1
00:00:01.565 --> 00:00:01.855
Yeah.

2
00:00:01.855 --> 00:00:04.695
Thank you very much. Thank you for the opportunity.

3
00:00:05.315 --> 00:00:08.815
No pressure by my, my colleague. No pressure at all.

4
00:00:09.785 --> 00:00:14.695
Don't ask again. So track 1 0 9,

5
00:00:14.695 --> 00:00:16.095
track just few.

6
00:00:17.035 --> 00:00:18.575
Uh, introduction topics.

7
00:00:19.075 --> 00:00:21.615
We are going to talk about all of this.

8
00:00:22.035 --> 00:00:26.455
It seems too long, but I try to shorten as much as possible.

9
00:00:27.915 --> 00:00:31.535
So I have been test pilot, uh, for the last 20 years

10
00:00:31.635 --> 00:00:35.335
and since 2010, flying within the company, first flight,

11
00:00:35.695 --> 00:00:37.335
loping definition expansion

12
00:00:37.395 --> 00:00:41.215
and more, some accidents as well as you well understand

13
00:00:41.225 --> 00:00:43.575
among such activities, several occasion happen,

14

00:00:43.665 --> 00:00:46.615
which required to be examined and considered.

15
00:00:46.765 --> 00:00:49.295
Most of them end up with modification hardware

16
00:00:49.355 --> 00:00:51.735
or software, which significantly impacted the,

17
00:00:51.735 --> 00:00:55.295
either the design, the expected performances and

18
00:00:55.395 --> 00:00:56.935
or the time schedule.

19
00:00:57.715 --> 00:01:00.975
As a test pilots within a test flight team, a lot

20
00:01:00.975 --> 00:01:03.295
of pressure must be sustained from any

21
00:01:03.655 --> 00:01:04.975
branches you know very well.

22
00:01:05.415 --> 00:01:08.655
Engineering programs, marketing, sales, top management,

23
00:01:09.365 --> 00:01:13.215
everybody asking in, in a real world, it should not happen.

24
00:01:13.575 --> 00:01:16.895
Nevertheless, our responsibility and ah,

25
00:01:17.075 --> 00:01:20.735
and most is to convince large number of people

26
00:01:21.285 --> 00:01:24.015
that the approach to any kind of failure malfunction,

27
00:01:24.575 --> 00:01:28.495
accident must be assessed as a grace time to deeply

28
00:01:29.085 --> 00:01:30.215
analyze, discuss,

29
00:01:30.315 --> 00:01:34.535
and determine a conclusion If anything needed

30
00:01:34.555 --> 00:01:36.855
to be modified, that is the moment

31
00:01:37.155 --> 00:01:39.215
and without any further delays.

32
00:01:39.595 --> 00:01:42.455
If something happen, it'll luckily happen again

33
00:01:42.515 --> 00:01:47.335
and possibly with much more deadly outcomes has been a long,

34
00:01:47.485 --> 00:01:48.935
very long day for everybody.

35
00:01:49.615 --> 00:01:52.455
I hope we will be able to energize, spark, uh,

36
00:01:52.455 --> 00:01:56.095
your attention and stimulate some interest thoughts.

37
00:01:59.095 --> 00:02:03.955
So why 1 0 9 Tracker market requirement from s utility,

38
00:02:04.105 --> 00:02:06.555
so-called u use platform operators,

39
00:02:06.555 --> 00:02:09.195
which already use 1 0 9

40
00:02:09.215 --> 00:02:12.035
but requires, uh, maintain CS different, uh,

41

00:02:12.035 --> 00:02:15.915
27 certification base and skis for remote areas.

42
00:02:16.655 --> 00:02:19.555
The idea was not to design a brand new platform,

43
00:02:20.165 --> 00:02:22.435
which would've required time consuming

44
00:02:22.695 --> 00:02:24.155
and certification progress.

45
00:02:25.105 --> 00:02:28.075
Time of Mark was a key part from the top.

46
00:02:28.075 --> 00:02:31.435
Management certification was approached as a kit

47
00:02:31.495 --> 00:02:35.875
of actually design CS 24 27 Amendment four

48
00:02:36.915 --> 00:02:40.825
EFRA possible no, autopilot is a ro,

49
00:02:41.255 --> 00:02:44.465
otherwise single pilot IFR skits

50
00:02:44.465 --> 00:02:47.625
and dvantage, uh, uh, advanced, uh, avionics, uh,

51
00:02:48.275 --> 00:02:49.985
commercial of of the shelf.

52
00:02:50.605 --> 00:02:53.785
Thanks to the new avionics, we, we were able

53
00:02:53.785 --> 00:02:57.585
to introduce a power index, which is, uh, an Augusta with

54
00:02:58.345 --> 00:03:01.725
Leonardo family power device, um,

55
00:03:02.065 --> 00:03:03.445
um, information.

56
00:03:04.225 --> 00:03:07.605
And we also introduced the acceleration queue always

57
00:03:07.705 --> 00:03:11.245
inside at low speed, maintaining same performances

58
00:03:11.245 --> 00:03:14.765
and procedure as close as possible as the legacy variant.

59
00:03:15.865 --> 00:03:19.485
Uh, for minimal impact of the flight manual as light

60
00:03:19.485 --> 00:03:23.165
as possible is to manage cheap, not possible

61
00:03:24.085 --> 00:03:26.405
previous skis experience inside the company.

62
00:03:26.825 --> 00:03:30.125
1 1 9 Koala a single engine

63
00:03:30.385 --> 00:03:35.325
and 1 0 9 eco twin turbine skids certified, uh,

64
00:03:35.625 --> 00:03:38.885
but never in the company inventory, uh,

65
00:03:39.145 --> 00:03:40.765
no C 35

66
00:03:41.065 --> 00:03:45.765
and development probably within two seven C single channel

67
00:03:45.775 --> 00:03:48.685
FedEx with the single engine simulated training mode they

68

00:03:48.685 --> 00:03:50.365
keep with the special team file

69
00:03:50.425 --> 00:03:54.605
to set fully deteriorated engine for the test condition.

70
00:03:55.425 --> 00:03:58.165
So we already have a look at the picture,

71
00:03:58.275 --> 00:04:01.285
this is the tracker and let's go do the AR stuff.

72
00:04:01.745 --> 00:04:06.125
And this is what happened within small standard

73
00:04:06.275 --> 00:04:08.925
helipad nine times 15 meters.

74
00:04:09.105 --> 00:04:12.925
Uh, dimension ski collapsed during rejected cough

75
00:04:13.685 --> 00:04:14.925
maneuver at 70 feet.

