



1
00:00:11,830 --> 00:00:10,629
welcome to the sts 30 post flight crew

2
00:00:13,910 --> 00:00:11,840
press conference

3
00:00:16,070 --> 00:00:13,920
our time is somewhat limited today as we

4
00:00:18,230 --> 00:00:16,080
have a press conference planned with

5
00:00:20,150 --> 00:00:18,240
admiral truly in washington at 2 p.m

6
00:00:22,070 --> 00:00:20,160
eastern daylight time

7
00:00:23,269 --> 00:00:22,080
but first things first we're here to

8
00:00:25,590 --> 00:00:23,279
talk about

9
00:00:28,390 --> 00:00:25,600
shuttle mission sts-30 and the

10
00:00:31,029 --> 00:00:28,400
successful dispatch of magellan on my

11
00:00:32,389 --> 00:00:31,039
right the crew of atlantis dave walker

12
00:00:34,150 --> 00:00:32,399
ron graby

13
00:00:37,110 --> 00:00:34,160

mark lee

14

00:00:38,790 --> 00:00:37,120

norm and mary cleave

15

00:00:41,910 --> 00:00:38,800

captain

16

00:00:43,510 --> 00:00:41,920

we have a film that we put together with

17

00:00:46,069 --> 00:00:43,520

the help of the

18

00:00:47,830 --> 00:00:46,079

real good tv and movie folks

19

00:00:52,869 --> 00:00:47,840

here at jsc

20

00:00:56,630 --> 00:00:54,630

here we are getting ready to go out to

21

00:00:59,029 --> 00:00:56,640

the pad in our

22

00:01:00,310 --> 00:00:59,039

launch escape suits which are relatively

23

00:01:02,709 --> 00:01:00,320

comfortable at this point because

24

00:01:04,789 --> 00:01:02,719

they're been cooled down pretty well

25

00:01:06,710 --> 00:01:04,799

nice day it was wonderful to see so many

26

00:01:08,390 --> 00:01:06,720

folks there to see us off

27

00:01:10,149 --> 00:01:08,400

and we had a very pleasant trip out to

28

00:01:11,510 --> 00:01:10,159

the pad

29

00:01:13,510 --> 00:01:11,520

here we're picking up with the launch

30

00:01:15,270 --> 00:01:13,520

sequence as a result of our first scrub

31

00:01:17,190 --> 00:01:15,280

the attitude in the cockpit was actually

32

00:01:18,870 --> 00:01:17,200

relatively relaxed of course there's a

33

00:01:20,469 --> 00:01:18,880

limit to how relaxed you can be when

34

00:01:22,789 --> 00:01:20,479

someone lights off that big torch

35

00:01:25,510 --> 00:01:22,799

beneath you

36

00:01:29,429 --> 00:01:25,520

there's the orbiter going by the launch

37

00:01:29,439 --> 00:01:33,190

clearing the tower

38

00:01:37,109 --> 00:01:35,270

see the orbiter or the vehicle roll to

39

00:01:39,749 --> 00:01:37,119

place us in a heads down attitude and to

40

00:01:42,550 --> 00:01:39,759

lock to align the vehicle and the proper

41

00:01:49,590 --> 00:01:42,560

azimuth for its ascent phase here's some

42

00:01:53,990 --> 00:01:52,469

continuing on up in first stage

43

00:01:55,590 --> 00:01:54,000

as dave mentioned we were wearing the

44

00:01:57,190 --> 00:01:55,600

launch escape suits this time around

45

00:01:58,789 --> 00:01:57,200

they provided a little more acoustic

46

00:02:00,630 --> 00:01:58,799

insulation and it seemed a little

47

00:02:02,469 --> 00:02:00,640

quieter to me than my first flight i

48

00:02:04,310 --> 00:02:02,479

think that was shared by the other crew

49

00:02:05,429 --> 00:02:04,320

members that had compared it to previous

50

00:02:11,510 --> 00:02:05,439

launches

51
00:02:15,270 --> 00:02:13,350
once you get on orbit we got the payload

52
00:02:16,710 --> 00:02:15,280
bay doors open and we took a good look

53
00:02:18,869 --> 00:02:16,720
at magellan it was good to see that it

54
00:02:21,350 --> 00:02:18,879
was in the same pristine condition as

55
00:02:23,990 --> 00:02:21,360
when we took off we started the

56
00:02:25,910 --> 00:02:24,000
elevation procedures for the deploy and

57
00:02:27,830 --> 00:02:25,920
inside once we got on orbit we had to

58
00:02:29,910 --> 00:02:27,840
reconfigure a number of systems for

59
