1
00:00:03,110 --> 00:00:01,750
good evening again from nasa's goddard

2
00:00:05,269 --> 00:00:03,120
space flight center in greenbelt

3
00:00:07,430 --> 00:00:05,279
maryland the planning team of stock

4
00:00:08,790 --> 00:00:07,440
flight controllers is currently on duty

5
00:00:11,509 --> 00:00:08,800
having relieved their orbit team

6
00:00:13,430 --> 00:00:11,519
counterparts at about 6 pm this evening

7
00:00:14,950 --> 00:00:13,440
the major event today in the stock was

8
00:00:16,230 --> 00:00:14,960
of course space shuttle atlantis's

9
00:00:17,830 --> 00:00:16,240
rendezvous with the hubble space

10
00:00:19,590 --> 00:00:17,840
telescope

11
00:00:21,750 --> 00:00:19,600
we spoke with mission operations manager

12
00:00:23,830 --> 00:00:21,760
keith wallias just after he completed

13
00:00:25,750 --> 00:00:23,840

his flight day 3 shift and got his

14
00:00:29,509 --> 00:00:25,760
reaction to what was obviously both a

15
00:00:31,189 --> 00:00:29,519
busy and rewarding day for his team

16
00:00:32,870 --> 00:00:31,199
today we had some challenges it was a

17
00:00:35,030 --> 00:00:32,880
big day for us this was the day that

18
00:00:36,950 --> 00:00:35,040
we're doing our rendezvous so we haven't

19
00:00:38,790 --> 00:00:36,960
seen hubble in seven years the shuttle

20
00:00:40,709 --> 00:00:38,800
was coming up we had to get the

21
00:00:41,830 --> 00:00:40,719
telescope ready to be serviced to do

22
00:00:44,229 --> 00:00:41,840
that there were a couple things that had

23
00:00:46,709 --> 00:00:44,239
to be done so first you have to turn off

24
00:00:48,150 --> 00:00:46,719
any critical hardware any critical

25
00:00:50,470 --> 00:00:48,160
electronics because when you have

26
00:00:51,910 --> 00:00:50,480
something as dramatic as being birthed

27
00:00:53,670 --> 00:00:51,920
at the back of the orbiter you want to

28
00:00:55,029 --> 00:00:53,680
make sure you're in a safe configuration

29
00:00:56,150 --> 00:00:55,039
so we had to go through a process of

30
00:00:57,830 --> 00:00:56,160
getting the telescope in the right

31
00:00:59,189 --> 00:00:57,840
configuration we've got to make sure

32
00:01:00,069 --> 00:00:59,199
we're pointed in the right direction we

33
00:01:02,229 --> 00:01:00,079
have to make sure we have the right

34
00:01:04,469 --> 00:01:02,239
communication set up so we talk with the

35
00:01:06,390 --> 00:01:04,479
orbiter we'll be able not only to talk

36
00:01:08,149 --> 00:01:06,400
directly to the satellites the tdrs

37
00:01:09,109 --> 00:01:08,159
satellites like we usually do but now

38
00:01:10,950 --> 00:01:09,119

we're actually talking through the

39
00:01:12,070 --> 00:01:10,960
orbiter which is the configuration that

40
00:01:13,990 --> 00:01:12,080
we're going to use for the whole rest of

41
00:01:15,830 --> 00:01:14,000
the mission so we have a series of steps

42
00:01:17,590 --> 00:01:15,840
that we have to do to get ready

43
00:01:19,670 --> 00:01:17,600
for the orbit to grab us and then put us

44
00:01:21,109 --> 00:01:19,680
us in the back of the payload bay and

45
00:01:22,710 --> 00:01:21,119
then after in the back of the payload

46
00:01:24,550 --> 00:01:22,720
bay now we have to do some further

47
00:01:26,070 --> 00:01:24,560
reconfiguration because all those things

48
00:01:27,830 --> 00:01:26,080
that we turned off before but now we've

49
00:01:29,030 --> 00:01:27,840
got to start turning them back on again

50
00:01:30,870 --> 00:01:29,040
and now we have to get ourselves in a

51
00:01:33,030 --> 00:01:30,880
configuration that's ready for the big

52
00:01:34,789 --> 00:01:33,040
evas which are starting tomorrow

53
00:01:36,710 --> 00:01:34,799
tomorrow is our first big day you almost

54
00:01:38,149 --> 00:01:36,720
think that's as a big baseball game in a

