

APOLLO 13: HOME SAFE



1
00:00:01,000 --> 00:00:02,168
>> THIS LITTLE TAPE RECORDER

2
00:00:02,168 --> 00:00:04,037
HAS BEEN A--

3
00:00:04,037 --> 00:00:05,405
HAS BEEN A BIG BENEFIT TO US

4
00:00:05,405 --> 00:00:06,973
IN, UH--

5
00:00:06,973 --> 00:00:08,241
IN PASSING SOME OF OUR TIME AWAY

6
00:00:08,241 --> 00:00:10,143
ON OUR TRANSIT OUT TO THE MOON.

7
00:00:11,144 --> 00:00:26,326
[MUSIC]

8
00:00:29,195 --> 00:00:31,464
THIS IS THE CREW OF APOLLO 13

9
00:00:31,464 --> 00:00:32,699
WISHING EVERYBODY THERE

10
00:00:32,699 --> 00:00:34,934
A NICE EVENING,

11
00:00:34,934 --> 00:00:36,703
AND, UH, WE'RE JUST ABOUT READY

12
00:00:36,703 --> 00:00:38,304
TO CLOSE OUT OUR INSPECTION

13
00:00:38,304 --> 00:00:40,673

OF AQUARIUS AND GET BACK FOR

14

00:00:40,673 --> 00:00:42,542

A PLEASANT EVENING IN ODYSSEY.

15

00:00:42,542 --> 00:00:43,276

GOOD NIGHT.

16

00:00:43,276 --> 00:00:45,445

>> IT WAS PLAGUED BY

17

00:00:45,445 --> 00:00:48,515

BAD OMENS AND BAD LUCK

18

00:00:48,515 --> 00:00:50,250

FROM THE VERY BEGINNING.

19

00:00:50,250 --> 00:00:51,551

>> 13, WE'VE GOT ONE MORE ITEM

20

00:00:51,551 --> 00:00:52,685

FOR YOU, WHEN YOU GET A CHANCE.

21

00:00:52,685 --> 00:00:54,053

WE'D LIKE YOU TO, UH,

22

00:00:54,053 --> 00:00:55,522

STIR UP YOUR CRYO TANKS.

23

00:00:55,522 --> 00:00:57,090

>> IT NEVER REALLY CONVERGED

24

00:00:57,090 --> 00:00:58,425

TO THE POINT WHERE YOU FELT

25

00:00:58,425 --> 00:01:00,527

YOU REALLY HAD TOTAL CONTROL

26

00:01:00,527 --> 00:01:02,095
OF WHAT WAS GOING ON.

27

00:01:02,095 --> 00:01:03,696
>> OKAY, STAND BY.

28

00:01:03,696 --> 00:01:04,631
>> ABOUT THE TIME

29

00:01:04,631 --> 00:01:05,498
YOU TURNED THE CORNER,

30

00:01:05,498 --> 00:01:07,667
SOMETHING NEW WOULD SHOW UP.

31

00:01:07,667 --> 00:01:08,802
>> I BELIEVE WE'VE HAD

32

00:01:08,802 --> 00:01:10,236
A PROBLEM HERE.

33

00:01:10,236 --> 00:01:11,671
>> BY THE TIME WE CAME ON DUTY,

34

00:01:11,671 --> 00:01:13,807
WE WERE WELL AWARE THAT

35

00:01:13,807 --> 00:01:15,008
WE HAD A BIG PROBLEM

36

00:01:15,008 --> 00:01:16,409
ON OUR HANDS.

37

00:01:16,409 --> 00:01:18,077
>> SAY AGAIN, PLEASE.

38

00:01:18,077 --> 00:01:20,013

>> IT WAS LIFE-THREATENING.

39

00:01:20,013 --> 00:01:21,681

>> HOUSTON, WE'VE HAD A PROBLEM.

40

00:01:21,681 --> 00:01:22,715

>> IT WAS NOT ABOUT

41

00:01:22,715 --> 00:01:23,716

LANDING ON THE MOON

42

00:01:23,716 --> 00:01:24,717

IN THE RIGHT PLACE.

43

00:01:24,717 --> 00:01:27,120

IT WAS ABOUT SURVIVAL.

44

00:01:27,120 --> 00:01:29,956

>> MAIN B BUS UNDERVOLT.

45

00:01:29,956 --> 00:01:32,025

>> ROGER, MAIN B UNDERVOLT.

46

00:01:32,025 --> 00:01:33,693

>> OKAY, STAND BY, 13.

47

00:01:33,693 --> 00:01:35,328

WE'RE LOOKING AT IT.

48

00:01:36,329 --> 00:01:46,072

[MUSIC]

49

00:01:55,215 --> 00:01:56,416

>> THE SATURN V BUILDING UP

50

00:01:56,416 --> 00:01:58,718

TO 7.6 MILLION POUNDS OF THRUST.

51
00:01:58,718 --> 00:02:00,720
AND IT HAS CLEARED THE TOWER.

52
00:02:00,720 --> 00:02:02,021
>> THIS IS

53
00:02:02,021 --> 00:02:03,122
MISSION CONTROL, HOUSTON.

54
00:02:03,122 --> 00:02:04,090
WE APPEAR TO HAVE A GOOD

55
00:02:04,090 --> 00:02:05,792
FIRST STAGE AT THIS POINT.

56
00:02:05,792 --> 00:02:06,659
>> HERE WE GO.

57
00:02:06,659 --> 00:02:07,861
OKAY, FIRE IT UP.

58
00:02:07,861 --> 00:02:08,728
>> WE'RE GO, FLIGHT.

59
00:02:08,728 --> 00:02:09,596
LOOKS GOOD HERE.

60
00:02:09,596 --> 00:02:10,864
>> GUIDANCE, HOW DOES IT LOOK?

61
00:02:10,864 --> 00:02:12,465
>> OKAY, EECOM, GNC?

62
00:02:14,200 --> 00:02:13,299
>> LOOKS GOOD, FLIGHT.

63
00:02:14,200 --> 00:02:16,169

>> OKAY--

64

00:02:16,169 --> 00:02:17,403

>> THE CREW WAS, UH,

65

00:02:17,403 --> 00:02:18,571

JIM LOVELL WAS THE COMMANDER.

66

00:02:18,571 --> 00:02:20,039

JACK SWIGERT WAS

67

00:02:20,039 --> 00:02:21,774

THE COMMAND MODULE PILOT.

68

00:02:21,774 --> 00:02:23,176

JIM I HAD WORKED WITH, UH,

69

00:02:23,176 --> 00:02:24,777

AS A BACKUP CREW ON APOLLO 8.

70

00:02:24,777 --> 00:02:25,879

WHEN HE FLEW APOLLO 8,

71

00:02:25,879 --> 00:02:27,347

I WAS THE BACKUP LUNAR MODULE

72

00:02:27,347 --> 00:02:29,315

PILOT ON THAT MISSION.

73

00:02:29,315 --> 00:02:30,783

AND THEN WE WORKED OBVIOUSLY

74

00:02:30,783 --> 00:02:33,887

AS A BACKUP CREW FOR APOLLO 11.

75

00:02:33,887 --> 00:02:35,121

I BACKED UP BUZZ ALDRIN

76
00:02:35,121 --> 00:02:36,523
ON THAT MISSION.

77
00:02:36,523 --> 00:02:38,291
JACK SWIGERT, UH,

78
00:02:38,291 --> 00:02:40,360
BECAUSE OF A MEASLES THREAT, UH,

79
00:02:40,360 --> 00:02:41,794
REPLACED KEN MATTINGLY

80
00:02:41,794 --> 00:02:43,997
2.5 DAYS BEFORE LAUNCH.

81
00:02:43,997 --> 00:02:45,231
UH, SO THAT WAS--

82
00:02:45,231 --> 00:02:46,366
THAT WAS SOMETHING THAT NEVER

83
00:02:46,366 --> 00:02:48,167
HAPPENED BEFORE OR SINCE,

84
00:02:48,167 --> 00:02:50,436
I DON'T THINK, ON A MISSION.

85
00:02:50,436 --> 00:02:51,638
>> FLIGHT DYNAMICS OFFICER SAYS

86
00:02:51,638 --> 00:02:52,772
THE TRAJECTORY LOOKS GOOD.

87
00:02:52,772 --> 00:02:53,907
WE SHOW A ONE HALF MILE

88
00:02:53,907 --> 00:02:55,808

IN ALTITUDE AT THIS TIME.

89

00:03:00,680 --> 00:03:01,848

>> WE HAD, UH, FOUR TEAMS

90

00:03:01,848 --> 00:03:02,949

AT MISSION CONTROL.

91

00:03:02,949 --> 00:03:04,484

WE DID THIS FROM A STANDPOINT

92

00:03:04,484 --> 00:03:06,886

OF EASING THE SHIFTING SCHEDULE,

93

00:03:06,886 --> 00:03:08,655

UH, BEING ABLE TO TRAIN FOR

94

00:03:08,655 --> 00:03:10,523

VERY SPECIALIZED EVENTS DURING

95

00:03:10,523 --> 00:03:12,258

THE COURSE OF THE MISSION.

96

00:03:12,258 --> 00:03:13,426

AND THEN ONE OF 'EM IS ALWAYS

97

00:03:13,426 --> 00:03:15,929

DESIGNATED AS SORT OF A LEAD.

98

00:03:15,929 --> 00:03:17,330

AND BASICALLY THE OBJECTIVE

99

00:03:17,330 --> 00:03:19,165

OF THE LEAD WAS TO ADDRESS

100

00:03:19,165 --> 00:03:20,567

ANY CRISES THAT COME UP

101
00:03:20,567 --> 00:03:22,268
TO GET YOUR TEAM

102
00:03:22,268 --> 00:03:23,570
OFF THE CONSOLE.

103
00:03:23,570 --> 00:03:25,204
AND THE REMAINING THREE TEAMS

104
00:03:25,204 --> 00:03:26,806
WOULD CONTINUE, UH,

105
00:03:26,806 --> 00:03:29,008
24/7 SUPPORT FOR THE MISSION

106
00:03:29,008 --> 00:03:30,143
AS WELL AS PICKING UP

107
00:03:30,143 --> 00:03:31,477
A LOT OF THE ACTIONS,

108
00:03:31,477 --> 00:03:33,212
UH, RELATED TO THE, UH--

109
00:03:33,212 --> 00:03:34,847
GETTING THE CREW BACK HOME.

110
00:03:34,847 --> 00:03:35,815
I HAPPENED TO BE ON

111
00:03:35,815 --> 00:03:37,050
CONSOLE AT THAT TIME,

112
00:03:37,050 --> 00:03:38,384
AND, UH, WE WERE JUST RIGHT AT

113
00:03:38,384 --> 00:03:39,619

THE VERY END OF OUR SHIFT.

114

00:03:39,619 --> 00:03:40,920

WE WERE, UH, PREPARING FOR

115

00:03:40,920 --> 00:03:42,188

A CREW SLEEP PERIOD.

