



1
00:00:00,720 --> 00:00:19,269

[Music]

2
00:00:23,109 --> 00:00:20,550

and we're now

3
00:00:24,630 --> 00:00:23,119

close to entering the final countdown

4
00:00:26,150 --> 00:00:24,640

for the launch of

5
00:00:31,669 --> 00:00:26,160

the last flight of space shuttle

6
00:00:36,069 --> 00:00:34,630

this is the 134th launch of the space

7
00:00:37,990 --> 00:00:36,079

shuttle program

8
00:00:39,030 --> 00:00:38,000

the 25th launch of space shuttle

9
00:00:41,590 --> 00:00:39,040

endeavour

10
00:00:44,229 --> 00:00:41,600

and the 36th flight to the international

11
00:00:45,990 --> 00:00:44,239

space station

12
00:00:48,229 --> 00:00:46,000

endeavor will deliver the alpha magnetic

13
00:00:50,229 --> 00:00:48,239

spectrometer called ams2

14

00:00:52,150 --> 00:00:50,239

a particle physics detector designed to

15

00:00:54,869 --> 00:00:52,160

search for various types of unusual

16

00:00:56,470 --> 00:00:54,879

matter by measuring cosmic rays

17

00:00:58,389 --> 00:00:56,480

its experiments are designed to help

18

00:01:01,750 --> 00:00:58,399

researchers study and look for clues to

19

00:01:04,789 --> 00:01:01,760

the formation of the universe

20

00:01:07,030 --> 00:01:04,799

and here is commander mark kelly our 134

21

00:01:09,590 --> 00:01:07,040

mission commander making his

22

00:01:12,789 --> 00:01:09,600

fourth slide on the space shuttle

23

00:01:14,070 --> 00:01:12,799

he's logged a total of 38 days in

24

00:01:17,270 --> 00:01:14,080

space

25

00:01:22,149 --> 00:01:17,280

this latest flight was in 2008

26
00:01:27,030 --> 00:01:25,030
going over to our pilot now greg johnson

27
00:01:29,109 --> 00:01:27,040
he's making his

28
00:01:31,270 --> 00:01:29,119
second space flight previously also

29
00:01:35,030 --> 00:01:31,280
piloted on sts-123

30
00:01:42,149 --> 00:01:38,069
he's logged over 4 000 hours in 40

31
00:01:46,389 --> 00:01:44,069
this is mike fink mission specialist

32
00:01:48,069 --> 00:01:46,399
number one this is his

33
00:01:49,830 --> 00:01:48,079
third space flight but his first space

34
00:01:51,990 --> 00:01:49,840
shuttle flight he was launched

35
00:01:55,030 --> 00:01:52,000
previously from russia on

36
00:01:57,749 --> 00:01:55,040
soyuz spacecraft and he's locked 365

37
00:02:02,389 --> 00:01:57,759
days in space with over 26 hours on six

38
00:02:02,399 --> 00:02:09,990

mission specialist greg shamatoff

39

00:02:12,790 --> 00:02:11,190

this is his

40

00:02:15,110 --> 00:02:12,800

second space flight but he's already

41

00:02:18,390 --> 00:02:15,120

logged 183 days in space aboard the

42

00:02:18,400 --> 00:02:25,110

he's canadian born from montreal

43

00:02:30,070 --> 00:02:26,630

and there's drew feustel mission

44

00:02:33,750 --> 00:02:30,080

specialist number three making his

45

00:02:38,710 --> 00:02:37,110

he served as

46

00:02:40,309 --> 00:02:38,720

an astronaut for more than a decade

47

00:02:44,550 --> 00:02:40,319

working on both the space shuttle and

48

00:02:46,630 --> 00:02:44,560

the space station branches in houston

49

00:02:49,990 --> 00:02:46,640

he flew on the fifth and final hst

50

00:02:52,390 --> 00:02:50,000

servicing mission

51
00:02:55,270 --> 00:02:52,400
and roberto vittori

52
00:02:57,270 --> 00:02:55,280
he's mission specialist number two

53
00:02:59,670 --> 00:02:57,280
he was selected as an astronaut by the

54
00:03:00,790 --> 00:02:59,680
european space agency he's from turbo

55
00:03:02,309 --> 00:03:00,800
italy

56
00:03:05,830 --> 00:03:02,319
and he has flown to the international

57
00:03:08,790 --> 00:03:05,840
space station twice

58
00:03:10,949 --> 00:03:08,800
and here come our astronauts leaving the

59
00:03:12,869 --> 00:03:10,959
suit-up room bound for

60
00:03:13,830 --> 00:03:12,879
the elevator they will take them down to

61
00:03:21,350 --> 00:03:13,840
the

62
00:03:22,949 --> 00:03:21,360
astronauts since apollo have used to

63
00:03:28,600 --> 00:03:22,959

leave the crew quarters and go out to

64

00:03:28,610 --> 00:03:33,589

[Music]

65

00:03:33,599 --> 00:03:38,230

hey guys

66

00:03:38,240 --> 00:03:52,390

[Music]

67

00:03:55,910 --> 00:03:54,309

and then today your polls go that

68

00:03:58,710 --> 00:03:55,920

affirmative that is affirmative we are

69

00:04:00,710 --> 00:03:58,720

all go okay copy that

70

00:04:02,710 --> 00:04:00,720

kc chief processing engineer verify no

71

00:04:04,390 --> 00:04:02,720

constraints to launch no constraints

72

00:04:06,869 --> 00:04:04,400

thank you steve kfc safety and mission

73

00:04:08,789 --> 00:04:06,879

assurance ksc safety admission insurance

74

00:04:10,390 --> 00:04:08,799

cisco thank you dave

75

00:04:13,190 --> 00:04:10,400

payload launch manager like the space

76
00:04:14,949 --> 00:04:13,200
station processing team thank you bill

77
00:04:16,949 --> 00:04:14,959
range weather weather has no constraints

78
00:04:18,310 --> 00:04:16,959
for launch thank you kathy

79
00:04:19,670 --> 00:04:18,320
and ops manager

80
00:04:21,509 --> 00:04:19,680
mike things look real good today thanks

81
00:04:23,270 --> 00:04:21,519
to your team for getting us back here uh

82
00:04:24,390 --> 00:04:23,280
your good launch endeavor good thank you

83
00:04:25,830 --> 00:04:24,400
sir

84
00:04:29,990 --> 00:04:25,840
and double launch director air to ground

85
00:04:34,390 --> 00:04:32,629
okay mark looks like a great day to uh

86
00:04:35,909 --> 00:04:34,400
launch endeavor for the final time so on

87
00:04:37,030 --> 00:04:35,919
behalf of the thousands of proud

88
00:04:37,990 --> 00:04:37,040

americans who've been part of her

89

00:04:39,189 --> 00:04:38,000

journey

90

00:04:42,629 --> 00:04:39,199

good luck godspeed and we'll see you

91

00:04:45,030 --> 00:04:42,639

back here june 1st

92

00:04:47,270 --> 00:04:45,040

thank you sir on this final flight of

93

00:04:49,430 --> 00:04:47,280

space shuttle endeavor we want to thank

94

00:04:51,430 --> 00:04:49,440

all the tens of thousands of dedicated

95

00:04:53,749 --> 00:04:51,440

employees that have put their hands on

96

00:04:55,830 --> 00:04:53,759

this incredible ship and dedicated their

97

00:04:57,590 --> 00:04:55,840

life to the space shuttle program as

98

00:04:59,350 --> 00:04:57,600

americans we endeavor to build a better

99

00:05:01,670 --> 00:04:59,360

life than the generation before and we

100

00:05:03,909 --> 00:05:01,680

endeavor to be a united nation

101
00:05:05,670 --> 00:05:03,919
in these efforts we are often tested

102
00:05:07,749 --> 00:05:05,680
this mission represents the power of

103
00:05:09,510 --> 00:05:07,759
teamwork commitment and exploration it

104
00:05:11,990 --> 00:05:09,520
is in the dna of our great country to

105
00:05:14,390 --> 00:05:12,000
reach for the stars and explore we must

106
00:05:17,029 --> 00:05:14,400
not stop to all the millions watching

107
00:05:19,270 --> 00:05:17,039
today including our spouses children

108
00:05:20,710 --> 00:05:19,280
family and friends we thank you for your

109
00:05:23,430 --> 00:05:20,720
support

110
00:05:25,430 --> 00:05:23,440
endeavor otc it's your final voyage this

111
00:05:27,430 --> 00:05:25,440
is both a sad and proud moment for your

112
00:05:29,110 --> 00:05:27,440
launch team and for america but your

113
00:05:31,350 --> 00:05:29,120

legacy will live on

114

00:05:33,510 --> 00:05:31,360

mission success with ams a truly

115

00:05:38,310 --> 00:05:33,520

international effort godspeed and see

116

00:05:38,320 --> 00:05:41,909

thanks for the words appreciate it

117

00:05:47,590 --> 00:05:44,550

endeavor otc close and lock your visors

118

00:05:50,230 --> 00:05:47,600

initiate o2 flow

119

00:05:55,120 --> 00:05:50,240

endeavor and work

120

00:06:03,110 --> 00:05:57,190

[Applause]

121

00:06:07,830 --> 00:06:05,510

launch of endeavor expanding our

122

00:06:17,920 --> 00:06:07,840

knowledge of expanding our lives in

123

00:06:17,930 --> 00:06:24,469

[Music]

124

00:06:30,710 --> 00:06:26,550

as endeavor begins the heads-down

125

00:06:44,570 --> 00:06:30,720

position on course for a 51.6 degree 136

126
00:06:49,110 --> 00:06:47,110

[Music]

127
00:06:50,629 --> 00:06:49,120

three engines now throttling down as

128
00:06:52,230 --> 00:06:50,639

endeavor

129
00:06:54,070 --> 00:06:52,240

passes through the area of maximum

130
00:07:02,550 --> 00:06:54,080

dynamic pressure on the vehicle in the

131
00:07:18,150 --> 00:07:04,469

and standing by for

132
00:07:23,430 --> 00:07:21,029

yeah orbiter is now traveling 3 200

133
00:07:26,230 --> 00:07:23,440

miles per hour downrange 50 miles

134
00:07:31,430 --> 00:07:26,240

altitude 37 miles all systems in good

135
00:07:37,350 --> 00:07:34,070

endeavor press demiko and single engine

136
00:07:38,550 --> 00:07:37,360

zaragoza 104.

