
ace Center

1
00:00:07,590 --> 00:00:05,590
well good at uh good morning everybody

2
00:00:10,070 --> 00:00:07,600
actually it's noon here in houston so

3
00:00:12,470 --> 00:00:10,080
good day to everyone this is uh

4
00:00:14,470 --> 00:00:12,480
today is our last mission management

5
00:00:16,790 --> 00:00:14,480
team press briefing the mission

6
00:00:19,029 --> 00:00:16,800
management team met earlier this morning

7
00:00:20,870 --> 00:00:19,039
and joining us for the briefing today is

8
00:00:22,630 --> 00:00:20,880
leroy kane he's the deputy manager of

9
00:00:25,750 --> 00:00:22,640
the space shuttle program he's also the

10
00:00:27,509 --> 00:00:25,760
chair of the mmt and also joining us is

11
00:00:29,189 --> 00:00:27,519
mike sufferdini he is the program

12
00:00:30,870 --> 00:00:29,199
manager for the international space

13
00:00:32,549 --> 00:00:30,880

station and we'll hear from both

14
00:00:34,470 --> 00:00:32,559
gentlemen of course and then we'll take

15
00:00:36,310 --> 00:00:34,480
questions here and at other nasa centers

16
00:00:38,470 --> 00:00:36,320
and i'll start with leroy

17
00:00:40,069 --> 00:00:38,480
okay good afternoon thanks kyle

18
00:00:41,830 --> 00:00:40,079
it's pleasure to be here with you today

19
00:00:43,990 --> 00:00:41,840
it's

20
00:00:45,510 --> 00:00:44,000
a great day in space again for us and

21
00:00:47,590 --> 00:00:45,520
we'll get to some of those details in a

22
00:00:49,190 --> 00:00:47,600
little bit i want to start out by

23
00:00:50,869 --> 00:00:49,200
by congratulating the entire space

24
00:00:52,950 --> 00:00:50,879
shuttle program team

25
00:00:55,430 --> 00:00:52,960
this is uh it's been a

26
00:00:58,630 --> 00:00:55,440
a long haul for us and a couple of years

27
00:01:01,110 --> 00:00:58,640
ago we we challenged this team

28
00:01:03,750 --> 00:01:01,120
to get to this point and and the many

29
00:01:06,070 --> 00:01:03,760
milestones in between then and now

30
00:01:08,630 --> 00:01:06,080
and they have been outstanding in every

31
00:01:11,510 --> 00:01:08,640
way that i can think of

32
00:01:13,270 --> 00:01:11,520
they have been dedicated committed

33
00:01:14,630 --> 00:01:13,280
they come into work every day day in and

34
00:01:16,230 --> 00:01:14,640
day out

35
00:01:18,070 --> 00:01:16,240
knowing that eventually we will have our

36
00:01:19,270 --> 00:01:18,080
final shuttle mission

37
00:01:21,429 --> 00:01:19,280
and i want to tell you that they have

38
00:01:23,910 --> 00:01:21,439

treated this mission uh no different

39
00:01:26,070 --> 00:01:23,920
than any other one and and as i've said

40
00:01:28,149 --> 00:01:26,080
before they have been

41
00:01:29,670 --> 00:01:28,159
dedicated and committed to

42
00:01:32,069 --> 00:01:29,680
to ensuring that this

43
00:01:33,270 --> 00:01:32,079
this final flight would be as successful

44
00:01:35,590 --> 00:01:33,280
and as safe

45
00:01:36,870 --> 00:01:35,600
as any that we had previously flown and

46
00:01:40,630 --> 00:01:36,880
so far

47
00:01:41,749 --> 00:01:40,640
that's certainly been the case so um the

48
00:01:42,789 --> 00:01:41,759
the team

49
00:01:45,350 --> 00:01:42,799
um

50
00:01:48,389 --> 00:01:45,360
is the finest team i think in the world

51
00:01:49,910 --> 00:01:48,399
in in terms of uh their capabilities and

52
00:01:52,310 --> 00:01:49,920
their professionalism

53
00:01:53,830 --> 00:01:52,320
and they have a lot to be proud of in

54
00:01:55,510 --> 00:01:53,840
terms of the many accomplishments of the

55
00:01:57,670 --> 00:01:55,520
space shuttle of course the team that is

56
00:02:00,789 --> 00:01:57,680
in place right now is not the team

57
00:02:01,670 --> 00:02:00,799
that's been in place uh for 30 years um

58
00:02:03,350 --> 00:02:01,680
we are

59
00:02:05,350 --> 00:02:03,360
undoubtedly standing on the shoulders of

60
00:02:06,789 --> 00:02:05,360
many giants who stood on shoulders of

61
00:02:08,790 --> 00:02:06,799
giants before them

62
00:02:10,790 --> 00:02:08,800
going all the way back to

63
00:02:12,309 --> 00:02:10,800

to the very beginnings of of human space

64
00:02:14,710 --> 00:02:12,319
flight so

65
00:02:16,710 --> 00:02:14,720
for our part in that endeavor i'm very

66
00:02:18,309 --> 00:02:16,720
proud of this team and and they should

67
00:02:19,750 --> 00:02:18,319
be proud also

68
00:02:21,990 --> 00:02:19,760
they've done a fantastic job and of

69
00:02:22,790 --> 00:02:22,000
course we have this mission to complete

70
00:02:24,390 --> 00:02:22,800
but

71
00:02:25,830 --> 00:02:24,400
certainly for the docked mission it was

72
00:02:27,589 --> 00:02:25,840
a huge success

73
00:02:29,670 --> 00:02:27,599
and between mike and i will probably

74
00:02:31,670 --> 00:02:29,680
talk a little bit more about that as we

75
00:02:33,190 --> 00:02:31,680
go on through the day today

76
00:02:35,110 --> 00:02:33,200
the other thing i'd like to do is is

77
00:02:38,949 --> 00:02:35,120
thank the space station program and

78
00:02:41,270 --> 00:02:38,959
mike's team and congratulate them on

79
00:02:42,630 --> 00:02:41,280
on their efforts

80
00:02:44,869 --> 00:02:42,640
in terms of the missions that we've

81
00:02:47,990 --> 00:02:44,879
worked together i couldn't be more

82
00:02:49,509 --> 00:02:48,000
happy with uh with the way the team

83
00:02:52,390 --> 00:02:49,519
worked together the team being the

84
00:02:53,670 --> 00:02:52,400
combined shuttle station team

85
00:02:57,190 --> 00:02:53,680
it's just

86
00:02:57,990 --> 00:02:57,200
and to be a part of

87
00:03:00,470 --> 00:02:58,000
and

88
00:03:02,229 --> 00:03:00,480

to have the the orbiting outposts that

89
00:03:03,270 --> 00:03:02,239
we have in orbit today

90
00:03:06,790 --> 00:03:03,280
obviously

91
00:03:08,869 --> 00:03:06,800
enabled uh by the space shuttle arguably

92
00:03:11,350 --> 00:03:08,879
probably not possible without the the

93
00:03:14,070 --> 00:03:11,360
efforts of the of the space shuttle

94
00:03:15,670 --> 00:03:14,080
system and the team that that

95
00:03:19,430 --> 00:03:15,680
uh that has worked on the space shuttle

96
00:03:21,270 --> 00:03:19,440
over the years um is a is truly an

97
00:03:22,630 --> 00:03:21,280
amazing engineering feat

98
00:03:24,949 --> 00:03:22,640
and

99
00:03:26,470 --> 00:03:24,959
the thing that strikes me as much as the

100
00:03:27,910 --> 00:03:26,480
the engineering feat when you think

101
00:03:29,830 --> 00:03:27,920
about all the hardware that's on orbit

102
00:03:31,190 --> 00:03:29,840
when you think about the fact that it's

103
00:03:37,589 --> 00:03:31,200
a

104
00:03:39,990 --> 00:03:37,599
future

105
00:03:43,110 --> 00:03:40,000
performing a world-class science

106
00:03:45,190 --> 00:03:43,120
and research um that in in and of itself

107
00:03:47,270 --> 00:03:45,200
is is pretty astounding

108
00:03:48,470 --> 00:03:47,280
but the thing that strikes me and that i

109
00:03:49,910 --> 00:03:48,480
think

110
00:03:52,470 --> 00:03:49,920
will probably

111
00:03:54,710 --> 00:03:52,480
be as important historically

112
00:03:55,990 --> 00:03:54,720
many years from now when we look back

113
00:03:58,229 --> 00:03:56,000

is

114
00:03:59,670 --> 00:03:58,239
the the spirit of cooperation and

115
00:04:02,070 --> 00:03:59,680
international partnership that these

116
00:04:03,670 --> 00:04:02,080
folks have fostered over the years

117
00:04:06,789 --> 00:04:03,680
and i think

118
00:04:08,550 --> 00:04:06,799
they can proudly hold that up as a model

119
00:04:11,030 --> 00:04:08,560
for everyone to

120
00:04:12,869 --> 00:04:11,040
to try to achieve in other facets of our

121
00:04:15,670 --> 00:04:12,879
life here on earth

122
00:04:17,430 --> 00:04:15,680
so i've been very impressed by that

123
00:04:18,949 --> 00:04:17,440
i didn't know much about it when i first

124
00:04:21,909 --> 00:04:18,959
started working in the shuttle program i

125
00:04:24,150 --> 00:04:21,919
have come to know a great deal more

126
00:04:25,590 --> 00:04:24,160
about it in terms of

127
00:04:27,990 --> 00:04:25,600
our workings with the space station

128
00:04:29,830 --> 00:04:28,000
program during space station assembly

129
00:04:31,350 --> 00:04:29,840
and i've been

130
00:04:32,950 --> 00:04:31,360
very impressed and continued to be

131
00:04:36,390 --> 00:04:32,960
impressed by what they have been able to

132
00:04:39,110 --> 00:04:36,400
accomplish in that regard and i think

133
00:04:41,909 --> 00:04:39,120
the folks responsible for that

134
00:04:43,270 --> 00:04:41,919
as i said the hardware is incredible and

135
00:04:45,990 --> 00:04:43,280
the systems are incredible and the

136
00:04:48,550 --> 00:04:46,000
capability is incredible uh the people

137
00:04:50,469 --> 00:04:48,560
even go beyond that in terms of uh what

138
00:04:51,510 --> 00:04:50,479

they've been able to accomplish so

139
00:04:52,710 --> 00:04:51,520
um

140
00:04:54,310 --> 00:04:52,720
it's uh

141
00:04:55,909 --> 00:04:54,320
it's a pretty amazing thing to be a part

142
00:04:57,590 --> 00:04:55,919
of this team and

143
00:04:59,110 --> 00:04:57,600
and so i'm happy to be here today to

144
00:05:00,790 --> 00:04:59,120
talk to you about it

145
00:05:03,029 --> 00:05:00,800
as far as this mission and mission

146
00:05:04,710 --> 00:05:03,039
management team we did meet today the

147
00:05:06,469 --> 00:05:04,720
main topic of our discussion today of

148
00:05:07,990 --> 00:05:06,479
course was the entry summary and the

149
00:05:09,749 --> 00:05:08,000
entry briefing

150
00:05:12,550 --> 00:05:09,759
by the entry flight director

151
00:05:14,390 --> 00:05:12,560
and it's pretty straightforward our plan

152
00:05:15,670 --> 00:05:14,400
landing our plan ended mission day is

153
00:05:17,189 --> 00:05:15,680
thursday

154
00:05:20,390 --> 00:05:17,199
the first opportunity is early in the

155
00:05:22,070 --> 00:05:20,400
morning on thursday with a 5 56 eastern

156
00:05:26,150 --> 00:05:22,080
time

157
00:05:27,590 --> 00:05:26,160
just about 40 minutes before sunrise we

158
00:05:29,430 --> 00:05:27,600
do have a couple of opportunities on

159
00:05:31,189 --> 00:05:29,440
that day

160
00:05:33,430 --> 00:05:31,199
in broad terms the weather looks very

161
00:05:34,870 --> 00:05:33,440
good from a forecasting standpoint so it

162
00:05:36,870 --> 00:05:34,880
looks like we have a very good chance to

163
00:05:38,710 --> 00:05:36,880

get into ksc on thursday

164
00:05:40,710 --> 00:05:38,720
assuming all of the systems and the

165
00:05:42,390 --> 00:05:40,720
weather continues to cooperate

166
00:05:44,390 --> 00:05:42,400
we're not working any issues we don't

167
00:05:45,909 --> 00:05:44,400
have any significant anomalies the

168
00:05:47,670 --> 00:05:45,919
atlantis performance has just been

169
00:05:49,909 --> 00:05:47,680
outstanding this entire mission and that

170
00:05:53,749 --> 00:05:49,919
continues uh through the briefing i got

171
00:05:56,070 --> 00:05:53,759
today um the crew did complete all of

172
00:05:57,830 --> 00:05:56,080
the uh all of the late inspection as we

173
00:06:00,230 --> 00:05:57,840
call it late inspection activities for

174
00:06:01,749 --> 00:06:00,240
the uh for the thermal protection system

175
00:06:03,749 --> 00:06:01,759
all of that data

176
00:06:07,189 --> 00:06:03,759
at least with the exception of about 24

177
00:06:09,350 --> 00:06:07,199
minutes of of a time block of about 24

178
00:06:10,870 --> 00:06:09,360
minutes of data was on the ground by the

179
00:06:13,590 --> 00:06:10,880
time we completed the mission management

