

Ad Astra Per Aspera
A Rough Road Leads to the Stars



1
00:00:01,360 --> 00:00:36,709

[Music]

2
00:00:40,709 --> 00:00:38,790

welcome and good morning

3
00:00:42,310 --> 00:00:40,719

my name is theron pratzi i'm the chief

4
00:00:44,630 --> 00:00:42,320

operating officer here at the kennedy

5
00:00:47,590 --> 00:00:44,640

space center visitor complex

6
00:00:49,270 --> 00:00:47,600

the story of space is a story of humans

7
00:00:51,510 --> 00:00:49,280

calling to explore

8
00:00:53,430 --> 00:00:51,520

on behalf of all associates at delaware

9
00:00:55,670 --> 00:00:53,440

north it is our honor to share this

10
00:00:56,709 --> 00:00:55,680

story with the people from all over the

11
00:00:57,830 --> 00:00:56,719

world

12
00:01:00,709 --> 00:00:57,840

today

13
00:01:03,430 --> 00:01:00,719

is about honoring the three brave men of

14

00:01:06,550 --> 00:01:03,440

apollo 1 who are pioneers of space

15

00:01:10,070 --> 00:01:06,560

exploration this tribute to virgil gus

16

00:01:12,310 --> 00:01:10,080

grissom edward white and roger chaffee

17

00:01:14,789 --> 00:01:12,320

focuses on their heroes who gave gave

18

00:01:17,350 --> 00:01:14,799

their lives to further space exploration

19

00:01:18,789 --> 00:01:17,360

and pave the way for future space

20

00:01:21,429 --> 00:01:18,799

exploration

21

00:01:24,630 --> 00:01:21,439

this tribute will teach many generations

22

00:01:27,510 --> 00:01:24,640

of the people who these heroes were

23

00:01:30,789 --> 00:01:27,520

as astronauts and as fathers and to know

24

00:01:33,030 --> 00:01:30,799

that their legacy will forever live on

25

00:01:34,230 --> 00:01:33,040

we often say we stand on the shoulders

26

00:01:36,630 --> 00:01:34,240

of giants

27

00:01:38,630 --> 00:01:36,640

this tribute serves as a reminder of

28

00:01:40,789 --> 00:01:38,640

these courageous heroes who made the

29

00:01:43,109 --> 00:01:40,799

ultimate sacrifice

30

00:01:45,910 --> 00:01:43,119

they are part of an ongoing story of

31

00:01:48,710 --> 00:01:45,920

making the impossible possible

32

00:01:51,590 --> 00:01:48,720

and making dreams a reality

33

00:01:53,749 --> 00:01:51,600

today we are honored as well to have two

34

00:01:55,910 --> 00:01:53,759

men from the apollo program general

35

00:01:57,990 --> 00:01:55,920

charlie duke general tom stafford here

36

00:02:00,630 --> 00:01:58,000

with us today as well as many other

37

00:02:03,350 --> 00:02:00,640

shuttle astronauts and future astronauts

38

00:02:04,950 --> 00:02:03,360

for further space exploration

39

00:02:07,670 --> 00:02:04,960

like to thank you for being here today

40

00:02:11,110 --> 00:02:07,680

as we honor these three brave men

41

00:02:12,309 --> 00:02:11,120

we honor each of you the family members

42

00:02:14,470 --> 00:02:12,319

the friends

43

00:02:16,550 --> 00:02:14,480

and the kennedy space center workforce

44

00:02:18,710 --> 00:02:16,560

and now i'd like to introduce mr robert

45

00:02:28,390 --> 00:02:18,720

cabana our kennedy space center director

46

00:02:34,309 --> 00:02:31,190

thanks darren

47

00:02:36,470 --> 00:02:34,319

so the 50th anniversary of the apollo 1

48

00:02:38,550 --> 00:02:36,480

fire i think it's about time that we

49

00:02:41,190 --> 00:02:38,560

paid tribute to the crew with a memorial

50

00:02:42,949 --> 00:02:41,200

here at the kennedy space center and i

51
00:02:44,550 --> 00:02:42,959
couldn't be more proud of what we've

52
00:02:46,150 --> 00:02:44,560
accomplished

53
00:02:47,670 --> 00:02:46,160
we did this in partnership with the

54
00:02:49,990 --> 00:02:47,680
families and i want to thank the family

55
00:02:52,229 --> 00:02:50,000
members who are here for your time and

56
00:02:54,470 --> 00:02:52,239
effort in helping us make

57
00:02:56,309 --> 00:02:54,480
our vision a reality i think you're

58
00:02:58,550 --> 00:02:56,319
going to be extremely pleased when you

59
00:02:58,840 --> 00:02:58,560
have a chance to get inside

60
00:03:00,390 --> 00:02:58,850
and

61
00:03:02,390 --> 00:03:00,400
[Music]