76
00:04:17.185 --> 00:04:20.965
So, which is the basic procedure that was developed with,

77
00:04:20.985 --> 00:04:24.805
uh, variable TDP, uh, from 80 to 500 feet

78
00:04:25.265 --> 00:04:27.325
to be used in the confined area.

79
00:04:28.505 --> 00:04:32.565
Uh, helipad of almost 30 certified confined area

80
00:04:33.245 --> 00:04:34.765
designed on s and sb.

81
00:04:34.765 --> 00:04:38.845
Someone in the, in the audience know very well, uh,

82
00:04:39.185 --> 00:04:42.845
and the variant, which from which the tracker was derived.

83
00:04:43.505 --> 00:04:44.885
And this is the standard proposition.

84
00:04:44.885 --> 00:04:47.085
Three feet over power for 500 feet per minute.

85
00:04:47.485 --> 00:04:49.085
Maintain visual, far right corner.

86
00:04:49.265 --> 00:04:53.365
And we see later the picture, uh, TDP design

87
00:04:53.555 --> 00:04:57.725
between 8,500 feet, 15 knots down, uh,

88
00:04:57.725 --> 00:05:00.965
take off power accelerate to uh, take off safety speed,

89
00:05:00.965 --> 00:05:05.365
35 knots and climb 200 feet climb, uh, accelerate to VY

90
00:05:05.505 --> 00:05:08.885
and take off power up to 1000 feet.

91
00:05:10.345 --> 00:05:12.405
Uh, this is the pilot view

92
00:05:13.345 --> 00:05:17.565
and we use the windscreen to define the, the trajectory

93
00:05:17.745 --> 00:05:19.845
of the helicopter when you are climbing,

94
00:05:19.995 --> 00:05:24.805
this is the pilot view, 80 feet above the rain surface, uh,

95

00:05:25.105 --> 00:05:28.125
and the he part, you have to consider the 500 feet.

96
00:05:28.185 --> 00:05:30.725
So it'll be just molar helipad.

97
00:05:33.015 --> 00:05:36.675
The pilot, uh, is must have always the far right corner

98
00:05:36.745 --> 00:05:38.995
that is the key master of the maneuver.

99
00:05:38.995 --> 00:05:42.035
Without that one, the, the, the procedure

100
00:05:42.295 --> 00:05:44.835
and the path is completely mis up.

101
00:05:47.045 --> 00:05:51.885
Uh, the takeoff is very demanding is to,

102
00:05:52.315 --> 00:05:55.005
this is the, the where we develop everything.

103
00:05:56.305 --> 00:05:58.985
Uh, we understand a little bit more afterwards.

104
00:05:59.445 --> 00:06:03.705
Uh, we developed this one has been developed this one in two

105
00:06:03.705 --> 00:06:04.905
different condition.

106
00:06:05.095 --> 00:06:09.585
Failure before 50 feet failure at above 50 feet up to the

107
00:06:10.135 --> 00:06:11.345
takeoff decision point.

108
00:06:12.125 --> 00:06:15.105
Uh, very easy on below 50 feet,

109
00:06:15.135 --> 00:06:16.985
push over, maintain far right corner.

110
00:06:17.455 --> 00:06:21.825
Control. DNRF protect engine and transmission at

111
00:06:21.825 --> 00:06:22.985
or above 50 feet.

112
00:06:23.045 --> 00:06:27.745
At the point, nose down 15 degrees, you have almost five

113
00:06:27.805 --> 00:06:30.385
to seven degrees nose up during the climb.

114
00:06:30.685 --> 00:06:35.465
So you have to change the ude almost 20 degrees more

115
00:06:36.105 --> 00:06:39.505
probably in one secondary to maintain error

116
00:06:39.805 --> 00:06:41.025
and are within the limits.

117
00:06:42.575 --> 00:06:46.795
Uh, approaching the fla, the, the helipad flare, uh,

118
00:06:46.935 --> 00:06:48.435
as required to level the helicopter

119
00:06:48.535 --> 00:06:51.395
to establish minimum ground speed for the touch down.

120
00:06:52.015 --> 00:06:55.635
And if we, we look at the, at the trajectory,

121
00:06:56.375 --> 00:07:00.835
the top one is the climbing TDP ball, ballooning drop down

122

00:07:01.775 --> 00:07:05.835
and accelerating for re regain the helipad.

123
00:07:06.015 --> 00:07:08.155
And you notice that the trajectory is lower

124
00:07:08.155 --> 00:07:10.555
because the, the, the drop

125
00:07:11.375 --> 00:07:14.515
and the the lowering, the, the

126
00:07:15.635 --> 00:07:17.195
reducing the energy you have it.

127
00:07:17.815 --> 00:07:19.515
So to arrive at the helipad

128
00:07:19.855 --> 00:07:22.755
and the helipad, the, the, the flare will be up

129
00:07:22.755 --> 00:07:24.395
to 25 degrees nose up.

130
00:07:24.575 --> 00:07:27.555
So you have 15, no 15 degrees nose down.

131
00:07:27.855 --> 00:07:30.675
You, you stabilize probably three

132
00:07:30.695 --> 00:07:32.195
to four degrees north down.

133
00:07:32.255 --> 00:07:35.315
And then you go up a flare, 25 degrees very close

134
00:07:35.315 --> 00:07:40.105
to the ground and ground speed must be reduced

135
00:07:40.125 --> 00:07:43.665
as much as possible for 15 meters of standard.

136
00:07:45.405 --> 00:07:47.775
Have a look at the track trajectories.

137
00:07:47.875 --> 00:07:49.895
We start with the same condition as,

138
00:07:50.235 --> 00:07:52.695
as I I noticed I mentioned

139
00:07:52.795 --> 00:07:57.775
before, we should try, should get tried to,

140
00:07:57.915 --> 00:08:01.335
to maintain as close a possible at the s and DSP variant.

141
00:08:02.275 --> 00:08:04.695
So the climb is almost imposed.

142
00:08:05.195 --> 00:08:09.535
The sand is depends, depends on, uh, the,

143
00:08:09.795 --> 00:08:11.295
the pilot reaction time,

144
00:08:11.835 --> 00:08:14.895
how much you control DNR and and so on.

145
00:08:15.195 --> 00:08:19.295
So we arrive at the 70 feet, uh, with incremental approach.

146
00:08:19.355 --> 00:08:23.135
Of course, starting from the five feet over 10 feet,

147
00:08:23.305 --> 00:08:27.055
eight change from 10 feet to 70 feet,

148
00:08:28.735 --> 00:08:32.765
lower target weight to to reach, I mean the target weight

149

00:08:32.825 --> 00:08:34.405
for the weight temperature.

