Endeavour

1
00:00:40,490 --> 00:00:38,420
good afternoon from the Kennedy Space

2
00:00:43,250 --> 00:00:40,500
Center in Florida this is space shuttle

3
00:00:44,660 --> 00:00:43,260
Endeavour launch control the countdown

4
00:00:47,360 --> 00:00:44,670
for launch of space shuttle Endeavour

5
00:00:50,030 --> 00:00:47,370
tonight on mission STS 89 is continuing

6
00:00:54,380 --> 00:00:50,040
on schedule launch is scheduled to occur

7
00:00:55,850 --> 00:00:54,390
at about 948 p.m. Eastern time and we

8
00:00:59,930 --> 00:00:55,860
are currently at a scheduled hold at

9
00:01:02,150 --> 00:00:59,940
t-minus 3 hours work at launch pad 39a

10
00:01:05,020 --> 00:01:02,160
as well as operations here in the firing

11
00:01:07,580 --> 00:01:05,030
room are continuing as planned

12
00:01:10,160 --> 00:01:07,590
this is endeavours first mission to dock

13
00:01:11,900 --> 00:01:10,170

with Russia's space station Mir the

14
00:01:13,880 --> 00:01:11,910
previous seven docking missions were all

15
00:01:16,999 --> 00:01:13,890
successfully done with the orbiter

16
00:01:18,800 --> 00:01:17,009
Atlantis with an on-time launch docking

17
00:01:21,080 --> 00:01:18,810
of endeavour with Mir is set to occur at

18
00:01:30,609 --> 00:01:21,090
about 3:00 p.m. Eastern Time on Saturday

19
00:01:34,380 --> 00:01:33,190
and we're with live pictures now from

20
00:01:36,880 --> 00:01:34,390
the crew quarters

21
00:01:39,219 --> 00:01:36,890
and the operations check-out building as

22
00:01:43,469 --> 00:01:39,229
our seven astronauts are seated for

23
00:01:49,300 --> 00:01:43,479
their traditional meal prior to launch

24
00:01:50,980 --> 00:01:49,310
sharapov is mission specialists as well

25
00:01:52,990 --> 00:01:50,990
as we just saw mission specialist James

26
00:01:55,359 --> 00:01:53,000
Riley here is Vani Dunbar who is

27
00:01:57,730 --> 00:01:55,369
preparing for her fifth flight into

28
00:02:00,450 --> 00:01:57,740
space today she is the most experienced

29
00:02:03,880 --> 00:02:00,460
astronaut of all the crew members today

30
00:02:07,660 --> 00:02:03,890
which are commanded by Terry Wolcott who

31
00:02:10,630 --> 00:02:07,670
will be leading this crew of seven Andy

32
00:02:16,930 --> 00:02:10,640
Thomas will be remaining on Mir for four

33
00:02:18,430 --> 00:02:16,940
months Michael Anderson and pilot Joe

34
00:02:21,970 --> 00:02:18,440
Edwards are preparing for their first

35
00:02:23,830 --> 00:02:21,980
flights into space today everybody looks

36
00:02:26,140 --> 00:02:23,840
like they're wide awake they have done

37
00:02:28,509 --> 00:02:26,150
in fact awake since about nine o'clock

38
00:02:30,789 --> 00:02:28,519

this morning they've had two meals since

39
00:02:32,920 --> 00:02:30,799
that time and this is a simply a snack

40
00:02:34,990 --> 00:02:32,930
that they will have before they make

41
00:02:39,130 --> 00:02:35,000
final preparations to board the orbiter

42
00:02:43,300 --> 00:02:39,140
Endeavour and then launch tonight at our

43
00:02:45,789 --> 00:02:43,310
preferred launch time of 948 p.m. at the

44
00:02:48,640 --> 00:02:45,799
shuttle pad the final inspection team is

45
00:02:52,000 --> 00:02:48,650
continue are continuing their operations

46
00:02:55,000 --> 00:02:52,010
to make final inspections of the orbiter

47
00:02:58,360 --> 00:02:55,010
as well as to look for any potential

48
00:03:00,069 --> 00:02:58,370
debris items that may be on the pad

49
00:03:02,340 --> 00:03:00,079
surface or on any of the number of

50
00:03:04,599 --> 00:03:02,350
walkways that go run up and down the

51
00:03:08,340 --> 00:03:04,609
full length of the vehicle they'll also

52
00:03:11,050 --> 00:03:08,350
be looking for any buildup some ice or

53
00:03:16,770 --> 00:03:11,060
frost on the external tank following the

54
00:03:22,500 --> 00:03:16,780
loading of the cryogenic reactants and

55
00:03:24,900 --> 00:03:22,510
we have now moved to live TV of our

56
00:03:27,430 --> 00:03:24,910
astronauts that are being suited up

57
00:03:31,690 --> 00:03:27,440
they've just completed their weather

58
00:03:33,160 --> 00:03:31,700
briefing and are making an effort to get

59
00:03:36,300 --> 00:03:33,170
a little bit ahead of schedule so they

60
00:03:41,270 --> 00:03:36,310
have moved on into the suit-up room

61
00:03:45,960 --> 00:03:44,550
commander of this mission is did again

62
00:03:48,660 --> 00:03:45,970
receive his weather briefing just

63
00:03:50,490 --> 00:03:48,670

moments ago and I was told that we will

64
00:03:51,870 --> 00:03:50,500
proceed with our activities tonight that

65
00:03:57,600 --> 00:03:51,880
there are no technical issues that we're

66
00:03:59,520 --> 00:03:57,610
dealing with Boni Dunbar who is

67
00:04:04,590 --> 00:03:59,530
preparing to make her fifth flight into

68
00:04:07,290 --> 00:04:04,600
space tonight is also making final

69
00:04:11,630 --> 00:04:07,300
preparations to ensure that her suit is

70
00:04:17,580 --> 00:04:14,370
