
00:17:47,169 --> 00:17:44,220
performed the way it did

383
00:17:49,789 --> 00:17:47,179
you know and it's uh

384
00:17:52,010 --> 00:17:49,799
it's been a long time coming but if I

385
00:17:53,450 --> 00:17:52,020
think if you study history and look back

386
00:17:56,390 --> 00:17:53,460
on it these things don't happen

387
00:17:59,750 --> 00:17:56,400
overnight and it followed they all

388
00:18:02,230 --> 00:17:59,760

followed similar timelines

389
00:18:05,510 --> 00:18:02,240
um my the the

390
00:18:08,570 --> 00:18:05,520
motion that I have that hits me the most

391
00:18:10,850 --> 00:18:08,580
really is you know it's the people that

392
00:18:14,090 --> 00:18:10,860
do the work that make the hardware what

393
00:18:16,909 --> 00:18:14,100
it is of course the hardware does the

394
00:18:18,890 --> 00:18:16,919
job at the end of the day but it's the

395
00:18:21,650 --> 00:18:18,900
people that get us to the launch pad and

396
00:18:24,230 --> 00:18:21,660
have helped us build this foundation and

397
00:18:27,169 --> 00:18:24,240
uh they all take a lot of pride in and I

398
00:18:34,130 --> 00:18:30,350
yeah Joey in in terms of the funnies

399
00:18:35,990 --> 00:18:34,140
that we saw it in terms of the um

400
00:18:37,190 --> 00:18:36,000
imagery findings we're still working

401
00:18:39,590 --> 00:18:37,200
through that

402
00:18:43,190 --> 00:18:39,600
um there there were a couple indications

403
00:18:45,890 --> 00:18:43,200
that we had some debris Liberation

404
00:18:47,630 --> 00:18:45,900
fairly early in ascent and um the team

405
00:18:49,490 --> 00:18:47,640
is still looking at that in terms of

406
00:18:50,150 --> 00:18:49,500
what exactly it was

407
00:18:53,150 --> 00:18:50,160
um

408
00:18:56,029 --> 00:18:53,160
again it's it's too early to say

409
00:18:57,710 --> 00:18:56,039
um the funnies that we saw on the star

410
00:19:01,370 --> 00:18:57,720
trackers there was a component ready

411
00:19:03,950 --> 00:19:01,380
flag that was set and the team had to

412
00:19:05,570 --> 00:19:03,960
resolve and and basically activate the

413
00:19:08,150 --> 00:19:05,580

start trackers in spite of that

414
00:19:10,549 --> 00:19:08,160
component ready flag and then on the

415
00:19:12,350 --> 00:19:10,559
Solar Ray Wings when they were deployed

416
00:19:13,390 --> 00:19:12,360
I think it was Solar Ray Wing number

417
00:19:16,789 --> 00:19:13,400
three

418
00:19:18,610 --> 00:19:16,799
we saw a pair of micro switches that

419
00:19:21,950 --> 00:19:18,620
indicated that it wasn't fully latched

420
00:19:23,510 --> 00:19:21,960
and then they they came in they

421
00:19:25,250 --> 00:19:23,520
basically did indicate that they had

422
00:19:27,230 --> 00:19:25,260
latched which indicates it was probably

423
00:19:29,570 --> 00:19:27,240
like a thermal condition

424
00:19:32,630 --> 00:19:29,580
um especially when when you take a

425
00:19:34,430 --> 00:19:32,640
vehicle and you you take it from you

426
00:19:36,110 --> 00:19:34,440
know conditions ambient conditions on

427
00:19:37,970 --> 00:19:36,120
Earth that we purge and then you take it

428
00:19:40,130 --> 00:19:37,980
in the deep space environment sometimes

429
00:19:43,310 --> 00:19:40,140
you get a little bit of thermal gradient

430
00:19:44,390 --> 00:19:43,320
on there and they came in and we knew

431
00:19:47,090 --> 00:19:44,400
that that was something that could

432
00:19:48,250 --> 00:19:47,100
happen fairly early on and then we saw

433
00:19:50,510 --> 00:19:48,260
some

434
00:19:52,909 --> 00:19:50,520
developmental flight instrumentation on

435
00:19:56,930 --> 00:19:52,919
the rocket that dropped out during the

436
00:19:58,549 --> 00:19:56,940
ascent those were you know at this stage

437
00:19:59,750 --> 00:19:58,559
of the game relatively benign we pressed

438
00:20:02,450 --> 00:19:59,760

all the way through the point of trans

439
00:20:05,210 --> 00:20:02,460
lunar injection in spite of those and

440
00:20:06,590 --> 00:20:05,220
um you know right now we're not terribly

441
00:20:07,909 --> 00:20:06,600
concerned with any of those I don't know

442
00:20:09,770 --> 00:20:07,919
Howard if you have any additional

443
00:20:12,350 --> 00:20:09,780
thoughts on that no I think you covered

444
00:20:14,870 --> 00:20:12,360
very well and of course uh we're also

445
00:20:16,970 --> 00:20:14,880
excited to look at the data and we'll

446
00:20:18,529 --> 00:20:16,980
keep analyzing data and look at what

447
00:20:21,350 --> 00:20:18,539
that tells us

448
00:20:22,610 --> 00:20:21,360
yeah and understand that you know things

449
00:20:26,029 --> 00:20:22,620
will go wrong

450
00:20:26,930 --> 00:20:26,039
uh this is a new system and it's a test

451
00:20:29,090 --> 00:20:26,940
flight

452
00:20:31,909 --> 00:20:29,100
and so we're going to expect those

453
00:20:33,710 --> 00:20:31,919
things to go wrong and then we're going

454
00:20:39,049 --> 00:20:33,720
to try to work them

455
00:20:43,370 --> 00:20:40,730
space

456
00:20:48,710 --> 00:20:43,380
is uh real hard

457
00:20:57,049 --> 00:20:51,830
thank you Tom Costello with NBC

458
00:20:59,930 --> 00:20:59,210
thank you well congratulations to all of

459
00:21:02,930 --> 00:20:59,940
you

460
00:21:07,789 --> 00:21:02,940
um Mr Nelson I'm wondering uh it has

461
00:21:10,730 --> 00:21:07,799
been it 50 years next month since uh we

462
00:21:13,130 --> 00:21:10,740
saw humans on the moon and now the first

463
00:21:15,470 --> 00:21:13,140

step of returning to the moon so I'm

464
00:21:17,090 --> 00:21:15,480
wondering uh you talked about the

465
00:21:18,890 --> 00:21:17,100
emotions and you thought about those

466
00:21:21,950 --> 00:21:18,900
that were lost in the space program over

467
00:21:24,650 --> 00:21:21,960
the years but to think that now five

468
00:21:27,409 --> 00:21:24,660
decades later the first steps in going

469
00:21:29,029 --> 00:21:27,419
back I wonder if you could uh address

470
00:21:31,909 --> 00:21:29,039
that and then also you talked about

471
00:21:34,370 --> 00:21:31,919
needing to stress it and test it to a

472
00:21:36,649 --> 00:21:34,380
greater extreme so that you know exactly

473
00:21:38,570 --> 00:21:36,659
what the astronauts will be in for uh

474
00:21:42,110 --> 00:21:38,580
what does that mean to stress it and

475
00:21:43,909 --> 00:21:42,120
test it uh and to this extent now how

476
00:21:47,690 --> 00:21:43,919
will you be doing that what does that

477
00:21:50,990 --> 00:21:47,700
mean well it has a lot more sensors than

478
00:21:54,830 --> 00:21:51,000
will be on the rockets in the future and

479
00:21:57,310 --> 00:21:54,840
that's to know how the the vehicle and

480
00:22:02,590 --> 00:21:57,320
vehicles perform

481
00:22:04,430 --> 00:22:02,600
uh why are we uh going back uh because

482
00:22:07,190 --> 00:22:04,440
our call

483
00:22:08,510 --> 00:22:07,200
is we're going out to explore the

484
00:22:11,690 --> 00:22:08,520
heavens

485
00:22:14,210 --> 00:22:11,700
and this is the next step

486
00:22:16,370 --> 00:22:14,220
so we went to the moon and we were there

487
00:22:18,230 --> 00:22:16,380
for a short period of time and we came

488
00:22:21,110 --> 00:22:18,240

back

489
00:22:25,669 --> 00:22:21,120
then we had Skylab and we started to

490
00:22:28,430 --> 00:22:25,679
learn how to live longer in zero g

491
00:22:31,210 --> 00:22:28,440
then we had the space shuttle and we

492
00:22:34,970 --> 00:22:31,220
built the Space Station

493
00:22:37,430 --> 00:22:34,980
and now we're going back to the Moon not

494
00:22:40,430 --> 00:22:37,440
just for the sake of going to the Moon

495
00:22:42,590 --> 00:22:40,440
but to learn to live

496
00:22:44,930 --> 00:22:42,600
to develop

497
00:22:58,250 --> 00:22:44,940
to

498
00:23:02,110 --> 00:22:58,260
the Moon is just a few days away

499
00:23:03,950 --> 00:23:02,120
Mars is months and months away

500
00:23:06,590 --> 00:23:03,960
and uh

501
00:23:10,070 --> 00:23:06,600
we are understanding now from the James

502
00:23:13,070 --> 00:23:10,080
Webb Space Telescope just how big and

503
00:23:16,250 --> 00:23:13,080
vast this universe is

504
00:23:20,090 --> 00:23:16,260
there's a lot out there to explore

505
00:23:26,930 --> 00:23:20,100
and this is the next beginning

506
00:23:32,450 --> 00:23:29,570
thank you

507
00:23:35,029 --> 00:23:32,460
up here I'm in the front

508
00:23:37,130 --> 00:23:35,039
hi Ken Kramer space up close uh well

509
00:23:40,490 --> 00:23:37,140
congratulations to all of you that was

510
00:23:43,070 --> 00:23:40,500
so impressive and inspiring and thanks

511
00:23:44,750 --> 00:23:43,080
for letting us be here so Bill I'd like

512
00:23:46,730 --> 00:23:44,760
to ask you a question I wonder if you

513
00:23:49,730 --> 00:23:46,740

may have spoken with President Biden at

514
00:23:52,549 --> 00:23:49,740
all what what is his reaction and and do

515
00:23:54,649 --> 00:23:52,559
you see this increasing support for NASA

516
00:23:56,990 --> 00:23:54,659
and and international Partners have you

517
00:24:00,649 --> 00:23:57,000
heard any from any of them who work with

518
00:24:04,370 --> 00:24:00,659
Artemis in the Gateway project thank you

519
00:24:09,350 --> 00:24:04,380
well as you know uh the president is in