150
00:08:34.505 --> 00:08:36.805
We, we define for the rot of fly manner

151
00:08:36.825 --> 00:08:38.645
and the performances of the other variant

152
00:08:39.415 --> 00:08:43.805
ballooning required that time to recover the, the trajectory

153
00:08:43.915 --> 00:08:46.205
that we is never been recovered.

154
00:08:46.345 --> 00:08:49.605
So you always flying below the, the ideal trajectory.

155
00:08:50.785 --> 00:08:53.845
Second point, and mainly different from the wheel.

156
00:08:54.035 --> 00:08:56.205
When you touch down, the skids must

157
00:08:56.225 --> 00:08:58.085
be parallel to the terrain.

158
00:08:58.585 --> 00:09:01.885
So you cannot have any pitch attitude.

159
00:09:01.945 --> 00:09:04.685
So you had to leave the helicopter and, and,

160
00:09:05.305 --> 00:09:08.845
and land with the skids parallel to the terrain.

161
00:09:09.825 --> 00:09:14.205
And this, uh, doesn't allow to, to reduce the speed

162
00:09:14.785 --> 00:09:17.925
enough that, so you arrive al always with

163
00:09:18.465 --> 00:09:20.605
sporty sporty speed at the beginning,

164
00:09:20.605 --> 00:09:21.765
at the, at the very end.

165
00:09:23.365 --> 00:09:25.705
So some videos, uh,

166
00:09:26.325 --> 00:09:29.825
before that, I have to say Leonardo helicopter flight test,

167
00:09:29.855 --> 00:09:34.225
operational manual defined percentage of limitation, g, Z

168
00:09:34.285 --> 00:09:38.425
and Armenian to be applied to be much more conservative

169
00:09:38.565 --> 00:09:43.065
and to cope with the, um, use cases, the experimental

170
00:09:44.005 --> 00:09:47.745
AI engine ai, uh, was designed

171
00:09:47.895 --> 00:09:50.865
with such a performance parameters.

172
00:09:51.645 --> 00:09:55.265
And we need three valid test point to, to go further

173
00:09:55.365 --> 00:09:57.265
and to proceed with with the test.

174
00:09:57.535 --> 00:10:02.385
This our, our condition, uh, on top 2 24.

175
00:10:03.405 --> 00:10:04.345
Uh, this is one

176

00:10:12.695 --> 00:10:13.195
no sound

177
00:10:18.635 --> 00:10:18.995
distracting.

178
00:10:19.935 --> 00:10:23.835
So establish 500 feet per minute climbing far right corner,

179
00:10:24.655 --> 00:10:27.835
uh, failure, one seconds, 15 degrees north down,

180
00:10:27.835 --> 00:10:29.995
accelerating, accelerating, flair, flair, flair,

181
00:10:29.995 --> 00:10:32.235
left helicopter, very sporty.

182
00:10:32.975 --> 00:10:34.275
We stay within the,

183
00:10:35.135 --> 00:10:37.675
but we exceed from the, from the training model.

184
00:10:37.775 --> 00:10:41.035
So how to differ from parameters. This was not good.

185
00:10:41.105 --> 00:10:41.715
Test point.

186
00:10:46.725 --> 00:10:49.915
Let's go to the 25.

187
00:10:55.485 --> 00:10:57.425
Oh, no, doesn't work.

188
00:10:59.495 --> 00:11:02.305
Okay. This one I can, going back later.

189
00:11:02.445 --> 00:11:04.065
No worries, no worries.

190
00:11:23.665 --> 00:11:28.255
I started again. No worries. So 25.

191
00:11:36.965 --> 00:11:37.965
Does it work?

192
00:11:42.515 --> 00:11:44.415
You want Need to close it? Yeah, yeah.

193
00:11:44.845 --> 00:11:46.895
Okay, let's start it again.

194
00:11:48.685 --> 00:11:49.525
I start it again.

195
00:11:56.695 --> 00:11:58.955
No worries. I have, this is the last one.

196
00:11:59.015 --> 00:12:01.115
So I can go farther than 30 minutes.

197
00:12:06.585 --> 00:12:08.535
Let's try. Okay, that's working.

198
00:12:08.595 --> 00:12:12.395
25 power,

199
00:12:12.545 --> 00:12:15.875
500 feet per climbing, far right corner, always in sight.

200
00:12:15.985 --> 00:12:19.355
This is the key master for the, for the activities failure.

201
00:12:19.575 --> 00:12:23.475
One second time delay 15 degrees north down,

202
00:12:23.555 --> 00:12:27.115
accelerating quite fast, no failure, no time,

203

00:12:27.615 --> 00:12:29.075
and very sporty at the end.

204
00:12:29.215 --> 00:12:31.195
So we exceed from the train mode

205
00:12:31.215 --> 00:12:34.435
and we exceed from the, from the helipad.

206
00:12:37.885 --> 00:12:40.895
Yeah, Very good. 26.

207
00:12:44.815 --> 00:12:47.725
There we go. That's good.

208
00:12:48.985 --> 00:12:52.025
Uh, I like it. Got it.

209
00:12:52.485 --> 00:12:56.425
26, exactly the same maneuver power around the feet.

210
00:12:56.645 --> 00:13:00.785
You notice the, uh, the trajectory is almost 45 degrees

211
00:13:01.405 --> 00:13:03.865
in terms of angle to going back.

212
00:13:04.125 --> 00:13:07.425
One second, delay 15 degrees, nose down, accelerating,

213
00:13:07.425 --> 00:13:12.175
accelerating, flare, flare, flare, still sporty,

214
00:13:12.385 --> 00:13:14.615
still outta the of the air part

215
00:13:15.075 --> 00:13:17.495
and still, uh, still outta the training

216
00:13:17.565 --> 00:13:18.855
performance parameter.

217
00:13:22.795 --> 00:13:24.015
Uh, 28,

218
00:13:34.485 --> 00:13:35.945
we end up with something.

219
00:13:36.125 --> 00:13:39.705
No worries. So

220
00:13:43.135 --> 00:13:44.145
exactly the same.

221
00:13:45.345 --> 00:13:48.465
Accelerating and flare, flare,

222
00:13:48.795 --> 00:13:51.505
flare landing just on the L part.

223
00:13:52.055 --> 00:13:53.305
Stay within the L part,

224
00:13:53.605 --> 00:13:56.625
but we exceed from the training outta the

225
00:13:56.625 --> 00:13:57.745
performance parameter.

226
00:13:58.365 --> 00:14:02.065
But the maneuver seems to be, I mean, consistent, confident.

227
00:14:02.125 --> 00:14:04.665
So we go f we we went further

228
00:14:16.245 --> 00:14:17.065
29

229
00:14:21.625 --> 00:14:25.485
And climb power initially almost vertical,

230

00:14:25.485 --> 00:14:27.805
then going back far right corner.

