



1
00:00:31,900 --> 00:00:03,590
hi I'm George Zemke sts-132 mander

2
00:00:37,600 --> 00:00:33,670
this is shuttle launch control with

3
00:00:39,100 --> 00:00:37,610
t-minus three hours and holding launch

4
00:00:40,660 --> 00:00:39,110
teams are not working any issues right

5
00:00:42,310 --> 00:00:40,670
now that prevent us launching on time

6
00:00:44,220 --> 00:00:42,320
this morning and right now we take you

7
00:00:47,410 --> 00:00:44,230
to the operations and check-out building

8
00:00:54,640 --> 00:00:47,420
we see the SES 130 commander george

9
00:00:55,810 --> 00:00:54,650
Samko getting suited up finish up their

10
00:01:01,229 --> 00:00:55,820
weather briefing about five minutes ago

11
00:01:07,450 --> 00:01:01,239
and headed over to final pseudo

12
00:01:09,280 --> 00:01:07,460
endeavours pilot terry virts a little

13
00:01:11,400 --> 00:01:09,290

more thumbs up and then perhaps because

14

00:01:13,630 --> 00:01:11,410

here in the forecast this time around so

15

00:01:18,100 --> 00:01:13,640

things are more a ok this time there

16

00:01:27,450 --> 00:01:18,110

were last night mission specialist k

17

00:01:36,190 --> 00:01:32,470

Nicholas Patrick they're almost on a

18

00:01:39,310 --> 00:01:36,200

knee there in the you know all smiles

19

00:01:43,290 --> 00:01:39,320

he'll be also on all three spacewalks

20

00:01:46,930 --> 00:01:43,300

this particular mission and finally

21

00:01:51,430 --> 00:01:46,940

Steve Robinson veteran space flier of

22

00:02:02,290 --> 00:01:51,440

this particular crew making his fourth

23

00:02:11,350 --> 00:02:02,300

flight and there are the six astronauts

24

00:02:41,819 --> 00:02:11,360

for endeavours sts-1 30 mission and

25

00:02:46,449 --> 00:02:43,809

this is shuttle launch control at

26

00:02:49,110 --> 00:02:46,459

t-minus two hours 38 minutes and 15

27

00:02:52,690 --> 00:02:49,120

seconds and counting she saw there the

28

00:02:55,809 --> 00:02:52,700

crew for the sts-131 has arrived at

29

00:02:59,199 --> 00:02:55,819

launch pad 39a pulling up in the Astro

30

00:03:01,780 --> 00:02:59,209

van to the launch pad surface and then

31

00:03:04,179 --> 00:03:01,790

they'll be taking a ride up an elevator

32

00:03:18,670 --> 00:03:04,189

to the on the fixed service structure up

33

00:03:23,300 --> 00:03:20,600

this is shuttle launch control at

34

00:03:26,809 --> 00:03:23,310

t-minus two hours 33 minutes and 10

35

00:03:27,980 --> 00:03:26,819

seconds and counting you'd see the six

36

00:03:31,340 --> 00:03:27,990

astronauts floor space shuttle

37

00:03:33,199 --> 00:03:31,350

endeavour's sts-1 30 mission arrived at

38

00:03:35,470 --> 00:03:33,209

the 195 foot level on the fixed service

39

00:03:39,440 --> 00:03:35,480

structure at launch pad 39a and they are

40

00:03:42,770 --> 00:03:39,450

making their way towards the the hatch

41

00:03:45,140 --> 00:03:42,780

we get roughly 50 minutes to get the

42

00:03:48,680 --> 00:03:45,150

crew inserted get all their comm hooked

43

00:03:52,430 --> 00:03:48,690

up you know helmets everything on we get

44

00:03:53,900 --> 00:03:52,440

roughly 50 minutes and and that doesn't

45

00:03:55,790 --> 00:03:53,910

matter even though we have a six-man

46

00:03:57,500 --> 00:03:55,800

crew it's not going to go any faster

47

00:04:00,560 --> 00:03:57,510

because we're still putting four on the

48

00:04:04,040 --> 00:04:00,570

flight deck George Zampa getting into

49

00:04:08,479 --> 00:04:04,050

his commander position on the left hand

50

00:04:12,290 --> 00:04:08,489

side of the of the flight deck that's

51
00:04:15,009 --> 00:04:12,300
quite a trick also he he's very good at

52
00:04:18,710 --> 00:04:15,019
it but there's things you can hit

53
00:04:20,300 --> 00:04:18,720