Joe Edwards of course seen he is the

71
00:04:20,310 --> 00:04:17,590
pilot of this crew and he is preparing

72
00:04:22,260 --> 00:04:20,320
for his first flight into space and we

73
00:04:28,010 --> 00:04:22,270
have seated here Michael Anderson again

74
00:04:33,210 --> 00:04:31,260
Jim Riley also making his first flight

75
00:04:37,409 --> 00:04:33,220
into space he is designated mission

76
00:04:40,140 --> 00:04:37,419
specialist number one and he is saying

77
00:04:42,240 --> 00:04:40,150
hello to his friends and family who may

78
00:04:43,560 --> 00:04:42,250
be watching or who have actually come to

79
00:04:47,700 --> 00:04:43,570
the Space Center to watch his launch

80
00:04:51,510 --> 00:04:47,710
tonight Salazar sharapov is a graduate

81
00:04:53,159 --> 00:04:51,520
from the Moscow State University he was

82
00:04:55,890 --> 00:04:53,169
also a pilot instructor in the Russian

83
00:04:57,690 --> 00:04:55,900
Air Force and he was been training at

84
00:04:59,870 --> 00:04:57,700
the Gagarin cosmonaut training center to

85
00:05:05,400 --> 00:04:59,880
be an astronaut or a cosmonaut candidate

86
00:05:07,290 --> 00:05:05,410
since 1990 Andy Thomas will be making

87
00:05:09,150 --> 00:05:07,300
his second trip aboard the shuttle but

88
00:05:11,610 --> 00:05:09,160

this will be his first time to visit the

89
00:05:14,460 --> 00:05:11,620
space station Mir which will be his home

90
00:05:15,990 --> 00:05:14,470
for the next four months he will replace

91
00:05:20,070 --> 00:05:16,000
astronaut Dave Wolfe who has been on

92
00:05:21,600 --> 00:05:20,080
Mears at September Thomas is scheduled

93
00:05:29,210 --> 00:05:21,610
to be the seventh and final astronaut to

94
00:05:34,170 --> 00:05:31,770
and at this time we do have live shots

95
00:05:36,660 --> 00:05:34,180
from the third floor of the operations

96
00:05:38,790 --> 00:05:36,670
and check-out building as the crew exit

97
00:05:40,260 --> 00:05:38,800
their crew quarters and make their way

98
00:05:42,510 --> 00:05:40,270
down the hallway toward the elevator

99
00:05:45,600 --> 00:05:42,520
which will take them out to the

100
00:05:47,550 --> 00:05:45,610
astronaut van which will then take them

101
00:05:49,770 --> 00:05:47,560
out to the pad and they're being greeted

102
00:05:52,290 --> 00:05:49,780
by well-wishers and supporters employees

103
00:05:53,820 --> 00:05:52,300
at the Kennedy Space Center who like to

104
00:05:55,980 --> 00:05:53,830
get a last glimpse of the crew before

105
00:05:59,100 --> 00:05:55,990
they head off into space spending the

106
00:06:02,420 --> 00:05:59,110
next nine days in orbit five of those

107
00:06:04,680 --> 00:06:02,430
days a docked with the MIR Space Station

108
00:06:08,130 --> 00:06:04,690
and the astronauts coming out of the

109
00:06:10,950 --> 00:06:08,140
quarters right now as they are being led

110
00:06:13,470 --> 00:06:10,960
by their commander Terry Wolcott

111
00:06:15,990 --> 00:06:13,480
followed by pilot Joe Edwards mission

112
00:06:20,190 --> 00:06:16,000
specialist Bonnie Dunbar Michael

113
00:07:18,040 --> 00:06:20,200

Anderson Salle's on sharp off James

114
00:07:24,500 --> 00:07:20,270
and this is a view from the white room

115
00:07:26,780 --> 00:07:24,510
as our commander Terry will cut is

116
00:07:28,520 --> 00:07:26,790
making final preparations to enter the

117
00:07:30,530 --> 00:07:28,530
or before he is he will be the first to

118
00:07:33,080 --> 00:07:30,540
entered the vehicle so that he can begin

119
00:07:35,150 --> 00:07:33,090
the enormous task of making sure that

120
00:07:43,360 --> 00:07:35,160
everything is set up and ready to go for

121
00:07:48,409 --> 00:07:45,800
mission specialist Andy Tom Thomas

122
00:07:51,409 --> 00:07:48,419
making his second trip aboard the

123
00:07:53,960 --> 00:07:51,419
shuttle again he will remain on Mir for

124
00:07:55,730 --> 00:07:53,970
the next four months replacing astronaut

125
00:07:57,400 --> 00:07:55,740
Dave wolf who has been on board Mir

126
00:07:59,960 --> 00:07:57,410
since September

127
00:08:07,790 --> 00:07:59,970
Thomas will become the seventh and final

128
00:08:10,969 --> 00:08:07,800
astronaut to live aboard mir pilot joe

129
00:08:13,070 --> 00:08:10,979
edwards says just now crawled into the

130
00:08:16,010 --> 00:08:13,080
orbiter and he will be followed by

131
00:08:17,750 --> 00:08:16,020
mission specialist Bonnie Dunbar the

132
00:08:19,700 --> 00:08:17,760
most experienced astronaut in this

133
00:08:20,180 --> 00:08:19,710
flight having gone into space four times

134
00:08:25,430 --> 00:08:20,190
already

135
00:08:36,790 --> 00:08:25,440
I think at 5:44 okay I'll put it on

136
00:08:46,430 --> 00:08:36,800
board alright sorry LC 54 new tape

137
00:08:56,570 --> 00:08:46,440
obvious complete $13.99 and it was 554 I

138
00:09:04,680 --> 00:09:00,960

okay sweetie contact the LTS OTC I got

139
00:09:10,200 --> 00:09:04,690
you loud and clear on me dr. Paiva today

140
