



1
00:00:08,780 --> 00:00:45,440
one liftoff of Atlantis

2
00:00:50,490 --> 00:00:47,640
this is shuttle launch control at

3
00:00:52,260 --> 00:00:50,500
t-minus three hours and holding all is

4
00:00:55,080 --> 00:00:52,270
going well in our countdown we've got

5
00:00:57,270 --> 00:00:55,090
the flight crew for STS 44 having

6
00:01:04,350 --> 00:00:57,280
breakfast in the crew quarters at the

7
00:01:05,520 --> 00:01:04,360
operations and check-out building crew

8
00:01:06,870 --> 00:01:05,530
who's just beginning their first flight

9
00:01:09,510 --> 00:01:06,880
day of a 10-day mission we've got

10
00:01:12,030 --> 00:01:09,520
mission specialist Jim boss flying for

11
00:01:16,680 --> 00:01:12,040
the first time payload specialist Tom

12
00:01:19,770 --> 00:01:16,690
Henin Mario run Co flying for the first

13
00:01:22,020 --> 00:01:19,780

time today he's a mission specialist and

14
00:01:23,810 --> 00:01:22,030
we've got commander Fred Gregory making

15
00:01:26,520 --> 00:01:23,820
his third trip into space today

16
00:01:29,450 --> 00:01:26,530
there's pilot Tom Hendricks he's flying

17
00:01:32,400 --> 00:01:29,460
for the first time today in space and

18
00:01:33,930 --> 00:01:32,410
mission specialist story Musgrave he

19
00:01:48,030 --> 00:01:33,940
becomes a four time shuttle veteran

20
00:01:51,690 --> 00:01:49,860
this is shuttle launch control at

21
00:01:54,360 --> 00:01:51,700
t-minus three hours and holding

22
00:01:56,580 --> 00:01:54,370
we've got commander Fred Gregory colonel

23
00:02:01,100 --> 00:01:56,590
in the United States Air Force being

24
00:02:03,300 --> 00:02:01,110
assisted he's getting his helmet on and

25
00:02:06,620 --> 00:02:03,310
this is in the suit up room at the

26
00:02:11,340 --> 00:02:08,760
commander Gregory was just briefed on

27
00:02:14,160 --> 00:02:11,350
the weather conditions here at Kennedy

28
00:02:15,510 --> 00:02:14,170
and essentially world world weather

29
00:02:17,880 --> 00:02:15,520
conditions in case they had to make a

30
00:02:21,170 --> 00:02:17,890
landing at a transoceanic abort site

31
00:02:24,510 --> 00:02:21,180
we've got mission specialists James boss

32
00:02:30,000 --> 00:02:24,520
he's being assisted with getting things

33
00:02:32,850 --> 00:02:30,010
stuffed into his pockets got mission

34
00:02:34,670 --> 00:02:32,860
specialist Mario Bronco he's flying for

35
00:02:37,110 --> 00:02:34,680
the first time today Mario is a

36
00:02:43,440 --> 00:02:37,120
lieutenant commander in the United

37
00:02:47,910 --> 00:02:43,450
States Navy payload specialist Tom Henan

38
00:02:49,620 --> 00:02:47,920

standing up Henan is a Chief Warrant

39

00:02:51,900 --> 00:02:49,630

Officer in the United States Army

40

00:02:55,949 --> 00:02:51,910

he's a payload specialist on this this

41

00:02:58,800 --> 00:02:55,959

flight he'll be conducting the terror

42

00:03:02,070 --> 00:02:58,810

scout experiment for this mission making

43

00:03:04,250 --> 00:03:02,080

observations of various sites on the

44

00:03:07,680 --> 00:03:04,260

ground from space

45

00:03:11,880 --> 00:03:07,690

we've got pilot Tom Hendricks flying for

46

00:03:14,850 --> 00:03:11,890

the first time today he's got on watch

47

00:03:19,550 --> 00:03:14,860

pointing to it he's a colonel in the

48

00:03:25,050 --> 00:03:19,560

United States Air Force crew does a

49

00:03:27,900 --> 00:03:25,060

brief test of the suit they have where

50

00:03:29,640 --> 00:03:27,910

air circulated through the suit and just

51
00:03:31,380 --> 00:03:29,650
test for a leakage rate in the suit

52
00:03:33,270 --> 00:03:31,390
while they're in the suit up room we've

53
00:03:34,370 --> 00:03:33,280
got here mission specialist story

54
00:03:38,759 --> 00:03:34,380
Musgrave

55
00:03:56,040 --> 00:03:38,769
he's a medical doctor story is becoming

56
00:04:00,510 --> 00:03:58,230
this is shuttle launch control we've got

57
00:04:02,100 --> 00:04:00,520
the STS 44 of flight crew coming down

58
00:04:04,050 --> 00:04:02,110
the hall with the operations and

59
00:04:06,780 --> 00:04:04,060
check-out building come in to Fred

60
00:04:08,550 --> 00:04:06,790
Gregory is leading the group how at Tom

61
00:04:18,860 --> 00:04:08,560
Hendrix they're all waving goodbye to

62
00:04:18,870 --> 00:04:28,110
and we've got the crew coming out

63
00:04:36,060 --> 00:04:35,190

and a group of well-wishers who's all

64

00:04:52,610 --> 00:04:36,070

ready to go

65

00:05:00,969 --> 00:04:57,890

NPD launch director well go ahead okay I

66

00:05:04,480 --> 00:05:00,979

think we've about converged on the

67

00:05:06,950 --> 00:05:04,490

calculations for the replenish time so

68

00:05:09,379 --> 00:05:06,960

you ought to have the team prepared to

69

00:05:12,590 --> 00:05:09,389

come out of this hold at 35 past the

70

00:05:14,350 --> 00:05:12,600

hour looking for a t0 at 45 past the

71

00:05:18,760 --> 00:05:14,360

hour

72

00:05:21,170 --> 00:05:18,770

you

73

00:05:22,879 --> 00:05:21,180

t-minus two minutes 30 seconds the

74

00:05:24,560 --> 00:05:22,889

orbiter test conductors requested at

75

00:05:30,379 --> 00:05:24,570

pilot Henrichs clear the caution warning

76
00:05:40,140 --> 00:05:30,389
memory system retraction of the gaseous

77
00:05:49,200 --> 00:05:42,150
look what oxygen tank is now at flight

78
00:05:53,430 --> 00:05:51,320
t-minus two minutes and Counting

79
00:05:54,840 --> 00:05:53,440
tonight's launch will mark the seventh

80
00:05:56,520 --> 00:05:54,850
night launch in the history of the

81
00:06:11,450 --> 00:05:56,530
shuttle program and the tenth flight of

82
00:06:16,740 --> 00:06:14,909
t-minus 31 seconds we have a go for

83
00:06:18,779 --> 00:06:16,750
autosequence start Atlantis as for

84
00:06:27,730 --> 00:06:18,789
redundant computers have primary control

85
00:06:41,910 --> 00:06:33,610
if they see my start to you 12 11 10

86
00:06:41,920 --> 00:06:55,089
one liftoff of Atlantis

87
00:06:59,719 --> 00:06:58,070
Roger roll Atlantis Houston now

88
00:07:01,520 --> 00:06:59,729

controlling Atlantis completed rolling

89

00:07:02,749 --> 00:07:01,530

over to the proper position where it's

90

00:07:19,180 --> 00:07:02,759

climbed to the twenty-eight point five

91

00:07:24,350 --> 00:07:21,350

three main engines now throttling back

92

00:07:43,100 --> 00:07:24,360

to 70% as lantus prepares to pass to the

93

00:07:48,990 --> 00:07:46,439

- speed is now 1,000 miles an hour

94

00:07:53,330 --> 00:07:49,000

altitude 34,000 feet downrange from

95

00:08:03,810 --> 00:08:01,409

Atlantis Houston go at throttle up three

96

00:08:08,610 --> 00:08:03,820

engines now back operating at 104

97

00:08:27,179 --> 00:08:08,620

percent of rated capacity good hydraulic

98

00:08:27,189 --> 00:08:33,149

Atlanta Houston comm check UHF only

99

00:08:44,110 --> 00:08:40,709

you're loud and clear also altitude now

100

00:08:45,610 --> 00:08:44,120

127 thousand feet Atlanta speed two

101
00:08:46,269 --> 00:08:45,620
thousand seven hundred and twenty-five

102
00:08:48,310 --> 00:08:46,279
miles an hour

103
00:08:58,430 --> 00:08:48,320
downrange from Kennedy Space Center 25

104
