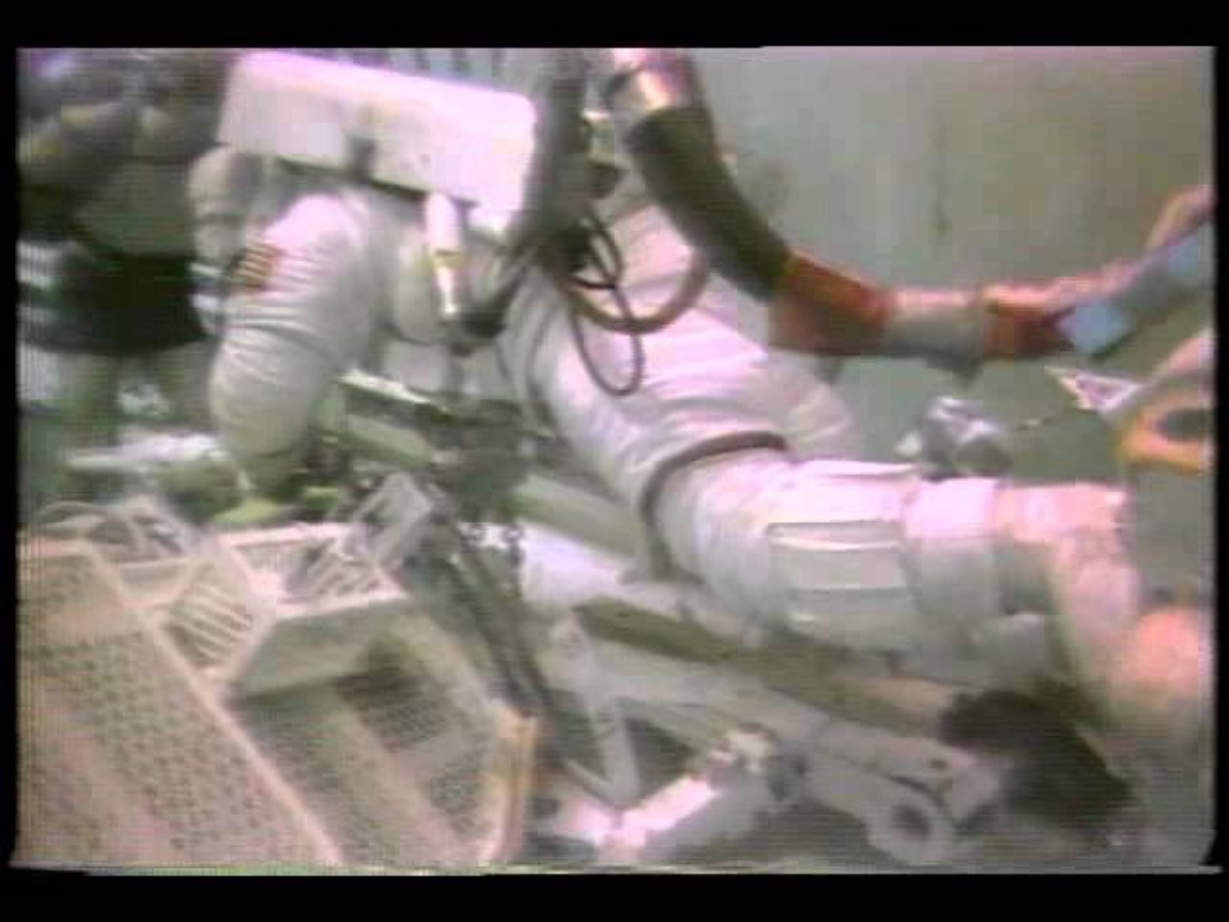

1
00:00:22,240 --> 00:00:38,470
foreign

2
00:00:43,910 --> 00:00:41,670
t minus 30 seconds and counting

3
00:00:48,229 --> 00:00:43,920
the srb hydraulic power units have been

4
00:00:52,709 --> 00:00:51,110
t minus 20 seconds the sequencer and the

5
00:00:58,389 --> 00:00:52,719
orbiter now controlling the final

6
00:01:02,869 --> 00:01:00,549
t minus 10 we're go for main engine

7
00:01:05,750 --> 00:01:02,879
start eight seven

8
00:01:07,270 --> 00:01:05,760
six we have main engine start

9
00:01:08,149 --> 00:01:07,280
four three

10
00:01:11,190 --> 00:01:08,159
two

11
00:01:14,190 --> 00:01:11,200
one and liftoff liftoff

12
00:01:16,870 --> 00:01:14,200
of the space shuttle discovery on the

13
00:01:20,950 --> 00:01:16,880

61m mission

14
00:01:24,630 --> 00:01:23,109
discovery rolling around into the

15
00:01:26,950 --> 00:01:24,640
correct azimuth

16
00:01:29,109 --> 00:01:26,960
which is new east

17
00:01:31,749 --> 00:01:29,119
to get a um

18
00:01:44,710 --> 00:01:31,759
equatorial inclination of 28.5 degrees

19
00:01:50,630 --> 00:01:47,910
all three apu's spooling up at around 73

20
00:02:02,709 --> 00:01:50,640
000 rpm

21
00:02:02,719 --> 00:02:12,630
100 feet per second velocity

22
00:02:12,640 --> 00:02:18,630
seven and a half miles altitude

23
00:02:23,430 --> 00:02:20,830
discovery houston throttle

24
00:02:44,070 --> 00:02:23,440
up all three main engines are back up to

25
00:02:44,080 --> 00:02:51,030
altitude 23 miles

26
00:02:51,040 --> 00:03:03,270
13 miles downrange

27
00:03:18,149 --> 00:03:06,470
coming up on 4 000 feet per second

28
00:03:30,229 --> 00:03:20,949
main engines still holding in at 104

29
00:03:34,550 --> 00:03:32,229
discovery houston performance nominal to

30
00:03:39,509 --> 00:03:34,560
engine to car capability

31
00:03:54,869 --> 00:03:41,830
solid rocket booster separation

32
00:04:00,630 --> 00:03:57,589
auxiliary power units still

33
00:04:03,509 --> 00:04:00,640
running at slightly over 100 percent

34
00:04:05,670 --> 00:04:03,519
performance levels each

35
00:04:06,789 --> 00:04:05,680
fuel cells

36
00:04:08,550 --> 00:04:06,799
generating

37
00:04:17,830 --> 00:04:08,560
in excess of seven

38
00:04:36,150 --> 00:04:20,789

velocity 5400 feet per second downrange

39
00:04:40,230 --> 00:04:37,590
yeah roger

40
00:04:42,070 --> 00:04:40,240
regarding loop water loop two we're

41
00:04:43,909 --> 00:04:42,080
thinking now it might be a degraded pump

42
00:04:45,189 --> 00:04:43,919
and before we give you a go for orbit

43
00:04:47,030 --> 00:04:45,199
ops we're going to come up to you with a

44
00:04:50,390 --> 00:04:47,040
little checkout procedure to

45
00:04:54,390 --> 00:04:50,400
determine its flow capability

46
00:04:58,469 --> 00:04:56,870
25 minutes until

47
00:05:01,270 --> 00:04:58,479
acquisition through the tracking

48
00:05:10,070 --> 00:05:02,629
and

49
00:05:14,629 --> 00:05:12,310
at hawaii the

50
00:05:15,350 --> 00:05:14,639
crew of discovery will run a check of

51
00:05:18,950 --> 00:05:15,360
the

52
00:05:20,550 --> 00:05:18,960
water coolant loop number two which uh

53
00:05:23,830 --> 00:05:20,560
some of the systems controllers here

54
00:05:26,310 --> 00:05:23,840
believe has a fault in it

55
00:05:27,749 --> 00:05:26,320
bay door opening has been delayed until

56
00:05:29,909 --> 00:05:27,759
after

57
00:05:35,830 --> 00:05:29,919
that water loop can be uh checked out

58
00:05:40,710 --> 00:05:37,029
at

59
00:05:43,350 --> 00:05:40,720
one hour and 59 seconds

60
00:05:48,790 --> 00:05:43,360
one hour and one minute

61
00:05:55,270 --> 00:05:50,629
discovery houston with you at hawaii for

62
00:05:59,270 --> 00:05:56,790
roger mike and we'd like you to get onto

63
00:06:02,710 --> 00:05:59,280

the water pump loop two procedure there

64
00:06:07,110 --> 00:06:05,110
you're watching it i'm gonna go manual