137
00:07:42,950 --> 00:07:38,560

roger

138
00:07:47,029 --> 00:07:44,790

several calls there endeavor can reach a

139

00:07:48,629 --> 00:07:47,039

safe orbit on two engines now the

140

00:07:50,550 --> 00:07:48,639

guidance system is controlling the

141

00:07:51,670 --> 00:07:50,560

engines to roll endeavor to a heads-up

142

00:07:52,950 --> 00:07:51,680

position

143

00:07:54,629 --> 00:07:52,960

to optimize the air-to-ground

144

00:08:38,870 --> 00:07:54,639

communications through the satellite

145

00:08:43,190 --> 00:08:41,750

okay homes burn starting in five seconds

146

00:08:50,470 --> 00:08:43,200

about now

147

00:08:55,509 --> 00:08:52,949

that's a real burnout it's a long burn

148

00:08:57,269 --> 00:08:55,519

again you're right there goes this

149

00:08:59,430 --> 00:08:57,279

yeah that's like a

150

00:09:01,750 --> 00:08:59,440

tenth of a g where's your other boots by

151
00:09:07,190 --> 00:09:01,760
the way let's tie it off

152
00:09:07,200 --> 00:09:20,389
it looks like a dual motor time

153
00:09:24,230 --> 00:09:22,070
all right here we are in the flight deck

154
00:09:26,630 --> 00:09:24,240
of endeavor flight day one

155
00:09:29,829 --> 00:09:26,640
recently in space sorry about the cloud

156
00:09:32,150 --> 00:09:29,839
deck when we took off

157
00:09:32,949 --> 00:09:32,160
we're really excited it's great to be up

158
00:09:34,829 --> 00:09:32,959
here

159
00:09:39,990 --> 00:09:34,839
i'll have to say it was a lot different

160
00:09:40,000 --> 00:09:46,070
and back to work go ahead

161
00:09:49,110 --> 00:09:47,190
hey guys

162
00:09:51,670 --> 00:09:49,120
here we are roberto and i we're on the

163
00:09:53,829 --> 00:09:51,680

mid-deck we're setting up uh gira which

164

00:09:54,870 --> 00:09:53,839

is our water purification system over

165

00:09:57,110 --> 00:09:54,880

here

166

00:09:59,269 --> 00:09:57,120

and uh

167

00:10:00,949 --> 00:09:59,279

we've been in space now for what

168

00:10:03,350 --> 00:10:00,959

four hours five hours something like

169

00:10:05,670 --> 00:10:03,360

that and um amazing we're all feeling

170

00:10:06,949 --> 00:10:05,680

great it's uh this is awesome i just i

171

00:10:11,269 --> 00:10:06,959

can't wait to get back to the space

172

00:10:13,910 --> 00:10:11,279

station and uh feeling just awesome

173

00:10:15,829 --> 00:10:13,920

my first ride on the shuttle was uh

174

00:10:20,310 --> 00:10:15,839

amazing launch

175

00:10:22,150 --> 00:10:20,320

and then mikko i was a little afraid but

176

00:10:23,750 --> 00:10:22,160

that quickly adapted

177

00:10:26,230 --> 00:10:23,760

and

178

00:10:28,870 --> 00:10:26,240

it's very interesting to work with the

179

00:10:32,949 --> 00:10:28,880

old shallow systems and then you decide

180

00:10:34,470 --> 00:10:32,959

that it's easier here microgravity

181

00:10:36,150 --> 00:10:34,480

during the training

182

00:10:37,910 --> 00:10:36,160

and stuff

183

00:10:39,110 --> 00:10:37,920

most of the equipment here just makes

184

00:10:41,670 --> 00:10:39,120

sense

185

00:10:44,710 --> 00:10:41,680

it is very intuitive and

186

00:10:49,509 --> 00:10:47,110

the day's activities will focus

187

00:10:52,550 --> 00:10:49,519

primarily on the inspection

188

00:10:55,269 --> 00:10:52,560

of the thermal protection system

189

00:10:57,750 --> 00:10:55,279

in particular the wing leading edge

190

00:11:00,069 --> 00:10:57,760

reinforced carbon carbon panels 22 of

191

00:11:02,310 --> 00:11:00,079

which are on each wing of the orbiter

192

00:11:03,670 --> 00:11:02,320

and also the nose cap made of the same

193

00:11:06,389 --> 00:11:03,680

material

194

00:11:07,990 --> 00:11:06,399

all of that inspection will take over

195

00:11:10,870 --> 00:11:08,000

the course of the

196

00:11:14,310 --> 00:11:10,880

cruise timeline several hours

197

00:11:15,829 --> 00:11:14,320

the starboard wing will be the first

198

00:11:18,150 --> 00:11:15,839

survey

199

00:11:20,310 --> 00:11:18,160

that's budgeted for

200

00:11:24,389 --> 00:11:20,320

just under two hours the crew will then

201
00:11:25,990 --> 00:11:24,399
break for a midday meal and then

202
00:11:29,110 --> 00:11:26,000
perform the

203
00:11:32,150 --> 00:11:29,120
inspection of the nose cap and then kick

204
00:11:33,990 --> 00:11:32,160
off the left wing survey once all of

205
00:11:34,949 --> 00:11:34,000
that is completed

206
00:11:50,069 --> 00:11:34,959
the

207
00:11:52,870 --> 00:11:50,079
express logistics carrier which is in

208
00:11:55,030 --> 00:11:52,880
the forward or actually the mid portion

209
00:11:57,030 --> 00:11:55,040
of endeavour's payload bay bunch of

210
00:11:58,790 --> 00:11:57,040
viruses in these tubes

211
00:12:00,069 --> 00:11:58,800
frank turn the handle

212
00:12:02,310 --> 00:12:00,079
take these everything's not working

213
00:12:04,150 --> 00:12:02,320

audio now and it mixes

214

00:12:05,750 --> 00:12:04,160

uh does some mixture and later we'll

215

00:12:08,230 --> 00:12:05,760

deactivate it

216

00:12:11,269 --> 00:12:08,240

and a bunch of them in here

217

00:12:13,430 --> 00:12:11,279

it kind of takes a while two more to go

218

00:12:16,949 --> 00:12:13,440

all right

219

00:12:18,870 --> 00:12:16,959

goodbye you are over south china sea

220

00:12:24,389 --> 00:12:18,880

south china sea wow

221

00:12:28,629 --> 00:12:26,949

all right you guys look great

222

00:12:30,470 --> 00:12:28,639

you know why i'm wearing these because

223

00:12:33,110 --> 00:12:30,480

it looks cool it looks cool hey i've got

224

00:12:34,550 --> 00:12:33,120

a pair of those

225

00:12:41,350 --> 00:12:34,560

elbows

226

00:12:44,470 --> 00:12:43,030

it's just amazing that you could see the

227

00:12:46,629 --> 00:12:44,480

entire arm

228

00:12:49,350 --> 00:12:46,639

using windows only yeah you'd have to

229

00:12:51,269 --> 00:12:49,360

use the uh tv monitors like we had to do

230

00:12:52,470 --> 00:12:51,279

on station at one time

231

00:12:53,430 --> 00:12:52,480

it doesn't look like a simulation

232

00:12:55,350 --> 00:12:53,440

anymore when you're not looking at

233

00:12:57,509 --> 00:12:55,360

monitors oh the

234

00:12:59,030 --> 00:12:57,519

simulation graphics are pretty good yeah

235

00:13:01,430 --> 00:12:59,040

i think these are these graphics they're

236

00:13:02,310 --> 00:13:01,440

even better

237

00:13:19,269 --> 00:13:02,320

yeah

238

00:13:24,150 --> 00:13:22,069

and views of uh space shuttle endeavour

239

00:13:26,629 --> 00:13:24,160

from the international space station

240

00:13:28,150 --> 00:13:26,639

cameras on the outside of the complex

241

00:13:32,710 --> 00:13:28,160

this view

242

00:13:35,030 --> 00:13:32,720

from a distance of 50 800 feet the

243

00:13:43,030 --> 00:13:35,040

trajectory control sensor has acquired

244

00:13:43,040 --> 00:13:48,230

we concur endeavor

245

00:13:54,230 --> 00:13:51,110

and with that call the third mid-course

246

00:13:57,350 --> 00:13:54,240

correction burn uh is not required based

247

00:13:59,509 --> 00:13:57,360

on the trajectory of uh

248

00:14:04,150 --> 00:13:59,519

endeavor to the international space

249

00:14:08,830 --> 00:14:06,760

okay

250

00:14:12,930 --> 00:14:08,840

[Music]

251
00:14:16,880 --> 00:14:12,940
[Applause]

252
00:14:17,920 --> 00:14:16,890
[Music]

253
00:14:19,310 --> 00:14:17,930
[Applause]

254
00:14:35,430 --> 00:14:19,320
[Music]

255
00:14:37,670 --> 00:14:35,440
[Applause]

256
00:14:38,629 --> 00:14:37,680
rpm on my mark

257
00:14:39,590 --> 00:14:38,639
three

258
00:14:40,470 --> 00:14:39,600
two

259
00:15:06,069 --> 00:14:40,480
one

260
00:15:06,079 --> 00:15:09,189
endeavor is now

261
00:15:13,750 --> 00:15:11,110
310 feet

262
00:15:17,030 --> 00:15:13,760
from the international space station

263
00:15:18,870 --> 00:15:17,040

flight director gary horlock are now

264

00:15:21,030 --> 00:15:18,880

pulling his flight control team here in

265

00:15:23,189 --> 00:15:21,040

the shuttle flight control room for a go

266

00:15:25,430 --> 00:15:23,199

for docking

267

00:15:31,990 --> 00:15:25,440

crew meanwhile is in the process of

268

00:15:36,790 --> 00:15:34,389

view of the orbiter docking system with

269

00:15:38,949 --> 00:15:36,800

the ring extended that obviously is the

270

00:15:41,030 --> 00:15:38,959

first contact with the docking port on

271

00:15:43,189 --> 00:15:41,040

the international space station the

272

00:15:45,990 --> 00:15:43,199

station's docking port the pressurized

273

00:15:47,590 --> 00:15:46,000

mating adapter attached to the harmony

274

00:15:50,150 --> 00:15:47,600

module of the international space

275

00:16:07,110 --> 00:15:50,160

station at the top of the view you also

276
00:16:07,120 --> 00:16:20,790
houston and station capture is confirmed

277
00:16:20,800 --> 00:16:25,509
hello

278
00:16:31,030 --> 00:16:28,150
hey you guys wore coordinating shirts

279
00:16:33,910 --> 00:16:31,040
we didn't we didn't do that it's okay

280
00:16:40,650 --> 00:16:33,920
hello how's it going how are you good

281
00:16:40,660 --> 00:16:48,470
[Music]