116

00:03:42,188 --> 00:03:43,423

UH, AND ONE OF THE, UH,

117

00:03:43,423 --> 00:03:44,524

LAST THINGS YOU DO IS

118

00:03:44,524 --> 00:03:45,658

TAKE A LOOK AT THE CRYOGENICS

119

00:03:45,658 --> 00:03:46,926

AND SEE IF YOU NEED TO

120

00:03:46,926 --> 00:03:48,928

STIR 'EM UP, MAKE 'EM UNIFORM

121

00:03:48,928 --> 00:03:50,763

SO YOU GOT EQUALIZED PRESSURES

122

00:03:50,763 --> 00:03:52,365

GOING INTO LIFE SUPPORT SYSTEMS

123

00:03:52,365 --> 00:03:54,167

AND THE FUEL CELLS.

124

00:03:55,802 --> 00:03:56,869

>> WE'VE GOT ONE MORE ITEM

125

00:03:56,869 --> 00:03:58,004

FOR YOU WHEN YOU GET A CHANCE.

126

00:03:58,004 --> 00:03:59,339

WE'D LIKE YOU TO, UH,

127

00:03:59,339 --> 00:04:01,608

STIR UP YOUR CRYO TANKS.

128

00:04:01,608 --> 00:04:02,909

IN ADDITION, I HAVE A SHAFT

129

00:04:02,909 --> 00:04:03,810

AND TRUNNION--

130

00:04:03,810 --> 00:04:04,677

>> OKAY.

131

00:04:04,677 --> 00:04:05,511

>> FOR LOOKING AT THE COMET

132

00:04:05,511 --> 00:04:07,480

BENNETT IF YOU NEED IT.

133

00:04:07,480 --> 00:04:10,316

>> OKAY, STAND BY.

134

00:04:11,784 --> 00:04:14,587

[STATIC]

135

00:04:17,423 --> 00:04:18,257

>> OKAY, HOUSTON,

136

00:04:18,257 --> 00:04:19,726

WE'VE HAD A PROBLEM HERE.

137

00:04:22,395 --> 00:04:24,564

>> SAY AGAIN, PLEASE.

138

00:04:27,400 --> 00:04:28,401

>> UH, HOUSTON,

139

00:04:28,401 --> 00:04:29,936
WE'VE HAD A PROBLEM.

140

00:04:29,936 --> 00:04:31,437
>> GLENN WAS COMING ON

141

00:04:31,437 --> 00:04:33,039
WITH HIS TIME AT THAT TIME,

142

00:04:33,039 --> 00:04:34,007
READING ALONG,

143

00:04:34,007 --> 00:04:35,508
PREPARING FOR A HANDOVER.

144

00:04:35,508 --> 00:04:36,743
>> BY THE TIME WE GOT TO,

145

00:04:36,743 --> 00:04:39,112
UH, HANDOVER,

146

00:04:39,112 --> 00:04:40,913
WE KNEW FULL WELL THAT WE HAD TO

147

00:04:40,913 --> 00:04:42,281
TAKE CARE OF THIS THING.

148

00:04:42,281 --> 00:04:45,118
AND IN TERMS OF AN EMERGENCY,

149

00:04:45,118 --> 00:04:46,586
WE WERE HANDLING SOMETHING

150

00:04:46,586 --> 00:04:48,454
THAT WE KNEW WAS, UH,

151
00:04:48,454 --> 00:04:50,223
OUT OF CONTROL.

152
00:04:50,223 --> 00:04:52,325
AND, UH, IN THIS CASE,

153
00:04:52,325 --> 00:04:54,160
EVERY TEAM THAT CAME ON

154
00:04:54,160 --> 00:04:55,862
WAS DEALING WITH A MAJOR

155
00:04:55,862 --> 00:04:57,263
SET OF PROBLEMS.

156
00:04:57,263 --> 00:04:58,264
>> I ASSUME YOU'VE CALLED IN

157
00:04:58,264 --> 00:04:59,866
YOUR BACKUP EECOMMs?

158
00:04:59,866 --> 00:05:00,800
>> FLIGHT, SAY AGAIN.

159
00:05:00,800 --> 00:05:01,567
>> HAVE YOU CALLED IN

160
00:05:01,567 --> 00:05:02,368
YOUR BACKUP EECOMMs NOW,

161
00:05:02,368 --> 00:05:03,202
SEE IF WE CAN GET SOME MORE

162
00:05:03,202 --> 00:05:04,070
BRAIN POWER ON THIS THING?

163
00:05:04,070 --> 00:05:04,771

>> WE'VE GOT ONE HERE.

164

00:05:04,771 --> 00:05:05,972

>> ROGER.

165

00:05:05,972 --> 00:05:07,306

>> WE HEARD THIS LOUD BANG,

166

00:05:07,306 --> 00:05:08,708

WHICH KIND OF REVERBERATED

167

00:05:08,708 --> 00:05:10,376

WITH A LITTLE ECHO.

168

00:05:10,376 --> 00:05:11,577

'CAUSE THE VEHICLES WE'RE IN

169

00:05:11,577 --> 00:05:13,146

WERE METAL-- METAL VEHICLES,

170

00:05:13,146 --> 00:05:14,047

AND IT WAS KIND OF LIKE

171

00:05:14,047 --> 00:05:15,581

SOMEBODY-- YOU'RE IN A BIG, UH,

172

00:05:15,581 --> 00:05:17,483

BARREL, AND A HIT ON THE SIDE

173

00:05:17,483 --> 00:05:18,885

WITH A SLEDGEHAMMER

174

00:05:18,885 --> 00:05:19,952

KINDA OF SOUND.

175

00:05:19,952 --> 00:05:21,120

IN THE TUNNEL AREA,

176

00:05:21,120 --> 00:05:22,755

SOME OF THE METAL

177

00:05:22,755 --> 00:05:24,257

WAS ACTUALLY CRINKLING,

178

00:05:24,257 --> 00:05:25,792

KINDA LIKE YOU TAKE A COKE CAN

179

00:05:25,792 --> 00:05:27,193

AND SQUEEZE IT,

180

00:05:27,193 --> 00:05:28,227

A LITTLE CRINKLING?

181

00:05:28,227 --> 00:05:29,228

SO THE TWO-TWO VEHICLES

182

00:05:29,228 --> 00:05:31,364

WERE MOVING, UH, NOT TOGETHER,

183

00:05:31,364 --> 00:05:32,532

BUT A LITTLE ASYMMETRIC

184

00:05:32,532 --> 00:05:33,933

I THINK IN ROLL.

185

00:05:33,933 --> 00:05:34,967

AND THAT WAS CAUSING THAT

186

00:05:34,967 --> 00:05:36,569

STRESS IN THE TUNNEL AREA.

187

00:05:36,569 --> 00:05:37,637

>> I WENT DOWN INTO

188

00:05:37,637 --> 00:05:38,771

THE COMMAND MODULE,

189

00:05:38,771 --> 00:05:40,506

AND I SAW THAT WE HAD LOST

190

00:05:40,506 --> 00:05:42,375

TWO OF OUR THREE FUEL CELLS

191

00:05:42,375 --> 00:05:44,877

THAT THEY-THEY DEVELOP OXYGEN.

192

00:05:44,877 --> 00:05:47,613

I THEN LOOKED OUT THE WINDOW

193

00:05:47,613 --> 00:05:48,848

AND SAW ESCAPING AT

194

00:05:48,848 --> 00:05:49,882

A HIGH RATE OF SPEED

195

00:05:49,882 --> 00:05:51,384

A GASEOUS OXYGEN.

196

00:05:51,384 --> 00:05:52,552

AND IT TURNED OUT THAT

197

00:05:52,552 --> 00:05:54,587

THAT OXYGEN THAT I WAS EXAMINING

198

00:05:54,587 --> 00:05:57,256

WAS FROM THE SECOND TANK,

199

00:05:57,256 --> 00:05:58,825

BECAUSE THE EXPLOSION OCCURRED

200

00:05:58,825 --> 00:06:00,727

ON THE FIRST-- THE DAMAGED TANK,

201
00:06:00,727 --> 00:06:02,095
BUT THAT ALSO RUPTURED

202
00:06:02,095 --> 00:06:03,296
THE SECOND TANK.

203
00:06:03,296 --> 00:06:05,698
THE FIRST TANK JUST BLEW

204
00:06:05,698 --> 00:06:06,632
THE ENTIRE SIDE

205
00:06:06,632 --> 00:06:09,836
OF THE SPACECRAFT OFF.

206
00:06:09,836 --> 00:06:10,737
>> THERE IS A BULLETIN

207
00:06:10,737 --> 00:06:11,938
FROM ABC NEWS.

208
00:06:11,938 --> 00:06:13,372
THE APOLLO 13 SPACECRAFT

209
00:06:13,372 --> 00:06:15,007
HAS HAD A SERIOUS POWER SUPPLY

210
00:06:15,007 --> 00:06:17,043
MALFUNCTION THAT COULD CAUSE

211
00:06:17,043 --> 00:06:18,111
THE LUNAR LANDING MISSION

212
00:06:18,111 --> 00:06:19,712
TO BE TERMINATED EARLY.

213
00:06:19,712 --> 00:06:20,847

AT THE MOMENT, THE ASTRONAUTS

214

00:06:20,847 --> 00:06:21,914
ARE CONTINUING TO TRY TO

215

00:06:21,914 --> 00:06:22,949
ISOLATE THEIR TROUBLE.

216

00:06:22,949 --> 00:06:23,883
A LATE REPORT SAYS

217

00:06:23,883 --> 00:06:25,184
THE SPACECRAFT NOW IS OPERATING

218

00:06:25,184 --> 00:06:27,019
ON BATTERY POWER ALONE.

219

00:06:27,019 --> 00:06:28,287
ALL UNNECESSARY EQUIPMENT

220

00:06:28,287 --> 00:06:29,722
IS BEING TURNED OFF.

221

00:06:29,722 --> 00:06:30,923
>> WELL, WITHIN

222

00:06:30,923 --> 00:06:31,924
A COUPLE OF MINUTES,

223

00:06:31,924 --> 00:06:33,426
WHEN I GOT TO MY POSITION,

224

00:06:33,426 --> 00:06:35,328
UH, FROM LOOKING AT

225

00:06:35,328 --> 00:06:36,562
THE INSTRUMENT PANEL,

226

00:06:36,562 --> 00:06:38,264

TWO METERS HAD--

227

00:06:38,264 --> 00:06:40,066

THE NEEDLES ON OXYGEN TANK TWO

228

00:06:40,066 --> 00:06:41,033

ON THE BOTTOM.

229

00:06:41,033 --> 00:06:41,968

AND THEY WERE FED BY

230

00:06:41,968 --> 00:06:43,503

DIFFERENT SENSORS

231

00:06:43,503 --> 00:06:44,771

WHICH WERE UNLIKELY TO FAIL

232

00:06:44,771 --> 00:06:45,671

AT THE SAME TIME.

233

00:06:45,671 --> 00:06:47,406

SO I KNEW WE'D LOST TANK TWO.

234

00:06:47,406 --> 00:06:48,274

WITHOUT LOOKING AT

235

00:06:48,274 --> 00:06:49,108

MISSION RULES,

236

00:06:49,108 --> 00:06:51,010

I KNEW THAT WAS AN ABORT.