00:02:31,350 --> 00:02:29,920
on-orbit operations

60
00:02:33,350 --> 00:02:31,360
dave reaching back to one of the

61
00:02:36,070 --> 00:02:33,360
overhead panels and norm helping them

62
00:02:38,710 --> 00:02:36,080
out and shortly after that we start into

63
00:02:41,270 --> 00:02:38,720

the procedures that we use to deploy

64

00:02:42,949 --> 00:02:41,280

the ius principally it's the

65

00:02:43,830 --> 00:02:42,959

the panel in back of me and over to the

66

00:02:46,869 --> 00:02:43,840

right

67

00:02:49,030 --> 00:02:46,879

of norm once we elevate it up to 29

68

00:02:51,190 --> 00:02:49,040

degrees and then on up to 52 degrees for

69

00:02:54,390 --> 00:02:51,200

the deploy we went ahead and threw the

70

00:02:56,390 --> 00:02:54,400

switch and sent magellan on its way

71

00:02:58,550 --> 00:02:56,400

it comes out of the payload bay at about

72

00:03:00,390 --> 00:02:58,560

half a foot per second and during the

73

00:03:02,710 --> 00:03:00,400

first minute we just sit there and watch

74

00:03:05,750 --> 00:03:02,720

it leave the orbiter bay we're in free

75

00:03:07,430 --> 00:03:05,760

drift as far as the shuttle is concerned

76
00:03:10,229 --> 00:03:07,440
and the way it is deployed as you know

77
00:03:12,869 --> 00:03:10,239
is a super zip it's a mechanical or a

78
00:03:15,990 --> 00:03:12,879
metal band around the ios that is

79
00:03:17,750 --> 00:03:16,000
separated and several springs send it

80
00:03:19,350 --> 00:03:17,760
from the payload bay

81
00:03:22,869 --> 00:03:19,360
ius here

82
00:03:24,790 --> 00:03:22,879
it's flowing it's it's a very very

83
00:03:26,949 --> 00:03:24,800
reliable upper stage we used it several

84
00:03:28,390 --> 00:03:26,959
times and it put magellan on its

85
00:03:30,149 --> 00:03:28,400
trajectory

86
00:03:31,750 --> 00:03:30,159
the attitude was good it was when three

87
00:03:32,789 --> 00:03:31,760
meters per second of where they said it

88
00:03:34,949 --> 00:03:32,799

was going to be which is pretty

89

00:03:38,229 --> 00:03:34,959

remarkable performance so it's been a

90

00:03:40,390 --> 00:03:38,239

real workhorse of the space program

91

00:03:42,309 --> 00:03:40,400

especially return to flight after

92

00:03:43,990 --> 00:03:42,319

challenger and right about this time

93

00:03:46,309 --> 00:03:44,000

you'll see the rate pickup of the

94

00:03:47,030 --> 00:03:46,319

payload it's when we put a minus x burn

95

00:03:47,990 --> 00:03:47,040

in

96

00:03:51,270 --> 00:03:48,000

to the

97

00:03:53,670 --> 00:03:51,280

orbiter it separates us from the payload

98

00:03:56,550 --> 00:03:53,680

and that's a last maneuver that we do

99

00:03:59,110 --> 00:03:56,560

until 15 minutes after deploy when we go

100

00:04:01,350 --> 00:03:59,120

ahead and do our separation from the ius

101
00:04:04,869 --> 00:04:01,360
this is a shot taking out the overhead

102
00:04:07,030 --> 00:04:04,879
window a close-up view of ius it's about

103
00:04:09,030 --> 00:04:07,040
four to five hundred feet away when we

104
00:04:11,190 --> 00:04:09,040
finally do our burn it's about a

105
00:04:13,030 --> 00:04:11,200
thousand to fifteen hundred feet away

106
00:04:14,630 --> 00:04:13,040
and this is the the business end of the

107
00:04:17,030 --> 00:04:14,640
ius we're looking at

108
00:04:20,870 --> 00:04:17,040
right here inside the gold insulation is

109
00:04:22,550 --> 00:04:20,880
the ios solid rocket motor

110
00:04:24,790 --> 00:04:22,560
and this is when the solar rays deployed

111
00:04:26,950 --> 00:04:24,800
they deployed 10 minutes after

112
00:04:29,990 --> 00:04:26,960
the ius was deployed

113
00:04:34,070 --> 00:04:30,000

in connection with the rcs system on ios

114

00:04:37,749 --> 00:04:36,310

and this is a nice shot we got we

115

00:04:39,430 --> 00:04:37,759