65
00:06:10,950 --> 00:06:07,120
decrease on loop 2 for 20 seconds you're

66
00:06:13,990 --> 00:06:12,550
roger and confirm we've got

67
00:06:20,870 --> 00:06:14,000
loop 2 on and

68
00:06:30,150 --> 00:06:24,629
got that now and uh

69
00:06:39,110 --> 00:06:32,070
roger mike we are watching you've got to

70
00:06:43,430 --> 00:06:41,909
discovery houston

71
00:06:45,270 --> 00:06:43,440
go ahead

72
00:06:47,110 --> 00:06:45,280
roger mike you have a go for payload bay

73
00:06:49,270 --> 00:06:47,120
door ops and

74
00:06:51,189 --> 00:06:49,280
we'll like we'd like to leave loop two

75
00:06:58,790 --> 00:06:51,199
running as is

76
00:07:03,830 --> 00:07:00,870
and discovery uh in case that wasn't

77
00:07:17,510 --> 00:07:03,840
clear you have a go for orbit ops

78
00:07:24,390 --> 00:07:21,670
discovery we're on page 3-3 step 2

79
00:07:26,230 --> 00:07:24,400
of the ios checklist we're standing by

80
00:07:28,550 --> 00:07:26,240
for your go to transfer to internal

81
00:07:33,350 --> 00:07:28,560
power and proceed with the pre-deployed

82
00:07:37,029 --> 00:07:35,270
okay we copy that uh jim we can't

83
00:07:39,670 --> 00:07:37,039
proceed without data and you're in fixed

84
00:07:44,469 --> 00:07:42,150
uh be advised also that

85
00:07:46,469 --> 00:07:44,479
in the process of elevating

86
00:07:48,870 --> 00:07:46,479
we got up to about it looks like about

87
00:07:52,710 --> 00:07:48,880
20 degrees elevation

88
00:07:53,749 --> 00:07:52,720

and we've had a stop in motion

89
00:07:55,830 --> 00:07:53,759
and

90
00:07:59,189 --> 00:07:55,840
when the process of working the

91
00:08:01,189 --> 00:07:59,199
malfunction at this time

92
00:08:03,270 --> 00:08:01,199
and we'll go ahead and cycle uh

93
00:08:04,790 --> 00:08:03,280
cycle the uh drive enable and try to

94
00:08:06,629 --> 00:08:04,800
re-elevate it

95
00:08:08,710 --> 00:08:06,639
but at this time we're stuck at about 20

96
00:08:10,550 --> 00:08:08,720
degrees

97
00:08:12,950 --> 00:08:10,560
okay jim we uh copy that you're stuck at

98
00:08:14,790 --> 00:08:12,960
20 degrees

99
00:08:17,350 --> 00:08:14,800
the sand has just run out on an answer

100
00:08:19,350 --> 00:08:17,360
to your primary power to the pcp

101
00:08:21,350 --> 00:08:19,360
fill tables jam the only thing we can do

102
00:08:22,710 --> 00:08:21,360
is disengage the secondary actuator and

103
00:08:27,029 --> 00:08:22,720
engage the primary if you think we've

104
00:08:31,990 --> 00:08:30,550
our alternative is doing an eva

105
00:08:34,790 --> 00:08:32,000
what we're planning on doing you have a

106
00:08:36,870 --> 00:08:34,800
goal to restore stow the ius for tonight

107
00:08:40,070 --> 00:08:36,880
we would like for you to perform the

108
00:08:43,430 --> 00:08:40,080
resto ius umbilical attach procedures we

109
00:08:44,470 --> 00:08:43,440
would like for you to delete steps two

110
00:08:45,509 --> 00:08:44,480
three

111
00:08:48,550 --> 00:08:45,519
five

112
00:08:49,350 --> 00:08:48,560
and six i'll repeat those delete steps

113
00:08:50,230 --> 00:08:49,360

two

114
00:08:52,230 --> 00:08:50,240
three

115
00:08:56,870 --> 00:08:52,240
five and six

116
00:09:00,150 --> 00:08:56,880
perform step four using the ius pi link

117
00:09:01,269 --> 00:09:00,160
and on step eight do not latch perla

118
00:09:03,350 --> 00:09:01,279
number two

119
00:09:06,550 --> 00:09:03,360
over

120
00:09:07,750 --> 00:09:06,560
what you all are thinking here for

121
00:09:10,070 --> 00:09:07,760
tomorrow

122
00:09:11,910 --> 00:09:10,080
we are planning uh contingency eva for

123
00:09:13,670 --> 00:09:11,920
18a tomorrow

124
00:09:15,269 --> 00:09:13,680
and we're going to leave you here at

125
00:09:16,470 --> 00:09:15,279
tdrs we're going to go los we'll pick

126
00:09:19,750 --> 00:09:16,480
you up

127
00:09:22,310 --> 00:09:19,760
guam at 5 51.

