1
00:00:19,690 --> 00:00:18,190
I'm bill hubscher and I'm Lori Meggs and

2
00:00:21,339 --> 00:00:19,700
welcome to focus on Marshall we're here

3
00:00:23,260 --> 00:00:21,349
at the Kennedy Space Center Florida for

4
00:00:24,999 --> 00:00:23,270
a very special episode the final launch

5
00:00:26,380 --> 00:00:25,009
of space shuttle Endeavour right there

6
00:00:27,580 --> 00:00:26,390
on that pad we're going to be talking to

7
00:00:28,900 --> 00:00:27,590
a lot of the familiar faces from

8
00:00:30,550 --> 00:00:28,910
Marshall who have been working on this

9
00:00:32,530 --> 00:00:30,560
program some from the very beginning

10
00:00:34,030 --> 00:00:32,540
that's right we'll hear their special

11
00:00:35,650 --> 00:00:34,040
stories from working all across the

12
00:00:37,120 --> 00:00:35,660
shuttle era and some personal highlights

13
00:00:38,290 --> 00:00:37,130

and of course the Space Center has been

14
00:00:39,700 --> 00:00:38,300
a part of the shuttle program from the

15
00:00:40,990 --> 00:00:39,710
start it'll be really interesting to

16
00:00:42,340 --> 00:00:41,000
hear some of those folks thoughts and

17
00:00:45,220 --> 00:00:42,350
impressions so let's get out of this

18
00:00:46,690 --> 00:00:45,230
wind and get right to it I'm here now in

19
00:00:48,550 --> 00:00:46,700
the orbiter processing facility and

20
00:00:49,710 --> 00:00:48,560
behind me is space shuttle Atlantis

21
00:00:51,970 --> 00:00:49,720
getting ready for its final voyage

22
00:00:53,500 --> 00:00:51,980
specifically there are the Space Shuttle

23
00:00:55,270 --> 00:00:53,510
main engines and joining me now is Jerry

24
00:00:57,610 --> 00:00:55,280
cook he is the project manager for those

25
00:00:59,050 --> 00:00:57,620
main engines at marshall and jerry first

26
00:01:00,790 --> 00:00:59,060
of all what do you think of when you see

27
00:01:02,440 --> 00:01:00,800
that back there it's just a sense of

28
00:01:03,640 --> 00:01:02,450
pride it's been a great opportunity to

29
00:01:05,649 --> 00:01:03,650
be the manager the Space Shuttle main

30
00:01:08,050 --> 00:01:05,659
engine project they're truly a work of

31
00:01:10,600 --> 00:01:08,060
art and probably the most magnificent

32
00:01:11,830 --> 00:01:10,610
machines I've ever been around what's it

33
00:01:13,870 --> 00:01:11,840
been like over the years what are the

34
00:01:15,669 --> 00:01:13,880
accomplishments that that I mean that is

35
00:01:17,440 --> 00:01:15,679
a tried and true piece of hardware right

36
00:01:19,059 --> 00:01:17,450
that's correct it's over 30 years of

37
00:01:20,859 --> 00:01:19,069
history into space shuttle main engines

38
00:01:22,809 --> 00:01:20,869

and it's hard to really mention one or

39
00:01:24,520 --> 00:01:22,819
two defining moments it's grounded in a

40
00:01:26,590 --> 00:01:24,530
very active test program we have over a

41
00:01:28,480 --> 00:01:26,600
million seconds of hot fire data on

42
00:01:30,160 --> 00:01:28,490
those engines each evolution have

43
00:01:31,419 --> 00:01:30,170
improved the safety and reliability of

44
00:01:33,819 --> 00:01:31,429
