
COUNTDOWN
TO
T-ZERO
PARKER SOLAR PROBE
A MISSION
TO TOUCH
THE SUN

1
00:00:04,630 --> 00:00:02,790
status check to proceed with terminal

2
00:00:05,510 --> 00:00:04,640
there is a moment at the start of every

3
00:00:08,070 --> 00:00:05,520
mission

4
00:00:10,470 --> 00:00:08,080
when everything comes together

5
00:00:13,190 --> 00:00:10,480
a moment when years of preparation and

6
00:00:16,070 --> 00:00:13,200
planning are put to the test clear to

7
00:00:18,950 --> 00:00:16,080
proceed there are no second chances you

8
00:00:22,870 --> 00:00:18,960
have permission success or failure is

9
00:00:28,790 --> 00:00:25,990
a spacecraft and its rocket on the pad

10
00:00:31,269 --> 00:00:28,800
fully fueled and ready to launch status

11
00:00:36,470 --> 00:00:33,670
a controlled explosion is released with

12
00:00:39,990 --> 00:00:36,480
such intense power it can propel a

13
00:00:42,150 --> 00:00:40,000

spacecraft off the earth and into space

14
00:00:56,470 --> 00:00:42,160
the benefit of all mighty delta we call

15
00:01:03,590 --> 00:01:00,069
the sun the heart of our solar system

16
00:01:05,509 --> 00:01:03,600
it's as familiar as anything we know

17
00:01:06,630 --> 00:01:05,519
although the sun has been studied for

18
00:01:09,750 --> 00:01:06,640
millennia

19
00:01:12,710 --> 00:01:09,760
it still holds unsolved mysteries about

20
00:01:14,870 --> 00:01:12,720
its effects on our daily lives

21
00:01:17,910 --> 00:01:14,880
to better understand the sun

22
00:01:20,789 --> 00:01:17,920
nasa is preparing to launch a spacecraft

23
00:01:23,030 --> 00:01:20,799
called the parker solar probe

24
00:01:25,510 --> 00:01:23,040
it will lift off from cape canaveral air

25
00:01:28,630 --> 00:01:25,520
force station near the agency's kennedy

26
00:01:30,630 --> 00:01:28,640
space center located in florida

27
00:01:33,109 --> 00:01:30,640
it's a mission of unprecedented

28
00:01:35,590 --> 00:01:33,119
opportunities that could revolutionize

29
00:01:37,990 --> 00:01:35,600
our understanding of our star and the

30
00:01:40,390 --> 00:01:38,000
sun's atmosphere the corona

31
00:01:43,990 --> 00:01:40,400
a long time destination goal

32
00:01:45,990 --> 00:01:44,000
for scientists such as dr nikki fox

33
00:01:48,230 --> 00:01:46,000
going into the sun's corona for the

34
00:01:50,630 --> 00:01:48,240
first time going up close and personal

35
00:01:52,870 --> 00:01:50,640
with our star to be able to answer some

36
00:01:56,069 --> 00:01:52,880
of the mysteries that live in this

37
00:01:57,990 --> 00:01:56,079
coronal region why is the sun's corona

38
00:01:59,910 --> 00:01:58,000

hotter than the surface of the sun why

39
00:02:02,389 --> 00:01:59,920
is there a solar wind why does this

40
00:02:05,030 --> 00:02:02,399
atmosphere this corona become so

41
00:02:07,749 --> 00:02:05,040
energized that it can move away from the

42
00:02:09,830 --> 00:02:07,759
sun at supersonic speeds and bathe all

43
00:02:12,390 --> 00:02:09,840
of the planets and now that parker has

44
00:02:14,710 --> 00:02:12,400
finally arrived on the space coast we're

45
00:02:18,390 --> 00:02:14,720
one step closer to solving those

46
00:02:20,949 --> 00:02:18,400
mysteries delivered on an air force c-17

47
00:02:23,589 --> 00:02:20,959
it's not every day this crew hauls a

48
00:02:25,510 --> 00:02:23,599
payload destined for the history books

49
00:02:27,510 --> 00:02:25,520
overall the mission itself is relatively

50
00:02:29,510 --> 00:02:27,520
simple i'd say the biggest challenge is