62
00:03:04,390 --> 00:03:02,400
see what we have accomplished here i

63
00:03:07,670 --> 00:03:04,400

want to thank kelvin manning my

64

00:03:10,309 --> 00:03:07,680

associate director kelvin led the effort

65

00:03:12,790 --> 00:03:10,319

to get this done on time in six months

66

00:03:14,790 --> 00:03:12,800

and it's he did an absolutely

67

00:03:16,710 --> 00:03:14,800

outstanding job i want to thank delaware

68

00:03:19,830 --> 00:03:16,720

north and brph for

69

00:03:24,149 --> 00:03:19,840

the design and building of this uh

70

00:03:25,910 --> 00:03:24,159

tribute it's absolutely outstanding

71

00:03:28,229 --> 00:03:25,920

today's tribute is about admiration and

72

00:03:30,309 --> 00:03:28,239

respect admiration and respect of the

73

00:03:32,390 --> 00:03:30,319

apollo 1 crew

74

00:03:35,350 --> 00:03:32,400

you know yesterday we had our day of

75

00:03:38,710 --> 00:03:35,360

remembrance at ksc and uh

76
00:03:39,670 --> 00:03:38,720
mike collins uh commented on each crew

77
00:03:41,509 --> 00:03:39,680
member

78
00:03:42,470 --> 00:03:41,519
and one of the things that he mentioned

79
00:03:45,030 --> 00:03:42,480
was

80
00:03:46,789 --> 00:03:45,040
we didn't go to the moon in spite of the

81
00:03:49,190 --> 00:03:46,799
apollo 1 fire

82
00:03:51,830 --> 00:03:49,200
we made it to the moon because of the

83
00:03:52,710 --> 00:03:51,840
apollo 1 fire it was because of this

84
00:03:56,789 --> 00:03:52,720
crew

85
00:04:00,229 --> 00:03:56,799
were kept safe that we were able to

86
00:04:01,750 --> 00:04:00,239
actually get to the moon and we do stand

87
00:04:03,830 --> 00:04:01,760
on their shoulders

88
00:04:05,509 --> 00:04:03,840

admiration and respect

89

00:04:07,110 --> 00:04:05,519

this astronaut pin that you notice over

90

00:04:09,750 --> 00:04:07,120

here looks a little different than the

91

00:04:11,429 --> 00:04:09,760

one i'm wearing when astronauts get

92

00:04:13,110 --> 00:04:11,439

selected they complete their astronaut

93

00:04:14,869 --> 00:04:13,120

candidate training and they're given a

94

00:04:17,189 --> 00:04:14,879

silver astronaut pin

95

00:04:19,909 --> 00:04:17,199

and when they fly in space they get a

96

00:04:22,710 --> 00:04:19,919

gold one that flew in space with them

97

00:04:24,710 --> 00:04:22,720

and i remember wally sherrod designed

98

00:04:26,710 --> 00:04:24,720

this pin one of the original

99

00:04:28,310 --> 00:04:26,720

seven mercury astronauts and he

100

00:04:29,670 --> 00:04:28,320

corrected me one day i was wearing it

101
00:04:31,189 --> 00:04:29,680
straight up and down he walked up and he

102
00:04:32,790 --> 00:04:31,199
twisted it and he said it's supposed to

103
00:04:34,230 --> 00:04:32,800
point at your throat at an angle i said

104
00:04:36,469 --> 00:04:34,240
yes sir

105
00:04:39,749 --> 00:04:36,479
and uh

106
00:04:41,270 --> 00:04:39,759
deke slayton the original apollo 7

107
00:04:43,510 --> 00:04:41,280
astronauts

108
00:04:45,189 --> 00:04:43,520
was chief of the astronaut office uh

109
00:04:46,550 --> 00:04:45,199
deke was medically grounded and didn't

110
00:04:47,990 --> 00:04:46,560
get to fly and he wasn't going to get

111
00:04:50,469 --> 00:04:48,000
his gold pin

112
00:04:52,550 --> 00:04:50,479
and gus grissom and the crew of apollo 1

113
00:04:55,350 --> 00:04:52,560

they had such admiration and respect for

114

00:04:57,350 --> 00:04:55,360

deke that they designed a gold pin

115

00:04:59,590 --> 00:04:57,360

uniquely for him they knew he wouldn't

116

00:05:01,590 --> 00:04:59,600

wear the same one that the astronauts

117

00:05:03,350 --> 00:05:01,600

wore and it had the diamond in the top

118

00:05:05,590 --> 00:05:03,360

of it and it was their plan to fly it on

119

00:05:06,870 --> 00:05:05,600

apollo 1 and give it to d

120

00:05:08,710 --> 00:05:06,880

well

121

00:05:12,230 --> 00:05:08,720

that wasn't possible

122

00:05:14,310 --> 00:05:12,240

and it came upon the wives of the apollo

123

00:05:16,390 --> 00:05:14,320

1 crew to take that pin

124

00:05:19,110 --> 00:05:16,400

and present it to deke

125

00:05:19,990 --> 00:05:19,120

and it was neil armstrong that took that

126

00:05:22,550 --> 00:05:20,000

pin

127

00:05:24,310 --> 00:05:22,560

aboard apollo 11 and took it to the moon

128

00:05:25,990 --> 00:05:24,320

so it finally did fly in space and was

129

00:05:28,150 --> 00:05:26,000

presented back to him deke eventually

130

00:05:31,110 --> 00:05:28,160

flew flew with tom stafford on the

131

00:05:33,749 --> 00:05:31,120

apollo soyuz test project and uh and

132

00:05:35,270 --> 00:05:33,759

earned his gold astronaut pin but it was

133

00:05:37,909 --> 00:05:35,280

always this pin

134

00:05:41,189 --> 00:05:37,919

that he wore so just as the crew had

135

00:05:45,189 --> 00:05:41,199

admiration and respect for deke we have

136

00:05:46,469 --> 00:05:45,199

admiration and respect for them

137

00:05:48,790 --> 00:05:46,479

so

138

00:05:51,350 --> 00:05:48,800

special day and i want to introduce

139

00:05:54,230 --> 00:05:51,360

somebody very special to the space

140

00:05:56,150 --> 00:05:54,240

program lieutenant general tom stafford

141

00:05:58,550 --> 00:05:56,160

to share his remembrances on the crew

142

00:06:02,150 --> 00:05:58,560

and the apollo program

143

00:06:04,150 --> 00:06:02,160

general stafford is a a 1952 graduate of

144

00:06:06,469 --> 00:06:04,160

my alma mater the united states naval

145

00:06:08,390 --> 00:06:06,479

academy which is the undergraduate

146