282
00:16:56,600 --> 00:16:50,710
hello how are you doing

283
00:17:17,270 --> 00:17:03,290
[Music]

284
00:17:21,909 --> 00:17:19,270
spatial robotic arm back in motion you

285
00:17:23,350 --> 00:17:21,919
can see the express logistics carrier

286
00:17:26,710 --> 00:17:23,360
uh

287
00:17:28,870 --> 00:17:26,720
moving away from

288
00:17:30,789 --> 00:17:28,880

the space shuttle's cargo bay

289

00:17:34,310 --> 00:17:30,799

and uh beginning to be able to see as

290

00:17:36,150 --> 00:17:34,320

well the alpha magnetic spectrometer

291

00:17:38,390 --> 00:17:36,160

in the back of the cargo bay

292

00:17:46,230 --> 00:17:38,400

main cargo brought up by

293

00:17:50,150 --> 00:17:47,510

houston

294

00:17:52,150 --> 00:17:50,160

this is the cupola the uma mate is

295

00:17:54,630 --> 00:17:52,160

complete and with that

296

00:17:55,830 --> 00:17:54,640

congratulations to the whole team and uh

297

00:17:59,350 --> 00:17:55,840

special thanks to the guys on the

298

00:18:05,029 --> 00:17:59,360

shuttle side uh mike and roberto

299

00:18:07,669 --> 00:18:06,870

the crew aboard space shuttle endeavour

300

00:18:09,029 --> 00:18:07,679

is

301

00:18:12,070 --> 00:18:09,039

awake and

302

00:18:15,190 --> 00:18:12,080

visibly preparing for its day which

303

00:18:17,669 --> 00:18:15,200

the focus of attention of which is the

304

00:18:19,669 --> 00:18:17,679

installment of the alpha magnetic

305

00:18:22,390 --> 00:18:19,679

spectrometer the primary payload of the

306

00:18:26,390 --> 00:18:24,630

onto its permanent home uh on the

307

00:18:28,950 --> 00:18:26,400

international space station out on the

308

00:18:31,909 --> 00:18:28,960

s3 truss structure

309

00:18:40,310 --> 00:18:31,919

the s3 segment of the international

310

00:18:44,950 --> 00:18:42,630

the shuttle's robotic arm now has the

311

00:18:48,630 --> 00:18:44,960

brakes on it's uh in the position now

312

00:18:51,830 --> 00:18:48,640

for the handoff next up will be for the

313

00:18:53,110 --> 00:18:51,840

station robotic arm to maneuver over to

314

00:18:54,470 --> 00:18:53,120

the

315

00:19:01,029 --> 00:18:54,480

ams

316

00:19:05,990 --> 00:19:04,310

and canadarm2 now uh being maneuvered

317

00:19:08,830 --> 00:19:06,000

from a

318

00:19:12,150 --> 00:19:08,840

robotic workstation inside the cupola

319

00:19:14,950 --> 00:19:12,160

to capture the alpha magnetic

320

00:19:24,310 --> 00:19:14,960

spectrometer currently in the firm grasp

321

00:19:29,510 --> 00:19:27,029

on the big loop the ssrms grapple is

322

00:20:07,750 --> 00:19:29,520

complete the brakes on and you guys are

323

00:20:13,350 --> 00:20:09,190

the

324

00:20:31,590 --> 00:20:13,360

ams is being positioned to its uh

325

00:20:54,390 --> 00:20:33,830

very well done box we're ready for first

326

00:20:58,310 --> 00:20:56,549

you're looking over the shoulder of

327

00:20:59,990 --> 00:20:58,320

shuttle commander mark kelly as he

328

00:21:03,510 --> 00:21:00,000

attaches the

329

00:21:04,549 --> 00:21:03,520

simplified aid for eva rescue the safer

330

00:21:14,870 --> 00:21:04,559

device

331

00:21:17,430 --> 00:21:14,880

gas compressed nitrogen that allows crew

332

00:21:21,029 --> 00:21:17,440

members if they inadvertently became

333

00:21:22,870 --> 00:21:21,039

untethered from the station and

334

00:21:25,909 --> 00:21:22,880

floated away from the complex could

335

00:21:28,149 --> 00:21:25,919

actually activate the safer device

336

00:21:31,590 --> 00:21:28,159

and

337

00:21:42,390 --> 00:21:31,600

fly themselves back to the

338

00:21:48,549 --> 00:21:44,310

first out of the hatch is uh drew

339

00:21:57,110 --> 00:21:49,990

out of your way

340

00:22:00,950 --> 00:21:58,390

watch the uh

341

00:22:04,390 --> 00:22:00,960

wire tie there with the mmod

342

00:22:06,230 --> 00:22:04,400

looking good just like the pool whoa

343

00:22:10,950 --> 00:22:06,240

keep it just like the pool for a while

344

00:22:16,789 --> 00:22:13,830

yeah i just wanted to say uh

345

00:22:19,510 --> 00:22:16,799

welcome back to uh open space and taz

346

00:22:22,230 --> 00:22:19,520

congratulations on being the 201st human

347

00:22:24,830 --> 00:22:22,240

being to be in outer space i waited a

348

00:22:27,190 --> 00:22:24,840

long time to say those words to you

349

00:22:29,370 --> 00:22:27,200

congratulations thanks big thank you you

350

00:22:30,630 --> 00:22:29,380

know it's a dream come true for me

351

00:22:32,950 --> 00:22:30,640

[Applause]

352

00:22:35,669 --> 00:22:32,960

drew good checks uh you were to continue

353

00:22:39,110 --> 00:22:35,679

outboard to day 19 and you were going to

354

00:22:41,320 --> 00:22:39,120

stow your cedar bag on s3 handrail

355

00:22:44,310 --> 00:22:41,330

thirty forty six and thirty thirty eight

356

00:22:47,669 --> 00:22:44,320

[Applause]