the engines it's just been a great

45
00:01:36,639 --> 00:01:33,829
accomplishment it's probably the best

46
00:01:38,050 --> 00:01:36,649
rocket engine ever built tell me what

47
00:01:40,449 --> 00:01:38,060
it's going to be like when you see those

48
00:01:41,800 --> 00:01:40,459
engines fire up for the final time it's

49
00:01:43,840 --> 00:01:41,810
going to be a bittersweet moment it'll

50
00:01:45,550 --> 00:01:43,850
be any like any other mission it's going

51
00:01:47,230 --> 00:01:45,560
to be a sense of tension as we go uphill

52
00:01:49,209 --> 00:01:47,240
all the way through main engine cutoff

53
00:01:50,649 --> 00:01:49,219
and it'll be a sense of pride and

54
00:01:51,969 --> 00:01:50,659
accomplishment of being part of

55
00:01:53,709 --> 00:01:51,979
something like the human spaceflight

56
00:01:55,300 --> 00:01:53,719
program here with the nation and then

57
00:01:56,859 --> 00:01:55,310
it'll be bittersweet because we notice

58
00:01:58,120 --> 00:01:56,869
the last time we'll see those engines

59
00:02:00,669 --> 00:01:58,130
fly on an orbiter in today's

60
00:02:02,199 --> 00:02:00,679
configuration but you hope for the

61
00:02:03,789 --> 00:02:02,209
future right absolutely we hope to see

62
00:02:06,039 --> 00:02:03,799
them fly again in the future on some

63
00:02:07,989 --> 00:02:06,049

future launch vehicle well tell us about

64
00:02:10,029 --> 00:02:07,999
when we'll stop finally what's it going

65
00:02:12,040 --> 00:02:10,039
to be like personally for you will stop

66
00:02:13,449 --> 00:02:12,050
personally for me at first will be a

67
00:02:14,559 --> 00:02:13,459
little bit of relief because we know we

68
00:02:15,970 --> 00:02:14,569
have accomplished the mission and we

69
00:02:18,760 --> 00:02:15,980
brought the crew back home safely which

70
00:02:21,250 --> 00:02:18,770
is our utmost priority after that it

71
00:02:21,850 --> 00:02:21,260
will be just savor the moment and take

72
00:02:22,960 --> 00:02:21,860
it all in

73
00:02:24,790 --> 00:02:22,970
and look back on what I we've

74
00:02:26,140 --> 00:02:24,800
accomplished and again it'll be sad

75
00:02:27,910 --> 00:02:26,150
because we notice the orbiters last

76
00:02:29,590 --> 00:02:27,920
flight and atlantis will be going on to

77
00:02:32,140 --> 00:02:29,600
its final destination here to Kennedy

78
00:02:33,730 --> 00:02:32,150
Space Center really how cool is it for

79
00:02:35,380 --> 00:02:33,740
us to be right here beside it for a geek

80
00:02:36,910 --> 00:02:35,390
engineer this is great it doesn't get

81
00:02:38,320 --> 00:02:36,920
any better than this and it's the best

82
00:02:40,240 --> 00:02:38,330
part of the whole vehicle in my opinion

83
00:02:41,770 --> 00:02:40,250
of course I'm a little biased well I

84
00:02:44,650 --> 00:02:41,780
like it too I like being here thank you

85
00:02:46,300 --> 00:02:44,660
jerry we're here now with dr. Helen

86
00:02:47,949 --> 00:02:46,310
McConaughey she is the manager of

87
00:02:49,600 --> 00:02:47,959
shuttle propulsion systems at the

88
00:02:52,240 --> 00:02:49,610

Marshall Space Flight Center and dr.

