

Replay of Final Test of Orion Parachute System U.S. Army Yuma Proving Ground, Arizona

Replay

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1
00:03:55,802 --> 00:00:01,334



2
00:03:55,802 --> 00:13:46,392



3
00:13:46,392 --> 00:13:46,992
AT THAT GOOD MORNING.

4
00:13:46,992 --> 00:13:48,794
I AM CATHERINE HAMILTON FROM THE

5
00:13:48,794 --> 00:13:50,296
NASA OFFICE OF COMMUNICATIONS.

6
00:13:50,296 --> 00:13:52,298
WE ARE HERE AT THE U.S. ARMY

7
00:13:52,298 --> 00:13:54,300
PROVING GROUND IN YOU MARKS

8
00:13:54,300 --> 00:13:57,503
ARIZONA, YUMA, ARIZONA FOR THE

9
00:13:57,503 --> 00:13:58,204
FINAL TEST OF THE ORION

10
00:13:58,204 --> 00:14:00,706
PARACHUTE SYSTEM WE HAVE PLENTY

11
00:14:00,706 --> 00:14:02,208
OF ROOM OUT HERE IN THE EXPANSE

12
00:14:02,208 --> 00:14:04,410
OF THE ARIZONA DESERT TO SEE THE

13
00:14:04,410 --> 00:14:06,212

PARACHUTES, 11PARACHUTES IN

14

00:14:06,212 --> 00:14:08,914

THIS SYSTEM IN ACTION AND THESE

15

00:14:08,914 --> 00:14:11,217

WILL HELP US ENSURE WE CAN BRING

16

00:14:11,217 --> 00:14:13,219

ASTRONAUTS HOME SAFELY WHEN WE

17

00:14:13,219 --> 00:14:14,820

SEND CREWS OUT TO THE MOON AND

18

00:14:14,820 --> 00:14:15,421

BEYOND.

19

00:14:15,421 --> 00:14:18,724

>> .. AN HOUR AGO THE C-17 TOOK

20

00:14:18,724 --> 00:14:20,426

OFF CARRYING THE ORION FOR

21

00:14:20,426 --> 00:14:21,227

TODAY'S TEST.

22

00:14:21,227 --> 00:14:22,828

IT FLEW UP ABOUT SIX AND A HALF

23

00:14:22,828 --> 00:14:24,129

MILES OVERHEAD AND WE HAVE SEEN

24

00:14:24,129 --> 00:14:26,932

IT PASS, EVERYTHING IS TRACKING

25

00:14:26,932 --> 00:14:28,334

TOWARDS A DROP TEST AT ABOUT

26

00:14:28,334 --> 00:14:31,437

8:00 O'CLOCK THIS MORNING.

27

00:14:31,437 --> 00:14:34,640

HERE WITH US IS MARK KERRY CIG,

28

00:14:34,640 --> 00:14:36,442

HE IS THE ORION PROGRAM MANAGER

29

00:14:36,442 --> 00:14:38,777

AND HE IS RESPONSIBLE FOR THE

30

00:14:38,777 --> 00:14:40,379

DESIGN, DEVELOPMENT, TESTING AND

31

00:14:40,379 --> 00:14:41,680

MANUFACTURING OF THE ORION

32

00:14:41,680 --> 00:14:42,481

SPACECRAFT.

33

00:14:42,481 --> 00:14:44,283

THANK YOU FOR JOINING US AND

34

00:14:44,283 --> 00:14:46,185

CONGRATS ON GETTING TO THE FINAL

35

00:14:46,185 --> 00:14:46,785

TEST.

36

00:14:46,785 --> 00:14:48,287

>> WELL, THANK YOU, CATHERINE.

37

00:14:48,287 --> 00:14:49,788

>> PLEASE TELL US WHAT WE ARE

38

00:14:49,788 --> 00:14:51,090

GOING TO SEE TODAY AND WHY IT IS

39

00:14:51,090 --> 00:14:51,490
IMPORTANT.

40

00:14:51,490 --> 00:14:52,391
>> ALL RIGHT.

41

00:14:52,391 --> 00:14:53,993
WELL, I THINK MOST OF YOU KNOW

42

00:14:53,993 --> 00:14:56,395
THAT ORION IS OUR NEW HUMAN

43

00:14:56,395 --> 00:14:57,896
EXPLORATION SPACECRAFT AND THIS

44

00:14:57,896 --> 00:14:59,698
IS A SPACECRAFT THAT IS GOING TO

45

00:14:59,698 --> 00:15:02,001
TAKE PEOPLE FARTHER INTO SPACE

46

00:15:02,001 --> 00:15:03,202
THAN WE HAVE EVER GONE BEFORE

47

00:15:03,202 --> 00:15:05,204
AND OUR MISSIONS WILL LAST FOR

48

00:15:05,204 --> 00:15:06,505
SEVERAL WEEKS LONG AND DURING

49

00:15:06,505 --> 00:15:08,807
THAT TIME THE CREW WILL TRAVEL

50

00:15:08,807 --> 00:15:10,609
HUNDREDS OF THOUSANDS OF MILES

51
00:15:10,609 --> 00:15:13,112
INTO SPACE AND BACK AND IN SOME

52
00:15:13,112 --> 00:15:14,713
OF THE HARSHTEST ENVIRONMENTS

53
00:15:14,713 --> 00:15:15,614
THAT PEOPLE HAVE EVER BEEN

54
00:15:15,614 --> 00:15:17,716
EXPOSED TO, EXTREME THERMAL,

55
00:15:17,716 --> 00:15:20,719
EXTREME RADIATION, AND SO ON.

56
00:15:20,719 --> 00:15:22,621
IT IS, AS INCREDIBLE AS ALL OF

57
00:15:22,621 --> 00:15:24,023
THAT MAY BE ONE OF THE MOST

58
00:15:24,023 --> 00:15:25,624
CHALLENGING PARTS OF THE MISSION

59
00:15:25,624 --> 00:15:27,926
IS WHAT WE CALL THE EAST ENTRY

60
00:15:27,926 --> 00:15:29,428
DESCENT AND LANDING PHASE WHEN

61
00:15:29,428 --> 00:15:31,530
WE SLOW THE SPACECRAFT DOWN AND

62
00:15:31,530 --> 00:15:32,731
WE HAVE TO DO IT JUST RIGHT SO

63
00:15:32,731 --> 00:15:34,733

WHEN THE CAPSULE TOUCHES DOWN IN

64

00:15:34,733 --> 00:15:37,136

THE OCEAN IT IS GOING SLOWLY TO

65

00:15:37,136 --> 00:15:38,370

PROTECT THE CREW AND THAT'S WHAT

66

00:15:38,370 --> 00:15:40,072

BRINGS US HERE TO THE YUMA

67

00:15:40,072 --> 00:15:40,673

PROVING GROUND.

68

00:15:40,673 --> 00:15:42,374

THE SYSTEM THAT DOES THIS FOR US

69

00:15:42,374 --> 00:15:44,276

IS OUR ORION PARACHUTE SYSTEM,

70

00:15:44,276 --> 00:15:46,378

WE CALL IT THE C PASS SYSTEM AND

71

00:15:46,378 --> 00:15:47,579

THAT'S WHAT WE WILL BE DOING

72

00:15:47,579 --> 00:15:49,181

HERE TODAY, CONDUCTING OUR FINAL

73

00:15:49,181 --> 00:15:51,083

TEST OF THIS SYSTEM HERE ON THE

74

00:15:51,083 --> 00:15:52,985

GROUND BEFORE WE TEST IT IN

75

00:15:52,985 --> 00:15:54,787

COMING BACK FROM SPACE.

76

00:15:54,787 --> 00:15:56,088

>> THIS IS A BIG DEAL.

77

00:15:56,088 --> 00:15:57,589

CAN YOU TELL US WHAT THE TEAM

78

00:15:57,589 --> 00:15:58,891

HAS GONE THROUGH TO GET TO THIS

79

00:15:58,891 --> 00:15:59,391

POINT?