switches you could bump and they do a

54
00:04:23,180 --> 00:04:20,310
real good job up but they practice

55
00:04:26,719 --> 00:04:23,190
there's mock-ups and building nine out

56
00:04:42,959 --> 00:04:26,729
at JSC at Johnson and they do this

57
00:04:50,459 --> 00:04:47,309
and OTC ovcc ahead obesity OTC so this

58
00:04:55,350 --> 00:04:50,469
is ms or devotees ms 4 tapas mmm s4 is

59
00:04:59,249 --> 00:04:55,360
aboard ms for shopping oh thank you see

60
00:05:01,379 --> 00:04:59,259
ya I'm never talking to the over to

61
00:05:03,059 --> 00:05:01,389
question dr. phss a complete ready

62
00:05:05,329 --> 00:05:03,069
variety and I want anything with a

63
00:05:10,199 --> 00:05:05,339

complete 40 times platform positioning

64

00:05:21,149 --> 00:05:10,209

647 copy that can see you confirming it

65

00:05:24,659 --> 00:05:21,159

too jajaja is arm on board it's tougher

66

00:05:24,669 --> 00:05:31,980

now is she back in the white room

67

00:05:40,330 --> 00:05:37,589

terry virts and both Nicholas Patrick

68

00:05:41,920 --> 00:05:40,340

and see they shook hands because one's

69

00:05:43,360 --> 00:05:41,930

going to flight deck one on the mid-deck

70

00:05:45,399 --> 00:05:43,370

so they won't speak to each other till

71

00:05:58,370 --> 00:05:45,409

directly until I guess I get into space

72

00:05:58,380 --> 00:06:03,890

and speaking of K higher

73

00:06:09,800 --> 00:06:07,740

hey as I mentioned she was on the

74

00:06:13,619 --> 00:06:09,810

closeout crew also she was a number two

75

00:06:15,960 --> 00:06:13,629

she's uh helped us tremendously in the

76

00:09:44,730 --> 00:06:15,970

over the years when she's down here as a

77

00:09:50,230 --> 00:09:47,319

and they must got to go to close the

78

00:09:53,710 --> 00:09:50,240

hatch as I said the T tools already

79

00:09:55,920 --> 00:09:53,720

inserted they're checking the arm along

80

00:10:03,180 --> 00:09:55,930

there so there's no friction on the

81

00:10:03,190 --> 00:10:14,309

about 450 degrees they got to turn there

82

00:10:18,400 --> 00:10:16,870

and attention all personnel this is the

83

00:10:20,920 --> 00:10:18,410

entity conducting the launch status

84

00:10:24,160 --> 00:10:20,930

check there if I ready to resume count

85

00:10:27,939 --> 00:10:24,170

and go for launch OTC OTC stuff TBC

86

00:10:30,189 --> 00:10:27,949

PPP's cubs ptc PTC's go help here so

87

00:10:33,910 --> 00:10:30,199

cuckoo here someplace Houston fighters

88

00:10:37,389 --> 00:10:33,920

go Milo malos so that's p.m. stms go

89

00:10:48,090 --> 00:10:37,399

Safety Council let's go spe years ago

90

00:10:53,530 --> 00:10:52,059

particulars go and one stressor entity

91

00:10:55,840 --> 00:10:53,540

our launch team is ready to proceed at

92

00:10:57,730 --> 00:10:55,850

this time okay I cover that Jeff I'll do

93

00:10:59,050 --> 00:10:57,740

my poles of time kids the chief

94

00:11:00,970 --> 00:10:59,060

processing engineer verify no

95

00:11:03,670 --> 00:11:00,980

constraints for launch no construe hit

96

00:11:05,410 --> 00:11:03,680

thank you Steve halo launch manager Mike

97

00:11:07,000 --> 00:11:05,420

they they seemed to go good thank you

98

00:11:09,579 --> 00:11:07,010

though Casey safety and mission

99

00:11:12,759 --> 00:11:09,589

assurance Casey safety mr. Sherwood go

100

00:11:14,470 --> 00:11:12,769

Mike mark range weather weather has no

101

00:11:17,620 --> 00:11:14,480

constraints for lunch Thank You Kelly

102

00:11:20,680 --> 00:11:17,630

and I manager nothing Mike looks like we

103

00:11:23,319 --> 00:11:20,690

have acceptable weather can around the

104

00:11:24,699 --> 00:11:23,329

world tonight for what we need mission

105

00:11:26,620 --> 00:11:24,709

management team dozen have any other

106