89
00:02:53,830 --> 00:02:52,250
McConaughey you're a relative rookie to

90
00:02:55,030 --> 00:02:53,840
the shuttle program it being around for

91
00:02:56,380 --> 00:02:55,040
more than 30 years but you only been

92
00:02:58,180 --> 00:02:56,390
here for about eight right that's right

93
00:02:59,620 --> 00:02:58,190
i've been at marshall for over 25 but

94
00:03:01,990 --> 00:02:59,630
i've only been working in the shuttle

95
00:03:03,580 --> 00:03:02,000
project office for eight years looking

96
00:03:04,840 --> 00:03:03,590
back though at the entire program

97
00:03:06,070 --> 00:03:04,850
including the portion that you've been a

98
00:03:09,340 --> 00:03:06,080
part of what do you think are some of

99
00:03:12,010 --> 00:03:09,350
the highlights wow you know the shuttle

100
00:03:14,740 --> 00:03:12,020
with 30 years of flying has accomplished

101
00:03:18,040 --> 00:03:14,750
her and enabled many things when I do

102
00:03:19,870 --> 00:03:18,050
think back on all the different missions

103
00:03:21,420 --> 00:03:19,880
we've had though I would say the obvious

104
00:03:24,160 --> 00:03:21,430
ones would be the Hubble Space Telescope

105
00:03:26,410 --> 00:03:24,170
getting it up there and then the repair

106
00:03:30,430 --> 00:03:26,420
mission and the servicing mission that

107
00:03:31,539 --> 00:03:30,440
we did is really one of the biggies and

108
00:03:33,699 --> 00:03:31,549
then the other would of course would be

109
00:03:36,610 --> 00:03:33,709
all that we did to put the space station

110
00:03:38,770 --> 00:03:36,620
in place imagery analysis is one of the

111
00:03:40,840 --> 00:03:38,780
things that Marshall in particular has

112
00:03:43,390 --> 00:03:40,850
excelled at over or the years there's a

113
00:03:45,160 --> 00:03:43,400

group in engineering that's been doing

114
00:03:48,940 --> 00:03:45,170
this for years and years but they now

115
00:03:54,340 --> 00:03:48,950
can analyze imagery to great detail and

116
00:03:56,470 --> 00:03:54,350
give you sizes and location and help us

117
00:03:58,360 --> 00:03:56,480
to understand what what's actually going

118
00:04:00,640 --> 00:03:58,370
on out there let me ask you that when

119
00:04:02,140 --> 00:04:00,650
you finally see the endeavour take off

120
00:04:03,759 --> 00:04:02,150
from that pad out there here in just

121
00:04:05,170 --> 00:04:03,769
just a couple more days what's gonna

122
00:04:10,750 --> 00:04:05,180
feel you what's that feeling gonna be

123
00:04:13,320 --> 00:04:10,760
like for you Wow well my first one I'm

124
00:04:15,820 --> 00:04:13,330
going to be folk totally focusing until

125
00:04:18,819 --> 00:04:15,830
until it leaves the launch pad because

126
00:04:21,099 --> 00:04:18,829
then I can relax but I'd say once the

127
00:04:23,090 --> 00:04:21,109
main engines cut off and that really

128
00:04:27,530 --> 00:04:23,100
reflects our

129
00:04:29,270 --> 00:04:27,540
our job is finished and i think when i

130
00:04:31,430 --> 00:04:29,280
take my headset off and i realize it's

131
00:04:32,630 --> 00:04:31,440
the last time that i will wear it where

132
00:04:34,070 --> 00:04:32,640
they had said and be sitting there on

133
00:04:36,530 --> 00:04:34,080
console it's going to be i'm going to

134
00:04:39,440 --> 00:04:36,540
feel very sad but i'm also going to feel

135
00:04:41,060 --> 00:04:39,450
a real sense of gratitude for having mid

136
00:04:43,370 --> 00:04:41,070
part of the program even though it's

137
00:04:46,400 --> 00:04:43,380
only been eight years and just a sense

138
00:04:48,700 --> 00:04:46,410

of accomplishment and real joy and

139
00:04:50,660 --> 00:04:48,710
satisfaction over having been part of it

140
00:04:52,190 --> 00:04:50,670
dr. McConaughey I know you were very

141
00:04:54,020 --> 00:04:52,200
hard on this program for the short time

142
00:04:55,280 --> 00:04:54,030