520
00:24:10,850 --> 00:24:09,360
Bali Indonesia and uh I would not be

521
00:24:14,049 --> 00:24:10,860
surprised

522
00:24:17,470 --> 00:24:14,059
that since it was daytime over there

523
00:24:21,049 --> 00:24:17,480
whereas it's night time here

524
00:24:25,430 --> 00:24:21,059
if whatever meeting he was in

525
00:24:29,029 --> 00:24:25,440
if his assistants did not take a TV to

526
00:24:34,930 --> 00:24:29,039
him and show him the launch

527
00:24:39,890 --> 00:24:37,669
and I look forward to speaking to him

528
00:24:42,049 --> 00:24:39,900
sometime after he gets back and gets

529
00:24:44,870 --> 00:24:42,059
over his jet lag

530
00:24:46,669 --> 00:24:44,880
now what was your second question

531
00:24:48,470 --> 00:24:46,679
do you think this is going to increase

532
00:24:51,350 --> 00:24:48,480
support in the Congress and have you

533
00:24:54,649 --> 00:24:51,360
heard from International partners

534
00:24:58,430 --> 00:24:54,659
first of all I think it's noteworthy

535
00:25:00,890 --> 00:24:58,440
that in a nation in which our politics

536
00:25:03,529 --> 00:25:00,900
is so split

537
00:25:06,770 --> 00:25:03,539
where do you have

538
00:25:08,630 --> 00:25:06,780

both ours and D's come together

539
00:25:13,930 --> 00:25:08,640
to support

540
00:25:18,110 --> 00:25:13,940
in our space program is such a place of

541
00:25:21,110 --> 00:25:18,120
reconciliation and camaraderie

542
00:25:24,130 --> 00:25:21,120
and bipartisanship

543
00:25:28,250 --> 00:25:24,140
and so I think

544
00:25:30,430 --> 00:25:28,260
the success of of this rocket and the

545
00:25:34,190 --> 00:25:30,440
future potential success of the mission

546
00:25:37,190 --> 00:25:34,200
is only going to energize the support

547
00:25:40,549 --> 00:25:37,200
that we have in Congress my goodness

548
00:25:44,330 --> 00:25:40,559
look at the diet of successes that

549
00:25:46,490 --> 00:25:44,340
they've been fed perseverance Ingenuity

550
00:25:50,210 --> 00:25:46,500
all on Mars

551
00:25:51,649 --> 00:25:50,220
Dart hitting a bullseye seven million

552
00:25:54,710 --> 00:25:51,659
miles away

553
00:25:55,870 --> 00:25:54,720
look at all the science that has come

554
00:25:59,269 --> 00:25:55,880
out

555
00:26:02,990 --> 00:25:59,279
and now James Webb Space Telescope

556
00:26:05,330 --> 00:26:03,000
giving us these unbelievable pictures

557
00:26:07,669 --> 00:26:05,340
of light that's been traveling for 13

558
00:26:10,730 --> 00:26:07,679
and a half billion years

559
00:26:13,149 --> 00:26:10,740
and now going back to the Moon in order

560
00:26:17,630 --> 00:26:13,159
to go to Mars

561
00:26:24,470 --> 00:26:17,640
uh that I think is going to engender a

562
00:26:31,669 --> 00:26:26,450
next question

563
00:26:36,230 --> 00:26:33,590

hi Andrea leinfelder of the Houston

564
00:26:37,490 --> 00:26:36,240
Chronicle um administrator Nelson you

565
00:26:39,769 --> 00:26:37,500
know in 2010 you were essential for

566
00:26:42,350 --> 00:26:39,779
getting the NASA authorization act um

567
00:26:43,789 --> 00:26:42,360
passed and so you saw the legislative

568
00:26:44,990 --> 00:26:43,799
side and now you've gone to implement

569
00:26:46,490 --> 00:26:45,000
and you've gotten the rocket off the

570
00:26:48,409 --> 00:26:46,500
ground so I'm I'm curious how your

571
00:26:49,909 --> 00:26:48,419
perspective has changed from when you

572
00:26:51,649 --> 00:26:49,919
were writing the builds when you're

573
00:26:53,210 --> 00:26:51,659
implementing it um you know what the

574
00:26:54,830 --> 00:26:53,220
experience has been like and if if you

575
00:26:56,390 --> 00:26:54,840
think you would see things differently

576
00:27:00,230 --> 00:26:56,400
now that you've been on the the

577
00:27:06,769 --> 00:27:03,110
one of the first things that I did when

578
00:27:09,890 --> 00:27:06,779
we got back to the buildings here was I

579
00:27:11,510 --> 00:27:09,900
sent a text to Senator K Bailey

580
00:27:14,590 --> 00:27:11,520
Hutchinson

581
00:27:17,990 --> 00:27:14,600
who was my partner

582
00:27:20,149 --> 00:27:18,000
in crafting the legislation back 12

583
00:27:24,049 --> 00:27:20,159
years ago

584
00:27:26,750 --> 00:27:24,059
uh as soon as I can get their address

585
00:27:30,529 --> 00:27:26,760
I will also be texting

586
00:27:32,930 --> 00:27:30,539
Rob Nabors who was an assistant in the

587
00:27:35,390 --> 00:27:32,940
White House to President Obama

588
00:27:38,990 --> 00:27:35,400

and to Jack Lew

589
00:27:42,590 --> 00:27:39,000
who was the director of the OMB at the

590
00:27:44,690 --> 00:27:42,600
time he became later the chief of staff

591
00:27:48,830 --> 00:27:44,700
to President Obama

592
00:27:50,169 --> 00:27:48,840
and then ended up as Secretary of the

593
00:27:53,269 --> 00:27:50,179
Treasury

594
00:27:55,250 --> 00:27:53,279
to congratulate them

595
00:27:57,049 --> 00:27:55,260
as I did k

596
00:27:58,630 --> 00:27:57,059
as well

597
00:28:02,570 --> 00:27:58,640
uh

598
00:28:07,250 --> 00:28:02,580
that's just a spec I mean the

599
00:28:12,409 --> 00:28:07,260
congratulations goes to everybody

600
00:28:18,230 --> 00:28:16,310
that performance today tonight

601
00:28:23,810 --> 00:28:18,240
that you saw

602
00:28:27,110 --> 00:28:23,820
and so my perspective has changed

603
00:28:34,850 --> 00:28:30,970
I get to see it from this point of view

604
00:28:37,970 --> 00:28:34,860
however remember back in those early

605
00:28:39,549 --> 00:28:37,980
legislative years I got to see it from

606
00:28:43,310 --> 00:28:39,559
an inside view

607
00:28:45,649 --> 00:28:43,320
when I participated in that 24th Flight

608
00:28:49,549 --> 00:28:45,659
of the Space Shuttle

609
00:28:52,070 --> 00:28:49,559
and so this is really a gratifying time

610
00:28:56,090 --> 00:28:52,080
but it's only going to get better

611
00:29:00,230 --> 00:28:56,100
in two years we're going to be sending

612
00:29:02,570 --> 00:29:00,240
humans to the Moon in three years

613
00:29:05,149 --> 00:29:02,580

we're going to be landing on the moon

614
00:29:06,850 --> 00:29:05,159
and then it's going to be a series of

615
00:29:11,090 --> 00:29:06,860
things including

616
00:29:17,690 --> 00:29:11,100
someone mentioned earlier Gateway

617
00:29:22,850 --> 00:29:17,700
a lunar Outpost a a mini Space Station

618
00:29:24,190 --> 00:29:22,860
so Artemis 4 is actually going to go up

619
00:29:29,110 --> 00:29:24,200
install

620
00:29:31,970 --> 00:29:29,120
Gateway in this lunar elliptical

621
00:29:33,529 --> 00:29:31,980
polar orbit

622
00:29:35,930 --> 00:29:33,539
and then

623
00:29:38,630 --> 00:29:35,940
the Lander is going to come and attach

624
00:29:41,510 --> 00:29:38,640
to Gateway and the transfer of the

625
00:29:44,810 --> 00:29:41,520
astronauts will be through

626
00:29:49,850 --> 00:29:44,820
Gateway the mini Space Station

627
00:29:53,570 --> 00:29:49,860
so one thing will build on another

628
00:29:59,210 --> 00:29:53,580
as we prepare to go to Mars late in the

629
00:29:59,220 --> 00:30:05,930
thank you in the second row here

630
00:30:09,649 --> 00:30:08,090
uh Christopher Mick Hudson star Observer

631
00:30:11,750 --> 00:30:09,659
I'm not sure who would field this

632
00:30:13,789 --> 00:30:11,760
question I was just wondering some of

633
00:30:16,070 --> 00:30:13,799
the early video footage that was coming

634
00:30:18,289 --> 00:30:16,080
down from the icps and the Orion there

635
00:30:20,690 --> 00:30:18,299
appear to be some slight yawing back and

636
00:30:23,330 --> 00:30:20,700
forth to the camera I didn't I'm kind of

637
00:30:24,889 --> 00:30:23,340
used to the kind of locked off no motion

638
00:30:26,269 --> 00:30:24,899

of the camera shots before so I didn't

639
00:30:28,370 --> 00:30:26,279
know if this was just unique to the

640
00:30:31,549 --> 00:30:28,380
architecture with the icps and the Orion

641
00:30:33,710 --> 00:30:31,559
or if it was something unexpected

642
00:30:36,769 --> 00:30:33,720
foreign

643
00:30:38,870 --> 00:30:36,779
yeah I'll just say that those um and

644
00:30:41,269 --> 00:30:38,880
Howard can correct me here those images

645
00:30:44,210 --> 00:30:41,279
were from the wingtip cameras on the

646
00:30:47,990 --> 00:30:44,220
Solar Ray wings of Orion and

647
00:30:51,649 --> 00:30:48,000
um they were basically when we had a a

648
00:30:53,750 --> 00:30:51,659
ignition event on the uh on the rl-10

649
00:30:56,210 --> 00:30:53,760
engine which is the Aaron crawl

650
00:30:57,769 --> 00:30:56,220
propulsion stages upper engine we saw

651
00:30:59,630 --> 00:30:57,779
that during the perigee raised maneuver

652
00:31:01,010 --> 00:30:59,640
but then also at the ignition and

653
00:31:03,169 --> 00:31:01,020
startup of the translator injection

654
00:31:05,330 --> 00:31:03,179
maneuver it's normal we knew that that

655
00:31:07,370 --> 00:31:05,340
would happen there's a reason that we

656
00:31:09,950 --> 00:31:07,380
position those solar rays in a very

657
00:31:13,850 --> 00:31:09,960
specific position because we do impart a

658
00:31:15,710 --> 00:31:13,860
load on the um on these Solar Ray wings

659
00:31:17,210 --> 00:31:15,720
and they are fairly lengthy Howard

660
00:31:19,250 --> 00:31:17,220
probably knows exactly how long the