00:09:11,790 --> 00:09:10,210
this evening l CH DCPS spd-sx head to

141
00:09:13,890 --> 00:09:11,800
the years I wonder if I active on

142
00:09:16,800 --> 00:09:13,900
immigrant wanted monitor t32 domain

143
00:09:19,530 --> 00:09:16,810
account and verify logically a DVD a CD

144
00:09:21,180 --> 00:09:19,540
verify loud clear she did that CGS s

145
00:09:24,050 --> 00:09:21,190
certified log player at daily effect

146
00:09:26,610 --> 00:09:24,060
scale is actually level clear alcohol

147
00:09:28,860 --> 00:09:26,620
Dave King is being introduced today as

148
00:09:30,450 --> 00:09:28,870
the new launch director at Kennedy Space

149
00:09:33,240 --> 00:09:30,460
Center he is only the third launch

150
00:09:35,630 --> 00:09:33,250
director to keep his head since we had

151
00:09:40,080 --> 00:09:35,640
returned to flight of the space shuttle

152
00:09:42,390 --> 00:09:40,090
King began his career with NASA in 1983

153
00:09:44,670 --> 00:09:42,400
as a main propulsion engineer he later

154
00:09:46,680 --> 00:09:44,680
served as flow director for the orbiter

155
00:09:48,750 --> 00:09:46,690
discovery and as the acting deputy

156
00:09:55,770 --> 00:09:48,760
director of the installation Operations

157
00:09:57,990 --> 00:09:55,780
Directorate and CDR launch director take

158
00:09:59,280 --> 00:09:58,000
it looks like weather is good looks like

159
00:10:00,540 --> 00:09:59,290
we got a good vehicle and we're gonna

160
00:10:02,220 --> 00:10:00,550
try to get you out of town tonight and

161
00:10:10,170 --> 00:10:02,230
now be looking forward to seeing you

162
00:10:12,000 --> 00:10:10,180
back here and 9 or 10 days million we'd

163
00:10:14,610 --> 00:10:12,010

also like to extend our thanks to your

164
00:10:16,470 --> 00:10:14,620
workforce here at KSC and other honorees

165
00:10:22,560 --> 00:10:16,480
that are down here for the space by the

166
00:10:24,480 --> 00:10:22,570
way this launch and we have orbiter

167
00:10:28,620 --> 00:10:24,490
access arm now being retracted away from

168
00:10:36,199 --> 00:10:28,630
the vehicle this arm can be returned to

169
00:10:36,209 --> 00:10:47,579
OTC PLP complete kit

170
00:10:53,660 --> 00:10:50,889
once you see plch first complete mystery

171
00:10:55,370 --> 00:10:53,670
today thank you

172
00:10:57,320 --> 00:10:55,380
and final error surface checks of the

173
00:10:59,000 --> 00:10:57,330
orbiter is a lavon's as well as the

174
00:11:01,460 --> 00:10:59,010
rudder are being completed at this time

175
00:11:05,780 --> 00:11:01,470
this verifies the orbiters hydraulic

176
00:11:07,370 --> 00:11:05,790
systems and the three main engines are

177
00:11:11,830 --> 00:11:07,380
being gimbal for a final test before

178
00:11:16,000 --> 00:11:13,690
and we're standing by for the retraction

179
00:11:17,830 --> 00:11:16,010
of the gaseous oxygen vent hood away

180
00:11:20,800 --> 00:11:17,840
from the external tank and it is being

181
00:11:46,110 --> 00:11:20,810
attracted at this time inside the bronze

182
00:11:46,120 --> 00:11:50,570
tea - 13 seconds

183
00:12:01,230 --> 00:11:56,070
nine eight seven six we have a dope star

184
00:12:03,150 --> 00:12:01,240
four three two one we have booster

185
00:12:04,980 --> 00:12:03,160
ignition and liftoff of the space

186
00:12:14,510 --> 00:12:04,990
shuttle Endeavour continuing the union

187
00:12:20,400 --> 00:12:18,630
Roger roll endeavour Houston is now

188
00:12:22,829 --> 00:12:20,410

controlling the roll maneuver is

189
00:12:24,000 --> 00:12:22,839
complete and ever sound it's down when

190
00:12:33,480 --> 00:12:24,010
his level position headed to a

191
00:12:35,220 --> 00:12:33,490
rendezvous with the MIR Space Station 30

192
00:12:43,370 --> 00:12:35,230
seconds into flight endeavour now

193
00:12:52,290 --> 00:12:45,540
endeavours engines now throttling down

194
00:12:53,370 --> 00:12:52,300
to 67% of rated thrust endeavours now

195
00:12:55,440 --> 00:12:53,380
passing through the area of maximum

196
00:12:57,540 --> 00:12:55,450
aerodynamic pressure on the vehicle in

197
00:13:00,180 --> 00:12:57,550
the lower atmosphere downrange from the

198
00:13:02,639 --> 00:13:00,190
Kennedy Space Center 2.3 miles traveling

199
00:13:15,809 --> 00:13:02,649
at a speed of just about 870 miles per

200
00:13:24,609 --> 00:13:19,350
endeavour Houston go at throttle up I

201
00:13:26,019 --> 00:13:24,619
should go with throttle up one minute 19

202
00:13:27,790 --> 00:13:26,029
seconds into the flight and diverse

203
00:13:30,100 --> 00:13:27,800
three liquid-fueled engines are now back

204
00:13:32,199 --> 00:13:30,110
at full throttle 104 percent of rated

205
00:13:33,609 --> 00:13:32,209
thrust endeavour downrange from the

206
00:13:35,530 --> 00:13:33,619
Kennedy Space Center a distance of about

207
00:13:38,789 --> 00:13:35,540
10 and a half miles traveling at the

208
00:13:40,840 --> 00:13:38,799
speed of about 2,000 miles per hour just

209
00:14:11,470 --> 00:13:40,850