00:06:10,710 --> 00:06:08,400

institution with more astronauts than

147

00:06:13,749 --> 00:06:10,720

any other

148

00:06:15,510 --> 00:06:13,759

i would like to point that out

149

00:06:17,510 --> 00:06:15,520

general tom went into the air force he

150

00:06:20,070 --> 00:06:17,520

was also the first one in his class to

151

00:06:23,029 --> 00:06:20,080

make one two and three star rank a

152

00:06:25,749 --> 00:06:23,039

four-time space flier he flew on

153

00:06:28,550 --> 00:06:25,759

a gemini six first rendezvous in space

154

00:06:31,749 --> 00:06:28,560

he commanded gemini nine with the second

155

00:06:34,309 --> 00:06:31,759

eva in space he commanded apollo 10

156

00:06:36,390 --> 00:06:34,319

didn't actually get to land on the moon

157

00:06:38,629 --> 00:06:36,400

but did the first lunar rendezvous and

158

00:06:40,629 --> 00:06:38,639

got very close to the surface paving the

159

00:06:43,350 --> 00:06:40,639

way for the apollo 11 crew to make it

160

00:06:44,710 --> 00:06:43,360

there safely and then the apollo soyuz

161

00:06:46,790 --> 00:06:44,720

test project

162

00:06:48,550 --> 00:06:46,800

would set the stage for our cooperation

163

00:06:50,629 --> 00:06:48,560

with the russians on the shuttle mirror

164

00:06:51,830 --> 00:06:50,639

program in the international space

165

00:06:53,110 --> 00:06:51,840

station

166

00:06:55,520 --> 00:06:53,120

please welcome

167

00:07:05,749 --> 00:06:55,530

lieutenant general tom stafford

168

00:07:09,749 --> 00:07:07,749

thank you bob and

169

00:07:11,909 --> 00:07:09,759

it was really great to see this total

170

00:07:13,189 --> 00:07:11,919

facility delaware north

171

00:07:16,150 --> 00:07:13,199

all the people

172

00:07:17,589 --> 00:07:16,160

that has contributed so much to it it is

173

00:07:19,110 --> 00:07:17,599

really fitting

174

00:07:21,909 --> 00:07:19,120

for those three

175

00:07:23,670 --> 00:07:21,919

wonderful individuals roger

176

00:07:25,110 --> 00:07:23,680

ed and gus

177

00:07:27,189 --> 00:07:25,120

i knew them well

178

00:07:30,230 --> 00:07:27,199

they were great individuals

179

00:07:31,830 --> 00:07:30,240

and it's so fitting that you have this

180

00:07:34,950 --> 00:07:31,840

memorial to them

181

00:07:36,469 --> 00:07:34,960

thank you bob it's your idea

182

00:07:38,870 --> 00:07:36,479

you know

183

00:07:41,909 --> 00:07:38,880

when i think of

184

00:07:43,670 --> 00:07:41,919

the apollo 1 crew

185

00:07:45,510 --> 00:07:43,680

and really you think of the total

186

00:07:47,749 --> 00:07:45,520

environment

187

00:07:50,230 --> 00:07:47,759

that we were in at the time

188

00:07:52,950 --> 00:07:50,240

and everybody involved in that from the

189

00:07:57,350 --> 00:07:52,960

president on down

190

00:07:58,710 --> 00:07:57,360

and the 400 000 people that worked on it

191

00:08:00,230 --> 00:07:58,720

trying to think of something that would

192

00:08:02,150 --> 00:08:00,240

describe it

193

00:08:05,589 --> 00:08:02,160

and to me the one word

194

00:08:08,150 --> 00:08:05,599

was probably the best suited is courage

195

00:08:10,390 --> 00:08:08,160

it was courage

196

00:08:13,670 --> 00:08:10,400

courage of the people

197

00:08:15,270 --> 00:08:13,680

courage of the wives to stay home

198

00:08:18,309 --> 00:08:15,280

manage a family

199

00:08:20,230 --> 00:08:18,319

courage of the technicians the workers

200

00:08:22,390 --> 00:08:20,240

that did that

201
00:08:24,070 --> 00:08:22,400
and just to

202
00:08:26,629 --> 00:08:24,080
understand history

203
00:08:28,869 --> 00:08:26,639
the courage that faced that president

204
00:08:31,189 --> 00:08:28,879
kennedy had to stand up to

205
00:08:33,269 --> 00:08:31,199
he was faced with the fact

206
00:08:36,550 --> 00:08:33,279
the euro gagarin had made the one orbit

207
00:08:37,509 --> 00:08:36,560
flight thereon april of 1261

208
00:08:39,750 --> 00:08:37,519
and then

209
00:08:42,550 --> 00:08:39,760
on may the fifth alan shepard

210
00:08:44,230 --> 00:08:42,560
did 15 minutes out of the cape

211
00:08:46,790 --> 00:08:44,240
mercury redstone

212
00:08:47,750 --> 00:08:46,800
200 miles downstream

213
00:08:49,509 --> 00:08:47,760

but

214

00:08:51,350 --> 00:08:49,519

he wanted something that would keep

215

00:08:53,350 --> 00:08:51,360

america ahead

216

00:08:54,470 --> 00:08:53,360

and he had the courage to say we will do

217

00:08:56,070 --> 00:08:54,480

that

218

00:08:57,190 --> 00:08:56,080

but to just give you a little bit of

219

00:08:59,350 --> 00:08:57,200

history

220

00:09:01,990 --> 00:08:59,360

he went to vice president johnson who

221

00:09:03,269 --> 00:09:02,000

headed the space council says mr vice

222

00:09:05,750 --> 00:09:03,279

president

223

00:09:07,509 --> 00:09:05,760

i want to know what can we do to reap

224

00:09:10,470 --> 00:09:07,519

ahead of the soviets

225

00:09:11,509 --> 00:09:10,480

and i need the answer in two weeks

226

00:09:14,070 --> 00:09:11,519

so

227

00:09:15,430 --> 00:09:14,080

lbj was not a shrinking valley he said

228

00:09:17,030 --> 00:09:15,440

i'll have the answer for you mr

229

00:09:19,670 --> 00:09:17,040

president

230

00:09:21,670 --> 00:09:19,680

then he gathered dr von braun and dr

231

00:09:24,870 --> 00:09:21,680

gilruth

232

00:09:27,350 --> 00:09:24,880

abe silverstein maxwell j around

233

00:09:28,870 --> 00:09:27,360

and in two weeks he came back he said mr

234

00:09:30,550 --> 00:09:28,880

president

235

00:09:33,110 --> 00:09:30,560

here's what we have we have three

