1
00:01:36,910 --> 00:01:35,109
good morning this is a great onboard Mir

2
00:01:39,069 --> 00:01:36,920
station along with my crewmates

3
00:01:41,249 --> 00:01:39,079
commander below judges you're off and

4
00:01:44,350 --> 00:01:41,259
flight engineer can you spare Karloff

5
00:01:46,510 --> 00:01:44,360
right now we're busy making preparations

6
00:01:47,740 --> 00:01:46,520
for tomorrow's anticipated talking of

7
00:01:50,139 --> 00:01:47,750
the space shuttle with the MIR station

8
00:01:52,690 --> 00:01:50,149
that should be exciting for all of us

9
00:01:54,639 --> 00:01:52,700
and we certainly look forward to it not

10
00:01:56,800 --> 00:01:54,649
the least of our reasons of course is

11
00:01:58,779 --> 00:01:56,810
we've already been here almost four

12
00:02:00,249 --> 00:01:58,789
months and the Space Shuttle is

13
00:02:04,479 --> 00:02:00,259

basically our ride home

14
00:02:07,149 --> 00:02:04,489
as we prepare we are at the same time

15
00:02:10,289 --> 00:02:07,159
breaking some things out for further

16
00:02:12,580 --> 00:02:10,299
checking is sort of a last-minute

17
00:02:15,009 --> 00:02:12,590
verification that some of the equipment

18
00:02:16,660 --> 00:02:15,019
that arrived inspector will work but on

19
00:02:18,550 --> 00:02:16,670
the other hand to try to make the

20
00:02:20,440 --> 00:02:18,560
station a bit neater we're also trying

21
00:02:22,600 --> 00:02:20,450
to pack some things away and make some

22
00:02:24,160 --> 00:02:22,610
water to the station so it's a busy time

23
00:02:26,110 --> 00:02:24,170
nonetheless we're happy to have the

24
00:02:29,100 --> 00:02:26,120
opportunity to talk with the folks in

25
00:02:31,900 --> 00:02:29,110
Connecticut who are participating in I

26
00:02:34,479 --> 00:02:31,910
will try and handle any questions that

27
00:02:36,009 --> 00:02:34,489
are given in English and my crewmates

28
00:02:37,509 --> 00:02:36,019
can answer those questions that are

29
00:02:40,120 --> 00:02:37,519
presented in Russian and maybe in that

30
00:02:49,000 --> 00:02:40,130
way we can answer all the questions and

31
00:02:53,890 --> 00:02:49,010
with that we're standing by via them my

32
00:02:59,250 --> 00:02:53,900
name is Vera do you speak foreign

33
00:03:08,860 --> 00:03:06,459
foreign language we speak many foreign

34
00:03:11,199 --> 00:03:08,870
languages that are even within the

35
00:03:13,720 --> 00:03:11,209
boundaries of Russia even though Russia

36
00:03:16,449 --> 00:03:13,730
is the primary language as you well know

37
00:03:18,759 --> 00:03:16,459
within Russia there are many separate

38
00:03:23,800 --> 00:03:18,769

Republic's and many Republic's have

39
00:03:27,729 --> 00:03:23,810
their own languages of course since we

40
00:03:30,789 --> 00:03:27,739
are on an international mission we

41
00:03:35,890 --> 00:03:30,799
understand English and even try

42
00:03:40,349 --> 00:03:35,900
sometimes to speak in English by the

43
00:03:43,030 --> 00:03:40,359
name of Mike who wants to ask a question

44
00:03:47,710 --> 00:03:43,040
what's the greatest distance that you

45
00:03:55,839 --> 00:03:47,720
have flown from the planet right now

46
00:03:57,399 --> 00:03:55,849
we're flying in orbit it's four hundred

47
00:04:02,770 --> 00:03:57,409
to four hundred and fifteen kilometers

48
00:04:06,219 --> 00:04:02,780
in altitude and we are in this orbit and

49
00:04:15,339 --> 00:04:06,229
flying around the the earth at this

50
00:04:17,649 --> 00:04:15,349
distance Atlantis Houston loud and clear

51
00:04:49,790 --> 00:04:17,659
for the ODS comm check transmitting on

52
00:04:49,800 --> 00:06:51,420
anko earning his money today charlie

53
00:06:56,070 --> 00:06:54,030
a commander who'd Gibson and pilot

54