51
00:02:30,710 --> 00:02:29,520
probably the load portion a little extra

52
00:02:33,350 --> 00:02:30,720
to it too because normally we're just

53
00:02:34,470 --> 00:02:33,360
hauling generic things but not a 1.5

54
00:02:36,390 --> 00:02:34,480
billion dollar

55
00:02:39,430 --> 00:02:36,400
solar probe and there's only one

56
00:02:42,070 --> 00:02:39,440
world-class program that specializes in

57
00:02:44,869 --> 00:02:42,080
missions of this caliber nasa's launch

58
00:02:47,110 --> 00:02:44,879
services program a team that matches the

59
00:02:49,670 --> 00:02:47,120
industry's top performing rockets with

60
00:02:52,390 --> 00:02:49,680
the cutting-edge spacecraft nasa is

61
00:02:55,350 --> 00:02:52,400
committed to launching lsp is nasa's

62
00:02:58,470 --> 00:02:55,360
bridge to space basically what we do

63
00:03:00,309 --> 00:02:58,480

is we link a spacecraft customer such as

64
00:03:02,149 --> 00:03:00,319
a parker solar probe up with a launch

65
00:03:05,030 --> 00:03:02,159
vehicle provider such as united launch

66
00:03:07,670 --> 00:03:05,040
alliance and we provide them with a

67
00:03:10,949 --> 00:03:07,680
custom built ride to space

68
00:03:13,670 --> 00:03:10,959
on a carefully selected launch vehicle

69
00:03:16,070 --> 00:03:13,680
engineers and scientists with astrotech

70
00:03:18,790 --> 00:03:16,080
and the applied physics lab teams will

71
00:03:21,110 --> 00:03:18,800
spend its last few months checking and

72
00:03:23,910 --> 00:03:21,120
testing every element and completing

73
00:03:26,390 --> 00:03:23,920
final assembly to be sure it is ready to

74
00:03:30,070 --> 00:03:26,400
leave earth for its epic trick to the

75
00:03:32,470 --> 00:03:30,080
sun parker must be perfect before t0

76
00:03:34,869 --> 00:03:32,480
arrives before we start integration with

77
00:03:36,390 --> 00:03:34,879
the launch vehicle we have to do final

78
00:03:37,350 --> 00:03:36,400
integration of the spacecraft that

79
00:03:39,110 --> 00:03:37,360
includes

80
00:03:41,910 --> 00:03:39,120
attaching the magnetometer boom and

81
00:03:43,750 --> 00:03:41,920
magnetometers we'll then also integrate

82
00:03:45,589 --> 00:03:43,760
the solar arrays

83
00:03:47,030 --> 00:03:45,599
and then finally right before

84
00:03:48,949 --> 00:03:47,040
integration with the launch vehicle

85
00:03:51,509 --> 00:03:48,959
we'll add the thermal protection system

86
00:03:53,830 --> 00:03:51,519
or thermal shield the parker solar probe

87
00:03:56,470 --> 00:03:53,840
will be the first mission to kiss the

88
00:03:59,110 --> 00:03:56,480

sun flying through the searing heat of

89
00:04:02,229 --> 00:03:59,120
the sun's corona traveling closer to the

90
00:04:05,110 --> 00:04:02,239
surface than any other spacecraft before

91
00:04:08,630 --> 00:04:05,120
and to do that it will need to go faster

92
00:04:10,710 --> 00:04:08,640
than any other spacecraft in history

93
00:04:13,429 --> 00:04:10,720
that's why for the first time ever

94
00:04:16,310 --> 00:04:13,439
nasa's launch services program selected

95
00:04:18,550 --> 00:04:16,320
the united launch alliance delta iv

96
00:04:20,550 --> 00:04:18,560
heavy rocket

97
00:04:23,510 --> 00:04:20,560
parker solar probe will be the fastest

98
00:04:26,230 --> 00:04:23,520
human-made object ever we are traveling

99
00:04:28,390 --> 00:04:26,240
at an unbelievable 430

100
00:04:30,390 --> 00:04:28,400
000 miles per hour

101
00:04:32,390 --> 00:04:30,400
nasa selected delta iv heavy for the

102