00:11:30,309 --> 00:11:26,630

issues on the plate so your go to watch

107

00:11:34,530 --> 00:11:30,319

endeavour no jury okay thank you sir and

108

00:11:39,309 --> 00:11:37,990

director this endeavor go ahead sir okay

109

00:11:41,019 --> 00:11:39,319

Zambo looks like the weather came

110

00:11:43,240 --> 00:11:41,029

together tonight vehicles in great shape

111

00:11:44,740 --> 00:11:43,250

so it's time to go fly where's your good

112

00:11:49,449 --> 00:11:44,750

luck top speed will be back here in

113

00:11:51,699 --> 00:11:49,459

about two weeks I can thanks to the

114

00:11:53,740 --> 00:11:51,709

great game that got tranquilly people i

115

00:11:55,600 --> 00:11:53,750

endeavoured at this point

116

00:11:59,440 --> 00:11:55,610

thanks to the team that got us ready to

117

00:12:00,700 --> 00:11:59,450

bring no 3 and koopa tough life and see

118

00:12:05,320 --> 00:12:00,710

in a couple weeks it's time to go

119

00:12:07,690 --> 00:12:05,330

tonight t-minus 50 seconds now

120

00:12:09,190 --> 00:12:07,700

transferring the shuttles internal

121

00:12:16,140 --> 00:12:09,200

electricity endeavour is now being

122

00:12:16,150 --> 00:12:20,780

we're coming up on auto sequence start

123

00:12:25,730 --> 00:12:24,200

t minus 31 seconds and counting and

124

00:12:27,230 --> 00:12:25,740

there was five main onboard computers

125

00:12:28,670 --> 00:12:27,240

now have primary control of all the

126

00:12:30,080 --> 00:12:28,680

spacecraft's critical functions

127

00:12:38,660 --> 00:12:30,090

including patrol with a countdown from

128

00:12:40,070 --> 00:12:38,670

here on out 15 t minus 16 seconds and

129

00:12:47,720 --> 00:12:40,080

sound suppression water system has been

130

00:12:54,020 --> 00:12:47,730

activated minus 10 nine eight seven six

131

00:12:55,760 --> 00:12:54,030

five we have finished our 21 booster

132

00:12:58,280 --> 00:12:55,770

ignition and liftoff of shuttle

133

00:12:59,960 --> 00:12:58,290

Endeavour NASA's model space station

134

00:13:05,230 --> 00:12:59,970

crew compartment the brings a bay window

135

00:13:05,240 --> 00:13:12,940

roll program

136

00:13:16,580 --> 00:13:13,990

this is Mission Control Houston

137

00:13:20,130 --> 00:13:18,390

heads down position on track

138

00:13:22,950 --> 00:13:20,140

or its flight to the International Space

139

00:13:28,290 --> 00:13:24,960

28 seconds into the flight endeavour

140

00:13:30,900 --> 00:13:28,300

flying at 1100 miles per hour 1.3 miles

141

00:13:32,280 --> 00:13:30,910

in altitude and 7 miles down range from

142

00:13:39,120 --> 00:13:32,290

the Kennedy Space Center according to

143

00:13:41,670 --> 00:13:39,130

onboard computers endeavours engines are

144

00:13:43,470 --> 00:13:41,680

throttling down as the orbiter passes

145

00:13:51,480 --> 00:13:43,480

through the area of maximum pressure on

146

00:13:57,750 --> 00:13:55,260

and ever go at throttle up endeavour go

147

00:14:02,190 --> 00:13:57,760

ad from a vivir copies go at throttle up

148

00:14:03,630 --> 00:14:02,200

Heather copies go at saddle up the three

149

00:14:05,639 --> 00:14:03,640

main engines on board are throttling

150

00:14:09,510 --> 00:14:05,649

back up now one minute ten seconds in

151
00:14:12,210 --> 00:14:09,520
the flight Deborah flying at 1,800 miles

152
00:14:17,400 --> 00:14:12,220
per hour ten miles in altitude eleven

153
00:14:19,199 --> 00:14:17,410
and a half miles downrange at liftoff

154
00:14:20,639 --> 00:14:19,209
the fully filled Shuttle boosters and

155
00:14:22,710 --> 00:14:20,649
external tank weighed four and a half

156
00:14:24,030 --> 00:14:22,720
million pounds the total thrust at

157
00:14:29,340 --> 00:14:24,040
launch was six million four hundred

158
00:14:31,440 --> 00:14:29,350