237

00:06:51,010 --> 00:06:52,178

>> HERE IN MISSION CONTROL,

238

00:06:52,178 --> 00:06:53,212

WE ARE LOOKING, UH--

239

00:06:53,212 --> 00:06:54,147
NOW LOOKING TOWARDS

240

00:06:54,147 --> 00:06:56,616
AN ALTERNATE MISSION,

241

00:06:56,616 --> 00:06:58,384
SWINGING AROUND THE MOON

242

00:06:58,384 --> 00:06:59,786
AND USING THE, UM,

243

00:06:59,786 --> 00:07:02,054
LUNAR MODULE POWER SYSTEMS.

244

00:07:03,022 --> 00:07:17,170
[MUSIC]

245

00:07:17,170 --> 00:07:18,304
>> ALTHOUGH WE SPENT

246

00:07:18,304 --> 00:07:20,072
LOTS AND LOTS OF TIME

247

00:07:20,072 --> 00:07:21,240
THINKING THROUGH

248

00:07:21,240 --> 00:07:23,009
ALL THE MISSION RULES,

249

00:07:23,009 --> 00:07:24,610
WHEN IT REALLY HAPPENS,

250

00:07:24,610 --> 00:07:26,379
LIKE IN THIS CASE,

251
00:07:26,379 --> 00:07:28,414
WE DIDN'T HAVE TO OPEN ANY BOOKS

252
00:07:28,414 --> 00:07:30,049
TO TELL US WHAT, UH--

253
00:07:30,049 --> 00:07:31,784
WHAT WE HAD TO DEAL WITH.

254
00:07:31,784 --> 00:07:33,719
>> TELMU FROM FLIGHT.

255
00:07:33,719 --> 00:07:34,587
>> GO AHEAD, FLIGHT.

256
00:07:34,587 --> 00:07:35,488
>> I WANT YOU TO GET SOME GUYS

257
00:07:35,488 --> 00:07:36,856
FIGURING OUT MINIMUM POWER

258
00:07:36,856 --> 00:07:40,126
IN THE LM TO SUSTAIN LIFE.

259
00:07:40,126 --> 00:07:41,360
>> SINCE THE CRYO

260
00:07:41,360 --> 00:07:42,562
OXYGEN TANK BLEW UP,

261
00:07:42,562 --> 00:07:44,530
IT RUPTURED THE OTHER LINES.

262
00:07:44,530 --> 00:07:46,432
AND WE LOST ALL OXYGEN SUPPLY

263
00:07:46,432 --> 00:07:47,333

TO THE FUEL CELLS

264

00:07:47,333 --> 00:07:48,935
AND THE CREW MODULE.

265

00:07:48,935 --> 00:07:50,303
AND-AND THE CREW MODULE

266

00:07:50,303 --> 00:07:52,038
WAS DYING REAL QUICKLY

267

00:07:52,038 --> 00:07:53,272
FROM LACK OF POWER

268

00:07:53,272 --> 00:07:54,607
OTHER THAN THE BATTERY,

269

00:07:54,607 --> 00:07:55,474
AND WE DIDN'T WANT TO

270

00:07:55,474 --> 00:07:56,309
USE THE BATTERY

271

00:07:56,309 --> 00:07:57,443
BECAUSE WE'D NEED--

272

00:07:57,443 --> 00:07:59,412
WE NEEDED THAT FOR ENTRY.

273

00:07:59,412 --> 00:08:00,847
>> THIS IS APOLLO CONTROL

274

00:08:00,847 --> 00:08:02,715
AT 57 HOURS 46 MINUTES

275

00:08:02,715 --> 00:08:04,750
GROUND ELAPSED TIME.

276

00:08:04,750 --> 00:08:05,918

THE BLACK TEAM OF

277

00:08:05,918 --> 00:08:06,986

FLIGHT CONTROLLERS

278

00:08:06,986 --> 00:08:08,287

IS NOW ON STATION

279

00:08:08,287 --> 00:08:09,655

IN MISSION CONTROL CENTER,

280

00:08:09,655 --> 00:08:10,690

LOOKING AT POSSIBLE

281

00:08:10,690 --> 00:08:12,658

ALTERNATE MISSIONS,

282

00:08:12,658 --> 00:08:13,726

AS WE HAVE AN APPARENT

283

00:08:13,726 --> 00:08:14,994

SERIOUS OXYGEN LEAK

284

00:08:14,994 --> 00:08:16,562

IN THE CRYOGENIC OXYGEN

285

00:08:16,562 --> 00:08:18,364

IN THE SERVICE MODULE.

286

00:08:18,364 --> 00:08:20,433

AND NOW IN THE PROCESS OF

287

00:08:20,433 --> 00:08:22,001

POWERING DOWN THE...

288

00:08:22,001 --> 00:08:23,436

COMMAND MODULE.

289

00:08:23,436 --> 00:08:25,271
LESS THAN 15 MINUTES REMAINING

290

00:08:25,271 --> 00:08:27,974
OF, UH, ELECTRICAL POWER

291

00:08:27,974 --> 00:08:30,176
TO THE CSM.

292

00:08:30,176 --> 00:08:31,110
>> THE BIGGEST THINGS WE

293

00:08:31,110 --> 00:08:33,579
HAD TO DO IN THE DYING MOMENTS

294

00:08:33,579 --> 00:08:35,448
OF THE ELECTRICAL SYSTEM

295

00:08:35,448 --> 00:08:37,750
IN THE COMMAND MODULE WAS TO

296

00:08:37,750 --> 00:08:41,254
TRANSFER THE GUIDANCE SYSTEM

297

00:08:41,254 --> 00:08:43,589
FROM THE COMMAND MODULE

298

00:08:43,589 --> 00:08:45,458
TO THE LUNAR MODULE.

299

00:08:45,458 --> 00:08:47,026
AND WE ONLY HAD ABOUT

300

00:08:47,026 --> 00:08:48,494
15 MINUTES TO DO THAT,

301
00:08:48,494 --> 00:08:50,062
BECAUSE IF WE DIDN'T GET

302
00:08:50,062 --> 00:08:51,097
THE GUIDANCE SYSTEM

303
00:08:51,097 --> 00:08:52,431
INTO THE LUNAR MODULE,

304
00:08:52,431 --> 00:08:53,599
THEN-THEN-THEN WE'D HAVE

305
00:08:53,599 --> 00:08:54,767
TO START ALL OVER AGAIN

306
00:08:54,767 --> 00:08:57,803
TO TRY TO GET THE LUNAR MODULE

307
00:08:57,803 --> 00:08:59,805
GUIDANCE SYSTEM UP TO SPEED.

308
00:08:59,805 --> 00:09:01,274
>> THIS SCHEME OF GOING ACROSS

309
00:09:01,274 --> 00:09:02,909
TO THE LUNAR MODULE, UH,

310
00:09:02,909 --> 00:09:04,010
STILL CONNECTED, UH,

311
00:09:04,010 --> 00:09:05,912
WITH THE OPEN TUNNEL,

312
00:09:05,912 --> 00:09:07,113
THE LUNAR MODULE WOULD SERVE

313
00:09:07,113 --> 00:09:08,881

AS A SORT OF LIFEBOAT

314

00:09:08,881 --> 00:09:11,417
FOR THE CREW OF APOLLO 13.

315

00:09:11,417 --> 00:09:12,451
>> AND THEN WE STARTED

316

00:09:12,451 --> 00:09:13,719
TURNING ON ALL THINGS,

317

00:09:13,719 --> 00:09:15,154
THE CONTROL SYSTEMS.

318

00:09:15,154 --> 00:09:16,355
WE WERE STARTING TO TALK ON--

319

00:09:16,355 --> 00:09:17,757
FROM THE LUNAR MODULE.

320

00:09:17,757 --> 00:09:18,824
AND, UH, IN FACT,

321

00:09:18,824 --> 00:09:20,026
WE WERE IN THE LUNAR MODULE

322

00:09:20,026 --> 00:09:21,894
BEFORE THE GROUND REALIZED IT.

323

00:09:21,894 --> 00:09:23,195
THEY SUDDENLY REALIZED THAT,

324

00:09:23,195 --> 00:09:25,064
OH, THEY'RE OVER THERE.

325

00:09:25,064 --> 00:09:26,165
AND THEN OF COURSE,

326

00:09:26,165 --> 00:09:27,967
WHAT THEY HAD TO SAY IS,

327

00:09:27,967 --> 00:09:30,002
WE'RE GONNA HAVE TO GET YOU OFF

328

00:09:30,002 --> 00:09:32,004
THE COURSE YOU'RE IN NOW

329

00:09:32,004 --> 00:09:33,506
TO GET YOU BACK ON

330

00:09:33,506 --> 00:09:35,107
THE FREE RETURN COURSE.

331

00:09:35,107 --> 00:09:36,175
>> AND THIS MEANT THAT

332

00:09:36,175 --> 00:09:38,010
WE WERE NO LONGER ON A PATH

333

00:09:38,010 --> 00:09:39,745
THAT WOULD ALLOW US TO BE

334

00:09:39,745 --> 00:09:41,547
SWUNG AROUND THE MOON

335

00:09:41,547 --> 00:09:42,581
AND COME BACK TOWARDS

336

00:09:42,581 --> 00:09:44,517
THE LANDING SPOT ON THE EARTH.

337

00:09:44,517 --> 00:09:46,018
THE, UH, CONTROLLABILITY

338

00:09:46,018 --> 00:09:47,853

OF THE SPACECRAFT, UH,

339

00:09:47,853 --> 00:09:49,288

WAS OKAY AS LONG AS WE HAD

340

00:09:49,288 --> 00:09:51,490

OUR-OUR INDICATORS UP,

341

00:09:51,490 --> 00:09:52,625

BECAUSE WE HAD PRACTICED THAT,

342

00:09:52,625 --> 00:09:53,826

AS I HAD SAID.

343

00:09:53,826 --> 00:09:54,994

BUT SUDDENLY TO SAVE POWER,

344

00:09:54,994 --> 00:09:56,629

WE SHUT THAT DOWN FOR A WHILE,

345

00:09:56,629 --> 00:09:57,930

AND WE HAD TO CONTROL IT BY

346

00:09:57,930 --> 00:09:59,665

ONLY LOOKING AT OUR

347

00:09:59,665 --> 00:10:01,300

COMPUTER DISPLAY.

348

00:10:01,300 --> 00:10:03,035

AND I HAD NEVER

349

00:10:03,035 --> 00:10:04,170

TRIED THAT BEFORE.

350

00:10:04,170 --> 00:10:05,471

I REALLY DON'T KNOW WHO HAD.

351

00:10:05,471 --> 00:10:06,505

AND IT'S, UH,

352

00:10:06,505 --> 00:10:07,540

A VERY DIFFICULT TASK.

353

00:10:07,540 --> 00:10:09,175

AND WE SPENT A LOT OF OUR

354

00:10:09,175 --> 00:10:10,843

FIRST PART OF OUR EMERGENCY

355

00:10:10,843 --> 00:10:12,111

OR SURVIVAL TIME JUST LEARNING

356

00:10:12,111 --> 00:10:13,279

HOW TO CONTROL THE SPACECRAFT

357

00:10:13,279 --> 00:10:15,281

IN THIS MODE.