231
00:14:29.125 --> 00:14:30.325
Climbing, climbing, climbing

232
00:14:36.935 --> 00:14:38.265
failure ballooning.

233
00:14:38.405 --> 00:14:42.465
One second delay 15 degrees north down failure.

234
00:14:43.015 --> 00:14:45.285
Very good, good.

235
00:14:46.075 --> 00:14:48.845
This 29, this giving us, I mean confidence.

236
00:14:48.865 --> 00:14:52.845
Oh, okay, the maneuver is, yeah, well almost there.

237
00:14:53.065 --> 00:14:57.905
We can go further. I

238
00:14:57.905 --> 00:14:59.505
haven't written anything.

239
00:14:59.645 --> 00:15:02.025
You can imagine what is after that?

240
00:15:05.395 --> 00:15:09.895
30. So

241
00:15:09.945 --> 00:15:14.885
confidence has improved inside the cockpit.

242
00:15:15.065 --> 00:15:17.245
So I wa it was my myself.

243
00:15:17.385 --> 00:15:19.925
Now the Andrea Castelli that is head

244
00:15:19.925 --> 00:15:21.485
of the flight test engineering.

245
00:15:22.795 --> 00:15:26.015
So exactly say maneuver, flare, flare, fla. Too low.

246
00:15:28.095 --> 00:15:32.145
Yeah, yeah. Oh,

247
00:15:33.005 --> 00:15:36.265
Uh, you notice we, nothing happened inside.

248
00:15:36.525 --> 00:15:37.585
So what's happening?

249
00:15:37.965 --> 00:15:40.705
Uh, shut down the engine and think about.

250
00:15:42.575 --> 00:15:47.345
Yeah. Good. Yeah, not bad.

251
00:15:48.675 --> 00:15:51.345
Discussion. Discussion.

252
00:15:51.555 --> 00:15:53.065
Let's think, think about the

253
00:15:53.085 --> 00:15:55.865
and traces just matter of nr control.

254
00:15:56.645 --> 00:15:59.185
The top is DNR or the top 29.

255
00:15:59.325 --> 00:16:02.465
The bottom is DNR of top, top 30.

256
00:16:03.405 --> 00:16:07.185
If you look just at NR seems that the top 29,

257

00:16:07.405 --> 00:16:08.905
the NR was not controlled at all.

258
00:16:09.005 --> 00:16:13.695
So the center below 95, 90 7% compared

259
00:16:13.695 --> 00:16:17.615
to the one, one that is the design, I mean the advised.

260
00:16:18.475 --> 00:16:22.455
So in terms of looking at that, the top 30 was perfect,

261
00:16:22.925 --> 00:16:24.695
controlling DNR one one.

262
00:16:24.695 --> 00:16:27.735
Perfect, very good. Not at top 29.

263
00:16:28.825 --> 00:16:30.495
Let's, uh, look at the traces.

264
00:16:31.035 --> 00:16:34.855
The blue one, bluish is the top 29.

265
00:16:35.235 --> 00:16:38.815
The, uh, the black one is the top 30. So what happened?

266
00:16:39.125 --> 00:16:42.975
Same maneuver, almost the same, uh, climbing at the,

267
00:16:43.115 --> 00:16:44.415
at the failure.

268
00:16:45.555 --> 00:16:48.775
The myself, this, uh, reduced the, the,

269
00:16:48.795 --> 00:16:50.975
the power just a little bit later.

270
00:16:51.715 --> 00:16:53.375
So I balloon a little bit more

271
00:16:53.915 --> 00:16:57.055
and I going below the, the blue one.

272
00:16:57.715 --> 00:17:00.575
So all the trajectory was below the,

273
00:17:01.115 --> 00:17:05.335
but is very narrow, I mean trajectory to be maintained.

274
00:17:05.675 --> 00:17:09.735
Uh, that point I end up to maintain the trajectory below.

275
00:17:10.075 --> 00:17:13.375
And when they start the flare, starting the point,

276
00:17:13.555 --> 00:17:18.055
the flare, there were no, no enough height

277
00:17:18.395 --> 00:17:20.015
to be sure that not to touch.

278
00:17:20.325 --> 00:17:22.015
It's not the problem to touch the pad

279
00:17:22.015 --> 00:17:26.095
because happening probably someone is, is getting that,

280
00:17:26.095 --> 00:17:30.575
that, that impression that not that but too, too fast

281
00:17:31.315 --> 00:17:34.015
and not enough time to level the helicopter.

282
00:17:36.355 --> 00:17:40.615
So this is the damages, uh, you haven't noticed,

283
00:17:41.355 --> 00:17:44.695
uh, probably, uh, that

284

00:17:46.105 --> 00:17:49.645
During the very last moment, the,

285
00:17:50.505 --> 00:17:55.245
the condition you have some oscillation for

286
00:17:55.245 --> 00:17:57.925
and a is very visible

287
00:17:58.865 --> 00:18:02.925
and it's not the, the, the touchdown on the tail, the knees

288
00:18:03.505 --> 00:18:06.685
is the what happened afterwards when the, the, the,

289
00:18:07.025 --> 00:18:09.765
the skids was in on the ground.

290
00:18:11.565 --> 00:18:15.945
So that is the point, uh, that induce

291
00:18:16.965 --> 00:18:20.025
excess load on the forward saddle, which collapse

292
00:18:20.125 --> 00:18:22.225
and de attach the for from the skids.

293
00:18:22.925 --> 00:18:27.525
So taking account, uh, to the stress, uh,

294
00:18:28.505 --> 00:18:33.215
the, uh, has been considered FAM, um,

295
00:18:34.745 --> 00:18:39.385
evaluation and the loads have been evaluated,

296
00:18:39.725 --> 00:18:43.105
uh, compared between the, uh, uh,

297
00:18:44.015 --> 00:18:47.465
what you expect, what you actually had.

298
00:18:47.885 --> 00:18:50.985
And the, the, the skid was instrumented.

299
00:18:51.285 --> 00:18:55.665
So we used the reverse approach to, to understand

300
00:18:56.125 --> 00:18:58.785
how far we went compared to the,

301
00:18:59.005 --> 00:19:00.545
to the ideal to the project.

302
00:19:01.775 --> 00:19:06.185
This some more, uh, damages on, on the saddle.

303
00:19:08.605 --> 00:19:10.625
So this is, uh, the old saddles.

304
00:19:13.455 --> 00:19:18.435
We, so the analytic, analytic revolution was, uh, uh,

305
00:19:18.535 --> 00:19:22.075
was in line with the, with the expected failure.

306
00:19:22.335 --> 00:19:27.075
So according to the CS 27, amend them two. I worked in this.