initially thought that venus was going

116

00:04:41,110 --> 00:04:39,440

to be too close to the sun for us to

117

00:04:43,110 --> 00:04:41,120

even see but that we didn't realize till

118

00:04:45,990 --> 00:04:43,120

we got up there and followed several

119

00:04:48,390 --> 00:04:46,000

times after sunset we could see uh venus

120

00:04:51,110 --> 00:04:48,400

trailing the sun at the terminator so we

121

00:04:53,110 --> 00:04:51,120

got a picture of venus uh sunset and

122

00:04:54,390 --> 00:04:53,120

down in the lower portion you see some

123

00:04:57,110 --> 00:04:54,400

of the clouds the

124

00:04:58,790 --> 00:04:57,120

thunderheads that had built up

125

00:05:00,710 --> 00:04:58,800

we had a mid deck experiment called a

126

00:05:02,710 --> 00:05:00,720

fluid experiment apparatus which you can

127

00:05:04,390 --> 00:05:02,720

see here my hands are inside of this

128

00:05:05,830 --> 00:05:04,400

it's a little furnace we were growing

129

00:05:08,230 --> 00:05:05,840

indium crystals

130

00:05:08,950 --> 00:05:08,240

it was really an excellent mid deck for

131

00:05:11,430 --> 00:05:08,960

us

132

00:05:12,710 --> 00:05:11,440

to work on we changed out samples and

133

00:05:15,350 --> 00:05:12,720

actually interacted with the science

134

00:05:16,790 --> 00:05:15,360

here's an example of crystal

135

00:05:18,230 --> 00:05:16,800

the rougher

136

00:05:20,310 --> 00:05:18,240

section to the right was

137

00:05:22,469 --> 00:05:20,320

done at a lower temperature than this

138

00:05:24,790 --> 00:05:22,479

striated section which was melted at a

139

00:05:26,870 --> 00:05:24,800

higher temperature so by adjusting the

140

00:05:28,230 --> 00:05:26,880

wattage we could adjust the temperature

141

00:05:30,390 --> 00:05:28,240

at which

142

00:05:32,469 --> 00:05:30,400

this indium was being melted if you get

143

00:05:34,070 --> 00:05:32,479

it too high it'll break if you get it

144

00:05:35,270 --> 00:05:34,080

too low it doesn't melt through so it's

145

00:05:37,430 --> 00:05:35,280

sort of touching and actually the

146

00:05:38,950 --> 00:05:37,440

wattage was different on orbit than it

147

00:05:41,270 --> 00:05:38,960

was

148

00:05:42,629 --> 00:05:41,280

on the ground by about 10 watts

149

00:05:44,230 --> 00:05:42,639

we controlled it with our little

150

00:05:45,590 --> 00:05:44,240

experiment computer which worked great

151

00:05:48,950 --> 00:05:45,600

different floppy disks for each

152

00:05:52,390 --> 00:05:50,390

we perform a number of medical

153

00:05:54,550 --> 00:05:52,400

experiments each flight

154

00:05:56,310 --> 00:05:54,560

this shows mark getting censored up for

155

00:05:58,469 --> 00:05:56,320

one such experiment which looked at some

156

00:06:00,950 --> 00:05:58,479

physiologic parameters i believe like

157

00:06:02,790 --> 00:06:00,960

heart rate and that sort of thing

158

00:06:05,189 --> 00:06:02,800

and in this scene you see mark and i

159

00:06:07,590 --> 00:06:05,199

getting ready for a pre-breathe when we

160

00:06:09,590 --> 00:06:07,600

do space walks to avoid bends we have to

161

00:06:11,430 --> 00:06:09,600

breathe pure oxygen for a while mark and

162

00:06:13,270 --> 00:06:11,440

i were the space walk crew members if we

163

00:06:15,510 --> 00:06:13,280

had to do something like that

164

00:06:17,189 --> 00:06:15,520

and for operational reasons to shorten

165

00:06:19,110 --> 00:06:17,199

up that pre-breathe

166

00:06:21,350 --> 00:06:19,120

we like to lower the cabin pressure to

167

00:06:23,749 --> 00:06:21,360

10.2 psi and we plan to do that on

168

00:06:26,150 --> 00:06:23,759

future flights so to test all of that

169

00:06:28,870 --> 00:06:26,160

out and see how the cabin behaved

170

00:06:31,029 --> 00:06:28,880