357

00:22:50,950 --> 00:22:47,679

drew feustel the uc

358

00:22:53,110 --> 00:22:50,960

carrying the materials iss experiment or

359

00:22:55,430 --> 00:22:53,120

retrieved that will be returned home

360

00:22:57,909 --> 00:22:55,440

he's going to put that in the

361

00:23:00,870 --> 00:22:57,919

shuttle's payload bay

362

00:23:02,950 --> 00:23:00,880

the stowage of the missy 7 experiment

363

00:23:05,590 --> 00:23:02,960

that has been located on the station

364

00:23:11,029 --> 00:23:05,600

that experiment is coming home

365

00:23:18,470 --> 00:23:12,870

as far as it'll go

366

00:23:23,430 --> 00:23:21,750

greg chatatov making his way

367

00:23:25,510 --> 00:23:23,440

back out to the

368

00:23:27,029 --> 00:23:25,520

port side of the truss

369

00:23:28,149 --> 00:23:27,039

to

370

00:23:29,750 --> 00:23:28,159

assist

371

00:23:31,270 --> 00:23:29,760

drew feustel with the jumper

372

00:23:39,190 --> 00:23:31,280

installation the ammonia jumper

373

00:23:43,029 --> 00:23:41,190

and greg i have a note here that we

374

00:23:48,870 --> 00:23:43,039

wrote after our last reference for you

375

00:23:53,669 --> 00:23:50,870

in correction that is actually shamath

376

00:23:55,430 --> 00:23:53,679

he is working to install one of the

377

00:23:57,669 --> 00:23:55,440

handrails with the

378

00:23:59,669 --> 00:23:57,679

camera already integrated onto it each

379

00:24:02,230 --> 00:23:59,679

of those handrails is hit is held down

380

00:24:08,630 --> 00:24:02,240

by two bolts

381

00:24:12,789 --> 00:24:10,870

get a good view of how these uh antennas

382

00:24:16,630 --> 00:24:12,799

are installed you can see how they're

383

00:24:17,909 --> 00:24:16,640

integrated onto the handrails of these

384

00:24:19,909 --> 00:24:17,919

astronauts used to move around the

385

00:24:21,350 --> 00:24:19,919

station

386

00:24:22,950 --> 00:24:21,360

i just wanted to double check with you

387

00:24:24,950 --> 00:24:22,960

guys that you're

388

00:24:26,870 --> 00:24:24,960

closer with that plan also

389

00:24:42,710 --> 00:24:26,880

the

390

00:24:46,870 --> 00:24:44,789

intravehicular crew

391

00:24:48,070 --> 00:24:46,880

has to be on hand to help them both in

392

00:24:50,870 --> 00:24:48,080

and out of that

393

00:24:52,789 --> 00:24:50,880

portion of the airlock

394

00:24:55,029 --> 00:24:52,799

we're sure that eva glove photos will be

395

00:24:56,549 --> 00:24:55,039

on ssc eight they're copying now in

396

00:25:20,149 --> 00:24:56,559

about four minutes

397

00:25:37,669 --> 00:25:32,789

so

398

00:25:39,430 --> 00:25:37,679

on the end of the robot arm it's looking

399

00:25:42,390 --> 00:25:39,440

all the way across the underside of the

400

00:25:45,110 --> 00:25:42,400

vehicle over toward the right side

401
00:25:48,149 --> 00:25:45,120
it actually will be positioned with the

402
00:25:50,070 --> 00:25:48,159
laser camera system pointed about seven

403
00:25:51,350 --> 00:25:50,080
feet or so away from the

404
00:25:55,029 --> 00:25:51,360
area of

405
00:25:59,830 --> 00:25:56,470
and this is the

406
00:26:02,390 --> 00:25:59,840
view of the damage area that the tile

407
00:26:05,510 --> 00:26:02,400
that crosses essentially over a couple

408
00:26:08,630 --> 00:26:05,520
of tiles this area is between the

409
00:26:19,510 --> 00:26:08,640
right main landing gear door and the

410
00:26:24,870 --> 00:26:21,510
okay to do as opposed to

411
00:26:26,950 --> 00:26:24,880
that there's nothing

412
00:26:29,430 --> 00:26:26,960
there are five different uh scan

413
00:26:30,789 --> 00:26:29,440

locations and this is the second of

414

00:26:33,590 --> 00:26:30,799

those five

415

00:26:35,510 --> 00:26:33,600

again the different uh angles

416

00:26:39,830 --> 00:26:35,520

will allow the

417

00:26:42,950 --> 00:26:39,840

damage assessment team to provide a

418

00:26:44,149 --> 00:26:42,960

very detailed three-dimensional

419

00:26:46,310 --> 00:26:44,159

image

420

00:26:48,950 --> 00:26:46,320

after gathering all of this data on the

421

00:26:53,029 --> 00:26:50,470

welcome aboard the space station your

422

00:26:55,590 --> 00:26:53,039

holiness dear astronauts i'm very happy

423

00:26:58,149 --> 00:26:55,600

to have this extraordinary opportunity

424

00:27:00,230 --> 00:26:58,159

to converse with you during your mission

425

00:27:02,950 --> 00:27:00,240

and especially grateful to be able to

426
00:27:04,950 --> 00:27:02,960
speak to so many of you as both crews

427
00:27:06,470 --> 00:27:04,960
are present on this situation of this

428
00:27:08,870 --> 00:27:06,480
time

429
00:27:11,590 --> 00:27:08,880
humanity is experiencing a period of

430
00:27:13,350 --> 00:27:11,600
extremely rapid progress in the phase of

431
00:27:16,390 --> 00:27:13,360
scientific knowledge

432
00:27:19,269 --> 00:27:16,400
and technical applications in a sense

433
00:27:21,830 --> 00:27:19,279
you are our representatives spare

434
00:27:23,990 --> 00:27:21,840
heating humanities exploration

435
00:27:25,190 --> 00:27:24,000
of new spaces and possibilities for our

436
00:27:27,669 --> 00:27:25,200
future

437
00:27:30,470 --> 00:27:27,679
growing beyond the limitations of our

438
00:27:32,870 --> 00:27:30,480

evil everyday existence

439

00:27:35,269 --> 00:27:32,880

we will admire your courage as well as a

440

00:27:37,669 --> 00:27:35,279

discipline and commitment with which you

441

00:27:39,590 --> 00:27:37,679

prepared yourselves for this mission

442

00:27:41,990 --> 00:27:39,600

you are convinced you are inspired by

443

00:27:43,909 --> 00:27:42,000

noble ideals and that you intend placing

444

00:27:45,990 --> 00:27:43,919

the results of your research and

445

00:27:49,110 --> 00:27:46,000

endeavors at the disposal of all

446

00:27:51,430 --> 00:27:49,120

humanity and for the common good

447

00:27:53,510 --> 00:27:51,440

this conversation gives me the chance to

448

00:27:55,269 --> 00:27:53,520

express my own admiration and

449

00:27:57,190 --> 00:27:55,279

appreciation to you

450

00:27:59,669 --> 00:27:57,200

and also also collaborate in making your

451
00:28:02,070 --> 00:27:59,679
mission possible and that my heartfelt

452
00:28:04,070 --> 00:28:02,080
encouragement to bring it to a safe and

453
00:28:06,470 --> 00:28:04,080
successful conclusion

454
00:28:09,430 --> 00:28:06,480
the crew members inside the quest

455
00:28:12,630 --> 00:28:09,440
airlock preparing for the

456
00:28:14,630 --> 00:28:12,640
second eva extra vehicular activity the

457
00:28:17,750 --> 00:28:14,640
two crew members heading out the door

458
00:28:20,549 --> 00:28:17,760
are being assisted by greg chamitov and

459
00:28:21,430 --> 00:28:20,559
shuttle commander mark kelly

460
00:28:23,669 --> 00:28:21,440
with

461
00:28:25,269 --> 00:28:23,679
all of their preparatory activities

462
00:28:30,549 --> 00:28:25,279
ahead of the

463
00:28:34,870 --> 00:28:32,950

the two astronauts are heading out to

464

00:28:37,190 --> 00:28:34,880

the uh work site they're heading out to

465

00:28:38,310 --> 00:28:37,200

the port side of the station's truss

466

00:28:41,350 --> 00:28:38,320

structure

467

00:28:42,549 --> 00:28:41,360

to complete a task begun on eva one two

468

00:28:45,110 --> 00:28:42,559

days ago

469

00:28:48,149 --> 00:28:45,120

essentially to

470

00:28:50,230 --> 00:28:48,159

reconnect a jumper and a and then flow

471

00:28:57,990 --> 00:28:50,240

about five pounds or so of ammonia

472

00:29:01,990 --> 00:28:59,590

if you hear from

473

00:29:04,230 --> 00:29:02,000

mike fink's helmet camera as he works on

474

00:29:06,789 --> 00:29:04,240

lubricating the top

475

00:29:08,310 --> 00:29:06,799

surface of the race ring to do the

476

00:29:11,190 --> 00:29:08,320

bottom surface i'll have to use a

477

00:29:12,389 --> 00:29:11,200

special grease gun with a j shaped

478

00:29:15,190 --> 00:29:12,399

nozzle

479

00:29:17,029 --> 00:29:15,200

to get under the race ring

480

00:29:18,710 --> 00:29:17,039

it's currently under cover nine one of

481

00:29:23,350 --> 00:29:18,720

four covers that they removed so they

482

00:29:26,710 --> 00:29:24,789

a few from admission specialist drew

483

00:29:28,710 --> 00:29:26,720

feustel's helmet camera looking inside

484

00:29:30,310 --> 00:29:28,720

the latching end defector of the special

485

00:29:34,149 --> 00:29:30,320

purpose dexterous manipulator the

486

00:29:37,510 --> 00:29:36,149

operating the space station's robotic

487

00:29:41,110 --> 00:29:37,520

arm which is uh

488

00:29:42,070 --> 00:29:41,120

which is a holding dexter and uh

489

00:29:43,669 --> 00:29:42,080

within

490

00:29:45,510 --> 00:29:43,679

foster's reach is

491

00:29:52,070 --> 00:29:45,520

pilot greg johnson and flight engineer

492

00:30:01,860 --> 00:29:53,840

okay

493

00:30:07,190 --> 00:30:04,950

[Music]