80

00:15:59,391 --> 00:16:00,192

A. OH, YES.

81

00:16:00,192 --> 00:16:01,994

WE HAVE HAD AN INCREDIBLY TALL

82

00:16:01,994 --> 00:16:03,495

LENED ENGINEERING TEAM AT THE

83

00:16:03,495 --> 00:16:05,097

DESIGN OF THIS SYSTEM FOR OVER A

84

00:16:05,097 --> 00:16:06,899

DECADE, THE OVER TEN YEARS AND

85

00:16:06,899 --> 00:16:08,100

OVER THIS PERIOD THEY HAVE

86

00:16:08,100 --> 00:16:10,602

ACTUALLY CONDUCTED WELL OVER 40

87

00:16:10,602 --> 00:16:12,204

DROP TESTS AND THROUGHOUT THIS

88

00:16:12,204 --> 00:16:14,206

PERIOD, THEY HAVE MADE

89

00:16:14,206 --> 00:16:15,007
OBSERVATIONS.

90

00:16:15,007 --> 00:16:16,108
THEY LOOK AT THE PARACHUTES

91

00:16:16,108 --> 00:16:17,810
EVERY TIME THEY LAND AND FROM

92

00:16:17,810 --> 00:16:19,511
ALL OF THESE OBSERVATIONS THEY

93

00:16:19,511 --> 00:16:21,313
HAVE MADE NUMEROUS, COUNTLESS

94

00:16:21,313 --> 00:16:23,015
IMPROVEMENTS TO THE DESIGN, TO

95

00:16:23,015 --> 00:16:23,916
HOW WE MANUFACTURE THE

96

00:16:23,916 --> 00:16:25,617
PARACHUTES TO HOW WE INSTALL

97

00:16:25,617 --> 00:16:27,219
PARACHUTES IN THE SPACECRAFT TO

98

00:16:27,219 --> 00:16:28,921
MAKE SURE ALL OF THE LINES ARE

99

00:16:28,921 --> 00:16:31,423
LAID OUT EXACTLY RIGHT SO AS THE

100

00:16:31,423 --> 00:16:32,324
PARACHUTES ARE PULLED OUT

101
00:16:32,324 --> 00:16:33,726
NOTHING GETS CAUGHT UP.

102
00:16:33,726 --> 00:16:35,527
AND THE TEAMS HAVE DONE A

103
00:16:35,527 --> 00:16:37,329
FANTASTIC JOB. THIS LAST SERIES

104
00:16:37,329 --> 00:16:38,430
OF TESTS, THE QUALIFICATION

105
00:16:38,430 --> 00:16:41,333
TEST, WHAT WE DO IS WE PUSH THE

106
00:16:41,333 --> 00:16:43,435
PARACHUTE SYSTEM TO ALL OF THE

107
00:16:43,435 --> 00:16:45,237
CORNERS OF THE OPERATIONAL BOX

108
00:16:45,237 --> 00:16:46,839
WHERE WE EXPECT IT TO OPERATE

109
00:16:46,839 --> 00:16:48,540
AND WE INTENTIONALLY INDUCE

110
00:16:48,540 --> 00:16:50,342
FAILURES, WE INTENTIONALLY SAY,

111
00:16:50,342 --> 00:16:51,944
TODAY WE ARE NOT GOING TO DEPLOY

112
00:16:51,944 --> 00:16:54,046
A PARTICULAR PARACHUTE, TO

113
00:16:54,046 --> 00:16:55,147

VALIDATE THE SYSTEM WORKS

114

00:16:55,147 --> 00:16:56,849
EXACTLY AS IT IS SUPPOSED TO

115

00:16:56,849 --> 00:16:58,150
UNDER THE MOST EXTREME

116

00:16:58,150 --> 00:16:59,251
ENVIRONMENTAL CONDITIONS, AND

117

00:16:59,251 --> 00:17:00,953
WITH SYSTEM FAILURES.

118

00:17:00,953 --> 00:17:02,855
>> THANKS, MARK.

119

00:17:02,855 --> 00:17:04,456
NOW THIS IS THE ONLY SYSTEM ON

120

00:17:04,456 --> 00:17:06,358
ORION HAS TO ASSEMBLE ITSELF

121

00:17:06,358 --> 00:17:07,860
MIDAIR WHICH MAKES IT A

122

00:17:07,860 --> 00:17:09,161
PARTICULARLY CHALLENGING JOB FOR

123

00:17:09,161 --> 00:17:10,362
THE ENGINEERS THAT HAVE TO

124

00:17:10,362 --> 00:17:12,364
DESIGN AND DEVELOP IT.

125

00:17:12,364 --> 00:17:13,766
LET'S TAKE A LOOK AT SOME OF THE

126
00:17:13,766 --> 00:17:16,268
PREPARATION THAT EARLIER THIS

127
00:17:16,268 --> 00:17:18,070
WEEK, INCLUDING LOADING THE

128
00:17:18,070 --> 00:17:19,872
CAPSULE AND THE PARACHUTES INTO

129
00:17:19,872 --> 00:17:21,774
THE AIRPLANE AND MAKING SURE

130
00:17:21,774 --> 00:18:14,560
THAT EVERYTHING IS RIGGED.

131
00:18:14,560 --> 00:18:15,961
THIS WORK IS ALL IN PREPARATION

132
00:18:15,961 --> 00:18:17,663
FOR THE FIRST CREWED MISSION

133
00:18:17,663 --> 00:18:19,565
THAT WILL SEND ASTRONAUTS AROUND

134
00:18:19,565 --> 00:18:21,967
THE MOON AND BEYOND, LAUNCHING

135
00:18:21,967 --> 00:18:23,268
ON THE SPACE LAUNCH SYSTEM

136
00:18:23,268 --> 00:18:25,070
ROCKET. WE ALREADY HAVE THE

137
00:18:25,070 --> 00:18:26,271
PARACHUTES FOR THE FIRST

138
00:18:26,271 --> 00:18:27,873

UNCREWED MISSION PACKED INTO

139

00:18:27,873 --> 00:18:29,475

ORION AND READY TO GO FOR THE

140

00:18:29,475 --> 00:18:30,776

FIRST FLIGHT.

141

00:18:30,776 --> 00:18:33,579

NEXT WITH US WE HAVE ASTRONAUT

142

00:18:33,579 --> 00:18:34,880

RANDY BRESNIK.

143

00:18:34,880 --> 00:18:36,782

>> RANDY, THANKS FOR JOINING US

144

00:18:36,782 --> 00:18:37,983

HERE TODAY IN THIS BEAUTIFUL DAY

145

00:18:37,983 --> 00:18:38,150

OF.

146

00:18:39,818 --> 00:18:39,017

>> THANK YOU, MARK.

147

00:18:45,724 --> 00:18:43,522

>>

148

00:18:45,724 --> 00:18:46,024

RANDY.

149

00:18:46,024 --> 00:18:46,425

>> GOOD MORNING.

150

00:18:46,425 --> 00:18:47,626

>> CAN YOU TELL US WHAT IT IS

151
00:18:47,626 --> 00:18:49,228
LIKE TO WATCH A TEST LIKE THIS,

152
00:18:49,228 --> 00:18:50,529
KNOWING YOUR FELLOW ASTRONAUTS

153
00:18:50,529 --> 00:18:52,431
OR YOU COULD POSSIBLY BE ON ONE

154
00:18:52,431 --> 00:18:54,533
OF THE ORION FLIGHTS IN THE

155
00:18:54,533 --> 00:18:55,133
FUTURE?