we donned the helmets in the cabin and

171

00:06:32,790 --> 00:06:31,039

we actually did the one hour pre-breathe

172

00:06:37,110 --> 00:06:32,800

as the cabin pressure was being lowered

173

00:06:39,510 --> 00:06:37,120

from the normal 14.7 down to 10.2 psi

174

00:06:41,270 --> 00:06:39,520

and i'm over there checking out and

175

00:06:43,430 --> 00:06:41,280

making sure that our oxygen is actually

176

00:06:45,110 --> 00:06:43,440

on we also have laptop computers you can

177

00:06:47,510 --> 00:06:45,120

see one of the ones we carry here the

178

00:06:49,110 --> 00:06:47,520

pgsc and you can see what that screen

179

00:06:50,790 --> 00:06:49,120

looks like they're very useful for

180

00:06:52,390 --> 00:06:50,800

experiments and for keeping track of

181

00:06:54,390 --> 00:06:52,400

where we are around the world for earth

182

00:06:56,230 --> 00:06:54,400

observation purposes

183

00:06:58,070 --> 00:06:56,240

this sequence tip picks up with some of

184

00:06:59,830 --> 00:06:58,080

the typical on-orbit operations this is

185

00:07:01,430 --> 00:06:59,840

me in the pilot seat checking out some

186

00:07:04,469 --> 00:07:01,440

systems is in conjunction with the

187

00:07:09,029 --> 00:07:04,479

depressurization to 10.2 psi

188

00:07:12,629 --> 00:07:10,950

here's mary at the overhead windows this

189

00:07:14,469 --> 00:07:12,639

is our primary vantage point for earth

190

00:07:15,510 --> 00:07:14,479

observation photography

191

00:07:17,430 --> 00:07:15,520

here's some pictures of some

192

00:07:19,749 --> 00:07:17,440

thunderstorms approaching sunset one of

193

00:07:22,230 --> 00:07:19,759

the experiments we had on board

194

00:07:23,909 --> 00:07:22,240

dealt with the photography of lightning

195

00:07:25,830 --> 00:07:23,919

and here we are getting ready to set

196

00:07:27,909 --> 00:07:25,840

ourselves up for that here are some

197

00:07:29,350 --> 00:07:27,919

lightning flashes as seen by some of the

198

00:07:32,070 --> 00:07:29,360

cameras in the payload bay there's a

199

00:07:33,909 --> 00:07:32,080

nice one coming up here shortly

200

00:07:36,710 --> 00:07:33,919

there it is there's a rather large

201

00:07:38,950 --> 00:07:36,720

lightning discharge

202

00:07:41,029 --> 00:07:38,960

back to pick to flight deck operations

203

00:07:42,830 --> 00:07:41,039

this time we're entering a maneuver

204

00:07:45,029 --> 00:07:42,840

to put the shuttle in a new viewing

205

00:07:46,629 --> 00:07:45,039

attitude here's a norm in back of me

206

00:07:47,749 --> 00:07:46,639

entering some data into the onboard

207

00:07:52,390 --> 00:07:47,759

computer

208

00:07:56,629 --> 00:07:52,400

mary again at the app station with one

209

00:08:00,390 --> 00:07:58,070

and then a little example of some of the

210

00:08:02,150 --> 00:08:00,400

earth obs these are irrigation fields

211

00:08:03,189 --> 00:08:02,160

circular irrigation fields in saudi

212

00:08:05,110 --> 00:08:03,199

arabia

213

00:08:07,029 --> 00:08:05,120

there are hundreds of these

214

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

and some of these are very very large

215

00:08:11,589 --> 00:08:09,280

the diameter getting up to two to three

216

00:08:18,790 --> 00:08:11,599

kilometers across they're very prominent

217

00:08:18,800 --> 00:08:23,110

we are coming across baja california

218

00:08:23,120 --> 00:08:28,710

sun glint in the sea of cortez

219

00:08:28,720 --> 00:08:39,350

and panning down to the southern tip

220

00:08:42,630 --> 00:08:41,110

we all got a chance to take a lot of

221

00:08:44,310 --> 00:08:42,640

photography on this mission and that's a

222

00:08:46,070 --> 00:08:44,320

lot of fun to do and in addition it's

223

00:08:49,269 --> 00:08:46,080

useful to a lot of folks

224

00:08:51,350 --> 00:08:49,279