00:08:58,440 --> 00:09:09,310
Roger goes

105
00:09:13,720 --> 00:09:11,320
three engines continuing top right well

106
00:09:15,070 --> 00:09:13,730
at 104 percent of rated capacity good

107
00:09:22,560 --> 00:09:15,080
hydraulic systems good electrical

108
00:09:29,800 --> 00:09:22,570
systems altitude now 198 thousand feet

109
00:09:35,650 --> 00:09:29,810
velocity 3060 802 engine ban Joule Roger

110
00:09:37,210 --> 00:09:35,660
and performance nominal those calls

111
00:09:39,280 --> 00:09:37,220
indicate Atlantis's performance so far

112
00:09:40,540 --> 00:09:39,290
has been as planned and that Atlantis

113
00:09:42,820 --> 00:09:40,550

could now perform a transatlantic

114

00:09:44,290 --> 00:09:42,830

landing at fan Jewell to Gambia on only

115

00:09:46,990 --> 00:09:44,300

two engines if one were to fail however

116

00:09:48,760 --> 00:09:47,000

that however all three engines

117

00:10:03,020 --> 00:09:48,770

continuing to operate well at 104

118

00:10:03,030 --> 00:10:12,930

you

119

00:10:22,910 --> 00:10:15,480

Atlantis now altitude is 286 thousand

120

00:10:27,830 --> 00:10:25,700

velocity now 4,200 miles an hour

121

00:10:43,250 --> 00:10:27,840

downrange from Kennedy Space Center 102

122

00:10:52,400 --> 00:10:50,810

atlantis negative return that call

123

00:10:54,380 --> 00:10:52,410

indicates atlantis can no longer return

124

00:10:56,570 --> 00:10:54,390

to the Kennedy Space Center for landing

125

00:10:58,700 --> 00:10:56,580

if that were to become necessary however

126

00:11:00,620 --> 00:10:58,710

all three engines still operating at 104

127

00:11:20,380 --> 00:11:00,630

percent good hydraulic systems good

128

00:11:26,300 --> 00:11:23,240

and anyone else is listening today we're

129

00:11:28,760 --> 00:11:26,310

going to play back deploy we're gonna

130

00:11:31,040 --> 00:11:28,770

start with a pre deploy check or show

131

00:11:34,610 --> 00:11:31,050

you that first this is the tech that we

132

00:11:37,130 --> 00:11:34,620

do on orbit again this is as you can see

133

00:11:43,850 --> 00:11:37,140

I hope you're sitting now the nozzle of

134

00:11:45,770 --> 00:11:43,860

the I us yeah we see that Jim okay three

135

00:11:48,700 --> 00:11:45,780

to four checks the nozzle dimples are

136

00:11:50,900 --> 00:11:48,710

checked twice on a different system and

137

00:11:53,360 --> 00:11:50,910

you may have already seen the first one

138

00:11:55,580 --> 00:11:53,370

and then it'll switch over to the other

139

00:11:56,300 --> 00:11:55,590

side and it will then check the gimbals

140

00:11:59,270 --> 00:11:56,310

in each direction

141

00:12:21,230 --> 00:11:59,280

those it goes up head back to the center

142

00:12:23,360 --> 00:12:21,240

down back to the center we looked at our

143

00:12:25,490 --> 00:12:23,370

satellite there is the DSC in the

144

00:12:28,400 --> 00:12:25,500

foreground with the original upper stage

145

00:12:30,530 --> 00:12:28,410

boosters it's behind it starting over on

146

00:12:33,620 --> 00:12:30,540

what's your left as you look at the

147

00:12:36,230 --> 00:12:33,630

screen looking at the actuator mechanism

148

00:12:39,470 --> 00:12:36,240

that will eventually tilt the I you SD

149

00:12:41,210 --> 00:12:39,480

SD up into its deployed position now it

150

00:12:43,370 --> 00:12:41,220

looks back over the top of the payload

151
00:12:45,770 --> 00:12:43,380
is it 10 the bay these are solar panels

152
00:12:50,510 --> 00:12:45,780
that are there that later after we

153
00:12:52,970 --> 00:12:50,520
deploy it the controllers on the ground

154
00:12:56,570 --> 00:12:52,980
will send the signals to deploy those

155
00:12:58,430 --> 00:12:56,580
solar panels they'll fold out looking

156
00:13:00,500 --> 00:12:58,440
down on the other side now you can see

157
00:13:02,690 --> 00:13:00,510
these antennas and other types of

158
00:13:11,960 --> 00:13:02,700
sensors that are on other parts of the

159
00:13:14,630 --> 00:13:11,970
satellite it looks like a powerful point

160
00:13:16,340 --> 00:13:14,640
yet but that's the IR sniper next we're

161
00:13:17,720 --> 00:13:16,350
going to show you some I said we saw

162
00:13:32,760 --> 00:13:17,730
coming off the aft end of the orbiter

163
00:13:44,410 --> 00:13:40,750

this is the coverage that were on those

164

00:13:46,360 --> 00:13:44,420

expenses the spacecraft they're pulled

165

00:13:48,820 --> 00:13:46,370

off by strings that go into the funnel

166

00:13:52,720 --> 00:13:48,830

shaped devices in the foreground there's

167

00:13:54,550 --> 00:13:52,730

a motor that reels in the string and it

168

00:13:56,650 --> 00:13:54,560

pulls those covers into the funnel so

169

00:13:58,840 --> 00:13:56,660

that all proper oddity in the vehicle

170

00:14:01,360 --> 00:13:58,850

after they've been removed because we

171

00:14:06,220 --> 00:14:01,370

one of the sensors that wasn't covered

172

00:14:12,640 --> 00:14:06,230

and Rogers the strength pulls the covers

173

00:14:15,100 --> 00:14:12,650

into the funnel to secure them I works

174

00:14:16,660 --> 00:14:15,110

real well it was well designed it did a

175

00:14:18,070 --> 00:14:16,670

good job they pulled Rylance and they

176

00:14:28,780 --> 00:14:18,080

sucked right into the funnels just like

177

00:14:33,800 --> 00:14:31,010

okay yet here's the payload Bay right

178

00:14:37,690 --> 00:14:33,810

before we raise the payload up to deploy

179

00:14:42,470 --> 00:14:37,700

it and you can see their motion starting

180

00:14:43,610 --> 00:14:42,480

we raise it up to 29 degrees we do some

181

00:14:46,160 --> 00:14:43,620

other checks there and the ground

182

00:14:47,660 --> 00:14:46,170

doesn't text and then we pull an

183

00:14:49,460 --> 00:14:47,670

umbilical so that we no longer have

184

00:14:53,510 --> 00:14:49,470

power going from the orbiter to the

185

00:14:54,980 --> 00:14:53,520

payload and once we pull that up

186

00:15:04,730 --> 00:14:54,990

pellicle was pretty sure we're going to

187

00:15:07,700 --> 00:15:04,740

go ahead and deploy you can see the

188

00:15:10,280 --> 00:15:07,710

ground object is the top of the the

189

00:15:11,630 --> 00:15:10,290

cover for the infrared sensor that looks

190

00:15:13,940 --> 00:15:11,640

down at the earth that's used for

191

00:15:15,950 --> 00:15:13,950

detecting missile launches and just

192

00:15:18,620 --> 00:15:15,960

below that there are a cluster of three

193

00:15:20,030 --> 00:15:18,630

and then one other round objects start

194

00:15:28,360 --> 00:15:20,040

around objects that you can see those

195

00:15:34,850 --> 00:15:32,810

the larger white circles to the left and

196

00:15:37,970 --> 00:15:34,860

to the lower father antennas that are

197

00:15:59,100 --> 00:15:37,980

used for communicating with the

198

00:16:04,150 --> 00:16:01,360

we do this in stages so that we can

199

00:16:05,830 --> 00:16:04,160

start before we pull the umbilical at 29

200

00:16:07,720 --> 00:16:05,840

degrees before we stop and then we'll go

201
00:16:10,120 --> 00:16:07,730
ahead and raise it on up to 58 degrees

202
00:16:12,610 --> 00:16:10,130