you've been on it and we all definitely

143
00:04:59,630 --> 00:04:55,290
appreciate that and thanks very much for

144
00:05:01,130 --> 00:04:59,640
taking time today welcome wow what of

145
00:05:02,900 --> 00:05:01,140
you i'm here with David demon he is the

146
00:05:04,730 --> 00:05:02,910
reusable solid rocket booster project

147
00:05:06,230 --> 00:05:04,740
manager at Marshall and David tell us

148
00:05:07,850 --> 00:05:06,240
what we see behind us here well you'll

149
00:05:09,890 --> 00:05:07,860
see the external tank in the two solid

150
00:05:11,620 --> 00:05:09,900
rocket boosters it's the first stage

151
00:05:13,310 --> 00:05:11,630
propulsion for the space shuttle program

152
00:05:14,750 --> 00:05:13,320
let's talk about the major

153
00:05:16,840 --> 00:05:14,760
accomplishments for your project

154
00:05:19,010 --> 00:05:16,850
anything stick out to you well obviously

155
00:05:20,570 --> 00:05:19,020
coming out of the Challenger incident

156
00:05:24,140 --> 00:05:20,580
many years ago the redesign of the

157
00:05:25,520 --> 00:05:24,150
motors we've constantly driven toward

158
00:05:27,770 --> 00:05:25,530
perfection on the motors we've

159
00:05:30,200 --> 00:05:27,780
redesigned many things to add additional

160
00:05:32,150 --> 00:05:30,210
safety for the astronauts and you know

161
00:05:33,320 --> 00:05:32,160
it's just been an amazing right what's

162
00:05:36,640 --> 00:05:33,330
it going to be like for you and those

163
00:05:39,020 --> 00:05:36,650

motors fire up for the last time I guess

164
00:05:40,550 --> 00:05:39,030
when they first fire I'll be excited

165
00:05:42,050 --> 00:05:40,560
like always you know watching the first

166
00:05:43,670 --> 00:05:42,060
age and I guess after they separate and

167
00:05:46,070 --> 00:05:43,680
we know that the orbiter is safely in

168
00:05:48,200 --> 00:05:46,080
orbit it's going to be emotional you

169
00:05:49,700 --> 00:05:48,210
know coming to the end of a program with

170
00:05:52,040 --> 00:05:49,710
all the accomplishments knowing that's

171
00:05:53,870 --> 00:05:52,050
going to be the last one it's going to

172
00:05:56,890 --> 00:05:53,880
be it's going to be somewhat emotional

173
00:05:59,300 --> 00:05:56,900
what do you credit the success to the

174
00:06:00,860 --> 00:05:59,310
people there's no question that the

175
00:06:03,740 --> 00:06:00,870
people the reason we're successful not

176
00:06:05,690 --> 00:06:03,750
only the ones today but the amazing

177
00:06:08,180 --> 00:06:05,700
design engineers and program managers

178
00:06:09,500 --> 00:06:08,190
that started this program the guidance

179
00:06:11,660 --> 00:06:09,510
they provided us the hardware they

180
00:06:13,820 --> 00:06:11,670
provided us to maintain so it's the

181
00:06:16,070 --> 00:06:13,830
people all right David we look forward

182
00:06:17,420 --> 00:06:16,080
to that last launch thanks a lot I'm

183
00:06:18,890 --> 00:06:17,430
here now with John Honeycutt and he is

184
00:06:20,300 --> 00:06:18,900
the external tank project manager at

185
00:06:21,440 --> 00:06:20,310
Marshall and John first of all tell us

186
00:06:24,460 --> 00:06:21,450
how long you've worked with the shuttle

187
00:06:27,650 --> 00:06:24,470
program 22 years better part 22 years

188
00:06:30,950 --> 00:06:27,660

had a few stents away from the program

189
00:06:32,990 --> 00:06:30,960
six months to a year but and now you're

190
00:06:34,839 --> 00:06:33,000
the manager of the backbone to the space

191
00:06:37,929 --> 00:06:34,849
shuttle tell us what that means to you

192
00:06:42,010 --> 00:06:37,939
now you know it's not only just the

193
00:06:46,510 --> 00:06:42,020
hardware aspect of it the thing that has

194
00:06:48,249 --> 00:06:46,520
enabled us to get that backbone to where

195
00:06:49,719 --> 00:06:48,259
it is today is the people and when I