180
00:06:16,070 --> 00:06:13,600
team this morning and so by now that

181
00:06:18,070 --> 00:06:16,080
data it is probably also on the ground

182
00:06:19,990 --> 00:06:18,080
and the teams will will go over all that

183
00:06:22,629 --> 00:06:20,000
data and review it and analyze it as we

184
00:06:24,230 --> 00:06:22,639
always do and i anticipate no issues in

185
00:06:26,230 --> 00:06:24,240
that in that regard

186
00:06:29,189 --> 00:06:26,240
we will have an mmt tomorrow morning and

187
00:06:30,790 --> 00:06:29,199
we'll review any final uh data that's

188
00:06:33,350 --> 00:06:30,800

available at that time

189
00:06:35,270 --> 00:06:33,360
and uh so the crew is doing great

190
00:06:37,189 --> 00:06:35,280
they've uh they've performed outstanding

191
00:06:38,469 --> 00:06:37,199
on this mission the team on the ground

192
00:06:41,510 --> 00:06:38,479
has been right there with them all the

193
00:06:44,070 --> 00:06:41,520
way all the way along um we've had what

194
00:06:46,469 --> 00:06:44,080
i consider to be a very successful doc

195
00:06:48,629 --> 00:06:46,479
mission and mike will comment more on

196
00:06:50,230 --> 00:06:48,639
that i'm sure but

197
00:06:52,150 --> 00:06:50,240
in summary it's

198
00:06:53,990 --> 00:06:52,160
it's gone very well up to this point as

199
00:06:55,990 --> 00:06:54,000
well as i could have ever expected

200
00:06:56,870 --> 00:06:56,000
anticipated and hoped for

201
00:06:58,710 --> 00:06:56,880
um

202
00:07:01,589 --> 00:06:58,720
and so we're very pleased to be at this

203
00:07:03,510 --> 00:07:01,599
point and we're focused now on on

204
00:07:05,589 --> 00:07:03,520
getting atlantis and the crew back

205
00:07:07,670 --> 00:07:05,599
and uh and we'll worry about the other

206
00:07:09,270 --> 00:07:07,680
things once we get uh we'll stop on

207
00:07:11,670 --> 00:07:09,280
atlantis and we get fergie and his crew

208
00:07:12,870 --> 00:07:11,680
out and greet them on the runway um and

209
00:07:15,110 --> 00:07:12,880
we look forward to that on thursday

210
00:07:17,589 --> 00:07:15,120
morning so with that uh turn it over to

211
00:07:19,909 --> 00:07:17,599
mike

212
00:07:21,510 --> 00:07:19,919
well good afternoon

213
00:07:25,110 --> 00:07:21,520

i'm not sure i could say it any better

214
00:07:27,670 --> 00:07:25,120
than leroy it's obviously been

215
00:07:30,070 --> 00:07:27,680
a wonderful ride throughout the assembly

216
00:07:33,589 --> 00:07:30,080
of the iss and it's only befitting that

217
00:07:35,189 --> 00:07:33,599
on the very last flight to iss

218
00:07:37,189 --> 00:07:35,199
the mission went

219
00:07:39,110 --> 00:07:37,199
much better than we had had hoped we've

220
00:07:40,950 --> 00:07:39,120
got the extra day

221
00:07:43,350 --> 00:07:40,960
we had we had thought we'd be in about

222
00:07:45,749 --> 00:07:43,360
the 70 percent range on the mplm in

223
00:07:47,029 --> 00:07:45,759
terms of return as you know it flew up

224
00:07:47,830 --> 00:07:47,039
pretty full

225
00:07:53,430 --> 00:07:47,840
um

226
00:07:55,029 --> 00:07:53,440
on the mplm which which means that

227
00:07:57,110 --> 00:07:55,039
many of the orus we weren't sure we

228
00:07:59,110 --> 00:07:57,120
would be able to get to and get

229
00:08:00,710 --> 00:07:59,120
stored into the mplm and some of them

230
00:08:03,029 --> 00:08:00,720
that needed work during the docked

231
00:08:05,270 --> 00:08:03,039
period in order to get them removed and

232
00:08:07,430 --> 00:08:05,280
installed into the mplm

233
00:08:08,309 --> 00:08:07,440
all that work had to be done the extra

234
00:08:11,029 --> 00:08:08,319
day

235
00:08:13,990 --> 00:08:11,039
plus the just the outstanding effort of

236
00:08:16,469 --> 00:08:14,000
of the combined crew and the uh and the

237
00:08:18,950 --> 00:08:16,479
operations team on the ground

238
00:08:22,469 --> 00:08:18,960

uh made it possible to get everything

239
00:08:25,350 --> 00:08:22,479
that we wanted to get home uh in the in

240
00:08:27,510 --> 00:08:25,360
the mplm all the work we had

241
00:08:29,189 --> 00:08:27,520
we had in our on our books is forward

242
00:08:30,629 --> 00:08:29,199
work that we had to do after the shuttle

243
00:08:31,510 --> 00:08:30,639
left just because we didn't have enough

244
00:08:35,750 --> 00:08:31,520
time

245
00:08:37,430 --> 00:08:35,760
uh largely was uh was performed uh and

246
00:08:38,310 --> 00:08:37,440
the shuttle crew left us with a very

247
00:08:39,430 --> 00:08:38,320
clean

248
00:08:41,190 --> 00:08:39,440
vehicle

249
00:08:43,509 --> 00:08:41,200
and in fact uh

250
00:08:45,110 --> 00:08:43,519
what our plan is now as i've told you

251
00:08:46,470 --> 00:08:45,120
before we're turning our attention to

252
00:08:49,110 --> 00:08:46,480
utilization

253
00:08:51,269 --> 00:08:49,120
um and in dedicating a certain number of

254
00:08:53,509 --> 00:08:51,279
hours for for utilization the plan is to

255
00:08:55,990 --> 00:08:53,519
dedicate 35 hours a week

256
00:08:59,030 --> 00:08:56,000
and let's see this is week 18 so in on

257
00:09:00,790 --> 00:08:59,040
week 20 we go to that process where we

258
00:09:02,550 --> 00:09:00,800
we obligate the hours to research and

259
00:09:04,310 --> 00:09:02,560
then we figure out how to do all the

260
00:09:07,350 --> 00:09:04,320
other operations and maintenance tasks

261
00:09:09,670 --> 00:09:07,360
we have to do with what is left and so

262
00:09:11,509 --> 00:09:09,680
i think it's a wonderful position we've

263
00:09:14,389 --> 00:09:11,519

been put in

264
00:09:16,630 --> 00:09:14,399
by the space shuttle atlantis and we

265
00:09:18,949 --> 00:09:16,640
think it's a great tribute

266
00:09:20,550 --> 00:09:18,959
leroy has said

267
00:09:23,110 --> 00:09:20,560
and i'll borrow this phrase from him he

268
00:09:25,110 --> 00:09:23,120
said the iss is the legacy of the of the

269
00:09:26,790 --> 00:09:25,120
shuttle and i think that's very true and

270
00:09:29,509 --> 00:09:26,800
so our job is to

271
00:09:32,630 --> 00:09:29,519
keep that legacy alive as we as we

272
00:09:34,070 --> 00:09:32,640
utilize iss i told the team yesterday

273
00:09:35,590 --> 00:09:34,080
after our last

274
00:09:40,389 --> 00:09:35,600
iss

275
00:09:42,630 --> 00:09:40,399
uh that that we had to keep in mind that

276
00:09:46,150 --> 00:09:42,640
the assembly has been been a great ride

277
00:09:48,389 --> 00:09:46,160
it's been 13 years 35 shuttle flights

278
00:09:50,870 --> 00:09:48,399
an enormous number of other

279
00:09:53,750 --> 00:09:50,880
soyuz in progress and atvs and htv

280
00:09:56,230 --> 00:09:53,760
flights to get us at this point but this

281
00:09:57,990 --> 00:09:56,240
point was not the end this was in fact

282
00:09:59,990 --> 00:09:58,000
the means to an end so we've assembled

283
00:10:02,230 --> 00:10:00,000
this vehicle and now it's our job to

284
00:10:05,350 --> 00:10:02,240
utilize it it's it's going to

285
00:10:07,750 --> 00:10:05,360
uh be the the cornerstone to exploration

286
00:10:10,710 --> 00:10:07,760
for this country and for our planet

287
00:10:12,870 --> 00:10:10,720
uh it's going to be uh the way we foster

288
00:10:15,269 --> 00:10:12,880

commercialization of low earth orbit

289
00:10:17,590 --> 00:10:15,279
it's going to be result in research

290
00:10:18,790 --> 00:10:17,600
that's going to benefit humanity and our

291
00:10:20,389 --> 00:10:18,800
planet

292
00:10:21,910 --> 00:10:20,399
the things we're going to learn from iss

293
00:10:24,470 --> 00:10:21,920
we just don't even know today and in

294
00:10:26,470 --> 00:10:24,480
some cases don't even fathom yet

295
00:10:27,590 --> 00:10:26,480
but we've we've built this tremendous

296
00:10:28,949 --> 00:10:27,600
vehicle

297
00:10:30,550 --> 00:10:28,959
it could have only been built with

298
00:10:32,550 --> 00:10:30,560
shuttle way back when that was what the

299
00:10:34,230 --> 00:10:32,560
design design assumed

300
00:10:36,230 --> 00:10:34,240
and so once you were into the design we

301
00:10:38,069 --> 00:10:36,240
really were at a point where without

302
00:10:39,750 --> 00:10:38,079
shuttle we couldn't have built it

303
00:10:41,829 --> 00:10:39,760
uh and so um

304
00:10:43,829 --> 00:10:41,839
i think it's it's uh

305
00:10:46,470 --> 00:10:43,839
appropriate at this point that we we

306
00:10:48,710 --> 00:10:46,480
look to the shuttle into the program

307
00:10:50,790 --> 00:10:48,720
that operated her in such fine fashion

308
00:10:51,990 --> 00:10:50,800
and and be proud as the country of what

309
00:10:54,389 --> 00:10:52,000
we have done

310
00:10:56,310 --> 00:10:54,399
and and look to iss

311
00:10:58,150 --> 00:10:56,320
the utilization the complete utilization

312
00:11:00,389 --> 00:10:58,160
of iss

313
00:11:02,069 --> 00:11:00,399

as our way to uh be proud of our

314
00:11:03,269 --> 00:11:02,079
accomplishments with the shuttle program

315
00:11:05,670 --> 00:11:03,279
and show that

316
00:11:08,310 --> 00:11:05,680
that what she stood for is is going to

317
00:11:10,470 --> 00:11:08,320
have many many years of a contribution

318
00:11:11,670 --> 00:11:10,480
to uh to not only our country and to our

319
00:11:13,590 --> 00:11:11,680
pride but

320
00:11:15,430 --> 00:11:13,600
to the world at large

321
00:11:17,430 --> 00:11:15,440
thank you very much

322
00:11:19,750 --> 00:11:17,440
thanks mike thanks leroy okay we'll take

323
00:11:21,030 --> 00:11:19,760
questions here in houston as usual and

324
00:11:22,470 --> 00:11:21,040
then we'll

325
00:11:24,550 --> 00:11:22,480
go to the other nasa centers if there

326
00:11:25,509 --> 00:11:24,560
are questions so anybody has a question

327
00:11:28,230 --> 00:11:25,519
just

328
00:11:30,470 --> 00:11:28,240
hello claire you can go first

329
00:11:33,350 --> 00:11:30,480
you're closest

330
00:11:34,949 --> 00:11:33,360
question for mike safradini and um

331
00:11:36,389 --> 00:11:34,959
i'm wondering

332
00:11:38,550 --> 00:11:36,399
the space station is considered

333
00:11:40,550 --> 00:11:38,560
officially complete when exactly did

334
00:11:43,509 --> 00:11:40,560
that happen and what was the final piece

335
00:11:46,069 --> 00:11:43,519
that made it complete

336
00:11:48,710 --> 00:11:46,079
so that's an interesting question a few

337
00:11:51,030 --> 00:11:48,720
years ago we we did have a stake in the

338
00:11:52,550 --> 00:11:51,040

ground we called assembly complete

339
00:11:56,150 --> 00:11:52,560
and

340
00:11:57,910 --> 00:11:56,160
we went through a through a period um

341
00:12:00,230 --> 00:11:57,920
probably about six

342
00:12:02,389 --> 00:12:00,240
six or seven years ago where we started

343
00:12:04,389 --> 00:12:02,399
talking about core complete and we sort

344
00:12:05,990 --> 00:12:04,399
of changed it was all based on when the

345
00:12:08,310 --> 00:12:06,000
shuttle was going to retire and so we

346
00:12:11,670 --> 00:12:08,320
kind of got got away from assembly

347
00:12:14,629 --> 00:12:11,680
complete as being a point in time

348
00:12:17,269 --> 00:12:14,639
we have we have put all of the planned

349
00:12:19,509 --> 00:12:17,279
us modules on orbit

350
00:12:22,230 --> 00:12:19,519
our our russian colleagues are that we

351
00:12:23,430 --> 00:12:22,240
know of today our russian colleagues are

352
00:12:25,590 --> 00:12:23,440
considering

353
00:12:27,110 --> 00:12:25,600
our building actually a multi-purpose

354
00:12:29,190 --> 00:12:27,120
laboratory module that's supposed to fly

355
00:12:30,629 --> 00:12:29,200
up at the end of 2012.