twenty-five thousand pounds all systems

159
00:14:34,050 --> 00:14:31,450
continue to function well three good

160
00:14:36,030 --> 00:14:34,060
main engines three good power generating

161
00:14:41,519 --> 00:14:36,040
fuel cells and three good auxiliary

162
00:14:43,800 --> 00:14:41,529
power units for the hydraulic system the

163
00:14:47,600 --> 00:14:43,810

next step will be the burnout and

164

00:14:52,170 --> 00:14:50,579

combined the twin boosters provide 5.3

165

00:15:07,510 --> 00:14:52,180

million pounds of thrust to propel the

166

00:15:14,980 --> 00:15:10,810

endeavour performances as expected thus

167

00:15:17,560 --> 00:15:14,990

far two minutes 19 seconds into the

168

00:15:20,110 --> 00:15:17,570

flight endeavour flying at 3,700 miles

169

00:15:26,110 --> 00:15:20,120

per hour 35 miles in altitude and 49

170

00:15:27,610 --> 00:15:26,120

miles downrange the propulsion officer

171

00:15:29,500 --> 00:15:27,620

confirms that the orbital maneuvering

172

00:15:36,180 --> 00:15:29,510

system engines are firing providing

173

00:15:43,210 --> 00:15:39,910

endeavour to engine Zaragoza endeavor to

174

00:15:57,040 --> 00:15:43,220

engine Zaragoza Baku and in Zaragoza

175

00:16:01,370 --> 00:15:59,510

three minutes and four seconds into the

176

00:16:03,320 --> 00:16:01,380

flight that call indicating and

177

00:16:05,060 --> 00:16:03,330

endeavour could reach Zaragoza in the

178

00:16:06,740 --> 00:16:05,070

event of a single engine failure however

179

00:16:10,880 --> 00:16:06,750

all three main engines continue to

180

00:16:13,670 --> 00:16:10,890

operate well differs computers showing

181

00:16:46,879 --> 00:16:13,680

it flying at 4,600 miles per hour 50

182

00:16:56,540 --> 00:16:50,220

endeavour negative return endeavour

183

00:16:58,800 --> 00:16:56,550

negative return copy- return- regard

184

00:17:00,210 --> 00:16:58,810

four minutes in three seconds in the

185

00:17:02,129 --> 00:17:00,220

flight endeavours now flying too high

186

00:17:03,509 --> 00:17:02,139

and too fast to return to the Kennedy

187

00:17:04,829 --> 00:17:03,519

Space Center in the shuttle landing

188

00:17:13,890 --> 00:17:04,839

facility in the event of an engine

189

00:17:16,919 --> 00:17:13,900

failure endeavours flying at 6,000 miles

190

00:17:59,769 --> 00:17:16,929

per hour 63 miles in altitude and 180

191

00:18:13,149 --> 00:18:03,700

and our QR continuing NGO ever you are

192

00:18:14,529 --> 00:18:13,159

pressed to 8000 atl five minutes and 18

193

00:18:16,419 --> 00:18:14,539

seconds in the flight that call

194

00:18:18,219 --> 00:18:16,429

indicating endeavour can now reach a

195

00:18:19,899 --> 00:18:18,229

lower than planned but a safe orbit on

196

00:18:21,669 --> 00:18:19,909

two engines should one fail but all

197

00:18:24,039 --> 00:18:21,679

three engines are still performing well

198

00:18:33,140 --> 00:18:24,049

as are the auxiliary power units and

199

00:18:46,799 --> 00:18:36,480

endeavour single-engine ops through ever

200

00:18:48,360 --> 00:18:46,809

single engine ops 35 minutes 50 seconds

201
00:18:50,220 --> 00:18:48,370
into the flight and never could conduct

202
00:18:53,570 --> 00:18:50,230
a transatlantic abort landing on one

203
00:18:56,070 --> 00:18:53,580
engine should to fail at this point

204
00:19:06,060 --> 00:18:56,080
endeavour single-engine Zaragoza

205
00:19:07,710 --> 00:19:06,070
single-engine single-ended never could

206
00:19:09,299 --> 00:19:07,720
reaches endeavours you are one engine if

207
00:19:18,480 --> 00:19:09,309
she too fell at this point for your

208
00:19:19,740 --> 00:19:18,490
press to Meco six minutes 22 seconds in

209
00:19:21,690 --> 00:19:19,750
the flight endeavour can reach the

210
00:19:31,710 --> 00:19:21,700