geologists people who do cartography and

225

00:08:53,430 --> 00:08:51,360

ocean oceanographers for the two

226

00:08:55,350 --> 00:08:53,440

floridians on board dave and myself we

227

00:08:56,949 --> 00:08:55,360

love this shot

228

00:08:58,949 --> 00:08:56,959

you can see alligator point in

229

00:09:00,550 --> 00:08:58,959

tallahassee there for a while some of my

230

00:09:03,829 --> 00:09:00,560

old stomping grounds

231

00:09:05,350 --> 00:09:03,839

and panning down the peninsula

232

00:09:07,269 --> 00:09:05,360

things are just very prominent lake

233

00:09:09,110 --> 00:09:07,279

okeechobee is very prominent there you

234

00:09:11,350 --> 00:09:09,120

can see all of the miami area and that's

235

00:09:13,910 --> 00:09:11,360

a huge area these days with nearly 12

236

00:09:16,070 --> 00:09:13,920

million people that the state has

237

00:09:17,829 --> 00:09:16,080

in addition to the motion pictures

238

00:09:20,070 --> 00:09:17,839

obviously we took a lot of still photos

239

00:09:21,509 --> 00:09:20,080

and while this is a camera view the fact

240

00:09:22,870 --> 00:09:21,519

is that with the naked eye you can see

241

00:09:25,030 --> 00:09:22,880

almost everything that you can see in

242

00:09:26,310 --> 00:09:25,040

this view this is a picture of the cape

243

00:09:27,990 --> 00:09:26,320

and you can see the shuttle landing

244

00:09:29,430 --> 00:09:28,000

facility the two launch pads including

245

00:09:32,389 --> 00:09:29,440

the one from which we launched just a

246

00:09:33,829 --> 00:09:32,399

few days before the florida keys just a

247

00:09:35,910 --> 00:09:33,839

beautiful view

248

00:09:37,350 --> 00:09:35,920

and you can certainly see the metroplex

249

00:09:39,509 --> 00:09:37,360

area there the metropolitan area of

250

00:09:43,030 --> 00:09:39,519

miami and of course lake okeechobee

251

00:09:46,870 --> 00:09:44,870

i really as a floridian love these kind

252

00:09:48,389 --> 00:09:46,880

of pictures and we had it seemed like

253

00:09:49,829 --> 00:09:48,399

all the passes we had over florida

254

00:09:52,230 --> 00:09:49,839

during the mission were like this very

255

00:09:53,750 --> 00:09:52,240

few clouds and it's almost like looking

256

00:09:55,750 --> 00:09:53,760

at a map except you don't see any of the

257

00:09:57,509 --> 00:09:55,760

boundary lines as we go to the east of

258

00:10:00,870 --> 00:09:57,519

course we come to

259

00:10:00,880 --> 00:10:05,910

a nice place for a post flight trip

260

00:10:10,470 --> 00:10:08,389

we uh sort of shared doing the the food

261

00:10:11,990 --> 00:10:10,480

cooking duties that whoever got

262

00:10:14,150 --> 00:10:12,000

hungry first seemed to be the person

263

00:10:15,190 --> 00:10:14,160

would end up cooking uh with a galley on

264

00:10:16,630 --> 00:10:15,200

board i didn't have one the last one the

265

00:10:18,230 --> 00:10:16,640

galley on board it made it

266

00:10:20,230 --> 00:10:18,240

an awful lot easier and faster to get

267

00:10:22,710 --> 00:10:20,240

meals prepared

268

00:10:24,870 --> 00:10:22,720

but it's actually a lot easier in zero g

269

00:10:26,630 --> 00:10:24,880

going up the stairs in one g you have to

270

00:10:29,829 --> 00:10:26,640

be careful and take the trays one at a

271

00:10:31,990 --> 00:10:29,839

time you can just grab them and float up

272

00:10:34,310 --> 00:10:32,000

in zero g and we usually ate our meals

273

00:10:36,470 --> 00:10:34,320

up on the flight deck

274

00:10:39,030 --> 00:10:36,480

here's mark

275

00:10:41,670 --> 00:10:39,040

with his vhs or viroqua high school

276

00:10:42,949 --> 00:10:41,680

t-shirt on her

277

00:10:45,509 --> 00:10:42,959

sports shirt

278

00:10:47,590 --> 00:10:45,519

with a piece of beef jerky just enjoying