which is the final elevation when we put

203
00:16:14,260 --> 00:16:12,620
it up to about 45 degrees or so to

204
00:16:18,520 --> 00:16:14,270
ensure that we're going to have currents

205
00:16:20,920 --> 00:16:18,530
from the payload separated from shuttle

206
00:16:23,950 --> 00:16:20,930
it separates and then it goes right up

207
00:16:25,450 --> 00:16:23,960
over the top of the crew compartment so

208
00:16:40,570 --> 00:16:25,460
we all have a pretty good angle so that

209
00:16:44,390 --> 00:16:42,650
really is a pretty fun alight with all

210
00:16:45,829 --> 00:16:44,400
the silver and the gold on it story was

211
00:16:47,950 --> 00:16:45,839
really excited about it he thinks he's

212
00:16:50,720 --> 00:16:47,960
got some great pictures of the whole

213
00:17:24,480 --> 00:16:50,730

deploy sequence with both the air flex

214

00:17:29,640 --> 00:17:27,210

once we get elevated like this we do

215

00:17:30,900 --> 00:17:29,650

another survey of the payload make sure

216

00:17:32,970 --> 00:17:30,910

that we don't see anything that could be

217

00:17:35,430 --> 00:17:32,980

wrong at the same time time the ground

218

00:17:37,170 --> 00:17:35,440

controllers are from Ebola checking out

219

00:17:38,880 --> 00:17:37,180

everything and making sure that the

220

00:17:41,700 --> 00:17:38,890

there's no upper stage which is the

221

00:17:44,310 --> 00:17:41,710

booster is in good state than the

222

00:17:46,500 --> 00:17:44,320

defense Support Program satellite folks

223

00:17:47,430 --> 00:17:46,510

are making sure that the satellite is

224

00:17:50,550 --> 00:17:47,440

working correctly

225

00:17:52,980 --> 00:17:50,560

the initial upper stage once we deploy

226

00:17:58,530 --> 00:17:52,990

it and one hour after we kicked it out

227

00:18:09,039 --> 00:17:58,540

it ignites its solid rocket motor and it

228

00:18:13,490 --> 00:18:11,120

this said we got into the dark

229

00:18:16,430 --> 00:18:13,500

fortunately it was a dark light but we

230

00:18:18,039 --> 00:18:16,440

weren't able to get good shots of it too

231

00:18:21,769 --> 00:18:18,049

long we could only use the payload a

232

00:18:23,360 --> 00:18:21,779

license to be able to see it so once it

233

00:18:25,100 --> 00:18:23,370

goes a little bit away from the orbiter

234

00:18:26,840 --> 00:18:25,110

it no longer has any lighting and we

235

00:18:28,070 --> 00:18:26,850

won't be able to see very much of it but

236

00:18:37,990 --> 00:18:28,080

you'll see it deploy here in just a

237

00:18:44,180 --> 00:18:40,160

when it deploys there is something

238

00:18:46,550 --> 00:18:44,190

called a super zip is March operate

239

00:18:48,880 --> 00:18:46,560

disease and there's no upper stages on

240

00:18:51,860 --> 00:18:48,890

the everyone's support equipment and

241

00:18:53,810 --> 00:18:51,870

accept it very cleanly the sailors has

242

00:18:57,640 --> 00:18:53,820

been pushed out away from the orbiter

243

00:19:00,500 --> 00:18:57,650

and after one minute Fred

244

00:19:03,140 --> 00:19:00,510

who's the orbiter away from the payload

245

00:19:05,870 --> 00:19:03,150

and then a little bit later we do an

246

00:19:06,350 --> 00:19:05,880

open front which will show you in just a

247

00:19:09,080 --> 00:19:06,360

bit

248

00:19:11,630 --> 00:19:09,090

those it deploys right now you can see

249

00:19:14,570 --> 00:19:11,640

it drifts away very slowly gracefully it

250

00:19:26,030 --> 00:19:14,580

cleared all the equals the support

251
00:19:34,880 --> 00:19:26,040
equipment very nicely while you can see

252
00:19:38,920 --> 00:19:34,890
these little upper stage and the gold

253
00:19:41,030 --> 00:19:38,930
powerful down below it which is the

254
00:19:42,890 --> 00:19:41,040
first stage is a solid rocket motor

255
00:19:44,990 --> 00:19:42,900
little boot stood up to its final to go

256
00:19:50,150 --> 00:19:45,000
synchronous orbit about 22,000 miles

257
00:19:54,440 --> 00:19:50,160
above the Earth's surface once its final

258
00:20:04,770 --> 00:19:54,450
orbit it'll be put where God wants it to

259
00:20:08,970 --> 00:20:07,410
now you can barely see the satellite

260
00:20:10,320 --> 00:20:08,980
once it gets all of our lights it's very

261
00:20:11,700 --> 00:20:10,330
difficult to see I hope you can see it

262
00:20:13,710 --> 00:20:11,710
almost in the middle of the screen is

263
00:20:16,020 --> 00:20:13,720

that moves away from the father that got

264

00:20:18,780 --> 00:20:16,030

away from us the more difficult it was

265

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

to see and off to the right is which is

266

00:20:21,840 --> 00:20:20,650

much easier to see now we're going to

267

00:20:34,650 --> 00:20:21,850

show you a little bit of what we could

268

00:20:39,220 --> 00:20:37,150

okay now you'll see a flash is the only

269

00:20:42,970 --> 00:20:39,230

the oval students whistling in gypsy

270

00:20:44,740 --> 00:20:42,980

cake that was the ignition and now you

271

00:20:47,650 --> 00:20:44,750

can see little glow just on the top of

272

00:20:53,410 --> 00:20:47,660

the off part that's the burning hole

273

00:20:54,789 --> 00:20:53,420

pigeon we'll see a little RCS Jets fire

274

00:21:17,440 --> 00:20:54,799

on the right side of your screen

275

00:21:19,780 --> 00:21:17,450

what's up burn is over it'll bit far

276

00:21:21,940 --> 00:21:19,790

away to get real good pictures of it but

277

00:21:24,490 --> 00:21:21,950

it certainly showed up wrong with the

278

00:21:26,789 --> 00:21:24,500

front coming up on it like that we're

279

00:21:29,980 --> 00:21:26,799

looking damage to your surface we are

280

00:21:33,310 --> 00:21:29,990

above it so we were looking down at the

281

00:21:34,900 --> 00:21:33,320

I USB SD as a fool underneath us getting

282

00:21:51,830 --> 00:21:34,910

ready for its front to put it into it

283

00:21:51,840 --> 00:22:05,910

we've got it

284

00:22:12,990 --> 00:22:10,220

space the final frontier

285

00:22:16,470 --> 00:22:13,000

this is the voyage of the space shuttle

286

00:22:18,480 --> 00:22:16,480

Atlantis its 10-day mission to explore

287

00:22:21,330 --> 00:22:18,490

new methods of remote sensing and

288

00:22:24,300 --> 00:22:21,340

observation of the planet earth to seek

289

00:22:26,130 --> 00:22:24,310

out new data on radiation in space and a

290

00:22:32,490 --> 00:22:26,140

new understanding of the effects of

291

00:22:36,840 --> 00:22:32,500

microgravity on the human body to boldly

292

00:22:41,280 --> 00:22:36,850

go where 255 men and women have gone

293

00:22:45,930 --> 00:22:41,290

before hello Fred

294

00:22:49,170 --> 00:22:45,940

Thom story Jim Tom and especially Mario

295

00:22:51,680 --> 00:22:49,180

this is Patrick Stewart choosing not to

296

00:22:54,270 --> 00:22:51,690

outrank you as Captain jean-luc Picard

297

00:23:59,789 --> 00:22:54,280

saying that we are confident of a

298

00:24:04,539 --> 00:24:02,619

what tom is doing his characterizing his

299

00:24:07,389 --> 00:24:04,549

system he's looking at how the device

300

00:24:10,419 --> 00:24:07,399