196
00:06:51,609 --> 00:06:49,729
talk about the people I'm talking about

197
00:06:54,399 --> 00:06:51,619
folks at Marshall Space Flight Center

198
00:06:58,899 --> 00:06:54,409
civil servants as well as our support

199
00:07:00,909 --> 00:06:58,909
contractors and our prime contractor at

200
00:07:02,949 --> 00:07:00,919
miss you and Lockheed Martin we got a

201
00:07:05,619 --> 00:07:02,959
great group of people in the

202
00:07:07,509 --> 00:07:05,629
organization that we have is enabled us

203
00:07:09,909 --> 00:07:07,519
to do what we've done over the years

204
00:07:11,529 --> 00:07:09,919
they've been lots of modifications and

205
00:07:15,759 --> 00:07:11,539
adjustments to the tank we think its

206
00:07:18,519 --> 00:07:15,769
greatest our was there's no doubt when

207
00:07:22,600 --> 00:07:18,529
the agency decided to build a space

208
00:07:25,449 --> 00:07:22,610
station and looked at ways to increase

209
00:07:29,799 --> 00:07:25,459
the payload for the vehicle or for the

210
00:07:31,359 --> 00:07:29,809
system ET stepped up to the plate went

211
00:07:34,239 --> 00:07:31,369
to aluminum lithium friction stir

212
00:07:37,359 --> 00:07:34,249
welding reduced the weight of the tank

213
00:07:40,299 --> 00:07:37,369

and enabled the agency to go and build

214
00:07:42,069 --> 00:07:40,309
the space station so when you see that

215
00:07:46,029 --> 00:07:42,079
final tank go up lets going to go

216
00:07:48,790 --> 00:07:46,039
through your mind then I'll be extremely

217
00:07:53,499 --> 00:07:48,800
proud of all the work that we've done

218
00:07:55,480 --> 00:07:53,509
it's it'll be a culmination of redesigns

219
00:08:00,009 --> 00:07:55,490
that have occurred throughout the years

220
00:08:02,879 --> 00:08:00,019
I alluded to the one on the

221
00:08:07,029 --> 00:08:02,889
super-lightweight tank but there's been

222
00:08:10,899 --> 00:08:07,039
several several redesigns more than a

223
00:08:13,540 --> 00:08:10,909
couple of dozen after Columbia and you

224
00:08:16,779 --> 00:08:13,550
know our goal was to make the last tank

225
00:08:18,519 --> 00:08:16,789
the best tank and we've done that it is

226
00:08:19,359 --> 00:08:18,529
the best tank all right tell me what

227
00:08:21,069 --> 00:08:19,369
what's going to go through your mind

228
00:08:25,179 --> 00:08:21,079
when when we see we'll stop on that

229
00:08:30,329 --> 00:08:25,189
final shuttle though I'll be extremely

230
00:08:33,969 --> 00:08:30,339
proud of what the team's accomplished

231
00:08:40,540 --> 00:08:33,979
the thing that jumps into my mind though

232
00:08:42,769 --> 00:08:40,550
is the the work that was done generation

233
00:08:46,670 --> 00:08:42,779
before us

234
00:08:48,939 --> 00:08:46,680
by the folks that got shuttled off the

235
00:08:52,999 --> 00:08:48,949
ground got it going where it is today

236
00:08:56,600 --> 00:08:53,009
now it's our job since shuttles going to

237
00:08:59,989 --> 00:08:56,610
be retired to pick up with the new Space

238
00:09:02,600 --> 00:08:59,999

Launch System and do what those guys did

239
00:09:05,629 --> 00:09:02,610
for shuttle we need we need to we need

240
00:09:08,509 --> 00:09:05,639
to get that space launch system it to a

241
00:09:11,360 --> 00:09:08,519
point to where we're looking back on it

242
00:09:13,670 --> 00:09:11,370
30 years from now and saying what a

243
00:09:16,460 --> 00:09:13,680
great program it's been the legacy

244
00:09:18,319 --> 00:09:16,470
continues thanks so much John we're with

245
00:09:19,970 --> 00:09:18,329
Jody singer she is the deputy manager of

246
00:09:21,470 --> 00:09:19,980
the shuttle propulsion elements and

247
00:09:23,420 --> 00:09:21,480
Jodie you've been with the program now

248
00:09:24,860 --> 00:09:23,430
in some way or another for more than 20

249
00:09:26,509 --> 00:09:24,870