661
00:31:21,649 --> 00:31:19,260
Solar Ray wings are I don't remember off

662
00:31:22,730 --> 00:31:21,659
top my head but um you know there's a

663
00:31:24,529 --> 00:31:22,740

reason that we put those in those

664
00:31:25,909 --> 00:31:24,539
positions I don't know if you have

665
00:31:29,750 --> 00:31:25,919
anything to add Howard no I think that

666
00:31:43,070 --> 00:31:32,630
thank you Jeff Faust with space news in

667
00:31:46,190 --> 00:31:44,630
Jeff house space news question probably

668
00:31:47,450 --> 00:31:46,200
from Mike Bulger I think we were all

669
00:31:49,669 --> 00:31:47,460
holding our breaths when we heard about

670
00:31:50,930 --> 00:31:49,679
the hydrogen leak fortunately it was

671
00:31:53,750 --> 00:31:50,940
fixed I wonder if you could talk us

672
00:31:55,970 --> 00:31:53,760
through exactly what the problem was and

673
00:31:58,010 --> 00:31:55,980
what that red crew team did when they

674
00:32:00,470 --> 00:31:58,020
went out to the pad uh to fix the

675
00:32:02,690 --> 00:32:00,480
problem yeah definitely be glad to

676
00:32:03,529 --> 00:32:02,700
before I did you know as I kind of had a

677
00:32:04,730 --> 00:32:03,539
chance to listen to some of the

678
00:32:06,289 --> 00:32:04,740
questions and just look out into the

679
00:32:08,750 --> 00:32:06,299
crowd I love that there are so many

680
00:32:10,669 --> 00:32:08,760
Artemis shirts Artemis hats I love that

681
00:32:12,169 --> 00:32:10,679
you know we've got a media team that is

682
00:32:13,789 --> 00:32:12,179
as excited about what we're doing as

683
00:32:16,130 --> 00:32:13,799
y'all are so I just wanted to thank

684
00:32:18,649 --> 00:32:16,140
everybody for that so yeah

685
00:32:21,529 --> 00:32:18,659
um let's see what we had was we had a

686
00:32:22,850 --> 00:32:21,539
leak and a replenish valve which is down

687
00:32:28,250 --> 00:32:22,860
in a

688
00:32:31,190 --> 00:32:28,260

got in the base of the mobile launcher

689
00:32:33,230 --> 00:32:31,200
um and so you know that that caused us

690
00:32:35,090 --> 00:32:33,240
to go into a stop flow on both core

691
00:32:36,649 --> 00:32:35,100
stage and upper stage while we resolved

692
00:32:37,850 --> 00:32:36,659
the the leak that we were seeing in the

693
00:32:40,250 --> 00:32:37,860
base

694
00:32:41,990 --> 00:32:40,260
um we sent a red team out and and

695
00:32:44,210 --> 00:32:42,000
basically what the red team

696
00:32:45,409 --> 00:32:44,220
was doing we had a couple folks in there

697
00:32:46,730 --> 00:32:45,419
it was kind of a tight I don't know if

698
00:32:48,230 --> 00:32:46,740
you can see the video I'm not sure what

699
00:32:50,090 --> 00:32:48,240
you're seeing and what kind of a tight

700
00:32:51,230 --> 00:32:50,100
fit but um out there with a torque

701
00:32:52,789 --> 00:32:51,240
wrench and they were tightening down

702
00:32:53,930 --> 00:32:52,799
some packing nuts and they were

703
00:32:55,310 --> 00:32:53,940
basically there were two two packing

704
00:32:57,230 --> 00:32:55,320
nuts and they were tightening down

705
00:32:59,450 --> 00:32:57,240
either side of them

706
00:33:00,529 --> 00:32:59,460
um they tightened them um they recycled

707
00:33:02,630 --> 00:33:00,539
the valve

708
00:33:03,769 --> 00:33:02,640
um we went back in put a wrench on them

709
00:33:06,289 --> 00:33:03,779
they were still turning a little bit we

710
00:33:07,669 --> 00:33:06,299
we cycled the valve again tightened them

711
00:33:09,110 --> 00:33:07,679
a little more we did a third time and

712
00:33:11,330 --> 00:33:09,120
then they really

713
00:33:13,850 --> 00:33:11,340

um were solid and and so we felt good

714
00:33:15,169 --> 00:33:13,860
that you know the those um packing nuts

715
00:33:18,769 --> 00:33:15,179
in fact were tightened that we had a

716
00:33:21,769 --> 00:33:18,779
good valve and so we got the red team

717
00:33:24,649 --> 00:33:21,779
um back you know away from the pad and

718
00:33:26,389 --> 00:33:24,659
got back into fast fill and then topping

719
00:33:28,549 --> 00:33:26,399
and then replenish and as we did that

720
00:33:30,169 --> 00:33:28,559
you know in fact we had resolved the

721
00:33:32,570 --> 00:33:30,179
problem and and we no longer had that

722
00:33:35,090 --> 00:33:32,580
leak in the base so really great work by

723
00:33:36,769 --> 00:33:35,100
that um red team it's always you know

724
00:33:39,049 --> 00:33:36,779
it's always a hard thing to do to send

725
00:33:40,610 --> 00:33:39,059
the red team out to the launch pad you

726
00:33:41,930 --> 00:33:40,620
only do it when you when you feel like

727
00:33:44,450 --> 00:33:41,940
you have to but in this case I think

728
00:33:46,250 --> 00:33:44,460
team felt you know that really our most

729
00:33:48,230 --> 00:33:46,260
likely case here was that we just had

730
00:33:49,850 --> 00:33:48,240
you know some loose nuts on those valves

731
00:33:51,409 --> 00:33:49,860
and so we sent the team out and they did

732
00:33:53,690 --> 00:33:51,419
a terrific job and we got that issue

733
00:33:55,909 --> 00:33:53,700
resolved so you know definitely a high

734
00:33:57,889 --> 00:33:55,919
moment a a low moment when we first saw

735
00:33:59,870 --> 00:33:57,899
the leaks we all know we've struggled

736
00:34:00,950 --> 00:33:59,880
through some of the hydrogen leaks that

737
00:34:03,470 --> 00:34:00,960
we've had in the past but really a high

738
00:34:05,690 --> 00:34:03,480

moment when we recognized that we'd

739
00:34:07,009 --> 00:34:05,700
solved the problem

740
00:34:08,570 --> 00:34:07,019
thanks Mike

741
00:34:10,369 --> 00:34:08,580
I remind the folks on the phone that if

742
00:34:12,230 --> 00:34:10,379
you have a question we're happy to take

743
00:34:15,290 --> 00:34:12,240
those over the line as well you press

744
00:34:17,570 --> 00:34:15,300
star one to get into the queue

745
00:34:26,470 --> 00:34:17,580
um next up we have a question here in

746
00:34:33,290 --> 00:34:29,990
Japanese newspaper my question is do

747
00:34:35,690 --> 00:34:33,300
administrator Nelson uh in July you

748
00:34:38,930 --> 00:34:35,700
express your concern about China's new

749
00:34:41,510 --> 00:34:38,940
exploration in German newspaper

750
00:34:44,210 --> 00:34:41,520
so now what do you think about China's

751
00:34:47,210 --> 00:34:44,220
new exploration and so would it be

752
00:34:51,290 --> 00:34:47,220
possible for U.S to cooperate with China

753
00:34:55,609 --> 00:34:51,300
regarding Moon expression thank you

754
00:34:59,329 --> 00:34:55,619
the question is do I think that it would

755
00:35:02,750 --> 00:34:59,339
be possible for China and the U.S to

756
00:35:08,810 --> 00:35:04,790
I hope so

757
00:35:14,450 --> 00:35:08,820
but I see no evidence of that

758
00:35:20,410 --> 00:35:14,460
to the contrary what we have seen is a

759
00:35:24,410 --> 00:35:20,420
lack of visibility a secretiveness

760
00:35:28,370 --> 00:35:24,420
a lack of trans parents

761
00:35:30,950 --> 00:35:28,380
uh most recently in the very successful

762
00:35:33,470 --> 00:35:30,960
Mission apparently of them putting up

763
00:35:34,930 --> 00:35:33,480

their third stage for their space

764
00:35:39,589 --> 00:35:34,940
station

765
00:35:42,109 --> 00:35:39,599
not having the stage on re-entry uh

766
00:35:46,510 --> 00:35:42,119
saved enough fuel in order to have a

767
00:35:49,250 --> 00:35:46,520
control re-entry and then not sharing

768
00:35:52,630 --> 00:35:49,260
trajectory information now fortunately

769
00:35:54,770 --> 00:35:52,640
it fell in the ocean

770
00:35:57,589 --> 00:35:54,780
the second

771
00:36:01,370 --> 00:35:57,599
component that went up

772
00:36:03,890 --> 00:36:01,380
there was a chance that we could see

773
00:36:06,710 --> 00:36:03,900
before it fell in the Indian Ocean that

774
00:36:09,530 --> 00:36:06,720
it might come down in Greece and it

775
00:36:11,450 --> 00:36:09,540
might come down then on the track in

776
00:36:13,490 --> 00:36:11,460
Saudi Arabia

777
00:36:14,990 --> 00:36:13,500
fortunately it came down in the Indian

778
00:36:18,410 --> 00:36:15,000
Ocean

779
00:36:22,190 --> 00:36:18,420
so uh

780
00:36:25,210 --> 00:36:22,200
I wish I could give a more optimistic

781
00:36:30,109 --> 00:36:25,220
point of view I personally

782
00:36:32,390 --> 00:36:30,119
talked to the Chinese Ambassador who I

783
00:36:34,270 --> 00:36:32,400
happened to run into at a at a Sunday

784
00:36:37,790 --> 00:36:34,280
brunch

785
00:36:41,510 --> 00:36:37,800
uh and uh

786
00:36:42,710 --> 00:36:41,520
he said well we can uh cooperate and I

787
00:36:45,829 --> 00:36:42,720
said well

788
00:36:48,349 --> 00:36:45,839

uh let me give you an example of

789
00:36:51,589 --> 00:36:48,359
something that you could do

790
00:36:53,210 --> 00:36:51,599
I said 50 years ago we returned samples

791
00:36:55,010 --> 00:36:53,220
from the Moon

792
00:36:56,569 --> 00:36:55,020
we shared that with the International

793
00:37:00,170 --> 00:36:56,579
Community

794
00:37:02,089 --> 00:37:00,180
you have just recently returned a sample

795
00:37:05,150 --> 00:37:02,099
from the Moon

796
00:37:07,430 --> 00:37:05,160
you ought to share that with the

797
00:37:10,130 --> 00:37:07,440
International Community