about seven minutes of powered flight

210
00:14:15,320 --> 00:14:13,790
two minutes nine seconds into the flight

211
00:14:17,030 --> 00:14:15,330
the booster officer confirms good

212
00:14:19,370 --> 00:14:17,040
separation of the solid rocket boosters

213
00:14:21,440 --> 00:14:19,380

and never now downrange from the Kennedy

214
00:14:22,010 --> 00:14:21,450
Space Center at a distance of about 38

215
00:14:31,519 --> 00:14:22,020
miles

216
00:14:36,260 --> 00:14:31,529
Houston performance nominal endeavour

217
00:14:40,250 --> 00:14:36,270
Houston two engine town copy Susan - I

218
00:14:40,840 --> 00:14:40,260
picked out two minutes 35 seconds into

219
00:14:42,800 --> 00:14:40,850
the flight

220
00:14:44,510 --> 00:14:42,810
endeavours performance has been as

221
00:14:46,460 --> 00:14:44,520
expected and in the event of a single

222
00:14:48,050 --> 00:14:46,470
engine failure endeavour could now reach

223
00:14:51,980 --> 00:14:48,060
the transatlantic landing site at

224
00:14:53,870 --> 00:14:51,990
Zaragoza Spain telemetry still

225
00:14:55,820 --> 00:14:53,880
continuing to indicate that all three

226
00:19:34,629 --> 00:14:55,830
main engines and auxiliary power units

227
00:19:39,019 --> 00:19:37,039
commander tario kept continuing to fly a

228
00:19:41,810 --> 00:19:39,029
very precise course up toward the MIR

229
00:19:43,759 --> 00:19:41,820
Space Station and this view from the MIR

230
00:19:45,889 --> 00:19:43,769
space station looking at Endeavour as it

231
00:20:07,510 --> 00:19:45,899
continues its approach toward the MIR

232
00:20:17,630 --> 00:20:16,040
that's okay in this view of the crew

233
00:20:20,300 --> 00:20:17,640
cabin of Endeavour from its overhead

234
00:20:21,560 --> 00:20:20,310
windows we're with UT drusy and by amir

235
00:20:31,910 --> 00:20:21,570
we're looking in through your two

236
00:20:33,320 --> 00:20:31,920
overhead windows these are the overhead

237
00:20:36,050 --> 00:20:33,330
windows in the crew cabin of endeavour

238
00:20:38,750 --> 00:20:36,060

as it is now just about 43 feet away

239
00:21:16,040 --> 00:20:38,760
from mere this view coming from the MIR

240
00:21:20,600 --> 00:21:18,980
as endeavor approaches the 30-foot

241
00:21:22,460 --> 00:21:20,610
distance from the MIR Space Station

242
00:21:25,100 --> 00:21:22,470
this view of the overhead windows in the

243
00:21:26,600 --> 00:21:25,110
crew cabin of Endeavour very shortly the

244
00:21:28,820 --> 00:21:26,610
crew will begin its at station keeping

245
00:21:31,040 --> 00:21:28,830
at the 30 foot level before receiving

246
00:21:32,870 --> 00:21:31,050
their final go decision to proceed for

247
00:21:37,450 --> 00:21:32,880
at the docking with mir that docking

248
00:21:41,450 --> 00:21:39,800
docking will take place in darkness as

249
00:21:43,460 --> 00:21:41,460
this view also is in orbital night as

250
00:21:45,500 --> 00:21:43,470
the two spacecraft now are some two

251
00:21:48,110 --> 00:21:45,510
hundred nine nautical miles or 240

252
00:22:01,020 --> 00:21:48,120
statute miles high over the African

253
00:22:07,140 --> 00:22:05,580
we copy Europe the cream is reporting

254
00:22:09,600 --> 00:22:07,150
that they have sighted the docking

255
00:22:26,670 --> 00:22:09,610
target onboard Mir and that no course

256
00:22:31,380 --> 00:22:28,860
and the crew is now beginning its final

257
00:22:33,450 --> 00:22:31,390
approach to the mere passing inside of

258
00:22:35,160 --> 00:22:33,460
the 30 foot mark as it continues a very

259
00:22:47,330 --> 00:22:35,170
slow approach for docking with the near

260
00:23:22,830 --> 00:22:51,769
and ever now within 25 feet closing at a

261
00:23:22,840 --> 00:23:30,260
yes the funny enough shot

262
00:23:35,640 --> 00:23:33,780
and contact between endeavour and the

263
00:23:44,390 --> 00:23:35,650

MIR Space Station confirmed on time at

264
00:23:48,150 --> 00:23:46,530
endeavour Houston for Andy we have a

265
00:23:56,419 --> 00:23:48,160
good view of the flight deck what's it

266
00:24:01,289 --> 00:23:58,980
it's an impressive sight actually it's

267
00:24:04,470 --> 00:24:01,299
just amazing it's been described as a

268
00:24:06,120 --> 00:24:04,480
big mosquito or dragonfly that's right

269
00:24:14,580 --> 00:24:06,130
it's got all kinds of wings out of this

270
00:24:16,560 --> 00:24:14,590
incredible side once commander anatoly

271
00:24:20,400 --> 00:24:16,570
solovyev is done with his activities

272
00:24:21,630 --> 00:24:20,410
opening up the mir hatch as well as some

273
00:24:23,520 --> 00:24:21,640
housekeeping activities at the

274
00:24:25,289 --> 00:24:23,530
conclusion of that the shuttle will

275
00:24:27,150 --> 00:24:25,299
begin a pressurization equalization

276
00:24:28,650 --> 00:24:27,160
prior to the opening of the door from

277
00:24:31,919 --> 00:24:28,660
the or the hatch from the shuttle side

278
00:24:42,120 --> 00:24:31,929
allowing the MIR 24 and STS 89 accrues

279
00:24:43,770 --> 00:24:42,130
