



1
00:00:05,190 --> 00:00:03,189
and again we're here inside mission

2
00:00:07,670 --> 00:00:05,200
control now while we're getting ready

3
00:00:09,030 --> 00:00:07,680
for a launch of the soyuz craft tomorrow

4
00:00:10,870 --> 00:00:09,040
uh there's some other training taking

5
00:00:13,030 --> 00:00:10,880
place here in the control center to get

6
00:00:15,030 --> 00:00:13,040
prepared for nasa's next generation

7
00:00:17,189 --> 00:00:15,040
vehicle orion and its launch taking

8
00:00:19,029 --> 00:00:17,199
place later this fall joining me again

9
00:00:20,950 --> 00:00:19,039
is flight director mike serafin who's

10
00:00:23,029 --> 00:00:20,960
going to be overseeing the team for that

11
00:00:24,710 --> 00:00:23,039
eft one exploration flight test one

12
00:00:26,550 --> 00:00:24,720
launch later this year

13
00:00:27,990 --> 00:00:26,560

mike you joined me a little bit earlier

14

00:00:29,750 --> 00:00:28,000

this year in february when we were

15

00:00:31,589 --> 00:00:29,760

talking about the recovery test out in

16

00:00:32,790 --> 00:00:31,599

the ocean that was taking place and i

17

00:00:34,470 --> 00:00:32,800

understand this week you guys are

18

00:00:36,389 --> 00:00:34,480

getting ready to do some simulations

19

00:00:38,310 --> 00:00:36,399

here in mission control now real quick

20

00:00:39,670 --> 00:00:38,320

before we get into those just for just

21

00:00:41,430 --> 00:00:39,680

in case it's the first time anybody's

22

00:00:43,510 --> 00:00:41,440

hearing about this give me a quick

23

00:00:45,430 --> 00:00:43,520

overview of what eft-1 is what you guys

24

00:00:47,750 --> 00:00:45,440

are hoping to accomplish

25

00:00:49,590 --> 00:00:47,760

right so good morning and thanks for

26

00:00:53,189 --> 00:00:49,600

having me dan um

27

00:00:55,270 --> 00:00:53,199

eft-1 is the first space flight of the

28

00:00:58,069 --> 00:00:55,280

orion capsule so we're going to fly

29

00:00:59,510 --> 00:00:58,079

orion into a high-earth orbit orbit

30

00:01:01,910 --> 00:00:59,520

and it's going to do a high energy

31

00:01:04,229 --> 00:01:01,920

return and test out the the critical

32

00:01:06,149 --> 00:01:04,239

systems required

33

00:01:08,630 --> 00:01:06,159

before we put humans on board and go

34

00:01:10,870 --> 00:01:08,640

into deep space so it'll launch out of

35

00:01:13,270 --> 00:01:10,880

cape canaveral air station on a united

36

00:01:16,230 --> 00:01:13,280

launch alliance delta iv heavy rocket

37

00:01:18,469 --> 00:01:16,240

launch complex 37 and it'll do two

38

00:01:20,710 --> 00:01:18,479

orbits around the earth and the the

39

00:01:22,870 --> 00:01:20,720

launch vehicle will boost it uh into a

40

00:01:24,230 --> 00:01:22,880

low earth orbit the first orbit on a due

41

00:01:26,390 --> 00:01:24,240

east inclination

42

00:01:28,149 --> 00:01:26,400

and uh it'll fly from the kennedy space

43

00:01:31,270 --> 00:01:28,159

center around the earth once at about

44

00:01:33,510 --> 00:01:31,280

100 to uh 380 nautical mile orbit and

45

00:01:35,590 --> 00:01:33,520

then on the second orbit the upper stage

46

00:01:37,990 --> 00:01:35,600

on the delta rocket will boost it even

47

00:01:40,630 --> 00:01:38,000

higher and it'll go into what we call a

48

00:01:43,190 --> 00:01:40,640

higher earth orbit and it'll exceed over

49

00:01:44,870 --> 00:01:43,200

3000 nautical miles what that'll do on

50

00:01:46,550 --> 00:01:44,880

the on the high end

51
00:01:47,590 --> 00:01:46,560
of the orbit is set up a high energy

52