00:04:35,030 --> 00:04:32,400
parker solar probe mission because of

103
00:04:37,030 --> 00:04:35,040
the combined energy of the booster delta

104
00:04:39,270 --> 00:04:37,040
cryogenic second stage and the third

105
00:04:41,590 --> 00:04:39,280
stage which means that we have enough

106
00:04:43,270 --> 00:04:41,600
energy to go to the sun i mean if you

107
00:04:46,550 --> 00:04:43,280
look at the vehicle it's huge it's

108
00:04:50,550 --> 00:04:46,560
approximately 50 feet wide 170 feet long

109
00:04:53,030 --> 00:04:50,560
and about 190 000 pounds

110
00:04:55,749 --> 00:04:53,040
going out and seeing the delta iv heavy

111
00:04:58,070 --> 00:04:55,759
on the pad is a truly awe-inspiring

112
00:04:59,670 --> 00:04:58,080
experience just seeing that amount of

113
00:05:02,469 --> 00:04:59,680

raw power

114
00:05:04,070 --> 00:05:02,479
right in front of you is just incredible

115
00:05:06,150 --> 00:05:04,080
three boosters

116
00:05:07,990 --> 00:05:06,160
our second stage and then we have a

117
00:05:09,430 --> 00:05:08,000
third stage we're a tiny little

118
00:05:11,990 --> 00:05:09,440
spacecraft we look like a little hood

119
00:05:14,550 --> 00:05:12,000
ornament on the top of the delta iv

120
00:05:16,950 --> 00:05:14,560
throughout its seven year mission nasa's

121
00:05:19,670 --> 00:05:16,960
parker solar probe will swoop through

122
00:05:22,150 --> 00:05:19,680
the sun's atmosphere carrying more than

123
00:05:23,990 --> 00:05:22,160
scientific instruments on this historic

124
00:05:26,390 --> 00:05:24,000
journey to the center of our solar

125
00:05:30,390 --> 00:05:26,400
system it will also hold a piece of

126
00:05:33,110 --> 00:05:30,400
humanity itself back in march 2018 the

127
00:05:35,749 --> 00:05:33,120
public was invited to submit their names

128
00:05:38,629 --> 00:05:35,759
over a million were loaded into a memory

129
00:05:41,590 --> 00:05:38,639
card and mounted on a plaque bearing a

130
00:05:44,390 --> 00:05:41,600
dedication to the mission's namesake dr

131
00:05:47,110 --> 00:05:44,400
eugene parker was a heliophysicist ahead

132
00:05:49,029 --> 00:05:47,120
of his time he proposed this mission

133
00:05:51,270 --> 00:05:49,039
back in 1958

134
00:05:55,189 --> 00:05:51,280
after discovering the existence of the

135
00:05:57,909 --> 00:05:55,199
dangerous and unpredictable solar wind

136
00:05:59,830 --> 00:05:57,919
the reason it has taken us 60 years to

137
00:06:01,830 --> 00:05:59,840
be able to fly this mission is not

138
00:06:04,309 --> 00:06:01,840

because we weren't interested it really

139
00:06:07,189 --> 00:06:04,319
is because it has taken

140
00:06:09,029 --> 00:06:07,199
that long for technology to be developed

141
00:06:11,110 --> 00:06:09,039
to allow us to do this incredible

142
00:06:13,830 --> 00:06:11,120
mission

143
00:06:15,830 --> 00:06:13,840
during the parker solar probe's perilous

144
00:06:18,550 --> 00:06:15,840
dive into the sun's corona the

145
00:06:20,390 --> 00:06:18,560
atmosphere it will navigate dangers

146
00:06:22,870 --> 00:06:20,400
never before experienced

147
00:06:26,309 --> 00:06:22,880
by a nasa deep space mission

148
00:06:29,110 --> 00:06:26,319
3 million degree plasma sporadic solar

149
00:06:30,070 --> 00:06:29,120
flares and delayed communication with

150
00:06:32,950 --> 00:06:30,080
earth

151
00:06:35,110 --> 00:06:32,960
traveling this close is only possible

152
00:06:37,749 --> 00:06:35,120
because of the spacecraft's protective

153
00:06:39,990 --> 00:06:37,759