00:06:58,860 --> 00:06:56,080
Charlie Precourt about to conduct a test

55
00:07:00,750 --> 00:06:58,870
of the post contact thrust system this

56
00:07:05,330 --> 00:07:00,760
is a computer software on the shuttle

57
00:07:08,280 --> 00:07:05,340
which when initiated which one initiated

58
00:07:11,370 --> 00:07:08,290
will provide about a two-second burst of

59
00:07:13,260 --> 00:07:11,380
several of the shuttles jet thrusters at

60
00:07:15,600 --> 00:07:13,270
the point of contact between the shuttle

61
00:07:17,520 --> 00:07:15,610
and the MIR Space Station tomorrow to

62
00:07:18,990 --> 00:07:17,530
drive the two docking mechanisms more

63
00:07:21,030 --> 00:07:19,000

closely together and initiate the

64
00:07:22,770 --> 00:07:21,040
capture sequence between the capture

65
00:07:25,680 --> 00:07:22,780
latches on the orbiter docking systems

66
00:07:29,700 --> 00:07:25,690
docking mechanism and comparable latches

67
00:07:50,080 --> 00:07:29,710
on the crystal science modules docking

68
00:08:01,060 --> 00:07:52,180
the shaking of the picture representing

69
00:08:02,920 --> 00:08:01,070
the firing of those thrusters copy

70
00:08:04,600 --> 00:08:02,930
initial evaluation looks right on the

71
00:08:10,450 --> 00:08:04,610
money and we see the rate through cam

72
00:08:13,450 --> 00:08:10,460
ray the test involves the extension of

73
00:08:20,440 --> 00:08:13,460
this docking ring to about 13 inches in

74
00:08:22,240 --> 00:08:20,450
length that will duplicate that will

75
00:08:24,760 --> 00:08:22,250
duplicate the activity that will occur

76
00:08:26,830 --> 00:08:24,770
once the two vehicles come into contact

77
00:08:29,080 --> 00:08:26,840
with one another tomorrow during docking

78
00:08:30,640 --> 00:08:29,090
the mechanical systems officer here in

79
00:08:32,529 --> 00:08:30,650
the Mission Control Center reports that

80
00:08:35,469 --> 00:08:32,539
that docking ring is being driven

81
00:08:38,409 --> 00:08:35,479
properly is moving forward to it to its

82
00:08:41,140 --> 00:08:38,419
extended position it is at that extended

83
00:08:43,570 --> 00:08:41,150
position that the orbiter will come into

84
00:08:45,519 --> 00:08:43,580
contact with the docking mechanism on

85
00:08:48,760 --> 00:08:45,529
the crystal science module on the mirror

86
00:08:51,550 --> 00:08:48,770
and thus initiate the capture of the two

87
00:08:54,160 --> 00:08:51,560
vehicles with a series of capture

88
00:08:56,920 --> 00:08:54,170

latches that are located in those three

89
00:08:58,810 --> 00:08:56,930
triangular petals at the top of the

90
00:09:01,930 --> 00:08:58,820
docking ring you can clearly see the

91
00:09:05,890 --> 00:09:01,940
docking ring now extending upwards from

92
00:09:08,500 --> 00:09:05,900
the docking system itself at the point

93
00:09:10,810 --> 00:09:08,510
of contact between the two vehicles the

94
00:09:17,500 --> 00:09:10,820
capture latches on the top of that

95
00:09:20,800 --> 00:09:17,510
extended ring will hook on to comparable

96
00:09:24,930 --> 00:09:20,810
latches on the crystal module docking

97
00:09:27,220 --> 00:09:24,940
mechanism then the capture ring will be

98
00:09:29,920 --> 00:09:27,230
retracted to bring the two docking

99
00:09:31,570 --> 00:09:29,930
interfaces flush against one another at

100
00:09:33,190 --> 00:09:31,580
that point the structural mating of

101
00:09:34,960 --> 00:09:33,200
hooks and latches on both sides of the

102
00:09:37,510 --> 00:09:34,970
docking interfaces between the atlantis

103
00:09:40,030 --> 00:09:37,520
and the mirror will begin the entire

104
00:09:42,040 --> 00:09:40,040
process from contact through capture and

105
00:09:44,140 --> 00:09:42,050
then the hard mating of the two vehicles