156
00:18:55,133 --> 00:18:56,535
>> I KNOW THAT I AND CERTAINLY

157
00:18:56,535 --> 00:18:58,937
ALL OF MY FELLOW ASTRONAUTS AND

158
00:18:58,937 --> 00:19:00,339
FUTURE ASTRONAUTS ARE EXCITED

159
00:19:00,339 --> 00:19:01,340
ABOUT THIS TEST BECAUSE IT IS

160
00:19:01,340 --> 00:19:02,841
THE CULMINATION OF DECADE LONG

161
00:19:02,841 --> 00:19:04,343
OF TESTING OF SUCH A CRITICAL

162
00:19:04,343 --> 00:19:05,644
SYSTEM. THE FACT THAT IT IS THE

163
00:19:05,644 --> 00:19:07,546

FINAL TEST THAT WE HAVE

164

00:19:07,546 --> 00:19:09,648

DEVELOPED THE SYSTEM, REDUCED

165

00:19:09,648 --> 00:19:11,049

WEIGHT, INCREASED SAFETY AND WE

166

00:19:11,049 --> 00:19:12,251

ARE, YOU KNOW, GETTING TO THE

167

00:19:12,251 --> 00:19:13,452

POINT WHERE AFTER TODAY,

168

00:19:13,452 --> 00:19:14,653

EVERYTHING GOES ACCORDING TO

169

00:19:14,653 --> 00:19:15,954

PLAN WE ARE READY FOR A FLIGHT,

170

00:19:15,954 --> 00:19:17,256

THAT IS JUST ASTOUNDING AND

171

00:19:17,256 --> 00:19:18,657

CERTAINLY WHEN I SAY CRITICAL

172

00:19:18,657 --> 00:19:19,258

SYSTEM.

173

00:19:19,258 --> 00:19:20,959

THE CREW WILL SURVIVE THE

174

00:19:20,959 --> 00:19:22,261

LAUNCH, THE PASSAGE THROUGH THE

175

00:19:22,261 --> 00:19:23,962

RADIATION BELTS, THREE DAYS,

176

00:19:23,962 --> 00:19:26,565

250,000MILES GO AROUND THE MOON

177

00:19:26,565 --> 00:19:28,667

AND THREE DAYS, 250,000MILES TO

178

00:19:28,667 --> 00:19:30,569

COME BACK, INTO THE EARTH'S

179

00:19:30,569 --> 00:19:33,872

ATMOSPHERE, MOCK 32, IF THEY

180

00:19:33,872 --> 00:19:35,173

SURVIVOR THAT, THEY ARE LOOK NEW

181

00:19:35,173 --> 00:19:36,475

YORK TUG OF THE PARACHUTES WHEN

182

00:19:36,475 --> 00:19:38,076

THEY COME OUT AND THEN THEY KNOW

183

00:19:38,076 --> 00:19:39,912

THEY WILL BE ABLE TO SAVELY LAND

184

00:19:39,912 --> 00:19:41,113

ON EARTH AFTER THAT MISSION. SO

185

00:19:41,113 --> 00:19:42,915

WE ARE VERY EXCITED THAT TODAY'S

186

00:19:42,915 --> 00:19:44,516

TEST IS THE FINAL ONE AND

187

00:19:44,516 --> 00:19:45,617

QUALIFIES ORION FOR FLIGHT.

188

00:19:45,617 --> 00:19:46,218

>> GREAT.

189

00:19:46,218 --> 00:19:47,920

WHAT ARE YOU LOOKING TO SEE IN

190

00:19:47,920 --> 00:19:48,620

TODAY'S TEST?

191

00:19:48,620 --> 00:19:50,422

>> I AM LOOKING FORWARD TO COUNT

192

00:19:50,422 --> 00:19:51,723

THE NUMBER 11, THAT'S THE NUMBER

193

00:19:51,723 --> 00:19:52,824

OF PARACHUTES THAT WILL COME

194

00:19:52,824 --> 00:19:54,826

OUT, A DIFFERENT SERIES OF THE

195

00:19:54,826 --> 00:19:56,728

SEQUENCES TO DRORNTION AND ALSO

196

00:19:56,728 --> 00:19:58,931

LOOK FORWARD TO SEEING THE POINT

197

00:19:58,931 --> 00:20:00,632

WHERE I AM TOLD FROM THE TESTERS

198

00:20:00,632 --> 00:20:01,934

THAT WHEN IT COPS OUT OF THE

199

00:20:01,934 --> 00:20:04,036

C-17 IT HAS A WHOLE SYSTEM AND

200

00:20:04,036 --> 00:20:05,837

PALLET THAT ORION IS RIDING ON,

201
00:20:05,837 --> 00:20:08,040
WELL, THE ORION DEPARTS FROM

202
00:20:08,040 --> 00:20:09,541
THAT PALLET AND ALL OF THE

203
00:20:09,541 --> 00:20:10,842
PARACHUTES ARE OFF AND IT FALLS

204
00:20:10,842 --> 00:20:12,644
FOR 12 SECONDS BEFORE THE ORION

205
00:20:12,644 --> 00:20:15,147
SYSTEM WE ARE TESTING THE 11

206
00:20:15,147 --> 00:20:16,448
PARACHUTES START TO OPERATE. I

207
00:20:16,448 --> 00:20:17,749
WILL SEE ALL OF THESE PEOPLE

208
00:20:17,749 --> 00:20:18,750
THAT KNOW THIS TEST AND SYSTEM

209
00:20:18,750 --> 00:20:19,952
ARE HOLDING THEIR BREATH DURING

210
00:20:19,952 --> 00:20:21,453
THE 12 SECONDS AND WE GET A

211
00:20:21,453 --> 00:20:23,255
COLLECTIVE GASP OF RELIEF WHEN

212
00:20:23,255 --> 00:20:26,058
THE, BEFORE THE PARACHUTES START

213
00:20:26,058 --> 00:20:27,259

COMING OUT INITIATING THE

214

00:20:27,259 --> 00:20:28,060
SEQUENCE.

215

00:20:28,060 --> 00:20:30,062
11 PARACHUTES IN 12 SECONDS.

216

00:20:30,062 --> 00:20:30,762
WE WILL COUNT WITH YOU.

217

00:20:30,762 --> 00:20:31,263
>> ALL RIGHT.

218

00:20:31,263 --> 00:20:32,564
THANKS AND LET YOU GO WATCH THE

219

00:20:32,564 --> 00:20:32,965
TEST NOW.

220

00:20:32,965 --> 00:20:33,465
>> ALL RIGHT.

221

00:20:34,366 --> 00:20:33,732
THANK YOU.

222

00:20:38,303 --> 00:20:37,269
>>

223

00:20:38,303 --> 00:20:39,605
WE ARE A FEW MINUTES AWAY AND I

224

00:20:39,605 --> 00:20:41,907
BELIEVE THE C-17 IS ABOUT READY

225

00:20:41,907 --> 00:20:43,609
TO DROP THE CAPSULE FROM ITS

226

00:20:43,609 --> 00:20:44,409

CARGO BAY.

227

00:20:44,409 --> 00:20:47,813

UP NEXT WE HAVE JEROD DOM.

228

00:20:47,813 --> 00:20:51,316

>> AND HE IS HERE TO WALK US

229

00:20:51,316 --> 00:20:52,517

THROUGH TEST AND FIVE US A PLAY

230

00:20:52,517 --> 00:20:54,319

BY PLAY.

231

00:20:54,319 --> 00:20:55,821

AS THE PARACHUTE -- IT IS A

232

00:20:55,821 --> 00:20:57,222

PARACHUTES UNFURL AND ALSO GOING

233

00:20:57,222 --> 00:20:58,323

TO ANSWER A COUPLE OF QUESTIONS

234

00:20:58,323 --> 00:20:59,825

FOR US FROM FOLKS ONLINE.

235

00:20:59,825 --> 00:21:01,026

IF YOU ARE WATCHING ONLINE,

236

00:21:01,026 --> 00:21:03,428

PLEASE USE THE HASHTAG ASK NASA

237

00:21:03,428 --> 00:21:04,129

TO SUBMIT YOUR QUESTIONS.

238

00:21:04,129 --> 00:21:08,634

>> ALL RIGHT, WHAT CAN WE EXPECT

239

00:21:08,634 --> 00:21:10,235

TO SEE A FEW MINUTES FROM NOW?

240

00:21:10,235 --> 00:21:10,636

>> OKAY.

241

00:21:10,636 --> 00:21:13,639

SO THE MAIN POINT OF THIS TEST

242

00:21:13,639 --> 00:21:15,641

IS TO SEE HOW THE 11ORION

243

00:21:15,641 --> 00:21:16,742

PARACHUTES PERFORM BUT IN ORDER

244

00:21:16,742 --> 00:21:18,143

TO GET TO THE 11PARACHUTES WE

245

00:21:18,143 --> 00:21:20,245

HAVE OVER10 SUPPORT PARACHUTES

246

00:21:20,245 --> 00:21:21,546

TO GET US TO THE TEST POINT.