years what are some of the highlights

250
00:09:28,670 --> 00:09:26,519
that you've seen on the shuttle program

251
00:09:31,069 --> 00:09:28,680
well there's a lot of highlights when I

252
00:09:32,840 --> 00:09:31,079
think about our ability to support the

253
00:09:34,040 --> 00:09:32,850
International Space Station I think

254
00:09:36,619 --> 00:09:34,050
about the changes that we've gone

255
00:09:38,420 --> 00:09:36,629
through as far as being able to launch

256
00:09:40,069 --> 00:09:38,430
super lightweight tanks and the main

257
00:09:42,259 --> 00:09:40,079
engines and the solid rocket boosters

258
00:09:44,869 --> 00:09:42,269
there's just a lot of technology that we

259
00:09:46,639 --> 00:09:44,879
brought into the space program and it's

260
00:09:49,670 --> 00:09:46,649
just wonderful to see it come to

261
00:09:51,199 --> 00:09:49,680
fruition and see it launch so what about

262
00:09:52,730 --> 00:09:51,209
some of the personal and professional

263
00:09:54,199 --> 00:09:52,740

highlights you've experienced while you

264
00:09:55,879 --> 00:09:54,209
were on shuttle well definitely in

265
00:09:58,280 --> 00:09:55,889
shuttle it's the people it's the

266
00:10:01,309 --> 00:09:58,290
commitment to the success of the shuttle

267
00:10:02,960 --> 00:10:01,319
the day-in day-out contributions that

268
00:10:05,119 --> 00:10:02,970
are folks have made their families

269
00:10:06,949 --> 00:10:05,129
across the entire Marshall Space Flight

270
00:10:08,749 --> 00:10:06,959
Center from the engineering Directorate

271
00:10:11,210 --> 00:10:08,759
to safety and mission assurance the

272
00:10:13,100 --> 00:10:11,220
project offices all the elements and our

273
00:10:14,929 --> 00:10:13,110
prime contractors they all make the

274
00:10:17,509 --> 00:10:14,939
shuttle successful it's their commitment

275
00:10:19,819 --> 00:10:17,519
their teamwork and day and day out the

276
00:10:21,470 --> 00:10:19,829
sacrifices they've made all right so

277
00:10:23,420 --> 00:10:21,480
Jody were we're not too far away from

278
00:10:25,790 --> 00:10:23,430
watching in Denver make its final trip

279
00:10:26,869 --> 00:10:25,800
into the into orbit how are you going to

280
00:10:29,240 --> 00:10:26,879
feel when you when you feel that

281
00:10:30,919 --> 00:10:29,250
rumbling sense see that plume of smoke

282
00:10:34,309 --> 00:10:30,929
is it as it launches for the final time

283
00:10:35,360 --> 00:10:34,319
I'm sure I'll have some tears but

284
00:10:37,819 --> 00:10:35,370
there'll be a lot of personal

285
00:10:39,829 --> 00:10:37,829
satisfaction knowing that you know a lot

286
00:10:43,040 --> 00:10:39,839
of us played a big part in making it

287
00:10:46,220 --> 00:10:43,050
successful but I will be sad it's been

288
00:10:48,769 --> 00:10:46,230

part of my life it's a commitment and a

289
00:10:50,360 --> 00:10:48,779
sense of pride and it's just amazing

290
00:10:51,710 --> 00:10:50,370
when you think about all the effort in

291
00:10:53,990 --> 00:10:51,720
the team work that went into making the

292
00:10:55,730 --> 00:10:54,000
shuttle successful but I will be sad I'm

293
00:10:56,690 --> 00:10:55,740
sure I'll shed some tears but then

294
00:11:00,470 --> 00:10:56,700
there'll be a lot of pride

295
00:11:01,610 --> 00:11:00,480
to that we've done a job well Joe do you

296
00:11:03,980 --> 00:11:01,620
think a lot of us are going to be right

297
00:11:06,710 --> 00:11:03,990
there with you thanks very much thank

298
00:11:08,000 --> 00:11:06,720
you i'm here with steve cash the manager

299
00:11:09,680 --> 00:11:08,010
of the shuttle propulsion office at the

300
00:11:11,270 --> 00:11:09,690
marshall center and Steve as you turn

301
00:11:13,400 --> 00:11:11,280
around and you look at endeavor on that

302
00:11:17,720 --> 00:11:13,410
pad tell me what goes through your mind

303