798
00:37:12,770 --> 00:37:10,140
and that was about six months ago when

799
00:37:20,930 --> 00:37:12,780
we had that conversation and nothing has

800
00:37:25,310 --> 00:37:23,030
hi Sophie Sanchez with Cosmic Chicago

801
00:37:26,329 --> 00:37:25,320
first of all congratulations to all of

802
00:37:29,089 --> 00:37:26,339
you

803
00:37:31,310 --> 00:37:29,099
um my question is from Mike Boulder

804
00:37:33,950 --> 00:37:31,320
um a follow-up on the question I asked

805
00:37:35,390 --> 00:37:33,960
Charlie back in August regarding the

806
00:37:36,410 --> 00:37:35,400
role of the red crew and assisting

807
00:37:38,870 --> 00:37:36,420
launches

808
00:37:41,329 --> 00:37:38,880
she said then that the difference

809
00:37:43,430 --> 00:37:41,339
between shuttle and now was the use of

810
00:37:45,589 --> 00:37:43,440
high tech cameras and just more

811
00:37:48,370 --> 00:37:45,599
technology in general so that the crew

812
00:37:51,650 --> 00:37:48,380
can evaluate and Report remotely

813
00:37:55,010 --> 00:37:51,660

but then she also said that up until now

814
00:37:57,170 --> 00:37:55,020
that has been adequate and you guys but

815
00:37:59,510 --> 00:37:57,180
you still have the option to send the

816
00:38:00,829 --> 00:37:59,520
red crew to the pad if you needed to can

817
00:38:03,230 --> 00:38:00,839
you tell me a little bit about that

818
00:38:06,170 --> 00:38:03,240
moment in the countdown when you guys

819
00:38:08,510 --> 00:38:06,180
realize that Tech alone wasn't going

820
00:38:10,310 --> 00:38:08,520
wasn't adequate enough and you needed to

821
00:38:12,710 --> 00:38:10,320
send the crew how was that decision

822
00:38:15,109 --> 00:38:12,720
decision made

823
00:38:17,390 --> 00:38:15,119
it's an interesting question so let me

824
00:38:19,490 --> 00:38:17,400
think so you know we recognized we had a

825
00:38:21,710 --> 00:38:19,500
leak and and

826
00:38:23,450 --> 00:38:21,720
um we were able to get a camera on it

827
00:38:25,069 --> 00:38:23,460
although it wasn't a great view we kind

828
00:38:26,750 --> 00:38:25,079
of were seeing the the top half and we

829
00:38:28,550 --> 00:38:26,760
could see some Vapors

830
00:38:30,349 --> 00:38:28,560
um and so that helped inform that you

831
00:38:32,930 --> 00:38:30,359
know in fact what what our measurements

832
00:38:34,849 --> 00:38:32,940
were telling us we could also visually

833
00:38:35,990 --> 00:38:34,859
verify we we talked about were there

834
00:38:37,370 --> 00:38:36,000
options

835
00:38:39,230 --> 00:38:37,380
um where we wouldn't have to send a red

836
00:38:41,510 --> 00:38:39,240
team out there and and specifically we

837
00:38:43,730 --> 00:38:41,520
were talking about could you basically

838
00:38:46,970 --> 00:38:43,740

um shut the replenish valve off and use

839
00:38:50,030 --> 00:38:46,980
the the main the main valve

840
00:38:51,710 --> 00:38:50,040
um in a very delicate way to try to

841
00:38:54,290 --> 00:38:51,720
perform that same function of a

842
00:38:56,030 --> 00:38:54,300
replenish and as and the the cryo team

843
00:38:57,470 --> 00:38:56,040
which is an amazing team here at the

844
00:38:59,390 --> 00:38:57,480
Kennedy Space Center had actually

845
00:39:01,010 --> 00:38:59,400
written with a procedure and determined

846
00:39:02,510 --> 00:39:01,020
how they would do that if it ever came

847
00:39:04,670 --> 00:39:02,520
to the point where they had a replenish

848
00:39:06,530 --> 00:39:04,680
valve that wasn't working but none of us

849
00:39:08,510 --> 00:39:06,540
really thought that was an ideal

850
00:39:09,890 --> 00:39:08,520
approach particularly as we've talked

851
00:39:11,450 --> 00:39:09,900
about kind of needing to have this kind

852
00:39:13,190 --> 00:39:11,460
during gentler loading process we're

853
00:39:15,050 --> 00:39:13,200
concerned about we're normally way you

854
00:39:17,150 --> 00:39:15,060
would have a you know you'd be using a

855
00:39:19,430 --> 00:39:17,160
replenished valve with a much lower flow

856
00:39:21,230 --> 00:39:19,440
and I would be trying to manage this

857
00:39:23,450 --> 00:39:21,240
issue with a different valve which was a

858
00:39:25,490 --> 00:39:23,460
lot bigger and and really as the team

859
00:39:27,589 --> 00:39:25,500
talked about it that you know the I

860
00:39:29,630 --> 00:39:27,599
think the prevailing opinion was it's

861
00:39:30,890 --> 00:39:29,640
probably these packing Nets let's go out

862
00:39:32,089 --> 00:39:30,900
there and let's just put a wrench on

863
00:39:34,010 --> 00:39:32,099

them and let's see if a turn of the

864
00:39:35,630 --> 00:39:34,020
wrench is going to resolve this issue

865
00:39:37,430 --> 00:39:35,640
and and when we got out there and when

866
00:39:39,109 --> 00:39:37,440
we got that wrench on and when it turned

867
00:39:41,089 --> 00:39:39,119
you know we started to feel pretty good

868
00:39:44,030 --> 00:39:41,099
that we probably were going to be able

869
00:39:45,890 --> 00:39:44,040
to resolve this so you know I I

870
00:39:48,050 --> 00:39:45,900
appreciate your question about how does

871
00:39:49,430 --> 00:39:48,060
technology help you and there are so

872
00:39:51,349 --> 00:39:49,440
many ways that it does and you talk

873
00:39:52,849 --> 00:39:51,359
about the ability to get imagery that

874
00:39:54,349 --> 00:39:52,859
you can never get before there are also

875
00:39:56,630 --> 00:39:54,359
times you just got to put a wrench on a

876
00:39:57,829 --> 00:39:56,640
nut and you got to resolve an issue that

877
00:40:01,069 --> 00:39:57,839
you've got and that's where we ended up

878
00:40:01,079 --> 00:40:13,550
Marcia Smith of space policy online

879
00:40:16,790 --> 00:40:15,170
thank you I think this is to Mike

880
00:40:18,589 --> 00:40:16,800
Serafin I'm curious if you have any

881
00:40:21,290 --> 00:40:18,599
update on the cubesats were they all

882
00:40:23,990 --> 00:40:21,300
deployed are they all functioning

883
00:40:27,050 --> 00:40:24,000
yeah Marcia thank you for the question

884
00:40:29,990 --> 00:40:27,060
um in terms of the cubesat deploys the

885
00:40:32,870 --> 00:40:30,000
earliest deploys are

886
00:40:35,089 --> 00:40:32,880
um not quite four hours into the mission

887
00:40:38,270 --> 00:40:35,099
and I'm not sure exactly where we are

888
00:40:40,310 --> 00:40:38,280

timeline wise we're probably it's partly

889
00:40:42,890 --> 00:40:40,320
because of the uh the Sleep shift in the

890
00:40:45,410 --> 00:40:42,900
early morning launch but um the first

891
00:40:47,930 --> 00:40:45,420
group of five ought to be deployed any

892
00:40:50,450 --> 00:40:47,940
time now and they continue on until

893
00:40:54,650 --> 00:40:50,460
about eight hours after launch so

894
00:40:56,390 --> 00:40:54,660
there's they're starting soon and we

895
00:41:00,349 --> 00:40:56,400
needed to get separated from the Orion

896
00:41:03,589 --> 00:41:00,359
spacecraft to expose the uh deployment

897
00:41:05,150 --> 00:41:03,599
area and then the the interim crowd

898
00:41:06,710 --> 00:41:05,160
propulsion stage needed a performance

899
00:41:09,170 --> 00:41:06,720
disposal maneuver all that has happened

900
00:41:11,510 --> 00:41:09,180
so now we're setting up for that um

901
00:41:13,730 --> 00:41:11,520
cubesat deployment phase and I haven't

902
00:41:15,230 --> 00:41:13,740
heard heard of the status of those yet

903
00:41:18,170 --> 00:41:15,240
but we will get an update as we get

904
00:41:20,450 --> 00:41:18,180
further into the mission on those

905
00:41:22,069 --> 00:41:20,460
and since I have folks talking into my

906
00:41:24,230 --> 00:41:22,079
ear I can tell you that they are

907
00:41:25,970 --> 00:41:24,240
expected to have been deployed at this

908
00:41:29,690 --> 00:41:25,980
time

909
00:41:34,130 --> 00:41:31,250
um in the second row here

910
00:41:36,170 --> 00:41:34,140
in the blue shirt

911
00:41:38,150 --> 00:41:36,180
or third sorry

912
00:41:40,550 --> 00:41:38,160
Stephen Clark from space flight now I

913
00:41:43,730 --> 00:41:40,560

think my question is probably for Mike

914
00:41:47,510 --> 00:41:43,740
Serafin but uh Howard you can pitch in

915
00:41:48,730 --> 00:41:47,520
if you want to uh with this successful

916
00:41:52,430 --> 00:41:48,740
launch I'm wondering if you could

917
00:41:53,569 --> 00:41:52,440
quantify or describe the amount of risk

918
00:41:55,430 --> 00:41:53,579
that's been retired from this Mission

919
00:41:57,890 --> 00:41:55,440
with the successful successful

920
00:42:01,069 --> 00:41:57,900
demonstration of the space launch system

921
00:42:02,750 --> 00:42:01,079
and looking ahead you know I know the

922
00:42:05,390 --> 00:42:02,760
big Priority One objective is getting

923
00:42:07,490 --> 00:42:05,400
the lunar re-entry velocity at re-entry

924
00:42:08,990 --> 00:42:07,500
and Splashdown but over the course of

925
00:42:10,430 --> 00:42:09,000
the outbound Lake to the moon what are

926
00:42:13,069 --> 00:42:10,440
the some of the major test objectives

927
00:42:14,690 --> 00:42:13,079
that are planned over the next few days

928
00:42:16,370 --> 00:42:14,700
yeah Stephen that's a great question

929
00:42:16,970 --> 00:42:16,380
thank you for that question

930