356
00:12:32,949 --> 00:12:30,639
they are contemplating some other

357
00:12:34,870 --> 00:12:32,959
modules there is an experiment being

358
00:12:36,230 --> 00:12:34,880
considered an inflatable module as an

359
00:12:39,190 --> 00:12:36,240
experiment

360
00:12:41,910 --> 00:12:39,200
that that will come to iss so so i would

361
00:12:44,710 --> 00:12:41,920
tell you for now as we look at it

362
00:12:46,870 --> 00:12:44,720
um we look at station in terms of okay

363
00:12:48,629 --> 00:12:46,880

we've built the the infrastructure to go

364
00:12:50,870 --> 00:12:48,639
do the research we set out to do and

365
00:12:53,430 --> 00:12:50,880
that that largely was complete

366
00:12:54,710 --> 00:12:53,440
uh even prior to installing the

367
00:12:58,550 --> 00:12:54,720
permanent

368
00:13:00,069 --> 00:12:58,560
module that we put up on ulf5

369
00:13:02,069 --> 00:13:00,079
but we started kind of talking about

370
00:13:03,990 --> 00:13:02,079
assembly complete after ulf-5 when that

371
00:13:06,790 --> 00:13:04,000
when that last module went up for the

372
00:13:09,190 --> 00:13:06,800
usos but i want to say the objective of

373
00:13:12,389 --> 00:13:09,200
iss though is to to

374
00:13:14,870 --> 00:13:12,399
perform any number of research uh uh

375
00:13:16,710 --> 00:13:14,880
based on what we what we need to do for

376
00:13:19,829 --> 00:13:16,720
fundamental research and what national

377
00:13:23,350 --> 00:13:19,839
labs might find to use it

378
00:13:26,470 --> 00:13:23,360
as as it wants to use the the iss

379
00:13:27,269 --> 00:13:26,480
it's it's our test bed for exploration

380
00:13:29,670 --> 00:13:27,279
it's going to help us with

381
00:13:32,150 --> 00:13:29,680
commercialization and so from the

382
00:13:34,870 --> 00:13:32,160
standpoint of saying iss looks a certain

383
00:13:37,030 --> 00:13:34,880
way and has certain interfaces we want

384
00:13:40,150 --> 00:13:37,040
to remain flexible to make sure that as

385
00:13:41,829 --> 00:13:40,160
other people think of uses for iss

386
00:13:44,870 --> 00:13:41,839
that we want to be able to evolve to be

387
00:13:47,030 --> 00:13:44,880
able to support those so

388
00:13:49,030 --> 00:13:47,040

today i don't think of it as much as

389
00:13:50,790 --> 00:13:49,040
assembly complete is we have the the

390
00:13:52,870 --> 00:13:50,800
basic infrastructure and we might add

391
00:13:57,030 --> 00:13:52,880
something here or there based on on the

392
00:14:01,110 --> 00:13:58,870
quick follow-up also you said you're

393
00:14:03,189 --> 00:14:01,120
hoping to move toward um 35 hours a week

394
00:14:04,949 --> 00:14:03,199
of utilization can you compare that with

395
00:14:06,389 --> 00:14:04,959
about how many hours a week currently

396
00:14:08,069 --> 00:14:06,399
and in the past few years have been

397
00:14:11,350 --> 00:14:08,079
devoted to that

398
00:14:14,230 --> 00:14:11,360
we've been in anywhere from uh

399
00:14:16,710 --> 00:14:14,240
zero to

400
00:14:18,629 --> 00:14:16,720
ten to twenty

401
00:14:22,150 --> 00:14:18,639
we we went through a really challenging

402
00:14:24,069 --> 00:14:22,160
period uh the last few flights we really

403
00:14:27,189 --> 00:14:24,079
thought we were going to be challenged

404
00:14:30,470 --> 00:14:27,199
right prior to ulf7 and the team really

405
00:14:32,949 --> 00:14:30,480
really uh scraped and and clawed and and

406
00:14:34,870 --> 00:14:32,959
postponed some some work and and in fact

407
00:14:36,230 --> 00:14:34,880
looked at our requirements and reduced

408
00:14:38,550 --> 00:14:36,240
some of our preventative maintenance and

409
00:14:40,310 --> 00:14:38,560
we managed to get to about 20 hours

410
00:14:41,990 --> 00:14:40,320
a week so

411
00:14:45,509 --> 00:14:42,000
i would tell you that on average

412
00:14:47,750 --> 00:14:45,519
probably 20-ish hours maybe less

413
00:14:50,389 --> 00:14:47,760

so this is a significant increase to the

414
00:14:53,509 --> 00:14:50,399
to the community

415
00:14:57,750 --> 00:14:55,430
thank you mark caro for aviation week

416
00:14:59,110 --> 00:14:57,760
and i have a couple questions i think

417
00:15:00,629 --> 00:14:59,120
they're for

418
00:15:01,430 --> 00:15:00,639
mike safradini

419
00:15:05,790 --> 00:15:01,440
the

420
00:15:08,470 --> 00:15:05,800
those for

421
00:15:11,269 --> 00:15:08,480
nasa-sponsored work or do you

422
00:15:12,550 --> 00:15:11,279
see more than that for national lab

423
00:15:14,710 --> 00:15:12,560
activity i just want to make sure i

424
00:15:16,389 --> 00:15:14,720
understand your bookkeeping

425
00:15:18,310 --> 00:15:16,399
when we talk about research so the way

426
00:15:20,230 --> 00:15:18,320
the iss is set up

427
00:15:21,670 --> 00:15:20,240
and this is just the way the the

428
00:15:23,990 --> 00:15:21,680
russians were brought into the

429
00:15:25,350 --> 00:15:24,000
partnership we

430
00:15:26,949 --> 00:15:25,360
we said our russian colleagues would

431
00:15:29,269 --> 00:15:26,959
have three crew and with their three

432
00:15:30,949 --> 00:15:29,279
crew they'd operate their segments and

433
00:15:33,030 --> 00:15:30,959
what was left they do their research

434
00:15:35,829 --> 00:15:33,040
with and then the u.s

435
00:15:37,749 --> 00:15:35,839
os as we refer to it

436
00:15:40,310 --> 00:15:37,759
is with the rest of the partners and we

437
00:15:42,629 --> 00:15:40,320
share that time amongst ourselves so the

438
00:15:44,389 --> 00:15:42,639

35 hours that i refer to is shared a

439
00:15:47,030 --> 00:15:44,399
month amongst the partners based on

440
00:15:49,430 --> 00:15:47,040
their percent contribution now now

441
00:15:51,590 --> 00:15:49,440
that's assuming three crew the design of

442
00:15:54,790 --> 00:15:51,600
iss will support four crew

443
00:15:56,389 --> 00:15:54,800
and uh and so when we get a new uh

444
00:15:57,910 --> 00:15:56,399
vehicle that comes to iss our

445
00:15:59,509 --> 00:15:57,920
requirements have stated that we want

446
00:16:02,550 --> 00:15:59,519
them to be able to carry four crew and

447
00:16:04,150 --> 00:16:02,560
so we'll get up eventually to the to the

448
00:16:07,269 --> 00:16:04,160
four crew level we expect and we'll add

449
00:16:09,269 --> 00:16:07,279
all that time to uh to research as well

450
00:16:11,910 --> 00:16:09,279
thanks and i was wondering about the uh

451
00:16:14,069 --> 00:16:11,920
the flyover or fly around this morning

452
00:16:15,910 --> 00:16:14,079
from from what you could see

453
00:16:17,910 --> 00:16:15,920
admittedly from afar

454
00:16:20,870 --> 00:16:17,920
did you get some of the vantage points

455
00:16:23,189 --> 00:16:20,880
that you think would be valuable to

456
00:16:25,350 --> 00:16:23,199
engineering and sort of what what would

457
00:16:28,230 --> 00:16:25,360
you like to get out of that that would

458
00:16:30,389 --> 00:16:28,240
help sustain the station over the years

459
00:16:32,790 --> 00:16:30,399
well you know we we think of the fly

460
00:16:35,749 --> 00:16:32,800
around as a is a photo op

461
00:16:36,790 --> 00:16:35,759
and uh and it is it's a it's a great

462
00:16:39,430 --> 00:16:36,800
photo op

463
00:16:41,189 --> 00:16:39,440

um but we also and this is what you you

464
00:16:43,110 --> 00:16:41,199
can't see and i i won't know till we

465
00:16:45,030 --> 00:16:43,120
until we downlink the images and a lot

466
00:16:47,910 --> 00:16:45,040
of the images we'll we'll get after

467
00:16:50,790 --> 00:16:47,920
landing but um they they have the use

468
00:16:52,550 --> 00:16:50,800
the 400 millimeter lens on on the 35

469
00:16:54,230 --> 00:16:52,560
millimeter camera and they take pictures

470
00:16:56,870 --> 00:16:54,240
and what we were looking for

471
00:17:00,230 --> 00:16:56,880
uh in this fly around was we rarely get

472
00:17:02,470 --> 00:17:00,240
shots of the end of the trusses so we we

473
00:17:04,309 --> 00:17:02,480
presented the end of the truss to the to

474
00:17:05,829 --> 00:17:04,319
the orbit and it did its normal fly

475
00:17:07,189 --> 00:17:05,839
around and got both ends of the truss

476
00:17:09,350 --> 00:17:07,199
and that's the

477
00:17:11,270 --> 00:17:09,360
that's the angle we don't normally get

478
00:17:13,510 --> 00:17:11,280
from that vantage point we've got a

479
00:17:15,949 --> 00:17:13,520
little bit of it with the with the fly

480
00:17:18,470 --> 00:17:15,959
around the soyuz uh did for us during

481
00:17:21,270 --> 00:17:18,480
sts-134 we got one end

482
00:17:24,230 --> 00:17:22,470
i'll

483
00:17:26,230 --> 00:17:24,240
admit that was mostly a photo op and so

484
00:17:27,990 --> 00:17:26,240
we didn't get as many good shots if you

485
00:17:29,430 --> 00:17:28,000
remember now the orbiter's got all these

486
00:17:31,270 --> 00:17:29,440
windows and so there's more than one

487
00:17:33,190 --> 00:17:31,280
person taking pictures

488
00:17:34,710 --> 00:17:33,200

when paulo did that for us he had to use

489
00:17:36,630 --> 00:17:34,720
a video camera for some of it and he had

490
00:17:39,029 --> 00:17:36,640
to get his lens out and take shots so we

491
00:17:40,710 --> 00:17:39,039
didn't have as many opportunities

492
00:17:42,390 --> 00:17:40,720
but when we have the orbiter and it can

493
00:17:44,870 --> 00:17:42,400
have a number of cameras available to

494
00:17:46,710 --> 00:17:44,880
take the pictures then we can get these

495
00:17:49,110 --> 00:17:46,720
close-in

496
00:17:51,029 --> 00:17:49,120
shots uh with the camera so

497
00:17:53,029 --> 00:17:51,039
today from the video images some of them

498
00:17:55,190 --> 00:17:53,039
that i've seen it looks like we got

499
00:17:57,350 --> 00:17:55,200
these this great vantage point but i

500
00:17:58,630 --> 00:17:57,360
have the images i haven't seen yet

501
00:18:00,390 --> 00:17:58,640
they may be downlinked and i just

502
00:18:01,909 --> 00:18:00,400
haven't seen them but but that's what

503
00:18:03,029 --> 00:18:01,919
we'll go look at and when we get these

504
00:18:03,909 --> 00:18:03,039
pictures

505
00:18:04,789 --> 00:18:03,919
uh

506
00:18:06,870 --> 00:18:04,799
down

507
00:18:08,870 --> 00:18:06,880
we've we've learned quite a bit we it

508
00:18:11,669 --> 00:18:08,880
has very good resolution

509
00:18:13,990 --> 00:18:11,679
uh and we can see small

510
00:18:16,630 --> 00:18:14,000
you know we found small pinhole

511
00:18:17,830 --> 00:18:16,640
not pinhole but small

512
00:18:19,830 --> 00:18:17,840
eighth inch

513
00:18:22,230 --> 00:18:19,840

holes and the radiators and things like

514
00:18:23,590 --> 00:18:22,240