358

00:10:16,449 --> 00:10:31,297

[MUSIC]

359

00:10:36,002 --> 00:10:37,303

>> THE PERICYNTHION

360

00:10:37,303 --> 00:10:38,804

NEAR THE MOON, UH,

361

00:10:38,804 --> 00:10:39,872

THEY WOULD USE THE DECENT

362

00:10:39,872 --> 00:10:40,840

PROPULSION SYSTEM

363

00:10:40,840 --> 00:10:42,641

OF THE LUNAR MODULE

364

00:10:42,641 --> 00:10:44,543
FOR TRANS-EARTH INJECTION BURN

365

00:10:44,543 --> 00:10:46,545
IN ABOUT 79 HOURS, 30 MINUTES

366

00:10:46,545 --> 00:10:48,381
GROUND-ELAPSED TIME.

367

00:10:49,582 --> 00:10:56,288
[MUSIC]

368

00:10:56,288 --> 00:10:57,423
THIS WOULD PRODUCE

369

00:10:57,423 --> 00:10:59,992
A DAY-EARLY ENTRY

370

00:10:59,992 --> 00:11:01,927
AT ABOUT 142 HOURS.

371

00:11:01,927 --> 00:11:03,295
THAT IS A DAY EARLIER THAN

372

00:11:03,295 --> 00:11:06,399
A NOMINAL FREE RETURN ENTRY.

373

00:11:06,399 --> 00:11:07,299
WE'RE CONTINUING TO

374

00:11:07,299 --> 00:11:08,534
MONITOR THE SITUATION,

375

00:11:08,534 --> 00:11:10,970
AND, UH, STILL LIVE ON AIR--

376

00:11:16,976 --> 00:11:18,077

>> YOU KNOW, I-I THINK TO ME

377

00:11:18,077 --> 00:11:19,512

THE LOSS OF COMM WAS

378

00:11:19,512 --> 00:11:21,247

BUSINESS AS USUAL.

379

00:11:21,247 --> 00:11:22,381

EVERY MISSION, UH,

380

00:11:22,381 --> 00:11:23,182

AS YOU WENT AROUND

381

00:11:23,182 --> 00:11:24,050

THE BACK SIDE OF THE MOON,

382

00:11:24,050 --> 00:11:25,017

YOU'D HAVE THE LOS,

383

00:11:25,017 --> 00:11:26,385

AND THEN AOS.

384

00:11:26,385 --> 00:11:27,520

AND I DIDN'T HAVE ANY REASON

385

00:11:27,520 --> 00:11:29,055

TO FIGURE WE WOULDN'T

386

00:11:29,055 --> 00:11:30,723

BE BACK IN COMMUNICATION

387

00:11:30,723 --> 00:11:32,992

WHEN WE CAME OUT THE OTHER SIDE.

388

00:11:32,992 --> 00:11:34,393

I SPENT, UH,

389

00:11:34,393 --> 00:11:35,261

A GOOD PART OF THE TIME

390

00:11:35,261 --> 00:11:36,762

WITH JACK SWIGERT, PRIMARILY.

391

00:11:36,762 --> 00:11:38,230

JIM WASN'T THAT INTERESTED.

392

00:11:38,230 --> 00:11:39,231

HE'D BEEN TO THE MOON

393

00:11:39,231 --> 00:11:40,099

AND SEEN IT.

394

00:11:40,099 --> 00:11:41,167

WE SHOT A LOT OF PICTURES.

395

00:11:41,167 --> 00:11:42,334

WE HAD TWO CAMERAS OUT,

396

00:11:42,334 --> 00:11:43,836

AND WE WERE SHOOTING PICTURES

397

00:11:43,836 --> 00:11:46,038

LIKE CRAZY-- LIKE TOURISTS.

398

00:11:47,406 --> 00:12:02,221

[MUSIC]

399

00:12:17,970 --> 00:12:19,004

>> WE ARE ABOUT

400

00:12:19,004 --> 00:12:21,340

70 HOURS FROM HOME.

401
00:12:21,340 --> 00:12:24,710
AND, UH, WE THINK WE HAVE, UH,

402
00:12:24,710 --> 00:12:27,079
UH, THE SITUATION IN CONTROL.

403
00:12:27,079 --> 00:12:28,747
WE'VE PROJECTED THE, UH,

404
00:12:28,747 --> 00:12:30,950
CONSUMABLES AS I'VE DESCRIBED.

405
00:12:30,950 --> 00:12:32,284
AND, UH, WE HAVE A PLAN

406
00:12:32,284 --> 00:12:33,486
FOR CARRYING OUT

407
00:12:33,486 --> 00:12:34,787
THE REST OF THE MISSION,

408
00:12:34,787 --> 00:12:36,789
BUT, UH, THERE IS GONNA BE

409
00:12:36,789 --> 00:12:38,457
NO RELAXATION AT ALL

410
00:12:38,457 --> 00:12:40,159
AS FAR AS THAT GOES

411
00:12:40,159 --> 00:12:41,861
FROM NOW UNTIL SPLASH.

412
00:12:42,895 --> 00:12:47,032
[MUSIC]

413
00:12:47,032 --> 00:12:48,400

>> OUR FIRST MANEUVER WAS TO

414

00:12:48,400 --> 00:12:49,468

GET US BACK ON A FREE RETURN.

415

00:12:49,468 --> 00:12:50,803

THE SECOND ONE WAS TO

416

00:12:50,803 --> 00:12:52,872

GET US HOME EARLY.

417

00:12:52,872 --> 00:12:54,240

THE NOMINAL FLIGHT TIME

418

00:12:54,240 --> 00:12:55,808

BACK HOME WAS 155 HOURS

419

00:12:55,808 --> 00:12:57,476

IF WE HAD DONE NOTHING ELSE.

420

00:12:57,476 --> 00:12:59,812

BUT BECAUSE CONSUMABLES

421

00:12:59,812 --> 00:13:00,980

WERE CRITICAL,

422

00:13:00,980 --> 00:13:01,881

AND THE GROUND WAS

423

00:13:01,881 --> 00:13:02,915

CALCULATING CONSUMABLES,

424

00:13:02,915 --> 00:13:04,583

AND FRED WAS ALSO DOING

425

00:13:04,583 --> 00:13:05,985

BACK-OF-THE-ENVELOPE-TYPE

426

00:13:05,985 --> 00:13:07,520

CALCULATIONS, WHICH

427

00:13:07,520 --> 00:13:08,854

HE FIGURED IF WE WERE LUCKY,

428

00:13:08,854 --> 00:13:10,956

WE HAD ABOUT ONE HOUR SPARE,

429

00:13:10,956 --> 00:13:12,224

UH, CONSUMABLES LEFT

430

00:13:12,224 --> 00:13:13,792

BEFORE WE LANDED.

431

00:13:13,792 --> 00:13:15,594

WE HAD DECIDED, UH--

432

00:13:15,594 --> 00:13:16,662

THE GROUND HAD DECIDED

433

00:13:16,662 --> 00:13:18,998

TO BURN AT, UH,

434

00:13:18,998 --> 00:13:21,100

ABOUT TWO HOURS PAST NOON,

435

00:13:21,100 --> 00:13:22,601

ABOUT 79 HOURS,

436

00:13:22,601 --> 00:13:24,270

A MANEUVER TO SHORTEN THE TIME

437

00:13:24,270 --> 00:13:25,604

TO GET HOME AGAIN.

438

00:13:25,604 --> 00:13:26,705

>> [INDISTINCT]

439

00:13:26,705 --> 00:13:28,474

>> ROG.

440

00:13:28,474 --> 00:13:29,408

>> WE HAVE IGNITION.

441

00:13:29,408 --> 00:13:31,410

>> ROG.

442

00:13:31,410 --> 00:13:32,311

>> 13%--

443

00:13:32,311 --> 00:13:34,180

>> GROUND CONFIRMS IGNITION.

444

00:13:34,180 --> 00:13:35,047

>> SORRY, 40%

445

00:13:35,047 --> 00:13:36,382

>> WE'RE BURNING 40%.

446

00:13:36,382 --> 00:13:37,583

>> LOOKING GOOD AT 40.

447

00:13:37,583 --> 00:13:39,385

>> HOUSTON COPIES.

448

00:13:44,323 --> 00:13:45,824

>> IS IT STABLE, CONTROL?

449

00:13:45,824 --> 00:13:46,725

>> LOOKS GOOD NOW.

450

00:13:46,725 --> 00:13:48,627

[INDISTINCT]

451
00:13:52,064 --> 00:13:53,032
>> ATTITUDE LOOKS GOOD

452
00:13:53,032 --> 00:13:54,333
AT THIS POINT.

453
00:13:54,333 --> 00:13:56,202
[OVERLAPPING CHATTER]

454
00:14:00,072 --> 00:14:01,674
>> AFTER THAT, THE GROUND WAS

455
00:14:01,674 --> 00:14:03,275
VERY MUCH CONCERNED WITH POWER,

456
00:14:03,275 --> 00:14:05,244
AND WE WERE, TOO.

457
00:14:06,312 --> 00:14:14,019
[MUSIC]

458
00:14:14,019 --> 00:14:14,920
>> THE COMMAND MODULE JUST

459
00:14:14,920 --> 00:14:15,921
SLOWLY KEPT GOING DOWN

460
00:14:15,921 --> 00:14:17,022
IN TEMPERATURE, UNTIL I THINK,

461
00:14:17,022 --> 00:14:19,692
UH, JUST PRIOR TO REENTRY, UH,

462
00:14:19,692 --> 00:14:22,027
IT WAS DOWN TO ABOUT 38 DEGREES.

463
00:14:22,027 --> 00:14:23,195

AND ALONG WITH THAT,

464

00:14:23,195 --> 00:14:24,263

THERE WAS A SORT OF

465

00:14:24,263 --> 00:14:25,831

A CHILLING, UH, COLDNESS.

466

00:14:25,831 --> 00:14:27,900

THE WALLS WERE PERSPIRING.

467

00:14:27,900 --> 00:14:30,002

THE WINDOWS WERE COMPLETELY WET.

468

00:14:30,002 --> 00:14:31,136

AND IT, UH--

469

00:14:31,136 --> 00:14:32,304

IT WASN'T TOO HEALTHY.

470

00:14:32,304 --> 00:14:33,639

I RECALL THAT WE WENT IN THERE

471

00:14:33,639 --> 00:14:34,773

TO GET SOME HOT DOGS ONE DAY,

472

00:14:34,773 --> 00:14:35,608

AND IT WAS LIKE

473

00:14:35,608 --> 00:14:37,109

REACHING INTO THE FREEZER,

474

00:14:37,109 --> 00:14:38,177

REALLY, FOR THE FOOD.

475

00:14:38,177 --> 00:14:39,078

>> ONE OF THE, UH,

476
00:14:39,078 --> 00:14:40,613
POTABLE WATER LINES WAS FROZEN

477
00:14:40,613 --> 00:14:43,415
THE MORNING OF ENTRY AT THAT--

478
00:14:43,415 --> 00:14:44,883
ONE THE LAST DAY.