106
00:09:46,870 --> 00:09:44,150
against each other should take about 20

107
00:09:50,290 --> 00:09:46,880
to 25 minutes this is a Russian built

108
00:09:53,140 --> 00:09:50,300
docking mechanism which was built by RSC

109
00:09:55,060 --> 00:09:53,150
energy are the main hardware

110
00:09:59,050 --> 00:09:55,070
manufacturer for Russian spacecraft

111
00:10:00,280 --> 00:09:59,060
hardware it was then integrated into the

112
00:10:03,790 --> 00:10:00,290
orbiter through Rockwell International

113
00:10:04,270 --> 00:10:03,800

in Downey California on the right side

114
00:10:07,720 --> 00:10:04,280
of the screen

115
00:10:10,110 --> 00:10:07,730
as the orbiter passes in darkness is a

116
00:10:12,630 --> 00:10:10,120
very faint view of the centreline camera

117
00:10:16,390 --> 00:10:12,640
which is located at the top of the

118
00:10:18,640 --> 00:10:16,400
inside of porthole at the top of the

119
00:10:21,880 --> 00:10:18,650
orbiter docking system which will be

120
00:10:23,710 --> 00:10:21,890
used as a navigational aid by commander

121
00:10:25,600 --> 00:10:23,720
hoot Gibson and pilot Charlie Precourt

122
00:10:27,010 --> 00:10:25,610
during the final phase of the run to

123
00:10:29,770 --> 00:10:27,020
view an approach to the MIR space

124
00:10:31,660 --> 00:10:29,780
station tomorrow in the crosshairs and

125
00:10:36,490 --> 00:10:31,670
that shot on the right side of the split

126
00:10:40,690 --> 00:10:36,500
screen would be the crystal science

127
00:10:43,150 --> 00:10:40,700
modules docking target the two the two

128
00:10:45,790 --> 00:10:43,160
views will enable Gibson and Precourt to

129
00:10:48,700 --> 00:10:45,800
perfectly align the orbiter docking

130
00:10:51,820 --> 00:10:48,710
system mechanism with the crystal

131
00:11:08,850 --> 00:10:51,830
science module docking mechanism for a

132
00:11:13,420 --> 00:11:11,230
inner guía de signed and built this

133
00:11:15,400 --> 00:11:13,430
Russian docking mechanism it was

134
00:11:17,520 --> 00:11:15,410
integrated into the orbiter docking

135
00:11:23,370 --> 00:11:17,530
system and then into the orbiter itself

136
00:11:27,190 --> 00:11:23,380
by NASA and Rockwell International and

137
00:11:28,690 --> 00:11:27,200
the initial test of that docking system

138
00:11:30,220 --> 00:11:28,700

and the extension of the docking ring

139
00:11:32,230 --> 00:11:30,230
went off without a hitch earlier this

140
00:11:34,360 --> 00:11:32,240
morning as mission specialist Greg

141
00:11:39,310 --> 00:11:34,370
Harbaugh who's chiefly in charge of the

142
00:11:42,730 --> 00:11:39,320
docking system used two motors through a

143
00:11:45,760 --> 00:11:42,740
control panel at the aft flight deck of

144
00:11:48,220 --> 00:11:45,770
Atlantis's flight deck to drive that

145
00:11:50,620 --> 00:11:48,230
docking mechanism upward to its fully

146
00:11:54,640 --> 00:11:50,630
extended position of 13 inches above the

147
00:11:57,280 --> 00:11:54,650
top of the docking system this will

148
00:11:59,380 --> 00:11:57,290
enable commander hood Gibson to use this

149
00:12:01,660 --> 00:11:59,390
image aboard Atlantis on the aft flight

150
00:12:03,820 --> 00:12:01,670
deck on a special TV camera he has set

151
00:12:06,400 --> 00:12:03,830
up back there in order to perfectly

152
00:12:08,080 --> 00:12:06,410
align the docking ring on the orbiter

153
00:12:11,740 --> 00:12:08,090
docking system with that of the crystal

154
00:12:15,360 --> 00:12:11,750
module these three that's a good image

155
00:12:17,800 --> 00:12:15,370
Greg and we have a good MUX now we see

156
00:12:27,250 --> 00:12:17,810
it'll be spectacular looking at a mirror

157
00:12:28,570 --> 00:12:27,260
Space Station through there on the right

158