to greet each other personally and ever

280
00:24:46,080 --> 00:24:43,780
Terry we have an excellent view of you

281
00:25:23,960 --> 00:24:46,090
hat the ODS hatch and you have a gopher

282
00:25:29,399 --> 00:25:27,320
this is Mission Control Houston

283
00:25:31,320 --> 00:25:29,409
hatch opening and a first greeting

284
00:25:34,409 --> 00:25:31,330
between mere 24 commander Anatole

285
00:25:38,250 --> 00:25:34,419
solovyev and mere STS 89 Commander Terry

286
00:26:10,780 --> 00:25:38,260
will cut as endeavour mirar passing just

287
00:26:41,300 --> 00:26:12,860
and greetings all around

288
00:26:43,820 --> 00:26:41,310

einar to push and hold the bits for

289
00:26:45,950 --> 00:26:43,830
coming to get me although I could have

290
00:26:48,890 --> 00:26:45,960
lived a lot longer psychologically

291
00:26:51,020 --> 00:26:48,900
physically but there's a lot of fun and

292
00:26:53,000 --> 00:26:51,030
good business to be done on earth it's

293
00:26:58,340 --> 00:26:53,010
time to go back that they can stand the

294
00:31:49,920 --> 00:26:58,350
ball for dandy he's a very capable

295
00:31:53,970 --> 00:31:52,049
so looks like we're getting down to the

296
00:31:56,580 --> 00:31:53,980
end of things here for you but we've got

297
00:31:59,760 --> 00:31:56,590
to take out the MGB X tonight yet and

298
00:32:02,520 --> 00:31:59,770
change over this tissue culture

299
00:32:05,280 --> 00:32:02,530
equipment but I think we're pretty much

300
00:32:07,470 --> 00:32:05,290
closing out of most of our items we've

301
00:32:10,500 --> 00:32:07,480
got a few hard ones yet that we're

302
00:32:12,090 --> 00:32:10,510
waiting on but they're little items that

303
00:32:14,360 --> 00:32:12,100
I think we can come home without that's

304
00:32:16,590 --> 00:32:14,370
how I see it right now

305
00:32:18,960 --> 00:32:16,600
glad to hear it Dave I know you've had a

306
00:32:20,790 --> 00:32:18,970
very busy four months and I know that

307
00:32:22,950 --> 00:32:20,800
the guys who brought endeavour up to you

308
00:32:25,080 --> 00:32:22,960
I've had an extremely busy four days so

309
00:32:31,110 --> 00:32:25,090
we'd be happy to have the pace slacking

310
00:32:34,140 --> 00:32:31,120
off just a little very good keep

311
00:32:37,350 --> 00:32:34,150
clicking real nice up here and it's just

312
00:32:39,990 --> 00:32:37,360
a pleasure thing with my American

313
00:32:41,700 --> 00:32:40,000

friends again and this whole thing's

314
00:32:44,850 --> 00:32:41,710
just a wonderful experience I can't wait

315
00:32:46,650 --> 00:32:44,860
to see you on the ground and and maybe

316
00:33:39,490 --> 00:32:46,660
you'll get dragged me to the ski course

317
00:33:43,900 --> 00:33:41,950
this is Mission Control Houston and this

318
00:33:46,180 --> 00:33:43,910
view once again of the double space hab

319
00:33:48,340 --> 00:33:46,190
module in endeavours payload Bay and the

320
00:33:50,710 --> 00:33:48,350
aft section of the space hab module is

321
00:33:51,460 --> 00:33:50,720
mission specialist Bonnie Dunbar and in

322
00:33:53,290 --> 00:33:51,470
the foreground

323
00:33:55,630 --> 00:33:53,300
mission specialist Jim Riley and with

324
00:33:58,210 --> 00:33:55,640
his back to the camera Dave wolf who has

325
00:34:04,000 --> 00:33:58,220
just completed his 119 day stay as a

326
00:34:05,800 --> 00:34:04,010
member of a mere crew the astronauts

327
00:34:07,090 --> 00:34:05,810
have just completed stowing away one of

328
00:34:09,190 --> 00:34:07,100
the experiments that was conducted

329
00:34:10,720 --> 00:34:09,200
during Wolf's tenure on the MIR Space

330
00:34:12,310 --> 00:34:10,730
Station for its return trip back to

331
00:34:14,200 --> 00:34:12,320
earth and have been conversing over the

332
00:34:16,149 --> 00:34:14,210
past several minutes with the scientific

333
00:34:18,610 --> 00:34:16,159
community here in Houston to ensure that

334
00:34:21,610 --> 00:34:18,620
the stowage was accomplished properly

335
00:34:23,379 --> 00:34:21,620
and to provide the status of that

336
00:35:12,260 --> 00:34:23,389
stowage down to the payload community

337
00:36:34,140 --> 00:35:14,880
Bonni we've completed step three who are

338
00:36:34,150 --> 00:36:40,640

you said never

339
00:37:50,070 --> 00:36:43,470
Ellen the standoff cross is installed at

340
00:40:14,330 --> 00:37:52,320
so connected over 303 okay I suppose I

341
00:40:30,420 --> 00:40:16,290
Houston endeavour the physical

342
00:40:32,040 --> 00:40:30,430
separation executing an endeavour screw

343
00:41:24,350 --> 00:40:32,050
confirming physical separation of

344
00:41:36,120 --> 00:41:32,690
mikey whipwreck udom the configurability

345
00:41:36,660 --> 00:41:36,130
method chaos it is a cranberry - what

346
00:41:40,650 --> 00:41:36,670
pointy

347
00:41:42,060 --> 00:41:40,660
Roger Graham no Tonto be so nasty

348
00:41:44,610 --> 00:41:42,070
accrual odo

349
00:41:49,440 --> 00:41:44,620
so full training so Tracy for to

