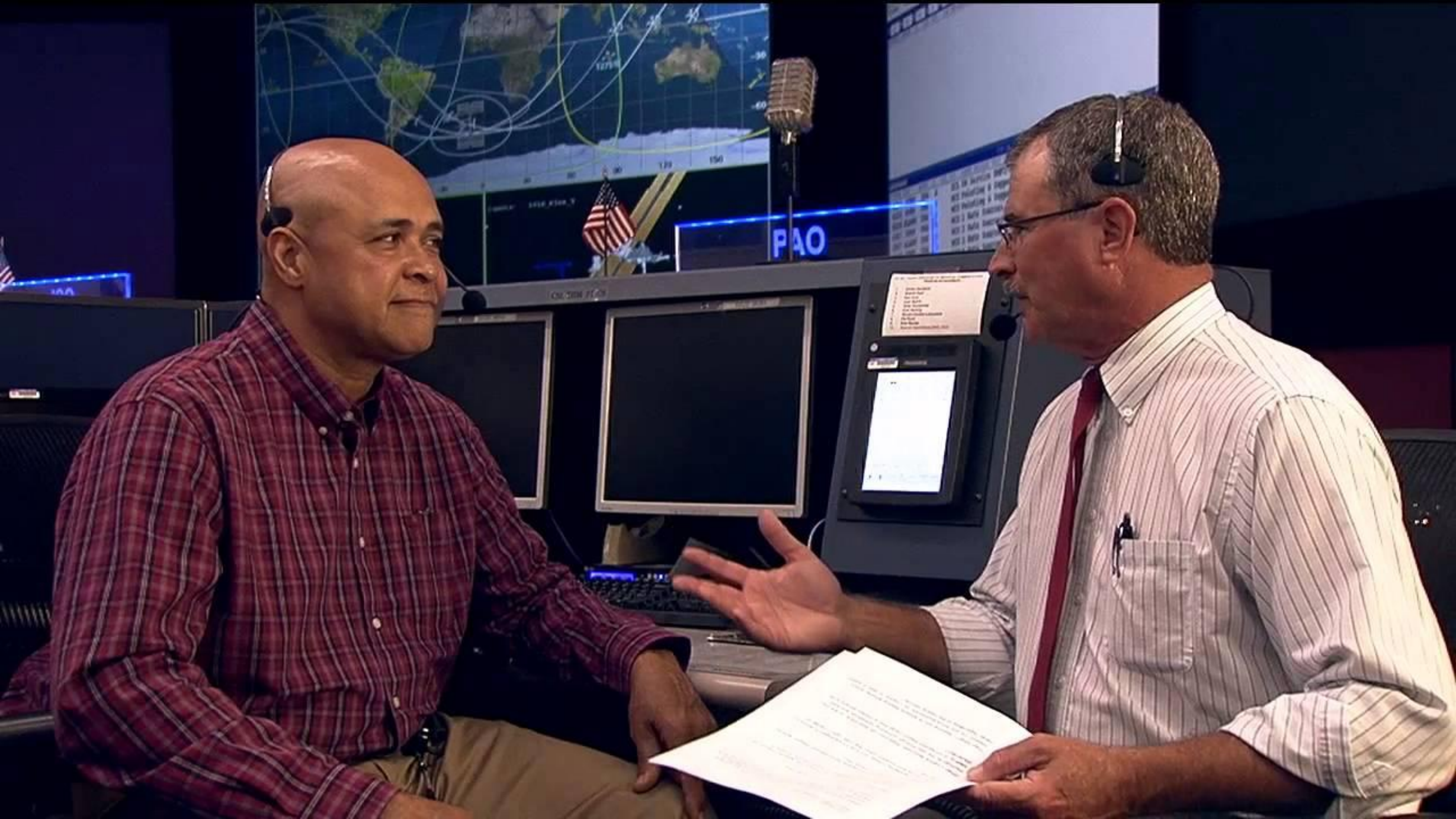
PAO

1
00:00:05,670 --> 00:00:03,750
the cygnus launch vehicle is out on the

2
00:00:07,670 --> 00:00:05,680
pad at the wallops flight facility the

3
00:00:08,790 --> 00:00:07,680
preparations for sunday's launch is

4
00:00:10,709 --> 00:00:08,800
continuing

5
00:00:12,709 --> 00:00:10,719
and the work to get cygnus ready for the

6
00:00:14,870 --> 00:00:12,719
launch didn't just get going when the

7
00:00:16,790 --> 00:00:14,880
rocket was rolled out to the pad

8
00:00:19,670 --> 00:00:16,800
recently i spoke with floyd booker

9
00:00:21,830 --> 00:00:19,680
nasa's cygnus ii visiting vehicle lead

10
00:00:24,550 --> 00:00:21,840
about what's required to get these cargo

11
00:00:26,550 --> 00:00:24,560
ships ready to go and how far in advance

12
00:00:28,310 --> 00:00:26,560
they actually start preparing for any

13
00:00:31,029 --> 00:00:28,320

given mission

14
00:00:33,750 --> 00:00:31,039
well the program starts strategically we

15
00:00:36,310 --> 00:00:33,760
start years out we we look at all the

16
00:00:38,310 --> 00:00:36,320
vehicles that plan to come to station

17
00:00:40,470 --> 00:00:38,320
and the various crews and and what

18
00:00:43,350 --> 00:00:40,480
science is planned for them

19
00:00:45,029 --> 00:00:43,360
and with that we develop a manifest for

20
00:00:48,229 --> 00:00:45,039
each visiting vehicle

21
00:00:50,229 --> 00:00:48,239
and so it's kind of my job to

22
00:00:53,270 --> 00:00:50,239
to coordinate and manage the

23
00:00:54,310 --> 00:00:53,280
requirements as the cargo is identified

24
00:01:01,990 --> 00:00:54,320
and

25
00:01:02,950 --> 00:01:02,000
manifests change over time they do

26
00:01:05,109 --> 00:01:02,960
change

27
00:01:07,990 --> 00:01:05,119
they're not static right strategic is

28
00:01:09,270 --> 00:01:08,000
years tactical at about a year we start

29
00:01:11,910 --> 00:01:09,280
identifying

30
00:01:13,590 --> 00:01:11,920
mass properties powered

31
00:01:15,749 --> 00:01:13,600
instruments like refrigerators

32
00:01:17,910 --> 00:01:15,759
incubators

33
00:01:19,910 --> 00:01:17,920
different components like that to meet

34
00:01:22,630 --> 00:01:19,920
unique requirements for the vehicle if

35
00:01:24,310 --> 00:01:22,640
it needs power the visiting vehicle lead

36
00:01:27,190 --> 00:01:24,320
actually means means what what's your

37
00:01:29,270 --> 00:01:27,200
responsibility well i'm responsible for

38
00:01:30,870 --> 00:01:29,280

again meeting that hardware's

39
00:01:32,550 --> 00:01:30,880
requirements ensuring we can fly it

40
00:01:34,550 --> 00:01:32,560