479
00:14:44,883 --> 00:14:46,919
THAT'S HOW COLD IT WAS IN THERE

480
00:14:46,919 --> 00:14:49,722
WITHOUT ACTIVE THERMAL CONTROL.

481
00:14:49,722 --> 00:14:50,889
>> OF COURSE AS THE, UH--

482
00:14:50,889 --> 00:14:52,825
AS THE TEMPERATURE WENT DOWN,

483
00:14:52,825 --> 00:14:54,493
UH, WE BECAME CONCERNED

484
00:14:54,493 --> 00:14:56,428
ABOUT KEEPING WARM.

485
00:14:56,428 --> 00:14:57,730
AND FRED AND I BROKE OUT

486
00:14:57,730 --> 00:14:58,998
OUR LUNAR BOOTS, WHICH WE HAD

487
00:14:58,998 --> 00:15:00,766
STOWED AWAY IN THE,

488
00:15:00,766 --> 00:15:02,067

UH, LUNAR MODULE.

489

00:15:02,067 --> 00:15:03,435
AND JACK LOOKED AT HIS WET FEET

490

00:15:03,435 --> 00:15:05,604
A COUPLE TIMES.

491

00:15:05,604 --> 00:15:07,239
BUT HE HAD AN EXTRA

492

00:15:07,239 --> 00:15:08,140
SET OF UNDERWEAR,

493

00:15:08,140 --> 00:15:10,743
SO HE PUT THAT ON.

494

00:15:10,743 --> 00:15:11,810
WE ACTUALLY HAD A THIRD

495

00:15:11,810 --> 00:15:12,811
LITTLE SLEEP RESTRAINT,

496

00:15:12,811 --> 00:15:13,946
WHICH FRED DOES THEN

497

00:15:13,946 --> 00:15:14,947
PUT ON AND BUTTONED UP

498

00:15:14,947 --> 00:15:18,083
AND KEPT A LITTLE BIT WARM.

499

00:15:18,083 --> 00:15:18,984
>> THE COMMAND MODULE

500

00:15:18,984 --> 00:15:20,019
WAS VERY WET.

501

00:15:20,019 --> 00:15:21,186

THE WATER SEPARATORS

502

00:15:21,186 --> 00:15:22,121

WEREN'T WORKING

503

00:15:22,121 --> 00:15:23,622

EITHER IN THE LM

504

00:15:23,622 --> 00:15:24,690

OR IN THE COMMAND MODULE.

505

00:15:24,690 --> 00:15:25,958

THERE WAS WATER EVERYWHERE,

506

00:15:25,958 --> 00:15:27,293

ON EVERY-- IN THE LM,

507

00:15:27,293 --> 00:15:28,894

THERE'S NO INNER WALLS.

508

00:15:28,894 --> 00:15:30,095

SO YOU COULD SEE WATER

509

00:15:30,095 --> 00:15:31,330

ON ALL THE CONNECTORS,

510

00:15:31,330 --> 00:15:32,931

WIRE BUNDLES, PLUMBING,

511

00:15:32,931 --> 00:15:35,267

EVERY TURN A GLOB OF WATER.

512

00:15:35,267 --> 00:15:36,435

IN THE COMMAND MODULE,

513

00:15:36,435 --> 00:15:37,403

WE ACTUALLY HAD TO GET

514

00:15:37,403 --> 00:15:38,337

TOWELS OUT TO WIPE OFF

515

00:15:38,337 --> 00:15:39,872

THE INSTRUMENT PANEL

516

00:15:39,872 --> 00:15:42,174

TO SEE THE INSTRUMENTS.

517

00:15:47,413 --> 00:15:49,014

>> THE CARBON DIOXIDE CANISTER

518

00:15:49,014 --> 00:15:51,350

WAS FILLING UP QUITE RAPIDLY.

519

00:15:51,350 --> 00:15:53,452

AND, UH, WE HAD TO FIGURE OUT

520

00:15:53,452 --> 00:15:56,689

A WAY OF USING THE CANISTERS

521

00:15:56,689 --> 00:15:58,324

IN THE COMMAND MODULE

522

00:15:58,324 --> 00:16:00,392

AND PLACE THEM IN

523

00:16:00,392 --> 00:16:02,828

THE LUNAR MODULES SYSTEMS.

524

00:16:02,828 --> 00:16:04,296

AND THE GROUND READ US UP

525

00:16:04,296 --> 00:16:06,098

A PROCEDURE IN ORDER TO ADAPT

526
00:16:06,098 --> 00:16:07,433
SOME OF THE COMMAND MODULE

527
00:16:07,433 --> 00:16:09,001
CANISTERS, UH, FOR USE

528
00:16:09,001 --> 00:16:10,536
IN THE LM.

529
00:16:10,536 --> 00:16:11,670
AND, UH, AS THEY READ

530
00:16:11,670 --> 00:16:12,671
THIS THING UP,

531
00:16:12,671 --> 00:16:13,706
JIM AND I CONSTRUCTED

532
00:16:13,706 --> 00:16:15,207
ONE OF THESE THINGS.

533
00:16:15,207 --> 00:16:16,275
AT THIS POINT IN TIME,

534
00:16:16,275 --> 00:16:17,476
I THINK THE, UH, PARTIAL

535
00:16:17,476 --> 00:16:18,677
PRESSURE OF CARBON DIOXIDE

536
00:16:18,677 --> 00:16:19,745
WAS, UH, READING ABOUT

537
00:16:19,745 --> 00:16:21,513
15 MILLIMETERS.

538
00:16:21,513 --> 00:16:22,715

AND WE CONSTRUCTED

539

00:16:22,715 --> 00:16:23,649

TWO OF THESE THINGS

540

00:16:23,649 --> 00:16:24,683

AND PUT THEM ONLINE.

541

00:16:24,683 --> 00:16:26,285

AND I THINK WITHIN AN HOUR,

542

00:16:26,285 --> 00:16:27,786

THE, UH, PARTIAL PRESSURE

543

00:16:27,786 --> 00:16:30,122

OF CO2 WENT DOWN TO 0.2.

544

00:16:30,122 --> 00:16:31,090

SO THESE WERE VERY

545

00:16:31,090 --> 00:16:32,825

EFFECTIVE DEVICES.

546

00:16:32,825 --> 00:16:34,259

>> ABOUT THE TIME THAT WE HAD

547

00:16:34,259 --> 00:16:35,661

THE LITHIUM HYDROXIDE

548

00:16:35,661 --> 00:16:37,096

CANISTERS IN PLACE,

549

00:16:37,096 --> 00:16:38,097

RUNNING ON THE LINE,

550

00:16:38,097 --> 00:16:39,198

MY TEAM CAME IN FROM

551
00:16:39,198 --> 00:16:40,299
THE REST PERIOD.

552
00:16:40,299 --> 00:16:42,101
AND, UH,

553
00:16:42,101 --> 00:16:43,435
TRAJECTORY TEAM CAME UP.

554
00:16:43,435 --> 00:16:44,470
JERRY BOSTICK, WHO WAS

555
00:16:44,470 --> 00:16:45,771
RUNNING THAT, BASICALLY SAID,

556
00:16:45,771 --> 00:16:46,739
"I DON'T KNOW WHAT'S GOING ON,

557
00:16:46,739 --> 00:16:47,773
BUT OUR TRAJECTORY'S

558
00:16:47,773 --> 00:16:48,741
SHALLOWING OUT."

559
00:16:48,741 --> 00:16:49,641
WE HAD TO FIGURE OUT

560
00:16:49,641 --> 00:16:50,576
HOW TO PERFORM A MANEUVER

561
00:16:50,576 --> 00:16:51,543
WITHOUT A COMPUTER

562
00:16:51,543 --> 00:16:52,511
OR DISPLAY SYSTEM.

563
00:16:52,511 --> 00:16:53,912

AND THIS WAS ONE PROCEDURE

564

00:16:53,912 --> 00:16:55,447
THAT DEVELOPED, I BELIEVE,

565

00:16:55,447 --> 00:16:57,683
FOR APOLLO 8.

566

00:16:57,683 --> 00:16:58,550
>> THE GROUND AFTER

567

00:16:58,550 --> 00:16:59,852
SOME TRACKING REALIZED THAT

568

00:16:59,852 --> 00:17:01,286
WE WERE NOT ON A TRAJECTORY

569

00:17:01,286 --> 00:17:02,654
THAT WOULD GET US

570

00:17:02,654 --> 00:17:04,189
SAFELY BACK HOME,

571

00:17:04,189 --> 00:17:05,758
AND THAT WE'D HAVE TO, UM,

572

00:17:05,758 --> 00:17:08,994
MAKE ANOTHER MANEUVER.

573

00:17:08,994 --> 00:17:10,062
>> WE'RE MAKING THE BURN

574

00:17:10,062 --> 00:17:11,530
IN ABOUT, UH--

575

00:17:11,530 --> 00:17:12,765
I'LL GIVE YOU A HACK HERE AT,

576

00:17:12,765 --> 00:17:15,300

UH, TWO MINUTES TO GO.

577

00:17:15,300 --> 00:17:16,802

>> BY THIS TIME, THE, UM--

578

00:17:16,802 --> 00:17:18,704

THE CREW STATIONS BECAME,

579

00:17:18,704 --> 00:17:20,272

UH, A LOT DIFFERENT.

580

00:17:20,272 --> 00:17:21,306

THERE WERE THREE PEOPLE

581

00:17:21,306 --> 00:17:22,941

IN THE LUNAR MODULE NOW,

582

00:17:22,941 --> 00:17:24,643

USUALLY BUILT FOR TWO.

583

00:17:24,643 --> 00:17:25,911

UH, THIS LAST MANEUVER

584

00:17:25,911 --> 00:17:27,379

WAS GONNA BE UNIQUE,

585

00:17:27,379 --> 00:17:28,447

BECAUSE WE DID NOT HAVE

586

00:17:28,447 --> 00:17:29,982

THE PLATFORM POWERED UP,

587

00:17:29,982 --> 00:17:31,083

SO WE DIDN'T HAVE A NORMAL

588

00:17:31,083 --> 00:17:32,184

METHOD OF DETERMINING

589

00:17:32,184 --> 00:17:33,419

THE ATTITUDE OF THE SPACECRAFT

590

00:17:33,419 --> 00:17:35,721

IN ORDER TO PERFORM THE BURN.

591

00:17:35,721 --> 00:17:36,688

>> ROGER, TWO MINUTES.

592

00:17:36,688 --> 00:17:37,723

WE GOT IT.

593

00:17:37,723 --> 00:17:39,057

>> ON APOLLO 8, UH,

594

00:17:39,057 --> 00:17:40,893

SOME TIME AGO,

595

00:17:40,893 --> 00:17:42,127

WE WERE CONCERNED WITH PERHAPS

596

00:17:42,127 --> 00:17:43,162

LOSING A PLATFORM

597

00:17:43,162 --> 00:17:44,463

ON THE RETURN VOYAGE HOME.