00:42:19,730 --> 00:42:16,980
um

931
00:42:22,609 --> 00:42:19,740
certainly the space launch system

932
00:42:24,710 --> 00:42:22,619
delivering with Precision to the point

933
00:42:27,250 --> 00:42:24,720
of translunar injection was was one of

934
00:42:31,069 --> 00:42:27,260
the objectives and it did exactly that

935
00:42:34,550 --> 00:42:31,079
the insertion altitude was we were

936
00:42:38,630 --> 00:42:34,560
aiming for a 975 by 16 nautical mile

937
00:42:41,990 --> 00:42:38,640
insertion we got 972 by 16. that's well

938
00:42:43,550 --> 00:42:42,000

within the noise of of a of a system

939
00:42:47,150 --> 00:42:43,560
like this

940
00:42:48,849 --> 00:42:47,160
um and then the uh the vehicle delivered

941
00:42:51,530 --> 00:42:48,859
us to the point of translunar injection

942
00:42:53,510 --> 00:42:51,540
uh the the quote that I heard was dead

943
00:42:55,370 --> 00:42:53,520
on but there was a word inserted between

944
00:42:57,050 --> 00:42:55,380
dead on that I won't share with you here

945
00:43:01,430 --> 00:42:57,060
in this

946
00:43:04,970 --> 00:43:01,440
um but that just shows the Precision of

947
00:43:06,650 --> 00:43:04,980
the system in terms of how much risk

948
00:43:08,329 --> 00:43:06,660
that it retires certainly the asset

949
00:43:11,829 --> 00:43:08,339
environment all the separation events

950
00:43:15,230 --> 00:43:11,839
through booster separation the um

951
00:43:17,530 --> 00:43:15,240
the service module uh fairing separation

952
00:43:20,510 --> 00:43:17,540
the jettison of the launch abort system

953
00:43:22,730 --> 00:43:20,520
asset with the uh the core stage and

954
00:43:26,210 --> 00:43:22,740
shutting down the four rs-25 engines

955
00:43:27,190 --> 00:43:26,220
properly jettising the core stage and

956
00:43:29,650 --> 00:43:27,200
then

957
00:43:31,970 --> 00:43:29,660
space at the

958
00:43:33,710 --> 00:43:31,980
interim crowd propulsion stage doing a

959
00:43:35,510 --> 00:43:33,720
pair of G Rays maneuver followed by a

960
00:43:37,730 --> 00:43:35,520
translowner injection maneuver while

961
00:43:39,710 --> 00:43:37,740
you've got the uh

962
00:43:42,829 --> 00:43:39,720
deployment of the Orion solar rays going

963
00:43:45,710 --> 00:43:42,839

on in proximity to it and and

964
00:43:48,890 --> 00:43:45,720
positioning those in time that that all

965
00:43:50,690 --> 00:43:48,900
these choreographed events happen such

966
00:43:52,490 --> 00:43:50,700
that you do it within the load bearing

967
00:43:55,910 --> 00:43:52,500
capability of the system and then

968
00:43:58,069 --> 00:43:55,920
getting Orion converted off of battery

969
00:44:00,230 --> 00:43:58,079
power to Solar Ray power before the

970
00:44:02,470 --> 00:44:00,240
batteries expired all those things were

971
00:44:05,990 --> 00:44:02,480
demonstrated successfully today

972
00:44:08,270 --> 00:44:06,000
and then disposal of the interim crowd

973
00:44:10,010 --> 00:44:08,280
propulsion States responsibly disposing

974
00:44:11,809 --> 00:44:10,020
of the interim crowd propulsion stages

975
00:44:13,190 --> 00:44:11,819
as Senator Nelson was alluding to

976
00:44:14,290 --> 00:44:13,200
earlier

977
00:44:17,530 --> 00:44:14,300
um

978
00:44:20,030 --> 00:44:17,540
now we've well and we flew up through

979
00:44:22,130 --> 00:44:20,040
the low earth orbit and micrometeorite

980
00:44:24,170 --> 00:44:22,140
orbital debris band we had 40 collision

981
00:44:26,030 --> 00:44:24,180
avoidance cutouts today during our two

982
00:44:28,309 --> 00:44:26,040
hour window on the team

983
00:44:29,930 --> 00:44:28,319
um found the right time to go because of

984
00:44:32,510 --> 00:44:29,940
our our ability to Screen through all

985
00:44:35,569 --> 00:44:32,520
that uh

986
00:44:37,849 --> 00:44:35,579
we are heading outbound through the Van

987
00:44:39,910 --> 00:44:37,859
Allen radiation belts those are high

988
00:44:42,950 --> 00:44:39,920

periods of radiate concentration

989
00:44:45,290 --> 00:44:42,960
concentrated radiation we are flying

990
00:44:47,030 --> 00:44:45,300
outbound past the Earth's magnetic field

991
00:44:49,550 --> 00:44:47,040
into the deep space environment where it

992
00:44:51,890 --> 00:44:49,560
gets extremely cold the spacecraft loves

993
00:44:54,109 --> 00:44:51,900
the fly tail the Sun for thermal and

994
00:44:57,650 --> 00:44:54,119
power production and and we've we've

995
00:45:00,829 --> 00:44:57,660
demonstrated all of that now we've got a

996
00:45:02,329 --> 00:45:00,839
lot of of in-space propulsive Maneuvers

997
00:45:04,309 --> 00:45:02,339
ahead of us we'll demonstrate the

998
00:45:06,410 --> 00:45:04,319
service module we'll demonstrate deep

999
00:45:07,690 --> 00:45:06,420
space command and control using the deep

1000
00:45:11,690 --> 00:45:07,700
space Network

1001
00:45:13,069 --> 00:45:11,700
and and then we've got a set up for the

1002
00:45:15,710 --> 00:45:13,079
second part of our Priority One

1003
00:45:17,750 --> 00:45:15,720
objective on the way home which is the

1004
00:45:21,050 --> 00:45:17,760
directory entry of our brand new

1005
00:45:24,470 --> 00:45:21,060
spacecraft with a a new heat shield

1006
00:45:27,230 --> 00:45:24,480
design and then recover it so we've

1007
00:45:29,089 --> 00:45:27,240
we've bought down a lot of risk today

1008
00:45:31,609 --> 00:45:29,099
but we've got a lot of mission ahead of

1009
00:45:34,730 --> 00:45:31,619
us as I said at the outset we are on day

1010
00:45:36,290 --> 00:45:34,740
one of a 22 Six-Day Mission and I don't

1011
00:45:38,329 --> 00:45:36,300
know Howard if you have anything to add

1012
00:45:39,950 --> 00:45:38,339
to that yeah maybe I'll just add a

1013
00:45:41,870 --> 00:45:39,960

couple more things you know Mike that

1014
00:45:43,490 --> 00:45:41,880
was a great recap you know certainly

1015
00:45:45,650 --> 00:45:43,500
going outbound we're going to be testing

1016
00:45:47,450 --> 00:45:45,660
both engines our main engine and of

1017
00:45:49,190 --> 00:45:47,460
course our auxiliary set of engines as

1018
00:45:50,690 --> 00:45:49,200
well so that'll be very important as we

1019
00:45:52,670 --> 00:45:50,700
do all these correction Maneuvers and

1020
00:45:53,870 --> 00:45:52,680
the big Burns and of course the thermal

1021
00:45:56,210 --> 00:45:53,880
environment that we're going to see in

1022
00:45:58,430 --> 00:45:56,220
deep space is going to be always going

1023
00:46:00,230 --> 00:45:58,440
to be a challenge and and uh we're going

1024
00:46:02,990 --> 00:46:00,240
to correlate our models and get the data

1025
00:46:04,609 --> 00:46:03,000
that we need from all our sensors and

1026
00:46:06,170 --> 00:46:04,619
certainly when we come back and do a

1027
00:46:08,829 --> 00:46:06,180
re-entry our parachutes we've done a lot

1028
00:46:10,970 --> 00:46:08,839
of testing on the parachutes you know 27

1029
00:46:13,670 --> 00:46:10,980
qualification and development tests

1030
00:46:16,190 --> 00:46:13,680
alone and so I think you know showing

1031
00:46:18,109 --> 00:46:16,200
that at those re-entry speeds and

1032
00:46:20,210 --> 00:46:18,119
slowing the vehicle down so we have a

1033
00:46:22,790 --> 00:46:20,220
nice touchdown 20 miles per hour will be

1034
00:46:25,250 --> 00:46:22,800
a great day so all those things will be

1035
00:46:28,609 --> 00:46:25,260
really important as we learn and go

1036
00:46:36,230 --> 00:46:31,069
Lauren grush with Bloomberg

1037
00:46:39,589 --> 00:46:38,270
hi Lauren gresh with Bloomberg I'm just

1038
00:46:41,329 --> 00:46:39,599

wondering if you got more details from

1039
00:46:44,210 --> 00:46:41,339
the range about that ethernet switch

1040
00:46:46,069 --> 00:46:44,220
that gave us all trouble and why did

1041
00:46:47,990 --> 00:46:46,079
that crop up during what seemed like a

1042
00:46:53,030 --> 00:46:48,000
pretty critical part of the countdown

1043
00:46:56,690 --> 00:46:55,670
Lauren I'll tell you what I know on on

1044
00:47:01,390 --> 00:46:56,700
the um

1045
00:47:05,329 --> 00:47:01,400
the switch it was required to

1046
00:47:08,990 --> 00:47:05,339
take the some of the remote range Safety

1047
00:47:11,690 --> 00:47:09,000
Systems and and process that at their

1048
00:47:13,849 --> 00:47:11,700
Control Center and they had a a computer

1049
00:47:16,849 --> 00:47:13,859
problem at the range I'd

1050
00:47:18,770 --> 00:47:16,859
I think I would direct that question

1051
00:47:21,050 --> 00:47:18,780
more towards the space force in the

1052
00:47:22,910 --> 00:47:21,060
range because that that is not a NASA

1053
00:47:25,490 --> 00:47:22,920
system I don't know Mike if you have

1054
00:47:27,530 --> 00:47:25,500
anything to add on that but but it was a

1055
00:47:28,730 --> 00:47:27,540
system required for Public Safety and in

1056
00:47:30,950 --> 00:47:28,740
range safety

1057
00:47:33,410 --> 00:47:30,960
and I think you got it it was basically

1058
00:47:35,450 --> 00:47:33,420
an ethernet switch that allowed them to

1059
00:47:38,030 --> 00:47:35,460
tie in data from their remote sites into

1060
00:47:39,650 --> 00:47:38,040
their into their Central Hub

1061
00:47:41,990 --> 00:47:39,660
um you know obviously they didn't expect

1062
00:47:43,609 --> 00:47:42,000