307
00:19:27.145 --> 00:19:31.315
Despite the failure, the the loads were actually

308
00:19:32.515 --> 00:19:36.135
compliant with what as expected.

309
00:19:36.715 --> 00:19:39.495
So there were no mistakes on the, on the design.

310
00:19:40.395 --> 00:19:43.535
And the, of course the event has been considered extreme,

311

00:19:45.095 --> 00:19:48.315
now less, no withstanding, I mean we pushing

312
00:19:48.575 --> 00:19:52.355
for a new design for the saddle.

313
00:19:54.875 --> 00:19:55.885
This is the new saddle.

314
00:19:57.005 --> 00:19:59.015
This is the difference between the old,

315
00:19:59.195 --> 00:20:00.695
the yellow and the new one.

316
00:20:01.005 --> 00:20:04.415
Thickness increase, skid interface, increase variation,

317
00:20:04.415 --> 00:20:09.275
constraint points and the variation.

318
00:20:09.815 --> 00:20:13.055
Uh, this allow to,

319
00:20:13.235 --> 00:20:15.055
to do some other simulation

320
00:20:15.235 --> 00:20:18.175
and confirm that the stress can be sustained much more

321
00:20:18.175 --> 00:20:22.095
stress complete, sustained by the, uh, by the new design.

322
00:20:24.345 --> 00:20:28.485
But, uh, would you like, would you have

323
00:20:30.615 --> 00:20:33.255
accepted this like the only improvement?

324
00:20:34.055 --> 00:20:36.495
I was not, I was not.

325
00:20:36.495 --> 00:20:39.375
Because if you understand, the maneuver was really,

326
00:20:39.515 --> 00:20:42.535
really demanding, really complicated.

327
00:20:42.835 --> 00:20:46.255
And especially it was designed for the landing gear

328
00:20:46.445 --> 00:20:49.605
with wheels and the skids is behaving differently.

329
00:20:49.865 --> 00:20:51.965
Uh, if you notice and you will notice a little,

330
00:20:52.065 --> 00:20:54.765
but probably due to the skids,

331
00:20:54.865 --> 00:20:58.565
the helicopter is not accelerating as the, the, the wheels.

332
00:20:59.145 --> 00:21:00.885
So the ballooning

333
00:21:00.885 --> 00:21:04.005
and the dropdown is higher on the, on the,

334
00:21:04.065 --> 00:21:06.205
on the skids compared to the landing.

335
00:21:06.235 --> 00:21:06.525
Here

336
00:21:12.265 --> 00:21:17.005
We introduce different, uh, completely different, um, uh,

337
00:21:17.525 --> 00:21:18.805
maneuver over three feet.

338

00:21:19.275 --> 00:21:21.525
This is the old one, 500 feet per minute.

339
00:21:21.665 --> 00:21:24.445
We discuss quite a lot maintain vision of our right corner,

340
00:21:24.805 --> 00:21:28.405
TDP 15 degrees, north down take off power.

341
00:21:28.515 --> 00:21:31.405
This is the standard procedure for, for, for takeoff.

342
00:21:32.185 --> 00:21:36.485
And the TDP could be between 8,500 feet accelerating

343
00:21:36.585 --> 00:21:41.085
to takeoff, uh, safety speed, 35 knots, climb 200 feet,

344
00:21:41.085 --> 00:21:45.365
accelerate ey and climb to takeoff power to 1000 feet.

345
00:21:45.545 --> 00:21:48.845
New procedure. Thanks to the new avionics,

346
00:21:49.265 --> 00:21:51.565
we can provide far more information

347
00:21:52.145 --> 00:21:55.125
and we can use, we introduced the pi, the power index

348
00:21:55.145 --> 00:21:57.085
as I told you, uh, at the beginning

349
00:21:57.355 --> 00:22:00.045
that provide far more details,

350
00:22:01.105 --> 00:22:05.925
far more exactly power setting for starting climbing.

351
00:22:06.385 --> 00:22:10.245
So delta pi from hover, hover power in three seconds,

352
00:22:10.455 --> 00:22:12.205
climb a three, 400 feet per minute.

353
00:22:12.545 --> 00:22:14.205
We introduce also the ground speed.

354
00:22:14.425 --> 00:22:16.245
We have also the acceleration queue

355
00:22:16.245 --> 00:22:17.645
to understand if you accelerating

356
00:22:17.785 --> 00:22:21.205
or you can maintain the speed, uh, exactly

357
00:22:21.905 --> 00:22:25.125
at TDP 15 degrees, no, no down change in one,

358
00:22:25.125 --> 00:22:26.325
two signals, no rush.

359
00:22:27.105 --> 00:22:28.165
25 degrees.

360
00:22:28.745 --> 00:22:33.565
Um, um, 25 degrees of, uh, sorry, 25 nodes of ground speed.

361
00:22:33.585 --> 00:22:35.885
We introduce also this one not related

362
00:22:35.905 --> 00:22:37.565
to the high speed sensor,

363
00:22:37.785 --> 00:22:41.285
but the ground speed that is much more precise pitch up

364
00:22:41.285 --> 00:22:44.045
because we have start already accelerating and climbing.

365

00:22:44.425 --> 00:22:46.245
So 2.5 degrees no up.

366
00:22:46.665 --> 00:22:49.525
We noticed that we can accelerate fast

367
00:22:49.705 --> 00:22:52.125
and start climbing 2.5 degrees.

368
00:22:52.385 --> 00:22:54.805
And we introduce also climb out to safety speed,

369
00:22:54.945 --> 00:22:59.205
we will talking about later, uh, play teco power climb, uh,

370
00:22:59.255 --> 00:23:01.405
climb up safety speed 1000 feet.

371
00:23:01.585 --> 00:23:05.685
And on what you notice, probably at, on the second

372
00:23:06.355 --> 00:23:07.725
with, uh, we, uh, we,

373
00:23:07.905 --> 00:23:09.965
we change the point of view of the pilot.

374
00:23:10.265 --> 00:23:12.125
We put pedal chime window.

375
00:23:14.015 --> 00:23:15.705
That means completely different.

376
00:23:16.085 --> 00:23:18.105
We have, uh, the, the, the,

377
00:23:18.525 --> 00:23:21.345
the visual far right corner at the beginning

378
00:23:21.445 --> 00:23:23.665
and now the helipad is, uh, seen

379
00:23:23.895 --> 00:23:25.665
between the legs of the pilot.

380
00:23:25.775 --> 00:23:28.465
This change completed the, the, the slope

381
00:23:28.805 --> 00:23:33.355
of the climbing rejected takeoff maneuver.