this that you just don't normally see so

515
00:18:24,870 --> 00:18:23,600
i would expect

516
00:18:29,669 --> 00:18:24,880
that

517
00:18:31,750 --> 00:18:29,679
see what it tells us about the condition

518
00:18:34,390 --> 00:18:31,760
of the vehicle

519
00:18:38,789 --> 00:18:36,950
hi robert perlman with collectspace.com

520
00:18:41,590 --> 00:18:38,799
uh with two questions one for each of

521
00:18:43,590 --> 00:18:41,600
you one looking back one looking forward

522
00:18:45,110 --> 00:18:43,600
leroy you mentioned standing on the

523
00:18:47,990 --> 00:18:45,120
shoulders of giants

524
00:18:50,230 --> 00:18:48,000
and a couple of days ago or yesterday

525
00:18:51,750 --> 00:18:50,240
the crew showed up

526
00:18:53,909 --> 00:18:51,760
a space shuttle model that they were

527
00:18:55,590 --> 00:18:53,919
leaving on board as a monument to the

528
00:18:57,590 --> 00:18:55,600
shuttle program

529
00:19:00,549 --> 00:18:57,600
that i believe was signed by you as

530
00:19:02,549 --> 00:19:00,559
among other people as modern day titans

531
00:19:04,150 --> 00:19:02,559
as they called what did it mean to you

532
00:19:06,150 --> 00:19:04,160
personally to have

533
00:19:07,430 --> 00:19:06,160
to have to be a part of that monument

534
00:19:10,390 --> 00:19:07,440
and what do you think that monument

535
00:19:13,990 --> 00:19:10,400
stands for on the station

536
00:19:15,830 --> 00:19:14,000
well robert i i uh it's a it's a

537
00:19:18,390 --> 00:19:15,840
it's an honor for me to have had an

538
00:19:21,590 --> 00:19:18,400

opportunity to to take part in that the

539
00:19:23,430 --> 00:19:21,600
um the shuttle that you're referring to

540
00:19:25,669 --> 00:19:23,440
our program manager john shannon and

541
00:19:28,070 --> 00:19:25,679
myself and and some of our other

542
00:19:29,110 --> 00:19:28,080
uh managers and senior folks in the

543
00:19:31,190 --> 00:19:29,120
program

544
00:19:33,430 --> 00:19:31,200
fergie asked us to sign it and he wanted

545
00:19:36,230 --> 00:19:33,440
to carry it on board and leave that as a

546
00:19:38,470 --> 00:19:36,240
tribute for the space station crew

547
00:19:41,110 --> 00:19:38,480
and that's a huge honor that he asked

548
00:19:43,350 --> 00:19:41,120
and it's a huge honor that uh that they

549
00:19:45,270 --> 00:19:43,360
that they um

550
00:19:47,270 --> 00:19:45,280
left the the shuttle on station right

551
00:19:48,789 --> 00:19:47,280
there by the by the hatch

552
00:19:50,070 --> 00:19:48,799
to pma2

553
00:19:52,549 --> 00:19:50,080
um

554
00:19:54,150 --> 00:19:52,559
for my part i i like to believe that

555
00:19:56,630 --> 00:19:54,160
that

556
00:19:59,909 --> 00:19:56,640
it's a representation of of the entire

557
00:20:01,750 --> 00:19:59,919
team and uh and and in fact for me

558
00:20:03,190 --> 00:20:01,760
personally that's exactly what it is

559
00:20:05,669 --> 00:20:03,200
obviously it's not

560
00:20:07,510 --> 00:20:05,679
feasible for us to have a shuttle model

561
00:20:09,510 --> 00:20:07,520
that would be physically possible for

562
00:20:12,149 --> 00:20:09,520
everyone to sign or we would have done

563
00:20:15,590 --> 00:20:13,750

and that is what we would have preferred

564
00:20:17,750 --> 00:20:15,600
to do of course because what you don't

565
00:20:19,270 --> 00:20:17,760
see is are the thousands of people

566
00:20:20,789 --> 00:20:19,280
behind the scenes

567
00:20:22,549 --> 00:20:20,799
and those folks are the ones that

568
00:20:24,789 --> 00:20:22,559
deserve the credit those folks are the

569
00:20:27,430 --> 00:20:24,799
ones that deserve mention

570
00:20:29,110 --> 00:20:27,440
and that's precisely why i i mentioned

571
00:20:30,870 --> 00:20:29,120
at the outset

572
00:20:32,390 --> 00:20:30,880
what's most important

573
00:20:35,110 --> 00:20:32,400
for me as i sit here today is i really

574
00:20:38,390 --> 00:20:35,120
want to congratulate the entire team

575
00:20:40,070 --> 00:20:38,400
and i'm i'm excited about the momentum

576
00:20:41,990 --> 00:20:40,080
that this team has i'm excited about the

577
00:20:44,230 --> 00:20:42,000
opportunity that we have

578
00:20:46,310 --> 00:20:44,240
as we wind down shuttle

579
00:20:48,390 --> 00:20:46,320
and we have the ability to

580
00:20:50,950 --> 00:20:48,400
to seed this team out into the space

581
00:20:53,029 --> 00:20:50,960
community and and really make every

582
00:20:54,950 --> 00:20:53,039
other thing that we're doing as an

583
00:20:58,390 --> 00:20:54,960
agency both inside and outside the gates

584
00:20:59,190 --> 00:20:58,400
of the agency i think uh i think better

585
00:21:04,230 --> 00:20:59,200
um

586
00:21:05,350 --> 00:21:04,240
that the team i think should be very

587
00:21:06,390 --> 00:21:05,360
proud of what they've been able to

588
00:21:09,110 --> 00:21:06,400

accomplish

589
00:21:11,909 --> 00:21:09,120
and uh if if anything hopefully it's a

590
00:21:14,950 --> 00:21:11,919
reminder to folks that uh

591
00:21:17,590 --> 00:21:14,960
we we played some part at least in

592
00:21:20,390 --> 00:21:17,600
enabling the assembly of the space

593
00:21:22,470 --> 00:21:20,400
station and and our contribution there

594
00:21:24,950 --> 00:21:22,480
for however small it may be for each of

595
00:21:27,830 --> 00:21:24,960
us as individuals uh it's it's a great

596
00:21:30,549 --> 00:21:27,840
remembrance for that and so

597
00:21:32,870 --> 00:21:30,559
that's what it means to me

598
00:21:35,270 --> 00:21:32,880
thanks and um and for michael looking

599
00:21:37,270 --> 00:21:35,280
forward to the next u.s cargo delivery

600
00:21:39,590 --> 00:21:37,280
to the space station where does the

601
00:21:41,830 --> 00:21:39,600
decision lie right now in terms of

602
00:21:43,510 --> 00:21:41,840
allowing spacex to combine their their

603
00:21:46,630 --> 00:21:43,520
second and third flights to fly directly

604
00:21:51,029 --> 00:21:48,789
we haven't made a final decision but

605
00:21:53,110 --> 00:21:51,039
we're pretty close

606
00:21:56,710 --> 00:21:53,120
as far as technically can we combine the

607
00:21:59,990 --> 00:21:56,720
flights and feel comfortable

608
00:22:02,149 --> 00:22:00,000
that you can do the demonstration steps

609
00:22:03,350 --> 00:22:02,159
plan for both of the missions in one

610
00:22:04,549 --> 00:22:03,360
mission

611
00:22:06,710 --> 00:22:04,559
um

612
00:22:08,549 --> 00:22:06,720
and get the delta testing done on the

613
00:22:09,830 --> 00:22:08,559

ground

614
00:22:11,510 --> 00:22:09,840
to make up for what you may not have

615
00:22:13,190 --> 00:22:11,520
gotten on the first demo flight we're

616
00:22:15,350 --> 00:22:13,200
we're there we

617
00:22:17,909 --> 00:22:15,360
technically were good the the other part

618
00:22:19,990 --> 00:22:17,919
that we had to look at was the uh the

619
00:22:23,110 --> 00:22:20,000
assessment of uh

620
00:22:23,990 --> 00:22:23,120
of the the first flight of the falcon 9

621
00:22:27,430 --> 00:22:24,000
which we

622
00:22:29,190 --> 00:22:27,440
of the falcon 9 that we that we have

623
00:22:32,950 --> 00:22:29,200
worked with spacex and

624
00:22:33,990 --> 00:22:32,960
we didn't see anything uh of

625
00:22:36,230 --> 00:22:34,000
of a

626
00:22:37,750 --> 00:22:36,240
large concern there so we're having some

627
00:22:40,390 --> 00:22:37,760
final discussions about the actual

628
00:22:41,510 --> 00:22:40,400
flight itself uh that would occur the

629
00:22:42,789 --> 00:22:41,520
the uh

630
00:22:44,230 --> 00:22:42,799
uh

631
00:22:46,230 --> 00:22:44,240
we'll call it the combined flight but

632
00:22:48,230 --> 00:22:46,240
the next flight and uh

633
00:22:50,470 --> 00:22:48,240
uh and there are there's some secondary

634
00:22:52,549 --> 00:22:50,480
payloads on their secondary payload on

635
00:22:53,909 --> 00:22:52,559
there that they'd like to fly so that's

636
00:22:55,590 --> 00:22:53,919
a factor so we're having those

637
00:22:57,909 --> 00:22:55,600
discussions now

638
00:23:00,149 --> 00:22:57,919

but we'll conclude that here in the next

639
00:23:02,870 --> 00:23:00,159
few weeks uh but the planning is all

640
00:23:05,110 --> 00:23:02,880
assuming that we're that we're flying a

641
00:23:06,870 --> 00:23:05,120
the next flight to iss that's what we'll

642
00:23:08,630 --> 00:23:06,880
be doing so we're not losing any time

643
00:23:09,590 --> 00:23:08,640
with regard to being prepared for that

644
00:23:13,430 --> 00:23:09,600
flight

645
00:23:14,789 --> 00:23:13,440
and and we're it's probably in in later

646
00:23:16,870 --> 00:23:14,799
november

647
00:23:22,149 --> 00:23:16,880
launch date that we'll show for it that

648
00:23:25,350 --> 00:23:23,510
uh philip sloss with nasa

649
00:23:27,669 --> 00:23:25,360
spaceflight.com i guess one for each of

650
00:23:30,070 --> 00:23:27,679
you um for mr kane i don't know whether

651
00:23:31,909 --> 00:23:30,080
uh you're allowed to steal mr soccer's

652
00:23:34,149 --> 00:23:31,919
thunder tomorrow about the entry

653
00:23:37,590 --> 00:23:34,159
strategy but uh i thought i'd at least

654
00:23:38,950 --> 00:23:37,600
give it a shot um what are is are you

655
00:23:42,710 --> 00:23:38,960
just planning on

656
00:23:44,710 --> 00:23:42,720
uh ksc only for the first day

657
00:23:48,310 --> 00:23:44,720
i can't tell you

658
00:23:49,750 --> 00:23:48,320
no i i'm i'm i'm that's uh nothing would

659
00:23:51,830 --> 00:23:49,760
give me greater pleasure than to steal

660
00:23:53,590 --> 00:23:51,840
tony's thunder but um

661
00:23:55,269 --> 00:23:53,600
in all seriousness we are only going to

662
00:23:56,870 --> 00:23:55,279
use kennedy space center on thursday

663
00:23:58,310 --> 00:23:56,880

that's tony's plan he brought that in

664
00:23:59,830 --> 00:23:58,320
today to the miss management team and we

665
00:24:01,430 --> 00:23:59,840
approve that plan and

666
00:24:02,950 --> 00:24:01,440
and beyond that he'll have a lot of

667
00:24:04,950 --> 00:24:02,960
details for you tomorrow morning to talk

668
00:24:09,269 --> 00:24:04,960
about thanks

669
00:24:14,149 --> 00:24:11,190
the uh you you made a presentation of

670
00:24:16,549 --> 00:24:14,159
the augustine uh panel i believe was

671
00:24:18,710 --> 00:24:16,559
here a couple of years ago we laid out

672
00:24:20,310 --> 00:24:18,720
the the commercial resupply

673
00:24:22,870 --> 00:24:20,320
numbers in terms of i believe metric

674
00:24:23,830 --> 00:24:22,880
tons for you know fiscal i guess through

675
00:24:26,630 --> 00:24:23,840
fiscal

676
00:24:29,269 --> 00:24:26,640
or maybe it was calendar year 15.