350
00:41:55,320 --> 00:41:49,450
vegetative our mission I'm a rabbit

351
00:41:58,530 --> 00:41:55,330
extermination Trevo mornin focus on um

352
00:42:41,900 --> 00:41:58,540
Lisa Claude way is hardwired to

353
00:42:41,910 --> 00:43:16,830
you need to him together

354
00:43:16,840 --> 00:47:03,320
lacunae facility Lipper

355
00:47:16,720 --> 00:47:07,560
- a fused chassis is my point is only

356
00:47:24,370 --> 00:47:20,380
Anatoli okay know what the pressure will

357
00:47:27,339 --> 00:47:24,380
pop oh dear another the create a look of

358
00:47:29,589 --> 00:47:27,349
Travon yellowish stone upon stone as a

359
00:47:31,900 --> 00:47:29,599
developer thar must be periodically me

360
00:47:53,540 --> 00:47:31,910
tree Oona's - Suja post a zonie

361
00:48:01,500 --> 00:47:55,560
endeavour Houston were on the flight

362
00:48:03,920 --> 00:48:01,510
deck okay welcome I'm gonna go ahead and

363
00:48:07,290 --> 00:48:03,930

start our case what this is is a little

364
00:48:09,270 --> 00:48:07,300
tour that we took some states out down

365
00:48:11,400 --> 00:48:09,280
the tunnel to the mid-deck and the

366
00:48:12,990 --> 00:48:11,410
flight deck and I'll introduce it by

367
00:48:14,520 --> 00:48:13,000
saying that you know we're on the day

368
00:48:17,430 --> 00:48:14,530
before landing so there's a lot of

369
00:48:19,080 --> 00:48:17,440
activity as we prepare to still our

370
00:48:21,660 --> 00:48:19,090
hardware and finish up our experiment

371
00:48:24,840 --> 00:48:21,670
off and I'd hope that what you'll see is

372
00:48:27,450 --> 00:48:24,850
the environment that we've been working

373
00:48:30,000 --> 00:48:27,460
in and get a feel for what it's like

374
00:48:32,190 --> 00:48:30,010
this is not Cecil B DeMille this is our

375
00:48:39,210 --> 00:48:32,200
eyeball view of living in zero-gravity

376
00:48:41,070 --> 00:48:39,220
so stand by we're going into the hab

377
00:48:45,180 --> 00:48:41,080
right now from the tunnel which runs

378
00:48:47,070 --> 00:48:45,190
from the mid-deck to the space hab it's

379
00:48:49,220 --> 00:48:47,080
floating right in front of my eyes so

380
00:48:51,990 --> 00:48:49,230
you're seeing what we see as we come in

381
00:48:56,550 --> 00:48:52,000
we're looking at towards the tail of the

382
00:48:58,050 --> 00:48:56,560
shuttle that's a large flight package

383
00:49:00,840 --> 00:48:58,060
you see in the center is actually an

384
00:49:03,840 --> 00:49:00,850
empty soft cushion that contains some of

385
00:49:06,000 --> 00:49:03,850
our transfer cargo we're now standing to

386
00:49:08,400 --> 00:49:06,010
the starboard side and now to the

387
00:49:11,730 --> 00:49:08,410
forward side you can see the tunnel we

388
00:49:14,580 --> 00:49:11,740

just came through and the space haps

389
00:49:19,590 --> 00:49:14,590
that system computer that we've set up

390
00:49:22,020 --> 00:49:19,600
every day we have our cue cards that's a

391
00:49:24,510 --> 00:49:22,030
handheld mic there velcroed and then

392
00:49:27,090 --> 00:49:24,520
over to the starboard side you see many

393
00:49:28,970 --> 00:49:27,100
of the soft containers that were used

394
00:49:31,890 --> 00:49:28,980
for our cargo that worked out very well

395
00:49:35,880 --> 00:49:31,900
now going back towards the aft end you

396
00:49:41,410 --> 00:49:35,890
see the opium rack the LCM is safely

397
00:49:47,350 --> 00:49:44,980
and the cushion that gently tethered to

398
00:49:49,450 --> 00:49:47,360
the front so now let's go back to the

399
00:49:50,980 --> 00:49:49,460
app dent that we just missed Jim we'll

400
00:49:53,410 --> 00:49:50,990
see him again told it later he was

401
00:49:55,780 --> 00:49:53,420
working on MGM which is in the center

402
00:49:58,570 --> 00:49:55,790
there you'll see in a moment right in

403
00:49:58,990 --> 00:49:58,580
front of you are the two Sam's Center

404
00:50:01,920 --> 00:49:59,000
heads

405
00:50:05,530 --> 00:50:01,930
those are acceleration measuring systems

406
00:50:09,280 --> 00:50:05,540
and up there the blue box is the EF

407
00:50:11,830 --> 00:50:09,290
freezer and now the to see GPAs that

408
00:50:14,260 --> 00:50:11,840
they've tended to during his flight that

409
00:50:17,920 --> 00:50:14,270
we transferred during the flight those

410
00:50:20,770 --> 00:50:17,930
are part of our data check every day and

411
00:50:23,830 --> 00:50:20,780
surrounding them I love the Cancer

412
00:50:26,260 --> 00:50:23,840
containers the cargo containers we can

413
00:50:28,900 --> 00:50:26,270

closer look at the Sam's here I would

414
00:50:30,430 --> 00:50:28,910
solve any flight comes out of the Lewis

415
00:50:34,180 --> 00:50:30,440
Research Center it's an excellent

416
00:50:36,550 --> 00:50:34,190
acceleration measurement system these

417
00:50:38,320 --> 00:50:36,560
remote heads can be put anywhere to

418
00:50:40,900 --> 00:50:38,330
measure at different frequency ranges

419
00:50:44,290 --> 00:50:40,910