494

00:30:08,950 --> 00:30:07,200

if you hear of how the snares look when

495

00:30:10,389 --> 00:30:08,960

they are fully constricted you can see

496

00:30:12,149 --> 00:30:10,399

the small

497

00:30:13,350 --> 00:30:12,159

triangle they make in the center which

498

00:30:15,350 --> 00:30:13,360

will

499

00:30:17,909 --> 00:30:15,360

close around items they're trying to

500

00:30:21,350 --> 00:30:19,350

pilot greg

501
00:30:23,350 --> 00:30:21,360
johnson here taking some photos inside

502
00:30:26,389 --> 00:30:23,360
the quest airlock ready

503
00:30:27,510 --> 00:30:26,399
to meet the space walkers as they

504
00:30:29,269 --> 00:30:27,520
make their

505
00:30:30,710 --> 00:30:29,279
return to the state to the inside of the

506
00:30:32,789 --> 00:30:30,720
space station

507
00:30:34,950 --> 00:30:32,799
for mission specialist drew feustel with

508
00:30:36,549 --> 00:30:34,960
his five space walks including two now

509
00:30:39,669 --> 00:30:36,559
at the space station

510
00:30:41,590 --> 00:30:39,679
35 hours and 24 minutes of space walking

511
00:30:43,350 --> 00:30:41,600
time for him that puts him at 30th on

512
00:30:45,990 --> 00:30:43,360
the list of

513
00:30:47,029 --> 00:30:46,000

astronauts time spent space walking

514

00:30:49,669 --> 00:30:47,039

fink

515

00:30:52,310 --> 00:30:49,679

is just behind him at 32nd on the list

516

00:30:55,029 --> 00:30:52,320

with his 34 hours and 19 minutes over

517

00:30:58,070 --> 00:30:55,039

seven space walks first of which

518

00:31:01,350 --> 00:30:58,080

that was in a u.s space suit was today

519

00:31:10,470 --> 00:31:04,389

and today's spacewalk was the 246 space

520

00:31:14,789 --> 00:31:13,350

it's fairly quiet on board as the space

521

00:31:17,750 --> 00:31:14,799

shuttle endeavour

522

00:31:20,310 --> 00:31:17,760

crew is officially off duty

523

00:31:22,870 --> 00:31:20,320

for a good bit of the day today

524

00:31:25,350 --> 00:31:22,880

the international space station crew is

525

00:31:28,710 --> 00:31:25,360

scheduled to wake up about 5 a.m central

526

00:31:31,509 --> 00:31:28,720

time 6 this morning eastern

527

00:31:33,669 --> 00:31:31,519

to begin a a busy day for the space

528

00:31:35,909 --> 00:31:33,679

station crew bidding farewell to three

529

00:31:41,590 --> 00:31:35,919

of the six crew members that make up

530

00:31:45,269 --> 00:31:43,669

endeavour is docked on the far end of

531

00:31:46,389 --> 00:31:45,279

the station and the soyuz that's

532

00:31:48,710 --> 00:31:46,399

departing

533

00:31:51,590 --> 00:31:48,720

is on the russian segment of the complex

534

00:31:54,470 --> 00:31:51,600

and there's been an exhaustive amount of

535

00:31:57,269 --> 00:31:54,480

engineering analysis to show that it is

536

00:31:59,509 --> 00:31:57,279

safe for the soyuz to undock and depart

537

00:32:00,950 --> 00:31:59,519

while the space shuttle is docked to the

538

00:32:02,149 --> 00:32:00,960

station

539

00:32:05,269 --> 00:32:02,159

and when it

540

00:32:09,669 --> 00:32:07,430

a little bit of extra timeline has been

541

00:32:11,990 --> 00:32:09,679

added into the schedule

542

00:32:13,430 --> 00:32:12,000

before they the soyuz departs the

543

00:32:16,310 --> 00:32:13,440

vicinity

544

00:32:18,149 --> 00:32:16,320

for some photo documentation of the

545

00:32:20,950 --> 00:32:18,159

configuration of the international space

546

00:32:30,389 --> 00:32:20,960

station with space shuttle endeavour

547

00:32:34,149 --> 00:32:31,909

the crew has

548

00:32:35,750 --> 00:32:34,159

restored

549

00:32:37,830 --> 00:32:35,760

several

550

00:32:39,110 --> 00:32:37,840

systems on board with the replacement of

551
00:32:42,389 --> 00:32:39,120
a failed

552
00:32:45,029 --> 00:32:42,399
remote power controller module

553
00:32:47,990 --> 00:32:46,549
remote power

554
00:32:49,509 --> 00:32:48,000
controller

555
00:32:53,430 --> 00:32:49,519
tripped

556
00:32:58,710 --> 00:32:56,549
that caused the temporary loss of

557
00:33:00,230 --> 00:32:58,720
some of the equipment on board the

558
00:33:04,149 --> 00:33:00,240
station that

559
00:33:09,350 --> 00:33:06,389
mike fincker handled the removal and

560
00:33:11,669 --> 00:33:09,360
replacement of the rpcm

561
00:33:12,789 --> 00:33:11,679
and then the ground

562
00:33:14,710 --> 00:33:12,799
quickly

563
00:33:16,549 --> 00:33:14,720

powered it up and reconfigured all the

564

00:33:19,269 --> 00:33:16,559

systems and they're all back uh where

565

00:33:21,110 --> 00:33:19,279

they should be it's essentially uh very

566

00:33:23,590 --> 00:33:21,120

close to

567

00:33:26,389 --> 00:33:23,600

having a fuse blow and then just having

568

00:33:28,950 --> 00:33:26,399

to replace that fuse here on the ground

569

00:33:32,389 --> 00:33:28,960

either in a car or

570

00:33:34,389 --> 00:33:32,399

if a circuit breaker popped in your home

571

00:33:36,870 --> 00:33:34,399

resetting that in the case of the

572

00:33:38,630 --> 00:33:36,880

station it requires a replacement of a

573

00:33:40,230 --> 00:33:38,640

of a piece of equipment

574

00:33:42,710 --> 00:33:40,240

and that was done and the systems are

575

00:33:43,669 --> 00:33:42,720

all back where they were before the

576
00:33:45,269 --> 00:33:43,679
power

577
00:33:47,909 --> 00:33:45,279
trip

578
00:33:49,909 --> 00:33:47,919
crew is focusing a good bit on today on

579
00:33:52,470 --> 00:33:49,919
replacing one of the the

580
00:33:55,750 --> 00:33:52,480
carbon dioxide removal assembly beds

581
00:33:58,470 --> 00:33:55,760
that basically absorbs carbon dioxide

582
00:34:00,950 --> 00:33:58,480
and then vents it overboard in a

583
00:34:03,269 --> 00:34:00,960
continuous recycle

584
00:34:04,950 --> 00:34:03,279
to remove carbon dioxide from the cabin

585
00:34:06,870 --> 00:34:04,960
atmosphere of the international space

586
00:34:09,109 --> 00:34:06,880
station

587
00:34:10,710 --> 00:34:09,119
there's mike and drew

588
00:34:11,909 --> 00:34:10,720

we're setting up freebie 83 which is

589

00:34:13,829 --> 00:34:11,919

tomorrow

590

00:34:15,829 --> 00:34:13,839

and uh there's a lot of work to prepare

591

00:34:18,950 --> 00:34:15,839

for an eva day there's the suits have to

592

00:34:20,950 --> 00:34:18,960

be reconfigured and prepared

593

00:34:23,109 --> 00:34:20,960

and then we have a lot of tools to set

594

00:34:25,669 --> 00:34:23,119

up uh something that they're handling

595

00:34:27,589 --> 00:34:25,679

right now is setting up um it's an

596

00:34:30,310 --> 00:34:27,599

attachment mechanism for the station

597

00:34:32,230 --> 00:34:30,320

robotic arm and uh to be able to to

598

00:34:35,909 --> 00:34:32,240

basically walk off to the russian side

599

00:34:37,829 --> 00:34:35,919

of the space station uh our robotic arm

600

00:34:39,349 --> 00:34:37,839

can move from one place to another

601
00:34:41,430 --> 00:34:39,359
uh end over end

602
00:34:43,270 --> 00:34:41,440
and this will allow us to

603
00:34:45,109 --> 00:34:43,280
use our robotic arm for tasks on the

604
00:34:46,629 --> 00:34:45,119
russian side of the space station

605
00:34:49,270 --> 00:34:46,639
here he goes there yeah so grab the

606
00:34:52,470 --> 00:34:49,280
other hand oh sorry there we go okay

607
00:34:54,950 --> 00:34:52,480
there we go all right i was missing one

608
00:34:57,349 --> 00:34:54,960
looking good okay guys there are three

609
00:35:00,069 --> 00:34:57,359
attached points for this new uh power

610
00:35:04,230 --> 00:35:00,079
and data grapple fixture

611
00:35:06,230 --> 00:35:04,240
clear excellent put one up in the feet

612
00:35:09,670 --> 00:35:06,240
number two snugged up

613
00:35:16,390 --> 00:35:12,630

all right so uh greg the secondary lock

614

00:35:18,710 --> 00:35:16,400

on foot number two closed and locked i'm

615

00:35:20,870 --> 00:35:18,720

giving you wvs views of everything you

616

00:35:23,190 --> 00:35:20,880

can see everything's nice and small no

617

00:35:24,710 --> 00:35:23,200

cross threading no troubles okay great

618

00:35:26,310 --> 00:35:24,720

i'm looking at number two i see that

619

00:35:28,390 --> 00:35:26,320

very well and i'll give you the same on

620

00:35:29,829 --> 00:35:28,400

number three

621

00:35:31,910 --> 00:35:29,839

you hear from mission specialist drew

622

00:35:33,349 --> 00:35:31,920

feustel's helmet camera as he begins

623

00:35:36,069 --> 00:35:33,359

working with some of the cables that

624

00:35:38,710 --> 00:35:36,079

have to be connected on the uh

625

00:35:41,750 --> 00:35:38,720

russian end while uh mission specialist

626
00:35:43,589 --> 00:35:41,760
mike fink has moved on to begin routing

627
00:35:46,150 --> 00:35:43,599
the cable that

628
00:35:47,589 --> 00:35:46,160
comes from the

629
00:35:50,230 --> 00:35:47,599
unity node end

630
00:35:53,109 --> 00:35:50,240
this adds redundancy to the russian

631
00:35:54,950 --> 00:35:53,119
power supply at the station

632
00:35:56,630 --> 00:35:54,960
commission specialist drew feustel also

633
00:35:58,390 --> 00:35:56,640
now out and being moved into place so

634
00:36:02,390 --> 00:35:58,400
that he can begin

635
00:36:04,950 --> 00:36:02,400
taking off that spacesuit as well

636
00:36:06,950 --> 00:36:04,960
today was his sixth space walk his third

637
00:36:09,829 --> 00:36:06,960
at the international space station and

638
00:36:11,349 --> 00:36:09,839

for the sts-134 mission and he adds that

639

00:36:13,270 --> 00:36:11,359

number to three that he also conducted

640

00:36:18,630 --> 00:36:13,280

during the sts-125 mission at the hubble

641

00:36:22,230 --> 00:36:21,270

and houston uh endeavor on air to ground

642

00:36:24,470 --> 00:36:22,240

two

643

00:36:26,710 --> 00:36:24,480

looks like uh we've got

644

00:36:27,750 --> 00:36:26,720

our plan together and we're going to

645

00:36:29,990 --> 00:36:27,760

start

646

00:36:33,190 --> 00:36:30,000

with the pdos

647

00:36:37,670 --> 00:36:35,670

shuttle pilot greg johnson calling down

648

00:36:38,710 --> 00:36:37,680

that the crew is ready to get started

649

00:36:40,470 --> 00:36:38,720

with a

650

00:36:43,510 --> 00:36:40,480

docked late inspection

651
00:36:46,870 --> 00:36:43,520
ready to perform its last

652
00:36:49,589 --> 00:36:46,880
major task as a member of the

653
00:36:50,630 --> 00:36:49,599
space shuttle sts-134

654
00:36:51,430 --> 00:36:50,640
mission

655
00:36:52,790 --> 00:36:51,440
it

656
00:36:54,790 --> 00:36:52,800
will be delivered over to the

657
00:36:57,430 --> 00:36:54,800
international space station and become a

658
00:36:59,990 --> 00:36:57,440
permanent component of the iss during

659
00:37:01,750 --> 00:37:00,000
the fourth of the spacewalks the fourth

660
00:37:05,910 --> 00:37:01,760
and final spacewalk planned during

661
00:37:09,270 --> 00:37:08,230
shuttle flight director gary horlocker

662
