1
00:01:31,690 --> 00:01:29,620
and good morning Columbia

2
00:01:33,940 --> 00:01:31,700
we sure have a lot of work ahead of us

3
00:01:35,920 --> 00:01:33,950
time to roll up our sleeves and gosh

4
00:02:03,609 --> 00:01:35,930
maybe it would help if we had the galaxy

5
00:02:08,169 --> 00:02:03,619
boys with us and to count our pleasure

6
00:02:10,690 --> 00:02:08,179
good morning this is Mission Control

7
00:02:12,610 --> 00:02:10,700
Houston as we heard they're there just a

8
00:02:16,330 --> 00:02:12,620
moment ago they this morning's wake-up

9
00:02:22,240 --> 00:02:16,340
call in honor of mission specialists to

10
00:02:25,090 --> 00:02:22,250
cowboy who is from Japan the song Ginga

11
00:02:27,490 --> 00:02:25,100
shounan tie which stands for Galaxy boys

12
00:02:30,069 --> 00:02:27,500
actually a popular puppet show that

13
00:02:35,050 --> 00:02:30,079

aired on Japanese television some years

14
00:02:37,509 --> 00:02:35,060
ago the show as tuck how do I mentioned

15
00:02:42,100 --> 00:02:37,519
one of his favorites and his childhood

16
00:02:44,500 --> 00:02:42,110
and that is the music from that popular

17
00:02:46,870 --> 00:02:44,510
television show which stands for the

18
00:02:59,540 --> 00:02:46,880
galaxy boys a science fiction puppet

19
00:03:06,210 --> 00:03:04,080
this time and Kevin that's what we're

20
00:03:16,830 --> 00:03:06,220
seeing great to be with you down in the

21
00:03:18,000 --> 00:03:16,840
airlock or up in the airlock this is

22
00:03:23,430 --> 00:03:18,010
Mission Control Houston

23
00:03:25,800 --> 00:03:23,440
this view shows a mission specialist to

24
00:03:27,570 --> 00:03:25,810
cowboy and Winston Scott as they finish

25
00:03:30,060 --> 00:03:27,580
up checkouts of their spacesuits that

26
00:03:32,220 --> 00:03:30,070
they'll wear on a spacewalk currently

27
00:03:33,479 --> 00:03:32,230
planned for Monday all of that check out

28
00:03:42,250 --> 00:03:33,489
- going very well so far

29
00:03:47,350 --> 00:03:44,759
doyon Scott that will spend another

30
00:03:48,729 --> 00:03:47,360
couple of hours that doing a VA

31
00:03:51,399 --> 00:03:48,739
preparations spacewalk preparations

32
00:03:53,259 --> 00:03:51,409
going through the procedures here to

33
00:03:54,819 --> 00:03:53,269
restore the gear in the airlock and

34
00:03:57,610 --> 00:03:54,829
prepare the airlock before that

35
00:03:59,589 --> 00:03:57,620
spacewalk and also then going through

36
00:04:01,539 --> 00:03:59,599
the tools that they'll use and making

37
00:05:05,590 --> 00:04:01,549
other preparations that to have those in

38
00:05:34,880 --> 00:05:31,370

go ahead Casey Casey if you can make it

39
00:05:37,730 --> 00:05:34,890
it by putting it into heat no later than

40
00:05:41,090 --> 00:05:37,740
one hour 53 minutes we can do it on this

41
00:05:44,660 --> 00:05:41,100
pass otherwise you need to wait for the

42
00:05:48,860 --> 00:05:44,670
next pass and that is no earlier than

43
00:06:01,820 --> 00:05:48,870
two hours 21 minutes and no later than

44
00:06:46,370 --> 00:06:01,830
two hour okay that'll be great we can

45
00:06:51,170 --> 00:06:48,770
Columbia Houston we really appreciate

46
00:07:24,749 --> 00:06:51,180
the airlock video we'll let you get on

47
00:07:29,879 --> 00:07:27,360
this television from Colombia showing a

48
00:07:31,860 --> 00:07:29,889
payload specialist Leonid cognac as he

49
00:07:34,829 --> 00:07:31,870
works with the collaborative Ukrainian

50
00:07:37,049 --> 00:07:34,839
experiment con yucca is a Ukrainian

51
00:07:38,879 --> 00:07:37,059
payload specialist high-flying onboard

52
00:07:41,010 --> 00:07:38,889
the shuttle the first Ukrainian to a fly

53
00:07:42,659 --> 00:07:41,020
onboard the Space Shuttle the

54
00:07:45,480 --> 00:07:42,669
collaborative Ukrainian experiment is a

55
00:07:46,950 --> 00:07:45,490
plant growth experiment that studies 10

56
00:07:49,049 --> 00:07:46,960
different plant growth experiments that

57
00:07:53,070 --> 00:07:49,059
will operate during Colombia's 16 days

58
00:07:56,489 --> 00:07:53,080
in space in conjunction with the plants

59
00:07:58,139 --> 00:07:56,499
and a pollination of plants that is

60
00:07:59,760 --> 00:07:58,149
being done on board Columbia in the

61
00:08:01,499 --> 00:07:59,770
experiment students are also

62
00:08:04,079 --> 00:08:01,509
participating by performing similar

63