functions up here in space like company

301
00:24:12,970 --> 00:24:10,429
can adjust viewing angle taking out all

302
00:24:15,820 --> 00:24:12,980
of his lenses and just generally a good

303
00:24:18,759 --> 00:24:15,830
checkout calibration see how it works

304
00:24:20,710 --> 00:24:18,769
switch works said Tom Hendricks are both

305
00:24:22,600 --> 00:24:20,720
working with Tom our messes kind of

306
00:24:24,100 --> 00:24:22,610
backups and so it's working with Tom

307
00:24:39,430 --> 00:24:24,110
right now it's setting it up and taking

308
00:24:54,180 --> 00:24:39,440
it out I'll be there that's permanent

309
00:24:58,650 --> 00:24:56,920
your Australia and Thomas tracking that

310
00:25:18,440 --> 00:24:58,660
on the screen right now is a guy over

311
00:25:25,050 --> 00:25:21,840
but you see my hand is our antenna that

312
00:25:28,980 --> 00:25:25,060
mounts in the window for nads-1 this is

313
00:25:30,780 --> 00:25:28,990

our UHF comm antenna essentially is the

314

00:25:34,320 --> 00:25:30,790

computer brain for our charge-coupled

315

00:25:36,830 --> 00:25:34,330

device or CCD camera the camera which

316

00:25:41,310 --> 00:25:36,840

you see over here I'll bring it into few

317

00:25:41,610 --> 00:25:41,320

has basically an honest 232 type port on

318

00:25:44,790 --> 00:25:41,620

it

319

00:25:48,330 --> 00:25:44,800

the take speed signal from the CCD bat

320

00:25:50,250 --> 00:25:48,340

and this is just a Nikon f3 camera the

321

00:25:54,050 --> 00:25:50,260

s3 camera has been modified a little bit

322

00:25:58,710 --> 00:25:54,060

the film that has been taken off and the

323

00:26:08,610 --> 00:25:58,720

devices that put on the electronics part

324

00:26:11,940 --> 00:26:08,620

of the CCD is down below here and the

325

00:26:14,880 --> 00:26:11,950

CCD camera then puts a signal through

326

00:26:16,470 --> 00:26:14,890

the rs-232 cable to the tethered

327

00:26:18,900 --> 00:26:16,480

electronics modules the tethered

328

00:26:20,580 --> 00:26:18,910

electronics module had the disc drive

329

00:26:23,940 --> 00:26:20,590

and it essentially it records the

330

00:26:26,790 --> 00:26:23,950

digital image from the CCD on a disc the

331

00:26:29,910 --> 00:26:26,800

discs then can be accessed and displayed

332

00:26:32,910 --> 00:26:29,920

on the black and white high-density

333

00:26:36,030 --> 00:26:32,920

monitor that I have mounted next to the

334

00:26:38,310 --> 00:26:36,040

temp okay jan as you can see I've got

335

00:26:41,310 --> 00:26:38,320

the camera off stuff together the lenses

336

00:26:43,350 --> 00:26:41,320

on the camera and the lens essentially

337

00:26:46,770 --> 00:26:43,360

bounce up to pk about a thousand

338

00:26:49,650 --> 00:26:46,780

millimeter uh telephoto lens there

339

00:26:51,900 --> 00:26:49,660

aren't basic lenses a 300 millimeter and

340

00:26:55,380 --> 00:26:51,910

the there are two couplers on it

341

00:26:57,210 --> 00:26:55,390

essentially it's a 1.4 and a 2 so in any

342

00:27:02,850 --> 00:26:57,220

combination I can go up from 300

343

00:27:04,710 --> 00:27:02,860

millimetres to about 450 or to about 600

344

00:27:07,080 --> 00:27:04,720

and then up to a thousand if you if you

345

00:27:09,090 --> 00:27:07,090

do the multiplication that detailed for

346

00:27:11,400 --> 00:27:09,100

that hopefully we'll be able to see

347

00:27:14,340 --> 00:27:11,410

things on the ground with the camera and

348

00:27:16,200 --> 00:27:14,350

displayed on on the monitor to the

349

00:27:18,640 --> 00:27:16,210

greatest detail we've been able to get

350

00:27:24,340 --> 00:27:21,820

we also have associated with a maybe it

351
00:27:26,170 --> 00:27:24,350
was some radio sitcom I showed you the

352
00:27:29,410 --> 00:27:26,180
antenna earlier I'll go back to that and

353
00:27:44,620 --> 00:27:29,420
talk a little bit about the radios that

354
00:27:49,210 --> 00:27:44,630
we have the radio itself and then below

355
00:27:51,130 --> 00:27:49,220
that the crypto gear for the radio the

356
00:27:55,030 --> 00:27:51,140
radio essentially about is the standard

357
00:28:01,260 --> 00:27:55,040
military issue where I to HF radios such

358
00:28:04,270 --> 00:28:01,270
an LST v be in a KY 57 set unit and used

359
00:28:05,740 --> 00:28:04,280
in the field basically by the army in

360
00:28:08,799 --> 00:28:05,750
the Marines but we have it on board to

361
00:28:11,530 --> 00:28:08,809
to toss the rest down to a person on the

362
00:28:14,020 --> 00:28:11,540
ground that will be located on site for

363
00:28:16,360 --> 00:28:14,030

an individual target and he'll be

364

00:28:18,790 --> 00:28:16,370

passing to us weather and conditions at

365

00:28:22,030 --> 00:28:18,800

the targets for example if we're going

366

00:28:23,620 --> 00:28:22,040

by port facility you might tell us what

367

00:28:25,870 --> 00:28:23,630

ships are in port or what ships are

368

00:28:27,820 --> 00:28:25,880

moving in and out of sort information

369

00:28:29,680 --> 00:28:27,830

like that and then they're armed with

370

00:28:35,530 --> 00:28:29,690

that information I can then try and look

371

00:28:40,990 --> 00:28:35,540

for those on the ground now is put

372

00:28:43,090 --> 00:28:41,000

exploit into the lb/ft there's this

373

00:28:45,669 --> 00:28:43,100

thing up to wait feel right now we have

374

00:28:47,980 --> 00:28:45,679

to have a real good tight seal so that

375

00:29:03,870 --> 00:28:47,990

when we lower the pressure in the bag we

376

00:29:07,090 --> 00:29:03,880

don't pull anymore and also the heart

377

00:29:10,990 --> 00:29:07,100

triggers when the blood pressure sensor

378

00:29:13,510 --> 00:29:11,000

here on my arm wet that looks for

379

00:29:16,810 --> 00:29:13,520

different sounds put a blood pressure

380

00:29:19,840 --> 00:29:16,820

cuff on the arm like this you pump up

381

00:29:21,580 --> 00:29:19,850

that blood pressure cuff higher than the

382

00:29:24,610 --> 00:29:21,590

blood pressure dish in their artery and

383

00:29:27,159 --> 00:29:24,620

then stops the blood flowing down here

384

00:29:29,140 --> 00:29:27,169

as soon as you decrease the pressure in

385

00:29:31,330 --> 00:29:29,150

the cuff enough where the blood flow

386

00:29:33,279 --> 00:29:31,340

through that little Explorer around that

387

00:29:34,029 --> 00:29:33,289

you're here might be faster stethoscope

388

00:29:35,950 --> 00:29:34,039

listening

389

00:29:38,890 --> 00:29:35,960

I'll pick up those pulses coming

390

00:29:41,620 --> 00:29:38,900

through and that goes into a blood

391

00:29:47,860 --> 00:29:41,630

pressure measuring device damper which

392

00:29:51,720 --> 00:29:47,870

then record first and then what to watch

393

00:29:54,549 --> 00:29:51,730

ameristar's updating our stocks are pbr3

394

00:29:56,350 --> 00:29:54,559

we didn't think that it was synced up

395

00:29:58,180 --> 00:29:56,360

very well with our state vector so he's

396

00:30:01,000 --> 00:29:58,190

putting a new state vector assess make

397

00:30:19,360 --> 00:30:01,010

sure we're all synced up with it okay we

398