heat shield the single largest piece of

154
00:06:42,870 --> 00:06:40,000
hardware and the most critical to

155
00:06:45,029 --> 00:06:42,880
mission success one slight error in its

156
00:06:47,430 --> 00:06:45,039
performance could cause the probe to

157
00:06:49,830 --> 00:06:47,440
melt and the mission would be lost

158
00:06:51,749 --> 00:06:49,840
parker solar probe is actually going and

159
00:06:54,309 --> 00:06:51,759
touching the sun when we actually get to

160
00:06:57,110 --> 00:06:54,319
our closest approach the heat shield on

161
00:06:59,189 --> 00:06:57,120
parker solar probe will be at about 2500

162
00:07:01,189 --> 00:06:59,199
degrees fahrenheit on the front surface

163
00:07:02,870 --> 00:07:01,199

the back surface is going to be at about

164
00:07:04,629 --> 00:07:02,880
600 degrees fahrenheit but then the

165
00:07:06,469 --> 00:07:04,639
spacecraft bus will just be operating at

166
00:07:08,150 --> 00:07:06,479
a normal room temperature almost it's a

167
00:07:10,629 --> 00:07:08,160
little bit higher about

168
00:07:12,309 --> 00:07:10,639
85 degrees the previous missions have

169
00:07:14,550 --> 00:07:12,319
been really important for solar science

170
00:07:16,390 --> 00:07:14,560
as we study from afar and we can learn a

171
00:07:18,150 --> 00:07:16,400
lot from studying from afar but the

172
00:07:20,309 --> 00:07:18,160
parker solar probe is actually going and

173
00:07:22,550 --> 00:07:20,319
touching almost kissing the sun so we

174
00:07:24,950 --> 00:07:22,560
can learn so much more the spacecraft is

175
00:07:27,430 --> 00:07:24,960
now ready for flight but it can't get

176
00:07:30,150 --> 00:07:27,440
millions of miles to the sun unless it

177
00:07:32,710 --> 00:07:30,160
gets a boost from a specially made third

178
00:07:35,510 --> 00:07:32,720
stage by northrop grumman the northrop

179
00:07:37,830 --> 00:07:35,520
grumman third stage team

180
00:07:39,670 --> 00:07:37,840
specifically designed and built

181
00:07:40,790 --> 00:07:39,680
this third stage for the parker solar

182
00:07:42,550 --> 00:07:40,800
probe mission

183
00:07:44,469 --> 00:07:42,560
the parker solar probe needs the third

184
00:07:47,110 --> 00:07:44,479
stage because even though the delta iv

185
00:07:49,430 --> 00:07:47,120
heavy is an incredibly powerful rocket

186
00:07:52,550 --> 00:07:49,440
the third stage is what gets it the

187
00:07:54,869 --> 00:07:52,560
extra boost to get into its final orbit

188
00:07:56,790 --> 00:07:54,879

around venus and to the sun

189
00:07:59,110 --> 00:07:56,800
parker solar probe is the hardest

190
00:08:01,110 --> 00:07:59,120
trajectory that i've ever worked on

191
00:08:03,110 --> 00:08:01,120
for a couple of different reasons one

192
00:08:05,110 --> 00:08:03,120
we're flying on the delta iv heavy which

193
00:08:05,990 --> 00:08:05,120
is the largest and most complex rocket

194
00:08:07,510 --> 00:08:06,000
that

195
00:08:09,749 --> 00:08:07,520
launch services program has ever been

196
00:08:12,150 --> 00:08:09,759
involved with and in addition to that

197
00:08:13,749 --> 00:08:12,160
we're flying a third stage that has its

198
00:08:17,189 --> 00:08:13,759
own guidance navigation and control

199
00:08:19,270 --> 00:08:17,199
system on board so from a trajectory g

200
00:08:21,270 --> 00:08:19,280
and c standpoint it's like flying two

201
00:08:23,350 --> 00:08:21,280
missions at once parker solar probe is

202
00:08:25,430 --> 00:08:23,360
what's called a heliocentric orbit which

203