00:37:11,430 --> 00:37:09,280
calling

663
00:37:14,150 --> 00:37:11,440

on an internal loop to flight director

664

00:37:16,470 --> 00:37:14,160

derek hassman down the hall giving him

665

00:37:17,190 --> 00:37:16,480

permission now to take over

666

00:37:23,270 --> 00:37:17,200

the

667

00:37:25,190 --> 00:37:23,280

handoff permission for that boom to

668

00:37:27,109 --> 00:37:25,200

become a permanent component of the

669

00:37:29,910 --> 00:37:27,119

international space station and

670

00:37:32,710 --> 00:37:29,920

essentially effectively be renamed the

671

00:37:35,430 --> 00:37:32,720

iss boom assembly

672

00:37:37,510 --> 00:37:35,440

houston endeavor

673

00:37:40,870 --> 00:37:37,520

go ahead endeavor

674

00:37:43,030 --> 00:37:40,880

on behalf of the sts-134 crew and the

675

00:37:46,550 --> 00:37:43,040

expedition 27 crew

676

00:37:50,230 --> 00:37:46,560

space station assembly is complete

677

00:37:51,670 --> 00:37:50,240

houston copies thank you

678

00:37:53,589 --> 00:37:51,680

good view of the power and data grapple

679

00:37:55,190 --> 00:37:53,599

fixture now installed on what was the

680

00:37:55,990 --> 00:37:55,200

orbiter room sensor system and now will

681

00:37:59,270 --> 00:37:56,000

be

682

00:38:00,630 --> 00:37:59,280

known as the enhanced with this edition

683

00:38:05,109 --> 00:38:00,640

international space station boom

684

00:38:10,790 --> 00:38:07,670

the destiny laboratory directly below

685

00:38:13,430 --> 00:38:10,800

chamatos connected to the

686

00:38:15,829 --> 00:38:13,440

harmony module which connects the uh

687

00:38:18,630 --> 00:38:15,839

destiny to the japanese and european

688

00:38:20,790 --> 00:38:18,640

labs kibo and columbus and beyond that

689

00:38:22,550 --> 00:38:20,800

space shuttle endeavor

690

00:38:24,710 --> 00:38:22,560

now that's uh

691

00:38:26,550 --> 00:38:24,720

we're almost done here one thing to do

692

00:38:27,990 --> 00:38:26,560

wanted to say a few words

693

00:38:30,630 --> 00:38:28,000

this is the last

694

00:38:35,190 --> 00:38:30,640

flight of space shuttle endeavor

695

00:38:36,790 --> 00:38:35,200

and it's also the last face rock of uh

696

00:38:40,390 --> 00:38:36,800

shuttle crew members

697

00:38:42,870 --> 00:38:40,400

and for uh station assembly

698

00:38:45,030 --> 00:38:42,880

kind of fitting that endeavor is here

699

00:38:47,190 --> 00:38:45,040

because endeavor was the first shuttle

700

00:38:48,069 --> 00:38:47,200

to begin construction of the station and

701
00:38:50,710 --> 00:38:48,079
so it's

702
00:38:53,349 --> 00:38:50,720
sitting that she's here for the last

703
00:38:55,270 --> 00:38:53,359
last mission the

704
00:39:00,069 --> 00:38:55,280
finished assembly

705
00:39:04,630 --> 00:39:01,750
collectively over a thousand hours of

706
00:39:09,510 --> 00:39:07,270
is part of uh station assembly right now

707
00:39:11,190 --> 00:39:09,520
i have the uh honor here to share this

708
00:39:13,270 --> 00:39:11,200
last facebook

709
00:39:14,870 --> 00:39:13,280
and uh of course with all the folks on

710
00:39:16,470 --> 00:39:14,880
the ground thousands of people who

711
00:39:17,829 --> 00:39:16,480
fulfilled us working in the shuttle

712
00:39:19,270 --> 00:39:17,839
inflation program

713
00:39:20,470 --> 00:39:19,280

we're floating here on the shoulders of

714

00:39:23,190 --> 00:39:20,480

giants

715

00:39:25,349 --> 00:39:23,200

this uh space station

716

00:39:26,829 --> 00:39:25,359

the pinnacle of human achievement

717

00:39:29,270 --> 00:39:26,839

and uh international

718

00:39:30,790 --> 00:39:29,280

cooperation 12 years of the building and

719

00:39:32,550 --> 00:39:30,800

15 countries

720

00:39:34,870 --> 00:39:32,560

and now it's the part of selling the sky

721

00:39:37,109 --> 00:39:34,880

and hopefully the doorstep to our future

722

00:39:40,230 --> 00:39:37,119

so congratulations everybody on

723

00:39:45,750 --> 00:39:43,030

mission specialist greg shanatov now in

724

00:39:47,349 --> 00:39:45,760

the quest airlock with mike fink the

725

00:39:48,870 --> 00:39:47,359

last space shuttle crew member to

726

00:39:51,930 --> 00:39:48,880

contact the spacewalk now back inside

727

00:39:56,230 --> 00:39:54,950

[Applause]

728

00:40:00,630 --> 00:39:56,240

and safe ebays airlock the shuttle

729

00:40:04,150 --> 00:40:02,630

in station houston on spacecraft 2 for

730

00:40:06,069 --> 00:40:04,160

mike

731

00:40:08,069 --> 00:40:06,079

go ahead proceed

732

00:40:10,550 --> 00:40:08,079

and mike this is just for you we wanted

733

00:40:14,309 --> 00:40:10,560

to congratulate you on breaking the

734

00:40:17,349 --> 00:40:14,319

duration record 377 days and counting

735

00:40:18,790 --> 00:40:17,359

our hearty congratulations

736

00:40:20,710 --> 00:40:18,800

thanks lucia and

737

00:40:22,309 --> 00:40:20,720

thanks to all the

738

00:40:23,510 --> 00:40:22,319

people i've phoned with and all the

739

00:40:25,430 --> 00:40:23,520

folks have

740

00:40:27,829 --> 00:40:25,440

supported us from the ground it's been a

741

00:40:29,750 --> 00:40:27,839

great ride but honestly i hope this

742

00:40:30,950 --> 00:40:29,760

record that we said is going to get

743

00:40:33,030 --> 00:40:30,960

broken by

744

00:40:33,990 --> 00:40:33,040

future people and this will be

745

00:40:36,309 --> 00:40:34,000

just a

746

00:40:38,390 --> 00:40:36,319

i guess a ripple in the wind of humans

747

00:40:40,150 --> 00:40:38,400

conquering space so uh

748

00:40:42,870 --> 00:40:40,160

for for the moment though i'm going to

749

00:40:45,030 --> 00:40:42,880

enjoy it thanks for congratulations

750

00:40:49,349 --> 00:40:45,040

and it's been a real joy and we also

751

00:40:53,829 --> 00:40:50,710

just so you know mike's plan to break

752

00:40:55,270 --> 00:40:53,839

that record tomorrow

753

00:40:56,390 --> 00:40:55,280

good deal

754

00:40:58,230 --> 00:40:56,400

all right guys

755

00:41:05,349 --> 00:40:58,240

show me a jump show me a jump here we go

756

00:41:08,950 --> 00:41:06,790

here's the view from one of the windows

757

00:41:11,109 --> 00:41:08,960

in the tupelo

758

00:41:12,630 --> 00:41:11,119

um you can see if you look at the earth

759

00:41:13,510 --> 00:41:12,640

you can see this is the direction we're

760

00:41:16,550 --> 00:41:13,520

going

761

00:41:18,470 --> 00:41:16,560

uh usually the station flies uh with the

762

00:41:19,910 --> 00:41:18,480

u.s side forward this is the russian

763

00:41:21,270 --> 00:41:19,920

side you're looking at and we're upside

764

00:41:22,870 --> 00:41:21,280

down basically

765

00:41:25,109 --> 00:41:22,880

and while the shuttle is attached that's

766

00:41:26,069 --> 00:41:25,119

the direction that we fly

767

00:41:27,430 --> 00:41:26,079

and

768

00:41:29,589 --> 00:41:27,440

what you're looking at here is a

769

00:41:31,270 --> 00:41:29,599

progress vehicle that's the

770

00:41:33,430 --> 00:41:31,280

russian cargo vehicle it's a fully

771

00:41:35,430 --> 00:41:33,440

automated rounded one docking

772

00:41:37,430 --> 00:41:35,440

and then brings up an entry

773

00:41:40,069 --> 00:41:37,440

cargo vehicle

774

00:41:42,069 --> 00:41:40,079

there's a backup manual flyout from the

775

00:41:43,349 --> 00:41:42,079

service module and the service module

776
00:41:45,750 --> 00:41:43,359
the command and control center for the

777
00:41:47,349 --> 00:41:45,760
russian segment is back there

778
00:41:49,670 --> 00:41:47,359
it's the next module

779
00:41:51,829 --> 00:41:49,680
and then behind that is uh is the

780
00:41:53,589 --> 00:41:51,839
european atv automated transfer vehicle

781
00:41:55,430 --> 00:41:53,599
it's the one with the solar panel that's

782
00:41:58,390 --> 00:41:55,440
going up at an angle there

783
00:42:00,870 --> 00:41:58,400
and what you see here on top of the

784
00:42:03,030 --> 00:42:00,880
fgv is a new russian module it's a

785
00:42:05,829 --> 00:42:03,040
research module

786
00:42:07,990 --> 00:42:05,839
and uh below the progress is called the

787
00:42:09,190 --> 00:42:08,000
docking department or soidine it's you

788
00:42:10,790 --> 00:42:09,200

can see there's a little hatch on it

789

00:42:12,630 --> 00:42:10,800

with a window there's one on the other

790

00:42:15,190 --> 00:42:12,640

side as well and they do their

791

00:42:18,470 --> 00:42:15,200

spacewalks from that module

792

00:42:19,990 --> 00:42:18,480

this is a module that used to fit inside

793

00:42:21,990 --> 00:42:20,000

the we had many of these that flew

794

00:42:23,510 --> 00:42:22,000

inside the shuttle cargo bay and brought

795

00:42:25,270 --> 00:42:23,520

up the logistics with it and this one

796

00:42:26,950 --> 00:42:25,280

was modified to stay here permanently so

797

00:42:29,270 --> 00:42:26,960

it's a very nice space and we've been

798

00:42:31,349 --> 00:42:29,280

using it for our eva preparations and

799

00:42:33,829 --> 00:42:31,359

it's a lot of cargo in in there it's a

800

00:42:35,430 --> 00:42:33,839

very nice space to have

801
00:42:36,150 --> 00:42:35,440
you're looking at the us laboratory

802
00:42:37,670 --> 00:42:36,160
there

803
00:42:39,589 --> 00:42:37,680
attached to it is

804
00:42:40,870 --> 00:42:39,599
dexter the robot

805
00:42:42,069 --> 00:42:40,880
from canada

806
00:42:44,309 --> 00:42:42,079
it's uh

807
00:42:46,150 --> 00:42:44,319
it's also called spdm special purpose

808
00:42:48,790 --> 00:42:46,160
dexterous and manipulator it's got two

809
00:42:50,710 --> 00:42:48,800
arms and it'll be able to do uh

810
00:42:51,990 --> 00:42:50,720
replacement tasks outside this decision

811
00:42:53,990 --> 00:42:52,000
as you can see a couple of things

812
00:42:56,790 --> 00:42:54,000
attached to it of course there's the

813
00:42:58,710 --> 00:42:56,800

shuttle the earth behind

814

00:42:59,670 --> 00:42:58,720

very beautiful

815

00:43:01,349 --> 00:42:59,680

okay

816

00:43:03,910 --> 00:43:01,359

and then coming out the other side is

817

00:43:06,309 --> 00:43:03,920

the gem the japanese research module

818

00:43:08,390 --> 00:43:06,319

and in front of that

819

00:43:10,069 --> 00:43:08,400

is the jeff the japanese exposed

820

00:43:12,390 --> 00:43:10,079

facility where a lot of research

821

00:43:14,790 --> 00:43:12,400

experiments are are conducted and

822

00:43:16,470 --> 00:43:14,800

there's a robotic arm sticking up there

823

00:43:19,109 --> 00:43:16,480

you can see just the end of it

824

00:43:20,790 --> 00:43:19,119

and that arm can actually move things in

825

00:43:22,790 --> 00:43:20,800

and out of an airlock at that end of the

826

00:43:25,270 --> 00:43:22,800

japanese module and you see the

827

00:43:28,150 --> 00:43:25,280

beautiful solar panels they're

828

00:43:34,460 --> 00:43:28,160

240 feet from tip to tip

829

00:43:34,470 --> 00:43:54,950

[Music]