00:30:25,549 --> 00:30:22,490

whatever house there's color sizes and

399

00:30:28,039 --> 00:30:25,559

color IRS as kind of a testers look at

400

00:30:30,470 --> 00:30:28,049

the difference in the tooth and will be

401
00:31:01,920 --> 00:30:30,480
take a look shot so I think over the

402
00:31:08,880 --> 00:31:05,030
we were doing a visual function test

403
00:31:13,880 --> 00:31:08,890
that's the pilot topics of the letter at

404
00:31:16,170 --> 00:31:13,890
the right table specialist paint it look

405
00:31:18,000 --> 00:31:16,180
what's called the VFD the visual

406
00:31:22,200 --> 00:31:18,010
function testing which we will give you

407
00:31:26,040 --> 00:31:22,210
a look at some time to particular dish

408
00:31:29,970 --> 00:31:26,050
space is a very important thing and our

409
00:31:33,630 --> 00:31:29,980
wreath to take a baby fish changes you

410
00:31:36,840 --> 00:31:33,640
won't see heads that we have a forty

411
00:31:49,380 --> 00:31:36,850
also is expect the size to be a little

412
00:31:51,060 --> 00:31:49,390
larger we do pages they change size just

413
00:31:54,770 --> 00:31:51,070

like a cap of the focal length of a

414

00:31:57,150 --> 00:31:54,780

camera this would change here your

415

00:31:59,460 --> 00:31:57,160

cinematographer your boss is doing a

416

00:32:01,440 --> 00:31:59,470

great job for this shell is giving you

417

00:32:08,790 --> 00:32:01,450

one example of what you see in the

418

00:32:10,740 --> 00:32:08,800

visual lumps testers I plan to hear what

419

00:32:13,620 --> 00:32:10,750

the crewmen's activities are that is to

420

00:32:16,920 --> 00:32:13,630

take a cassette tape I load it to set a

421

00:32:19,290 --> 00:32:16,930

bitter each one of the test sequences I

422

00:32:21,240 --> 00:32:19,300

push the power button started to running

423

00:32:24,090 --> 00:32:21,250

enhancer sequences all that takes out

424

00:32:27,480 --> 00:32:24,100

the takes your ports a bioreactor is it

425

00:32:29,640 --> 00:32:27,490

has three different sized ears but once

426

00:32:31,680 --> 00:32:29,650

we get it tested out and do the kinds of

427

00:32:34,320 --> 00:32:31,690

development and tweak we need for in

428

00:32:36,300 --> 00:32:34,330

terms of rpms and densities and like we

429

00:32:38,790 --> 00:32:36,310

will be able to grow this you cultures

430

00:32:42,630 --> 00:32:38,800

space not just single layer tissue

431

00:32:45,060 --> 00:32:42,640

cultures right now as you grow tissues

432

00:32:48,180 --> 00:32:45,070

it's a twenty you only get a single

433

00:32:49,200 --> 00:32:48,190

layer itself it is not very effective or

434

00:32:51,330 --> 00:32:49,210

efficient way

435

00:32:53,640 --> 00:32:51,340

once we protect this system we will be

436

00:32:55,560 --> 00:32:53,650

able to grow clumps out of tissue

437

00:32:57,870 --> 00:32:55,570

cultures your band applied tissue

438

00:33:00,300 --> 00:32:57,880

cultures and report so they important to

439

00:33:02,370 --> 00:33:00,310

be able to understand cancer cells you

440

00:33:04,320 --> 00:33:02,380

get the Grove in such survive but if you

441

00:33:08,790 --> 00:33:04,330

could study their ball so many magazines

442

00:33:11,570 --> 00:33:08,800

are grown in tissue cultures tipoff here

443

00:33:14,160 --> 00:33:11,580

is focused in the camcorder

444

00:33:18,390 --> 00:33:14,170

if you could see three different size

445

00:33:19,910 --> 00:33:18,400

fears if there's red white and blue as

446

00:33:22,230 --> 00:33:19,920

they traverse this is one particular

447

00:33:24,540 --> 00:33:22,240

sequence so they will take a very very

448

00:33:27,780 --> 00:33:24,550

different post and once we've perfected

449

00:33:30,360 --> 00:33:27,790

being able to hold and set of eyes the

450

00:33:32,340 --> 00:33:30,370

hair stretches across these fears we

451
00:33:34,530 --> 00:33:32,350
will then be able to put living cultures

452
00:33:37,980 --> 00:33:34,540
there and hopefully we'll be able to use

453
00:33:40,560 --> 00:33:37,990
the very environment aphasia private to

454
00:33:45,620 --> 00:33:40,570
enhance our ability of biological

455
00:33:48,210 --> 00:33:45,630
tissues growing outside of the body

456
00:33:52,110 --> 00:33:48,220
that's the completion of our file

457
00:33:54,000 --> 00:33:52,120
reactor the last thing we have for

458
00:33:55,950 --> 00:33:54,010
bioreactor is we'd like you to push and

459
00:33:57,390 --> 00:33:55,960
hold the reset button that should stop

460
00:34:09,500 --> 00:33:57,400
the drum and allow us to see the

461
00:35:13,349 --> 00:34:12,270
you need to hold it in in order to keep

462
00:35:22,209 --> 00:35:18,039
over to the right of the galley or our

463
00:35:24,609 --> 00:35:22,219

walkers and Henan is helping out here is

464

00:35:27,339 --> 00:35:24,619

going to show you what's inside one of

465

00:35:29,620 --> 00:35:27,349

our food lockers they're stowed by each

466

00:35:32,559 --> 00:35:29,630

meal its meal 8 b & 3 that's like

467

00:35:34,479 --> 00:35:32,569

breakfast lunch and dinner and all the

468

00:35:37,479 --> 00:35:34,489

meals for the six of us are stowed

469

00:35:40,359 --> 00:35:37,489

inside there this is a couple of meals

470

00:35:42,160 --> 00:35:40,369

worth different kinds of containers will

471

00:35:44,650 --> 00:35:42,170

show you those later with plastic bags

472

00:35:46,420 --> 00:35:44,660

for their garbage in when we're done and

473

00:35:48,099 --> 00:35:46,430

then even different types of containers

474

00:35:49,269 --> 00:35:48,109

not a need to look at all that stuff

475

00:35:51,489 --> 00:35:49,279

inside that tray

476

00:35:55,209 --> 00:35:51,499

it's a lot of food stowed into a very

477

00:35:56,799 --> 00:35:55,219

small space and once we get it out to

478

00:35:58,509 --> 00:35:56,809

take a look at it it's also very

479

00:36:07,569 --> 00:35:58,519

difficult for us to get it all bumpkin

480

00:36:09,069 --> 00:36:07,579

to the locker so we have to eat a lot to

481

00:36:13,460 --> 00:36:09,079

get all that closed back up and lost

482

00:36:16,910 --> 00:36:15,080

moving on we're gonna show you what's

483

00:36:18,110 --> 00:36:16,920

that one more the lockers just so you

484

00:36:20,510 --> 00:36:18,120

get a feel for some of the things that

485

00:36:22,550 --> 00:36:20,520

are stowed in there and this will to

486

00:36:25,010 --> 00:36:22,560

show our photographic equipment we have

487

00:36:28,040 --> 00:36:25,020

a fair effects camera at the front and

488

00:36:30,440 --> 00:36:28,050

then at the back is for 30 35

489

00:36:32,120 --> 00:36:30,450

millimeters camera equipment all we have

490

00:36:33,590 --> 00:36:32,130

for now some of the film it's also to

491

00:36:36,440 --> 00:36:33,600

that nice and neatly so you can keep

492

00:36:38,840 --> 00:36:36,450

track of it find ourselves when we need

493

00:36:41,000 --> 00:36:38,850

to replace those that we use books are a

494

00:36:43,490 --> 00:36:41,010

problem also up on the top you see an

495

00:36:45,440 --> 00:36:43,500

exercise protocol many of our procedure