00:01:50,789 --> 00:01:47,600
return

53
00:01:53,030 --> 00:01:50,799
for uh to test the heat shield and it'll

54
00:01:55,670 --> 00:01:53,040
put 85 percent of the energy into that

55
00:01:58,789 --> 00:01:55,680
capsule that it'll return from deep

56
00:02:02,469 --> 00:02:01,190
return from the moon on so it'll test

57
00:02:04,230 --> 00:02:02,479
out the heat shield and all the critical

58
00:02:05,910 --> 00:02:04,240
functions on orion and make sure that

59
00:02:08,630 --> 00:02:05,920
it's ready to go before we put humans on

60
00:02:09,830 --> 00:02:08,640
it later on and this is you know this is

61
00:02:11,589 --> 00:02:09,840
a much

62
00:02:13,030 --> 00:02:11,599
very very different reentry than we've

63
00:02:14,949 --> 00:02:13,040

been used to seeing over the last you

64

00:02:17,589 --> 00:02:14,959

know 20 30 40 years

65

00:02:19,910 --> 00:02:17,599

yeah absolutely it uh it basically is

66

00:02:22,070 --> 00:02:19,920

returning back to the apollo era

67

00:02:23,030 --> 00:02:22,080

trajectories where

68

00:02:28,229 --> 00:02:23,040

we

69

00:02:29,990 --> 00:02:28,239

humans beyond earth orbit and captured

70

00:02:31,750 --> 00:02:30,000

it into lunar gravity we're going to do

71

00:02:32,550 --> 00:02:31,760

that same thing

72

00:02:36,710 --> 00:02:32,560

for

73

00:02:38,790 --> 00:02:36,720

going to basically mimic and set up the

74

00:02:40,949 --> 00:02:38,800

initial conditions using the the delta

75

00:02:42,309 --> 00:02:40,959

launch vehicle on the upper stage

76

00:02:44,550 --> 00:02:42,319

and really

77

00:02:46,390 --> 00:02:44,560

test the capabilities of the spacecraft

78

00:02:48,470 --> 00:02:46,400

okay so again really different tests

79

00:02:49,670 --> 00:02:48,480

than what we've done in decades so

80

00:02:50,869 --> 00:02:49,680

really important to train for it

81

00:02:53,030 --> 00:02:50,879

obviously and you guys are going to be

82

00:02:54,630 --> 00:02:53,040

doing some of that this week so tell me

83

00:02:56,150 --> 00:02:54,640

a little bit a little bit about what

84

00:02:57,750 --> 00:02:56,160

these sims these simulations are going

85

00:02:59,430 --> 00:02:57,760

to be this week you know who's getting

86

00:03:01,030 --> 00:02:59,440

involved from the flight control team

87

00:03:02,630 --> 00:03:01,040

what are you guys going to be doing

88

00:03:04,070 --> 00:03:02,640

right so i'll be here in mission control

89

00:03:06,790 --> 00:03:04,080

with my flight control team it's a

90

00:03:08,949 --> 00:03:06,800

blended team of nasa and lockheed

91

00:03:10,390 --> 00:03:08,959

folks and we'll be just down the hall in

92

00:03:12,390 --> 00:03:10,400

the blue flight control room it's where

93

00:03:13,830 --> 00:03:12,400

the international space station uh

94

00:03:15,750 --> 00:03:13,840

operations were conducted before it

95

00:03:18,550 --> 00:03:15,760

moved to the present day room ficker one

96

00:03:19,830 --> 00:03:18,560

that you see with us on tv today

97

00:03:21,350 --> 00:03:19,840

and uh

98

00:03:23,190 --> 00:03:21,360

the uh

99

00:03:25,750 --> 00:03:23,200

my team will be working with a team out

100

00:03:27,990 --> 00:03:25,760

of the kennedy space center in the test

101
00:03:29,910 --> 00:03:28,000
and launch control center which is uh

102
00:03:31,990 --> 00:03:29,920
used to power up the spacecraft shane

103
00:03:33,750 --> 00:03:32,000
roski and his lockheed team will

104
00:03:35,990 --> 00:03:33,760
configure the orion spacecraft and get

105
00:03:37,670 --> 00:03:36,000