128
00:09:23,829 --> 00:09:22,320
okay i understand that we'll get the

129
00:09:25,750 --> 00:09:23,839
resto in work and then get the

130
00:09:28,949 --> 00:09:25,760
pre-breathing

131
00:09:33,350 --> 00:09:31,509
the crew has been instructed to restore

132
00:09:36,230 --> 00:09:33,360
the tracking data relay satellite

133
00:09:38,710 --> 00:09:36,240
inertial upper stage combination after

134
00:09:42,710 --> 00:09:38,720
an unsuccessful attempt to deploy that

135
00:09:46,150 --> 00:09:44,470
during the

136
00:09:48,550 --> 00:09:46,160
pre-deployment checkout a number of

137
00:09:50,710 --> 00:09:48,560
problems were encountered including the

138
00:09:53,829 --> 00:09:50,720

hardline command link between the

139
00:09:56,470 --> 00:09:53,839
orbiter and the inertial upper stage

140
00:09:58,470 --> 00:09:56,480
the backup radio frequency command link

141
00:09:59,990 --> 00:09:58,480
would be used

142
00:10:01,990 --> 00:10:00,000
additionally the crew encountered a

143
00:10:03,430 --> 00:10:02,000
problem with being unable to elevate the

144
00:10:05,910 --> 00:10:03,440
tilt table

145
00:10:10,550 --> 00:10:05,920
beyond 20 degrees to its 45 degree

146
00:10:15,269 --> 00:10:13,190
and being unable to solve those problems

147
00:10:16,829 --> 00:10:15,279
today the crew has been instructed to

148
00:10:21,670 --> 00:10:16,839
restore

149
00:10:25,030 --> 00:10:21,680
that ius tdrs combination for the day

150
00:10:27,190 --> 00:10:25,040
and to begin contingency eva

151
00:10:29,110 --> 00:10:27,200
procedures which

152
00:10:31,750 --> 00:10:29,120
must be done at this time if the option

153
00:10:33,430 --> 00:10:31,760
is to be retained for a possible space

154
00:10:35,670 --> 00:10:33,440
walk tomorrow to

155
00:10:37,269 --> 00:10:35,680
repair the tilt table or

156
00:10:40,389 --> 00:10:37,279
any other procedures that must be done

157
00:10:42,069 --> 00:10:40,399
in the payload bay to

158
00:11:03,509 --> 00:10:42,079
make possible the deployment of the

159
00:11:03,519 --> 00:11:09,269
discovery houston good morning

160
00:11:15,670 --> 00:11:11,190
discovery uh we're all listening now

161
00:11:20,870 --> 00:11:18,389
the game plan goes like this we think

162
00:11:21,910 --> 00:11:20,880
we have considered through the evening

163
00:11:24,470 --> 00:11:21,920

options

164
00:11:27,030 --> 00:11:24,480
both in the ifm world

165
00:11:30,230 --> 00:11:27,040
looking at jumpering power to the

166
00:11:33,110 --> 00:11:30,240
primary side of the pcp tilt table

167
00:11:36,069 --> 00:11:33,120
switches directly with the breakout box

168
00:11:37,990 --> 00:11:36,079
and we've also assessed eva options

169
00:11:41,990 --> 00:11:38,000
all aimed towards getting the tilt table

170
00:11:45,750 --> 00:11:42,000
up to a minimum safe deploy angle

171
00:11:47,670 --> 00:11:45,760
all that deliberation on the pcp ifm and

172
00:11:50,150 --> 00:11:47,680
many discussions with sunnyvale

173
00:11:52,550 --> 00:11:50,160
concerning pin assignments and so forth

174
00:11:54,230 --> 00:11:52,560
have led us at this time to drop that

175
00:11:56,550 --> 00:11:54,240
from our consideration

176
00:11:59,269 --> 00:11:56,560
we don't have a final go from sunnyvale

177
00:12:00,069 --> 00:11:59,279
on that being viable and on that option

178
00:12:02,550 --> 00:12:00,079
not

179
00:12:03,829 --> 00:12:02,560
introducing more hazards than it solves

180
00:12:05,990 --> 00:12:03,839
problems

181
00:12:08,629 --> 00:12:06,000
so we feel at this point

182
00:12:11,110 --> 00:12:08,639
that our only

183
00:12:13,110 --> 00:12:11,120
reasonable path towards getting an

184
00:12:14,710 --> 00:12:13,120
adequate tilt table angle is through the

185
00:12:16,949 --> 00:12:14,720
eva

186
00:12:19,350 --> 00:12:16,959
if you've taken a look at the manual

187
00:12:21,350 --> 00:12:19,360
after procedure

188
00:12:23,590 --> 00:12:21,360

you you'll notice that basically that

189
00:12:25,430 --> 00:12:23,600
amounts to

190
00:12:28,230 --> 00:12:25,440
providing a manual

191
00:12:30,310 --> 00:12:28,240
override to the broken handle

192
00:12:31,670 --> 00:12:30,320
and we think there are two possibilities

193
00:12:34,150 --> 00:12:31,680
there

194
00:12:36,829 --> 00:12:34,160
which we would like your input on

195
00:12:39,190 --> 00:12:36,839