496

00:36:47,720 --> 00:36:45,450

books that we have stowed away they each

497

00:36:50,960 --> 00:36:47,730

have their place and we return the devil

498

00:36:53,870 --> 00:36:50,970

relative so that we can find them over

499

00:36:55,370 --> 00:36:53,880

on the wall are our sleeping bags they

500

00:36:57,440 --> 00:36:55,380

stay stowed on the walls too at night

501
00:36:59,420 --> 00:36:57,450
some other sleep tied to the wall like

502
00:37:00,500 --> 00:36:59,430
the bags are others just get in their

503
00:37:02,690 --> 00:37:00,510
bags and float around

504
00:37:04,160 --> 00:37:02,700
we found a convenient place to store our

505
00:37:06,290 --> 00:37:04,170
running shoes that we use the bat-rope

506
00:37:10,010 --> 00:37:06,300
Hill they fit very nicely in the airlock

507
00:37:11,360 --> 00:37:10,020
door and they stay there very well so

508
00:37:13,730 --> 00:37:11,370
once you get into stage you find all the

509
00:37:16,610 --> 00:37:13,740
convenient places to store things and we

510
00:37:18,530 --> 00:37:16,620
use this but don't cause it's available

511
00:37:20,270 --> 00:37:18,540
clubs are their own we find a spot that

512
00:37:22,040 --> 00:37:20,280
we really need something stops now

513
00:37:24,410 --> 00:37:22,050

opening up one of our personal hygiene

514

00:37:27,080 --> 00:37:24,420

kits it has our razors and shampoo and

515

00:37:27,890 --> 00:37:27,090

soap all the things normally keep in

516

00:37:30,050 --> 00:37:27,900

your bathroom

517

00:37:31,990 --> 00:37:30,060

we keep spinoffs pillow box like this or

518

00:37:34,100 --> 00:37:32,000

other means I'll show you later

519

00:37:36,290 --> 00:37:34,110

this is a different way of keeping your

520

00:37:38,990 --> 00:37:36,300

personal hygiene items together front a

521

00:37:40,520 --> 00:37:39,000

long belt that has don't go on the back

522

00:37:42,260 --> 00:37:40,530

of it so you can throw it to the wall

523

00:37:44,630 --> 00:37:42,270

where you're working when you're

524

00:37:48,140 --> 00:37:44,640

cleaning up and all the add ups go into

525

00:37:50,150 --> 00:37:48,150

elastic on them so it's fairly well it

526
00:37:52,850 --> 00:37:50,160
doesn't contain them quite as readily as

527
00:37:55,940 --> 00:37:52,860
the other type but it puts it all out

528
00:37:57,650 --> 00:37:55,950
easily available for you to use and you

529
00:37:59,000 --> 00:37:57,660
can feed a little bit better it's just

530
00:38:00,849 --> 00:37:59,010
personal choice which one you want to

531
00:38:03,349 --> 00:38:00,859
use

532
00:38:08,079 --> 00:38:03,359
this is a very large fact that we have

533
00:38:11,900 --> 00:38:08,089
inside the airlock it's a soft bag and

534
00:38:13,970 --> 00:38:11,910
inside it are about ten smaller banks

535
00:38:15,230 --> 00:38:13,980
ten or twelve smaller bags and each of

536
00:38:16,609 --> 00:38:15,240
the bags are color code is you know

537
00:38:19,910 --> 00:38:16,619
which is yours there's mine it's got

538
00:38:22,400 --> 00:38:19,920

blue on it that's my color and inside

539

00:38:25,730 --> 00:38:22,410

this bag I have all of my extra

540

00:38:28,250 --> 00:38:25,740

underwear and key shirts and a couple of

541

00:38:33,200 --> 00:38:28,260

other kinds of church now let's see what

542

00:38:37,670 --> 00:38:33,210

one of them is oh that's right this is

543

00:38:39,050 --> 00:38:37,680

an army production I forgot I'm going to

544

00:38:43,870 --> 00:38:39,060

show you some of the storage in our

545

00:38:46,370 --> 00:38:43,880

waste control compartment our bathroom

546

00:38:49,490 --> 00:38:46,380

back over here you see some of the

547

00:38:50,599 --> 00:38:49,500

containers the places on the friday the

548

00:38:52,700 --> 00:38:50,609

little black things those are where we

549

00:38:55,040 --> 00:38:52,710

store our clothes and towels they're

550

00:38:56,630 --> 00:38:55,050

rubber and they have a slot in them you

551
00:38:58,309 --> 00:38:56,640
push through wash off the minute they

552
00:39:02,000 --> 00:38:58,319
stay and very well to dry out before you

553
00:39:03,950 --> 00:39:02,010
put them in the dirty clothes we also

554
00:39:05,750 --> 00:39:03,960
have several top mention the fact that

555
00:39:15,740 --> 00:39:05,760
we stole a lot of our equipment that we

556
00:39:19,160 --> 00:39:18,470
here you see our containers for your

557
00:39:21,560 --> 00:39:19,170
health

558
00:39:24,829 --> 00:39:21,570
we have why those for each of us what

559
00:39:27,109 --> 00:39:24,839
calls are stowed in here I'll show you

560
00:39:29,630 --> 00:39:27,119
how we put one of those up on the wall

561
00:39:32,359 --> 00:39:29,640
it goes right in very nice way in its

562
00:39:34,190 --> 00:39:32,369
face foot we keep it all color-coded so

563
00:39:35,720 --> 00:39:34,200

that we can keep our own washcloths

564

00:39:44,510 --> 00:39:35,730

separate from the others here's a towel

565

00:39:47,990 --> 00:39:44,520

compartment and over on the other side

566

00:39:50,750 --> 00:39:48,000

we're all wet trash after we've used the

567

00:39:52,910 --> 00:39:50,760

bathroom sometimes we have the boys side

568

00:39:55,940 --> 00:39:52,920

up special storage we put them in a bag

569

00:39:58,520 --> 00:39:55,950

there here's our dry white toilet paper

570

00:40:00,740 --> 00:39:58,530

and once there's used to go in that a

571

00:40:03,069 --> 00:40:00,750

can which we then close up at the top

572

00:40:05,630 --> 00:40:03,079

and we put into our wet waste container

573

00:40:08,000 --> 00:40:05,640

it has a continual airflow through it so

574

00:40:09,470 --> 00:40:08,010

that the odors are contained there I'm

575

00:40:11,720 --> 00:40:09,480

going to show you some of the things we

576

00:40:14,030 --> 00:40:11,730

have to contend with when we use up some

577

00:40:15,920 --> 00:40:14,040

of our particles and space and get rid

578

00:40:17,750 --> 00:40:15,930

of them we find it easier to put a

579

00:40:19,160 --> 00:40:17,760

little plastic bag on the front with

580

00:40:20,780 --> 00:40:19,170

some velcro and fill it up with our

581

00:40:23,329 --> 00:40:20,790

trash as we go by so they don't have to

582

00:40:25,040 --> 00:40:23,339

open it all the time so we just put

583

00:40:28,550 --> 00:40:25,050

things in there keep it filled up like

584

00:40:31,309 --> 00:40:28,560

this we'll have a piece of ply piece of

585

00:40:32,720 --> 00:40:31,319

paper that he wants to put away we'll

586

00:40:34,309 --> 00:40:32,730

put it inside the plastic bag because

587

00:40:40,569 --> 00:40:34,319

it's very convenient just to go by and

588

00:40:52,880 --> 00:40:43,069

once it's full we open up the trash

589

00:40:57,380 --> 00:40:52,890

compactor it has an easy access door it

590

00:40:58,790 --> 00:40:57,390

normally is very easy to open the

591

00:40:59,839 --> 00:40:58,800

compunctious gets a little bit full and

592

00:41:03,680 --> 00:40:59,849

was jamming it a little bit there and

593

00:41:05,870 --> 00:41:03,690

then there's a access front it's kind of

594

00:41:07,040 --> 00:41:05,880