it ready uh for launch and then at

106
00:03:40,309 --> 00:03:37,680
liftoff will take over in mission

107
00:03:42,550 --> 00:03:40,319
control there'll also be a a team of

108
00:03:43,589 --> 00:03:42,560
managers located on the cape canaveral

109
00:03:47,990 --> 00:03:43,599
air

110
00:03:49,670 --> 00:03:48,000
located in the facility called hangar ae

111
00:03:51,270 --> 00:03:49,680
that mission management team along with

112
00:03:52,949 --> 00:03:51,280
an engineering team also at the kennedy

113
00:03:54,309 --> 00:03:52,959

space center in the operations and

114

00:03:56,789 --> 00:03:54,319

checkout facility we'll all work

115

00:03:58,070 --> 00:03:56,799

together as one big team the orion team

116

00:03:59,990 --> 00:03:58,080

and

117

00:04:01,030 --> 00:04:00,000

basically make sure that the spacecraft

118

00:04:03,670 --> 00:04:01,040

was ready to come home and they were

119

00:04:05,190 --> 00:04:03,680

ready to handle any scenario and we've

120

00:04:07,350 --> 00:04:05,200

been doing a little bit of training on

121

00:04:09,030 --> 00:04:07,360

the mcc side and we're going to bring in

122

00:04:10,309 --> 00:04:09,040

the the larger engineering team and the

123

00:04:12,229 --> 00:04:10,319

mission management team and train

124

00:04:14,470 --> 00:04:12,239

together as one big orion team

125

00:04:16,310 --> 00:04:14,480

and test out the brand new program that

126

00:04:18,870 --> 00:04:16,320

we've established and the brand new

127

00:04:20,870 --> 00:04:18,880

concept of operations because

128

00:04:23,510 --> 00:04:20,880

it is a new spacecraft it does have

129

00:04:25,350 --> 00:04:23,520

different capabilities and the program

130

00:04:27,350 --> 00:04:25,360

structure and engineering team is

131

00:04:28,870 --> 00:04:27,360

different prime contractor is different

132

00:04:31,270 --> 00:04:28,880

so we're working together to establish a

133

00:04:33,510 --> 00:04:31,280

healthy program culture and a brand new

134

00:04:35,670 --> 00:04:33,520

uh team uh the orion team and we're

135

00:04:37,350 --> 00:04:35,680

gonna test out our concept of operations

136

00:04:38,629 --> 00:04:37,360

this coming week and it's an exciting

137

00:04:40,790 --> 00:04:38,639

point because it means we're getting

138

00:04:43,110 --> 00:04:40,800

really close to flying this thing well i

139

00:04:44,629 --> 00:04:43,120

mean it it's very integrated it sounds

140

00:04:45,990 --> 00:04:44,639

like you're getting you know everybody

141

00:04:47,990 --> 00:04:46,000

together who's going to be there for the

142

00:04:49,510 --> 00:04:48,000

actual show once it goes off

143

00:04:51,670 --> 00:04:49,520

about how many sims do you guys

144

00:04:53,270 --> 00:04:51,680

typically do you know leading up to this

145

00:04:55,990 --> 00:04:53,280

kind of a flight or how many are you

146

00:04:57,670 --> 00:04:56,000

planning to do over the next year or so

147

00:05:00,150 --> 00:04:57,680

yeah so the total number of simulations

148

00:05:02,150 --> 00:05:00,160

we're doing about one a month okay so we

149

00:05:04,310 --> 00:05:02,160

started back in the december time frame

150

00:05:06,469 --> 00:05:04,320

and we'll probably launch a late fall

151
00:05:09,430 --> 00:05:06,479
time frame uh whenever the spacecraft is

152
00:05:11,350 --> 00:05:09,440
ready so we'll do about a dozen sims by

153
00:05:12,790 --> 00:05:11,360
the time we're ready to fly and

154
00:05:14,310 --> 00:05:12,800
about a third of those we're going to

155
00:05:16,870 --> 00:05:14,320