safely on the vehicle

41
00:01:36,950 --> 00:01:34,560
ensuring the vehicle has resources to

42
00:01:38,710 --> 00:01:36,960
receive it and get it to station

43
00:01:40,310 --> 00:01:38,720
in some cases if we're talking about

44
00:01:42,710 --> 00:01:40,320
science experiments those things are

45
00:01:44,069 --> 00:01:42,720
known fairly far in advance that's

46
00:01:45,910 --> 00:01:44,079
correct um

47
00:01:47,830 --> 00:01:45,920
years five years

48
00:01:49,910 --> 00:01:47,840
well again the

49
00:01:50,789 --> 00:01:49,920
from a year's perspective is strategic

50
00:01:53,350 --> 00:01:50,799
plan

51
00:01:55,030 --> 00:01:53,360
tactical we look at within a year so for

52
00:01:57,350 --> 00:01:55,040
me i started really looking at the

53
00:01:59,429 --> 00:01:57,360
details at a year at one year like one

54
00:02:01,830 --> 00:01:59,439
year and it's i guess then within that

55
00:02:03,749 --> 00:02:01,840
time period that you're looking at uh

56
00:02:04,950 --> 00:02:03,759
the more mundane things like maybe

57
00:02:06,149 --> 00:02:04,960
clothing and

58
00:02:08,550 --> 00:02:06,159
other things you're right because then

59
00:02:10,150 --> 00:02:08,560
we have crew we know what sizes they are

60
00:02:12,309 --> 00:02:10,160
and and things like that and then when

61
00:02:13,190 --> 00:02:12,319
in six months we've identified

62
00:02:14,790 --> 00:02:13,200
um

63
00:02:17,270 --> 00:02:14,800

their food their clothing all the

64
00:02:19,750 --> 00:02:17,280
science equipment the

65
00:02:22,150 --> 00:02:19,760
things we need to repair and and

66
00:02:23,750 --> 00:02:22,160
maintenance and service within that time

67
00:02:24,949 --> 00:02:23,760
period that this vehicle is going to be

68
00:02:27,430 --> 00:02:24,959
on orbit

69
00:02:30,309 --> 00:02:27,440
and so those details flesh out at that

70
00:02:33,270 --> 00:02:30,319
time the long range planning is done

71
00:02:35,110 --> 00:02:33,280
higher up the food chain is correct

72
00:02:36,710 --> 00:02:35,120
they're thinking in terms of what we

73
00:02:38,229 --> 00:02:36,720
know we're going to need in the long

74
00:02:40,710 --> 00:02:38,239
term but the the

75
00:02:43,030 --> 00:02:40,720
the more planning the more detailed

76
00:02:45,430 --> 00:02:43,040
planning i guess is what comes in this

77
00:02:47,190 --> 00:02:45,440
this 12-month lead up correct 12 to 6

78
00:02:48,949 --> 00:02:47,200
months is that

79
00:02:51,589 --> 00:02:48,959
does that take a whole year or would you

80
00:02:52,630 --> 00:02:51,599
like more time

81
00:02:56,550 --> 00:02:52,640