677
00:24:30,390 --> 00:24:29,279
how how does this flight the ulf-7

678
00:24:32,630 --> 00:24:30,400
flight

679
00:24:33,909 --> 00:24:32,640
change these first couple of years i

680
00:24:35,990 --> 00:24:33,919
mean obviously

681
00:24:37,430 --> 00:24:36,000
it's going to you know help you

682
00:24:38,789 --> 00:24:37,440
um for

683
00:24:40,870 --> 00:24:38,799
for this year

684
00:24:43,110 --> 00:24:40,880
um

685
00:24:45,750 --> 00:24:43,120
how is that going to affect

686
00:24:47,669 --> 00:24:45,760
how is the situation that you're now

687
00:24:49,190 --> 00:24:47,679
going to be affected by that and then

688
00:24:51,669 --> 00:24:49,200

also in terms of

689
00:24:52,549 --> 00:24:51,679
you know where does uh

690
00:24:56,470 --> 00:24:52,559
what

691
00:24:59,350 --> 00:24:56,480
the the commercial resupply providers

692
00:25:00,870 --> 00:24:59,360
need to establish in order to get those

693
00:25:03,350 --> 00:25:00,880
numbers that you need

694
00:25:05,430 --> 00:25:03,360
going out at least a fiscal 15. yeah

695
00:25:07,990 --> 00:25:05,440
when we talked a couple years ago and we

696
00:25:09,750 --> 00:25:08,000
were we were talking about uh how we

697
00:25:12,630 --> 00:25:09,760
mitigate

698
00:25:15,909 --> 00:25:12,640
the risk once we once we transition

699
00:25:18,310 --> 00:25:15,919
completely to the commercial

700
00:25:20,390 --> 00:25:18,320
contract

701
00:25:21,909 --> 00:25:20,400
we had this very discussion about how

702
00:25:23,669 --> 00:25:21,919
often do they need to fly when do they

703
00:25:25,350 --> 00:25:23,679
need to be up

704
00:25:27,190 --> 00:25:25,360
and at that time even back then we were

705
00:25:29,029 --> 00:25:27,200
talking about

706
00:25:30,390 --> 00:25:29,039
possibility another flight

707
00:25:32,070 --> 00:25:30,400
would help

708
00:25:34,070 --> 00:25:32,080
give us some cushion

709
00:25:35,909 --> 00:25:34,080
and and

710
00:25:37,510 --> 00:25:35,919
over that period the commercial flights

711
00:25:39,510 --> 00:25:37,520
have moved to the right

712
00:25:42,549 --> 00:25:39,520
so what the shuttle flight brought to us

713
00:25:43,430 --> 00:25:42,559

was to sort of i'll say fill the gap

714
00:25:44,630 --> 00:25:43,440
from

715
00:25:45,990 --> 00:25:44,640
uh when we

716
00:25:48,310 --> 00:25:46,000
at this point we should have already

717
00:25:50,070 --> 00:25:48,320
been flying uh

718
00:25:52,230 --> 00:25:50,080
the the spacex vehicle should have been

719
00:25:54,149 --> 00:25:52,240
flying and we'd be just about to fly

720
00:25:55,350 --> 00:25:54,159
uh the the orbital

721
00:25:58,950 --> 00:25:55,360
of flight

722
00:26:01,909 --> 00:25:58,960
um so so uh we have

723
00:26:03,269 --> 00:26:01,919
we've and this is natural for these

724
00:26:04,950 --> 00:26:03,279
vehicles i mean you're building a brand

725
00:26:05,909 --> 00:26:04,960
new spacecraft that not only has to

726
00:26:07,909 --> 00:26:05,919
launch

727
00:26:11,510 --> 00:26:07,919
get to low earth orbit then it has to in

728
00:26:13,029 --> 00:26:11,520
very precise way get to a place in space

729
00:26:14,789 --> 00:26:13,039
such that we can grapple it so it's a

730
00:26:16,230 --> 00:26:14,799
very difficult task and both of these

731
00:26:18,310 --> 00:26:16,240
teams started

732
00:26:19,669 --> 00:26:18,320
with new designs and so

733
00:26:21,190 --> 00:26:19,679
where we're at today is there's been

734
00:26:22,470 --> 00:26:21,200
movement to the right but it's movement

735
00:26:25,750 --> 00:26:22,480
to the right that you could have

736
00:26:27,430 --> 00:26:25,760
predicted and and and some of us have

737
00:26:30,390 --> 00:26:27,440
and so what the shuttle gave us was a

738
00:26:32,870 --> 00:26:30,400

chance to fill that void that we were

739
00:26:35,029 --> 00:26:32,880
hoping that the cargo guys would be

740
00:26:37,190 --> 00:26:35,039
would be providing for so what we have

741
00:26:39,909 --> 00:26:37,200
done is given ourselves the cushion to

742
00:26:41,269 --> 00:26:39,919
get all the way through 2012

743
00:26:43,029 --> 00:26:41,279
which means we still have a little

744
00:26:46,310 --> 00:26:43,039
leeway with where the schedules are

745
00:26:48,630 --> 00:26:46,320
going with the commercial vehicles

746
00:26:50,390 --> 00:26:48,640
without putting ourselves

747
00:26:51,990 --> 00:26:50,400
at risk of having to reduce

748
00:26:53,350 --> 00:26:52,000
the planned work we want to do on board

749
00:26:55,110 --> 00:26:53,360
iss

750
00:26:57,029 --> 00:26:55,120
so that's what it provided so what does

751
00:27:00,070 --> 00:26:57,039
it mean to us it means now

752
00:27:01,669 --> 00:27:00,080
instead of 2012 being

753
00:27:03,830 --> 00:27:01,679
a year of commercial flights you're

754
00:27:06,470 --> 00:27:03,840
probably late 2012 as we start to

755
00:27:08,710 --> 00:27:06,480
establish our tempo into early 2013

756
00:27:10,870 --> 00:27:08,720
which means now we have

757
00:27:12,950 --> 00:27:10,880
we have extra if you will extra flights

758
00:27:14,710 --> 00:27:12,960
because the tempo that you asked about

759
00:27:16,549 --> 00:27:14,720
according to the contract we signed was

760
00:27:17,430 --> 00:27:16,559
about three spacex flights a year and

761
00:27:19,350 --> 00:27:17,440
two

762
00:27:21,750 --> 00:27:19,360
uh orbital flights a year and that's in

763
00:27:23,990 --> 00:27:21,760

addition to the htv and atv

764
00:27:26,789 --> 00:27:24,000
flights that we would expect to have

765
00:27:28,470 --> 00:27:26,799
um and so if you assume that tempo

766
00:27:30,070 --> 00:27:28,480
because our upmass

767
00:27:31,909 --> 00:27:30,080
requirements stay the same then we're

768
00:27:33,909 --> 00:27:31,919
going to have some extra

769
00:27:35,269 --> 00:27:33,919
up mass on those vehicles and and our

770
00:27:38,549 --> 00:27:35,279
options are to

771
00:27:42,549 --> 00:27:38,559
uh if we have the utilization need to

772
00:27:43,510 --> 00:27:42,559
fly more flights between now and 2015 or

773
00:27:44,950 --> 00:27:43,520
uh

774
00:27:46,630 --> 00:27:44,960
talk to them about letting the flight

775
00:27:48,710 --> 00:27:46,640
slip a little bit so that we just keep

776
00:27:51,029 --> 00:27:48,720
that same tempo now we have not had

777
00:27:52,230 --> 00:27:51,039
those discussions with them yet because

778
00:27:53,990 --> 00:27:52,240
we're kind of waiting to see when they

779
00:27:56,070 --> 00:27:54,000
get started flying

780
00:27:58,070 --> 00:27:56,080
but once we do

781
00:27:59,430 --> 00:27:58,080
we will establish that tempo i told you

782
00:28:01,430 --> 00:27:59,440
about and we'll begin the discussion

783
00:28:02,789 --> 00:28:01,440
about okay now we have more flights in a

784
00:28:05,590 --> 00:28:02,799
more compressed time how do we want to

785
00:28:07,430 --> 00:28:05,600
deal with that up mass

786
00:28:09,029 --> 00:28:07,440
anybody else here

787
00:28:11,029 --> 00:28:09,039
okay let's see i've got a couple of

788
00:28:12,470 --> 00:28:11,039

folks on the phone bridge we'll start

789
00:28:14,789 --> 00:28:12,480
with irene

790
00:28:16,230 --> 00:28:14,799
you're there irene thanks kyle um leroy

791
00:28:17,990 --> 00:28:16,240
i have a couple questions for you to

792
00:28:22,950 --> 00:28:18,000
start um first of all do you have any

793
00:28:26,389 --> 00:28:25,110
yeah i irene we we had a weather

794
00:28:28,789 --> 00:28:26,399
briefing in the mission management team

795
00:28:30,710 --> 00:28:28,799
today and of course it's a 48-hour

796
00:28:32,710 --> 00:28:30,720
type forecast

797
00:28:34,389 --> 00:28:32,720
overall there there are forecasts to be

798
00:28:36,310 --> 00:28:34,399
a couple of different ceilings mostly

799
00:28:38,230 --> 00:28:36,320
few or scattered clouds nothing in the

800
00:28:40,549 --> 00:28:38,240
way of any coming in close to any flight

801
00:28:43,669 --> 00:28:40,559
rule violations the winds are generally

802
00:28:45,190 --> 00:28:43,679
in the five to six to eight not range

803
00:28:48,950 --> 00:28:45,200
so

804
00:28:51,110 --> 00:28:48,960
have what looks at least at this point

805
00:28:52,149 --> 00:28:51,120
to be a very very good forecast and of

806
00:28:53,990 --> 00:28:52,159
course

807
00:28:55,590 --> 00:28:54,000
saying that again it is a 48-hour

808
00:28:57,350 --> 00:28:55,600
forecast for

809
00:28:59,430 --> 00:28:57,360
for the east coast of

810
00:29:03,430 --> 00:28:59,440
florida so

811
00:29:06,630 --> 00:29:04,470
thanks

812
00:29:09,029 --> 00:29:06,640
the i thought it was mike who was

813
00:29:11,190 --> 00:29:09,039

talking about photo ops but

814
00:29:13,510 --> 00:29:11,200
was there any consideration at all or is

815
00:29:15,750 --> 00:29:13,520
there any consideration at all to waving

816
00:29:17,990 --> 00:29:15,760
off that first landing

817
00:29:21,750 --> 00:29:18,000
the first landing opportunity so this

818
00:29:24,470 --> 00:29:21,760
last shuttle can land in daylight

819
00:29:25,990 --> 00:29:24,480
uh in short no

820
00:29:28,710 --> 00:29:26,000
the

821
00:29:30,070 --> 00:29:28,720
you know we want to stick with with what

822
00:29:35,590 --> 00:29:30,080
we

823
00:29:37,510 --> 00:29:35,600
processes and procedures irene and uh

824
00:29:38,470 --> 00:29:37,520
i think it's important for us to do that

825
00:29:40,710 --> 00:29:38,480
i think

826
00:29:42,470 --> 00:29:40,720
whether it's 40 minutes before sunrise

827
00:29:45,190 --> 00:29:42,480
or an hour

828
00:29:47,110 --> 00:29:45,200
after sunrise

829
00:29:48,630 --> 00:29:47,120
it will be it'll be a good landing at

830
00:29:50,230 --> 00:29:48,640
kennedy space center and i think folks

831
00:29:52,070 --> 00:29:50,240
will

832
00:29:53,350 --> 00:29:52,080
be very happy to see atlanta's return

833
00:29:55,510 --> 00:29:53,360
there so

834
00:29:57,350 --> 00:29:55,520
we're going to stick with our plan

835
00:29:59,110 --> 00:29:57,360
it's kind of a

836
00:30:00,789 --> 00:29:59,120
good entry

837
00:30:02,230 --> 00:30:00,799
flight team and entry flight director

838
00:30:04,710 --> 00:30:02,240

mantra to

839
00:30:07,269 --> 00:30:04,720
not pass up a good opportunity that just

840
00:30:09,029 --> 00:30:07,279
is generally not

841
00:30:10,950 --> 00:30:09,039
not what we want to do

842
00:30:12,870 --> 00:30:10,960
in in this business so we don't have any

843
00:30:13,669 --> 00:30:12,880
plans to do that

844
00:30:15,909 --> 00:30:13,679
um

845
00:30:18,950 --> 00:30:15,919
and i know you're a steely-eyed missile

846
00:30:20,470 --> 00:30:18,960
man but i was wondering if um what you

847
00:30:22,870 --> 00:30:20,480
were thinking about when you watched

848
00:30:23,909 --> 00:30:22,880
that really beautiful television image

849
00:30:27,830 --> 00:30:23,919
of

850
00:30:29,430 --> 00:30:27,840
station flying around and

851
00:30:31,909 --> 00:30:29,440
i guess also especially you know that

852
00:30:33,750 --> 00:30:31,919
william shatner thing's been playing 500

853
00:30:34,950 --> 00:30:33,760
times a day and there's some very

854
00:30:36,710 --> 00:30:34,960
poignant

855
00:30:38,310 --> 00:30:36,720
scenes of you

856
00:30:41,990 --> 00:30:38,320
as the flight director you know of

857
00:30:43,830 --> 00:30:42,000
course for columbia and um if uh i'm

858
00:30:46,789 --> 00:30:43,840
just wondering if that's uh what your

859
00:30:48,870 --> 00:30:46,799
thoughts are as this program wraps up

860
00:30:52,710 --> 00:30:48,880
especially in light of

861
00:30:55,029 --> 00:30:52,720
you know an alternative ending thanks

862
00:30:57,430 --> 00:30:55,039
yeah the the the william shatner program

863
00:31:00,549 --> 00:30:57,440

is is excellent i've i've watched it

864
00:31:03,509 --> 00:31:00,559
myself i highly recommend it it's um

865
00:31:05,269 --> 00:31:03,519
it's good for all ages of course and and

866
00:31:06,710 --> 00:31:05,279
frankly as i watched it it kind of

867
00:31:08,870 --> 00:31:06,720
reminded me

868
00:31:10,310 --> 00:31:08,880
going way back to uh to the beginnings

869
00:31:12,470 --> 00:31:10,320
of shuttle and it takes you through the

870
00:31:14,630 --> 00:31:12,480
various eras if you will of the shuttle

871
00:31:18,710 --> 00:31:14,640