236

00:09:35,030 --> 00:09:33,120

situations number one

237

00:09:36,710 --> 00:09:35,040

is if we do not think there's any way

238

00:09:38,870 --> 00:09:36,720

the united states

239

00:09:41,110 --> 00:09:38,880

can beat the soviet union on a free

240

00:09:43,110 --> 00:09:41,120

return around the moon

241

00:09:45,110 --> 00:09:43,120

and they can say the soviets have been

242

00:09:46,790 --> 00:09:45,120

to the moon that would show the rest of

243

00:09:49,590 --> 00:09:46,800

the world

244

00:09:51,670 --> 00:09:49,600

there's about a 50 chance

245

00:09:53,190 --> 00:09:51,680

that we can equal them in orbiting the

246

00:09:56,389 --> 00:09:53,200

moon

247

00:09:57,829 --> 00:09:56,399

but we feel confident mr president there

248

00:09:59,509 --> 00:09:57,839

is no way

249

00:10:01,509 --> 00:09:59,519

that they can beat us

250

00:10:03,670 --> 00:10:01,519

in landing on the moon

251

00:10:06,230 --> 00:10:03,680

and safely returning

252

00:10:08,069 --> 00:10:06,240

and that will tax the best of america

253

00:10:09,990 --> 00:10:08,079

it'll put us ahead technically

254

00:10:12,470 --> 00:10:10,000

economically

255

00:10:14,630 --> 00:10:12,480

and kennedy had the courage to say

256

00:10:17,590 --> 00:10:14,640

that's what we'll do and then

257

00:10:20,150 --> 00:10:17,600

three weeks after al shepherd's flight

258

00:10:22,550 --> 00:10:20,160

he went in front of the congress

259

00:10:25,350 --> 00:10:22,560

and puts forth

260

00:10:27,350 --> 00:10:25,360

project apollo he didn't use apollo then

261

00:10:29,509 --> 00:10:27,360

he used the word we'll land a man on the

262

00:10:32,150 --> 00:10:29,519

moon and safely return turns out we had

263

00:10:34,230 --> 00:10:32,160

two men on the moon and safely return as

264

00:10:36,470 --> 00:10:34,240

you know charlie

265

00:10:38,389 --> 00:10:36,480

and

266

00:10:40,389 --> 00:10:38,399

from that

267

00:10:42,949 --> 00:10:40,399

i want to talk about the three people

268

00:10:44,470 --> 00:10:42,959

roger ed and gus

269

00:10:46,949 --> 00:10:44,480

and work them in

270

00:10:51,110 --> 00:10:46,959

with what we had

271

00:10:55,269 --> 00:10:53,590

first uh became obvious you know to go

272

00:10:56,630 --> 00:10:55,279

to the moon it's going to take really a

273

00:10:59,430 --> 00:10:56,640

bridge step

274

00:11:02,150 --> 00:10:59,440

something for long duration flight

275

00:11:04,710 --> 00:11:02,160

finally rounded again there were three

276

00:11:08,069 --> 00:11:04,720

there were three options that came up

277

00:11:10,710 --> 00:11:08,079

the first dr gilruth at houston

278

00:11:13,430 --> 00:11:10,720

he wanted to go directly to the moon

279

00:11:16,069 --> 00:11:13,440

he would have a giant booster

280

00:11:17,990 --> 00:11:16,079

they weigh around 14 million pounds

281

00:11:19,670 --> 00:11:18,000

it'll be two and a half times bigger

282

00:11:22,550 --> 00:11:19,680

than this one

283

00:11:24,069 --> 00:11:22,560

it'd be awesome and it'd drop off stages

284

00:11:26,470 --> 00:11:24,079

and return

285

00:11:28,949 --> 00:11:26,480

dr von braun wanted one

286

00:11:31,110 --> 00:11:28,959

weigh about 10 million pounds say

287

00:11:33,110 --> 00:11:31,120

around one and a half times as big as a

288

00:11:35,350 --> 00:11:33,120

saturn v

289

00:11:37,430 --> 00:11:35,360

the rendezvous and earth orbit

290

00:11:39,590 --> 00:11:37,440

drop off sages direct

291

00:11:42,069 --> 00:11:39,600

and finally from wrangley dr

292

00:11:45,590 --> 00:11:42,079

john hibolt came back and said no the

293

00:11:48,310 --> 00:11:45,600

answer is a lunar orbit rendezvous

294

00:11:49,590 --> 00:11:48,320

drastically reduce the weight the cost

295

00:11:51,030 --> 00:11:49,600

the time

296

00:11:53,430 --> 00:11:51,040

and he was right

297

00:11:54,870 --> 00:11:53,440

so it was only one year and two months

298

00:11:56,710 --> 00:11:54,880

after

299

00:11:59,430 --> 00:11:56,720

president kennedy made the commitment it

300

00:12:00,949 --> 00:11:59,440

was finally decided how we will go to

301
00:12:04,949 --> 00:12:00,959
the motors

302
00:12:07,030 --> 00:12:04,959
and we'll use the lunar orbit rendezvous

303
00:12:08,629 --> 00:12:07,040
so we started off

304
00:12:11,430 --> 00:12:08,639
but fortunately

305
00:12:13,269 --> 00:12:11,440
we were very fortunate the dick slayton

306
00:12:15,750 --> 00:12:13,279
assigned gus grissom

307
00:12:17,750 --> 00:12:15,760
the task of going to

308
00:12:20,550 --> 00:12:17,760
mcdonald would won the contract for

309
00:12:23,030 --> 00:12:20,560
germany and gus lived there

310
00:12:25,430 --> 00:12:23,040
for nearly two years

311
00:12:28,949 --> 00:12:25,440
designing the cockpit

312
00:12:30,150 --> 00:12:28,959
worked on the systems the subsystems

313
00:12:31,590 --> 00:12:30,160

and in fact

314

00:12:33,110 --> 00:12:31,600

everything about it

315

00:12:35,110 --> 00:12:33,120

was gus

316

00:12:37,269 --> 00:12:35,120

and we kind of laughingly call it the

317

00:12:38,550 --> 00:12:37,279

gospel bill

318

00:12:41,030 --> 00:12:38,560

and

319

00:12:42,310 --> 00:12:41,040

to to a lot of us what made gemini so

320

00:12:44,870 --> 00:12:42,320

successful

321

00:12:47,030 --> 00:12:44,880

was all that dedication and effort that

322

00:12:49,590 --> 00:12:47,040

gusts put into that

323

00:12:52,870 --> 00:12:49,600

unfortunately we did not have the same

324

00:12:54,949 --> 00:12:52,880

type on apollo

325

00:12:57,829 --> 00:12:54,959