well

82
00:02:58,790 --> 00:02:56,560
it does it i mean we we have to identify

83
00:03:00,869 --> 00:02:58,800
the the the things for the vehicle you

84
00:03:02,470 --> 00:03:00,879
know what's the total mass of this

85
00:03:04,869 --> 00:03:02,480
some things are heavier or lighter than

86
00:03:06,630 --> 00:03:04,879
others and and so we develop

87
00:03:08,309 --> 00:03:06,640
and of course that picture changes as we

88
00:03:10,229 --> 00:03:08,319

evolve as we get closer to launch if we

89
00:03:12,470 --> 00:03:10,239
slip we may change some of the

90
00:03:14,390 --> 00:03:12,480
components that are flying that are

91
00:03:16,070 --> 00:03:14,400
needed in that time frame so there's

92
00:03:18,710 --> 00:03:16,080
some flexibility

93
00:03:21,350 --> 00:03:18,720
in being able to move cargo from one

94
00:03:24,070 --> 00:03:21,360
visiting vehicle to the other as we

95
00:03:25,270 --> 00:03:24,080
really approach the launch

96
00:03:27,830 --> 00:03:25,280
you've talked you mentioned a couple

97
00:03:29,430 --> 00:03:27,840
times worrying about mass properties and

98
00:03:31,670 --> 00:03:29,440
just how

99
00:03:33,430 --> 00:03:31,680
specific how accurate does that need to

100
00:03:34,550 --> 00:03:33,440
be for someone who's not in the business

101
00:03:36,390 --> 00:03:34,560
it would seem like you know whether it

102
00:03:39,509 --> 00:03:36,400
weighs a pound or a pound and a half

103
00:03:41,509 --> 00:03:39,519
yeah so what would be okay right

104
00:03:42,869 --> 00:03:41,519
not so much here well when you're

105
00:03:43,830 --> 00:03:42,879
talking about

106
00:03:45,910 --> 00:03:43,840
um

107
00:03:47,190 --> 00:03:45,920
three or four thousand pounds of cargo

108
00:03:49,030 --> 00:03:47,200
it adds up

109
00:03:51,750 --> 00:03:49,040
so yes we have to

110
00:03:54,070 --> 00:03:51,760
um the vehicle is limited to a total

111
00:03:56,149 --> 00:03:54,080
amount of mass it can carry to orbit

112
00:03:57,990 --> 00:03:56,159
and of course we try to optimize and use

113
00:04:01,190 --> 00:03:58,000

every ounce of that

114
00:04:03,270 --> 00:04:01,200
and so yes we um we're

115
00:04:05,429 --> 00:04:03,280
we worry about the ounces at the end

116
00:04:06,630 --> 00:04:05,439
it's not and it's not just the the total

117
00:04:08,149 --> 00:04:06,640
weight then but it's how it's

118
00:04:10,869 --> 00:04:08,159
distributed within the vehicle that's

119
00:04:11,990 --> 00:04:10,879
correct so there's uh vehicle uh weight

120
00:04:14,309 --> 00:04:12,000
ncg

121
00:04:17,349 --> 00:04:14,319
concerns the center of gravity central