382
00:23:34.615 --> 00:23:36.515
Uh, on the takeoff we are to,

383
00:23:36.575 --> 00:23:38.755
we talk about already the old one.

384
00:23:38.925 --> 00:23:40.475
Let's call the new one.

385
00:23:41.485 --> 00:23:45.805
We change between 80 limit, 70 feet at the minimum,

386
00:23:47.175 --> 00:23:49.505
stop climbing, lower the start, reject,

387
00:23:49.865 --> 00:23:52.465
maintaining correct side of the he part within the chime

388
00:23:52.465 --> 00:23:56.505
window, maintain 1 0 1 below 50 feet, five feet left,

389
00:23:56.505 --> 00:23:59.025
helicopter skits, adjust cushion,

390
00:23:59.525 --> 00:24:03.625
and as soon as you land up, you reduce the collette.

391
00:24:04.455 --> 00:24:06.865
This is the new rejected take of procedure.

392

00:24:07.085 --> 00:24:11.535
Why this are the two pilot view,

393
00:24:12.235 --> 00:24:13.935
the left we already talk about.

394
00:24:14.835 --> 00:24:16.415
And the right is the new one,

395
00:24:16.675 --> 00:24:20.455
if you consider is almost 15 degrees, 10

396
00:24:20.515 --> 00:24:24.775
to 15 degrees changing on the, on the slope climbing back.

397
00:24:25.955 --> 00:24:29.665
And let's, let's see if it's working.

398
00:24:30.255 --> 00:24:33.825
Sure, no, uh, let's see.

399
00:24:35.295 --> 00:24:39.705
This is done. Uh, both are from mid that campaign.

400
00:24:39.815 --> 00:24:43.265
This is 2002, 2008 Switzerland.

401
00:24:43.775 --> 00:24:46.265
This sp during the development

402
00:24:46.925 --> 00:24:49.745
and Switzerland, your, your place, uh,

403
00:24:50.135 --> 00:24:52.305
500 feet climbing, going backwards.

404
00:24:56.725 --> 00:25:01.015
Failure ballooning 15 degrees north down

405
00:25:03.075 --> 00:25:04.375
and fla flare flare.

406
00:25:04.375 --> 00:25:07.815
You notice the flare still flaring and touchdown.

407
00:25:07.965 --> 00:25:11.805
This is the wheel. Uh, we cannot do that with the, with the,

408
00:25:12.395 --> 00:25:13.445
with the skis.

409
00:25:26.935 --> 00:25:31.545
Uh, this is the new man delta PI 15, uh,

410
00:25:31.775 --> 00:25:34.755
percent, uh, climbing,

411
00:25:37.325 --> 00:25:39.255
rejecting, accelerating.

412
00:25:39.275 --> 00:25:42.655
That's it. That's only change of the attitude.

413
00:25:42.915 --> 00:25:45.615
Arrive to e part, leave the ski cushion.

414
00:25:49.895 --> 00:25:53.955
This the, the new maneuver. Yeah, easier, easier.

415
00:25:57.825 --> 00:25:58.965
You can understand that.

416
00:25:59.065 --> 00:26:02.205
How, how, how was the discussion on that?

417
00:26:03.985 --> 00:26:06.205
But we, we haven't stopped there

418
00:26:06.875 --> 00:26:09.885
because I was convinced that we need some more.

419

00:26:12.705 --> 00:26:17.215
So What we introduce, uh,

420
00:26:18.925 --> 00:26:23.425
we start to think to talk about with the panel one of years,

421
00:26:24.725 --> 00:26:29.265
uh, and we introduced the stress 20 29 51

422
00:26:29.425 --> 00:26:33.025
requires, uh, to reach 1000, uh, prescribed two

423
00:26:33.585 --> 00:26:37.105
actually claim segments, the 29 15 87

424
00:26:37.205 --> 00:26:39.305
for foresee the publishing of the two segments

425
00:26:40.275 --> 00:26:43.685
and the second segments could be selected by the applicant.

426
00:26:44.965 --> 00:26:48.585
Uh, meaning, uh, take off safety speed and VY

427
00:26:49.205 --> 00:26:52.905
and considering the acceleration between safety speed,

428
00:26:52.905 --> 00:26:56.295
the VY level flight, uh,

429
00:26:56.845 --> 00:27:01.495
this is the sketch is quite, quite, uh, is a,

430
00:27:02.805 --> 00:27:04.145
uh, comprehensible.

431
00:27:06.115 --> 00:27:10.655
But the advisory circular of 29 67, para B one,

432
00:27:10.955 --> 00:27:14.975
uh, content as an an alternative, um,

433
00:27:15.535 --> 00:27:18.015
possible position, except the cough,

434
00:27:18.015 --> 00:27:22.895
safety speed must be must be, uh, there we, uh,

435
00:27:23.955 --> 00:27:27.485
we can select a climb speed

436
00:27:27.595 --> 00:27:29.125
different from the ey.

437
00:27:30.955 --> 00:27:35.775
So the, the climbing speed could, could be a single speed.

438
00:27:37.285 --> 00:27:39.065
And we introduced this new concept.

439
00:27:39.405 --> 00:27:43.705
Now it's quite spread in all the platform in, in, uh,

440
00:27:43.725 --> 00:27:47.785
in Leonard helicopters climb valve safety speed is in line

441
00:27:47.785 --> 00:27:51.025
with the means of compliance use all the time.

442
00:27:51.085 --> 00:27:55.505
The 2.5 uh, minutes of AI rating for a steeper gradient.

443
00:27:56.005 --> 00:28:00.865
So we are not losing time to accelerate to, we climb

444
00:28:01.125 --> 00:28:04.185
for, for all the period of the 2.5.

445
00:28:04.645 --> 00:28:08.105
And when the 2.5 has completed, you can accelerate,

446

00:28:08.105 --> 00:28:12.625
you're still having, uh, um, power to accelerate at ey,

447
00:28:12.715 --> 00:28:16.865
which is the, the, the VY the performance

448
00:28:17.165 --> 00:28:21.745
for the climbing out and going out from, from the condition.

449
00:28:21.965 --> 00:28:26.065
But you can reach easily and with a steeper gradient.

450
00:28:27.365 --> 00:28:32.105
So again, on the the new procedure, we put the chime window,

451
00:28:32.525 --> 00:28:34.985
we put the ground speed, we put the pi,

452
00:28:36.445 --> 00:28:39.415
this coming from either we,

453
00:28:39.795 --> 00:28:42.615
we modified the projector, the, the project

454
00:28:42.875 --> 00:28:44.855
and the design inside the cockpit.

455
00:28:45.035 --> 00:28:49.735
So, uh, the shine window, the SS pit was uh, occluded by,

456
00:28:49.915 --> 00:28:52.935
by some, some, um, boxes.