and once we started out

326

00:13:01,350 --> 00:12:59,750

we started down the road

327

00:13:02,629 --> 00:13:01,360

and then in germany

328

00:13:03,750 --> 00:13:02,639

we

329

00:13:07,509 --> 00:13:03,760

flew

330

00:13:10,949 --> 00:13:07,519

10 missions in germany in 20 months

331

00:13:17,910 --> 00:13:10,959

which is unbelievable but we did

332

00:13:22,150 --> 00:13:18,829

and

333

00:13:23,190 --> 00:13:22,160

uh i was very fortunate i was

334

00:13:24,949 --> 00:13:23,200

the uh

335

00:13:26,150 --> 00:13:24,959

assigned to the backup crew the first

336

00:13:28,550 --> 00:13:26,160

flight first

337

00:13:31,110 --> 00:13:28,560

could be gus grissom john young

338

00:13:33,269 --> 00:13:31,120

roy chiran our backup

339

00:13:35,590 --> 00:13:33,279

but we went to st louis and we lived

340

00:13:37,670 --> 00:13:35,600

there for nearly eight months

341

00:13:39,670 --> 00:13:37,680

and we worked nearly full time with that

342

00:13:41,590 --> 00:13:39,680

spacecraft as it was being assembled and

343

00:13:43,829 --> 00:13:41,600

put together

344

00:13:45,030 --> 00:13:43,839

and unfortunately we did not have that

345

00:13:47,430 --> 00:13:45,040

same

346

00:13:49,269 --> 00:13:47,440

time frame or ability

347

00:13:50,870 --> 00:13:49,279

and we didn't have a gus grissom to go

348

00:13:53,189 --> 00:13:50,880

out to apollo

349

00:13:54,310 --> 00:13:53,199

as it was being formulated put together

350

00:13:56,949 --> 00:13:54,320

rockwell

351
00:13:59,350 --> 00:13:56,959
had or north america at the time

352
00:14:01,269 --> 00:13:59,360
had a few pilots i think they had one

353
00:14:02,550 --> 00:14:01,279
test pilot and they did the best of

354
00:14:05,110 --> 00:14:02,560
their ability

355
00:14:07,030 --> 00:14:05,120
but there was a lot lacking

356
00:14:08,710 --> 00:14:07,040
but in germany we did

357
00:14:10,629 --> 00:14:08,720
we carried out the

358
00:14:12,389 --> 00:14:10,639
first rendezvous which i

359
00:14:14,069 --> 00:14:12,399
had the privilege of doing with wally

360
00:14:16,949 --> 00:14:14,079
germany six

361
00:14:18,389 --> 00:14:16,959
we had the 14-day duration mission

362
00:14:20,230 --> 00:14:18,399
frank gorman

363
00:14:21,350 --> 00:14:20,240

jim lovell

364

00:14:23,189 --> 00:14:21,360

we had

365

00:14:28,829 --> 00:14:23,199

the first spacewalk

366

00:14:31,269 --> 00:14:28,839

and it was only it was 22 minutes if i'm

367

00:14:32,150 --> 00:14:31,279

correct and he had a great time out

368

00:14:34,550 --> 00:14:32,160

there

369

00:14:35,829 --> 00:14:34,560

but on coming back in ingressing to the

370

00:14:38,310 --> 00:14:35,839

spacecraft

371

00:14:40,150 --> 00:14:38,320

ed ran into a big problem

372

00:14:42,230 --> 00:14:40,160

and that was getting back in the suit

373

00:14:44,470 --> 00:14:42,240

ballooned on him

374

00:14:46,470 --> 00:14:44,480

and the germany was big enough the

375

00:14:47,990 --> 00:14:46,480

shoulders ballooned that was all right

376

00:14:49,990 --> 00:14:48,000

it was a height

377

00:14:51,990 --> 00:14:50,000

we had a maneuver called the alley-oop

378

00:14:54,629 --> 00:14:52,000

maneuver where you had to reach under

379

00:14:56,230 --> 00:14:54,639

the panel grab a hold of the bars pull

380

00:14:59,750 --> 00:14:56,240

yourself double

381

00:15:01,430 --> 00:14:59,760

and get in and that came down to about

382

00:15:02,790 --> 00:15:01,440

that far

383

00:15:05,590 --> 00:15:02,800

and i'm sure

384

00:15:07,110 --> 00:15:05,600

his adrenaline was going big and we know

385

00:15:10,230 --> 00:15:07,120

on the ground we're watching his heart

386

00:15:13,829 --> 00:15:10,240

rate was over 220 beats a minute

387

00:15:15,189 --> 00:15:13,839

but ed made it in and he locked

388

00:15:16,710 --> 00:15:15,199

the hatch

389

00:15:18,389 --> 00:15:16,720

and from that

390

00:15:20,790 --> 00:15:18,399

what happened to ed

391

00:15:22,470 --> 00:15:20,800

probably saved gene cernan's life and

392

00:15:25,750 --> 00:15:22,480

possibly mine

393

00:15:28,230 --> 00:15:25,760

because gene cernan on jimmy 9 did the

394

00:15:30,069 --> 00:15:28,240

first eva around the earth and he was to

395

00:15:31,110 --> 00:15:30,079

fly a rocket back

396

00:15:33,269 --> 00:15:31,120

but

397

00:15:35,030 --> 00:15:33,279

what we knew what we didn't know

398

00:15:36,949 --> 00:15:35,040

there was so much we thought we knew but

399

00:15:39,829 --> 00:15:36,959

we didn't know we didn't even think

400

00:15:42,150 --> 00:15:39,839

about putting default on the

401
00:15:44,389 --> 00:15:42,160
and as soon as the sun went down

402
00:15:47,590 --> 00:15:44,399
gene completely fogged over

403
00:15:49,590 --> 00:15:47,600
he was completely blind could not see

404
00:15:51,670 --> 00:15:49,600
and i was trying to he was out trying to

405
00:15:53,269 --> 00:15:51,680
work on the rocket black in the back

406
00:15:56,389 --> 00:15:53,279
blindfolded

407
00:15:57,910 --> 00:15:56,399
and i could see this is going nowhere

408
00:15:59,749 --> 00:15:57,920
so i called the

409
00:16:01,430 --> 00:15:59,759
space walk off

410
00:16:02,470 --> 00:16:01,440
and then

411
00:16:04,230 --> 00:16:02,480
i had to

412
00:16:05,590 --> 00:16:04,240
fortunately put up a rear view mirror on

413
00:16:09,670 --> 00:16:05,600

the docking bar

414

00:16:12,389 --> 00:16:09,680

and see his hand come up over the top of

415

00:16:15,509 --> 00:16:12,399

the journey and i talked him back into

416

00:16:18,150 --> 00:16:15,519