247

00:21:21,546 --> 00:21:23,248

SO NOT ONLY DO WE SEE THE 11BUT

248

00:21:23,248 --> 00:21:24,750

ANOTHER TEN GETTING US THERE.

249

00:21:24,750 --> 00:21:25,751

>> SO 21 TOTAL.

250

00:21:25,751 --> 00:21:27,152

>> 21 TOTAL. THE FIRST THING

251
00:21:27,152 --> 00:21:29,454
YOU WILL SEE IS OUR TOE SHOOT,

252
00:21:29,454 --> 00:21:31,256
THE TOE CHUTE COMES OUT ATTACHED

253
00:21:31,256 --> 00:21:32,858
TO THE AIRCRAFT FOR A GOOD TEN

254
00:21:32,858 --> 00:21:34,760
SECONDS BUT IT PULLS OUT THE TWO

255
00:21:34,760 --> 00:21:36,161
EXTRACTION PARACHUTES.

256
00:21:36,161 --> 00:21:37,763
THOSE ARE ABOUT 28FEET IN

257
00:21:37,763 --> 00:21:38,797
DIAMETER AND THEIR JOB IS TO

258
00:21:38,797 --> 00:21:40,799
PULL THE TEST VEHICLE ON THE

259
00:21:40,799 --> 00:21:42,501
PALLET OUT OF THE AIRCRAFT.

260
00:21:42,501 --> 00:21:44,803
AS THE PALLET IS GETTING

261
00:21:44,803 --> 00:21:47,406
EXTRACTED FROM THE AIRCRAFT,

262
00:21:47,406 --> 00:21:49,207
PITCH DOWN, THE CAPSULE WILL

263
00:21:49,207 --> 00:21:50,809

RELEASE FROM THE PALLET AND

264

00:21:50,809 --> 00:21:52,310

DEPLOY TWO PROGRAMMER

265

00:21:52,310 --> 00:21:52,911

PARACHUTES.

266

00:21:52,911 --> 00:21:54,112

THESE TWO PROGRAMMER PARACHUTES

267

00:21:54,112 --> 00:21:56,314

WILL GET US SET UP TO THE RIGHT

268

00:21:56,314 --> 00:21:57,916

TEST POINT TO BEGIN THE FREE

269

00:21:57,916 --> 00:21:58,817

FALL RANDY DESCRIBED.

270

00:21:58,817 --> 00:22:00,819

WE WILL FREE FALL FOR 12 SECONDS

271

00:22:00,819 --> 00:22:02,320

TOGETHER AT THAT SPEED TO GET TO

272

00:22:02,320 --> 00:22:05,023

WHAT WE GET A HIGH DYNAMIC

273

00:22:05,023 --> 00:22:07,626

PRESSURE TO TEST THE PARACHUTES.

274

00:22:07,626 --> 00:22:08,927

THAT STARTS THE REAL TEST.

275

00:22:08,927 --> 00:22:11,930

THE THREE RECOVERY WILL BE

276

00:22:11,930 --> 00:22:14,332

FOLLOWED BY TWO DRONE PARACHUTE,

277

00:22:14,332 --> 00:22:15,534

THREE PILOTS AND THREE MAINS. I

278

00:22:15,534 --> 00:22:17,335

WILL GIVE YOU THE PLAY BY PLAY

279

00:22:17,335 --> 00:22:18,336

AS THEY COME OUT.

280

00:22:18,336 --> 00:22:19,337

>> WHAT SPECIFICALLY ARE YOU

281

00:22:19,337 --> 00:22:20,939

TESTING ON THIS DROP AND HOW

282

00:22:20,939 --> 00:22:22,541

DOES IT HELP CERTIFY THE

283

00:22:22,541 --> 00:22:24,443

PARACHUTES TO CARRY HUMANS?

284

00:22:24,443 --> 00:22:25,143

>> EXCELLENT QUESTION.

285

00:22:25,143 --> 00:22:26,445

THIS IS THE FINAL QUALIFICATION

286

00:22:26,445 --> 00:22:27,846

DROP AND THIS IS A FULL SYSTEM.

287

00:22:27,846 --> 00:22:29,548

SO WE ARE TESTING ALL OF OUR

288

00:22:29,548 --> 00:22:32,350

PARACHUTES, AS RANDY DESCRIBED,

289

00:22:32,350 --> 00:22:34,653

WE TEST VARIOUS FAILURE SE FAR

290

00:22:34,653 --> 00:22:35,654

CROWS WHERE SOMETIMES WE DON'T

291

00:22:35,654 --> 00:22:38,390

DEPLOY AN PARACHUTE OR DEPLOY A

292

00:22:38,390 --> 00:22:38,790

MAIN.

293

00:22:38,790 --> 00:22:40,092

SO WE WILL HAVE ALL 11

294

00:22:40,092 --> 00:22:41,293

PARACHUTES AND LOOKING FOR AN

295

00:22:41,293 --> 00:22:42,494

ORDERLY DEPLOYMENT OF THOSE

296

00:22:42,494 --> 00:22:43,395

PARACHUTES, MEANING THE

297

00:22:43,395 --> 00:22:44,696

COMPONENTS COME OUT WHEN WE

298

00:22:44,696 --> 00:22:47,399

EXPECT THEM TO COME OUT AND ALSO

299

00:22:47,399 --> 00:22:50,202

LOOK AT THE CHUTES AFTER WE

300

00:22:50,202 --> 00:22:52,104

RECOVER THEM SO THE TEST DOESN'T

301
00:22:52,104 --> 00:22:53,905
END AFTER TOUCHDOWN W HE RECOVER

302
00:22:53,905 --> 00:22:55,207
THE PARACHUTES AND INSPECT ALL

303
00:22:55,207 --> 00:22:56,308
HEAVEN AND LOOK FOR ANY DAMAGES

304
00:22:56,308 --> 00:22:57,309
THAT ARE UNEXPECTED.

305
00:22:57,309 --> 00:22:59,010
WE COEXPECT SOME DAMAGE LANDING

306
00:22:59,010 --> 00:23:00,912
OUT HERE IN THE DESERT, WE HAVE

307
00:23:00,912 --> 00:23:02,914
PRICKLY BUSHES BUT LOOKING FOR

308
00:23:02,914 --> 00:23:04,616
ANY FLIGHT DAMAGE THAT MAY BE OF

309
00:23:04,616 --> 00:23:04,850
CONCERN.

310
00:23:04,850 --> 00:23:05,317
>> ALL RIGHT.

311
00:23:05,317 --> 00:23:07,119
NO BUT GORE, NOW WE ARE GOING TO

312
00:23:07,119 --> 00:23:08,820
TAKE A COUPLE OF QUESTIONS FROM

313
00:23:08,820 --> 00:23:10,622

FOLKS WATCHING ON NASA TV IF YOU

314

00:23:10,622 --> 00:23:11,923

WOULD LIKE TO IN SUBMIT YOUR

315

00:23:11,923 --> 00:23:14,726

QUESTIONS USE THE # ASK NASA.

316

00:23:14,726 --> 00:23:15,627

>> ALL RIGHT.

317

00:23:15,627 --> 00:23:17,329

LET'S SEE WHAT WE HAVE GOT HERE.

318

00:23:17,329 --> 00:23:21,433

>> UNDER NORMAL CONDITIONS WHAT

319

00:23:21,433 --> 00:23:23,235

IS THE DEPLOYMENT ALTITUDE FOR

320

00:23:23,235 --> 00:23:24,736

EACH PARACHUTE TYPE?

321

00:23:24,736 --> 00:23:26,438

>> EXCELLENT QUESTION.

322

00:23:26,438 --> 00:23:27,939

SO ORION REENTERS THE ATMOSPHERE

323

00:23:27,939 --> 00:23:29,941

ABOUT 17,500MILES PER HOUR AND

324

00:23:29,941 --> 00:23:31,343

USES THE HEAT SHIELD BASICALLY

325

00:23:31,343 --> 00:23:33,145

THE DRAGON THE BLUNT BODY OF THE

326

00:23:33,145 --> 00:23:34,846

SPACECRAFT TO SLOW DOWN TO ABOUT

327

00:23:34,846 --> 00:23:36,548

350MILES PER HOUR AT ABOUT

328

00:23:36,548 --> 00:23:37,849

25,000FEET.