one possibility involves

196
00:12:40,629 --> 00:12:39,200
proceeding through about step four of

197
00:12:43,030 --> 00:12:40,639
that procedure

198
00:12:45,590 --> 00:12:43,040
where you remove the the now broken

199
00:12:48,230 --> 00:12:45,600
handle and its mounting elements to the

200
00:12:50,069 --> 00:12:48,240
spring-loaded pin

201
00:12:52,310 --> 00:12:50,079
and the option at that point in the game

202
00:12:54,069 --> 00:12:52,320
is to consider just clamping a vice grip

203
00:12:55,910 --> 00:12:54,079
to that spring-loaded

204
00:12:58,470 --> 00:12:55,920
pin shaft

205
00:13:00,470 --> 00:12:58,480
and doing a two-hand job of holding the

206
00:13:02,949 --> 00:13:00,480
pin out of its detent with one hand

207
00:13:04,829 --> 00:13:02,959
while you manually raise the tilt table

208
00:13:06,949 --> 00:13:04,839
using the hand wheel with your other

209
00:13:08,790 --> 00:13:06,959
hand we looked at that here in the

210
00:13:10,470 --> 00:13:08,800
control center overnight

211
00:13:12,069 --> 00:13:10,480
it's only about a seven pound spring

212
00:13:13,910 --> 00:13:12,079
force on that pin

213
00:13:16,710 --> 00:13:13,920

and my impression was that you might

214
00:13:18,629 --> 00:13:16,720
very well be able to jam your hand on

215
00:13:20,389 --> 00:13:18,639
your right hand into a

216
00:13:21,590 --> 00:13:20,399
an angle there on the manual after

217
00:13:23,590 --> 00:13:21,600
assembly

218
00:13:26,710 --> 00:13:23,600
and basically restrain the pin out of

219
00:13:28,550 --> 00:13:26,720
detent while you raise the table

220
00:13:30,069 --> 00:13:28,560
should you decide at that point that

221
00:13:34,310 --> 00:13:30,079
doesn't look

222
00:13:35,509 --> 00:13:34,320
possible thing to do in the eva work

223
00:13:37,750 --> 00:13:35,519
environment

224
00:13:40,150 --> 00:13:37,760
then you can continue with the manual

225
00:13:41,590 --> 00:13:40,160
after ifm procedure as written and what

226
00:13:43,829 --> 00:13:41,600
you'll essentially do

227
00:13:45,750 --> 00:13:43,839
is completely remove the pin and its

228
00:13:47,829 --> 00:13:45,760
bushing and spring

229
00:13:49,829 --> 00:13:47,839
then reinstall the bushing providing a

230
00:13:51,750 --> 00:13:49,839
sleeve for the pip pin that's tethered

231
00:13:53,829 --> 00:13:51,760
on the manual after and you'll use that

232
00:13:55,990 --> 00:13:53,839
pip pin rather than

233
00:13:57,590 --> 00:13:56,000
the currently installed pin to restrain

234
00:13:59,590 --> 00:13:57,600
the table once you've gotten it elevated

235
00:14:01,110 --> 00:13:59,600
to the desired angle and of course

236
00:14:02,629 --> 00:14:01,120
you'll have to

237
00:14:04,629 --> 00:14:02,639
tether that pin in place with some

238
00:14:06,310 --> 00:14:04,639

velcro straps and we'd also recommend

239
00:14:07,829 --> 00:14:06,320
you tether the hand wheel to a fixed

240
00:14:08,629 --> 00:14:07,839
position

241
00:14:10,389 --> 00:14:08,639
so

242
00:14:12,629 --> 00:14:10,399
which of those options to pursue will be

243
00:14:14,150 --> 00:14:12,639
your call based on

244
00:14:39,670 --> 00:14:14,160
how you feel as you go through the

245
00:14:45,430 --> 00:14:41,590
go ahead and pull the uh

246
00:14:49,509 --> 00:14:47,030
okay

247
00:14:52,310 --> 00:14:49,519
you're lined up slip the pin back in

248
00:14:55,509 --> 00:14:53,670
if you can't see it let me know and i'll

249
00:14:56,870 --> 00:14:55,519
get it hey i'm working blindfold over

250
00:15:03,590 --> 00:14:56,880
here gemma

251
00:15:03,600 --> 00:15:10,389
that looks like it's got it about there

252
00:15:10,399 --> 00:15:15,030
all the way through not there it is okay

253
00:15:15,040 --> 00:15:18,470
and let me

254
00:15:18,480 --> 00:15:27,509
in this case we would uh

255
00:15:42,150 --> 00:15:30,150
okay line that uh get that sleeve all

256
00:15:49,990 --> 00:15:43,670
let me see if i can hold it there for

257
00:16:00,629 --> 00:15:52,069
bring the cutters out and everything bob

258
00:16:04,790 --> 00:16:03,030
okay run it down a little bit well if

259
00:16:05,990 --> 00:16:04,800
you get your if you get your left hand

260
00:16:09,910 --> 00:16:06,000
out of the way i can see a little bit

261
00:16:14,150 --> 00:16:11,670
bob as you're doing what you're doing uh

262
00:16:15,350 --> 00:16:14,160