122
00:04:19,509 --> 00:04:17,359
gravity of the vehicle and so as the

123
00:04:21,270 --> 00:04:19,519
the commercial vehicle folks when they

124
00:04:23,749 --> 00:04:21,280
receive our cargo of course we're

125
00:04:26,230 --> 00:04:23,759
weighing and measuring the cg of large

126
00:04:28,790 --> 00:04:26,240
bags so it matches their models when

127
00:04:30,710 --> 00:04:28,800
they install it in the vehicle when a

128
00:04:32,550 --> 00:04:30,720
cygnus vehicle this one or another one

129
00:04:34,950 --> 00:04:32,560
that you're working on when it launches

130
00:04:36,790 --> 00:04:34,960
does that mean your job's over

131
00:04:38,950 --> 00:04:36,800
no i um

132
00:04:40,070 --> 00:04:38,960
i'm a i'm the lead for the cygnus

133
00:04:41,189 --> 00:04:40,080
vehicles

134
00:04:43,189 --> 00:04:41,199
so i'm

135
00:04:44,390 --> 00:04:43,199
um i've got to back up this work in the

136
00:04:46,710 --> 00:04:44,400
next flight

137
00:04:48,790 --> 00:04:46,720
it's now in october then i'll i'm

138
00:04:52,310 --> 00:04:48,800

already planning i'm already inside one

139
00:04:54,070 --> 00:04:52,320
year for orb4 which is uh next spring

140
00:04:55,590 --> 00:04:54,080
so we're already planning for that

141
00:04:57,749 --> 00:04:55,600
flight the cargo that flies on that

142
00:04:59,510 --> 00:04:57,759
flight is your job where does your job

143
00:05:01,670 --> 00:04:59,520
end when it gets off the launch pad or

144
00:05:03,830 --> 00:05:01,680
are you still following this one i will

145
00:05:06,230 --> 00:05:03,840
follow this one because part of

146
00:05:09,110 --> 00:05:06,240
taking cargo to the iss

147
00:05:10,469 --> 00:05:09,120
this vehicle does not return we don't

148
00:05:13,110 --> 00:05:10,479
get cargo back

149
00:05:15,029 --> 00:05:13,120
we actually use it as a disposal vehicle

150
00:05:16,629 --> 00:05:15,039
so we're also looking at what

151
00:05:17,430 --> 00:05:16,639
trash is available

152
00:05:19,110 --> 00:05:17,440
so

153
00:05:22,390 --> 00:05:19,120
we'll load this vehicle with trash

154
00:05:24,870 --> 00:05:22,400
unused i mean use components and daily

155
00:05:26,390 --> 00:05:24,880
trash from the crew and uh burn that up

156
00:05:27,830 --> 00:05:26,400
when it returns

157
00:05:30,790 --> 00:05:27,840
and

158
00:05:33,110 --> 00:05:30,800
cg

159
00:05:36,230 --> 00:05:33,120
worries the same worries go into that

160
00:05:39,029 --> 00:05:36,240
yes we track uh every bag of trash every

161
00:05:41,110 --> 00:05:39,039
every used ru that goes in each bag and

162
00:05:43,670 --> 00:05:41,120