program and and the highs and lows and

872
00:31:20,470 --> 00:31:18,720
the the uh tributes and triumphs

873
00:31:22,310 --> 00:31:20,480
and of course we remember all those

874
00:31:23,750 --> 00:31:22,320
things fo you know those of us that have

875
00:31:25,750 --> 00:31:23,760
been around working in the program on

876
00:31:27,430 --> 00:31:25,760
some level but you don't think about

877
00:31:29,190 --> 00:31:27,440
those things day in and day out we think

878
00:31:31,110 --> 00:31:29,200
about the things and we focus on the

879
00:31:33,190 --> 00:31:31,120
things that that are right in front of

880
00:31:34,789 --> 00:31:33,200
us as it pertains to

881
00:31:37,029 --> 00:31:34,799
getting ready to execute the very next

882
00:31:39,669 --> 00:31:37,039
mission and planning and scheduling and

883
00:31:42,470 --> 00:31:39,679
working budget and technical issues

884
00:31:43,990 --> 00:31:42,480
and so it's a good thing to go back and

885
00:31:45,509 --> 00:31:44,000
remind yourself

886
00:31:47,350 --> 00:31:45,519
because it helps

887
00:31:49,430 --> 00:31:47,360
put in perspective kind of in the

888
00:31:51,750 --> 00:31:49,440

overall fabric of this

889
00:31:53,190 --> 00:31:51,760
of this program where we fit

890
00:31:54,149 --> 00:31:53,200
and so

891
00:31:56,310 --> 00:31:54,159
um

892
00:31:57,830 --> 00:31:56,320
one of the things that that strikes me

893
00:31:59,909 --> 00:31:57,840
is that

894
00:32:01,509 --> 00:31:59,919
this team that's in place right now and

895
00:32:03,590 --> 00:32:01,519
as i mentioned earlier we challenged

896
00:32:05,990 --> 00:32:03,600
ourselves we challenged the team

897
00:32:08,549 --> 00:32:06,000
to uh to give it everything we had for

898
00:32:09,990 --> 00:32:08,559
the final few years here

899
00:32:11,590 --> 00:32:10,000
to finish strong

900
00:32:13,509 --> 00:32:11,600
and the team has been very committed and

901
00:32:14,630 --> 00:32:13,519
dedicated to doing that

902
00:32:17,190 --> 00:32:14,640
and

903
00:32:19,029 --> 00:32:17,200
so for our part i i kind of view us as

904
00:32:22,310 --> 00:32:19,039
as the anchor and one of my favorite

905
00:32:24,230 --> 00:32:22,320
races is a 4 by 100 meter relay

906
00:32:25,430 --> 00:32:24,240
of course when i ran it it was 4 by 100

907
00:32:27,269 --> 00:32:25,440
yards but

908
00:32:28,710 --> 00:32:27,279
at any rate

909
00:32:29,830 --> 00:32:28,720
every person on that team is pretty

910
00:32:31,990 --> 00:32:29,840
important and if you think of the

911
00:32:33,269 --> 00:32:32,000
shuttle program as is breaking it up

912
00:32:35,509 --> 00:32:33,279
into four

913
00:32:37,990 --> 00:32:35,519

roughly equal segments

914
00:32:40,149 --> 00:32:38,000
this team is kind of the anchor team and

915
00:32:41,269 --> 00:32:40,159
as an anchor what you really want to do

916
00:32:43,029 --> 00:32:41,279
as much as anything is you want to

917
00:32:44,549 --> 00:32:43,039
finish strong

918
00:32:46,870 --> 00:32:44,559
when you get the baton the first thing

919
00:32:48,870 --> 00:32:46,880
you have to do is get the baton

920
00:32:51,669 --> 00:32:48,880
and and of course you don't want to drop

921
00:32:53,269 --> 00:32:51,679
it because there is no body behind you

922
00:32:53,990 --> 00:32:53,279
there's no chance to pick it up after

923
00:32:56,630 --> 00:32:54,000
that

924
00:32:58,149 --> 00:32:56,640
and so it's pretty much all rides on you

925
00:33:00,149 --> 00:32:58,159
and the team is really counting on you

926
00:33:01,750 --> 00:33:00,159
the broader team in this case folks

927
00:33:04,389 --> 00:33:01,760
going all the way back to pre-shuttle

928
00:33:07,830 --> 00:33:04,399
and those folks again shoulders of

929
00:33:10,230 --> 00:33:07,840
giants that i talked about earlier so um

930
00:33:11,430 --> 00:33:10,240
i view this as the anchor team and in

931
00:33:13,110 --> 00:33:11,440
that sense

932
00:33:14,549 --> 00:33:13,120
at least from my view

933
00:33:15,909 --> 00:33:14,559
i couldn't be more proud of the way that

934
00:33:18,549 --> 00:33:15,919
they have anchored the space shuttle

935
00:33:20,789 --> 00:33:18,559
program we're not done obviously

936
00:33:23,269 --> 00:33:20,799
and we won't be done until we get fergie

937
00:33:24,710 --> 00:33:23,279
and the crew on the runway and and as i

938
00:33:26,549 --> 00:33:24,720

mentioned earlier and so we look forward

939
00:33:28,789 --> 00:33:26,559
to that but uh

940
00:33:30,950 --> 00:33:28,799
in in that analogy we're probably only a

941
00:33:32,950 --> 00:33:30,960
couple yards from the finish line

942
00:33:35,990 --> 00:33:32,960
and uh and i couldn't be more proud of

943
00:33:37,269 --> 00:33:36,000
of where we are in that sense um

944
00:33:38,389 --> 00:33:37,279
for my part

945
00:33:40,789 --> 00:33:38,399
everybody will deal with this

946
00:33:42,070 --> 00:33:40,799
differently obviously

947
00:33:44,149 --> 00:33:42,080
i would tell you that i don't have any

948
00:33:45,190 --> 00:33:44,159
emotions about this but that wouldn't be

949
00:33:46,549 --> 00:33:45,200
true

950
00:33:48,630 --> 00:33:46,559
but i am

951
00:33:52,710 --> 00:33:48,640
uh i choose to

952
00:33:56,870 --> 00:33:55,350
celebrating what we've been able to do

953
00:33:59,350 --> 00:33:56,880
feeling very good about what we've been

954
00:34:00,630 --> 00:33:59,360
able to accomplish

955
00:34:07,669 --> 00:34:00,640
and

956
00:34:09,430 --> 00:34:07,679
runway

957
00:34:10,790 --> 00:34:09,440
then we'll we'll worry about the other

958
00:34:13,190 --> 00:34:10,800
things and talk more about the other

959
00:34:14,869 --> 00:34:13,200
things and i think we can look back and

960
00:34:16,869 --> 00:34:14,879
and do a lot of uh

961
00:34:18,950 --> 00:34:16,879
a lot of reflecting

962
00:34:21,109 --> 00:34:18,960
in the meantime for me my choice is is

963
00:34:22,950 --> 00:34:21,119

to celebrate what we've been able to do

964
00:34:25,109 --> 00:34:22,960
and i think the team can take

965
00:34:27,990 --> 00:34:25,119
great pride in that

966
00:34:28,950 --> 00:34:28,000
in whatever part we've had in terms of

967
00:34:30,470 --> 00:34:28,960
of

968
00:34:32,389 --> 00:34:30,480
the shuttle program overall and that

969
00:34:33,669 --> 00:34:32,399
that includes if you want to talk about

970
00:34:35,510 --> 00:34:33,679
satellite deploy if you want to talk

971
00:34:37,669 --> 00:34:35,520
about hubble if you want to talk about

972
00:34:39,430 --> 00:34:37,679
dockings to the mirror

973
00:34:40,950 --> 00:34:39,440
if you want to talk about

974
00:34:42,550 --> 00:34:40,960
of course

975
00:34:45,030 --> 00:34:42,560
construction and assembly of the

976
00:34:46,869 --> 00:34:45,040
international space station

977
00:34:48,069 --> 00:34:46,879
we can spend a lot of time talking about

978
00:34:49,750 --> 00:34:48,079
all of those things they're all

979
00:34:50,790 --> 00:34:49,760
important they're all part of the

980
00:34:51,829 --> 00:34:50,800
overall

981
00:34:53,589 --> 00:34:51,839
um

982
00:34:56,470 --> 00:34:53,599
the overall legacy of the shuttle

983
00:34:57,510 --> 00:34:56,480
program from end to end and

984
00:34:59,589 --> 00:34:57,520
folks

985
00:35:00,790 --> 00:34:59,599
can can be very proud of their part in

986
00:35:02,550 --> 00:35:00,800
those things and

987
00:35:03,430 --> 00:35:02,560
and so i choose to think of it in those

988
00:35:05,750 --> 00:35:03,440

terms

989
00:35:07,190 --> 00:35:05,760
and uh and for now pretty focused on on

990
00:35:09,270 --> 00:35:07,200
getting atlantis and the crew back on

991
00:35:10,950 --> 00:35:09,280
thursday

992
00:35:13,670 --> 00:35:10,960
thankfully right and mike i had one

993
00:35:15,750 --> 00:35:13,680
question for you as well um last week of

994
00:35:16,390 --> 00:35:15,760
course nasa announced the uh

995
00:35:19,589 --> 00:35:16,400
the

996
00:35:21,589 --> 00:35:19,599
company nonprofit that it wants to

997
00:35:24,630 --> 00:35:21,599
negotiate to run the

998
00:35:26,470 --> 00:35:24,640
national lab portion of iss

999
00:35:29,349 --> 00:35:26,480
could you just discuss a little bit

1000
00:35:30,710 --> 00:35:29,359
about what that entity is free to do as

1001
00:35:32,790 --> 00:35:30,720
far as

1002
00:35:35,670 --> 00:35:32,800
funding outside of the 15 million

1003
00:35:40,230 --> 00:35:35,680
dollars from nasa per year which doesn't

1004
00:35:45,990 --> 00:35:42,550
yes the the 15 million really was more

1005
00:35:47,030 --> 00:35:46,000
for the non-profit to operate and

1006
00:35:49,030 --> 00:35:47,040
perhaps

1007
00:35:51,349 --> 00:35:49,040
seed a little bit of work

1008
00:35:53,990 --> 00:35:51,359
the objective of the nonprofit is to go

1009
00:35:56,550 --> 00:35:54,000
out there and

1010
00:35:58,390 --> 00:35:56,560
through i'll say educating other

1011
00:36:00,710 --> 00:35:58,400
communities about

1012
00:36:02,470 --> 00:36:00,720
what space station can provide to them

1013
00:36:03,510 --> 00:36:02,480

help get more

1014
00:36:06,950 --> 00:36:03,520
um

1015
00:36:10,470 --> 00:36:06,960
a broader understanding and therefore

1016
00:36:13,430 --> 00:36:10,480
more folks interested in utilizing iss

1017
00:36:15,589 --> 00:36:13,440
in investing in in research uh or

1018
00:36:17,190 --> 00:36:15,599
production on iss and so that's really

1019
00:36:18,069 --> 00:36:17,200
the goal of the ngo

1020
00:36:20,870 --> 00:36:18,079
um

1021
00:36:23,430 --> 00:36:20,880
their objective is to try to marry the

1022
00:36:24,550 --> 00:36:23,440
the money that they're willing to invest

1023
00:36:25,510 --> 00:36:24,560
into

1024
00:36:27,349 --> 00:36:25,520
uh uh

1025
00:36:29,510 --> 00:36:27,359
into the uh

1026
00:36:32,230 --> 00:36:29,520
the money that nasa's already invested

1027
00:36:35,190 --> 00:36:32,240
in and and by the money nasa's invested

1028
00:36:37,750 --> 00:36:35,200
i mean we have uh

1029
00:36:39,589 --> 00:36:37,760
a group of folks within the program that

1030
00:36:43,270 --> 00:36:39,599
worry about integrating

1031
00:36:46,150 --> 00:36:43,280
payloads in in general just

1032
00:36:48,069 --> 00:36:46,160
systems anything onto the iss and so

1033
00:36:50,710 --> 00:36:48,079
that team exists and we make them

1034
00:36:54,150 --> 00:36:50,720
available to do analysis for for folks

1035
00:36:56,310 --> 00:36:54,160
we we define the interfaces for them

1036
00:36:58,790 --> 00:36:56,320
if we have

1037
00:37:00,470 --> 00:36:58,800
facilities on orbit we we make those

1038
00:37:02,790 --> 00:37:00,480

available we

1039
00:37:03,910 --> 00:37:02,800
if we already have

1040
00:37:05,510 --> 00:37:03,920
inserts

1041
00:37:07,030 --> 00:37:05,520
that are available so they can just put

1042
00:37:08,710 --> 00:37:07,040
the materials in the inserts we make

1043
00:37:10,390 --> 00:37:08,720
those available

1044
00:37:13,030 --> 00:37:10,400
we've also at least in the near term

1045
00:37:14,550 --> 00:37:13,040
have some additional up mass to

1046
00:37:17,510 --> 00:37:14,560
provide to the

1047
00:37:19,589 --> 00:37:17,520
the national lab providers so that's the

1048
00:37:21,829 --> 00:37:19,599
investment that nasa tries to make and

1049
00:37:25,109 --> 00:37:21,839
what this what this ngo is trying to do

1050
00:37:27,030 --> 00:37:25,119
is go out there and and basically

1051
00:37:29,190 --> 00:37:27,040
find communities explain to them how

1052
00:37:32,390 --> 00:37:29,200
this is beneficial to them and then get

1053
00:37:34,470 --> 00:37:32,400
them to invest uh in in uh

1054
00:37:38,870 --> 00:37:34,480
utilizing the iss for their for their

1055
00:37:41,349 --> 00:37:38,880
own benefit and uh and so the the money

1056
00:37:43,510 --> 00:37:41,359
that the ngo is off to go get is about

1057
00:37:45,750 --> 00:37:43,520
really it's above the 15

1058
00:37:47,430 --> 00:37:45,760
million which is which is largely let

1059
00:37:49,589 --> 00:37:47,440
them operate so they're going to go out

1060
00:37:51,910 --> 00:37:49,599
and find investors and find

1061
00:37:53,750 --> 00:37:51,920
companies that want to in to

1062
00:37:56,310 --> 00:37:53,760
that do work on national lab marry those

1063
00:37:58,950 --> 00:37:56,320

two together introduce them to us if you

1064