how close are you to maybe thinking uh

263
00:16:19,030 --> 00:16:15,360

you're going to be winching trying to

264
00:16:28,470 --> 00:16:19,040
get it up but uh oh maybe

265
00:16:33,110 --> 00:16:30,069
uh well

266
00:16:34,710 --> 00:16:33,120
we've got two ribs per minute on a

267
00:16:40,949 --> 00:16:34,720
on a required

268
00:16:50,389 --> 00:16:42,550
okay well we're in position to start

269
00:16:55,590 --> 00:16:52,870
okay and uh anna just let you know we've

270
00:16:57,189 --> 00:16:55,600
uh got the aft locked in place and uh if

271
00:17:00,389 --> 00:16:57,199
you can't see it jim's starting to

272
00:17:00,399 --> 00:17:06,230
uh i'm just getting locked in here

273
00:17:06,240 --> 00:17:12,789
and we're starting her up

274
00:17:16,230 --> 00:17:14,549
okay and uh jim just a refresher we're

275
00:17:20,150 --> 00:17:16,240
gonna go to 29 degrees and then i'll cut

276
00:17:20,160 --> 00:17:37,029
it's looking real good

277
00:17:57,029 --> 00:17:38,549
got two marines out there not going to

278
00:18:02,070 --> 00:17:59,590
okay robert as soon as

279
00:18:04,549 --> 00:18:02,080
you put the uh anna if you guys have put

280
00:18:06,549 --> 00:18:04,559
the c camera on the protractor

281
00:18:07,990 --> 00:18:06,559
so you can see our elevation angle

282
00:18:10,630 --> 00:18:08,000
robert you're clear to go down there

283
00:18:22,230 --> 00:18:10,640
when you've got uh clearance and

284
00:18:22,240 --> 00:18:28,710
we see the protractor jim

285
00:18:28,720 --> 00:18:31,430
okay

286
00:18:36,549 --> 00:18:33,669
what's our elevation angle

287
00:18:37,750 --> 00:18:36,559
27 or so we're approaching 29 jump all

288
00:18:39,669 --> 00:18:37,760

right i'm going to hold here until

289
00:19:09,270 --> 00:18:39,679
robert's done with his teddy

290
00:19:15,029 --> 00:19:11,990
elevated to about 28 29 degrees

291
00:19:18,150 --> 00:19:15,039
uh we've had a forward rcs uh jet

292
00:19:20,710 --> 00:19:18,160
fail on looks like a false fail on us uh

293
00:19:22,390 --> 00:19:20,720
so we're on normal jets it's f5r

294
00:19:24,549 --> 00:19:22,400
we had that yesterday and we'd like to

295
00:19:29,110 --> 00:19:24,559
reselect it and try it again

296
00:19:33,909 --> 00:19:31,990
roger mike we company you're up to 28-29

297
00:19:50,710 --> 00:19:33,919
degrees with the ius we'll get back with

298
00:19:54,950 --> 00:19:52,470
roger mike just to let you know in the

299
00:19:57,990 --> 00:19:54,960
event that winch ops are needed to

300
00:19:59,750 --> 00:19:58,000
elevate the ius uh or anything else we

301
00:20:05,510 --> 00:19:59,760
have a teleprompter message coming up to

302
00:20:29,590 --> 00:20:07,830
okay we've got the uh shots unneeded you

303
00:20:42,310 --> 00:20:31,430
i switched back here so i can keep an

304
00:20:47,510 --> 00:20:44,710
well okay

305
00:20:49,350 --> 00:20:47,520
but your call will be close

306
00:20:51,110 --> 00:20:49,360
i should think

307
00:20:56,310 --> 00:20:51,120
um

308
00:21:00,870 --> 00:20:59,590
discovery uh we got a

309
00:21:02,070 --> 00:21:00,880
computer

310
00:21:04,390 --> 00:21:02,080
transmitter

311
00:21:06,549 --> 00:21:04,400
we assume you're doing the direct checks

312
00:21:14,390 --> 00:21:06,559
okay that looks like 45 i'm pretty much

313
00:21:14,400 --> 00:21:29,350

john or anna

314
00:21:34,149 --> 00:21:30,950
how's that look john

315
00:21:38,549 --> 00:21:34,159
hey you're right on 45 now so stop it's

316
00:21:41,830 --> 00:21:40,390
and houston

317
00:21:46,549 --> 00:21:41,840
we have the

318
00:21:51,270 --> 00:21:48,789
in discovery houston did we copy

319
00:21:53,270 --> 00:21:51,280
correctly that the pedros is at 45

320
00:21:55,190 --> 00:21:53,280
degrees at this time

321
00:21:59,430 --> 00:21:55,200
that's a formative bill that the

322
00:22:05,270 --> 00:21:59,440
ios is up at 45 degrees

323
00:22:09,350 --> 00:22:07,669
this is mission control houston

324
00:22:12,630 --> 00:22:09,360
acquisition through the tracking

325
00:22:15,270 --> 00:22:12,640
satellite expected momentarily

326
00:22:18,549 --> 00:22:15,280
and we're some 12 minutes away from

327
00:22:20,310 --> 00:22:18,559
deploying the second tdrs satellite from

328
00:22:23,190 --> 00:22:20,320
discovery

329
00:22:24,710 --> 00:22:23,200
and shortly after acquisition we should