00:11:20,510 --> 00:11:17,730
a lot of pride it took a lot to get to

304
00:11:24,080 --> 00:11:20,520
this at this point is endeavors last

305
00:11:26,960 --> 00:11:24,090
flight last mission I think all the

306
00:11:28,940 --> 00:11:26,970
accomplishments that that have come and

307
00:11:32,150 --> 00:11:28,950
the technologies had be developed and

308
00:11:35,480 --> 00:11:32,160
the teamwork that that was required to

309
00:11:37,610 --> 00:11:35,490
to get to the pad just lots of pride in

310
00:11:39,440 --> 00:11:37,620
this thing for folks who may not know

311
00:11:41,150 --> 00:11:39,450
tell us about the shuttle propulsion

312
00:11:43,040 --> 00:11:41,160
systems that thing wouldn't get off the

313
00:11:45,890 --> 00:11:43,050

ground without that right they put about

314
00:11:48,050 --> 00:11:45,900
7 million pounds together combined

315
00:11:51,170 --> 00:11:48,060
between the solid rocket motors and the

316
00:11:53,180 --> 00:11:51,180
engines to get off this to get off this

317
00:11:55,060 --> 00:11:53,190
planet in your mind what is the shuttles

318
00:11:57,530 --> 00:11:55,070
greatest achievement greater success

319
00:11:59,330 --> 00:11:57,540
well you know when I sit back and think

320
00:12:00,860 --> 00:11:59,340
about all the successes that have come

321
00:12:03,110 --> 00:12:00,870
from the show and there's a lot of them

322
00:12:07,310 --> 00:12:03,120
you got to really concentrate on the

323
00:12:09,500 --> 00:12:07,320
station it took multiple missions took a

324
00:12:12,770 --> 00:12:09,510
lot of new technologies that that are

325
00:12:14,930 --> 00:12:12,780
now Apple here on earth but assembler

326
00:12:17,290 --> 00:12:14,940
that station has got to be the that

327
00:12:20,330 --> 00:12:17,300
crowning jewel of the shuttle program

328
00:12:22,160 --> 00:12:20,340
what about when we'll stop for the final

329
00:12:24,560 --> 00:12:22,170
time the final shuttle what's going to

330
00:12:28,040 --> 00:12:24,570
get through your mind then it's going to

331
00:12:29,600 --> 00:12:28,050
be a little sad I'm not going to catch

332
00:12:32,690 --> 00:12:29,610
you I'm probably still in denial I

333
00:12:35,240 --> 00:12:32,700
walked bad last week wouldn't anybody

334
00:12:37,010 --> 00:12:35,250
else out there except just a few people

335
00:12:39,350 --> 00:12:37,020
that were watching the taking care of

336
00:12:41,020 --> 00:12:39,360
the vehicle and and just slowly go from

337
00:12:43,670 --> 00:12:41,030
one top from the top to the bottom

338
00:12:46,340 --> 00:12:43,680

that's just probably a little bit of

339
00:12:48,680 --> 00:12:46,350
denial we've been doing this a long time

340
00:12:51,230 --> 00:12:48,690
and and so it'll be a little bit of

341
00:12:53,210 --> 00:12:51,240
sadness probably a lot of joy to I've

342
00:12:54,350 --> 00:12:53,220
talked a lot about about pride because

343
00:12:58,130 --> 00:12:54,360
there will be a lot of pride in the

344
00:13:00,440 --> 00:12:58,140
conference in our mission but there'll

345
00:13:03,050 --> 00:13:00,450
be a little sadness alright Steve thank

346
00:13:04,130 --> 00:13:03,060
you so much thank you i'm here with

347
00:13:05,630 --> 00:13:04,140
marshall center director Robert

348
00:13:07,110 --> 00:13:05,640
Lightfoot in Robert he worked on the

349
00:13:10,230 --> 00:13:07,120
shuttle program for how long

350
00:13:13,260 --> 00:13:10,240
well on and off since since i started in

351
00:13:14,250 --> 00:13:13,270
86 and talking about all the work over

352
00:13:16,500 --> 00:13:14,260
the years i don't know if you can narrow

353
00:13:18,060 --> 00:13:16,510
it down but maybe one or two highlights

354
00:13:20,460 --> 00:13:18,070
accomplishments personal highlights for

355
00:13:24,060 --> 00:13:20,470
you during this program oh man i think

356
00:13:26,250 --> 00:13:24,070