329

00:23:37,849 --> 00:23:39,785

AT ABOUT 25,000FEET, WE BEGIN

330

00:23:39,785 --> 00:23:41,086

THE SEQUENCE OF DEPLOYING THE

331

00:23:41,086 --> 00:23:44,189

FORWARD RECOVER PARACHUTES TOES

332

00:23:44,189 --> 00:23:46,191

ARE THE COVER COVERED BY THE

333

00:23:46,191 --> 00:23:47,392

DRONE PARACHUTES IMMEDIATELY

334

00:23:47,392 --> 00:23:47,793

AFTER.

335

00:23:47,793 --> 00:23:50,095

WE WILL RIDE THOSE TO 6,000FEET

336

00:23:50,095 --> 00:23:52,497

ABOVE THE PACIFIC OCEAN AND THEN

337

00:23:52,497 --> 00:23:55,400

CUT AWAY THE DROGUE PARACHUTES

338

00:23:55,400 --> 00:23:56,601

AND PULL OUT THE MAINS WHICH

339

00:23:56,601 --> 00:23:57,903

TAKE US DOWN TO ZERO FEET.

340

00:23:57,903 --> 00:23:58,503

>> OKAY.

341

00:23:58,503 --> 00:24:01,006

AND WHAT MATERIALS ARE USED FOR

342

00:24:01,006 --> 00:24:01,907

THE CHUTES?

343

00:24:01,907 --> 00:24:03,408

>> EXCELLENT QUESTIONS, USE A

344

00:24:03,408 --> 00:24:04,810

COMBINATION OF MATERIALS, MOSTLY

345

00:24:04,810 --> 00:24:06,912

KEVLAR AND NYLON, SO EVERYTHING

346

00:24:06,912 --> 00:24:09,915

HAS HEARD OF KEVLAR, USED IN

347

00:24:09,915 --> 00:24:11,616

BULLETPROOF VESTS VERY STRONG

348

00:24:11,616 --> 00:24:13,318

FOR A RELATIVELY LIGHTWEIGHT AND

349

00:24:13,318 --> 00:24:14,519

USE THAT MORE THE LOAD BEARING

350

00:24:14,519 --> 00:24:15,921

MEMBERS, OUR RADIALS, OUR

351
00:24:15,921 --> 00:24:17,522
EXTENSION LINES AND RISERS AND

352
00:24:17,522 --> 00:24:19,825
THE DRAG PRODUCING MEMBERS WE

353
00:24:19,825 --> 00:24:22,227
USE MATERIAL LIKE NYLON, VERY

354
00:24:22,227 --> 00:24:24,129
LIGHTWEIGHT AND SEE THROUGH THE

355
00:24:24,129 --> 00:24:25,430
BROADCLOTH ON THE ORANGE AND

356
00:24:25,430 --> 00:24:26,932
WHITE MAIN AND PRODUCE THE DRAG

357
00:24:26,932 --> 00:24:28,433
AND TRANSFERRED DOWN TO THE

358
00:24:28,433 --> 00:24:29,334
SPACECRAFT.

359
00:24:29,334 --> 00:24:30,035
>> ALL RIGHT.

360
00:24:30,035 --> 00:24:32,737
AND HOW MUCH HAS TECHNOLOGY FOR

361
00:24:32,737 --> 00:24:33,638
PARACHUTES CHANGED OVER THE

362
00:24:33,638 --> 00:24:34,439
YEARS?

363
00:24:34,439 --> 00:24:35,941

>> EXCELLENT QUESTION.

364

00:24:35,941 --> 00:24:36,842
CHANGED QUITE A BIT.

365

00:24:36,842 --> 00:24:37,642
A LOT IN THE MATERIAL

366

00:24:37,642 --> 00:24:38,276
PROPERTIES.

367

00:24:38,276 --> 00:24:41,279
APOLLO USED STEEL RISERS WHICH

368

00:24:41,279 --> 00:24:43,281
ARE VERY HEAVY AND BULKY AND

369

00:24:43,281 --> 00:24:44,783
HARD TO PACK INTO THE

370

00:24:44,783 --> 00:24:46,384
SPACECRAFT, WE TRANSITIONED TO

371

00:24:46,384 --> 00:24:48,987
KEVLAR RISERS NOW WE HAVE KEVLAR

372

00:24:48,987 --> 00:24:49,888
AVAILABLE THAT MAKES THE WEIGHT

373

00:24:49,888 --> 00:24:51,489
AND INTEGRATION A LOT EASIER AND

374

00:24:51,489 --> 00:24:52,691
HAVE A LOT BETTER COMPUTER

375

00:24:52,691 --> 00:24:55,193
SIMULATION TECHNIQUES TO HELP US

376

00:24:55,193 --> 00:24:56,294

GET IN THE DROP ZONE AND

377

00:24:56,294 --> 00:24:58,096

STIMULATE WHAT WILL HAPPEN WITH

378

00:24:58,096 --> 00:24:59,698

THE ACTUAL SPACECRAFT SO WE CAN

379

00:24:59,698 --> 00:25:00,999

GET TO THE FINAL DESIGN SOLUTION

380

00:25:00,999 --> 00:25:02,200

WITH FEWER DROP TESTS.

381

00:25:02,200 --> 00:25:06,605

>> ALL RIGHT.

382

00:25:06,605 --> 00:25:11,409

AND HOW HEAVY IS THE ORION

383

00:25:11,409 --> 00:25:12,711

CAPSULE THAT THE PARACHUTES ARE

384

00:25:12,711 --> 00:25:13,511

BRINGING DOWN?

385

00:25:13,511 --> 00:25:15,914

>> ORION IS ABOUT 21,000POUNDS,

386

00:25:15,914 --> 00:25:17,716

THAT IS A LOT OF METAL, A LOT OF

387

00:25:17,716 --> 00:25:19,017

SYSTEMS IN THERE, INCLUDING OUR

388

00:25:19,017 --> 00:25:20,118

HUMANS, AND THE HUMANS ARE THE

389

00:25:20,118 --> 00:25:21,419

MOST IMPORTANT PART.

390

00:25:21,419 --> 00:25:22,520

LOOKS LIKE WE HAVE ABOUT A

391

00:25:22,520 --> 00:25:24,022

MINUTE UNTIL WE HAVE OUR

392

00:25:24,022 --> 00:25:24,522

EXTRACTION.

393

00:25:24,522 --> 00:25:25,423

>> ALL RIGHT.

394

00:25:25,423 --> 00:25:26,925

DO YOU THINK WE WILL BE ABLE TO

395

00:25:26,925 --> 00:25:28,026

SPOT THE PLANE?

396

00:25:28,026 --> 00:25:29,728

>> YES, WE HAVE FOLKS HELPING

397

00:25:29,728 --> 00:25:30,929

US, THEY WILL BE COMING IN OVER

398

00:25:30,929 --> 00:25:32,430

HERE FROM THE EAST RIGHT ABOUT

399

00:25:32,430 --> 00:25:34,132

WHERE THE SUN IS SO BE CAREFUL

400

00:25:34,132 --> 00:25:35,133

NOT TO LOOK DIRECTLY IT INTO.

401
00:25:35,133 --> 00:25:36,935
>> LET'S SEE IF WE CAN GET A

402
00:25:36,935 --> 00:25:37,936
SHOT ON THE PLANE.

403
00:25:37,936 --> 00:26:19,210
>> ALL RIGHT.

404
00:26:19,210 --> 00:26:20,612
I CAN ACTUALLY HEAR ONE OF THE

405
00:26:20,612 --> 00:26:20,845
PLANES.

406
00:26:20,845 --> 00:26:21,813
>> YEP.

407
00:26:21,813 --> 00:26:23,014
THAT'S ACTUALLY ONE OF OUR

408
00:26:23,014 --> 00:26:24,516
SUPPORT HELICOPTERS.