00:38:00,069 --> 00:37:58,960
will and then we'll do the job of based

1065
00:38:03,510 --> 00:38:00,079
on

1066
00:38:06,310 --> 00:38:03,520
you know a certain limit of what we can

1067
00:38:08,390 --> 00:38:06,320
provide for in terms of up mass and

1068
00:38:10,550 --> 00:38:08,400
volume on board and crew time and and

1069
00:38:12,230 --> 00:38:10,560
whatnot then they say here's the

1070
00:38:14,310 --> 00:38:12,240
national lab groups that we want to try

1071
00:38:16,310 --> 00:38:14,320
to go fly and then we will

1072
00:38:18,870 --> 00:38:16,320
we will work to integrate them and fly

1073
00:38:19,990 --> 00:38:18,880
them to iss hopefully that

1074
00:38:22,710 --> 00:38:20,000
made sense

1075
00:38:24,069 --> 00:38:22,720
marketing and space tourism

1076
00:38:25,270 --> 00:38:24,079
what was the first one i'm sorry you

1077
00:38:27,750 --> 00:38:25,280
were cut off there

1078
00:38:30,069 --> 00:38:27,760
i said does that include marketing and

1079
00:38:32,630 --> 00:38:30,079
space tourism and you know advertising

1080
00:38:34,470 --> 00:38:32,640
basically things that nasa hasn't really

1081
00:38:36,950 --> 00:38:34,480
been able to do in the past being a

1082
00:38:38,310 --> 00:38:36,960
government organization and

1083
00:38:40,550 --> 00:38:38,320
you know of course anybody that's wanted

1084
00:38:43,670 --> 00:38:40,560
to fly on space station has had to go

1085
00:38:48,550 --> 00:38:43,680
the commercial route through russia

1086
00:38:51,589 --> 00:38:48,560
space tourism is not necessarily uh

1087
00:38:54,550 --> 00:38:51,599
what we were considering in in this uh

1088
00:38:56,950 --> 00:38:54,560

in this effort uh although as

1089
00:38:59,109 --> 00:38:56,960
the commercial companies

1090
00:39:01,109 --> 00:38:59,119
uh start to come forward with their

1091
00:39:03,430 --> 00:39:01,119
plans to perhaps apply to i build

1092
00:39:05,430 --> 00:39:03,440
systems that they want to fly to iss i

1093
00:39:06,230 --> 00:39:05,440
wouldn't be surprised if there wasn't

1094
00:39:08,950 --> 00:39:06,240
some

1095
00:39:11,030 --> 00:39:08,960
relationship between the two marketing

1096
00:39:11,910 --> 00:39:11,040
really

1097
00:39:14,069 --> 00:39:11,920
i guess

1098
00:39:15,990 --> 00:39:14,079
it is it it is marketing to a certain

1099
00:39:18,870 --> 00:39:16,000
sense it really is talking about there

1100
00:39:21,270 --> 00:39:18,880
is this capability that is available

1101
00:39:22,950 --> 00:39:21,280
and then so their job at that point is

1102
00:39:24,069 --> 00:39:22,960
to say okay we know this capability

1103
00:39:26,230 --> 00:39:24,079
exists

1104
00:39:29,510 --> 00:39:26,240
it is a very unique capability and so

1105
00:39:32,790 --> 00:39:29,520
they have to go out and do what any

1106
00:39:35,750 --> 00:39:32,800
group that wants to get investors does

1107
00:39:37,910 --> 00:39:35,760
they go out and find the the investors

1108
00:39:40,550 --> 00:39:37,920
and they and they marry that with the

1109
00:39:42,950 --> 00:39:40,560
groups that have a need to utilize iss

1110
00:39:45,190 --> 00:39:42,960
but but don't have the capital

1111
00:39:46,710 --> 00:39:45,200
and and that's what this national labs

1112
00:39:48,150 --> 00:39:46,720
supposed to do so

1113
00:39:49,829 --> 00:39:48,160

to the extent that there's marketing

1114
00:39:51,030 --> 00:39:49,839
there's marketing in the sense that they

1115
00:39:53,910 --> 00:39:51,040
really are the ones that go out there

1116
00:39:56,310 --> 00:39:53,920
and explain hey here's the benefits

1117
00:39:58,230 --> 00:39:56,320
that gets you this grows you to the base

1118
00:40:00,550 --> 00:39:58,240
of folks who go oh gosh yes i could

1119
00:40:02,230 --> 00:40:00,560
utilize it and then and then the next

1120
00:40:04,069 --> 00:40:02,240
step is to say okay now you got the

1121
00:40:05,670 --> 00:40:04,079
folks that want to utilize it

1122
00:40:07,349 --> 00:40:05,680
rarely do they have all the capital they

1123
00:40:09,750 --> 00:40:07,359
need so this group is going to help find

1124
00:40:12,550 --> 00:40:09,760
then the folks who are willing to invest

1125
00:40:14,630 --> 00:40:12,560
and help these these entities

1126
00:40:16,309 --> 00:40:14,640
uh build whatever it is they need in

1127
00:40:17,510 --> 00:40:16,319
order to come to iss and and of course

1128
00:40:18,950 --> 00:40:17,520
then at that point it becomes this

1129
00:40:20,230 --> 00:40:18,960
relationship where we look to see what

1130
00:40:21,990 --> 00:40:20,240
we have available

1131
00:40:25,349 --> 00:40:22,000
uh what the opportunities are what we

1132
00:40:28,069 --> 00:40:25,359
can provide that exist today and then

1133
00:40:30,630 --> 00:40:28,079
and then between all of us together we

1134
00:40:32,470 --> 00:40:30,640
we get these uh entities flown and and

1135
00:40:36,790 --> 00:40:32,480
do whatever it is they they wanted to

1136
00:40:42,790 --> 00:40:39,109
thank you okay thanks irene let's see

1137
00:40:44,470 --> 00:40:42,800
james dean are you on the line james

1138
00:40:45,589 --> 00:40:44,480

i am thank you james dean with florida

1139
00:40:46,470 --> 00:40:45,599
today

1140
00:40:48,390 --> 00:40:46,480
um

1141
00:40:49,990 --> 00:40:48,400
a couple questions for for leroy i think

1142
00:40:51,750 --> 00:40:50,000
um we were i just wanted to give us a

1143
00:40:54,710 --> 00:40:51,760
sense of

1144
00:40:56,470 --> 00:40:54,720
the scene at uh the runway for wheels

1145
00:40:58,309 --> 00:40:56,480
stop and after i know you've tried to do

1146
00:41:00,470 --> 00:40:58,319
everything through the mission kind of

1147
00:41:02,150 --> 00:41:00,480
by the book but i'm assuming um

1148
00:41:03,829 --> 00:41:02,160
between sort of special guests and

1149
00:41:05,349 --> 00:41:03,839
ceremonies for the workforce and stuff

1150
00:41:06,470 --> 00:41:05,359
that it's not going to be an ordinary

1151
00:41:07,589 --> 00:41:06,480
landing day

1152
00:41:09,990 --> 00:41:07,599
and i just wonder if you could speak a

1153
00:41:11,270 --> 00:41:10,000
little bit about kind of

1154
00:41:13,750 --> 00:41:11,280
who's going to be there what we're going

1155
00:41:16,390 --> 00:41:13,760
to see and and you know how all that's

1156
00:41:17,270 --> 00:41:16,400
going to be kind of wrapped up with um

1157
00:41:21,349 --> 00:41:17,280
you know the fact that there's big

1158
00:41:23,270 --> 00:41:21,359
layoffs coming up this week as well

1159
00:41:24,550 --> 00:41:23,280
well i think james

1160
00:41:27,430 --> 00:41:24,560
you'll see

1161
00:41:30,150 --> 00:41:27,440
typically

1162
00:41:31,829 --> 00:41:30,160
post landing in terms of

1163
00:41:33,750 --> 00:41:31,839

we'll greet the crew the crew will walk

1164
00:41:35,190 --> 00:41:33,760
around the vehicle they won't spend too

1165
00:41:38,069 --> 00:41:35,200
much time out there they'll say a few

1166
00:41:39,270 --> 00:41:38,079
words and then they'll be on their way

1167
00:41:40,470 --> 00:41:39,280
i think

1168
00:41:42,230 --> 00:41:40,480
what you'll see as much as anything

1169
00:41:43,910 --> 00:41:42,240
maybe as you may see

1170
00:41:46,150 --> 00:41:43,920
you will see

1171
00:41:48,069 --> 00:41:46,160
a greater number of people depending on

1172
00:41:49,670 --> 00:41:48,079
when you're when you're looking of

1173
00:41:51,670 --> 00:41:49,680
course we don't let anybody go out to

1174
00:41:53,270 --> 00:41:51,680
the runway until the vehicle is safe and

1175
00:41:55,990 --> 00:41:53,280
and for that part

1176
00:41:57,510 --> 00:41:56,000
for those initial stages post wheel stop

1177
00:41:59,270 --> 00:41:57,520
until we get the crew out until the

1178
00:42:01,030 --> 00:41:59,280
vehicle is safe until we do all our

1179
00:42:02,550 --> 00:42:01,040
sniff checks all of those things will

1180
00:42:03,750 --> 00:42:02,560
are going to be by the book and we're

1181
00:42:04,710 --> 00:42:03,760
not going to deviate from any of those

1182
00:42:05,910 --> 00:42:04,720
plans

1183
00:42:07,510 --> 00:42:05,920
the thing that you'll see that'll be

1184
00:42:09,109 --> 00:42:07,520
different is it'll be a larger number of

1185
00:42:10,150 --> 00:42:09,119
people will be allowed

1186
00:42:12,550 --> 00:42:10,160
to uh

1187
00:42:14,470 --> 00:42:12,560
to go see atlantis on the runway

1188
00:42:16,550 --> 00:42:14,480

after landing we we can't have that

1189
00:42:19,270 --> 00:42:16,560
large of a group of folks out there

1190
00:42:21,030 --> 00:42:19,280
uh while the crew is out there and

1191
00:42:23,349 --> 00:42:21,040
but for that part you'll see what looks

1192
00:42:25,589 --> 00:42:23,359
pretty familiar to you in terms of

1193
00:42:26,870 --> 00:42:25,599
of of our greeting the crew and and

1194
00:42:29,430 --> 00:42:26,880
walking around with them a little bit

1195
00:42:31,829 --> 00:42:29,440
and just briefly discussing the mission

1196
00:42:33,430 --> 00:42:31,839
and and some congratulations and pats on

1197
00:42:34,470 --> 00:42:33,440
the back and those kind of things if if

1198
00:42:36,069 --> 00:42:34,480
that's what

1199
00:42:38,230 --> 00:42:36,079
you're referring to

1200
00:42:39,990 --> 00:42:38,240
beyond that i think

1201
00:42:42,150 --> 00:42:40,000
after that

1202
00:42:43,829 --> 00:42:42,160
once we get atlantis towed back in the

1203
00:42:47,430 --> 00:42:43,839
days to come there will obviously be

1204
00:42:50,710 --> 00:42:47,440
many i know there are several planned

1205
00:42:52,150 --> 00:42:50,720
post landing post wheel stop splash down

1206
00:42:54,470 --> 00:42:52,160
and the traditional sense kind of

1207
00:42:56,150 --> 00:42:54,480
celebrations at the various space

1208
00:42:57,670 --> 00:42:56,160
centers kennedy space center i know

1209
00:42:58,630 --> 00:42:57,680
johnson space center and marshall are

1210
00:43:00,950 --> 00:42:58,640
all

1211
00:43:02,870 --> 00:43:00,960
doing some events of their own

1212
00:43:04,470 --> 00:43:02,880
and so there will be a lot of those kind

1213
00:43:05,910 --> 00:43:04,480

of activities where people will have a

1214
00:43:08,870 --> 00:43:05,920
chance to

1215
00:43:10,230 --> 00:43:08,880
to spend some more time together and

1216
00:43:12,470 --> 00:43:10,240
and thanking each other for their

1217
00:43:14,550 --> 00:43:12,480
contributions and so i expect there to

1218
00:43:16,150 --> 00:43:14,560
be a great deal of that

1219
00:43:18,790 --> 00:43:16,160
but i don't know that on thursday

1220
00:43:20,069 --> 00:43:18,800
morning what you see

1221
00:43:24,470 --> 00:43:20,079
in that time frame will be all that

1222
00:43:29,510 --> 00:43:27,190
hey thanks and um i wondered if uh just

1223
00:43:32,309 --> 00:43:29,520
for for folks who

1224
00:43:33,910 --> 00:43:32,319
may not have seen a shuttle land before

1225
00:43:36,230 --> 00:43:33,920
uh if they were able to actually see

1226
00:43:37,190 --> 00:43:36,240
this one given the uh the early hour and

1227
00:43:40,309 --> 00:43:37,200
the lighting i wondered if you could

1228
00:43:41,990 --> 00:43:40,319
just give just a brief primer on kind of

1229
00:43:44,790 --> 00:43:42,000
help people appreciate you know what it

1230
00:43:47,990 --> 00:43:44,800
takes for to to get an orbiter from mach

1231
00:43:50,390 --> 00:43:48,000
25 down to the ground

1232
00:43:52,230 --> 00:43:50,400
well it's uh it's a challenge of course

1233
00:43:54,069 --> 00:43:52,240
and and

1234
00:43:55,109 --> 00:43:54,079
all of that energy that we put into the

1235
00:43:56,710 --> 00:43:55,119
system

1236
00:44:00,069 --> 00:43:56,720
on launch when you think about those

1237
00:44:02,710 --> 00:44:00,079
seven or so millions of pounds of thrust

1238
00:44:05,829 --> 00:44:02,720

and our our ascent to orbit

1239
00:44:07,670 --> 00:44:05,839
and and all of that energy and uh and

1240
00:44:09,190 --> 00:44:07,680
power

1241
00:44:11,190 --> 00:44:09,200
and velocity that we impart to the

1242
00:44:13,030 --> 00:44:11,200
vehicle if take all that back out in

1243
00:44:14,790 --> 00:44:13,040
order to be at wheel stop at the right

1244
00:44:15,670 --> 00:44:14,800
place and time on the right runway in

1245
00:44:18,630 --> 00:44:15,680
the

1246
00:44:20,550 --> 00:44:18,640
and so

1247