to lose it at that time it was at an

1063
00:47:46,309 --> 00:47:43,619

important time but they also recovered

1064
00:47:47,930 --> 00:47:46,319
from it you know um well and enabled us

1065
00:47:50,510 --> 00:47:47,940
to have a launch today so while it was

1066
00:47:52,309 --> 00:47:50,520
unfortunate and untimely it was also

1067
00:47:54,170 --> 00:47:52,319
well handled and allowed us to get to a

1068
00:47:56,990 --> 00:47:54,180
launch so yeah you know kudos to them

1069
00:47:58,550 --> 00:47:57,000
yeah I I I think that is a key aspect of

1070
00:48:00,829 --> 00:47:58,560
what we saw today was the partnership

1071
00:48:04,430 --> 00:48:00,839
between the range and NASA Kennedy Space

1072
00:48:06,650 --> 00:48:04,440
Center and the the firing room they

1073
00:48:10,550 --> 00:48:06,660
raised their hand very quickly and said

1074
00:48:11,530 --> 00:48:10,560
we've got an issue here and and we need

1075
00:48:14,390 --> 00:48:11,540
to

1076
00:48:17,210 --> 00:48:14,400
recover this before we can say that we

1077
00:48:21,170 --> 00:48:17,220
can safely and responsibly launch and

1078
00:48:24,170 --> 00:48:21,180
they coordinated that with a very close

1079
00:48:27,170 --> 00:48:24,180
coordination with our launch director

1080
00:48:28,910 --> 00:48:27,180
Charlie in in firing room one and they

1081
00:48:31,550 --> 00:48:28,920
gave an estimate as to

1082
00:48:33,470 --> 00:48:31,560
when they could recover and they were

1083
00:48:34,970 --> 00:48:33,480
very close to it and they worked through

1084
00:48:37,430 --> 00:48:34,980
it very methodically and they told us

1085
00:48:39,410 --> 00:48:37,440
every step of the way where they were in

1086
00:48:42,470 --> 00:48:39,420
terms of the recovery and then that

1087
00:48:45,349 --> 00:48:42,480
allowed our launch operations team to

1088
00:48:47,930 --> 00:48:45,359

pick up a time very close to our

1089
00:48:51,530 --> 00:48:47,940
intended launch window open time I think

1090
00:48:53,210 --> 00:48:51,540
that the real delay that you know we

1091
00:48:56,030 --> 00:48:53,220
didn't go quite a window open but we

1092
00:48:57,950 --> 00:48:56,040
went within the first hour really was a

1093
00:48:59,990 --> 00:48:57,960
byproduct of needing to send the red

1094
00:49:03,290 --> 00:49:00,000
crew out to the to the pad and we had

1095
00:49:05,690 --> 00:49:03,300
the halt some of the um of the loading

1096
00:49:07,190 --> 00:49:05,700
operations and then in the interest of

1097
00:49:10,010 --> 00:49:07,200
safety for those people they were going

1098
00:49:11,270 --> 00:49:10,020
into a hazardous environment but in in

1099
00:49:12,650 --> 00:49:11,280
the interest of controlling the

1100
00:49:14,990 --> 00:49:12,660
environment as much as you could we had

1101
00:49:17,210 --> 00:49:15,000
to Halt that operation which intend in

1102
00:49:20,030 --> 00:49:17,220
turn kind of slowed the um the launch

1103
00:49:22,550 --> 00:49:20,040
countdown and and cryo loading and

1104
00:49:26,329 --> 00:49:22,560
getting specifically the upper stage

1105
00:49:28,490 --> 00:49:26,339
fully configured so that again seen that

1106
00:49:30,770 --> 00:49:28,500
choreography between the space force on

1107
00:49:32,510 --> 00:49:30,780
the Range side and the NASA team and

1108
00:49:34,250 --> 00:49:32,520
firing room one I think was was

1109
00:49:35,990 --> 00:49:34,260
extremely well handled today and our

1110
00:49:40,790 --> 00:49:36,000
hats off to the space Forester working

1111
00:49:40,800 --> 00:49:43,450
in front

1112
00:49:48,109 --> 00:49:46,609
it's uh Richard Knuckles from Skye

1113
00:49:49,430 --> 00:49:48,119

um I've gotten a question for Emily

1114
00:49:51,290 --> 00:49:49,440
actually

1115
00:49:53,809 --> 00:49:51,300
um so Bill talks about the legacy of

1116
00:49:56,450 --> 00:49:53,819
this program and one thing which really

1117
00:49:58,190 --> 00:49:56,460
has struck me um talking to the a lot of

1118
00:50:01,430 --> 00:49:58,200
the engineers is the amount of women

1119
00:50:03,349 --> 00:50:01,440
involved in in the behind the scenes in

1120
00:50:05,750 --> 00:50:03,359
the Artemis program

1121
00:50:09,170 --> 00:50:05,760
um as you were watching the launch it

1122
00:50:11,809 --> 00:50:09,180
must have been an immense Pride you know

1123
00:50:13,430 --> 00:50:11,819
watching Charlie doing I think can you

1124
00:50:16,490 --> 00:50:13,440
just talk about the emotions you felt

1125
00:50:18,770 --> 00:50:16,500
and how it feels to be part of this

1126
00:50:21,550 --> 00:50:18,780
Artemis program

1127
00:50:24,950 --> 00:50:21,560
certainly I mean I think my

1128
00:50:27,230 --> 00:50:24,960
emotions are are matched pretty well not

1129
00:50:29,030 --> 00:50:27,240
only by everybody at this table but

1130
00:50:30,230 --> 00:50:29,040
probably everybody who was watching it

1131
00:50:31,790 --> 00:50:30,240
whether they were working it or not

1132
00:50:32,809 --> 00:50:31,800
there's an enormous amount of pride

1133
00:50:35,030 --> 00:50:32,819
there's

1134
00:50:35,690 --> 00:50:35,040
a great deal of awe

1135
00:50:39,050 --> 00:50:35,700
um

1136
00:50:40,849 --> 00:50:39,060
and that pride is not only in the

1137
00:50:42,530 --> 00:50:40,859
individuals that we know and our friends

1138
00:50:43,690 --> 00:50:42,540

who have worked so hard over the number

1139
00:50:46,730 --> 00:50:43,700
of years

1140
00:50:50,329 --> 00:50:46,740
who have gotten this opportunity to

1141
00:50:52,190 --> 00:50:50,339
contribute to this great Mission but

1142
00:50:54,530 --> 00:50:52,200
um also just in the fact that we

1143
00:50:56,829 --> 00:50:54,540
together have gotten to this place where

1144
00:51:00,290 --> 00:50:56,839
we're going back

1145
00:51:02,510 --> 00:51:00,300
I wasn't here yet the last time we went

1146
00:51:05,150 --> 00:51:02,520
and so it's

1147
00:51:06,530 --> 00:51:05,160
it's really exciting to for my

1148
00:51:08,690 --> 00:51:06,540
generation and for the Artemis

1149
00:51:10,910 --> 00:51:08,700
generation to get the opportunity to go

1150
00:51:13,730 --> 00:51:10,920
to the moon and Beyond

1151
00:51:16,370 --> 00:51:13,740
um the fact that if you watch if you see

1152
00:51:18,589 --> 00:51:16,380
the photos and and imagery from the last

1153
00:51:20,150 --> 00:51:18,599
time we were there the diversity of the

1154
00:51:21,950 --> 00:51:20,160
workforce the diversity of the people

1155
00:51:24,770 --> 00:51:21,960
who had the opportunity to contribute

1156
00:51:26,870 --> 00:51:24,780
was maybe not quite where it is today I

1157
00:51:30,650 --> 00:51:26,880
think that's a point of Pride

1158
00:51:32,690 --> 00:51:30,660
um and but it's in no way surprising

1159
00:51:35,630 --> 00:51:32,700
because I think we've all grown in that

1160
00:51:37,190 --> 00:51:35,640
direction as well and so um when I was

1161
00:51:40,190 --> 00:51:37,200
interviewing to become a flight director

1162
00:51:41,990 --> 00:51:40,200
15 years ago I made a little bit of a

1163
00:51:43,609 --> 00:51:42,000

faux pas saying I really wanted to be

1164
00:51:45,049 --> 00:51:43,619
here and be a flight director when we

1165
00:51:47,089 --> 00:51:45,059
went back to the moon and at the time

1166
00:51:48,790 --> 00:51:47,099
that was considered well you can't stay

1167
00:51:52,370 --> 00:51:48,800
in the flight director office that long

1168
00:51:54,230 --> 00:51:52,380
so I'm pretty glad I stuck around

1169
00:51:56,390 --> 00:51:54,240
if I could I might just add to that so

1170
00:51:58,130 --> 00:51:56,400
you know um Charlie's obviously a

1171
00:52:01,670 --> 00:51:58,140
beloved member of our team she's the

1172
00:52:04,130 --> 00:52:01,680
leader of our of our launch Team I had a

1173
00:52:06,109 --> 00:52:04,140
tie earlier today most most Charlie

1174
00:52:08,150 --> 00:52:06,119
wears green on launch day Charlie has

1175
00:52:11,750 --> 00:52:08,160
something green she desert nails green

1176
00:52:14,030 --> 00:52:11,760
and so the guys wore green ties today

1177
00:52:16,849 --> 00:52:14,040
you know just to kind of support Charlie

1178
00:52:19,010 --> 00:52:16,859
and and if it's your first launch in a

1179
00:52:21,230 --> 00:52:19,020
new position in the firing room after

1180
00:52:22,549 --> 00:52:21,240
the launch she cuts your tie and so I

1181
00:52:24,650 --> 00:52:22,559
don't have a tie today because she cut

1182
00:52:26,329 --> 00:52:24,660
my green tie and there were a lot of

1183
00:52:28,430 --> 00:52:26,339
green ties getting cut it was really in

1184
00:52:30,290 --> 00:52:28,440
support of a pretty amazing member of

1185
00:52:32,089 --> 00:52:30,300
our team it has happened to be a female

1186
00:52:34,130 --> 00:52:32,099
yeah

1187
00:52:35,329 --> 00:52:34,140
thank you both next up we have a

1188
00:52:40,130 --> 00:52:35,339

question on the phones from David

1189
00:52:44,150 --> 00:52:42,109
thank you Jackie

1190
00:52:46,849 --> 00:52:44,160
thanks Surf and can you talk a little

1191
00:52:49,549 --> 00:52:46,859
bit more about Day 26

1192
00:52:51,290 --> 00:52:49,559
um that's your primary

1193
00:52:53,150 --> 00:52:51,300
um goal on this Mission and the heat

1194
00:52:54,710 --> 00:52:53,160
shield how you feeling about it what