598

00:17:44,463 --> 00:17:45,864

AND SINCE NO ONE HAD EVER

599

00:17:45,864 --> 00:17:47,633

MADE A LUNAR TRIP BEFORE,

600

00:17:47,633 --> 00:17:49,001

WE WERE LOOKING AT SORT OF

601
00:17:49,001 --> 00:17:50,736
WAY-OUT WAYS OF DETERMINING

602
00:17:50,736 --> 00:17:51,737
HOW WE COULD MAKE THESE

603
00:17:51,737 --> 00:17:53,138
CORRECTIONS HOME.

604
00:17:53,138 --> 00:17:54,306
AND, UH, SOME OF OUR PEOPLE

605
00:17:54,306 --> 00:17:55,541
HERE AT MSC HAVE COME UP WITH

606
00:17:55,541 --> 00:17:57,209
AN IDEA ABOUT USING

607
00:17:57,209 --> 00:17:58,977
THE TERMINATOR OF THE EARTH

608
00:17:58,977 --> 00:18:01,246
TO ORIENT THE SPACECRAFT,

609
00:18:01,246 --> 00:18:02,548
AND THEN THE SUN POSITION

610
00:18:02,548 --> 00:18:04,650
TO GET ORIENTATION AND PITCH.

611
00:18:04,650 --> 00:18:06,318
AND WITH THAT KNOWLEDGE,

612
00:18:06,318 --> 00:18:08,420
WE COULD THEN MAKE CORRECTIONS

613
00:18:08,420 --> 00:18:10,789

TO-TO CORRECT OUR ANGLE

614

00:18:10,789 --> 00:18:12,991
OF ENTRY INTO THE ATMOSPHERE.

615

00:18:12,991 --> 00:18:14,493
>> AND, UH, MARK IT,

616

00:18:14,493 --> 00:18:15,627
ONE MINUTE.

617

00:18:15,627 --> 00:18:17,029
>> AND AS-AS YOU KNOW, I THINK,

618

00:18:17,029 --> 00:18:18,464
THAT THE AN-- THE ANGLE OF ENTRY

619

00:18:18,464 --> 00:18:19,665
INTO THE ATMOSPHERE IS A--

620

00:18:19,665 --> 00:18:20,866
IS A VERY SMALL ANGLE,

621

00:18:20,866 --> 00:18:22,034
ONLY ABOUT TWO DEGREES.

622

00:18:22,034 --> 00:18:23,101
AND SO IT HAS TO BE

623

00:18:23,101 --> 00:18:24,269
CONTROLLED VERY CLOSELY.

624

00:18:24,269 --> 00:18:25,337
AND THAT'S WHAT THE MAIN

625

00:18:25,337 --> 00:18:26,972
TRACKING IS FOR.

626
00:18:26,972 --> 00:18:28,507
SO AT 105 HOURS, THEY GAVE US

627
00:18:28,507 --> 00:18:30,742
INSTRUCTIONS TO, UH, RELIGHT

628
00:18:30,742 --> 00:18:32,511
THE DESCENT ENGINE,

629
00:18:32,511 --> 00:18:34,713
UH, TO ORIENT THE SPACECRAFT

630
00:18:34,713 --> 00:18:36,515
IN THIS MANNER AND, UH,

631
00:18:36,515 --> 00:18:37,583
GIVE THIS PARTICULAR

632
00:18:37,583 --> 00:18:38,450
PROCEDURE A TRY.

633
00:18:38,450 --> 00:18:39,685
AND WHEN THEY READ UP

634
00:18:39,685 --> 00:18:40,652
THE PROCEDURE TO US,

635
00:18:40,652 --> 00:18:41,620
I JUST COULDN'T BELIEVE IT,

636
00:18:41,620 --> 00:18:43,222
BECAUSE EVEN ON APOLLO 8

637
00:18:43,222 --> 00:18:44,623
I THOUGHT I'D NEVER

638
00:18:44,623 --> 00:18:45,591

IN ALL THE WORLD HAVE TO USE

639

00:18:45,591 --> 00:18:47,559

SOMETHING AS WAY-OUT AS THIS.

640

00:18:47,559 --> 00:18:48,927

>> ENGINE ON THE DESCENT

641

00:18:48,927 --> 00:18:49,795

>> AND BECAUSE IT WAS

642

00:18:49,795 --> 00:18:50,629

A MANUAL BURN, WE HAD

643

00:18:50,629 --> 00:18:52,197

A 3-MAN OPERATION.

644

00:18:52,197 --> 00:18:53,599

JACK WOULD, UH,

645

00:18:53,599 --> 00:18:54,566

TAKE CARE OF THE TIME.

646

00:18:54,566 --> 00:18:55,300

HE'D TELL US WHEN TO

647

00:18:55,300 --> 00:18:56,068

LIGHT OFF THE ENGINE,

648

00:18:56,068 --> 00:18:57,402

WHEN TO STOP IT.

649

00:18:57,402 --> 00:18:59,104

FRED HANDLED THE PITCH MANEUVER,

650

00:18:59,104 --> 00:19:00,038

I HANDLED THE ROLL--

651
00:19:00,038 --> 00:19:00,939
ROLL MANEUVER, AND I

652
00:19:00,939 --> 00:19:01,840
PUSHED THE BUTTONS TO START

653
00:19:01,840 --> 00:19:03,609
AND STOP THE ENGINES.

654
00:19:03,609 --> 00:19:05,310
>> IGNITION.

655
00:19:08,447 --> 00:19:10,182
THRUST LOOKS GOOD.

656
00:19:15,320 --> 00:19:16,388
IT SHUT DOWN.

657
00:19:16,388 --> 00:19:19,925
>> 6470.

658
00:19:19,925 --> 00:19:20,859
>> OKAY, LOOKS GOOD.

659
00:19:20,859 --> 00:19:23,395
NICE WORK.

660
00:19:23,395 --> 00:19:26,098
>> LET'S HOPE IT WAS.

661
00:19:31,136 --> 00:19:32,437
>> EVERYTHING GOT STACKED UP

662
00:19:32,437 --> 00:19:33,272
TO THE END.

663
00:19:33,272 --> 00:19:35,307

WE-WE HAD A DEAD MOTHERSHIP.

664

00:19:35,307 --> 00:19:36,408

ANOTHER BIG CHALLENGE

665

00:19:36,408 --> 00:19:37,943

FOR THE GROUND, UH,

666

00:19:37,943 --> 00:19:39,978

WAS TO BUILD A PROCEDURE

667

00:19:39,978 --> 00:19:41,847

IN ABOUT 3.5 DAYS

668

00:19:41,847 --> 00:19:43,248

HOW TO POWER IT UP.

669

00:19:43,248 --> 00:19:44,483

WE HAD NO-NO PROCEDURE

670

00:19:44,483 --> 00:19:45,484

TO POWER IT UP.

671

00:19:45,484 --> 00:19:46,418

IT HAD NEVER INTENDED

672

00:19:46,418 --> 00:19:48,053

TO BE EVER SHUT DOWN.

673

00:19:48,053 --> 00:19:48,887

AND THAT WAS A PRETTY

674

00:19:48,887 --> 00:19:49,788

MONUMENTAL TASK FOR

675

00:19:49,788 --> 00:19:51,490

A LOT OF PEOPLE ON THE GROUND.

676

00:19:51,490 --> 00:19:53,158

>> WE'VE RUN, UM,

677

00:19:53,158 --> 00:19:54,426

THESE SIMULATORS BOTH HERE

678

00:19:54,426 --> 00:19:55,360

AND AT THE CAPE,

679

00:19:55,360 --> 00:19:57,429

AND AT THE CONTRACTORS', UH,

680

00:19:57,429 --> 00:19:59,031

CONTINUOUSLY EVER SINCE,

681

00:19:59,031 --> 00:20:01,166

UH, LAST NIGHT.

682

00:20:01,166 --> 00:20:03,435

WE'VE TRIED TO SIMULATE

683

00:20:03,435 --> 00:20:04,670

VIRTUALLY EVERYTHING

684

00:20:04,670 --> 00:20:06,204

THAT WE'VE HAD THE CREW TO DO

685

00:20:06,204 --> 00:20:09,174

THAT, UH-- THAT IS NON-NORMAL

686

00:20:09,174 --> 00:20:10,409

THAT THEY'VE DONE.

687

00:20:10,409 --> 00:20:11,910

AND, UH, WE'VE PROVEN

688

00:20:11,910 --> 00:20:12,945

MOST EVERYTHING THAT WE'VE

689

00:20:12,945 --> 00:20:14,446
BEEN ABLE, UH,

690

00:20:14,446 --> 00:20:15,380
TO RUN ON THE SIMULATOR

691

00:20:15,380 --> 00:20:16,315
PRIOR TO PASSING IT UP.

692

00:20:16,315 --> 00:20:17,215
UH, I DON'T KNOW, MAYBE SOME

693

00:20:17,215 --> 00:20:18,050
DETAILS WE HAVEN'T DONE,

694

00:20:18,050 --> 00:20:19,084
BUT AT LEAST WE'VE

695

00:20:19,084 --> 00:20:20,185
CHECKED THE FEASIBILITY

696

00:20:20,185 --> 00:20:21,253
OF EVERYTHING WE'VE DONE,

697

00:20:21,253 --> 00:20:23,789
AND WE'LL CONTINUE TO DO THAT.

698

00:20:23,789 --> 00:20:24,623
>> WE REALLY THREW AWAY

699

00:20:24,623 --> 00:20:25,424
THE BOOK.

700

00:20:25,424 --> 00:20:26,592
WE HAD NEVER POWERED DOWN

701
00:20:26,592 --> 00:20:28,794
A COMMAND MODULE IN-IN SPACE,

702
00:20:28,794 --> 00:20:29,761
AND WE HAD NEVER

703
00:20:29,761 --> 00:20:31,830
RE-REACTIVATED ONE.

704
00:20:31,830 --> 00:20:33,065
>> AND JACK, UH,

705
00:20:33,065 --> 00:20:34,800
WISELY SAID, "WELL,

706
00:20:34,800 --> 00:20:36,034
THE FIRST THING WAS TO PUSH IN

707
00:20:36,034 --> 00:20:37,102
ALL THE CIRCUIT BREAKERS."

708
00:20:37,102 --> 00:20:39,504
WE HAD PANELS ON EACH SIDE.

709
00:20:39,504 --> 00:20:40,739
AND HE SAID, "LET'S PUNCH IN--

710
00:20:40,739 --> 00:20:41,873
WE'LL TIME IT.

711
00:20:41,873 --> 00:20:43,442
WE'LL PUNCH IN SIX AND STOP

712
00:20:43,442 --> 00:20:45,210
AND SEE IF WE SMELL

713
00:20:45,210 --> 00:20:46,311

BURNING WIRE,"

714

00:20:46,311 --> 00:20:47,379
WHICH YOU CAN TELL WHEN

715

00:20:47,379 --> 00:20:48,747
WIRE'S BURNING.

716

00:20:48,747 --> 00:20:49,948
"AND THEN WE'LL STEP AHEAD

717

00:20:49,948 --> 00:20:50,949
AND DO THE NEXT SIX."

718

00:20:50,949 --> 00:20:51,817
SO WE WENT THROUGH

719

00:20:51,817 --> 00:20:53,852
THE INITIAL ACTIVATION THAT WAY,

720

00:20:53,852 --> 00:20:54,853
KNOWING-KNOWING THINGS

721

00:20:54,853 --> 00:20:56,021
WERE WET NOW.