00:08:28,469 --> 00:08:25,440
means it's orbiting around the sun

204
00:08:30,309 --> 00:08:28,479
and using a gravity assist usually we

205
00:08:31,830 --> 00:08:30,319
use that to add energy to the

206
00:08:34,070 --> 00:08:31,840
spacecraft's orbit when we go out to

207
00:08:35,350 --> 00:08:34,080
places like jupiter or saturn or pluto

208
00:08:37,029 --> 00:08:35,360
in this case we're going in the opposite

209
00:08:38,630 --> 00:08:37,039
direction we're heading inside the orbit

210
00:08:41,110 --> 00:08:38,640
of mercury the

211
00:08:42,149 --> 00:08:41,120
folks at applied physics lab

212
00:08:44,550 --> 00:08:42,159
have come up with a very unique

213
00:08:45,910 --> 00:08:44,560

trajectory where the spacecraft is going

214
00:08:49,110 --> 00:08:45,920
to use the

215
00:08:50,790 --> 00:08:49,120
mass of venus to slow themselves down

216
00:08:52,070 --> 00:08:50,800
and not only are they doing at one time

217
00:08:53,590 --> 00:08:52,080
they're actually going to do that seven

218
00:08:55,590 --> 00:08:53,600
times in a row

219
00:08:57,350 --> 00:08:55,600
over a space of six years in order to

220
00:08:58,790 --> 00:08:57,360
get the spacecraft perihelion because

221
00:09:02,630 --> 00:08:58,800
we're orbiting the sun

222
00:09:04,230 --> 00:09:02,640
down below uh 10 solar radii so when

223
00:09:06,710 --> 00:09:04,240
we're in orbit around an object whether

224
00:09:08,470 --> 00:09:06,720
it's the earth or the sun we go fastest

225
00:09:10,230 --> 00:09:08,480
when we're closest to that object and

226
00:09:12,790 --> 00:09:10,240
slowest when we get to the top of this

227
00:09:14,150 --> 00:09:12,800
orbit and therefore when we pass very

228
00:09:16,389 --> 00:09:14,160
close to the sun which is the most

229
00:09:19,829 --> 00:09:16,399
massive object in our solar system we

230
00:09:22,389 --> 00:09:19,839
are going approximately 430 000 miles

231
00:09:24,550 --> 00:09:22,399
per hour relative to the sun this really

232
00:09:27,190 --> 00:09:24,560
is rocket science during the early

233
00:09:29,750 --> 00:09:27,200
stages of launch the parker solar probe

234
00:09:32,710 --> 00:09:29,760
will be encapsulated in a large payload

235
00:09:35,509 --> 00:09:32,720
fairing the delta iv heavy is a massive

236
00:09:37,670 --> 00:09:35,519
rocket designed to launch a school bus

237
00:09:41,630 --> 00:09:37,680
size spacecraft the last step at

238
00:09:44,470 --> 00:09:41,640

astrotech is safely securing the

239
00:09:47,350 --> 00:09:44,480
1510-pound spacecraft in a fairing that

240
00:09:48,870 --> 00:09:47,360
by comparison makes the probe look small

241
00:09:50,310 --> 00:09:48,880
to get to the sun we actually need a lot

242
00:09:52,230 --> 00:09:50,320
of energy because of that we need a very

243
00:09:54,070 --> 00:09:52,240
large launch vehicle in fact we have the

244
00:09:55,910 --> 00:09:54,080
biggest launch vehicle we can get

245
00:09:57,190 --> 00:09:55,920
and uh because of that the sparing that

246
00:09:58,790 --> 00:09:57,200
that is associated with this launch

247
00:10:00,230 --> 00:09:58,800
vehicle is very large but because we're

248
00:10:02,069 --> 00:10:00,240
a small spacecraft we take up a very

249
00:10:03,350 --> 00:10:02,079
small amount of space in that space in

250
00:10:05,110 --> 00:10:03,360
that bearing and that's the reason why

251
00:10:07,110 --> 00:10:05,120
it looks like very small spacecraft on a

252
00:10:08,870 --> 00:10:07,120
very large vehicle but once that the