409
00:26:24,516 --> 00:26:26,217
SO WE HAVE VARIOUS AIRCRAFT AT

410
00:26:26,217 --> 00:26:28,119
DIFFERENT ALTITUDES, VIDEO AND

411
00:26:28,119 --> 00:26:29,421
IMAGERY IS VERY IMPORTANT FOR US

412
00:26:29,421 --> 00:26:31,122
ON THESE TESTS SO WE HAVE

413
00:26:31,122 --> 00:26:32,223

AIRCRAFT STAGED AT VARIOUS

414

00:26:32,223 --> 00:26:33,325

ALTITUDES TO GET THE RIGHT

415

00:26:33,325 --> 00:26:35,627

SEQUENCE OF VIDEO, AND PHOTOS.

416

00:26:35,627 --> 00:26:37,228

YOU CAN SEE WE HAVE ONE CHASE

417

00:26:37,228 --> 00:26:38,029

AIRCRAFT THERE.

418

00:26:38,029 --> 00:26:38,229

OKAY.

419

00:26:38,229 --> 00:26:41,833

THERE IS OUR TOE CHUTE OUR TOE

420

00:26:41,833 --> 00:26:43,335

CHUTE IS OUT AND ANCHORED TO THE

421

00:26:43,335 --> 00:26:44,436

AIRCRAFT RIGHT NOW, IN A MOMENT

422

00:26:44,436 --> 00:26:45,637

THE CREW WILL RELEASE AND IT

423

00:26:45,637 --> 00:26:48,039

WILL PULL OUT OUR TWO EXTRACTION

424

00:26:48,039 --> 00:26:49,541

SHOOTS -- CHUTES.

425

00:26:49,541 --> 00:26:52,644

>> THE AND THERE ARE OUR TWO

426
00:26:52,644 --> 00:26:54,145
EXTRACTION CHUTES TO ABOUT TO

427
00:26:54,145 --> 00:26:55,246
PULL OUT THE PALLET.

428
00:26:55,246 --> 00:26:56,848
PALLET WITH SEPARATION RIGHT

429
00:26:56,848 --> 00:26:57,449
THERE.

430
00:26:57,449 --> 00:26:59,050
NOW WE HAVE STATIC LINE

431
00:26:59,050 --> 00:27:00,452
DEPLOYED, TWO PROGRAMMERS, NOW

432
00:27:00,452 --> 00:27:01,953
THE TWO PROGRAMMERS WILL

433
00:27:01,953 --> 00:27:03,254
STABILIZE THE VEHICLE AND GET US

434
00:27:03,254 --> 00:27:05,357
TO THE RIGHT ALTITUDE, ATTITUDE

435
00:27:05,357 --> 00:27:07,258
AND VELOCITY FOR US TO BEGIN THE

436
00:27:07,258 --> 00:27:09,961
TEST.

437
00:27:09,961 --> 00:27:12,364
>> THE TEST WILL BEGIN WITH

438
00:27:12,364 --> 00:27:13,665

SEVERING THE PROGRAMMERS FOR THE

439

00:27:13,665 --> 00:27:15,266

12 SECOND FREE FALL.

440

00:27:15,266 --> 00:27:18,169

NOW, THE VEHICLE IS UNSTABLE AT

441

00:27:18,169 --> 00:27:20,171

THESE SPEEDS, SO WE HAVE

442

00:27:20,171 --> 00:27:21,773

SOFTWARE ON BOARD THAT WILL

443

00:27:21,773 --> 00:27:22,774

MONITOR THE RATES AND THE

444

00:27:22,774 --> 00:27:24,776

ATTITUDES OF THE VEHICLES TO

445

00:27:24,776 --> 00:27:26,578

MAKE SURE WE DON'T TUMBLE

446

00:27:26,578 --> 00:27:27,679

FORWARD, WE DON'T WANT TO TUMBLE

447

00:27:27,679 --> 00:27:29,280

THE VEHICLE, THAT WOULD BE BAD

448

00:27:29,280 --> 00:27:32,884

FOR OUR DROGES TO BE DEPLOYED

449

00:27:32,884 --> 00:27:33,485

APEX FORWARD.

450

00:27:33,485 --> 00:27:35,286

SO WE WILL MONITOR THE, OH THERE

451
00:27:35,286 --> 00:27:36,888
IS OUR FREE FALL, IF YOU WANT

452
00:27:36,888 --> 00:27:38,223
YOU CAN COUNT TO 12.

453
00:27:38,223 --> 00:27:41,326
>> LOOKS PRETTY STABLE, THAT'S

454
00:27:41,326 --> 00:27:41,826
LOOKING GREAT.

455
00:27:41,826 --> 00:27:45,130
>> YOU WILL SOON SEE THE 2

456
00:27:45,130 --> 00:27:47,732
DROGES, EXCUSE ME, THREE, FOUR,

457
00:27:47,732 --> 00:27:49,434
THERE THEY GO, AND LIFT OFF THE

458
00:27:49,434 --> 00:27:51,036
COVER, THE COVER IS SEPARATED

459
00:27:51,036 --> 00:27:53,638
TWO DEPLOYED DROGES A LOT OF

460
00:27:53,638 --> 00:27:55,340
DEBRIS IN THE AREA, THAT'S THE

461
00:27:55,340 --> 00:27:57,042
LID, THE BAGS, OTHER EQUIPMENT

462
00:27:57,042 --> 00:27:58,643
SO NOW WE ARE RIDING THESE 2

463
00:27:58,643 --> 00:28:01,446

DROGES AND REEFED, THAT MEANS WE

464

00:28:01,446 --> 00:28:04,549

HAVE A LINE WRAPPED AROUND THE

465

00:28:04,549 --> 00:28:05,450

SKIRT OF THE PARACHUTE

466

00:28:05,450 --> 00:28:07,052

CONSTRICTING THE DIAMETER OF THE

467

00:28:07,052 --> 00:28:08,953

CHUTES TO MODULATE OUR DRAG AREA

468

00:28:08,953 --> 00:28:10,955

TO REDUCE OUR LOADS AND TO KIND

469

00:28:10,955 --> 00:28:12,557

OF HELP WITH AN ORDERLY

470

00:28:12,557 --> 00:28:13,258

INFLATION.

471

00:28:13,258 --> 00:28:15,260

>> SO NOW WE ARE GOING TO RIDE

472

00:28:15,260 --> 00:28:17,662

THESE DROGES AS LOW AS WE

473

00:28:17,662 --> 00:28:19,664

POSSIBLY CAN .. THE ACTUAL THE

474

00:28:19,664 --> 00:28:21,266

ORION VEHICLE WITH OUR

475

00:28:21,266 --> 00:28:23,468

ASTRONAUTS IN IT WILL BE SENT TO

476
00:28:23,468 --> 00:28:25,670
THE OCEAN, WHICH IS AT ZERO

477
00:28:25,670 --> 00:28:27,772
FEET, BEING SEA LEVEL.

478
00:28:27,772 --> 00:28:30,175
HERE AT YUMA WE ARE WORRIED

479
00:28:30,175 --> 00:28:32,477
ABOUT 1,500 FEET ABOVE SEA

480
00:28:32,477 --> 00:28:32,977
LEVEL.

481
00:28:32,977 --> 00:28:45,223
>> THERE IS THE THREE PILOTS,

482
00:28:45,223 --> 00:28:46,224
THREE MAINS.

483
00:28:46,224 --> 00:28:47,625
NOW THESE WILL INFLATE THROUGH

484
00:28:47,625 --> 00:28:49,427
THE REEFING STAGES SOMEWHERE TO

485
00:28:49,427 --> 00:28:52,330
THE DROGES IT IS MORE PRONOUNCED

486
00:28:52,330 --> 00:28:53,832
ON THE MAINS, YOU CAN SEE, THIS

487
00:28:53,832 --> 00:28:55,033
IS LOOKING THE REALLY GOOD SO

488
00:28:55,033 --> 00:28:55,533

FAR.