planned orbit on two engines all three

211
00:19:36,960 --> 00:19:33,990
endeavour Houston you're shut down

212
00:19:39,810 --> 00:19:36,970
planet and domino in your plan is

213
00:19:52,560 --> 00:19:39,820

nominal minus go for the plus X go for

214

00:19:54,830 --> 00:19:52,570

the pitch maneuver never flying at

215

00:20:03,060 --> 00:19:54,840

12,000 miles per hour lunge and press

216

00:20:04,380 --> 00:20:03,070

endeavor single-engine press seven

217

00:20:06,180 --> 00:20:04,390

minutes 8 seconds in the flight

218

00:20:08,070 --> 00:20:06,190

endeavour can reach its planned orbit on

219

00:20:13,830 --> 00:20:08,080

one engine should to fail however all

220

00:20:17,850 --> 00:20:13,840

three still performing well devers now

221

00:20:22,350 --> 00:20:17,860

at an altitude is 64 statute miles 606

222

00:20:24,120 --> 00:20:22,360

miles downrange the three main engines

223

00:20:25,740 --> 00:20:24,130

are now throttling down to maintain

224

00:20:28,110 --> 00:20:25,750

structural limits on the orbiter as it

225

00:20:35,730 --> 00:20:28,120

passes our approaches loads near three

226
00:21:03,750 --> 00:20:35,740
times gravity seven minutes 40 seconds

227
00:21:07,900 --> 00:21:06,190
eight minutes ten seconds in the flight

228
00:21:21,740 --> 00:21:07,910
endeavour continuing on track all

229
00:21:31,810 --> 00:21:24,240
booster officer confirms main engine

230
00:21:37,840 --> 00:21:35,020
endeavour Houston nominal Miko endeavour

231
00:21:40,420 --> 00:21:37,850
Houston Ravenel Miko ohms one not

232
00:21:42,550 --> 00:21:40,430
required properly nominally go over the

233
00:21:49,510 --> 00:21:42,560
one on the car phenomenal they go all

234
00:21:55,330 --> 00:21:49,520
the door not acquired an external tank

235
00:21:58,170 --> 00:21:55,340
has separated now nine minutes into the

236
00:22:00,700 --> 00:21:58,180
flight of the space shuttle Endeavour on

237
00:22:04,030 --> 00:22:00,710
sts-134 handheld photography of that

238
00:22:05,710 --> 00:22:04,040

external tank with a plus X maneuver of

239

00:22:11,500 --> 00:22:05,720

the orbiter to position endeavour

240

00:22:15,160 --> 00:22:11,510

correctly look at some video shot by

241

00:22:17,500 --> 00:22:15,170

endeavours crew earlier not long after

242

00:22:19,720 --> 00:22:17,510

the shuttles launched today of the

243

00:22:33,450 --> 00:22:19,730

external tank as it made its way back

244

00:22:33,460 --> 00:24:39,600

you

245

00:25:14,649 --> 00:24:42,400

never use in pers we would like breaks

246

00:25:20,529 --> 00:25:17,560

in view from the left to right our

247

00:25:25,680 --> 00:25:20,539

Japanese restaurant sweetie noguchi and

248

00:25:42,969 --> 00:25:40,289

max Soraya dever Houston on behalf of

249

00:25:45,789 --> 00:25:42,979

flight director norm night I would like

250

00:25:47,710 --> 00:25:45,799

to congratulate you on a and the acid

251

00:25:51,129 --> 00:25:47,720

team we like to congratulate you on a

252

00:25:53,219 --> 00:25:51,139

great asset tonight and wonderful job

253

00:25:55,239 --> 00:25:53,229

pressing through post insertion and

254

00:26:02,680 --> 00:25:55,249

we'll look forward to talking to you

255

00:26:05,529 --> 00:26:02,690

further during the mission norm and esm

256

00:26:07,239 --> 00:26:05,539

team great night tonight great working

257

00:26:09,159 --> 00:26:07,249

with you all and we look forward to

258

00:26:15,940 --> 00:26:09,169

working with you on the other end of

259

00:26:18,489 --> 00:26:15,950

this great nation thanks very much you

260

00:26:20,259 --> 00:26:18,499

can also see here the main cargo that

261

00:26:22,830 --> 00:26:20,269

endeavor will be delivering to the

262

00:26:27,489 --> 00:26:22,840

International Space Station the