we communicate that to the

163
00:05:45,749 --> 00:05:43,680

to the sickness guys and they

164
00:05:47,749 --> 00:05:45,759
uh they may tell us that this particular

165
00:05:50,310 --> 00:05:47,759
bag needs to be in a specific location

166
00:05:52,550 --> 00:05:50,320
in the vehicle for return

167
00:05:54,870 --> 00:05:52,560
space on even on a returning vehicle

168
00:05:56,629 --> 00:05:54,880
like cygnus is is pretty important uh

169
00:05:58,710 --> 00:05:56,639
earlier this week during the mission

170
00:06:00,150 --> 00:05:58,720
management team meeting i saw you get

171
00:06:01,830 --> 00:06:00,160
called up to

172
00:06:03,749 --> 00:06:01,840
give a report on how much space was

173
00:06:05,110 --> 00:06:03,759
still available on something that was

174
00:06:07,189 --> 00:06:05,120
coming home

175
00:06:09,189 --> 00:06:07,199
that's true yes

176
00:06:10,469 --> 00:06:09,199
people want to make sure that

177
00:06:12,230 --> 00:06:10,479
because they want to want to get

178
00:06:15,270 --> 00:06:12,240
everything off the station we can i

179
00:06:17,830 --> 00:06:15,280
guess correct correct so in an ideal

180
00:06:19,350 --> 00:06:17,840
situation we will use every bit of mass

181
00:06:21,189 --> 00:06:19,360
we can going uphill

182
00:06:23,909 --> 00:06:21,199
and we'll use every bit of volume and

183
00:06:25,749 --> 00:06:23,919
mass we have to to throw away trash uh

184
00:06:27,590 --> 00:06:25,759
when the vehicle leaves

185
00:06:28,790 --> 00:06:27,600
so as you mentioned you're already

186
00:06:31,430 --> 00:06:28,800
working on

187
00:06:33,029 --> 00:06:31,440
a future on all the future cygnus

188
00:06:35,830 --> 00:06:33,039

missions i guess from what you say right

189
00:06:37,909 --> 00:06:35,840
well we we do have some ideas of

190
00:06:40,070 --> 00:06:37,919
big payloads that fly throughout the

191
00:06:41,590 --> 00:06:40,080
life of this contract so yes

192
00:06:43,830 --> 00:06:41,600
but again we start looking at the

193
00:06:45,670 --> 00:06:43,840
details inside of a year

194
00:06:47,270 --> 00:06:45,680
be very interesting

195
00:06:49,110 --> 00:06:47,280
knowing knowing a little bit more about

196
00:06:51,110 --> 00:06:49,120
how it gets packed when you see it get

197
00:06:53,189 --> 00:06:51,120
off the launch pad right

198
00:06:54,629 --> 00:06:53,199
exactly floyd thanks very much for uh

199
00:06:57,189 --> 00:06:54,639
for a couple of minutes here to give us

200
00:06:59,189 --> 00:06:57,199
some insight into what goes into packing

201
00:07:02,870 --> 00:06:59,199
one of these things uh floyd booker