253
00:10:10,810 --> 00:10:08,880
spacecraft is encapsulated that's it we

254
00:10:13,990 --> 00:10:10,820
no longer get to touch it

255
00:10:19,590 --> 00:10:16,470
the encapsulated probe is now ready for

256
00:10:21,110 --> 00:10:19,600
a slow steady ride to the launch pad at

257
00:10:24,310 --> 00:10:21,120
cape canaveral

258
00:10:26,790 --> 00:10:24,320
it will be transported atop a kmag made

259
00:10:29,949 --> 00:10:26,800
for transporting special payloads

260
00:10:33,829 --> 00:10:29,959
it can hold thousands of pounds spin

261
00:10:38,389 --> 00:10:33,839
360 degrees and keep its payload level

262
00:10:41,990 --> 00:10:39,990
one of the nice parts about the k-mag

263
00:10:43,750 --> 00:10:42,000

that we have it has very precise

264
00:10:45,430 --> 00:10:43,760
steering capabilities and it also has a

265
00:10:46,949 --> 00:10:45,440
lot of different steering capabilities

266
00:10:49,269 --> 00:10:46,959
so it gives us a lot of capability to

267
00:10:51,030 --> 00:10:49,279
get into a precise location both for

268
00:10:51,829 --> 00:10:51,040
hoisting operations down in the hoist

269
00:10:53,430 --> 00:10:51,839
way

270
00:10:55,430 --> 00:10:53,440
as well as different mating operations

271
00:10:58,389 --> 00:10:55,440
in our horizontal integration facility

272
00:11:01,430 --> 00:10:58,399
now the ula team will carefully lift the

273
00:11:04,470 --> 00:11:01,440
parker solar probe safely nestled inside

274
00:11:07,110 --> 00:11:04,480
its payload fairing to mate it atop the

275
00:11:09,430 --> 00:11:07,120
massive delta iv rocket to keep the

276
00:11:11,750 --> 00:11:09,440
payload safe during the entire lifting

277
00:11:14,470 --> 00:11:11,760
operation there's a special channel

278
00:11:17,269 --> 00:11:14,480
constructed in the tower itself known as

279
00:11:19,750 --> 00:11:17,279
the hoist way that allows the payload to

280
00:11:21,829 --> 00:11:19,760
be lifted without any influence from

281
00:11:23,030 --> 00:11:21,839
adverse weather or environmental

282
00:11:25,430 --> 00:11:23,040
conditions

283
00:11:27,269 --> 00:11:25,440
the exciting part about today is it's

284
00:11:28,630 --> 00:11:27,279
when we finally get the customer out

285
00:11:30,389 --> 00:11:28,640
here we get the

286
00:11:32,310 --> 00:11:30,399
spacecraft hoisted it's kind of that's

287
00:11:34,150 --> 00:11:32,320
what it's all been about a heavy mission

288
00:11:36,630 --> 00:11:34,160

by itself is always exciting but then

289
00:11:38,870 --> 00:11:36,640
you add in the factor of having a nasa

290
00:11:40,870 --> 00:11:38,880
exploration mission the mission to touch

291
00:11:42,069 --> 00:11:40,880
the sun that accompanied with the heavy

292
00:11:44,470 --> 00:11:42,079
it's just an exciting launch for the

293
00:11:45,829 --> 00:11:44,480
public a great exciting launch for ula

294
00:11:47,190 --> 00:11:45,839
it'll be a lot of fun to see it'll be a

295
00:11:49,030 --> 00:11:47,200
lot of fun to track over the next

296
00:11:51,590 --> 00:11:49,040
several years as it gets into its final

297
00:11:54,230 --> 00:11:51,600
orbit around the sun

298
00:11:56,230 --> 00:11:54,240
nasa's launch services program has now

299
00:11:57,910 --> 00:11:56,240
brought together the payload and its

300
00:11:59,590 --> 00:11:57,920
ride to space

301
00:12:02,310 --> 00:11:59,600
after taking different roads to the

302
00:12:04,470 --> 00:12:02,320
launch pad finally the spacecraft and

303
00:12:06,710 --> 00:12:04,480
the vehicle are together