that that's a tough one but I I really

357
00:13:28,440 --> 00:13:26,260
believe in 10 or 15 years when people

358
00:13:30,120 --> 00:13:28,450
look back on the shuttle program the

359
00:13:31,620 --> 00:13:30,130
enabling and the building of the

360
00:13:34,860 --> 00:13:31,630
International Space Station is going to

361
00:13:36,690 --> 00:13:34,870
be one of the one of the the big

362
00:13:38,640 --> 00:13:36,700
memories about what shuttle has done for

363
00:13:39,870 --> 00:13:38,650

us clearly the Hubble will be there I

364
00:13:41,610 --> 00:13:39,880
mean Hubble is always going to be there

365
00:13:42,870 --> 00:13:41,620
Shandra that we did it huntsville is

366
00:13:45,960 --> 00:13:42,880
going to be there the big observatories

367
00:13:48,500 --> 00:13:45,970
I guess in general but I think the big

368
00:13:52,070 --> 00:13:48,510
highlight for me is is watching the team

369
00:13:55,860 --> 00:13:52,080
right i mean we this shuttle team is is

370
00:13:58,350 --> 00:13:55,870
so diverse and it's just an innocent ree

371
00:14:00,480 --> 00:13:58,360
that make that make that shuttle fly fly

372
00:14:01,680 --> 00:14:00,490
safely and watching that teamwork is

373
00:14:04,170 --> 00:14:01,690
pretty amazing what's it going to be

374
00:14:05,579 --> 00:14:04,180
like for you when well first of all when

375
00:14:06,900 --> 00:14:05,589
it lights up for the last time when

376
00:14:08,400 --> 00:14:06,910
those boosters light up and the engine

377
00:14:09,720 --> 00:14:08,410
slide up and it takes off and then and

378
00:14:12,090 --> 00:14:09,730
then when wheels finally stopped for the

379
00:14:13,440 --> 00:14:12,100
last one yeah i think you know when the

380
00:14:15,210 --> 00:14:13,450
Boosters and the engines light up I

381
00:14:17,519 --> 00:14:15,220
don't think it will be any different I

382
00:14:20,610 --> 00:14:17,529
really don't because that's kind of when

383
00:14:21,810 --> 00:14:20,620
you're you're so focused on making on

384
00:14:23,340 --> 00:14:21,820
watching and making sure everything's

385
00:14:24,900 --> 00:14:23,350
going the way it's supposed to go I

386
00:14:27,150 --> 00:14:24,910
think the harder part for me personally

387
00:14:30,180 --> 00:14:27,160
will be will stop when you realize that

388
00:14:33,210 --> 00:14:30,190

that that is it and we've got an

389
00:14:35,190 --> 00:14:33,220
Atlantis home safely and that the

390
00:14:38,280 --> 00:14:35,200
program is over that'll be that'll be

391
00:14:40,560 --> 00:14:38,290
tough but I think we'll try very hard to

392
00:14:42,390 --> 00:14:40,570
focus on just celebrate the successes

393
00:14:44,160 --> 00:14:42,400
like you said earlier try to try to

394
00:14:46,740 --> 00:14:44,170
celebrate what we accomplished with

395
00:14:48,870 --> 00:14:46,750
shuttle and the memories we have of each

396
00:14:51,000 --> 00:14:48,880
other as team members and and how we got

397
00:14:53,370 --> 00:14:51,010
there I think that'll be our big our big

398
00:14:55,050 --> 00:14:53,380
thing to deal with will stop is but it's

399
00:14:56,550 --> 00:14:55,060
gonna be hard on the first to say it's

400
00:14:59,220 --> 00:14:56,560
going to be tough all right thanks for

401
00:15:00,639 --> 00:14:59,230
offering thank you Bill has been such an

402
00:15:02,290 --> 00:15:00,649
honor to talk to folks who

403
00:15:03,639 --> 00:15:02,300
some of their whole lives their whole

404
00:15:05,319 --> 00:15:03,649
NASA careers on the space shuttle

405
00:15:06,819 --> 00:15:05,329
program to make it a success so you know

406
00:15:08,410 --> 00:15:06,829
it's great to be able to see this nasty

407
00:15:09,999 --> 00:15:08,420
part of work done here at Kennedy and

408
00:15:11,109 --> 00:15:10,009
also get to talk about this historic

409
00:15:12,999 --> 00:15:11,119
launch you're absolutely right about