00:12:42,729 --> 00:12:28,580
side of the screen the image of the

159
00:12:47,229 --> 00:12:44,949
alright let's let's begin the interview

160
00:12:49,179 --> 00:12:47,239
then I'll tell you all that we are on

161
00:12:54,309 --> 00:12:49,189
tape we're not live so everybody can

162
00:12:56,529 --> 00:12:54,319
relax this is this is a very exciting

163
00:12:59,379 --> 00:12:56,539

mission if all goes as planned tomorrow

164
00:13:02,349 --> 00:12:59,389
tomorrow morning you will reach out and

165
00:13:04,900 --> 00:13:02,359
shake hands with Russian cosmonauts for

166
00:13:08,169 --> 00:13:04,910
the first docking with the with the

167
00:13:11,769 --> 00:13:08,179
Russians in in 20 years is there a sense

168
00:13:13,299 --> 00:13:11,779
do you feel a sense of history on this

169
00:13:20,559 --> 00:13:13,309
mission I'll begin with You commander

170
00:13:24,189 --> 00:13:20,569
Gibson I guess I would have to say yes

171
00:13:29,139 --> 00:13:24,199
very much so I feel a sense of history

172
00:13:31,859 --> 00:13:29,149
and of following a tradition that we

173
00:13:34,629 --> 00:13:31,869
started 20 years ago and getting to

174
00:13:37,090 --> 00:13:34,639
continue in something that it has taken

175
00:13:40,509 --> 00:13:37,100
us a long time to pick up on again but

176
00:13:42,309 --> 00:13:40,519
very much feeling as though we are

177
00:13:44,289 --> 00:13:42,319
continuing in some footsteps that were

178
00:13:47,369 --> 00:13:44,299
laid down a long long time ago and of

179
00:13:50,379 --> 00:13:47,379
course any kind of effort like this is a

180
00:13:52,179 --> 00:13:50,389
monumental team effort there's an awful

181
00:13:55,269 --> 00:13:52,189
lot of work that's been going on on this

182
00:13:56,739 --> 00:13:55,279
flight for the last three years we're

183
00:13:59,199 --> 00:13:56,749
very pleased that it's all coming

184
00:14:01,239 --> 00:13:59,209
together very nicely and yes we very

185
00:14:05,649 --> 00:14:01,249
much feel a little bit of a flow of

186
00:14:08,199 --> 00:14:05,659
history as we proceed here the docking

187
00:14:11,469 --> 00:14:08,209
tomorrow will be very very complicated

188
00:14:13,749 --> 00:14:11,479

to two spacecraft that way more than

189
00:14:17,469 --> 00:14:13,759
than a hundred tons trying to come

190
00:14:19,659 --> 00:14:17,479
together very precisely in in orbit

191
00:14:31,269 --> 00:14:19,669
commander Gibson how complicated is that

192
00:14:33,939 --> 00:14:31,279
going to be to anything we do in our in

193
00:14:35,799 --> 00:14:33,949
our everyday lives I've never driven an

194
00:14:39,340 --> 00:14:35,809
18-wheeler so I don't I don't know about

195
00:14:41,859 --> 00:14:39,350
the complexity in one of those but it is

196
00:14:45,099 --> 00:14:41,869
a it is a complex sequence of events

197
00:14:46,689 --> 00:14:45,109
that we need to choreograph very

198
00:14:51,849 --> 00:14:46,699
carefully that we all need to fly very

199
00:14:53,710 --> 00:14:51,859
carefully we have a straining corridor

200
00:14:54,519 --> 00:14:53,720
that we must stay within or we could

201
00:14:56,590 --> 00:14:54,529
conceivably

202
00:14:59,980 --> 00:14:56,600
damage the solar arrays on the mare for

203
00:15:02,949 --> 00:14:59,990
example we have a limited amount of fuel

204
00:15:06,069 --> 00:15:02,959
to do all this with so all of which says

205
00:15:08,319 --> 00:15:06,079
it's a it's a complex sequence of events

206
00:15:11,829 --> 00:15:08,329
it's a very constrained sequence of

207
00:15:13,569 --> 00:15:11,839
events having made it all sound very

208
00:15:16,090 --> 00:15:13,579
difficult I will tell you that in the

209
00:15:18,549 --> 00:15:16,100
simulator we had very very good success

210