279

00:10:49,590 --> 00:10:47,600

zero g mark it was mark's first flight

280

00:10:51,430 --> 00:10:49,600

he's a rookie and he really had a good

281

00:10:53,670 --> 00:10:51,440

time you could tell he was really

282

00:10:55,750 --> 00:10:53,680

enjoying being weightless

283

00:10:57,110 --> 00:10:55,760

he kept playing with his food i'm sure

284

00:10:58,790 --> 00:10:57,120

his mother would want him to do that but

285

00:11:00,630 --> 00:10:58,800

he kept playing with his food

286

00:11:02,790 --> 00:11:00,640

and now you can see here all the bags

287

00:11:04,470 --> 00:11:02,800

that's re-entry morning that's all of

288

00:11:06,790 --> 00:11:04,480

our suits

289

00:11:09,110 --> 00:11:06,800

re-entry escape gear that was packaged

290

00:11:10,710 --> 00:11:09,120

up in these bags before we unpacked them

291

00:11:11,829 --> 00:11:10,720

you can see it took up a lot of space

292

00:11:13,030 --> 00:11:11,839

down here

293

00:11:14,630 --> 00:11:13,040

a lot of times at work i feel like i'm

294

00:11:15,990 --> 00:11:14,640

running around in circles and so i tried

295

00:11:17,670 --> 00:11:16,000

actually running around in circles and

296

00:11:18,630 --> 00:11:17,680

it worked up there and it was a lot of

297

00:11:20,310 --> 00:11:18,640

fun

298

00:11:22,870 --> 00:11:20,320

there's something about zero g that

299

00:11:25,190 --> 00:11:22,880

makes even adults regress we were always

300

00:11:26,790 --> 00:11:25,200

told not to play with our food but the

301

00:11:28,630 --> 00:11:26,800

fact is you can get such interesting

302

00:11:30,470 --> 00:11:28,640

effects now the fish crackers that we

303

00:11:32,230 --> 00:11:30,480

have there in the plastic bag are

304

00:11:33,910 --> 00:11:32,240

primarily for eating

305

00:11:36,069 --> 00:11:33,920

but interestingly

306

00:11:38,310 --> 00:11:36,079

in that plastic bag they really almost

307

00:11:40,949 --> 00:11:38,320

did look like a pack of

308

00:11:42,949 --> 00:11:40,959

live or a school of live fish

309

00:11:46,630 --> 00:11:42,959

ultimately however you have to remember

310

00:11:49,030 --> 00:11:46,640

that they're there primarily to eat

311

00:11:50,870 --> 00:11:49,040

and there go a school of them and just

312

00:11:54,069 --> 00:11:50,880

like predator fish

313

00:11:56,389 --> 00:11:55,190

and then you've got the problem of

314

00:11:59,590 --> 00:11:56,399

course of getting those things out of

315

00:12:03,829 --> 00:11:59,600

the air before they drift off

316

00:12:05,910 --> 00:12:03,839

and we'll introduce the crew ron gravy

317

00:12:07,590 --> 00:12:05,920

and then having some difficulty getting

318

00:12:09,670 --> 00:12:07,600

through there as he's tangled up in all

319

00:12:11,350 --> 00:12:09,680

the wires and cords that inevitably seem

320

00:12:16,470 --> 00:12:11,360

to be in the way

321

00:12:20,870 --> 00:12:19,350

and i think i'm next here

322

00:12:23,190 --> 00:12:20,880

and i get a little tangled up in the

323

00:12:25,190 --> 00:12:23,200

cords as well

324

00:12:27,269 --> 00:12:25,200

but there's always someone there to grab

325

00:12:29,590 --> 00:12:27,279

you if you do get lost in space

326

00:12:32,230 --> 00:12:29,600

and in our persona as finn and olay we

327

00:12:34,389 --> 00:12:32,240

try to outdo uh hans and franz with

328

00:12:41,269 --> 00:12:34,399

their little girly legs and do our pump

329

00:12:41,279 --> 00:12:46,069

nice aerobatics thanks and dave

330

00:12:49,269 --> 00:12:47,670

okay we thought that our last day on

331

00:12:51,590 --> 00:12:49,279

orbit would be a pretty easy day we're

332

00:12:53,269 --> 00:12:51,600

going to do some more crew movie and

333

00:12:55,030 --> 00:12:53,279

earth obs type of

334

00:12:56,389 --> 00:12:55,040