489

00:28:55,533 --> 00:28:56,634

NOW WE ARE INTO THE SECOND

490

00:28:56,634 --> 00:28:58,036

STAGE, THEY ARE A LITTLE BIGGER

491

00:28:58,036 --> 00:28:59,737

AND IF YOU LISTEN CLOSELY YOU

492

00:28:59,737 --> 00:29:01,039

HEAR THE MAINS INFLATING AND

493

00:29:01,039 --> 00:29:04,342

THERE WE GO TO THE FULL OPEN.

494

00:29:04,342 --> 00:29:06,444

BEAUTIFUL SHOT RIGHT THERE.

495

00:29:06,444 --> 00:29:07,745

THREE MAINS SPREAD OUT.

496

00:29:07,745 --> 00:29:09,047

YOU HEAR THE CROWD IN THE BACK

497

00:29:09,047 --> 00:29:09,948

CHEERING.

498

00:29:09,948 --> 00:29:11,149

WE ARE NOT QUITE DONE YET.

499

00:29:11,149 --> 00:29:12,450

THERE IS STILL A LOT OF STUFF IN

500

00:29:12,450 --> 00:29:13,151

THE AIR.

501
00:29:13,151 --> 00:29:14,752
EVENTUALLY WE WILL SEE THE COVER

502
00:29:14,752 --> 00:29:16,454
COME RACING BY AND IMPACT THE

503
00:29:16,454 --> 00:29:17,655
DESERT FLOOR.

504
00:29:17,655 --> 00:29:18,857
THERE YOU CAN SEE THE THREE

505
00:29:18,857 --> 00:29:20,859
MAINS BOUNCING IN AND OUT.

506
00:29:20,859 --> 00:29:22,861
THAT IS COMPLETELY EXPECTED.

507
00:29:22,861 --> 00:29:24,362
YOU SEE THERE ARE HOLES IN THE

508
00:29:24,362 --> 00:29:25,563
SIDES OF THE PARACHUTES, WE PUT

509
00:29:25,563 --> 00:29:25,964
THOSE THERE.

510
00:29:25,964 --> 00:29:27,065
THEY ARE SUPPOSED TO BE THERE.

511
00:29:27,065 --> 00:29:29,567
WE CALL THAT GEOMETRIC POROSITY.

512
00:29:29,567 --> 00:29:31,169
THAT DOES REDUCE THE DRAG OF THE

513
00:29:31,169 --> 00:29:32,770

PARACHUTES BUT IT DOES INCREASE

514

00:29:32,770 --> 00:29:34,572

THE STABILITY SO THE INCREASED

515

00:29:34,572 --> 00:29:38,076

STABILITY MAKES THOSE FLIGHT OUT

516

00:29:38,076 --> 00:29:39,210

SMALLER THAN THEY NORMALLY WOULD

517

00:29:39,210 --> 00:29:40,912

BE.

518

00:29:40,912 --> 00:29:42,914

WHICH MEANS THAT ON AVERAGE, OUR

519

00:29:42,914 --> 00:29:44,015

DRAG IS HIGHER.

520

00:29:44,015 --> 00:29:47,418

>> SO ONE OF THESE THREE MAIN

521

00:29:47,418 --> 00:29:49,120

PARACHUTES WAS ACTUALLY WHAT WE

522

00:29:49,120 --> 00:29:51,122

CALL ENVIRONMENTALLY TESTED SO

523

00:29:51,122 --> 00:29:52,223

WE PUT ONE OF THESE PARACHUTES

524

00:29:52,223 --> 00:29:53,725

THROUGH THE ENTIRE SEQUENCE THAT

525

00:29:53,725 --> 00:29:55,226

A FLIGHT PARACHUTE WOULD SEE.

526
00:29:55,226 --> 00:29:57,428
THIS INCLUDES WHAT WE CALL CREEP

527
00:29:57,428 --> 00:29:59,130
TESTING, THERMAL CYCLING BETWEEN

528
00:29:59,130 --> 00:30:00,331
HIGH AND LOW TEMPERATURES,

529
00:30:00,331 --> 00:30:03,535
VIBRATION TESTING, AND RAPID DE

530
00:30:03,535 --> 00:30:05,336
PRESSURIZATION TESTING.

531
00:30:05,336 --> 00:30:07,138
WE DID ALL OF THAT .. THROUGHOUT

532
00:30:07,138 --> 00:30:08,439
THIS CALENDAR YEAR AND THEN

533
00:30:08,439 --> 00:30:09,541
INTEGRATED IT DIRECTLY OPEN TO

534
00:30:09,541 --> 00:30:12,744
THIS VEHICLE TO VALIDATE THE

535
00:30:12,744 --> 00:30:15,246
DESIGN TO ENSURE IT CAN GO

536
00:30:15,246 --> 00:30:17,348
THROUGH THOSE ENVIRONMENTS

537
00:30:17,348 --> 00:30:18,950
WITHOUT HAVING ANY ISSUES.

538
00:30:18,950 --> 00:30:22,654

>> SO WE HAVE SEEN 11ORION

539

00:30:22,654 --> 00:30:24,255

PARACHUTES AND THERE IS ALSO THE

540

00:30:24,255 --> 00:30:26,157

HANDFUL OF TEST SUPPORT

541

00:30:26,157 --> 00:30:28,359

PARACHUTES.

542

00:30:28,359 --> 00:30:30,562

THERE IS ONE PARACHUTE

543

00:30:30,562 --> 00:30:32,463

DESCENDING THE PALLET TO THE

544

00:30:32,463 --> 00:30:33,965

GROUND, NOW THIS IS A SPECIAL

545

00:30:33,965 --> 00:30:34,866

PARACHUTE.

546

00:30:34,866 --> 00:30:37,268

IT IS VERY SIMILAR TO OUR ORION

547

00:30:37,268 --> 00:30:39,504

MAIN, BUT THE LOWER SALES, I AM

548

00:30:39,504 --> 00:30:41,105

NOT SURE IF THE CAMERA IS ON IT

549

00:30:41,105 --> 00:30:44,108

BUT IT HAS GOT A LIGHTER WEIGHT

550

00:30:44,108 --> 00:30:44,709

BROADCLOTH.

551
00:30:44,709 --> 00:30:45,710
THERE WE GOVERNMENT WE HAVE

552
00:30:45,710 --> 00:30:46,511
TOUCHDOWN.

553
00:30:46,511 --> 00:30:49,814
SO ORION LOOKS LIKE THE TEST

554
00:30:49,814 --> 00:30:51,015
VEHICLE IS UP RIGHT, THAT IS

555
00:30:51,015 --> 00:30:52,717
GREAT, THAT MAKES RECOVERY EASY,

556
00:30:52,717 --> 00:30:53,918
A LOT OF TIMES IT WILL FLIP

557
00:30:53,918 --> 00:30:54,319
OVER.

558
00:30:54,319 --> 00:30:55,520
IT IS NOT DESIGNED TO LAND HERE

559
00:30:55,520 --> 00:30:57,622
IN THE DESERT SO WHEN IT HITS

560
00:30:57,622 --> 00:30:59,224
THE HARD GROUND VERSUS THE

561
00:30:59,224 --> 00:31:01,025
WATER, IT KIND OF ROLLS AROUND A

562
00:31:01,025 --> 00:31:02,827
LITTLE BITS, BUT THAT IS NOT A

563
00:31:02,827 --> 00:31:03,628

BIG DEAL.

564

00:31:03,628 --> 00:31:06,030

>> YOU CAN SEE THOSE ORANGE

565

00:31:06,030 --> 00:31:07,632

CHUTES DEFLATING AND FALLING TO

566

00:31:07,632 --> 00:31:09,133

THE GROUND.

567

00:31:09,133 --> 00:31:10,835

THE GROUND WINDS ARE VERY

568

00:31:10,835 --> 00:31:11,936

IMPORTANT DURING THIS TESTING IN

569

00:31:11,936 --> 00:31:13,338

TERMS OF SAFETY FOR THE

570

00:31:13,338 --> 00:31:14,839

PERSONNEL THAT GO OUT TO RECOVER

571

00:31:14,839 --> 00:31:15,540

THE CHUTES.