00:08:06,929 --> 00:08:04,089

experiments on earth both in the US and

64
00:08:08,909 --> 00:08:06,939
in the Ukraine the experiment studies

65
00:08:11,010 --> 00:08:08,919
the effects of weightlessness on plant

66
00:08:13,799 --> 00:08:11,020
growth in general and the specifically

67
00:08:28,170 --> 00:08:13,809
on the pollination of various plants and

68
00:08:34,950 --> 00:08:33,180
and we see the happy birthday that mark

69
00:08:38,730 --> 00:08:34,960
that birthday greeting was for by a

70
00:08:42,450 --> 00:08:38,740
little Aswath careless copy we'll make

71
00:08:49,620 --> 00:08:42,460
sure that she hears about that Thanks

72
00:08:51,630 --> 00:08:49,630
happy birthday buddy we mentioned just a

73
00:08:54,420 --> 00:08:51,640
few moments ago that there are two ways

74
00:08:56,900 --> 00:08:54,430
to retrieve the Spartan satellite the

75
00:08:59,790 --> 00:08:56,910
most dangerous being the spacewalk and

76
00:09:11,460 --> 00:08:59,800
retrieving it by hand who can speak to

77
00:09:14,370 --> 00:09:11,470
how dangerous it is and why we've got

78
00:09:17,250 --> 00:09:14,380
two very good ways of retrieving there

79
00:09:20,280 --> 00:09:17,260
the satellite of course we've got the

80
00:09:23,490 --> 00:09:20,290
robotic arm and we've done that several

81
00:09:26,220 --> 00:09:23,500
times we also have retrieved several

82
00:09:28,920 --> 00:09:26,230
that several few satellites by hand we

83
00:09:30,570 --> 00:09:28,930
plan these out very well in advance we

84
00:09:32,730 --> 00:09:30,580
did the innocent rescue a couple of

85
00:09:35,430 --> 00:09:32,740
years ago and I think will be quite

86
00:09:38,190 --> 00:09:35,440
successful it capture in this part a

87
00:09:42,510 --> 00:09:38,200
couple of days now which of you actually

88
00:09:46,020 --> 00:09:42,520

will be positioned on board the arm of

89
00:09:48,330 --> 00:09:46,030
the robot arm and then ferried out if

90
00:09:54,830 --> 00:09:48,340
you will to the spartan satellite to try

91
00:09:59,670 --> 00:09:57,960
are you they are but only one option but

92
00:10:02,310 --> 00:09:59,680
I think the option we're leading towards

93
00:10:04,290 --> 00:10:02,320
is the cowboy and myself being

94
00:10:06,660 --> 00:10:04,300
positioned or the left and right sides

95
00:10:08,250 --> 00:10:06,670
of the sport in Fez their business the

96
00:10:10,740 --> 00:10:08,260
mounting structure that that part will

97
00:10:12,750 --> 00:10:10,750
fit into we're thinking that that's

98
00:10:14,400 --> 00:10:12,760
going to be the best decision for us so

99
00:10:18,210 --> 00:10:14,410
we'll both the station ourselves or each

100
00:10:20,430 --> 00:10:18,220
side of the Memphis and we'll fly via a

101
00:10:22,290 --> 00:10:20,440
shuttle up to the BART will analyze its

102
00:10:24,840 --> 00:10:22,300
rate and if it looks like it's slow

103
00:10:26,070 --> 00:10:24,850
enough and safe enough to do the cow and

104
00:10:27,870 --> 00:10:26,080
I will grab it

105
00:10:29,520 --> 00:10:27,880
I'd like to add that we have a lot of

106
00:10:30,990 --> 00:10:29,530
people taking a look at this we've got

107
00:10:33,720 --> 00:10:31,000
astronauts on the ground who are

108
00:10:36,000 --> 00:10:33,730
practicing or testing this material and

109
00:10:37,530 --> 00:10:36,010
are due to sleep neutral buoyancy lab we

110
00:10:39,840 --> 00:10:37,540
have folks with hanging in their virtual

111
00:10:40,860 --> 00:10:39,850
reality and laboratory that we're taking

112
00:10:43,079 --> 00:10:40,870
a good long

113
00:10:46,050 --> 00:10:43,089

look at this you've had before we put it

114
00:10:47,250 --> 00:10:46,060
into action I feel pretty confident that

115
00:10:47,850 --> 00:10:47,260
we can pull it off you pull it off

116
00:10:50,040 --> 00:10:47,860
safely

117
00:10:52,920 --> 00:10:50,050
mr. Scott we've been told that the

118
00:10:55,530 --> 00:10:52,930
satellite is spinning is it spinning at

119
00:10:57,780 --> 00:10:55,540
an incredibly fast rate or is it just a

120
00:11:01,829 --> 00:10:57,790
slow spin slow enough that you could

121
00:11:03,750 --> 00:11:01,839
reach out and grab it no the satellite

122
00:11:06,000 --> 00:11:03,760
is actually big at a relatively slow

123
00:11:07,320 --> 00:11:06,010
rate we are down like some video of the

124
00:11:09,269 --> 00:11:07,330
satellite and we had the folks on the