video work but we ended up changing out

335

00:12:58,550 --> 00:12:56,399

the computer and this is a real good

336

00:13:01,190 --> 00:12:58,560

shot in the avionics bay where we had to

337

00:13:01,910 --> 00:13:01,200

work it was pretty type of being in zero

338

00:13:03,509 --> 00:13:01,920

g

339

00:13:04,949 --> 00:13:03,519

there were no real pressure points so it

340

00:13:07,030 --> 00:13:04,959

was pretty easy to stay in there for a

341

00:13:08,629 --> 00:13:07,040

couple hours and do the work one of the

342

00:13:10,069 --> 00:13:08,639

biggest problems is housekeeping as we

343

00:13:11,590 --> 00:13:10,079

brought out each one of the wire bundles

344

00:13:12,629 --> 00:13:11,600

we made sure that it was marked

345

00:13:14,150 --> 00:13:12,639

correctly

346

00:13:15,430 --> 00:13:14,160

mary and i both checked them to make

347

00:13:17,829 --> 00:13:15,440

sure that

348

00:13:19,509 --> 00:13:17,839

we when we put it back together

349

00:13:20,790 --> 00:13:19,519

we put it back right it would have been

350

00:13:22,470 --> 00:13:20,800

pretty embarrassing if we would have got

351

00:13:24,550 --> 00:13:22,480

the right cables hooked up

352

00:13:26,870 --> 00:13:24,560

and so we marked everything we put it in

353

00:13:28,470 --> 00:13:26,880

bags all the screws and bolts float

354

00:13:30,550 --> 00:13:28,480

around so we had to we had to make sure

355

00:13:32,790 --> 00:13:30,560

that we kept track of all of those and

356

00:13:35,190 --> 00:13:32,800

once we got it back in mary's showing

357

00:13:37,110 --> 00:13:35,200

here torquing down uh the bolts each one

358

00:13:39,190 --> 00:13:37,120

of the bolts has specifications this was

359

00:13:40,550 --> 00:13:39,200

100 inch pounds that we had to do

360

00:13:42,629 --> 00:13:40,560

these two and there are a couple other

361

00:13:43,590 --> 00:13:42,639

eye bolts that we had to go to 30 inch

362

00:13:45,110 --> 00:13:43,600

pounds

363

00:13:46,550 --> 00:13:45,120

once they were in place then we hooked

364

00:13:48,389 --> 00:13:46,560

up all the electrical connectors we

365

00:13:49,990 --> 00:13:48,399

powered it up and the computer worked

366

00:13:51,910 --> 00:13:50,000

great

367

00:13:53,750 --> 00:13:51,920

after getting the computer replaced we

368

00:13:56,150 --> 00:13:53,760

got a good night's sleep got up the next

369

00:13:57,750 --> 00:13:56,160

day suited up to come home

370

00:13:59,030 --> 00:13:57,760

this is just a little demo of how that

371

00:14:00,790 --> 00:13:59,040

can be done

372

00:14:02,389 --> 00:14:00,800

and it's fairly easy to get in and out

373

00:14:04,230 --> 00:14:02,399

of the suit in zero gravity although it

374

00:14:06,710 --> 00:14:04,240

isn't all that comfortable to wear

375

00:14:09,590 --> 00:14:06,720

and then we started downhill on schedule

376

00:14:11,110 --> 00:14:09,600

this is a picture of plasma interaction

377

00:14:12,550 --> 00:14:11,120

around the orbiter which mark was able

378

00:14:14,790 --> 00:14:12,560

to get with the camcorder some

379

00:14:20,389 --> 00:14:14,800

spectacular photography there of the

380

00:14:24,710 --> 00:14:23,110

this is pretty rare photos then

381

00:14:26,710 --> 00:14:24,720

you can see out the window again with

382

00:14:28,870 --> 00:14:26,720

the same camcorder

383

00:14:30,790 --> 00:14:28,880

the earth horizon as we do the roll

384

00:14:33,670 --> 00:14:30,800

maneuvers that allow us to

385

00:14:35,430 --> 00:14:33,680

guide ourselves down the reentry track

386

00:14:36,470 --> 00:14:35,440

all of this went very smoothly there's a

387

00:14:38,069 --> 00:14:36,480

little bit of

388

00:14:40,389 --> 00:14:38,079

high mock buffet and you can see that

389

00:14:41,670 --> 00:14:40,399