a diaphragm that has slots in it and you

595

00:41:08,900 --> 00:41:07,050

can just push your food in there there

596

00:41:11,000 --> 00:41:08,910

so you don't have to pull it off and put

597

00:41:13,579 --> 00:41:11,010

it back on for you just push the waste

598

00:41:15,680 --> 00:41:13,589

into it and we can continue to push it

599

00:41:29,760 --> 00:41:15,690

up in there quite some time until the

600

00:41:39,250 --> 00:41:32,530

then he closes up the door and he locks

601
00:41:42,100 --> 00:41:39,260
it set we know all of the waste bit we

602
00:41:44,740 --> 00:41:42,110
heard from our feels for a full day for

603
00:41:46,150 --> 00:41:44,750
six of us plus I think a little bit for

604
00:41:47,680 --> 00:41:46,160
this morning that we had so we have

605
00:41:49,240 --> 00:41:47,690
quite a bit of trash inside there now

606
00:41:50,320 --> 00:41:49,250
and we could have put a lot more in

607
00:41:53,980 --> 00:41:50,330
there but just so we could demonstrate

608
00:41:55,720 --> 00:41:53,990
it for you we divide the grapes compact

609
00:41:58,390 --> 00:41:55,730
for your thoughts on how usually the

610
00:42:00,190 --> 00:41:58,400
handles come off go back on and then

611
00:42:01,720 --> 00:42:00,200
he's gonna compact it for us you adjust

612
00:42:04,180 --> 00:42:01,730
the handle so that they will now be in a

613
00:42:07,360 --> 00:42:04,190

pageant mode and he's gonna start

614

00:42:10,540 --> 00:42:07,370

cranking away on it it takes the box

615

00:42:13,660 --> 00:42:10,550

sixty portions of the handles in order

616

00:42:15,060 --> 00:42:13,670

to fully of course the garbage inside

617

00:42:17,140 --> 00:42:15,070

there

618

00:42:18,670 --> 00:42:17,150

turn the back off it give you a little

619

00:42:21,700 --> 00:42:18,680

bit better view of how tom has to place

620

00:42:27,820 --> 00:42:21,710

themselves to secure itself in place

621

00:42:28,810 --> 00:42:27,830

while he's compacting it has to back off

622

00:42:30,070 --> 00:42:28,820

just a little bit he had so much

623

00:42:31,540 --> 00:42:30,080

pressure on it he could get the door

624

00:42:33,480 --> 00:42:31,550

open please that's awful it will relieve

625

00:42:36,760 --> 00:42:33,490

the pressure and I can pull the bag out

626

00:42:38,830 --> 00:42:36,770

it's all squished down has that full

627

00:42:41,410 --> 00:42:38,840

day's worth of six people's garbage in

628

00:42:43,660 --> 00:42:41,420

there pull these straws out that then

629

00:42:46,020 --> 00:42:43,670

will hold the plastic bag and it not let

630

00:42:49,390 --> 00:42:46,030

it expand back out to its former shape

631

00:42:51,490 --> 00:42:49,400

so you pull the whole thing up there's

632

00:42:56,590 --> 00:42:51,500

all of our trash for entire day closest

633

00:42:58,090 --> 00:42:56,600

of all let me show you the flight deck

634

00:42:59,590 --> 00:42:58,100

we also have to store a lot of things up

635

00:43:01,090 --> 00:42:59,600

here you can see all the books and

636

00:43:03,430 --> 00:43:01,100

papers that's are pointing molal up

637

00:43:06,820 --> 00:43:03,440

there on the front front of said seat

638

00:43:09,670 --> 00:43:06,830

all about procedural books maps the PGS

639

00:43:12,640 --> 00:43:09,680

see our good computer at their stove

640

00:43:14,440 --> 00:43:12,650

between the windows Tom's got the good

641

00:43:17,080 --> 00:43:14,450

photograph of his three children up

642

00:43:20,250 --> 00:43:17,090

there right above his feet some old

643

00:43:23,220 --> 00:43:20,260

messages that we got from the ground

644

00:43:24,440 --> 00:43:23,230

we have a tape for our VTR over on the

645

00:43:26,790 --> 00:43:24,450

wall

646

00:43:28,950 --> 00:43:26,800

now we stole things just about any place

647

00:43:30,960 --> 00:43:28,960

that we can on the walls on the floor on

648

00:43:33,630 --> 00:43:30,970

the ceiling this is where the teres gap

649

00:43:35,190 --> 00:43:33,640

equipment goes all the extra binoculars

650

00:43:37,770 --> 00:43:35,200

and other equipment that Tom uses for

651
00:43:41,130 --> 00:43:37,780
his observations or messages from the

652
00:43:43,560 --> 00:43:41,140
ground war flight data fall this is

653
00:43:45,270 --> 00:43:43,570
where we store story we put him up in a

654
00:44:00,970 --> 00:43:45,280
window with a couple of Hasselblad's in

655
00:44:08,170 --> 00:44:06,350
papito was prepared by give us and table

656
00:44:11,090 --> 00:44:08,180
tennis while the rest of us were busy

657
00:44:12,920 --> 00:44:11,100
they were slaving over the oven and in

658
00:44:15,160 --> 00:44:12,930
the kitchen for hours and prepares the

659
00:44:18,020 --> 00:44:15,170
scrumptious feel of searching for gravy

660
00:44:22,100 --> 00:44:18,030
some noodles we had fresh cranberry

661
00:44:24,920 --> 00:44:22,110
sauce and some pumpkin to light all the

662
00:44:25,610 --> 00:44:24,930
fixings of Thanksgiving the traditional

663
00:44:28,310 --> 00:44:25,620

Thanksgiving

664

00:44:30,770 --> 00:44:28,320

the only thing absent was family and

665

00:44:37,730 --> 00:44:30,780

friends but you're with us in our hearts

666

00:44:41,530 --> 00:44:37,740

thank you as we go hey chip what we've

667

00:44:44,840 --> 00:44:41,540

got coming up for you is a corn quarter

668

00:44:48,620 --> 00:44:44,850

founded in the soldiers have you'll see

669

00:45:12,519 --> 00:44:48,630

shrimp on doing I'll allow the home

670

00:45:18,819 --> 00:45:15,759

we bought in with towels we cleaned up

671

00:45:22,329 --> 00:45:18,829

our two cups of water

672

00:45:26,709 --> 00:45:22,339

there was about one cup off the filter

673

00:46:31,630 --> 00:45:26,719

on upset Bravo what we're going to

674

00:46:34,779 --> 00:46:31,640

prevent again this is what just what

675

00:46:38,769 --> 00:46:34,789

this is Atlantis due to proximity of

676
00:46:45,039 --> 00:46:38,779
super typhoon Nuri Saipan Tinian Sun

677
00:47:00,400 --> 00:46:45,049
visible over regret DBC not possible

678
00:47:14,210 --> 00:47:00,410
from your enjoy your meal Happy

679
00:47:21,750 --> 00:47:17,160
here's the marathon with you in the

680
00:47:27,839 --> 00:47:21,760
narvik-a 35 of 8.1 Bravo when you're

681
00:47:30,630 --> 00:47:27,849
ready on the I of you Fred that is not

682
00:47:32,609 --> 00:47:30,640
required we're still pulling the data to

683
00:47:34,800 --> 00:47:32,619
determine exactly what the problem is

684
00:47:39,480 --> 00:47:34,810
with IMU we don't need you to run the

685
00:47:41,760 --> 00:47:39,490
malfunction procedures okay I think

686
00:47:47,400 --> 00:47:41,770
everything on here is check with MCC

687
00:47:56,310 --> 00:47:47,410
anyway Roger that Atlantis Houston for

688
00:47:58,530 --> 00:47:56,320

Fred Fred we want to have ideas on IMU -

689

00:48:02,099 --> 00:47:58,540

we see problems both with the attitude

690

00:48:05,040 --> 00:48:02,109

and a velocity we have declared IMU -

691

00:48:08,250 --> 00:48:05,050

failed we want you to leave it powered

692

00:48:10,670 --> 00:48:08,260

on for now and we're still discussing

693

00:48:13,890 --> 00:48:10,680