1195
00:52:57,049 --> 00:52:54,720
will you be thinking over the next 25

1196
00:52:59,690 --> 00:52:57,059
days

1197
00:53:02,270 --> 00:52:59,700
yeah David thank you for that question

1198
00:53:05,270 --> 00:53:02,280
um you know is is I said at the outset

1199
00:53:08,870 --> 00:53:05,280
we've bought down half of our Priority

1200
00:53:10,809 --> 00:53:08,880
One already through the rocket setting

1201
00:53:14,329 --> 00:53:10,819
up those initial conditions

1202
00:53:17,690 --> 00:53:14,339
we do have a a long

1203
00:53:20,150 --> 00:53:17,700
four-week Mission ahead of us and we're

1204
00:53:24,470 --> 00:53:20,160
just going to work it day by day and we

1205
00:53:25,849 --> 00:53:24,480
need to work it with vigilance and we

1206
00:53:27,170 --> 00:53:25,859
are going to do some extraordinarily

1207
00:53:30,410 --> 00:53:27,180
hard stuff

1208
00:53:32,150 --> 00:53:30,420
we're going to fly within 62 miles of

1209
00:53:34,670 --> 00:53:32,160
the surface of the Moon and use a lunar

1210
00:53:36,890 --> 00:53:34,680
gravity assist to insert us into what is

1211
00:53:39,290 --> 00:53:36,900
called the distant retrograde orbit and

1212
00:53:41,390 --> 00:53:39,300
then shake down the spacecraft while

1213
00:53:44,930 --> 00:53:41,400

it's out there and then on the return

1214
00:53:47,410 --> 00:53:44,940
fly another 62 miles from the surface of

1215
00:53:50,210 --> 00:53:47,420
the Moon and use a lunar gravity assist

1216
00:53:53,270 --> 00:53:50,220
to to send us back to Earth and we need

1217
00:53:55,549 --> 00:53:53,280
to do it with enough Precision that we

1218
00:53:57,530 --> 00:53:55,559
hit from a quarter Million Miles Away

1219
00:53:59,510 --> 00:53:57,540
that is essentially our deorbit maneuver

1220
00:54:02,450 --> 00:53:59,520
we need to do it with enough Precision

1221
00:54:04,730 --> 00:54:02,460
that we don't skip back out into

1222
00:54:07,309 --> 00:54:04,740
deep space or that we don't come in too

1223
00:54:09,049 --> 00:54:07,319
Steep and over stress the vehicle so

1224
00:54:11,390 --> 00:54:09,059
there's a lot ahead of us we're just

1225
00:54:12,530 --> 00:54:11,400
going to work at that day by day we're

1226
00:54:14,089 --> 00:54:12,540
actually going to share some fun stuff

1227
00:54:16,370 --> 00:54:14,099
along the way we're going to share image

1228
00:54:20,390 --> 00:54:16,380
imagery similar to what we did earlier

1229
00:54:22,490 --> 00:54:20,400
today of you know kind of first shots of

1230
00:54:24,130 --> 00:54:22,500
um the the Earth from the spacecraft

1231
00:54:26,390 --> 00:54:24,140
we're going to share

1232
00:54:28,609 --> 00:54:26,400
imagery from inside the cockpit we're

1233
00:54:30,349 --> 00:54:28,619
going to share imagery close-up of the

1234
00:54:33,589 --> 00:54:30,359
moon but there's a lot of hard stuff

1235
00:54:36,589 --> 00:54:33,599
that we've got to demonstrate and at the

1236
00:54:38,030 --> 00:54:36,599
tail end kind of our Capstone is going

1237
00:54:41,210 --> 00:54:38,040
to be the high speed reentry we're going

1238
00:54:42,410 --> 00:54:41,220

to come back at Mach 32 or 24 500 miles

1239
00:54:46,069 --> 00:54:42,420
an hour we're going to slow that

1240
00:54:49,430 --> 00:54:46,079
spacecraft in about 20 minutes as it as

1241
00:54:51,470 --> 00:54:49,440
it goes from entry interface to subsonic

1242
00:54:53,990 --> 00:54:51,480
and parachute deployment and then splash

1243
00:54:57,349 --> 00:54:54,000
down on the Pacific

1244
00:55:01,549 --> 00:54:57,359
when we get to that point it will signal

1245
00:55:04,430 --> 00:55:01,559
the arrival of our deep spacecraft and

1246
00:55:07,549 --> 00:55:04,440
human transportation and it will show

1247
00:55:09,049 --> 00:55:07,559
that we've got a capability in place in

1248
00:55:11,210 --> 00:55:09,059
combination with the rocket that we've

1249
00:55:13,130 --> 00:55:11,220
already demonstrated that puts us on a

1250
00:55:17,569 --> 00:55:13,140
path to accomplish the rest of the

1251
00:55:19,370 --> 00:55:17,579
Artemis manifest in front of us so again

1252
00:55:23,109 --> 00:55:19,380
we've got to take it day by day we're

1253
00:55:25,549 --> 00:55:23,119
going to learn stuff as we go we've got

1254
00:55:28,309 --> 00:55:25,559
thousands and thousands of measurements

1255
00:55:29,569 --> 00:55:28,319
in data and in engineering measurements

1256
00:55:31,930 --> 00:55:29,579
we're going to take along the way to

1257
00:55:33,770 --> 00:55:31,940
ensure that we understand the margins

1258
00:55:36,109 --> 00:55:33,780
and and

1259
00:55:37,849 --> 00:55:36,119
um and if they're a little bit less than

1260
00:55:39,589 --> 00:55:37,859
we thought they were we need to take

1261
00:55:41,450 --> 00:55:39,599
those into account before we put humans

1262
00:55:44,089 --> 00:55:41,460
on board so we're going to learn a lot

1263
00:55:46,210 --> 00:55:44,099

from this Mission and um and if we're

1264
00:55:48,829 --> 00:55:46,220
lucky and we fly right down the middle

1265
00:55:50,990 --> 00:55:48,839
that'll be a great day and if we we

1266
00:55:52,849 --> 00:55:51,000
learn from it that's goes back to why

1267
00:55:57,950 --> 00:55:52,859
we're having an uncrewed test flight and

1268
00:55:59,750 --> 00:55:57,960
why we purposefully set up an uncrewed

1269
00:56:03,770 --> 00:55:59,760
Mission before we we're going to fly

1270
00:56:07,910 --> 00:56:06,290
things make we're running up on our hour

1271
00:56:11,870 --> 00:56:07,920
but we do have time for a couple more

1272
00:56:14,450 --> 00:56:11,880
questions in the room here in front

1273
00:56:15,589 --> 00:56:14,460
John zurala for my radar a couple of

1274
00:56:16,849 --> 00:56:15,599
things

1275
00:56:20,150 --> 00:56:16,859
um

1276
00:56:24,410 --> 00:56:20,160
how much do you lose by not flying the

1277
00:56:26,210 --> 00:56:24,420
40 days plus you're down to 25 days uh

1278
00:56:28,790 --> 00:56:26,220
indeed you have the mannequins on board

1279
00:56:30,349 --> 00:56:28,800
and you're Gathering all this data for

1280
00:56:31,609 --> 00:56:30,359
anybody who wants to answer that and the

1281
00:56:34,190 --> 00:56:31,619
other one was over the course of the

1282
00:56:36,430 --> 00:56:34,200
months we've talked to so many folks on

1283
00:56:38,930 --> 00:56:36,440
your team who have been with the program

1284
00:56:39,970 --> 00:56:38,940
since the very beginning more than 10

1285
00:56:43,730 --> 00:56:39,980
years

1286
00:56:46,309 --> 00:56:43,740
what do you have to say the long timers

1287
00:56:48,049 --> 00:56:46,319
out there who persevered and as you said

1288
00:56:52,630 --> 00:56:48,059

Mr administrator it's been a long time

1289
00:56:56,569 --> 00:56:55,069
go ahead start okay well I'll answer

1290
00:56:59,809 --> 00:56:56,579
John I'll answer your second question

1291
00:57:01,370 --> 00:56:59,819
I'm a long timer uh myself and I've been

1292
00:57:03,410 --> 00:57:01,380
with the Orion program since the very

1293
00:57:05,569 --> 00:57:03,420
beginning I would say to my colleagues

1294
00:57:07,730 --> 00:57:05,579
and the people that came before me I

1295
00:57:10,190 --> 00:57:07,740
mean it has it is obviously a historic

1296
00:57:13,430 --> 00:57:10,200
day for us we've uh dreamed about this

1297
00:57:15,770 --> 00:57:13,440
day we've worked very hard uh persevered

1298
00:57:17,990 --> 00:57:15,780
through a lot of challenges not only you

1299
00:57:20,750 --> 00:57:18,000
know weather and other things changes in

1300
00:57:22,549 --> 00:57:20,760
terms of administration and such

1301
00:57:24,049 --> 00:57:22,559
um but you know it represents it

1302
00:57:25,549 --> 00:57:24,059
represents I think John said it very

1303
00:57:27,829 --> 00:57:25,559
well you know the hardware is the

1304
00:57:30,349 --> 00:57:27,839
hardware on perform it's a people across

1305
00:57:33,349 --> 00:57:30,359
the country and in fact in Europe as

1306
00:57:36,049 --> 00:57:33,359
well working with us uh spending long

1307
00:57:38,690 --> 00:57:36,059
hours trying to make this uh Endeavor

1308
00:57:41,630 --> 00:57:38,700
happen and I think it's a very proud

1309
00:57:44,030 --> 00:57:41,640
moment and I look at what we did today

1310
00:57:46,069 --> 00:57:44,040
and I reflect back upon you know all the

1311
00:57:48,770 --> 00:57:46,079
late nights and the long hours we work

1312
00:57:51,109 --> 00:57:48,780
together uh with all all the people that

1313
00:57:53,450 --> 00:57:51,119

across the country like I said in in

1314
00:57:54,950 --> 00:57:53,460
Europe trying to make this happen and we

1315
00:57:56,690 --> 00:57:54,960
should all be proud of what we've

1316
00:57:59,030 --> 00:57:56,700
accomplished so far but we've got a ways

1317
00:58:00,710 --> 00:57:59,040
to go and each day is going to be very

1318
00:58:02,569 --> 00:58:00,720
important for us in this Mission because

1319
00:58:04,790 --> 00:58:02,579
I think we're going to learn a lot as we

1320
00:58:07,010 --> 00:58:04,800
go forward so that that's how I would

1321
00:58:08,930 --> 00:58:07,020
respond to that part of the question

1322
00:58:10,730 --> 00:58:08,940
yeah yeah and I I would agree with

1323
00:58:13,790 --> 00:58:10,740
Howard perseverance is the word of the