the cockpit meanwhile i was

417

00:16:19,269 --> 00:16:18,160

rolling in and pressurized this 25-foot

418

00:16:21,670 --> 00:16:19,279

tether

419

00:16:23,829 --> 00:16:21,680

it was like a big snake in the chimney

420

00:16:25,430 --> 00:16:23,839

cockpit you've seen germany here

421

00:16:29,189 --> 00:16:25,440

and in fact what you've seen over the

422

00:16:30,310 --> 00:16:29,199

business center that was a spacecraft 79

423

00:16:31,910 --> 00:16:30,320

and

424

00:16:34,470 --> 00:16:31,920

from there

425

00:16:37,670 --> 00:16:34,480

i finally got back in but he's about

426
00:16:40,710 --> 00:16:37,680
this far up he jeans certainly could not

427
00:16:43,030 --> 00:16:40,720
get back in the spacecraft

428
00:16:46,150 --> 00:16:43,040
and he did the alley-oop whatever

429
00:16:48,949 --> 00:16:46,160
so i hooked up this bar and cable

430
00:16:51,590 --> 00:16:48,959
that they designed after ed's experience

431
00:16:53,990 --> 00:16:51,600
i said okay geno here we go

432
00:16:56,550 --> 00:16:54,000
so i took it out with both hands and did

433
00:16:59,430 --> 00:16:56,560
all the leverage i had pulled the hatch

434
00:17:00,710 --> 00:16:59,440
down flat then held it with one arm then

435
00:17:03,110 --> 00:17:00,720
with the other hand

436
00:17:04,470 --> 00:17:03,120
guided his hand up on the lever

437
00:17:06,549 --> 00:17:04,480
and with that

438
00:17:08,309 --> 00:17:06,559

we got the hatch locked

439

00:17:11,590 --> 00:17:08,319

turned up the pressure he opened his

440

00:17:13,270 --> 00:17:11,600

visor his face was completely red

441

00:17:14,789 --> 00:17:13,280

and i grabbed the water gun and just

442

00:17:15,990 --> 00:17:14,799

hosed him down

443

00:17:18,309 --> 00:17:16,000

you're not supposed to have water in a

444

00:17:19,189 --> 00:17:18,319

spacecraft but i had to get him cooled

445

00:17:21,029 --> 00:17:19,199

off

446

00:17:23,510 --> 00:17:21,039

in that two hours and five minutes

447

00:17:26,230 --> 00:17:23,520

certainly lost 13 pounds

448

00:17:28,630 --> 00:17:26,240

that is not a good way to lose weight

449

00:17:30,310 --> 00:17:28,640

so we said hey time out on

450

00:17:32,950 --> 00:17:30,320

walking and working in space till we

451
00:17:34,789 --> 00:17:32,960
really understand it so we made the next

452
00:17:37,750 --> 00:17:34,799
two rather conservative and from that

453
00:17:39,750 --> 00:17:37,760
the idea came up of training underwater

454
00:17:42,789 --> 00:17:39,760
and you see now today on the space

455
00:17:44,710 --> 00:17:42,799
station bob i think we have 138

456
00:17:46,470 --> 00:17:44,720
space walks about that

457
00:17:47,750 --> 00:17:46,480
all very successful

458
00:17:50,470 --> 00:17:47,760
and they train

459
00:17:53,350 --> 00:17:50,480
in that giant pool we have houston

460
00:17:54,549 --> 00:17:53,360
five to seven hours at a time

461
00:17:56,070 --> 00:17:54,559
so it's

462
00:17:57,750 --> 00:17:56,080
it was that was the learning curve

463
00:17:59,830 --> 00:17:57,760

germany was the key

464

00:18:01,750 --> 00:17:59,840

also we know from history and seeing the

465

00:18:03,190 --> 00:18:01,760

soviet archives

466

00:18:05,350 --> 00:18:03,200

chimney was the

467

00:18:08,470 --> 00:18:05,360

program that pushed us

468

00:18:11,669 --> 00:18:08,480

ahead of the soviets

469

00:18:13,750 --> 00:18:11,679

and then on to apollo

470

00:18:16,710 --> 00:18:13,760

well first let's talk about ed

471

00:18:18,310 --> 00:18:16,720

i first met ed

472

00:18:19,669 --> 00:18:18,320

at the susquehanna school i was an

473

00:18:21,750 --> 00:18:19,679

instructor

474

00:18:22,789 --> 00:18:21,760

ed was one of my students he did very

475

00:18:24,310 --> 00:18:22,799

well

476

00:18:26,150 --> 00:18:24,320

he was assigned

477

00:18:27,750 --> 00:18:26,160

as a test pilot

478

00:18:29,510 --> 00:18:27,760

right

479

00:18:30,870 --> 00:18:29,520

and i'd see him occasionally he'd come

480

00:18:32,070 --> 00:18:30,880

through and or i'd be at wright

481

00:18:34,549 --> 00:18:32,080

patterson

482

00:18:36,070 --> 00:18:34,559

and then we were together for the in the

483

00:18:37,990 --> 00:18:36,080

final selection

484

00:18:39,590 --> 00:18:38,000

down in houston for the second group of

485

00:18:42,950 --> 00:18:39,600

astronauts that would do most of the

486

00:18:44,070 --> 00:18:42,960

germany and the apollo missions

487

00:18:45,990 --> 00:18:44,080

and uh

488

00:18:47,990 --> 00:18:46,000

but we did as nasa says going to be

489

00:18:49,669 --> 00:18:48,000

delayed meanwhile i've been assigned to

490

00:18:52,070 --> 00:18:49,679

harvard business school

491

00:18:54,390 --> 00:18:52,080

so we stopped by wright patterson

492

00:18:56,070 --> 00:18:54,400

saw ed and pat

493

00:18:58,150 --> 00:18:56,080

we had a party with a had a lot of

494

00:19:00,070 --> 00:18:58,160

students that write medicine

495

00:19:02,230 --> 00:19:00,080

i went on to harvard i was there for

496

00:19:05,190 --> 00:19:02,240

three days i got a call from dick

497

00:19:07,430 --> 00:19:05,200

are you still interested i said yes sir

498

00:19:08,549 --> 00:19:07,440

says get on down here in three days i

499

00:19:10,549 --> 00:19:08,559

said okay

500

00:19:12,310 --> 00:19:10,559

so i was a dropout i was the first drop

501
00:19:14,630 --> 00:19:12,320
out of the class to 64 of harvard

502
00:19:17,029 --> 00:19:14,640
business

503
00:19:19,029 --> 00:19:17,039
everywhere a little bit

504
00:19:21,510 --> 00:19:19,039
and uh