the implications of that failure and

694

00:48:18,480 --> 00:48:13,900

we'll get back with you and we we have a

695

00:48:21,230 --> 00:48:18,490

plan we're at a mission elapsed time of

696

00:48:25,470 --> 00:48:21,240

5 days 16 hours and 41 minutes

697

00:48:28,079 --> 00:48:25,480

Capcom Jan Davis has just informed the

698

00:48:30,990 --> 00:48:28,089

crew that inertial measurement unit 2 is

699

00:48:34,820 --> 00:48:31,000

failed the flight control team is still

700

00:48:37,320 --> 00:48:34,830

in the process of discussing and

701

00:48:43,920 --> 00:48:37,330

analyzing any impacts they make that may

702

00:48:46,320 --> 00:48:43,930

have by James II given this FPC 2 & 3

703

00:48:47,540 --> 00:48:46,330

traces that you gave me up here to an

704

00:48:49,320 --> 00:48:47,550

eagle

705

00:48:51,690 --> 00:48:49,330

be sure you want to leave this guy

706

00:48:53,430 --> 00:48:51,700

powered on well flight that's um that's

707

00:48:55,740 --> 00:48:53,440

a good question to ask we've been

708

00:48:58,859 --> 00:48:55,750

talking to Eagle folks the comforting

709

00:49:02,280 --> 00:48:58,869

data from that is that the IMU is not

710

00:49:04,200 --> 00:49:02,290

pulling any more current than it did

711

00:49:07,740 --> 00:49:04,210

prior to the failure and no more than we

712

00:49:10,070 --> 00:49:07,750

would expect from nominal operation so

713

00:49:12,390 --> 00:49:10,080

we don't believe it's an internal short

714

00:49:14,579 --> 00:49:12,400

in the box or anything that would cause

715

00:49:15,780 --> 00:49:14,589

sparking or anything else if that were

716

00:49:23,140 --> 00:49:15,790

the case and I agree we would absolutely

717

00:49:28,010 --> 00:49:26,090

at this point or you go with it yeah at

718

00:49:29,780 --> 00:49:28,020

this point I'm not real concerned we're

719

00:49:31,460 --> 00:49:29,790

still looking into it I didn't see

720

00:49:34,700 --> 00:49:31,470

anything in those traces that really

721

00:49:36,790 --> 00:49:34,710

gave me any heartache looked like a

722

00:49:38,630 --> 00:49:36,800

power shift something eternal to the

723

00:49:43,040 --> 00:49:38,640

unit I didn't see anything that

724

00:49:46,340 --> 00:49:43,050

indicated short thing that would make me

725

00:49:48,830 --> 00:49:46,350

uncomfortable at this time ímu one and

726

00:49:50,210 --> 00:49:48,840

three are working and their performance

727

00:50:05,050 --> 00:49:50,220

throughout the mission has been

728

00:50:11,810 --> 00:50:09,530

Fred Fred we've been consulting with the

729

00:50:15,110 --> 00:50:11,820

management team we're all at a consensus

730

00:50:16,460 --> 00:50:15,120

that we are declaring an MDS due to the

731

00:50:19,880 --> 00:50:16,470

failure of the IMU

732

00:50:23,240 --> 00:50:19,890

we also require a lake bed landing the

733

00:50:26,060 --> 00:50:23,250

first entry opportunity will have is for

734

00:50:28,670 --> 00:50:26,070

tomorrow we're looking at the weather it

735

00:50:43,760 --> 00:50:28,680

Edwards now to see if we can in fact do

736

00:50:51,239 --> 00:50:43,770

that tomorrow look okay stand by -

737

00:50:56,199 --> 00:50:53,650

this is Mission Control Houston this

738

00:50:59,890 --> 00:50:56,209

view of what's left of the eye of the

739

00:51:02,170 --> 00:50:59,900

storm of typhoon yuri typhoon yuri has

740

00:51:03,999 --> 00:51:02,180

officially been classified down

741

00:51:08,049 --> 00:51:04,009

classified now to an extra tropical

742

00:51:11,410 --> 00:51:08,059

storm it still got winds from 80 miles

743

00:51:13,359 --> 00:51:11,420

per hour gusting up to 105 at one point

744

00:51:16,449 --> 00:51:13,369

earlier in the flight had a very

745

00:51:22,569 --> 00:51:16,459

well-defined I stretching 15 to 20 miles

746

00:52:47,089 --> 00:51:22,579

across and winds up to from 150 to 180

747

00:52:52,699 --> 00:52:50,539

hey Atlantis Houston you've got a go for

748

00:52:54,589 --> 00:52:52,709

the deorbit burn we'll have a final

749

00:52:57,019 --> 00:52:54,599

runway selection between 4:00 or 5:00

750

00:54:13,890 --> 00:52:57,029

for you shortly and your go-to maneuver

751
00:54:13,900 --> 00:54:23,720
this camera's heavy

752
00:54:30,540 --> 00:54:26,730
fight fight oh go ahead non-voice in

753
00:54:33,870 --> 00:54:30,550
position and ready to support okay slide

754
00:54:35,820 --> 00:54:33,880
Chauncey go ahead I'll have a OS by then

755
00:54:40,490 --> 00:54:35,830
but the e i- twenty-second very actuator

756
00:54:46,680 --> 00:54:42,950
essentially at zero nine zero eleven

757
00:54:52,490 --> 00:54:46,690
eleven okay that's right and his

758
00:54:55,260 --> 00:54:52,500
Energy's nominal now fly Roger good okay

759
00:54:57,240 --> 00:54:55,270
Atlantis Houston we see on energy

760
00:55:00,180 --> 00:54:57,250
approaching the hack surface winds are

761
00:55:07,920 --> 00:55:00,190
now zero-niner-zero at eleven Gustav

762
00:55:10,320 --> 00:55:07,930
thirteen that call indicates that

763
00:55:12,330 --> 00:55:10,330

Atlantis speed is perfectly normal as it

764

00:55:13,800 --> 00:55:12,340

begins a right overhead turn around the

765

00:55:17,250 --> 00:55:13,810

heading alignment cylinder to the line

766

00:55:21,030 --> 00:55:17,260

with runway zero five this view shows

767

00:55:24,240 --> 00:55:21,040

Atlantis with wings angled in a bank to

768

00:55:28,800 --> 00:55:24,250

the right at 42 degrees altitude 48,000

769

00:55:49,130 --> 00:55:28,810

feet Atlantis airspeed now 207 knots

770

00:55:52,759 --> 00:55:50,720

that guidance navigation and control

771

00:55:54,589 --> 00:55:52,769

officer reports commander Fred Gregory

772

00:55:57,740 --> 00:55:54,599

has now taken the manual control of

773

00:56:04,970 --> 00:55:57,750

Atlantis Atlantis Houston on energy at

774

00:56:07,400 --> 00:56:04,980

the 270 that call indicates Atlantis

775

00:56:09,319 --> 00:56:07,410

speed remains looking very good as it

776

00:56:11,329 --> 00:56:09,329

has 270 degrees left to go and it's

777

00:56:14,569 --> 00:56:11,339

right to turn to align with runway zero

778

00:56:17,750 --> 00:56:14,579

five altitude now 31,000 feet airspeed

779

00:56:36,549 --> 00:56:17,760

263 knots range to touchdown 16 nautical

780

00:56:36,559 --> 00:56:45,190

Atlanta Houston slightly low as the 180

781

00:56:52,640 --> 00:56:47,630

Atlanta Houston disregard the brake

782

00:56:55,220 --> 00:56:52,650

pressure message who told the disregard

783

00:56:58,760 --> 00:56:55,230

a message about break pressure as a

784

00:57:02,450 --> 00:56:58,770

false message altitude now 7,000 100

785

00:57:06,500 --> 00:57:02,460

feet for miles to touchdown airspeed 200

786

00:57:22,740 --> 00:57:06,510

9 knots Atlantis aligning with the

787

00:57:22,750 --> 00:57:54,490

altitude 3,000 feet

788

00:57:54,500 --> 00:58:17,160

landing gear down main gear touchdown

789

00:59:03,780 --> 00:58:20,589

Atlantis will roll out without breaking

790

00:59:28,039 --> 00:59:06,750

before we get to the roadway

791

00:59:31,890 --> 00:59:29,819

roger wheelstop