457
00:28:53.515 --> 00:28:58.395
We remove it and we introduced API and we are using the API.

458
00:29:03.155 --> 00:29:06.175
So summer improvement, new subject design,

459
00:29:06.715 --> 00:29:09.295
new confined area, procedure technique, safety,

460
00:29:09.445 --> 00:29:12.455
preciseness simplicity, new climate out strategy,

461
00:29:13.055 --> 00:29:14.855
improved safety and simplicity.

462
00:29:16.375 --> 00:29:19.345
What we learn, and that this is the question from you.

463
00:29:20.515 --> 00:29:23.035
I get the SP performances.

464
00:29:23.795 --> 00:29:26.115
I choose five points different.

465
00:29:26.225 --> 00:29:30.625
This is the sp this is the tracker, and this is the summary.

466
00:29:32.725 --> 00:29:35.905
So C level high temperature,

467
00:29:36.845 --> 00:29:40.715
we lose 25 kilos, 1000 feet,

468
00:29:42.145 --> 00:29:43.805
almost high temperature.

469
00:29:43.805 --> 00:29:48.265
We lose 10 kilos. Beyond that, we have the same weight.

470
00:29:50.915 --> 00:29:54.725
What is the meaning? We haven't got time to go in, uh,

471
00:29:54.755 --> 00:29:58.605
into deep understand the perfectly the aerodynamic, uh,

472
00:29:58.805 --> 00:29:59.805
meanings on there.

473

00:30:00.505 --> 00:30:02.005
But you had to consider

474
00:30:02.775 --> 00:30:07.605
after that accident, we had to go to the top management

475
00:30:07.705 --> 00:30:11.365
and to the sales and said, look, we made

476
00:30:11.965 --> 00:30:15.725
stronger helicopter, we made simpler the, the per the,

477
00:30:16.225 --> 00:30:18.005
the maneuver we lose,

478
00:30:18.345 --> 00:30:21.325
we lost 25 kilos at sea level.

479
00:30:21.945 --> 00:30:23.845
And that was a big discussion.

480
00:30:24.505 --> 00:30:25.525
But this is helicopter

481
00:30:30.465 --> 00:30:30.625
questions.

482
00:30:40.495 --> 00:30:42.725
James by the door. Yeah, I, I'm waiting

483
00:30:42.745 --> 00:30:43.845
for, yeah, just a moment.

484
00:30:43.945 --> 00:30:46.205
I'm waiting for Nicole since two days, so

485
00:30:48.745 --> 00:30:49.745
I'm not scared.

486
00:30:50.035 --> 00:30:51.925
Yeah. Oh, I'm the first one. No pressure, no worries.

487
00:30:51.955 --> 00:30:53.925
Okay, so two questions. The first one is, uh,

488
00:30:53.925 --> 00:30:57.005
have you considered, uh, change in the one engine

489
00:30:57.665 --> 00:31:00.365
in operative transient limitations from the,

490
00:31:01.385 --> 00:31:04.485
to give more juice to the power from, from the good engine

491
00:31:04.945 --> 00:31:07.085
to, you know, come down with less syn rate?

492
00:31:07.825 --> 00:31:11.045
So changing the, the one engine limitations, uh, that you,

493
00:31:11.145 --> 00:31:13.605
you used to have on the legacy one? Yeah,

494
00:31:13.745 --> 00:31:14.845
Two seven D,

495
00:31:15.225 --> 00:31:17.965
the engine two 70 D has much more

496
00:31:17.965 --> 00:31:19.405
performance on single engine.

497
00:31:19.825 --> 00:31:24.325
The point is, if you change the engine, you change all the,

498
00:31:24.325 --> 00:31:27.205
um, uh, the requirement from the, from the certification.

499
00:31:27.825 --> 00:31:31.325
Uh, you, you, you had to start all the performance again.

500

00:31:31.665 --> 00:31:35.245
So it took ages. So I said no way.

501
00:31:35.485 --> 00:31:40.005
I asked also why not to get, to get a twin engine

502
00:31:40.305 --> 00:31:41.445
and training mode.

503
00:31:42.065 --> 00:31:46.045
It cost. And at the, at that point, either way

504
00:31:46.585 --> 00:31:50.165
we changed the engine, we had to do again the performance

505
00:31:51.025 --> 00:31:52.085
and the low survey.

506
00:31:52.595 --> 00:31:55.125
That means at least one year more.

507
00:31:55.625 --> 00:31:57.045
And we didn't have the time

508
00:31:57.625 --> 00:31:59.565
that's required from the tempera mansion

509
00:31:59.565 --> 00:32:01.405
to be on the market, unfortunately.

510
00:32:01.755 --> 00:32:05.445
Okay, the second question is on the legacy 1 0 9 s. Yes.

511
00:32:05.905 --> 00:32:08.045
The, you know, in 2080, yes.

512
00:32:08.045 --> 00:32:09.445
The category S certification

513
00:32:09.795 --> 00:32:11.365
with the backwards maneuver Yes.

514
00:32:11.825 --> 00:32:14.485
Was already a very challenging, um, setup.

515
00:32:15.185 --> 00:32:17.325
And so that was, uh, you know, leading

516
00:32:17.385 --> 00:32:20.245
to the vertical takeoff from the elevated helipad.

517
00:32:20.505 --> 00:32:22.365
Yes. And so the question is, did you have

518
00:32:22.365 --> 00:32:23.765
to change also the profile?

519
00:32:23.945 --> 00:32:25.485
Do you still fly that profile on

520
00:32:25.485 --> 00:32:26.485
The vertical? No, it's the same performance

521
00:32:26.485 --> 00:32:28.405
for the vertical profile is

522
00:32:28.405 --> 00:32:29.445
the exactly the same

523
00:32:29.445 --> 00:32:30.445
Performance. So that didn't

524
00:32:30.445 --> 00:32:30.925
change that

525
00:32:30.955 --> 00:32:31.955
Part. It's 50 feet.

526
00:32:31.955 --> 00:32:32.685
Yeah. Okay.

527

00:32:32.825 --> 00:32:36.205
So you do not, I mean, whatever is the, the altitude,

528
00:32:36.385 --> 00:32:41.085
you do not gain the, the vertical speed that you cannot,

529
00:32:41.585 --> 00:32:46.365
uh, um, manage and at the end you level the helicopter

530
00:32:46.665 --> 00:32:48.325
and the, the, the,

531
00:32:48.545 --> 00:32:52.645
the skits you can just moving 3, 3, 4 feet

532
00:32:53.025 --> 00:32:55.765
and you are very good on that, on the skits.

533
00:32:55.765 --> 00:32:57.285
So the performance is the same.