00:44:23,349 --> 00:44:20,560
the vehicle has a fairly sophisticated

1248
00:44:24,390 --> 00:44:23,359
guidance system

1249
00:44:29,430 --> 00:44:24,400
and

1250
00:44:31,270 --> 00:44:29,440
the planned maneuvers in the planned

1251
00:44:33,829 --> 00:44:31,280
attitude profile for

1252
00:44:35,510 --> 00:44:33,839
dissipating that energy as the vehicle

1253
00:44:36,710 --> 00:44:35,520
descends through the thicker part of the

1254
00:44:39,430 --> 00:44:36,720
atmosphere

1255
00:44:40,710 --> 00:44:39,440
and so it's called ranging in the

1256
00:44:41,430 --> 00:44:40,720
guidance system

1257
00:44:43,190 --> 00:44:41,440
and

1258
00:44:46,550 --> 00:44:43,200
as i said it's fairly sophisticated but

1259
00:44:49,510 --> 00:44:46,560
it's it's a very tried and true system

1260
00:44:50,550 --> 00:44:49,520
in terms of being very robust

1261
00:44:52,870 --> 00:44:50,560
and so

1262
00:44:55,190 --> 00:44:52,880
by the time we get to the uh

1263
00:44:57,270 --> 00:44:55,200

to the uh to the west coast of florida

1264
00:44:59,670 --> 00:44:57,280
or the southern tip of the peninsula

1265
00:45:01,670 --> 00:44:59,680
depending on the ground track uh we've

1266
00:45:04,309 --> 00:45:01,680
we've dissipated uh

1267
00:45:06,630 --> 00:45:04,319
the lion's share of that energy we only

1268
00:45:08,870 --> 00:45:06,640
take out a couple of percent of all of

1269
00:45:10,790 --> 00:45:08,880
that energy with at the very beginning

1270
00:45:12,309 --> 00:45:10,800
of the deorbit and entry sequence when

1271
00:45:14,150 --> 00:45:12,319
we do the deorbit burn with the orbital

1272
00:45:15,829 --> 00:45:14,160
maneuvering system engines

1273
00:45:18,230 --> 00:45:15,839
we only take out a couple of percent of

1274
00:45:20,950 --> 00:45:18,240
that overall energy it slows us down

1275
00:45:23,270 --> 00:45:20,960
just enough to re-enter the corridor the

1276
00:45:25,990 --> 00:45:23,280
atmosphere precisely the place that we

1277
00:45:28,230 --> 00:45:26,000
want to where guidance wants us to begin

1278
00:45:30,230 --> 00:45:28,240
that journey back to the intended

1279
00:45:33,030 --> 00:45:30,240
landing site so that we bleed off

1280
00:45:34,230 --> 00:45:33,040
exactly the right amount of energy

1281
00:45:37,030 --> 00:45:34,240
the final

1282
00:45:39,670 --> 00:45:37,040
moments of that come with a couple of uh

1283
00:45:41,349 --> 00:45:39,680
of s turns as we call them during entry

1284
00:45:43,510 --> 00:45:41,359
to bleed off a little bit more energy

1285
00:45:45,190 --> 00:45:43,520
and it's a constant iterative process in

1286
00:45:47,990 --> 00:45:45,200
the algorithm on board

1287
00:45:49,510 --> 00:45:48,000
where the navigation gets gradually more

1288
00:45:51,589 --> 00:45:49,520

and more accurate with the various

1289
00:45:53,030 --> 00:45:51,599
sensors that we have and so then

1290
00:45:55,990 --> 00:45:53,040
guidance

1291
00:45:59,270 --> 00:45:56,000
makes final tweaks and and

1292
00:46:01,349 --> 00:45:59,280
in that closed loop loop system and

1293
00:46:03,349 --> 00:46:01,359
and flight control responds to that with

1294
00:46:04,870 --> 00:46:03,359
the uh with the thrusters at first and

1295
00:46:06,230 --> 00:46:04,880
then a combination of the thrusters in

1296
00:46:08,069 --> 00:46:06,240
the aero surfaces and then the aerial

1297
00:46:09,670 --> 00:46:08,079
surfaces alone

1298
00:46:11,990 --> 00:46:09,680
and then finally the vehicle pitches

1299
00:46:13,430 --> 00:46:12,000
over and we get down into

1300
00:46:15,829 --> 00:46:13,440
the lower parts of the atmosphere and

1301
00:46:19,030 --> 00:46:15,839
the lower mach numbers

1302
00:46:21,910 --> 00:46:19,040
crossover land and to florida and we're

1303
00:46:23,589 --> 00:46:21,920
entering in the mach 4 to 5 to 6 range

1304
00:46:24,309 --> 00:46:23,599
depending on exactly wherever land that

1305
00:46:27,510 --> 00:46:24,319
we

1306
00:46:30,150 --> 00:46:27,520
on the ground track

1307
00:46:32,069 --> 00:46:30,160
crew would deploy the the air data

1308
00:46:34,470 --> 00:46:32,079
probes at mach 5

1309
00:46:37,190 --> 00:46:34,480
and then that data becomes available uh

1310
00:46:38,790 --> 00:46:37,200
anytime after mach 3.5 when the onboard

1311
00:46:40,710 --> 00:46:38,800
software deems that it's uh it's

1312
00:46:42,710 --> 00:46:40,720
accurate correct and all of the cross

1313
00:46:44,630 --> 00:46:42,720

checks between the probes are good

1314
00:46:45,990 --> 00:46:44,640
that data is important for the flight

1315
00:46:47,270 --> 00:46:46,000
control system

1316
00:46:48,710 --> 00:46:47,280
and so

1317
00:46:49,589 --> 00:46:48,720
and the navigation system for that

1318
00:46:51,030 --> 00:46:49,599
matter

1319
00:46:52,390 --> 00:46:51,040
and you get about halfway across the

1320
00:46:54,150 --> 00:46:52,400
state depending on if you're coming

1321
00:46:56,550 --> 00:46:54,160
across it broadside or if you're coming

1322
00:46:58,790 --> 00:46:56,560
up at long ways and you're entering what

1323
00:47:00,150 --> 00:46:58,800
we call tame it's about mach 2.5 and

1324
00:47:01,670 --> 00:47:00,160
that's where some of the gains change in

1325
00:47:03,430 --> 00:47:01,680
the flight control system and the nose

1326
00:47:05,270 --> 00:47:03,440
is pitched over even more

1327
00:47:07,910 --> 00:47:05,280
and the nose is pointed in fact toward

1328
00:47:11,270 --> 00:47:07,920
waypoint one which is a

1329
00:47:12,150 --> 00:47:11,280
a precise point on the guidance circle

1330
00:47:13,750 --> 00:47:12,160
that

1331
00:47:15,270 --> 00:47:13,760
basically the vehicle goes wings level

1332
00:47:17,750 --> 00:47:15,280
and points toward what we call waypoint

1333
00:47:20,630 --> 00:47:17,760
one those are the final phases of

1334
00:47:22,390 --> 00:47:20,640
of guidance called tame guidance

1335
00:47:25,270 --> 00:47:22,400
all of that leads up to

1336
00:47:27,589 --> 00:47:25,280
the final dissipation of energy

1337
00:47:28,790 --> 00:47:27,599
which is uh around the heading alignment

1338
00:47:30,630 --> 00:47:28,800

cone

1339
00:47:32,309 --> 00:47:30,640
that's the big arc that the vehicle will

1340
00:47:34,870 --> 00:47:32,319
bank around and when fergie takes over

1341
00:47:36,390 --> 00:47:34,880
manual control somewhere around mach 1

1342
00:47:37,990 --> 00:47:36,400
or just above mach 1 before we go

1343
00:47:40,470 --> 00:47:38,000
subsonic he'll take over control and

1344
00:47:41,910 --> 00:47:40,480
he'll he'll fly this very precise

1345
00:47:44,230 --> 00:47:41,920
maneuver around the heading alignment

1346
00:47:46,069 --> 00:47:44,240
cone that will dissipate those final

1347
00:47:47,670 --> 00:47:46,079
uh amount of energy that will put him

1348
00:47:49,990 --> 00:47:47,680
exactly on the

1349
00:47:52,870 --> 00:47:50,000
runway centerline glide soap and with

1350
00:47:53,670 --> 00:47:52,880
the exact velocity and energy that he

1351
00:47:56,390 --> 00:47:53,680
needs

1352
00:47:57,910 --> 00:47:56,400
to to make it to the runway threshold

1353
00:48:00,390 --> 00:47:57,920
through the final flare

1354
00:48:01,829 --> 00:48:00,400
and let the wheels touch down gently on

1355
00:48:03,990 --> 00:48:01,839
the surface of the runway at kennedy

1356
00:48:05,670 --> 00:48:04,000
space center that's basically how that

1357
00:48:06,870 --> 00:48:05,680
works

1358
00:48:10,470 --> 00:48:06,880
and

1359
00:48:13,030 --> 00:48:10,480
it's uh that sounds easy probably

1360
00:48:14,870 --> 00:48:13,040
but it's taken a lot of folks

1361
00:48:16,150 --> 00:48:14,880
a lot of brain power to get us to this

1362
00:48:17,829 --> 00:48:16,160
point of course

1363
00:48:19,589 --> 00:48:17,839

it's been a very tried and true system

1364
00:48:21,349 --> 00:48:19,599
on the shuttle and it's a it's really a

1365
00:48:23,750 --> 00:48:21,359
derivative of previous guidance systems

1366
00:48:26,390 --> 00:48:23,760
for previous vehicles and so again

1367
00:48:27,190 --> 00:48:26,400
um on the on the shoulders of giants and

1368
00:48:28,870 --> 00:48:27,200
uh

1369
00:48:30,230 --> 00:48:28,880
um

1370
00:48:32,230 --> 00:48:30,240
i hope i've answered your question

1371
00:48:33,750 --> 00:48:32,240
somewhere in there

1372
00:48:34,630 --> 00:48:33,760
yeah thanks that didn't sound easy at

1373
00:48:35,910 --> 00:48:34,640
all and i guess that's what i was

1374
00:48:37,510 --> 00:48:35,920
getting trying to get at a little bit is

1375
00:48:40,950 --> 00:48:37,520
just sort of how um

1376
00:48:42,230 --> 00:48:40,960
how unique the system is and and how um

1377
00:48:45,190 --> 00:48:42,240
nothing else

1378
00:48:47,190 --> 00:48:45,200
flies like it and and um and may never

1379
00:48:48,710 --> 00:48:47,200
again or at least

1380
00:48:51,910 --> 00:48:48,720
for quite a while that we'll see people

1381
00:48:56,309 --> 00:48:54,390
okay thanks james does anybody have

1382
00:49:00,150 --> 00:48:56,319
any wrap up here

1383
00:49:01,349 --> 00:49:00,160
okay a couple of programming notes

1384
00:49:03,829 --> 00:49:01,359
as soon as we're done here we're going

1385
00:49:05,990 --> 00:49:03,839
to go back to mission control and um

1386
00:49:07,589 --> 00:49:06,000
uh something that the uh systems

1387
00:49:09,190 --> 00:49:07,599
engineering and integration team has

1388
00:49:10,470 --> 00:49:09,200

done for quite a number of flights for

1389
00:49:13,990 --> 00:49:10,480
the space shuttle program has put

1390
00:49:17,349 --> 00:49:14,000
together a uh a video of all the ascent

1391
00:49:19,109 --> 00:49:17,359
imagery um and that put that to music

1392
00:49:21,510 --> 00:49:19,119
that's coming up at the top of the hour

1393
00:49:23,190 --> 00:49:21,520
so you'll you'll want to pay it close

1394
00:49:25,670 --> 00:49:23,200
attention to that and we do have several

1395
00:49:27,510 --> 00:49:25,680
replays of that coming up as well

1396
00:49:29,030 --> 00:49:27,520
the flight day highlights today of

1397
00:49:31,109 --> 00:49:29,040
undocking all of the fly around

1398
00:49:33,510 --> 00:49:31,119
activities is upcoming at two o'clock

1399
00:49:36,230 --> 00:49:33,520
central three eastern

1400
00:49:38,309 --> 00:49:36,240
the uh feature that uh you talked about

1401
00:49:40,069 --> 00:49:38,319
and you heard leroy talk about with

1402
00:49:43,030 --> 00:49:40,079
that's narrated by william shatner is

1403
00:49:44,630 --> 00:49:43,040
coming up for a replay at seven pm

1404
00:49:47,030 --> 00:49:44,640
eight eastern

1405
00:49:50,630 --> 00:49:47,040
the crew gets its wake-up call tonight

1406
00:49:52,069 --> 00:49:50,640
at 8 59 central 9 59 eastern to begin

1407
00:49:54,549 --> 00:49:52,079
the cabin stowe and all of the day

1408
00:49:57,589 --> 00:49:54,559
before landing checkouts with the entry

1409
00:50:00,710 --> 00:49:57,599
team tony socacci and his team which

1410
00:50:02,309 --> 00:50:00,720
will be on console at 9 00 pm to oversee

1411
00:50:05,589 --> 00:50:02,319
all of that activity

1412
00:50:07,589 --> 00:50:05,599
the crew oversees its last series of

1413
00:50:10,390 --> 00:50:07,599

interviews with all of the networks

1414
00:50:13,510 --> 00:50:10,400
that's coming up at 3 54 a.m

1415
00:50:15,510 --> 00:50:13,520
tomorrow 4 54 eastern uh in the wee

1416
00:50:17,270 --> 00:50:15,520
hours of the morning our last mission

1417
00:50:19,349 --> 00:50:17,280
status briefing we'll be back here with

1418
00:50:21,670 --> 00:50:19,359
tony soccer after he gets off shift

1419
00:50:24,309 --> 00:50:21,680
tomorrow morning that's scheduled for 7

1420
00:50:25,990 --> 00:50:24,319
a.m so be sure to tune in for that as

1421
00:50:27,910 --> 00:50:26,000
well all of that's in the nasa

1422
00:50:29,910 --> 00:50:27,920
television schedule we'll be making a

1423
00:50:31,349 --> 00:50:29,920
revision to that so stay tuned for that

1424
00:50:33,190 --> 00:50:31,359
tonight as well

1425
00:50:35,349 --> 00:50:33,200
and with that i'll thank leroy i'll

1426
00:50:37,510 --> 00:50:35,359
thank mike and all of you for coming and

1427
00:50:38,950 --> 00:50:37,520
tuning in appreciate it and we'll head

1428
00:50:43,109 --> 00:50:38,960
back to mission control and back to

1429
00:50:47,829 --> 00:50:45,670
hi i'm glenda brown we're the eva team