505
00:19:23,830 --> 00:19:21,520
so i was seeing

506
00:19:25,830 --> 00:19:23,840
quite a bit and

507
00:19:27,430 --> 00:19:25,840
ed was a wonderful person always had a

508
00:19:28,630 --> 00:19:27,440
very positive

509
00:19:30,070 --> 00:19:28,640
outgoing

510
00:19:32,390 --> 00:19:30,080
attitude

511
00:19:34,390 --> 00:19:32,400
good pilot

512
00:19:35,350 --> 00:19:34,400
roger shaffy

513
00:19:37,590 --> 00:19:35,360

i

514

00:19:39,830 --> 00:19:37,600

got to know roger osama

515

00:19:42,070 --> 00:19:39,840

he was in the third group

516

00:19:43,669 --> 00:19:42,080

our assignments were not

517

00:19:45,830 --> 00:19:43,679

ever

518

00:19:47,590 --> 00:19:45,840

near the same area

519

00:19:49,430 --> 00:19:47,600

but

520

00:19:51,110 --> 00:19:49,440

he had a good reputation

521

00:19:54,310 --> 00:19:51,120

he's a good pilot

522

00:19:57,990 --> 00:19:54,320

i know roger had great judgment because

523

00:19:59,830 --> 00:19:58,000

he married a lady from oklahoma city

524

00:20:02,630 --> 00:19:59,840

martha horn

525

00:20:05,190 --> 00:20:02,640

whose parents had a large feed store it

526
00:20:06,549 --> 00:20:05,200
wasn't a small feed store still there it

527
00:20:07,350 --> 00:20:06,559
is huge

528
00:20:09,510 --> 00:20:07,360
so

529
00:20:12,149 --> 00:20:09,520
roger had good judgment

530
00:20:14,230 --> 00:20:12,159
very positive person

531
00:20:15,190 --> 00:20:14,240
and

532
00:20:17,669 --> 00:20:15,200
so

533
00:20:18,950 --> 00:20:17,679
we finally got going on apollo

534
00:20:20,789 --> 00:20:18,960
after those

535
00:20:22,950 --> 00:20:20,799
ten gemini flights

536
00:20:24,789 --> 00:20:22,960
and uh

537
00:20:26,470 --> 00:20:24,799
they were assigned to the spacecraft

538
00:20:28,789 --> 00:20:26,480

that's depicted here i think it's serial

539

00:20:30,149 --> 00:20:28,799

number zero one two

540

00:20:33,270 --> 00:20:30,159

and uh

541

00:20:37,350 --> 00:20:33,280

i was assigned as a backup commander

542

00:20:39,830 --> 00:20:37,360

to the second apollo flight jim mcdevitt

543

00:20:42,630 --> 00:20:39,840

dave scott rusty schweikert

544

00:20:44,789 --> 00:20:42,640

i had john young and gene cernan

545

00:20:46,710 --> 00:20:44,799

and we were in los angeles

546

00:20:48,710 --> 00:20:46,720

at the same time

547

00:20:52,630 --> 00:20:48,720

at the same hour

548

00:20:53,909 --> 00:20:52,640

as this tragic accident occurred

549

00:20:56,230 --> 00:20:53,919

and

550

00:20:57,270 --> 00:20:56,240

anyway things were going so bad in the

551
00:20:59,029 --> 00:20:57,280
test

552
00:21:00,549 --> 00:20:59,039
that i was in charge of running in that

553
00:21:03,029 --> 00:21:00,559
spacecraft

554
00:21:05,110 --> 00:21:03,039
the water well glycol was leaking it was

555
00:21:06,149 --> 00:21:05,120
electrical short communications was

556
00:21:08,630 --> 00:21:06,159
cutting out

557
00:21:10,710 --> 00:21:08,640
i remember john young said

558
00:21:12,149 --> 00:21:10,720
go to earth orbit go to the moon said

559
00:21:13,669 --> 00:21:12,159
hell this thing will never make its

560
00:21:16,470 --> 00:21:13,679
earth orbit

561
00:21:19,430 --> 00:21:16,480
and it was so bad i called the test off

562
00:21:21,909 --> 00:21:19,440
said we'll come back when you get this

563
00:21:23,270 --> 00:21:21,919

spacecraft fixed

564

00:21:24,710 --> 00:21:23,280

and uh

565

00:21:26,390 --> 00:21:24,720

so as i

566

00:21:29,029 --> 00:21:26,400

they started to get out of the hatches i

567

00:21:31,270 --> 00:21:29,039

mentioned to bob earlier

568

00:21:33,350 --> 00:21:31,280

it has and they're supposed to be so

569

00:21:35,510 --> 00:21:33,360

many seconds to open the hatch

570

00:21:36,789 --> 00:21:35,520

no way believe me

571

00:21:38,549 --> 00:21:36,799

and then if you have any pressure

572

00:21:40,070 --> 00:21:38,559

against it it makes it even more

573

00:21:41,270 --> 00:21:40,080

difficult

574

00:21:43,270 --> 00:21:41,280

but

575

00:21:44,630 --> 00:21:43,280

i got out and had emergency calls from

576
00:21:46,630 --> 00:21:44,640
al horton

577
00:21:49,190 --> 00:21:46,640
we're up on a set stand

578
00:21:52,149 --> 00:21:49,200
so we heard about the accident the cape

579
00:21:53,510 --> 00:21:52,159
he said no he said why said the fire on

580
00:21:56,070 --> 00:21:53,520
the path

581
00:21:58,390 --> 00:21:56,080
i was fired i was thinking booster

582
00:22:00,789 --> 00:21:58,400
i said what about the crew

583
00:22:01,909 --> 00:22:00,799
he said unfortunately all three are dead

584
00:22:03,990 --> 00:22:01,919
listen

585
00:22:06,950 --> 00:22:04,000
i just didn't understand it

586
00:22:09,270 --> 00:22:06,960
i said al he was in a support room

587
00:22:12,789 --> 00:22:09,280
say out again are you sure he said yes

588
00:22:13,590 --> 00:22:12,799

i'm sure a fire in a spacecraft

589

00:22:15,350 --> 00:22:13,600

so

590

00:22:17,669 --> 00:22:15,360

john and gene were still down in the

591

00:22:19,750 --> 00:22:17,679

spacecraft working cleaning up so i

592

00:22:21,190 --> 00:22:19,760

leaned down through the hat said come on

593

00:22:23,830 --> 00:22:21,200

get out of here quick

594

00:22:25,350 --> 00:22:23,840

i let them down to the floor

595

00:22:26,630 --> 00:22:25,360

got them out there so i don't know any

596

00:22:28,470 --> 00:22:26,640

details

597

00:22:30,390 --> 00:22:28,480

we've just got the word we've lost the

598

00:22:32,710 --> 00:22:30,400

first apollo crew

599

00:22:34,950 --> 00:22:32,720

at the cape on pad 34.