534
00:32:57.485 --> 00:32:58.565
I choose this one just

535
00:32:58.565 --> 00:33:02.965
because the comparison is the only one that we, we lost, uh,

536
00:33:02.965 --> 00:33:04.005
25 kilos.

537
00:33:04.105 --> 00:33:06.965
Thanks. Welcome. Yes, sir.

538
00:33:10.255 --> 00:33:12.065
What I did after the accident, James

539
00:33:12.085 --> 00:33:17.065
Was first probably, Uh, the, uh,

540
00:33:17.565 --> 00:33:18.625
was there any concern, and,

541
00:33:18.645 --> 00:33:19.985
and sorry, I'm not a helicopter guy,

542
00:33:19.985 --> 00:33:21.305
but as you strengthen the skid,

543
00:33:21.805 --> 00:33:23.145
was it sort of good that it failed?

544
00:33:23.245 --> 00:33:25.425
Now when you strengthen the skid, are you going to chase

545
00:33:25.425 --> 00:33:26.945
that load into the fuselage

546
00:33:27.005 --> 00:33:29.425
and probably more expensive fixes?

547
00:33:30.205 --> 00:33:31.245
I I'm sure you looked at that.

548
00:33:31.345 --> 00:33:33.765
And also we do have SERP support if you need it. So,

549
00:33:35.385 --> 00:33:36.725
Uh, Sorry, say, say again

550
00:33:36.755 --> 00:33:37.755
Your question. So yeah, sorry.

551
00:33:37.755 --> 00:33:38.245
The, the,

552
00:33:38.355 --> 00:33:40.685
when you strengthened the skid after the failure Yes.

553
00:33:40.685 --> 00:33:42.165
With the design saddle, yes.

554

00:33:42.305 --> 00:33:44.925
Was there a concern that you are, uh, chasing

555
00:33:45.065 --> 00:33:47.445
or that load will now go up into the fuselage

556
00:33:47.945 --> 00:33:49.085
and cause more problems?

557
00:33:49.265 --> 00:33:52.645
We changed only the saddle. All the rest was good. Okay.

558
00:33:52.645 --> 00:33:57.085
Because the point is all the stress was towards the saddle.

559
00:33:57.835 --> 00:34:02.045
Okay. So that moment forward enough is totally,

560
00:34:03.415 --> 00:34:07.645
completely on, on, on the, on the load of the saddle.

561
00:34:07.785 --> 00:34:09.965
So that one was more than enough. Okay.

562
00:34:09.965 --> 00:34:13.075
Thank you sir. My turn. Thank you.

563
00:34:13.105 --> 00:34:15.515
Yeah, great presentation Giuseppe. Thank

564
00:34:15.515 --> 00:34:16.515
You. No pressure. No

565
00:34:16.515 --> 00:34:16.895
pressure.

566
00:34:17.935 --> 00:34:19.915
So between the two, uh, were you able

567
00:34:19.915 --> 00:34:22.115
to reduce the helipad size requirement

568
00:34:22.585 --> 00:34:25.235
because you're on skid and you're not sliding as much, or

569
00:34:25.235 --> 00:34:28.915
No, because I mean, the requirement is 15 times 15 in

570
00:34:28.915 --> 00:34:30.115
terms of meter, and

571
00:34:30.115 --> 00:34:33.755
that's the one is narrow and the same length.

572
00:34:33.935 --> 00:34:38.285
So it's nine meters wide and 10 meter length.

573
00:34:38.625 --> 00:34:40.725
So that is the, the standard Ali part.

574
00:34:40.945 --> 00:34:43.445
And with the wheel gear, you were able to stay within?

575
00:34:43.515 --> 00:34:46.965
Yeah, the, the, it is not the, uh, the, the wide

576
00:34:47.585 --> 00:34:49.525
and that's in use me.

577
00:34:50.225 --> 00:34:51.965
The limitation is the length.

578
00:34:53.345 --> 00:34:57.125
And again, if you notice with the wheels,

579
00:34:57.225 --> 00:34:58.365
you can stay there

580
00:34:58.585 --> 00:35:01.645
and most of the customer, when they, they doing

581

00:35:01.745 --> 00:35:03.365
for training, they touch the,

582
00:35:03.365 --> 00:35:05.365
the pads in the back, no problem for that.

583
00:35:05.465 --> 00:35:06.605
And we touch that.

584
00:35:07.265 --> 00:35:09.765
But the point is, on the skids, you had

585
00:35:09.765 --> 00:35:11.085
to leave the helicopter and at

586
00:35:11.085 --> 00:35:12.845
that point you're still having that speed.

587
00:35:12.985 --> 00:35:15.405
You, you, you cannot imagine manage otherwise.

588
00:35:15.625 --> 00:35:17.405
On the only breaks is the collective.

589
00:35:17.465 --> 00:35:19.725
As soon as you touch down, you lower the collect.

590
00:35:19.785 --> 00:35:24.365
But uh, there's same sort of limitation

591
00:35:24.505 --> 00:35:26.805
to stop the helicoptering somehow. Thank

592
00:35:26.845 --> 00:35:27.845
You. Yeah.

593
00:35:27.845 --> 00:35:29.575
Yeah.

594
00:35:30.535 --> 00:35:32.535
I haven't done anything for the accident.

595
00:35:33.275 --> 00:35:35.455
So after the accident, I haven't done anything.

596
00:35:35.555 --> 00:35:38.325
So I went for dinner with my wife, nothing.

597
00:35:38.635 --> 00:35:41.405
Okay, good, good.

598
00:35:41.405 --> 00:35:44.325
Another one I told, I told you, uh, at dinner,

599
00:35:44.785 --> 00:35:49.765
the other one on 2021, my, my, my wife was pregnant.

600
00:35:49.985 --> 00:35:51.685
It was with me. I was in Spain.

601
00:35:52.285 --> 00:35:55.125
I, I actually crashed completely.

602
00:35:55.325 --> 00:35:59.605
I destroyed the helicopter. That was much more complicated.

603
00:36:00.385 --> 00:36:01.725
Do I have to find out?

604
00:36:02.205 --> 00:36:05.005
I send him a message thanks to technology

605
00:36:05.705 --> 00:36:07.445
and he understood immediately.

606
00:36:07.665 --> 00:36:11.565
So start, um, having the, the problem with the,

607
00:36:11.795 --> 00:36:14.005
with the kids and went to the hospital.

608

00:36:14.605 --> 00:36:18.205
Hospital. Even if I said I'm okay for me as soon

609
00:36:18.205 --> 00:36:20.285
as possible, it goes straight to the hospital.

610
00:36:21.255 --> 00:36:22.805
Thank you very much. Any questions?