330
00:22:27,990 --> 00:22:24,720
have a go

331
00:22:31,909 --> 00:22:30,470
and houston discovery we show the stage

332
00:22:34,870 --> 00:22:31,919
one

333
00:22:36,789 --> 00:22:34,880
batteries online and everything looks

334
00:22:39,590 --> 00:22:36,799
good how do you

335
00:22:48,149 --> 00:22:42,070
roger discovery we concur you are go for

336
00:22:51,990 --> 00:22:50,470
and houston discovery uh eva truman are

337
00:22:54,470 --> 00:22:52,000
back in the airlock and the hatch is

338
00:22:57,669 --> 00:22:54,480

closed right now

339
00:22:58,950 --> 00:22:57,679
roger we've got the discovery

340
00:23:01,909 --> 00:22:58,960
discovery houston i'm pleased to

341
00:23:08,630 --> 00:23:01,919
introduce the third assistant secretary

342
00:23:11,990 --> 00:23:09,510
go ahead

343
00:23:13,510 --> 00:23:12,000
captain coats mike uh we're very proud

344
00:23:16,070 --> 00:23:13,520
of you all and all the actions you've

345
00:23:17,830 --> 00:23:16,080
taken to make your vision successful so

346
00:23:19,110 --> 00:23:17,840
far now that you've got all the problems

347
00:23:34,950 --> 00:23:19,120
so do you think the flight will be

348
00:23:38,789 --> 00:23:36,789
blaha john uh i know this has been a

349
00:23:40,070 --> 00:23:38,799
very busy time have you had any time to

350
00:23:42,549 --> 00:23:40,080
enjoy the view

351
00:23:44,310 --> 00:23:42,559
or you've been working all the time

352
00:23:46,630 --> 00:23:44,320
plenty of time to enjoy this year it's

353
00:23:52,230 --> 00:23:46,640
really been great here in zero g and

354
00:23:55,190 --> 00:23:53,990
dr fisher anna

355
00:23:57,270 --> 00:23:55,200
when you

356
00:23:58,710 --> 00:23:57,280
set the computer to deploy the satellite

357
00:24:10,630 --> 00:23:58,720
did you think it would really go after

358
00:24:13,750 --> 00:24:12,390
colonel springer and currently buckley

359
00:24:15,430 --> 00:24:13,760
uh bob and jim

360
00:24:17,190 --> 00:24:15,440
you were so obviously a team in your

361
00:24:18,710 --> 00:24:17,200
space walk this morning that i address

362
00:24:19,909 --> 00:24:18,720
you as a team

363
00:24:21,430 --> 00:24:19,919

they tell me you would have had to bring

364
00:24:26,390 --> 00:24:21,440
that rocket back to earth if you'd not

365
00:24:26,400 --> 00:24:41,990
he hasn't seen anything

366
00:24:58,630 --> 00:24:43,110
we didn't think there was any real

367
00:25:03,590 --> 00:25:00,470
discovery houston discovery houston

368
00:25:07,269 --> 00:25:03,600
through tdrs how do you read

369
00:25:11,909 --> 00:25:09,830
roger discovery sorry to wake you up we

370
00:25:14,390 --> 00:25:11,919
see a fuel cell two

371
00:25:16,310 --> 00:25:14,400
sub stack volts problem we expect it to

372
00:25:18,630 --> 00:25:16,320
go out of limit shortly

373
00:25:20,310 --> 00:25:18,640
we have some mods to the procedure we

374
00:25:25,590 --> 00:25:20,320
need you to execute that we're ready to

375
00:25:28,549 --> 00:25:26,950
roger

376
00:25:30,630 --> 00:25:28,559
and discovery we hope this will be

377
00:25:32,710 --> 00:25:30,640
mercifully short and should only require

378
00:25:34,630 --> 00:25:32,720
one crew member and we can

379
00:25:49,350 --> 00:25:34,640
we help preserve some remaining hours of

380
00:25:49,360 --> 00:25:52,470
where do you start when you are

381
00:25:56,789 --> 00:25:53,990
roger discovery

382
00:25:59,430 --> 00:25:56,799
we see sub stack 2 volts going high on

383
00:26:02,390 --> 00:25:59,440
fuel cell 2. we expect it will break the

384
00:26:05,750 --> 00:26:02,400
limits within a few moments

385
00:26:07,750 --> 00:26:05,760
the procedure is page 5-13 in the orbit

386
00:26:10,230 --> 00:26:07,760
pocket checklist for fuel cell delta

387
00:26:12,789 --> 00:26:10,240
volts

388
00:26:15,190 --> 00:26:12,799

the changes to that procedure are

389
00:26:16,789 --> 00:26:15,200
we need you to break the main c to main

390
00:26:19,909 --> 00:26:16,799
a bus tie

391
00:26:22,310 --> 00:26:19,919
and that will be done on r1 main bus tie

392
00:26:24,549 --> 00:26:22,320
charlie switch to off

393
00:26:25,750 --> 00:26:24,559
then perform the fuel cell delta pulse

394
00:26:27,990 --> 00:26:25,760
procedure

395
00:26:30,870 --> 00:26:28,000
as shown in the checklist

396
00:26:33,430 --> 00:26:30,880
for fuel cell 2.