the RHD accelerations that experiments

420
00:50:46,720 --> 00:50:44,300
are exposed to their two chambers to the

421
00:50:49,420 --> 00:50:46,730
staff I'm not showing you the active one

422
00:50:52,270 --> 00:50:49,430
right now this is one of these stem

423
00:50:54,460 --> 00:50:52,280
cells and up on the ceiling there as

424
00:50:56,860 --> 00:50:54,470
part of the Japanese experiment for

425
00:50:59,410 --> 00:50:56,870
radiation monitoring it's called the

426
00:51:02,230 --> 00:50:59,420
detector unit strapped to the ceiling

427
00:51:05,680 --> 00:51:02,240
with our silver dosimeter strapped

428
00:51:07,180 --> 00:51:05,690
around it another advantage of our

429
00:51:10,480 --> 00:51:07,190
weightless environment is that you can

430
00:51:12,460 --> 00:51:10,490
use all surfaces in off to your right

431
00:51:17,200 --> 00:51:12,470
there on the starboard side of the state

432
00:51:18,550 --> 00:51:17,210
tab is the DTO 1125 or tipping

433
00:51:21,730 --> 00:51:18,560
experiment out of the Johnson Space

434
00:51:27,100 --> 00:51:21,740
Center whether it's a dosimeter balls

435
00:51:29,740 --> 00:51:27,110
and sabbatarian slices now we scan to

436
00:51:32,770 --> 00:51:29,750
the port side with the large rack that

437
00:51:37,630 --> 00:51:32,780
is a combination of two experiments the

438
00:51:40,240 --> 00:51:37,640

VR AFP and the Japanese radiation

439
00:51:42,820 --> 00:51:40,250
monitoring experiment we did the entire

440
00:51:45,670 --> 00:51:42,830
work a lot of work with the RMD it has a

441
00:51:48,490 --> 00:51:45,680
an electrical panel there up at the top

442
00:51:51,010 --> 00:51:48,500
and then a data recording unit next to

443
00:51:52,900 --> 00:51:51,020
the computer and that's the R&D laptop

444
00:51:54,660 --> 00:51:52,910
that we have setup for keeping track of

445
00:51:57,000 --> 00:51:54,670
data

446
00:51:59,430 --> 00:51:57,010
we're going back down the tunnel and

447
00:52:01,529 --> 00:51:59,440
we're going to pass through the ODS or

448
00:52:07,859 --> 00:52:01,539
the orbiter docking system which is also

449
00:52:09,960 --> 00:52:07,869
now our external airlock those yellow

450
00:52:12,059 --> 00:52:09,970
handrails on your left and right or what

451
00:52:14,640 --> 00:52:12,069
I'm using to kind of float myself down

452
00:52:18,450 --> 00:52:14,650
the tunnel I'm going to come in under

453
00:52:19,980 --> 00:52:18,460
the EMU in the external airlock and

454
00:52:23,400 --> 00:52:19,990
we're gonna just look up and take a look

455
00:52:26,640 --> 00:52:23,410
at what we were calling ms7 and ms8 on

456
00:52:29,490 --> 00:52:26,650
our VIP deck for quite a few days now

457
00:52:32,990 --> 00:52:29,500
we're going into a tunnel adapter which

458
00:52:36,180 --> 00:52:33,000
is where we keep a several bag stowage

459
00:52:40,920 --> 00:52:36,190
during the mission shall we keep our

460
00:52:43,559 --> 00:52:40,930
laundry bags and flight data file that

461
00:52:45,420 --> 00:52:43,569
we're not using how the mid-deck is not

462
00:52:47,700 --> 00:52:45,430
only laboratory it's also our living

463
00:52:50,309 --> 00:52:47,710

area Mike's been working on a lot of our

464
00:52:57,690 --> 00:52:50,319
mid-deck experiments here he's setting

465
00:52:59,359 --> 00:52:57,700
up the camera operation for MTN E as you

466
00:53:01,499 --> 00:52:59,369
know we've been working up some

467
00:53:03,289 --> 00:53:01,509
anomalies with that we're trying to

468
00:53:09,930 --> 00:53:03,299
understand what's happening in that

469
00:53:11,910 --> 00:53:09,940
experiment just about that is the sea

470
00:53:14,339 --> 00:53:11,920
bass experiment and certainly while you

471
00:53:15,809 --> 00:53:14,349
can't see the fish the big ones are the

472
00:53:17,609 --> 00:53:15,819
little ones are the snails we've been

473
00:53:19,529 --> 00:53:17,619
peering through the screens because it's

474
00:53:22,170 --> 00:53:19,539
that backlit back there and find it very

475
00:53:24,180 --> 00:53:22,180
interesting the commander is working out

476
00:53:28,559 --> 00:53:24,190
on the bicycle and we'll all get our

477
00:53:30,630 --> 00:53:28,569
turn today and you can see that we have

478
00:53:32,480 --> 00:53:30,640
side of it of stowage that we've been

479
00:53:35,519 --> 00:53:32,490
moving around on the mid-deck

480
00:53:39,990 --> 00:53:35,529
these two laptops that represents what's

481
00:53:43,650 --> 00:53:40,000
happening on the GPS experiment GTO 700

482
00:53:47,579 --> 00:53:43,660
- 14 and dto 700 - 15 which took on

483
00:53:51,390 --> 00:53:47,589
Ziggy now we scan a two-hour port side

484
00:53:54,900 --> 00:53:51,400
to the small area the galley area and

485
00:53:56,999 --> 00:53:54,910
the WCS area and our prime payload just

486
00:53:58,740 --> 00:53:57,009
needed to have something to do so we put

487
00:54:01,799 --> 00:53:58,750
it to work and he's turned out to be

488
00:54:04,410 --> 00:54:01,809