125
00:11:12,240 --> 00:11:09,279
ground look at it and it's less than two

126
00:11:14,130 --> 00:11:12,250
degrees per second and it's mostly about

127
00:11:16,290 --> 00:11:14,140
one axis and those things are really

128
00:11:18,930 --> 00:11:16,300
really good news to us because if the

129
00:11:20,250 --> 00:11:18,940
defect is the case then the calorie I

130
00:11:22,019 --> 00:11:20,260
will be able to grab the satellite and

131
00:11:24,180 --> 00:11:22,029
we shouldn't have any trouble with it

132
00:11:26,400 --> 00:11:24,190
Scott Lindsey let me ask you this

133
00:11:28,860 --> 00:11:26,410
question how far away are you now from

134
00:11:31,050 --> 00:11:28,870
the Spartan satellite and how close will

135
00:11:33,480 --> 00:11:31,060
you have to get to retrieve it and is

136
00:11:35,340 --> 00:11:33,490
the danger of a collision like we saw

137
00:11:42,360 --> 00:11:35,350
with a Russian space station Mir a

138
00:11:45,180 --> 00:11:42,370

possibility here by the way the name is

139
00:11:46,890 --> 00:11:45,190
Steve not Scott but in fact oh right now

140
00:11:49,230 --> 00:11:46,900
about 40 miles away from the sports

141
00:11:50,640 --> 00:11:49,240
satellite as far as the law to do that

142
00:11:52,110 --> 00:11:50,650
we're going to do with it it's a

143
00:11:54,180 --> 00:11:52,120
standard rendezvous that we've practiced

144
00:11:56,100 --> 00:11:54,190
many many constantly that have done it I

145
00:11:57,840 --> 00:11:56,110
said of any many times so there

146
00:11:59,850 --> 00:11:57,850
certainly is no danger within there on

147
00:12:01,980 --> 00:11:59,860
to the last portion of the ride if you

148
00:12:04,410 --> 00:12:01,990
only get close to the satellite is it

149
00:12:06,240 --> 00:12:04,420
very controlled and well-known and well

150
00:12:09,090 --> 00:12:06,250
rehearse and work Rex whatever one we've

151
00:12:11,340 --> 00:12:09,100
done it many many times in fact the lot

152
00:12:14,400 --> 00:12:11,350
of you will be doing on a satellite a

153
00:12:15,810 --> 00:12:14,410
few days here is is not much different

154
00:12:18,210 --> 00:12:15,820
than what we were originally planning to

155
00:12:20,340 --> 00:12:18,220
do with it anyway so it's they're not

156
00:12:21,360 --> 00:12:20,350
dangerous balls and you really can't

157
00:12:22,140 --> 00:12:21,370
compare the two they're different

158
00:12:24,360 --> 00:12:22,150
systems

159
00:12:26,550 --> 00:12:24,370
Steven my apologies there are too many

160
00:12:28,470 --> 00:12:26,560
Scott's on board the space shuttle

161
00:12:30,030 --> 00:12:28,480
Columbia tell me about some of the other

162
00:13:49,110 --> 00:12:30,040
experiments though that are planned

163
00:13:54,070 --> 00:13:51,880

and acrylic question from Lee Barker in

164
00:13:56,710 --> 00:13:54,080
Lower Hutt New Zealand when going in and

165
00:13:58,810 --> 00:13:56,720
out of orbit do you have to be aware of

166
00:14:00,790 --> 00:13:58,820
other traffic such as telecommunication

167
00:14:05,380 --> 00:14:00,800
satellites and space junk and maybe

168
00:14:08,440 --> 00:14:05,390
dropping out of orbit believe it or not

169
00:14:10,660 --> 00:14:08,450
we do have folks looking and making sure

170
00:14:14,290 --> 00:14:10,670
that we stay away from other satellites

171
00:14:17,110 --> 00:14:14,300
or space debris and that's tracked by

172
00:14:19,690 --> 00:14:17,120
the Air Force NORAD in Colorado Springs

173
00:14:22,860 --> 00:14:19,700
and they keep us well away from any kind

174
00:14:25,840 --> 00:14:22,870
of debris or any other kind of traffic

175
00:14:27,400 --> 00:14:25,850
ok real quickly joy song Naomi Natale

176
00:14:36,130 --> 00:14:27,410
nihongo de message onigashima

177
00:14:45,700 --> 00:14:36,140
person japanese and then in english as

178
00:14:48,510 --> 00:14:45,710
such is a service is good real quickly

179
00:14:51,640 --> 00:14:48,520
dr. Chawla and

180
00:14:53,910 --> 00:14:51,650
everybody we are working very hard in

181
00:15:02,760 --> 00:14:53,920
space at bells are having fun watching

182
00:15:07,210 --> 00:15:05,320
well wish we had more time Columbia

183
00:15:08,980 --> 00:15:07,220
thank you all very much for taking time

184
00:15:12,090 --> 00:15:08,990
for your busy schedule have a successful

185
00:15:14,590 --> 00:15:12,100
mission and a Happy Thanksgiving