722

00:20:56,021 --> 00:20:57,189
WE WERE, I THINK,

723

00:20:57,189 --> 00:20:59,257
SAVED IN A SECONDHAND WAY

724

00:20:59,257 --> 00:21:01,159
BY THE APOLLO 1 FIRE.

725

00:21:01,159 --> 00:21:02,527
'CAUSE THEY REWIRED

726
00:21:02,527 --> 00:21:04,096
TOTALLY BOTH VEHICLES,

727
00:21:04,096 --> 00:21:05,130
SO EVERYTHING WAS

728
00:21:05,130 --> 00:21:08,166
VIRTUALLY WATERPROOF.

729
00:21:08,166 --> 00:21:09,267
>> NORMALLY WHEN YOU COME HOME,

730
00:21:09,267 --> 00:21:10,268
YOU HAVE ONLY THE COMMAND

731
00:21:10,268 --> 00:21:11,670
AND SERVICE MODULES.

732
00:21:11,670 --> 00:21:12,504
SO THE ONLY THING WE HAVE

733
00:21:12,504 --> 00:21:13,472
TO GET RID OF IS THIS

734
00:21:13,472 --> 00:21:15,073
SERVICE MODULE JUST PRIOR TO

735
00:21:15,073 --> 00:21:16,842
ENTRY TO THE ATMOSPHERE.

736
00:21:16,842 --> 00:21:18,010
COMING HOME NOW, THOUGH,

737
00:21:18,010 --> 00:21:20,245
WE HAD A DEAD SERVICE MODULE.

738
00:21:20,245 --> 00:21:21,380

WE HAD A COMMAND MODULE

739

00:21:21,380 --> 00:21:23,482
THAT HAD NO POWER TO IT.

740

00:21:23,482 --> 00:21:24,549
WE HAD A LUNAR MODULE

741

00:21:24,549 --> 00:21:26,685
THAT WAS A WONDERFUL VEHICLE

742

00:21:26,685 --> 00:21:27,886
TO TRAVEL HOME WITH,

743

00:21:27,886 --> 00:21:28,854
BUT DIDN'T HAVE A HEAT SHIELD

744

00:21:28,854 --> 00:21:29,788
UNFORTUNATELY.

745

00:21:29,788 --> 00:21:30,856
AND SHORTLY WE'D HAVE TO

746

00:21:30,856 --> 00:21:32,090
ABANDON HER.

747

00:21:32,090 --> 00:21:34,192
AND, UH, JIM AND FRED WERE, UH,

748

00:21:34,192 --> 00:21:36,528
IN THE LM AND, UH, USING

749

00:21:36,528 --> 00:21:37,963
THE TRANSLATIONS CONTROLLER

750

00:21:37,963 --> 00:21:39,164
TO GIVE US SOME VELOCITY.

751
00:21:39,164 --> 00:21:40,399
AND WHEN JIM YELLED "FIRE,"

752
00:21:40,399 --> 00:21:42,467
I JETTISONED THE SERVICE MODULE.

753
00:21:42,467 --> 00:21:44,736
AND, UH-- AND IT WENT OFF WI--

754
00:21:44,736 --> 00:21:45,771
AMIDST A LOT OF DEBRIS,

755
00:21:45,771 --> 00:21:46,738
WHICH IS USUAL.

756
00:21:46,738 --> 00:21:47,773
AND, UH, JIM BEGAN TO

757
00:21:47,773 --> 00:21:48,740
PITCH AROUND TO TRY

758
00:21:48,740 --> 00:21:49,941
AND PHOTOGRAPH IT.

759
00:21:49,941 --> 00:21:51,376
>> WE COPY THAT REPORT,

760
00:21:51,376 --> 00:21:52,544
UH, OF JIM LOVELL

761
00:21:52,544 --> 00:21:54,112
OF SERVICE MODULE SEPARATION

762
00:21:54,112 --> 00:21:57,282
AT, UH, 138 HOURS, UH,

763
00:21:57,282 --> 00:21:58,650

2 MINUTES, 8 SECONDS.

764

00:21:58,650 --> 00:21:59,651

>> I THOUGHT I CAUGHT

765

00:21:59,651 --> 00:22:01,019

SIGHT OF THE SERVICE MODULE

766

00:22:01,019 --> 00:22:03,855

AS IT TUMBLED AROUND IN VIEW.

767

00:22:03,855 --> 00:22:06,291

AND, UH, IT WAS, UH, TO ME,

768

00:22:06,291 --> 00:22:08,060

SORT OF AN AMAZING SIGHT.

769

00:22:08,060 --> 00:22:09,561

>> AND THERE'S ONE WHOLE SIDE

770

00:22:09,561 --> 00:22:11,363

OF THAT SPACECRAFT MISSING.

771

00:22:11,363 --> 00:22:12,998

>> IS THAT RIGHT?

772

00:22:12,998 --> 00:22:14,800

>> I DIDN'T REALIZE, UM,

773

00:22:14,800 --> 00:22:16,768

THAT THIS WHOLE PANEL

774

00:22:16,768 --> 00:22:18,236

BY THE HIGH-GAIN ANTENNA

775

00:22:18,236 --> 00:22:20,572

WAS BLOWN CLEAN OFF.

776
00:22:20,572 --> 00:22:23,241
UH, RIGHT ALONG THE AREA

777
00:22:23,241 --> 00:22:24,142
WHERE THE PANEL

778
00:22:24,142 --> 00:22:25,711
NORMALLY SWINGS OPEN.

779
00:22:25,711 --> 00:22:28,213
I COULD SEE, UH, THE INTERIOR.

780
00:22:28,213 --> 00:22:29,448
I COULDN'T SEE EXACTLY

781
00:22:29,448 --> 00:22:30,382
WHAT WAS DAMAGED.

782
00:22:30,382 --> 00:22:31,616
I COULD SEE MATERIAL

783
00:22:31,616 --> 00:22:33,585
HANGING OUT FROM THE INTERIOR.

784
00:22:33,585 --> 00:22:34,686
>> RIGHT BY

785
00:22:34,686 --> 00:22:35,954
THE HIGH-GAIN ANTENNA,

786
00:22:35,954 --> 00:22:37,222
THE WHOLE PANEL IS BLOWN OUT,

787
00:22:37,222 --> 00:22:38,890
ALMOST FROM THE, UH,

788
00:22:38,890 --> 00:22:41,393

BASE TO THE, UH, ENGINES.

789

00:22:41,393 --> 00:22:43,862

>> COPY THAT.

790

00:22:43,862 --> 00:22:45,097

>> IT'S REALLY A MESS.

791

00:22:45,097 --> 00:22:45,997

>> SO NOW WE HAVE

792

00:22:45,997 --> 00:22:46,832

THE COMMAND MODULE

793

00:22:46,832 --> 00:22:48,366

AND THE LUNAR MODULE TOGETHER,

794

00:22:48,366 --> 00:22:49,735

WHICH IS AN UNUSUAL COMBINATION.

795

00:22:49,735 --> 00:22:51,403

THEY'VE NEVER FLOWN THIS BEFORE.

796

00:22:51,403 --> 00:22:52,571

>> UH, THEN A LITTLE LATER

797

00:22:52,571 --> 00:22:54,573

IT WAS AN OFFSET ANGLE.

798

00:22:54,573 --> 00:22:57,409

WE BLEW OFF THE LM, BASICALLY.

799

00:22:57,409 --> 00:22:59,544

WE HAD TO PRESSURIZE THE TUNNEL

800

00:22:59,544 --> 00:23:01,113

AND BLOW IT OFF TO GET

801
00:23:01,113 --> 00:23:03,749
THE SEPARATION KICK OF THE, UH--

802
00:23:03,749 --> 00:23:05,083
OF THE LM.

803
00:23:05,083 --> 00:23:06,118
AND AGAIN,

804
00:23:06,118 --> 00:23:08,353
THAT WAS DONE VERY LATE.

805
00:23:08,353 --> 00:23:09,521
>> WE COULDN'T JETTISON THAT

806
00:23:09,521 --> 00:23:11,490
UNTIL WE KNEW FOR SURE

807
00:23:11,490 --> 00:23:13,258
THAT THE COMMAND MODULE

808
00:23:13,258 --> 00:23:14,826
WAS IN THE PROPER PLACE

809
00:23:14,826 --> 00:23:15,961
AT THE PROPER TIME

810
00:23:15,961 --> 00:23:17,562
AT THE PROPER ANGLE.

811
00:23:17,562 --> 00:23:18,830
IF WE CAME IN LESS,

812
00:23:18,830 --> 00:23:20,065
WE'D SKIP OUT LIKE

813
00:23:20,065 --> 00:23:21,900

SKIPPING A STONE ON WATER.

814

00:23:21,900 --> 00:23:23,702

IF WE CAME TOO HIGH,

815

00:23:23,702 --> 00:23:24,970

WE'D BURN UP

816

00:23:24,970 --> 00:23:26,571

JUST LIKE A METEOR, UH,

817

00:23:26,571 --> 00:23:28,507

IN THE ATMOSPHERE.

818

00:23:28,507 --> 00:23:31,076

[INDISTINCT CHATTER]

819

00:23:31,977 --> 00:23:33,378

>> COMING UP NOW ON

820

00:23:33,378 --> 00:23:34,446

THREE MINUTES UNTIL TIME OF

821

00:23:34,446 --> 00:23:36,648

DROGUE DEPLOYMENT.

822

00:23:36,648 --> 00:23:37,549

STANDING BY FOR ANY

823

00:23:37,549 --> 00:23:39,484

REPORTS OF ACQUISITION.

824

00:23:42,554 --> 00:23:44,156

WE'VE HAD A REPORT THAT

825

00:23:44,156 --> 00:23:45,690

ARIA 4 AIRCRAFT

826
00:23:45,690 --> 00:23:48,193
HAS ACQUISITION OF SIGNAL.

827
00:23:52,464 --> 00:23:53,398
>> ODYSSEY,

828
00:23:53,398 --> 00:23:55,534
HOUSTON STANDING BY, OVER.

829
00:24:00,172 --> 00:24:02,507
>> OKAY, WE READ YOU, JACK.

830
00:24:04,309 --> 00:24:05,410
>> THAT WAS COMMAND MODULE

831
00:24:05,410 --> 00:24:07,245
PILOT JACK SWIGERT.

832
00:24:08,847 --> 00:24:09,781
>> WE'RE LOOKING AT

833
00:24:09,781 --> 00:24:10,649
THE WEATHER ON TV,

834
00:24:10,649 --> 00:24:11,883
AND IT LOOKS JUST AS ADVERTISED,

835
00:24:11,883 --> 00:24:13,952
REAL GOOD.

836
00:24:17,222 --> 00:24:18,390
>> LESS THAN TWO MINUTES NOW

837
00:24:18,390 --> 00:24:20,592
FROM TIME OF DROGUE DEPLOYMENT.

838
00:24:29,467 --> 00:24:30,869

A REPORT OF, UH,

839

00:24:30,869 --> 00:24:32,604

TWO GOOD DROGUES.