397
00:26:35,990 --> 00:26:33,440
one exception to the procedure prior to

398
00:26:38,870 --> 00:26:36,000
shutting down the fuel cell

399
00:26:41,350 --> 00:26:38,880
please bust tie alpha to bravo

400
00:26:43,750 --> 00:26:41,360
and not bravo to charlie

401
00:26:48,870 --> 00:26:43,760
to repeat that's bus tie alpha to bravo

402
00:26:54,630 --> 00:26:52,310
roger we copy

403
00:26:56,630 --> 00:26:54,640
okay discovery and two other

404
00:26:58,710 --> 00:26:56,640
points of information for you

405
00:27:01,669 --> 00:26:58,720
we have declared we're heading towards a

406
00:27:04,230 --> 00:27:01,679
pls landing opportunity down here

407
00:27:06,710 --> 00:27:04,240
that's a rev 33 we'll have plenty of

408
00:27:10,870 --> 00:27:06,720
words for you in the morning mail

409
00:27:13,669 --> 00:27:10,880
and we are configuring the mcc command

410
00:27:16,710 --> 00:27:13,679
to go s band uplink and downlink

411
00:27:18,310 --> 00:27:16,720
when we next get you on tdrs

412
00:27:20,390 --> 00:27:18,320
you may you recall we're currently s

413
00:27:22,230 --> 00:27:20,400

bandup and k band down no action

414
00:27:32,230 --> 00:27:22,240
required on your part we should be full

415
00:27:36,310 --> 00:27:34,310
discovery houston we confirmed the main

416
00:27:44,710 --> 00:27:36,320
sea tie has been broken your go to

417
00:27:49,830 --> 00:27:47,350
houston discovery

418
00:27:52,310 --> 00:27:49,840
go ahead discovery yes we've completed

419
00:27:53,350 --> 00:27:52,320
the fuel cell shutdown the step number

420
00:27:56,630 --> 00:27:53,360
one

421
00:28:00,630 --> 00:27:56,640
on page 5-13 and our

422
00:28:00,640 --> 00:28:06,389
roger discovery we copy

423
00:28:11,590 --> 00:28:08,470
this is mission control two days zero

424
00:28:13,590 --> 00:28:11,600
hours 31 minutes mission elapsed time

425
00:28:15,590 --> 00:28:13,600
flight director ron dittimore for the

426
00:28:17,350 --> 00:28:15,600
entry team pulling the flight

427
00:28:20,149 --> 00:28:17,360
controllers here in mission control as

428
00:28:23,510 --> 00:28:20,159
to their readiness for the deorbit burn

429
00:28:26,149 --> 00:28:23,520
so far no problems uh reported

430
00:28:28,310 --> 00:28:26,159
mission control will be

431
00:28:32,070 --> 00:28:28,320
will be giving the

432
00:28:34,230 --> 00:28:32,080
crew the go no go for uh deorbit burn

433
00:28:36,470 --> 00:28:34,240
at approximately uh

434
00:28:37,430 --> 00:28:36,480
25 minutes

435
00:28:38,149 --> 00:28:37,440
rather

436
00:28:41,830 --> 00:28:38,159
just

437
00:28:43,830 --> 00:28:41,840
perhaps 22 minutes before the

438
00:28:45,350 --> 00:28:43,840

before the scheduled start of the burn

439
00:28:47,909 --> 00:28:45,360
which is coming up

440
00:28:55,669 --> 00:28:47,919
in 26 minutes so we may be hearing the

441
00:28:59,750 --> 00:28:57,909
discovery houston we've seen you reload

442
00:29:02,070 --> 00:28:59,760
your targets and they look good your go

443
00:29:06,230 --> 00:29:02,080
for the burn we've got one word for you

444
00:29:08,470 --> 00:29:06,240
on your hydraulic repair press post burn

445
00:29:10,789 --> 00:29:08,480
go ahead okay you're going to need to go

446
00:29:12,630 --> 00:29:10,799
to override on all the fcs channels

447
00:29:15,110 --> 00:29:12,640
because of these valve problems we've

448
00:29:17,590 --> 00:29:15,120
just had once you've com accomplished

449
00:29:22,149 --> 00:29:17,600
your ssme repress you can go back to

450
00:29:25,510 --> 00:29:23,909
okay we'll go over right now and after

451
00:29:27,909 --> 00:29:25,520
the hydraulic re-press we'll go back to

452
00:29:30,149 --> 00:29:27,919
auto on one on one

453
00:29:34,710 --> 00:29:30,159
you agree with that gnc

454
00:29:39,830 --> 00:29:37,510
houston is covering why'd you go ahead

455
00:29:41,269 --> 00:29:39,840
okay we had pc drop on the right engine

456
00:29:42,710 --> 00:29:41,279
and we threw you on to the left the ball

457
00:29:44,549 --> 00:29:42,720
valve are still open we assume we have