involve the mission management team and

156
00:05:19,029 --> 00:05:16,880
the engineering team and and really

157
00:05:22,230 --> 00:05:19,039
flesh out that that concept of

158
00:05:24,230 --> 00:05:22,240
operations for the launch to flight

159
00:05:25,189 --> 00:05:24,240
flight to recovery and then integrated

160
00:05:27,350 --> 00:05:25,199
with the engineering and mission

161
00:05:29,909 --> 00:05:27,360
management team and again it's it's all

162
00:05:32,870 --> 00:05:29,919
new interfaces uh some of its brand new

163
00:05:34,790 --> 00:05:32,880

ground infrastructure uh and uh the team

164

00:05:36,790 --> 00:05:34,800

members uh for the most part have never

165

00:05:38,469 --> 00:05:36,800

sat in those roles before they may have

166

00:05:40,469 --> 00:05:38,479

supported operations or engineering in

167

00:05:43,670 --> 00:05:40,479

different programs before but uh this

168

00:05:45,189 --> 00:05:43,680

being a brand new program uh folks have

169

00:05:46,629 --> 00:05:45,199

really never sat in that seat before so

170

00:05:48,070 --> 00:05:46,639

we're gonna understand our own roles and

171

00:05:50,469 --> 00:05:48,080

responsibilities as well as how to

172

00:05:52,790 --> 00:05:50,479

interact with the other team members uh

173

00:05:54,390 --> 00:05:52,800

as a as a large team and uh and

174

00:05:57,029 --> 00:05:54,400

successfully fly around together this

175

00:05:58,230 --> 00:05:57,039

fall okay and i know like you said it's

176
00:05:59,909 --> 00:05:58,240
going to be testing out a lot of the

177
00:06:01,749 --> 00:05:59,919
systems on orion obviously for the

178
00:06:03,189 --> 00:06:01,759
engineering folks and things like that

179
00:06:05,270 --> 00:06:03,199
what are you and the team really hoping

180
00:06:06,629 --> 00:06:05,280
to take away from eft one once it gets

181
00:06:10,070 --> 00:06:06,639
off the ground

182
00:06:12,150 --> 00:06:10,080
so the key goals are to test the uh

183
00:06:13,270 --> 00:06:12,160
critical systems on board the spacecraft

184
00:06:15,270 --> 00:06:13,280
and

185
00:06:17,430 --> 00:06:15,280
when orion becomes a free flyer in that

186
00:06:19,270 --> 00:06:17,440
second orbit it is going to separate

187
00:06:21,430 --> 00:06:19,280
from the upper stage and test its own

188
00:06:22,790 --> 00:06:21,440

attitude control system its own flight

189

00:06:24,550 --> 00:06:22,800

computers its own guidance and

190

00:06:26,390 --> 00:06:24,560

navigation functions

191

00:06:28,950 --> 00:06:26,400

all of the critical separation events

192

00:06:30,629 --> 00:06:28,960

like jettison the forward bay cover that

193

00:06:32,070 --> 00:06:30,639

is used to cover the main parachutes

194

00:06:33,510 --> 00:06:32,080

during entry descent landing it's

195

00:06:34,950 --> 00:06:33,520

basically a heat shield that goes over

196

00:06:37,270 --> 00:06:34,960

the parachutes

197

00:06:38,550 --> 00:06:37,280

the main parachute deploy and splash

198

00:06:40,469 --> 00:06:38,560

down conditions we're going to gather

199

00:06:42,309 --> 00:06:40,479

data on all that and make sure that the

200

00:06:43,749 --> 00:06:42,319

conditions on board the spacecraft are

201
00:06:46,390 --> 00:06:43,759
safe to put humans on board for

202
00:06:48,309 --> 00:06:46,400
downstream flights and that the heat

203
00:06:51,270 --> 00:06:48,319
shield and all the other critical

204
00:06:52,950 --> 00:06:51,280
components do their job and if if we

205
00:06:54,469 --> 00:06:52,960
learn that there's a little less margin

206