304
00:12:09,269 --> 00:12:06,720
goddard runs all of the

305
00:12:11,350 --> 00:12:09,279
living with the star missions and this

306
00:12:13,269 --> 00:12:11,360
is what's called a flagship mission it's

307
00:12:15,190 --> 00:12:13,279
one of the most important things that

308
00:12:17,509 --> 00:12:15,200
our science does

309
00:12:19,350 --> 00:12:17,519
so the anticipation of launch is just

310
00:12:21,190 --> 00:12:19,360
tremendous we've i've been working on

311
00:12:22,629 --> 00:12:21,200
this project for 10 years

312
00:12:25,190 --> 00:12:22,639
and now to see it

313
00:12:27,190 --> 00:12:25,200

actually ready to go it's just

314
00:12:28,310 --> 00:12:27,200
a tremendous feeling it's really hard to

315
00:12:32,790 --> 00:12:28,320
describe

316
00:12:36,470 --> 00:12:32,800
now as t0 is just days away it's up to

317
00:12:39,269 --> 00:12:36,480
ula and lsp to make sure they're

318
00:12:42,230 --> 00:12:39,279
operating as one in the hours before

319
00:12:45,430 --> 00:12:42,240
liftoff the mobile service tower gantry

320
00:12:48,629 --> 00:12:45,440
rolls back leaving the mighty delta iv

321
00:12:52,389 --> 00:12:48,639
standing on its own ready for launch

322
00:12:54,790 --> 00:12:52,399
the final countdown to t0 is underway

323
00:12:57,670 --> 00:12:54,800
as the nasa launch director ultimately

324
00:12:59,269 --> 00:12:57,680
what i do is give the go or the no go

325
00:13:01,190 --> 00:12:59,279
that's a very simple statement but

326
00:13:03,190 --> 00:13:01,200
there's a lot that goes behind that it's

327
00:13:05,910 --> 00:13:03,200
a culmination of a bunch of

328
00:13:07,269 --> 00:13:05,920
professionals that know their jobs they

329
00:13:09,030 --> 00:13:07,279
know it well

330
00:13:11,430 --> 00:13:09,040
and all i have to do is make sure all

331
00:13:13,110 --> 00:13:11,440
those pieces are in place

332
00:13:14,870 --> 00:13:13,120
then it's easy for me to make the

333
00:13:16,949 --> 00:13:14,880
decision to launch

334
00:13:19,430 --> 00:13:16,959
thousands of rockets have launched from

335
00:13:22,710 --> 00:13:19,440
florida's space coast but this is the

336
00:13:25,509 --> 00:13:22,720
first designed to fly to the sun big

337
00:13:28,069 --> 00:13:25,519
delta iv heavy rocket is ready to roar

338
00:13:30,310 --> 00:13:28,079

to life with more than two million

339
00:13:33,350 --> 00:13:30,320
pounds of thrust to power the parker

340
00:13:35,910 --> 00:13:33,360
solar probe on a trajectory of millions

341
00:13:37,750 --> 00:13:35,920
of miles to its destination receive a

342
00:13:42,550 --> 00:13:37,760
terminal count first a decision

343
00:13:46,310 --> 00:13:42,560
propulsion go hydraulics go box go watch

344
00:13:47,509 --> 00:13:46,320
director you have permission to launch

345
00:13:51,590 --> 00:13:47,519
status check

346
00:13:53,590 --> 00:13:52,629
three

347
00:13:54,550 --> 00:13:53,600
two

348
00:13:55,990 --> 00:13:54,560
one

349
00:13:58,389 --> 00:13:56,000
zero

350
00:14:01,670 --> 00:13:58,399
liftoff of the mighty delta iv heavy

351
00:14:03,269 --> 00:14:01,680
rocket with nasa's parker solar probe a

352
00:14:07,730 --> 00:14:03,279
daring mission to shed light on the

353
00:14:07,740 --> 00:14:15,030
[Music]

354
00:14:25,750 --> 00:14:17,030
look good in the full sun mode response

355
00:14:30,830 --> 00:14:27,189
vehicle trajectory looking good right

356
00:14:36,470 --> 00:14:30,840
down the middle of the range track

357
00:14:38,230 --> 00:14:36,480
[Music]