00:15:21,189 --> 00:15:18,559
and we've done this probably a couple of

211
00:15:23,439 --> 00:15:21,199
hundred times in the simulator so we're

212
00:15:24,249 --> 00:15:23,449
looking forward very eagerly to doing it

213
00:15:28,449 --> 00:15:24,259

for real

214
00:15:32,350 --> 00:15:28,459
and for doing at tomorrow Bonnie Dunbar

215
00:15:35,470 --> 00:15:32,360
you you trained as the backup to to norm

216
00:15:38,110 --> 00:15:35,480
thagard who is up aboard the the mirror

217
00:15:40,869 --> 00:15:38,120
right now you're in a kind of a unique

218
00:15:42,639 --> 00:15:40,879
position to to talk to us a little bit

219
00:15:44,920 --> 00:15:42,649
about some of the differences between

220
00:15:46,780 --> 00:15:44,930
the Russian space program and the

221
00:15:49,600 --> 00:15:46,790
American space program and some of the

222
00:16:44,619 --> 00:15:49,610
some of the real challenges you are

223
00:16:49,960 --> 00:16:47,410
let me let me turn to your to your

224
00:16:52,889 --> 00:16:49,970
cosmonaut colleagues now colonel

225
00:16:55,780 --> 00:16:52,899
Sylvia what do you think the Russians

226
00:16:58,090 --> 00:16:55,790
bring to the American space program and

227
00:17:03,059 --> 00:16:58,100
what does the American space program

228
00:17:08,390 --> 00:17:06,399
store resist hi grandma

229
00:17:10,400 --> 00:17:08,400
peep no American school program

230
00:17:25,700 --> 00:17:10,410
in store Americans Karaman a beurre

231
00:17:28,010 --> 00:17:25,710
noisette Francisco program oh you have

232
00:17:34,100 --> 00:17:28,020
to acknowledge that there are things

233
00:17:42,110 --> 00:17:34,110
that can be exchanged good broad

234
00:17:43,820 --> 00:17:42,120
experience piloting and in orbit so for

235
00:17:47,300 --> 00:17:43,830
example we have equipment that's been

236
00:17:50,390 --> 00:17:47,310
working for many years from the point of

237
00:18:00,250 --> 00:17:50,400
view of the American space program its

238
00:18:06,860 --> 00:18:04,460

allow us to significantly accelerate the

239
00:18:09,860 --> 00:18:06,870
development of the space station alright

240
00:18:13,690 --> 00:18:09,870
I have a question now for Nikolai abou

241
00:18:16,840 --> 00:18:13,700
Darwin this is your first spaceflight

242
00:18:19,070 --> 00:18:16,850
what do you think so far

243
00:18:29,990 --> 00:18:19,080
gaspar you know Budetti know yet the

244
00:18:35,150 --> 00:18:30,000
Rajpura cosmesis keep a low opinion as

245
00:18:37,310 --> 00:18:35,160
concerns my being the rookie and now

246
00:18:50,440 --> 00:18:37,320
with this flight there's one cosmonaut

247
00:18:58,580 --> 00:18:55,310
nothing common about it excellent owing

248
00:18:59,900 --> 00:18:58,590
to the excellent training owing to the

249
00:19:09,050 --> 00:18:59,910
excellent training that we received

250
00:19:14,030 --> 00:19:09,060
I have lost IFB because being inside the

251
00:19:19,670 --> 00:19:14,040
cabin there is no external effect that

252
00:19:21,650 --> 00:19:19,680
can be observed probably much more

253
00:19:22,220 --> 00:19:21,660
interesting to observe observe this from

254
00:19:25,550 --> 00:19:22,230
the side

255
00:19:31,340 --> 00:19:25,560
okay as as a bystander particularly the

256
00:19:35,660 --> 00:19:31,350
launch but inside from inside different

257
00:19:39,230 --> 00:19:35,670
little from training of course there was

258
00:19:41,500 --> 00:19:39,240
a lot of overloading g-forces during

259
00:19:49,000 --> 00:19:41,510
launch these did not affect me too bad

260
00:19:52,750 --> 00:19:49,010
too badly I think we have a very

261
00:19:55,850 --> 00:19:52,760
challenging and rewarding program

262
00:19:57,530 --> 00:19:55,860
underfoot here and we're very honored to