830

00:43:59,430 --> 00:43:56,630

hugs and handshakes all around between

831

00:44:01,510 --> 00:43:59,440

the expedition 28 crew members and those

832

00:44:05,990 --> 00:44:01,520

of the

833

00:44:11,109 --> 00:44:07,829

you're there talking first commander

834

00:44:13,349 --> 00:44:11,119

mark kelly he was followed by a flight

835

00:44:30,150 --> 00:44:13,359

engineer ron garan and the space station

836

00:44:34,550 --> 00:44:32,710

true fossil they're helping to

837

00:44:35,670 --> 00:44:34,560

drag some of the

838

00:44:37,589 --> 00:44:35,680

returning

839

00:44:39,829 --> 00:44:37,599

station crew members

840

00:44:44,390 --> 00:44:39,839

mike fink and greg shamathoff into the

841

00:44:53,990 --> 00:44:46,630

just keep closing the hatch

842

00:44:54,000 --> 00:44:56,470

all right

843

00:45:00,150 --> 00:44:58,309

hey drew how's it going it's going good

844

00:45:02,829 --> 00:45:00,160

box we got the fiducial scale so we're

845

00:45:06,790 --> 00:45:02,839

in good shape that's

846

00:45:08,069 --> 00:45:06,800

good lyo change out for the cue card

847

00:45:27,670 --> 00:45:08,079

all right

848

00:45:27,680 --> 00:45:33,349

station is ready for undocking

849

00:45:40,069 --> 00:45:35,990

houston and station we have physical

850

00:45:40,079 --> 00:45:49,770

houston copies

851
00:45:49,780 --> 00:45:57,750

[Music]

852
00:46:01,040 --> 00:46:00,550

fair winds and fallen seas yeah thanks

853
00:46:02,950 --> 00:46:01,050

ron

854
00:46:05,430 --> 00:46:02,960

[Applause]

855
00:46:09,109 --> 00:46:05,440

appreciate all the help

856
00:46:09,119 --> 00:46:15,030

go navy

857
00:46:18,870 --> 00:46:16,550

endeavor

858
00:46:20,390 --> 00:46:18,880

setting her sails one last time

859
00:46:21,430 --> 00:46:20,400
departing the international space

860
00:46:23,910 --> 00:46:21,440

station

861
00:46:30,069 --> 00:46:23,920
after 12 missions to the orbiting

862
00:46:34,870 --> 00:46:33,109
as we come up on about our 200th sunrise

863
00:46:35,990 --> 00:46:34,880

of the mission we can see

864

00:46:39,510 --> 00:46:36,000

clearly see

865

00:46:42,069 --> 00:46:39,520

ams now on station and elc3

866

00:46:43,430 --> 00:46:42,079

just want to congratulate the whole team

867

00:46:46,870 --> 00:46:43,440

on the ground

868

00:46:48,790 --> 00:46:46,880

and the expedition 27 and 28 crews

869

00:46:51,430 --> 00:46:48,800

for all the hard work

870

00:46:53,349 --> 00:46:51,440

that that you guys have put into this

871

00:46:55,510 --> 00:46:53,359

we're the ones that get to see this

872

00:46:57,109 --> 00:46:55,520

incredible view

873

00:47:00,230 --> 00:46:57,119

but you know you're all with us in

874

00:47:02,390 --> 00:47:00,240

spirit and this is really a new day for

875

00:47:05,190 --> 00:47:02,400

uh science aboard the space station so

876

00:47:07,030 --> 00:47:05,200

uh thanks to all of you

877

00:47:08,710 --> 00:47:07,040

endeavor thanks very much for the kind

878

00:47:10,250 --> 00:47:08,720

words we'll pass the message and it's a

879

00:47:12,630 --> 00:47:10,260

pleasure for us to be part of the team

880

00:47:13,349 --> 00:47:12,640

[Applause]