very good at this this is a check of the

489
00:54:06,720 --> 00:54:04,420
refrigerator the qhm and one of the

490
00:54:08,280 --> 00:54:06,730
things we noticed is that so we have to

491
00:54:10,200 --> 00:54:08,290
keep the soldier clean and so

492
00:54:11,850 --> 00:54:10,210
just clean the filter for those folks we

493
00:54:14,490 --> 00:54:11,860
had a small pallet they've been sucked

494
00:54:19,460 --> 00:54:14,500
in we also have activity up on the

495
00:54:26,520 --> 00:54:22,890
where Gemma has quite a few cameras the

496
00:54:28,980 --> 00:54:26,530
road and every time we all get a chance

497
00:54:35,220 --> 00:54:28,990
we come up and take some photos that for

498
00:54:37,560 --> 00:54:35,230
the sirdar's folks these are 20

499
00:54:39,990 --> 00:54:37,570
millimeter Hasselblad and this is the

500
00:54:44,030 --> 00:54:40,000
earth cam camera set up in the starboard

501
00:54:46,710 --> 00:54:44,040
window the view of the front cockpit

502
00:54:56,150 --> 00:54:46,720
that's the flight plan is tethered and

503
00:54:58,860 --> 00:54:56,160
floating in front of you and the OCA

504
00:55:03,920 --> 00:54:58,870
PTFE which now has the earth cam

505
00:55:13,700 --> 00:55:08,340
let's go back down the interactive deck

506
00:55:20,580 --> 00:55:18,140
and we'll say a goodbye to the commander

507
00:55:28,980 --> 00:55:20,590
Terry well Carter's just done a superb

508
00:55:30,870 --> 00:55:28,990
job with his flight and I'll say goodbye

509
00:55:37,470 --> 00:55:30,880
as well and thank you gents Robin

510
00:55:47,250 --> 00:55:39,480
endeavor now on final approach to runway

511
00:55:53,310 --> 00:55:47,260
one-five endeavour Houston on glide

512
00:55:57,450 --> 00:55:53,320
slope on centerline Roger Renly and

513
00:55:58,770 --> 00:55:57,460

saying endeavours descending at an angle

514
00:56:00,060 --> 00:55:58,780
six times stupid than that of a

515
00:56:07,890 --> 00:56:00,070
commercial airliner on its final

516
00:56:11,790 --> 00:56:07,900
approach out altitude now three thousand

517
00:56:29,680 --> 00:56:11,800
three thousand four hundred feet time to

518
00:56:47,290 --> 00:56:40,010
landing gear coming down landing gear

519
00:56:58,570 --> 00:56:52,880
thank your touchdown tracks you're now

520
00:57:03,220 --> 00:57:01,660
no smell touchdown endeavour now rolling

521
00:57:05,320 --> 00:57:03,230
out along with one five at Kennedy Space

522
00:57:06,880 --> 00:57:05,330
Center at the end of a nine-day 3.6

523
00:57:08,560 --> 00:57:06,890
million mile journey bringing home

524
00:58:07,730 --> 00:57:08,570
astronaut Dave wolf from his four-month

525
00:58:07,740 --> 00:58:12,310
20 degree dub we're looking for a 195

526
00:58:12,320 --> 00:58:17,170
there's radar check them out for me

527
00:58:27,680 --> 00:58:22,100
write out one or two are good 3,400 now

528
00:58:29,270 --> 00:58:27,690
for 2000 2600 for 2,000 looking good

529
00:58:33,010 --> 00:58:29,280
keep that thing in the center pre-flare

530
00:58:35,540 --> 00:58:33,020
gears are okay I'm in the pre player

531
00:58:38,030 --> 00:58:35,550
nice pitch rate looking good a thousand

532
00:58:38,840 --> 00:58:38,040
four 300 feet 943 a little bit to the

533
00:58:41,330 --> 00:58:38,850
right looking good

534
00:58:42,950 --> 00:58:41,340
six four three five four three four four

535
00:58:46,220 --> 00:58:42,960
three straddle the center line here

536
00:58:48,470 --> 00:58:46,230
Karis coming bridle the center line nail

537
00:58:50,600 --> 00:58:48,480
that ball bar there's 100 feet looking

538
00:58:52,990 --> 00:58:50,610

for 50 nail the ball bar a little bit to

539
00:58:55,070 --> 00:58:53,000
the right fence straddle the center line

540
00:58:58,970 --> 00:58:55,080
final Flair looking good

541
00:59:01,150 --> 00:58:58,980
35 it to 40 21 at 231 hold it off 15 a

542
00:59:06,080 --> 00:59:01,160
223 hold it off hold it off hold it off

543
00:59:11,630 --> 00:59:06,090
run at 209 1 at 199 touchdown let's

544
00:59:14,210 --> 00:59:11,640
shoot shoot Andy rotate got 9,500 feet

545
00:59:15,260 --> 00:59:14,220
to go I'm looking for 60 knots there's a

546
00:59:17,360 --> 00:59:15,270
good shoot yep

547
00:59:23,420 --> 00:59:17,370
touched a little steering centerline

548
00:59:29,360 --> 00:59:23,430
looking good 144 6125 460 Mike don't let

549
00:59:37,630 --> 00:59:29,370
me forget the shoot 100% 110 for 60 100

550
00:59:50,950 --> 00:59:42,700
there's 80 knots for 60 75 for 60 70 for

551
00:59:54,430 --> 00:59:50,960
60 Edison hey let's get him a nice

552
01:00:00,670 --> 00:59:54,440
touchdown real good okay yo beautiful

553
01:00:03,970 --> 01:00:00,680
focus good pictures good TC bacon brakes

554
01:00:12,180 --> 01:00:03,980
coming in get out you're in church a

555
01:00:12,190 --> 01:00:19,200
outstanding that's outstanding thank you

556
01:00:23,890 --> 01:00:21,850
Roger will stop endeavour welcome home

557
01:00:27,130 --> 01:00:23,900
congratulations on a perfect mission to