458
00:29:46,389 --> 00:29:44,559
the right engine props they always stop

459
00:29:47,669 --> 00:29:46,399
the bar

460
00:29:49,590 --> 00:29:47,679
here we copy

461
00:29:52,070 --> 00:29:49,600
can't be fine

462
00:29:56,630 --> 00:29:52,080
roger we copy that discovery thank you

463
00:30:00,310 --> 00:29:58,310

houston we're with you through guam for

464
00:30:01,909 --> 00:30:00,320
about two minutes six foot a second more

465
00:30:03,190 --> 00:30:01,919
expensive than this one is because the

466
00:30:05,269 --> 00:30:03,200
argument apparently difference there may

467
00:30:06,710 --> 00:30:05,279
be some cheaper ones

468
00:30:07,669 --> 00:30:06,720
okay you're loud and clear also we

469
00:30:09,110 --> 00:30:07,679
looked at

470
00:30:10,070 --> 00:30:09,120
yet i'm just trying to get a feel if you

471
00:30:11,830 --> 00:30:10,080
want to

472
00:30:13,350 --> 00:30:11,840
seriously consider

473
00:30:15,190 --> 00:30:13,360
this next orbit

474
00:30:16,870 --> 00:30:15,200
to try and get very close to steep or if

475
00:30:18,870 --> 00:30:16,880
you want to extend the 13 foot a second

476
00:30:22,149 --> 00:30:18,880
and go on to tomorrow gotta press

477
00:30:23,669 --> 00:30:22,159
forward to see if we can do this orbit

478
00:30:24,389 --> 00:30:23,679
you may have done this already but you

479
00:30:26,549 --> 00:30:24,399
might

480
00:30:28,310 --> 00:30:26,559
take a look at the pull out the

481
00:30:30,070 --> 00:30:28,320
mixed cross feed cards and take a look

482
00:30:32,389 --> 00:30:30,080
at those while we're talking about it

483
00:30:34,950 --> 00:30:32,399
down here

484
00:30:37,590 --> 00:30:34,960
we've been looking at that procedure

485
00:30:39,510 --> 00:30:37,600
okay sounds good

486
00:30:40,870 --> 00:30:39,520
do you like the target okay

487
00:30:42,389 --> 00:30:40,880
looks good fine just a couple of

488
00:30:44,630 --> 00:30:42,399

reminders uh

489
00:30:46,789 --> 00:30:44,640
no switch back to uh

490
00:30:48,389 --> 00:30:46,799
straight feed during this it'll be mixed

491
00:31:03,269 --> 00:30:48,399
cross feed all the way through the ohms

492
00:31:12,310 --> 00:31:06,510
and discovery houston your go for the

493
00:31:12,320 --> 00:31:24,870
roger that

494
00:31:35,430 --> 00:31:26,470
discovery on the hitting alignment

495
00:31:50,470 --> 00:31:37,269
discover you need to manually open

496
00:32:18,070 --> 00:31:52,950
altitude approximately 21 000 feet

497
00:32:18,080 --> 00:32:22,630
altitude about 17 000 feet

498
00:32:26,149 --> 00:32:24,549
wide dynamics officer reports discovery

499
00:32:35,909 --> 00:32:26,159
looking good we're only rolling on the

500
00:32:44,149 --> 00:32:38,710
less than 10 miles out

501
00:32:44,159 --> 00:32:50,630
velocity about 500 feet per second

502
00:32:50,640 --> 00:33:05,430
altitude about 10 000 feet

503
00:33:09,990 --> 00:33:07,909
discovery surface winds still 2 4 0 10

504
00:33:15,509 --> 00:33:10,000
gusting to 15.

505
00:33:47,190 --> 00:33:17,830
discovery is on center line and on glide

506
00:33:47,200 --> 00:33:56,470
altitude about a thousand feet

507
00:34:00,950 --> 00:33:57,990
our video that you see is from a

508
00:34:02,950 --> 00:34:00,960
previous shuttle mission

509
00:34:05,190 --> 00:34:02,960
and it's uh slightly out of sync with

510
00:34:27,349 --> 00:34:05,200
what we've got to gear down now on the

511
00:34:27,359 --> 00:34:33,990
can we show weight on wheels

512
00:34:34,000 --> 00:35:01,190
and weight on nose gear

513
00:35:21,829 --> 00:35:03,510

two days three hours

514
00:35:26,630 --> 00:35:23,750
flight controllers uh looking through

515
00:35:28,550 --> 00:35:26,640
the post landing switch changes now

516
00:35:30,550 --> 00:35:28,560
and configuring

517
00:35:37,349 --> 00:35:30,560
shuttle systems

518
00:35:40,310 --> 00:35:39,270
in accordance with the traditions of sms

519
00:35:42,829 --> 00:35:40,320
teammate

520
00:35:57,990 --> 00:35:42,839
like to show our respect and our

521
00:36:00,470 --> 00:35:58,710
yeah