00:06:56,309 --> 00:06:54,479
in the system than we would like we're

207
00:06:58,309 --> 00:06:56,319
going to find that out in an unmanned

208
00:07:01,029 --> 00:06:58,319
flight test configuration and then we'll

209
00:07:03,110 --> 00:07:01,039
be able to uh to basically ensure that

210
00:07:04,309 --> 00:07:03,120
human space flight later on is is safe

211
00:07:06,390 --> 00:07:04,319
and successful

212
00:07:08,870 --> 00:07:06,400
okay well big flight coming up big sims

213
00:07:10,150 --> 00:07:08,880

this week i mean real quick sounds like

214

00:07:11,430 --> 00:07:10,160

you're getting excited you got to be you

215

00:07:14,309 --> 00:07:11,440

got to be getting excited that you know

216

00:07:16,150 --> 00:07:14,319

it's almost here yeah um my team's ready

217

00:07:17,270 --> 00:07:16,160

and we're going to do a great job this

218

00:07:18,230 --> 00:07:17,280

week

219

00:07:19,589 --> 00:07:18,240

the

220

00:07:21,350 --> 00:07:19,599

larger team

221

00:07:23,029 --> 00:07:21,360

we've got to basically make sure that

222

00:07:25,189 --> 00:07:23,039

we're all on the same page and that's

223

00:07:26,710 --> 00:07:25,199

that's what we'll learn this week and

224

00:07:29,189 --> 00:07:26,720

that's that's why we're going to do

225

00:07:31,350 --> 00:07:29,199

these large integrated uh sims with all

226

00:07:32,870 --> 00:07:31,360

the all the players and i'm sure we're

227

00:07:34,629 --> 00:07:32,880

going to learn a few things and i'm sure

228

00:07:37,749 --> 00:07:34,639

we're going to we're going to fix those

229

00:07:39,589 --> 00:07:37,759

and and modify them for downstream

230

00:07:42,390 --> 00:07:39,599

training opportunities but also for the

231

00:07:44,950 --> 00:07:42,400

mission and that's why we train is to is

232

00:07:46,950 --> 00:07:44,960

to really pound flat the the plan that

233

00:07:48,710 --> 00:07:46,960

we've got and to make sure that there

234

00:07:50,309 --> 00:07:48,720

aren't any soft spots and if we do find

235

00:07:53,589 --> 00:07:50,319

them we'll go fill them in and we'll

236

00:07:56,869 --> 00:07:53,599

make sure that that as a team and as as

237

00:07:58,790 --> 00:07:56,879

a integrated operations

238

00:08:00,869 --> 00:07:58,800

team that we're ready to go and and i

239

00:08:02,550 --> 00:08:00,879

look forward to it again this this means

240

00:08:04,390 --> 00:08:02,560

that we're getting close to flying and

241

00:08:05,990 --> 00:08:04,400

we're going to fly this fall oh yeah all

242

00:08:07,029 --> 00:08:06,000

right well again mike sarafin nasa

243

00:08:09,270 --> 00:08:07,039

flight director who's going to be

244

00:08:11,189 --> 00:08:09,280

overseeing exploration flight test 1

245

00:08:13,029 --> 00:08:11,199

later this year going to be doing some

246

00:08:15,350 --> 00:08:13,039

sims this week as they continue to march

247

00:08:17,589 --> 00:08:15,360

forward towards that launch date again

248

00:08:19,589 --> 00:08:17,599

the first flight into space of nasa's

249

00:08:22,309 --> 00:08:19,599

orion going to be a really exciting time

250

00:08:24,230 --> 00:08:22,319

as always you can visit nasa.gov orion

251

00:08:25,589 --> 00:08:24,240

for all the latest in the program news

252

00:08:27,350 --> 00:08:25,599

pictures everything you could possibly

253

00:08:29,430 --> 00:08:27,360

want to see mike thanks so much for

254

00:08:31,189 --> 00:08:29,440

joining me here today i'll probably see

255

00:08:33,110 --> 00:08:31,199

you in the sim room a little bit later