572

00:31:15,540 --> 00:31:17,041

YOU SEE ONE OF THOSE MAIN

573

00:31:17,041 --> 00:31:18,543

PARACHUTES IS STILL A LITTLE BIT

574

00:31:18,543 --> 00:31:21,145

INFLATED BUT THAT WILL DROOP

575

00:31:21,145 --> 00:31:24,048

DOWN AS THE MOUTH OF IT KIND OF

576
00:31:24,048 --> 00:31:25,049
CLOSES UP.

577
00:31:25,049 --> 00:31:28,753
>> SO THE SAFETY OF THE CREW AND

578
00:31:28,753 --> 00:31:30,555
SAFETY OF THE PERSONNEL IS VERY

579
00:31:30,555 --> 00:31:32,357
IMPORTANT IN THE RECOVERY, IF

580
00:31:32,357 --> 00:31:34,058
THOSE PARACHUTES ARE GENERATED

581
00:31:34,058 --> 00:31:36,761
THEY GENERATE 10S OF THOUSANDS

582
00:31:36,761 --> 00:31:38,496
OF POUNDS OF FORCE THAT, AND

583
00:31:38,496 --> 00:31:39,597
THAT COULD BE VERY DANGEROUS TO

584
00:31:39,597 --> 00:31:40,798
ANYBODY GOING OUT TO RECOVER

585
00:31:40,798 --> 00:31:40,999
THEM.

586
00:31:40,999 --> 00:31:42,100
>> ALL RIGHT.

587
00:31:42,100 --> 00:31:44,202
AND SO WHAT IS NEXT?

588
00:31:44,202 --> 00:31:45,903

>> SO NEXT IS THE RECOVERY

589

00:31:45,903 --> 00:31:46,137
PROCESS.

590

00:31:46,137 --> 00:31:48,706
SO THIS WAS THE HARD PART, NEXT

591

00:31:48,706 --> 00:31:50,708
IS ALSO THE HARD PART, I GUESS,

592

00:31:50,708 --> 00:31:52,110
SO WE WILL DRIVE OUT THERE AND

593

00:31:52,110 --> 00:31:53,511
GO RECOVER EACH OF THESE

594

00:31:53,511 --> 00:31:55,013
PARACHUTES, ALL OF THE OTHER

595

00:31:55,013 --> 00:31:56,614
EQUIPMENT, BAG THEM UP AND TAKE

596

00:31:56,614 --> 00:31:58,616
THEM TO OUR SHAKEOUT TOWER, AT

597

00:31:58,616 --> 00:32:00,818
THE SHAKEOUT TOWER WE WILL

598

00:32:00,818 --> 00:32:02,520
STRING THEM UP AND SHAKE OUT THE

599

00:32:02,520 --> 00:32:04,122
SIX AND SCORPIONS AND LOOK AT

600

00:32:04,122 --> 00:32:06,424
ANY DAMAGE THAT WE MAY HAVE

601
00:32:06,424 --> 00:32:06,724
INCURRED.

602
00:32:06,724 --> 00:32:07,225
>> OKAY.

603
00:32:07,225 --> 00:32:15,933
AND SO, JEROD, -- ALL RIGHT.

604
00:32:15,933 --> 00:32:17,335
I CAN IMAGINE THAT, YOU KNOW, NO

605
00:32:17,335 --> 00:32:18,536
TWO DAYS THE WEATHER CONDITIONS

606
00:32:18,536 --> 00:32:19,937
ARE EXACTLY ALIKE.

607
00:32:19,937 --> 00:32:22,740
SO HOW DO YOU DESIGN A PARACHUTE

608
00:32:22,740 --> 00:32:24,742
SYSTEM FOR ALL OF THE CONDITIONS

609
00:32:24,742 --> 00:32:26,144
THAT WE COULD POSSIBLY

610
00:32:26,144 --> 00:32:27,145
EXPERIENCE WHEN COMING HOME?

611
00:32:27,145 --> 00:32:28,246
>> EXCELLENT QUESTION.

612
00:32:28,246 --> 00:32:29,747
SO IT IS NOT SO MUCH THE WEATHER

613
00:32:29,747 --> 00:32:31,249

THAT ORION HAS TO WORRY ABOUT

614

00:32:31,249 --> 00:32:32,550

BUT IT IS THE ENTRY CONDITIONS.

615

00:32:32,550 --> 00:32:33,551

SO WE HAVE TO DESIGN THE

616

00:32:33,551 --> 00:32:36,554

PARACHUTES TO PERFORM WELL AND

617

00:32:36,554 --> 00:32:37,955

IN EVERYTHING FROM AN ABORT

618

00:32:37,955 --> 00:32:39,590

SCENARIO TO NOMINAL ENTRY.

619

00:32:39,590 --> 00:32:40,792

SO NOMINAL ENTRY IS UP AT

620

00:32:40,792 --> 00:32:43,494

25,000 FEET, 350 MILES PER HOUR

621

00:32:43,494 --> 00:32:44,896

WHERE AN ABORT COULD BE FROM THE

622

00:32:44,896 --> 00:32:46,297

PAD AND WE NEED THE PARACHUTES

623

00:32:46,297 --> 00:32:47,498

TO WORK VERY QUICKLY TO GET THE

624

00:32:47,498 --> 00:32:50,001

CREW TO A SAFE SPEED BEFORE WE

625

00:32:50,001 --> 00:32:50,902

HIT THE WATER.

626
00:32:50,902 --> 00:32:52,203
IT IS A LOT OF TESTING HERE

627
00:32:52,203 --> 00:32:53,604
TESTING ALL OF THOSE VARIOUS

628
00:32:53,604 --> 00:32:54,706
SCENARIOS TO MAKE SURE WE HAVE

629
00:32:54,706 --> 00:32:56,207
THE DATA TO INFORM OUR COMPUTER

630
00:32:56,207 --> 00:32:57,508
MODELS WHICH WILL TELL US THAT

631
00:32:57,508 --> 00:32:58,309
THE PARACHUTES ARE SAFE.

632
00:32:58,309 --> 00:33:00,511
>> GREAT, WELL, CONGRATULATIONS

633
00:33:00,511 --> 00:33:02,814
FOR COMPLETING THE TEST SERIES.

634
00:33:02,814 --> 00:33:04,816
TO QUALIFY ORION'S PARACHUTES TO

635
00:33:04,816 --> 00:33:05,216
CARRY HUMANS.

636
00:33:05,216 --> 00:33:06,417
>> THANK YOU VERY MUCH.

637
00:33:06,417 --> 00:33:08,619
>> ALL RIGHT.

638
00:33:08,619 --> 00:33:10,221

WELL, THANKS, JERRY FOR TALKING

639

00:33:10,221 --> 00:33:11,422

US THROUGH THE QUESTIONS AND

640

00:33:11,422 --> 00:33:12,423

ANSWERING OUR QUESTIONS AND

641

00:33:12,423 --> 00:33:14,425

TALKING US TAKING US THROUGH THE

642

00:33:14,425 --> 00:33:16,127

TEST AND THANKS TO EVERYONE WHO

643

00:33:16,127 --> 00:33:18,529

JOINED US ON NASA TELEVISION.

644

00:33:18,529 --> 00:33:19,430

THIS TEST COMPLETES THE

645

00:33:19,430 --> 00:33:21,232

PARACHUTE TESTING TO GET READY

646

00:33:21,232 --> 00:33:22,734

FOR CREWED MISSIONS.

647

00:33:22,734 --> 00:33:25,937

>> AND TOGETHER ORION AND THE

648

00:33:25,937 --> 00:33:27,038

SPACE LAUNCH SYSTEM ROCKET WILL

649

00:33:27,038 --> 00:33:28,439

BE THE BACKBONE CAPABILITIES

650

00:33:28,439 --> 00:33:30,241

THAT WILL CARRY HUMANS TO THE

651

00:33:30,241 --> 00:33:32,143

MOON AND EXTEND HUMAN PRESENCE

652

00:33:32,143 --> 00:33:34,245

INTO THE SOLAR SYSTEM FARTHER

653

00:33:34,245 --> 00:33:35,346

THAN EVER BEFORE.

654

00:33:35,346 --> 00:33:36,848

IF YOU WOULD LIKE TO FOLLOW AL

655

00:33:36,848 --> 00:33:38,049

WITH THE PROGRESS WE ARE MAKING