881

00:47:15,750 --> 00:47:13,359

as

882

00:47:18,550 --> 00:47:15,760

endeavor continues to

883

00:47:20,230 --> 00:47:18,560

fly around the station the international

884

00:47:24,390 --> 00:47:20,240

space station

885

00:47:26,630 --> 00:47:24,400

stretching 357 feet from tip to tip

886

00:47:29,470 --> 00:47:26,640

the pressurized volume

887

00:47:31,750 --> 00:47:29,480

perpendicular volume there is about

888

00:47:34,069 --> 00:47:31,760

240 feet

889

00:47:36,470 --> 00:47:34,079

at the bottom the docking port from

890

00:47:39,829 --> 00:47:36,480

which endeavor departed

891

00:47:41,750 --> 00:47:39,839

the european columbus science laboratory

892

00:47:43,430 --> 00:47:41,760

off to the left and the japanese

893

00:47:46,630 --> 00:47:43,440

experiment module

894

00:47:48,470 --> 00:47:46,640

kibo the japanese word for hope

895

00:47:49,990 --> 00:47:48,480

off to the right

896

00:47:52,710 --> 00:47:50,000

and then heading down the length of the

897

00:47:54,950 --> 00:47:52,720

volume the harmony connecting node to

898

00:47:57,589 --> 00:47:54,960

which those modules are attached

899

00:47:59,190 --> 00:47:57,599

in turn is attached to the us laboratory

900

00:48:04,069 --> 00:47:59,200

destiny

901
00:48:05,910 --> 00:48:04,079
300

902
00:48:11,030 --> 00:48:05,920
almost 360

903
00:48:15,510 --> 00:48:13,510
and then the first u.s element of the

904
00:48:18,829 --> 00:48:15,520
international space station launched

905
00:48:21,829 --> 00:48:18,839
back in december of 1998 the unity

906
00:48:23,829 --> 00:48:21,839
module is the connecting point from the

907
00:48:25,270 --> 00:48:23,839
u.s segment to the russian segment of

908
00:48:27,750 --> 00:48:25,280
the station

909
00:48:29,510 --> 00:48:27,760
next in line the first ever component of

910
00:48:31,589 --> 00:48:29,520
the international space station the

911
00:48:35,190 --> 00:48:31,599
zarya control module

912
00:48:38,630 --> 00:48:35,200
with its solar rays

913
00:48:42,710 --> 00:48:38,640

mostly retracted in accordion style

914

00:48:45,910 --> 00:48:42,720

the zvezda module on the back end is the

915

00:48:47,349 --> 00:48:45,920

the next module with its solar arrays

916

00:48:49,750 --> 00:48:47,359

deployed

917

00:48:52,309 --> 00:48:49,760

served as the early living quarters and

918

00:48:54,710 --> 00:48:52,319

the control section of the russian

919

00:48:57,750 --> 00:48:54,720

segment of the complex and then on the

920

00:49:02,230 --> 00:48:57,760

back end with the scissor-shaped solar

921

00:49:03,510 --> 00:49:02,240

rays is the european space agency

922

00:49:05,349 --> 00:49:03,520

automated

923

00:49:09,349 --> 00:49:05,359

transfer vehicle

924

00:49:11,910 --> 00:49:09,359

known as the johannes kepler it's been

925

00:49:14,390 --> 00:49:11,920

a part of the space station since late

926
00:49:16,870 --> 00:49:14,400
february when it arrived delivering

927
00:49:19,829 --> 00:49:16,880
supplies to the station it's one of

928
00:49:22,710 --> 00:49:19,839
several visiting vehicles that the

929
00:49:23,990 --> 00:49:22,720
station hosts including the russian

930
00:49:26,710 --> 00:49:24,000
soyuz

931
00:49:28,950 --> 00:49:26,720
capsule which delivers crews to and from

932
00:49:55,750 --> 00:49:28,960
the station and also the progress supply

933
00:49:59,510 --> 00:49:57,270
here's another look at the shuttle

934
00:50:02,390 --> 00:49:59,520
landing facility runway at the kennedy

935
00:50:04,630 --> 00:50:02,400
space center in florida again all

936
00:50:06,549 --> 00:50:04,640
preparations going well as the crew of

937
00:50:08,710 --> 00:50:06,559
endeavor commander mark kelly pilot greg

938
00:50:10,630 --> 00:50:08,720

johnson and mission specialist roberto

939

00:50:14,630 --> 00:50:10,640

vittori mike fink drew feustel and greg

940

00:50:16,790 --> 00:50:14,640

shematoff prepare to come home after

941

00:50:19,030 --> 00:50:16,800

almost 16 days in orbit delivering the

942

00:50:21,190 --> 00:50:19,040

alpha magnetic spectrometer

943

00:50:24,309 --> 00:50:21,200

endeavor we do have a good config for

944

00:50:28,870 --> 00:50:26,870

roger

945

00:50:30,630 --> 00:50:28,880

spacecraft communicator butch wilmore uh

946

00:50:32,470 --> 00:50:30,640

readying up the word from propulsion

947

00:50:34,630 --> 00:50:32,480

systems officer that we are in a good

948

00:50:37,430 --> 00:50:34,640

configuration for the dearborn burn

949

00:50:40,710 --> 00:50:37,440

again this will be a deer burn lasting

950

00:50:43,349 --> 00:50:40,720

two minutes and 38 seconds providing a

951
00:50:44,670 --> 00:50:43,359
total change in velocity slowing the

952
00:50:47,589 --> 00:50:44,680
shuttle down by

953
00:50:50,230 --> 00:50:47,599
295.3 feet per second or just under 201

954
00:50:52,630 --> 00:50:50,240
miles an hour

955
00:50:55,990 --> 00:50:52,640
standing by for the deorbit burn in four

956
00:51:06,150 --> 00:50:56,000
three two one

957
00:51:11,349 --> 00:51:08,710
and over speed now 14 000 miles an hour

958
00:51:16,030 --> 00:51:11,359
or just over mach 20

959
00:51:21,030 --> 00:51:19,190
1546 miles to the landing site

960
00:51:23,190 --> 00:51:21,040
standing by for the first roll reversal

961
00:51:24,390 --> 00:51:23,200
in which the shuttle will bank to the

962
00:51:26,230 --> 00:51:24,400
right

963
00:51:27,750 --> 00:51:26,240

three good auxiliary power units three

964

00:51:29,670 --> 00:51:27,760

good fuel cells

965

00:51:30,790 --> 00:51:29,680

all systems looking good as endeavor

966

00:51:32,710 --> 00:51:30,800

re-enters

967

00:51:48,390 --> 00:51:32,720

euros atmosphere and heading home for

968

00:51:51,990 --> 00:51:50,069

we're now in the area of terminal area

969

00:51:54,549 --> 00:51:52,000

energy management endeavor we show you

970

00:51:56,950 --> 00:51:54,559

on energy approaching the hack

971

00:51:58,549 --> 00:51:56,960

your winds are now a slight tailwind

972

00:52:02,630 --> 00:51:58,559

about three knots

973

00:52:07,990 --> 00:52:05,270

copy the tailwind and nominal shoot uh

974

00:52:09,990 --> 00:52:08,000

what's the crosswind looking like

975

00:52:16,790 --> 00:52:10,000

yeah there's no crosswind at this time

976
00:52:24,630 --> 00:52:19,109
again this is a view out the pilot

977
00:52:31,030 --> 00:52:27,270
houston endeavor runways in sight

978
00:52:36,790 --> 00:52:32,950
and a tally hoe from the flight crew of

979
00:52:40,630 --> 00:52:36,800
the runway i can see it in sight now

980
00:52:57,510 --> 00:52:43,349
altitude 2.2 miles

981
00:53:02,549 --> 00:53:00,300
speed

982
00:53:04,710 --> 00:53:02,559
[Music]

983
00:53:05,990 --> 00:53:04,720
and there's a referred view of the space

984
00:53:08,069 --> 00:53:06,000
shuttle endeavors it's coming in for

985
00:53:19,190 --> 00:53:08,079
landing

986
00:53:19,200 --> 00:53:23,430
main gear touchdown

987
00:53:23,440 --> 00:53:28,630
drag shoot deployed by greg johnson

988
00:53:28,640 --> 00:53:37,109

forward your touchdown

989

00:53:40,630 --> 00:53:39,030

and so after a journey of six and a half

990

00:53:42,069 --> 00:53:40,640

million miles endeavor landing in

991

00:53:44,230 --> 00:53:42,079

darkness but illuminated by the

992

00:53:46,390 --> 00:53:44,240

ingenuity dedication of every astronaut

993

00:53:49,030 --> 00:53:46,400

scientist engineer flight controller

994

00:53:51,710 --> 00:53:49,040

mechanic and dreamer that helped it fly

995

00:53:54,150 --> 00:53:51,720

the fleet's youngest ship completing its

996

00:53:55,190 --> 00:53:54,160

122 millionth mile after its crew

997

00:53:56,870 --> 00:53:55,200

delivered an instrument to the

998

00:53:58,630 --> 00:53:56,880

international space station will sift

999

00:54:03,750 --> 00:53:58,640

through the cosmic darkness for years to

1000

00:54:08,790 --> 00:54:06,870

122 million miles flown during 25

1001

00:54:10,870 --> 00:54:08,800

challenging space flights

1002

00:54:13,270 --> 00:54:10,880

your landing ends a vibrant legacy for

1003

00:54:17,589 --> 00:54:13,280

this amazing vehicle that will long be

1004

00:54:21,670 --> 00:54:19,750

yeah thank you houston you know the

1005

00:54:23,589 --> 00:54:21,680

space shuttle is an amazing vehicle to

1006

00:54:25,829 --> 00:54:23,599

fly through the atmosphere

1007

00:54:26,630 --> 00:54:25,839

hit it at mach 25

1008

00:54:28,549 --> 00:54:26,640

uh

1009

00:54:30,630 --> 00:54:28,559

i mean steer through the atmosphere like

1010

00:54:32,950 --> 00:54:30,640

an airplane land on a runway it is

1011

00:54:35,589 --> 00:54:32,960

really really an incredible ship on

1012

00:54:38,390 --> 00:54:35,599

behalf of my entire crew i want to thank

1013

00:54:40,230 --> 00:54:38,400

every person that's worked for to get

1014

00:54:42,069 --> 00:54:40,240

this mission going and every person has

1015

00:54:44,390 --> 00:54:42,079

worked on endeavor

1016

00:54:45,589 --> 00:54:44,400

it's sad to see her land for the last

1017

00:54:49,990 --> 00:54:45,599

time

1018

00:55:03,349 --> 00:54:51,910

great words thank you mark and we will

1019

00:55:07,190 --> 00:55:04,870

and so the space shuttle endeavor

1020

00:55:11,270 --> 00:55:07,200

touching down at kennedy space center on

1021

00:55:12,470 --> 00:55:11,280

time at 1 35 a.m central time 2 35 a.m

1022

00:55:14,870 --> 00:55:12,480

eastern

1023

00:55:17,270 --> 00:55:14,880

commander mark kelly guiding it to a

1024

00:55:18,710 --> 00:55:17,280

very gentle touchdown on runway 1-5 at

1025

00:55:33,670 --> 00:55:18,720

kennedy space center shuttle landing

1026
00:55:39,670 --> 00:55:35,829
there are first looks of uh

1027
00:55:44,150 --> 00:55:42,470
endeavors crew

1028
00:55:45,829 --> 00:55:44,160
led by

1029
00:55:47,190 --> 00:55:45,839
commander mark kelly

1030
00:55:51,670 --> 00:55:47,200
pilot

1031
00:55:59,349 --> 00:55:54,309
created first by nasa administrator

1032
00:56:05,109 --> 00:56:01,510
mission specialist mike fink

1033
00:56:05,119 --> 00:56:11,829
european space agency roberto vittori

1034
00:56:11,839 --> 00:56:17,910
drew feustel

1035
00:56:17,920 --> 00:56:21,349
all right

1036
00:56:26,549 --> 00:56:23,030
making their way down there essentially

1037
00:56:30,950 --> 00:56:28,309
see

1038
00:56:32,150 --> 00:56:30,960

bob cabana then behind him

1039

00:56:35,270 --> 00:56:32,160

associate administrator for space

1040

00:56:43,510 --> 00:56:35,280

operations bill gerstenmaier

1041

00:56:43,520 --> 00:56:52,230

shaking hands with bill gerstenmaier now

1042

00:56:56,069 --> 00:56:53,990

see mike leinbach

1043

00:56:57,030 --> 00:56:56,079

shuttle launch director and

1044

00:56:59,190 --> 00:56:57,040

thomas

1045

00:57:00,789 --> 00:56:59,200

ryder the

1046

00:57:04,549 --> 00:57:00,799

director of human space flight for the

1047

00:57:07,430 --> 00:57:06,150

you guys can come up if you'd like

1048

00:57:09,349 --> 00:57:07,440

because i'm going to introduce mark

1049

00:57:10,309 --> 00:57:09,359

kelly and his crew we want to welcome

1050

00:57:13,270 --> 00:57:10,319

him back

1051
00:57:14,630 --> 00:57:13,280
after an incredible mission and uh

1052
00:57:17,670 --> 00:57:14,640
mark kelly

1053
00:57:22,870 --> 00:57:19,270
come on um

1054
00:57:24,789 --> 00:57:22,880
first let me say i know it's 3 30 4 in

1055
00:57:27,190 --> 00:57:24,799
the morning so it's really late for

1056
00:57:30,470 --> 00:57:27,200
everybody it's actually about mid we're

1057
00:57:32,069 --> 00:57:30,480
wide awake and it's about middle of the

1058
00:57:33,430 --> 00:57:32,079
day for us

1059
00:57:35,990 --> 00:57:33,440
it's great to be back here at the

1060
00:57:38,549 --> 00:57:36,000
kennedy space center it's great to be

1061
00:57:40,069 --> 00:57:38,559
bringing deborah back in great shape it

1062
00:57:42,789 --> 00:57:40,079
looks like it's ready to go do another

1063
00:57:44,309 --> 00:57:42,799

mission but this is going to be the last

1064

00:57:46,230 --> 00:57:44,319

flight

1065

00:57:48,230 --> 00:57:46,240

mission went great we installed the

1066

00:57:52,150 --> 00:57:48,240

alpha magnetic spectrometer

1067

00:57:53,349 --> 00:57:52,160

elc-3 so we have the station positioned

1068

00:57:54,630 --> 00:57:53,359

to wear

1069

00:57:58,069 --> 00:57:54,640

over the next

1070

00:57:59,270 --> 00:57:58,079

10 15 20 years it's got the spare parts

1071

00:58:00,069 --> 00:57:59,280

it needs

1072

00:58:04,630 --> 00:58:00,079

uh

1073

00:58:06,630 --> 00:58:04,640

so relevant today

1074

00:58:08,150 --> 00:58:06,640

ams is already collecting data we're

1075

00:58:10,230 --> 00:58:08,160

pretty excited about that and looking

1076

00:58:12,470 --> 00:58:10,240

forward to hearing some more about it

1077

00:58:15,030 --> 00:58:12,480

i really want to thank my crew members

1078

00:58:16,069 --> 00:58:15,040

who did such a spectacular job on this

1079

00:58:18,789 --> 00:58:16,079

flight

1080

00:58:20,150 --> 00:58:18,799

uh could not have done this without them

1081

00:58:21,829 --> 00:58:20,160

they all

1082

00:58:25,109 --> 00:58:21,839

every single one of them just performed

1083

00:58:26,870 --> 00:58:25,119

flawlessly we want to thank him too so

1084

00:58:29,270 --> 00:58:26,880

so thanks for coming out it's great to

1085

00:58:30,230 --> 00:58:29,280

be back and have a good have a good