840

00:24:32,604 --> 00:24:35,040

COMING UP NOW FOR MAIN CHUTES.

841

00:24:36,274 --> 00:24:51,256

[MUSIC]

842

00:24:52,257 --> 00:24:53,959

[APPLAUSE]

843

00:24:53,959 --> 00:24:54,826

>> ODYSSEY, HOUSTON.

844

00:24:54,826 --> 00:24:56,061

WE SHOW YOU ON THE MAINS.

845

00:24:56,061 --> 00:24:58,697

IT REALLY LOOKS GREAT.

846

00:25:01,233 --> 00:25:02,634

>> AN EXTREMELY LOUD APPLAUSE

847

00:25:02,634 --> 00:25:05,103

AS APOLLO 13 ON MAIN CHUTES

848

00:25:05,103 --> 00:25:06,638

COMES THROUGH LOUD AND CLEAR

849

00:25:06,638 --> 00:25:10,108

ON THE TELEVISION DISPLAY HERE.

850

00:25:10,108 --> 00:25:11,877

>> ROGER, APOLLO 13,

851
00:25:11,877 --> 00:25:13,044
THIS IS RECOVERY,

852
00:25:13,044 --> 00:25:15,180
AND YOUR CHUTES LOOK GOOD.

853
00:25:18,049 --> 00:25:20,485
[INDISTINCT CHATTER]

854
00:25:21,553 --> 00:25:30,829
[MUSIC]

855
00:25:38,270 --> 00:25:40,672
>> APOLLO 13, APOLLO 13,

856
00:25:40,672 --> 00:25:43,341
THIS IS RECOVERY, OVER.

857
00:25:46,544 --> 00:25:48,013
>> I RECALL,

858
00:25:48,013 --> 00:25:49,014
CAPTAIN, THAT WHEN I

859
00:25:49,014 --> 00:25:50,715
SPOKE TO YOU ON THE PHONE,

860
00:25:50,715 --> 00:25:52,183
YOU SAID THAT YOU REGRETTED

861
00:25:52,183 --> 00:25:54,019
THAT YOU WERE UNABLE

862
00:25:54,019 --> 00:25:56,154
TO COMPLETE YOUR MISSION.

863
00:25:56,154 --> 00:25:57,555

I HEREBY DECLARE THAT

864

00:25:57,555 --> 00:26:00,859

THIS WAS A SUCCESSFUL MISSION.

865

00:26:00,859 --> 00:26:02,160

FROM THE START,

866

00:26:02,160 --> 00:26:03,628

THE EXPLORATION OF SPACE

867

00:26:03,628 --> 00:26:05,630

HAS BEEN HAZARDOUS ADVENTURE.

868

00:26:05,630 --> 00:26:07,332

THE VOYAGE OF APOLLO 13

869

00:26:07,332 --> 00:26:09,100

DRAMATIZED ITS RISKS.

870

00:26:09,100 --> 00:26:12,370

THE MEN OF APOLLO 13,

871

00:26:12,370 --> 00:26:14,439

BY THEIR POISE AND SKILL

872

00:26:14,439 --> 00:26:15,674

UNDER THE MOST INTENSE

873

00:26:15,674 --> 00:26:17,509

KIND OF PRESSURE,

874

00:26:17,509 --> 00:26:19,978

EPITOMIZE THE CHARACTER

875

00:26:19,978 --> 00:26:22,080

THAT ACCEPTS DANGER

876

00:26:22,080 --> 00:26:23,815
AND SURMOUNTS IT.

877

00:26:23,815 --> 00:26:25,417
>> ONCE WE WERE IN THE ENTRY,

878

00:26:25,417 --> 00:26:26,651
WHICH IS INCIDENTALLY DONE

879

00:26:26,651 --> 00:26:28,553
FULLY AUTOMATED,

880

00:26:28,553 --> 00:26:30,322
UH, IT WAS PRETTY MUCH

881

00:26:30,322 --> 00:26:31,756
THE NORMAL-NORMAL ENTRY

882

00:26:31,756 --> 00:26:32,924
ALL THE WAY DOWN.

883

00:26:32,924 --> 00:26:34,059
AND TH-- ALL THREE CHUTES

884

00:26:34,059 --> 00:26:35,794
CAME OUT.

885

00:26:35,794 --> 00:26:38,063
AND, UH, KIND OF MIRACULOUSLY,

886

00:26:38,063 --> 00:26:40,732
SINCE WE HAD ABUSED THE VEHICLE,

887

00:26:40,732 --> 00:26:42,267
THE MOTHERSHIP,

888

00:26:42,267 --> 00:26:43,702

BY FREEZING IT FOR FOUR DAYS,

889

00:26:43,702 --> 00:26:45,070

THE WATER TANKS WERE FROZEN

890

00:26:45,070 --> 00:26:46,104

WHEN THEY RECOVERED IT

891

00:26:46,104 --> 00:26:47,205

ONBOARD THE SHIP.

892

00:26:47,205 --> 00:26:48,740

SO IT EXCEEDED SPECIFICATIONS

893

00:26:48,740 --> 00:26:52,410

ON ALL THE AVIONICS CERTAINLY.

894

00:26:52,410 --> 00:26:53,778

IT-IT GAVE US THE SECOND

895

00:26:53,778 --> 00:26:55,013

MOST ACCURATE SPLASHDOWN

896

00:26:55,013 --> 00:26:56,281

IN THE PROGRAM.

897

00:26:56,281 --> 00:26:57,349

>> SO IT WAS A QUESTION OF

898

00:26:57,349 --> 00:26:59,384

GETTING THIS ENTIRE WORLD

899

00:26:59,384 --> 00:27:01,853

GEARED AND ORIENTED

900

00:27:01,853 --> 00:27:04,055

TO ONE SINGLE JOB,

901
00:27:04,055 --> 00:27:05,523
GET THE CREW HOME.

902
00:27:05,523 --> 00:27:06,591
AND, BOY, THE TEAM

903
00:27:06,591 --> 00:27:07,792
WORKED OUT GREAT.

904
00:27:07,792 --> 00:27:10,061
>> AND IT DIDN'T NEED COACHING.

905
00:27:10,061 --> 00:27:12,063
UH, IT JUST HAPPENED.

906
00:27:12,063 --> 00:27:13,898
UH, AND WE ALL KNEW EACH OTHER.

907
00:27:13,898 --> 00:27:15,100
WE ALL WERE COMFORTABLE

908
00:27:15,100 --> 00:27:16,368
WITH WHO COULD DO WHAT

909
00:27:16,368 --> 00:27:17,535
AND SO ON.

910
00:27:17,535 --> 00:27:18,703
SO THERE YOU ARE.

911
00:27:18,703 --> 00:27:21,673
WE PULLED THAT OFF.

912
00:27:21,673 --> 00:27:23,008
>> ACTUALLY, I GUESS

913
00:27:23,008 --> 00:27:25,076

WHEN THE PARACHUTES CAME OUT,

914

00:27:25,076 --> 00:27:26,878

AND THEY BLOSSOMED,

915

00:27:26,878 --> 00:27:28,913

AND, UH, WE LANDED ON THE WATER

916

00:27:28,913 --> 00:27:30,215

AND DIDN'T SINK,

917

00:27:30,215 --> 00:27:31,483

I THINK WE WERE--

918

00:27:31,483 --> 00:27:33,318

WE WERE HOME SAFE.

919

00:27:36,621 --> 00:27:37,722

>> WELL, OF COURSE,

920

00:27:37,722 --> 00:27:38,656

WHEN WE HIT THE WATER,

921

00:27:38,656 --> 00:27:39,557

WE WERE-- WE WERE VERY HAPPY

922

00:27:39,557 --> 00:27:40,625

TO BE BACK HOME.

923

00:27:40,625 --> 00:27:41,593

YOU KNOW, WE COMMENTED

924

00:27:41,593 --> 00:27:42,994

ON THAT FACT.

925

00:27:42,994 --> 00:27:44,796

UM...

926
00:27:44,796 --> 00:27:47,032
UM, THE RECOVERY OF-OF 13

927
00:27:47,032 --> 00:27:49,934
WAS ALMOST A TEXTBOOK RECOVERY.

928
00:27:49,934 --> 00:27:51,736
IT WAS A CALM DAY.

929
00:27:51,736 --> 00:27:53,872
THE ACTUAL SPLASHDOWN ITSELF

930
00:27:53,872 --> 00:27:55,607
WAS VERY MILD.

931
00:27:55,607 --> 00:27:57,675
AND, UH, THE NAVY DID

932
00:27:57,675 --> 00:27:59,511
A GRAND JOB.

933
00:28:00,612 --> 00:28:09,954
[MUSIC]

934
00:28:09,954 --> 00:28:11,456
>> IF ANYTHING, IT HAS

935
00:28:11,456 --> 00:28:12,924
INCREASED MY CONFIDENCE IN

936
00:28:12,924 --> 00:28:15,193
THE ABILITY OF THIS SPA--

937
00:28:15,193 --> 00:28:17,095
NATION'S SPACE PROGRAM

938
00:28:17,095 --> 00:28:20,231

TO TAKE AN UNUSUAL SITUATION

939

00:28:20,231 --> 00:28:23,968

AND REACT TO IT AND COME OUT

940

00:28:23,968 --> 00:28:25,703

WITH A SUCCESSFUL CONCLUSION.

941

00:28:25,703 --> 00:28:26,738

I-I CONSIDER

942

00:28:26,738 --> 00:28:28,373

RECOVERY OF THE CREW

943

00:28:28,373 --> 00:28:29,741

A SUCCESSFUL CONCLUSION.

944

00:28:29,741 --> 00:28:31,643

[LAUGHTER]

945

00:28:31,643 --> 00:28:32,744

BUT I HAVE--

946

00:28:32,744 --> 00:28:34,245

I HAVE NOTHING BUT

947

00:28:34,245 --> 00:28:35,680

THE UTMOST ADMIRATION

948

00:28:35,680 --> 00:28:36,848

FOR THE PEOPLE ON THE GROUND

949

00:28:36,848 --> 00:28:38,249

WHO WORKED TIRELESS HOURS

950

00:28:38,249 --> 00:28:39,851

TO GET US BACK.

951

00:28:47,258 --> 00:28:48,293

>> SOMETIME THIS YEAR,

952

00:28:48,293 --> 00:28:49,294

I'LL HAVE HAD, UH,

953

00:28:49,294 --> 00:28:51,696

15 YEARS WITH NASA, AND, UH,

954

00:28:51,696 --> 00:28:53,031

I DON'T FIGURE I'LL RETIRE

955

00:28:53,031 --> 00:28:54,766

FOR ANOTHER 30 MAYBE.

956

00:28:54,766 --> 00:28:56,434

SO, UH...

957

00:28:56,434 --> 00:28:58,336

I'LL JUST DO WHATEVER, UH--

958

00:28:58,336 --> 00:28:59,804

WHATEVER JOB THE AGENCY,

959

00:28:59,804 --> 00:29:01,840

UH, DECIDES, UH,

960

00:29:01,840 --> 00:29:03,374

IS THE BEST PLACE I CAN BE