reflected in the slight

390

00:14:42,949 --> 00:14:41,680

shaking

391

00:14:44,790 --> 00:14:42,959

of the camera

392

00:14:46,629 --> 00:14:44,800

i said i said mark actually i think mary

393

00:14:50,310 --> 00:14:46,639

was taking all of these

394

00:14:52,870 --> 00:14:50,320

mark took the photos uphill

395

00:14:54,629 --> 00:14:52,880

and then finally back at edwards

396

00:14:56,150 --> 00:14:54,639

ron flew a little bit after we went

397

00:14:57,509 --> 00:14:56,160

subsonic and then i took it for the

398

00:14:59,350 --> 00:14:57,519

landing

399

00:15:00,949 --> 00:14:59,360

it was very smooth all the way down

400

00:15:02,870 --> 00:15:00,959

until we got close

401

00:15:04,710 --> 00:15:02,880

uh relatively close the last few

402

00:15:07,670 --> 00:15:04,720

thousand feet when the turbulence and

403

00:15:10,230 --> 00:15:07,680

the crosswinds which we had expected

404

00:15:12,870 --> 00:15:10,240

since we were trying to get a crosswind

405

00:15:13,829 --> 00:15:12,880

developmental test objective done

406

00:15:15,750 --> 00:15:13,839

became

407

00:15:17,189 --> 00:15:15,760

obvious the orbiter flies very well

408

00:15:19,350 --> 00:15:17,199

through that sort of conditions here's

409

00:15:21,990 --> 00:15:19,360

another picture out the side window

410

00:15:23,269 --> 00:15:22,000

as we come down

411

00:15:25,110 --> 00:15:23,279

we

412

00:15:27,829 --> 00:15:25,120

had no difficulty

413

00:15:31,030 --> 00:15:27,839

approaching the runway

414

00:15:33,189 --> 00:15:31,040

some mild compensation for the crosswind

415

00:15:36,230 --> 00:15:33,199

and then as you'll see lands pretty

416

00:15:39,590 --> 00:15:38,629

ron is going to do the most important

417

00:15:41,030 --> 00:15:39,600

job

418

00:15:42,389 --> 00:15:41,040

that he has to do in the flight here in

419

00:15:44,389 --> 00:15:42,399

just a second which is to lower the

420

00:15:49,509 --> 00:15:44,399

landing gear

421

00:15:53,350 --> 00:15:51,350

because we switched runways late in the

422

00:15:54,949 --> 00:15:53,360

game we don't have as good a

423

00:15:57,189 --> 00:15:54,959

photographic coverage of the landing as

424

00:15:59,990 --> 00:15:57,199

we usually do but it's still adequate to

425

00:16:01,829 --> 00:16:00,000

see that the orbiter's flying well

426
00:16:03,590 --> 00:16:01,839
on touchdown the crosswind becomes more

427
00:16:10,069 --> 00:16:03,600
evident and requires more compensation

428
00:16:13,269 --> 00:16:11,189
we had a

429
00:16:14,949 --> 00:16:13,279
smooth soft touchdown a little bit of

430
00:16:15,749 --> 00:16:14,959
drift left and then back to the center

431
00:16:18,629 --> 00:16:15,759
line

432
00:16:20,230 --> 00:16:18,639
rolled out about 10 000 feet

433
00:16:23,269 --> 00:16:20,240
and stopped

434
00:16:25,189 --> 00:16:23,279
without difficulty

435
00:16:26,949 --> 00:16:25,199
and after having gotten out of our

436
00:16:28,629 --> 00:16:26,959
launch escape suits and cleaned up a

437
00:16:29,509 --> 00:16:28,639
little bit we're ready to come back to

438
00:16:30,550 --> 00:16:29,519

earth

439

00:16:33,030 --> 00:16:30,560

where uh

440

00:16:34,790 --> 00:16:33,040

dale myers and dick truly were waiting

441

00:16:36,069 --> 00:16:34,800

to greet us and where we could take a

442

00:16:37,670 --> 00:16:36,079

look at the orbiter and make sure that

443

00:16:39,269 --> 00:16:37,680

it was indeed in as good a shape as we

444

00:16:41,269 --> 00:16:39,279

had hoped looked fine

445

00:16:44,150 --> 00:16:41,279

and we were happy to be back

446

00:16:45,829 --> 00:16:44,160

after what was very exciting although to

447

00:16:48,310 --> 00:16:45,839

our mind too short of flight we would

448

00:16:50,150 --> 00:16:48,320

have been happy to to stay longer