1324
00:58:15,770 --> 00:58:13,800
day here this this team up here and and

1325
00:58:17,930 --> 00:58:15,780
and the folks that they represent have

1326
00:58:21,230 --> 00:58:17,940
had to persevere through through quite a

1327
00:58:23,089 --> 00:58:21,240
lot over the years and um and months and

1328
00:58:27,290 --> 00:58:23,099
months and months of preparation and

1329
00:58:29,930 --> 00:58:27,300
testing and and coding and and just

1330
00:58:32,750 --> 00:58:29,940
understanding on the ground what the

1331
00:58:36,650 --> 00:58:32,760
systems are are capable of

1332
00:58:40,390 --> 00:58:36,660
um are representative of where we got to

1333
00:58:43,630 --> 00:58:40,400
today but in terms of whether we lose

1334
00:58:47,750 --> 00:58:43,640
objectives through a

1335
00:58:49,270 --> 00:58:47,760
26-day mission instead of a a 40 to 42

1336
00:58:53,329 --> 00:58:49,280
day Mission

1337
00:58:56,809 --> 00:58:53,339
it is in the margins of of extra data

1338
00:58:58,490 --> 00:58:56,819

takes the longer time we have out there

1339
00:59:01,190 --> 00:58:58,500
in the distant retrograde orbit allows

1340
00:59:03,170 --> 00:59:01,200
us to get more data but we would still

1341
00:59:07,190 --> 00:59:03,180
accomplish all the objectives when when

1342
00:59:10,309 --> 00:59:07,200
we baselined the Artemis One mission

1343
00:59:13,490 --> 00:59:10,319
it was originally just the 42 I'm sorry

1344
00:59:14,630 --> 00:59:13,500
just a 26 day Mission and when we

1345
00:59:17,210 --> 00:59:14,640
started looking at the mission

1346
00:59:18,829 --> 00:59:17,220
availability we realized that we

1347
00:59:21,170 --> 00:59:18,839
couldn't launch as frequently as we

1348
00:59:23,870 --> 00:59:21,180
would like the the launch availability

1349
00:59:25,430 --> 00:59:23,880
was roughly one week per month and we

1350
00:59:26,750 --> 00:59:25,440
asked the team can you come up with a

1351
00:59:28,370 --> 00:59:26,760
solution to improve our mission

1352
00:59:30,109 --> 00:59:28,380
availability and they came up with what

1353
00:59:31,370 --> 00:59:30,119
we call a variable Mission ration we've

1354
00:59:34,370 --> 00:59:31,380
got a short class and a long class

1355
00:59:36,589 --> 00:59:34,380
Mission and in the middle you extend the

1356
00:59:37,789 --> 00:59:36,599
stay about the moon in the distant

1357
00:59:39,410 --> 00:59:37,799
retrograde orbit and that actually

1358
00:59:41,329 --> 00:59:39,420
doubled our mission availability so we

1359
00:59:44,569 --> 00:59:41,339
could launch roughly uh two weeks per

1360
00:59:46,730 --> 00:59:44,579
month or roughly half the month and that

1361
00:59:51,049 --> 00:59:46,740
was seen as a win in terms of mission

1362
00:59:55,250 --> 00:59:51,059
availability and also in terms of you

1363
00:59:59,630 --> 00:59:55,260

know buying down risk but you know it

1364
01:00:01,990 --> 00:59:59,640
we're we're flying a 26-day mission and

1365
01:00:05,390 --> 01:00:02,000
that is originally what we had intended

1366
01:00:08,089 --> 01:00:05,400
uh it just gives us fewer day to take

1367
01:00:10,190 --> 01:00:08,099
opportunities for you know whole host of

1368
01:00:11,510 --> 01:00:10,200
things but we we are confident that in

1369
01:00:12,589 --> 01:00:11,520
the time frame that we're talking about

1370
01:00:14,569 --> 01:00:12,599
flying that we can get enough

1371
01:00:18,289 --> 01:00:14,579
engineering data to say that we can fly

1372
01:00:22,970 --> 01:00:19,609
thank you very much I think we have time

1373
01:00:27,049 --> 01:00:25,010
not hearing any in the room so we have

1374
01:00:31,609 --> 01:00:27,059
one more on the phones with Jim McKenna

1375
01:00:37,930 --> 01:00:35,990
uh thanks uh very much um

1376
01:00:40,849 --> 01:00:37,940
for Mike

1377
01:00:42,829 --> 01:00:40,859
uh and you may have already addressed

1378
01:00:45,470 --> 01:00:42,839
this but what's the next big milestone

1379
01:00:48,589 --> 01:00:45,480
that will uh

1380
01:00:53,569 --> 01:00:48,599
affirm your confidence that you're

1381
01:00:56,870 --> 01:00:53,579
writing down the risk of the mission and

1382
01:00:59,809 --> 01:00:56,880
the uh and the vehicle and also I think

1383
01:01:03,530 --> 01:00:59,819
for Emily uh when does the Orion arrive

1384
01:01:08,870 --> 01:01:07,309
okay Emily do you want to start

1385
01:01:10,549 --> 01:01:08,880
I don't think I have that particular

1386
01:01:11,930 --> 01:01:10,559
piece of date let me see if I can

1387
01:01:13,670 --> 01:01:11,940
remember it you go first and I'll see if

1388
01:01:15,650 --> 01:01:13,680

I can remember it I might be able to

1389
01:01:20,210 --> 01:01:15,660
help you on both accounts so

1390
01:01:21,890 --> 01:01:20,220
um in terms of the next big milestone

1391
01:01:23,569 --> 01:01:21,900
um it would be what we call the outbound

1392
01:01:25,730 --> 01:01:23,579
trajectory correction maneuver which

1393
01:01:27,109 --> 01:01:25,740
would be the first firing of the

1394
01:01:29,210 --> 01:01:27,119
propulsion system on the Orion

1395
01:01:32,390 --> 01:01:29,220
spacecraft the service module we have

1396
01:01:34,730 --> 01:01:32,400
purposely have a 30 second firing of the

1397
01:01:35,450 --> 01:01:34,740
service module engine and that happens

1398
01:01:37,190 --> 01:01:35,460
um

1399
01:01:40,069 --> 01:01:37,200
just under eight hours into the mission

1400
01:01:41,990 --> 01:01:40,079
so seven hours 47 minutes into the

1401
01:01:43,250 --> 01:01:42,000
mission and then

1402
01:01:48,789 --> 01:01:43,260
um

1403
01:01:54,410 --> 01:01:51,349
when do we arrive at the district report

1404
01:01:56,569 --> 01:01:54,420
I've got it here give me just a second

1405
01:01:58,190 --> 01:01:56,579
definitely a week yeah

1406
01:01:59,690 --> 01:01:58,200
and then we spend about a week in the

1407
01:02:00,770 --> 01:01:59,700
orbit and then we spend about a week

1408
01:02:02,510 --> 01:02:00,780
coming home

1409
01:02:04,740 --> 01:02:02,520
there's a reason I write this stuff down

1410
01:02:15,890 --> 01:02:04,750
Jim hang on just a second

1411
01:02:19,670 --> 01:02:18,109
we actually issue memos on this while

1412
01:02:26,510 --> 01:02:19,680
I'm stalling for times just to keep

1413
01:02:29,930 --> 01:02:27,829

this is

1414
01:02:42,530 --> 01:02:29,940
I will find a gym here hang on just

1415
01:02:49,789 --> 01:02:45,470
all right so

1416
01:02:54,109 --> 01:02:49,799
outbound powered flyby is on the 21st

1417
01:02:55,730 --> 01:02:54,119
it's 744 eastern time in the morning so

1418
01:02:59,030 --> 01:02:55,740
that is the first of the two maneuver

1419
01:03:01,130 --> 01:02:59,040
sequence that does that lunar fly by in

1420
01:03:04,010 --> 01:03:01,140
the slingshot of 62 miles from the

1421
01:03:05,690 --> 01:03:04,020
surface of the Moon

1422
01:03:07,730 --> 01:03:05,700
um we do that behind the Moon by the way

1423
01:03:09,109 --> 01:03:07,740
so we're not going to see it until after

1424
01:03:11,630 --> 01:03:09,119
the maneuver is complete so we're kind

1425
01:03:13,250 --> 01:03:11,640
of blind and we'll we'll when we get

1426
01:03:14,809 --> 01:03:13,260
acquisition a signal on the spacecraft

1427
01:03:16,370 --> 01:03:14,819
afterward we'll we'll know that the

1428
01:03:20,270 --> 01:03:16,380
maneuver was successful

1429
01:03:22,370 --> 01:03:20,280
and then the second of the Maneuvers for

1430
01:03:25,370 --> 01:03:22,380
the distant retrograde insertion is on

1431
01:03:29,569 --> 01:03:25,380
the 25th so that I guess that's the day

1432
01:03:32,809 --> 01:03:29,579
after Thanksgiving at uh 4 52 p.m I hope

1433
01:03:37,670 --> 01:03:34,970
all right thank you all so much that's

1434
01:03:39,470 --> 01:03:37,680
all the time we have this morning but

1435
01:03:41,630 --> 01:03:39,480
the artist was one mission is just

1436
01:03:44,089 --> 01:03:41,640
beginning in just a few hours we'll have

1437
01:03:46,010 --> 01:03:44,099
live TV coverage and commentary of

1438
01:03:48,470 --> 01:03:46,020

Orion's first outbound trajectory burn

1439
01:03:53,630 --> 01:03:48,480
that Mike just mentioned so stay tuned

1440
01:03:55,670 --> 01:03:53,640
at nasa.gov live and go Artemis

1441
01:03:58,309 --> 01:03:55,680
sounds of pressure water now flowing

1442
01:04:01,370 --> 01:03:58,319
under the ml

1443
01:04:06,349 --> 01:04:01,380
and here we go and hydrogen burnoff

1444
01:04:10,030 --> 01:04:06,359
igniters initiate seven six five four

1445
01:04:12,349 --> 01:04:10,040
stage engine start three two one

1446
01:04:15,349 --> 01:04:12,359
booster's indignation

1447
01:04:26,390 --> 01:04:15,359
and liftoff of Artemis one we rise

1448
01:04:31,010 --> 01:04:29,089
R4 rs25 engines on the four stage and

1449
01:04:46,670 --> 01:04:31,020
two solid rocket boosters now propelling

1450
01:04:52,490 --> 01:04:50,089
well in my left hand I have a feather

1451
01:04:54,589 --> 01:04:52,500
for my right hand a hammer and I guess

1452
01:04:56,750 --> 01:04:54,599
one of the reasons uh we got here today

1453
01:04:58,670 --> 01:04:56,760
was because of a gentleman named Galileo

1454
01:05:01,010 --> 01:04:58,680
a long time ago who made a rather

1455
01:05:03,589 --> 01:05:01,020
significant discovery about falling