600

00:22:38,789 --> 00:22:34,960

i don't know any details so

601
00:22:40,789 --> 00:22:38,799
that night we got a 3 38's we flew back

602
00:22:43,430 --> 00:22:40,799
i remember the next morning i went to

603
00:22:46,549 --> 00:22:43,440
ed white's house south pat

604
00:22:49,510 --> 00:22:46,559
and my little children bonnie eddie

605
00:22:51,430 --> 00:22:49,520
but we were a group a family

606
00:22:53,110 --> 00:22:51,440
and as a way to admit the whole

607
00:22:54,549 --> 00:22:53,120
astronaut group was sure it was

608
00:22:55,750 --> 00:22:54,559
competition

609
00:22:58,230 --> 00:22:55,760
but

610
00:23:00,390 --> 00:22:58,240
there was no gas grissom

611
00:23:02,070 --> 00:23:00,400
to be out in north america

612
00:23:05,110 --> 00:23:02,080
there's about two years to get that

613
00:23:05,990 --> 00:23:05,120

spacecraft scored away

614

00:23:08,470 --> 00:23:06,000

and

615

00:23:09,830 --> 00:23:08,480

fortunately when it came to the shuttle

616

00:23:12,070 --> 00:23:09,840

bob as you know

617

00:23:13,669 --> 00:23:12,080

there's a lot of time spent working on

618

00:23:14,710 --> 00:23:13,679

that

619

00:23:16,549 --> 00:23:14,720

and

620

00:23:18,630 --> 00:23:16,559

continue on so

621

00:23:20,470 --> 00:23:18,640

i think it's wonderful

622

00:23:22,870 --> 00:23:20,480

what you've done here

623

00:23:27,669 --> 00:23:22,880

as one fighter pilots for another it's a

624

00:23:30,549 --> 00:23:28,710

so

625

00:23:32,549 --> 00:23:30,559

i'm just saying it's an honor to be here

626

00:23:33,430 --> 00:23:32,559

to talk to all of you

627

00:23:38,070 --> 00:23:33,440

and

628

00:23:41,029 --> 00:23:38,080

one time we're at the factory effective

629

00:23:42,390 --> 00:23:41,039

a lot of us we really just lived out

630

00:23:44,070 --> 00:23:42,400

downing

631

00:23:46,230 --> 00:23:44,080

that's california

632

00:23:47,190 --> 00:23:46,240

and we're sitting around the table

633

00:23:50,149 --> 00:23:47,200

wallace

634

00:23:51,269 --> 00:23:50,159

myself john young jean cernan a couple

635

00:23:52,710 --> 00:23:51,279

others

636

00:23:54,549 --> 00:23:52,720

and there was a lot of other things

637

00:23:56,710 --> 00:23:54,559

besides the

638

00:23:58,789 --> 00:23:56,720

hatch that had to be opened from the

639

00:23:59,990 --> 00:23:58,799

outside

640

00:24:02,789 --> 00:24:00,000

series and

641

00:24:04,149 --> 00:24:02,799

the inflammable materials taken out

642

00:24:06,630 --> 00:24:04,159

there's a series of other things that

643

00:24:07,830 --> 00:24:06,640

needed to be changed

644

00:24:09,830 --> 00:24:07,840

and we were just

645

00:24:13,029 --> 00:24:09,840

reasoning calculating

646

00:24:15,269 --> 00:24:13,039

that these three great heroes dying

647

00:24:18,470 --> 00:24:15,279

helped save at least one other flight

648

00:24:20,950 --> 00:24:18,480

probably in space or maybe two because

649

00:24:22,310 --> 00:24:20,960

had that accident occurred

650

00:24:23,990 --> 00:24:22,320

in space

651
00:24:26,310 --> 00:24:24,000
we would have never known

652
00:24:28,789 --> 00:24:26,320
exactly what would have happened

653
00:24:30,789 --> 00:24:28,799
and all the other things

654
00:24:33,029 --> 00:24:30,799
but we did find out what happened we

655
00:24:33,830 --> 00:24:33,039
made so many changes as we went to block

656
00:24:35,909 --> 00:24:33,840
2.

657
00:24:38,310 --> 00:24:35,919
it was so successful

658
00:24:40,789 --> 00:24:38,320
once we started flying

659
00:24:42,870 --> 00:24:40,799
there in october

660
00:24:44,549 --> 00:24:42,880
of 68

661
00:24:47,110 --> 00:24:44,559
7

662
00:24:49,510 --> 00:24:47,120
it was wally schiller

663
00:24:51,669 --> 00:24:49,520

john eisley paul cunningham i was a

664

00:24:54,070 --> 00:24:51,679

backup commander

665

00:24:55,590 --> 00:24:54,080

and it was john young

666

00:24:57,269 --> 00:24:55,600

gene cernan

667

00:24:58,870 --> 00:24:57,279

but in

668

00:25:01,350 --> 00:24:58,880

nine months

669

00:25:04,310 --> 00:25:01,360

we flew five million ships

670

00:25:06,630 --> 00:25:04,320

four of them on the giant saturn v

671

00:25:08,470 --> 00:25:06,640

three of those had lunar modules and

672

00:25:10,630 --> 00:25:08,480

three of those to the moon

673

00:25:11,750 --> 00:25:10,640

the most successful flight test program

674

00:25:13,190 --> 00:25:11,760

ever

675

00:25:14,470 --> 00:25:13,200

but it started

676
00:25:16,070 --> 00:25:14,480
right back here

677
00:25:17,750 --> 00:25:16,080
with apollo 1.

678
00:25:19,909 --> 00:25:17,760
and it's so fitting

679
00:25:21,909 --> 00:25:19,919
that it's here it's on display

680
00:25:25,350 --> 00:25:21,919
so the public can see

681
00:25:26,230 --> 00:25:25,360
how we really did it and carried it out

682
00:25:28,470 --> 00:25:26,240
so

683
00:25:30,470 --> 00:25:28,480
to all the families god bless you

684
00:25:33,020 --> 00:25:30,480
great to see you again

685
00:25:52,870 --> 00:25:33,030
it's an honor to be here thank you

686
00:25:57,190 --> 00:25:54,870
thank you so much general tom at this

687
00:25:59,590 --> 00:25:57,200
time this concludes the uh formal

688
00:26:00,470 --> 00:25:59,600

ceremonies uh we'd like to open up the

689

00:26:02,470 --> 00:26:00,480

event

690

00:26:04,789 --> 00:26:02,480

and uh the exhibit i'd like to offer the

691

00:26:07,190 --> 00:26:04,799

families uh one more opportunity if

692

00:26:09,990 --> 00:26:07,200

you'd like to be first to go through and

693

00:26:12,470 --> 00:26:10,000

as uh as the folks up here get through

694

00:26:15,830 --> 00:26:12,480

please everybody enjoy this