55
00:01:39,830 --> 00:01:38,159
sense and we've got to the plate we're

56
00:01:41,350 --> 00:01:39,840
ready to go and now ready to go to first

57
00:01:43,749 --> 00:01:41,360
base and the first thing we have to do

58
00:01:45,990 --> 00:01:43,759
tomorrow we have two evas we're going to

59
00:01:47,590 --> 00:01:46,000
change out the wide field camera we have

60
00:01:49,749 --> 00:01:47,600
a wide field camera on board which is

61
00:01:51,350 --> 00:01:49,759
installed this is wide field camera 2

62
00:01:53,590 --> 00:01:51,360
back in the first servicing mission back

63
00:01:55,429 --> 00:01:53,600

in 1993 so we're going to be putting

64
00:01:57,190 --> 00:01:55,439
this new camera on board if you think

65
00:01:59,590 --> 00:01:57,200
how digital cameras have changed since

66
00:02:00,550 --> 00:01:59,600
1993 this is going to be the capability

67
00:02:03,030 --> 00:02:00,560
that we're going to have now in the

68
00:02:04,550 --> 00:02:03,040
future so the first task we have to do

69
00:02:06,789 --> 00:02:04,560
is we have to get this old wide field

70
00:02:08,869 --> 00:02:06,799
camera power it down get it ready to be

71
00:02:10,150 --> 00:02:08,879
taken out you have to remove the power

72
00:02:11,910 --> 00:02:10,160
because when the astronauts are working

73
00:02:13,990 --> 00:02:11,920
on something you can't have any power

74
00:02:15,750 --> 00:02:14,000
there so we're going to have that camera

75
00:02:18,390 --> 00:02:15,760
turned down the astronauts are going to

76
00:02:19,830 --> 00:02:18,400
go out change that camera out put a new

77
00:02:20,869 --> 00:02:19,840
wide field camera

78
00:02:22,869 --> 00:02:20,879
then we're going to go through what we

79
00:02:24,309 --> 00:02:22,879
call an aliveness test if you buy just a

80
00:02:25,510 --> 00:02:24,319
camera at the store you're going to do

81
00:02:26,949 --> 00:02:25,520
what you call a liveness test you're

82
00:02:28,790 --> 00:02:26,959
going to turn it on make sure it works

83
00:02:30,229 --> 00:02:28,800
it has power that's what we're going to

84
00:02:31,910 --> 00:02:30,239
do we're going to make sure it's hooked

85
00:02:33,750 --> 00:02:31,920
up correctly make sure the astronauts

86
00:02:35,350 --> 00:02:33,760
don't have to do anything differently

87
00:02:37,750 --> 00:02:35,360
so that's the first part now the second

88
00:02:39,910 --> 00:02:37,760

part of our eva or extravehicular

89
00:02:41,750 --> 00:02:39,920
activity or spacewalk is when we're

90
00:02:43,350 --> 00:02:41,760
going to change out the

91
00:02:45,270 --> 00:02:43,360
cndh or command and data handling

92
00:02:47,750 --> 00:02:45,280
computer and this is the part we had the

93
00:02:50,309 --> 00:02:47,760
failure on back in october so this is a

94
00:02:51,670 --> 00:02:50,319
unit that was 19 years old that failed

95
00:02:53,430 --> 00:02:51,680
we're going to change it out and we're

96
00:02:55,430 --> 00:02:53,440
going to put in a brand actually we're

97
00:02:57,110 --> 00:02:55,440
putting in a brand new old unit this is

98
00:02:57,910 --> 00:02:57,120
one of the flight spares from 19 years

99
00:02:59,270 --> 00:02:57,920
ago

100
00:03:00,790 --> 00:02:59,280
we checked it out we tested on the

101
00:03:02,550 --> 00:03:00,800
ground and we're going to install it and

102
00:03:03,750 --> 00:03:02,560
we expect it to work perfectly and we're

103
00:03:05,190 --> 00:03:03,760
going to go through the same process

104
00:03:07,030 --> 00:03:05,200
we're going to do a liveness test on

105
00:03:08,550 --> 00:03:07,040
that also to make sure it works

106
00:03:10,550 --> 00:03:08,560
after these are done we later have we

107
00:03:11,670 --> 00:03:10,560
call a functional test after you bought

108
00:03:12,790 --> 00:03:11,680
that new camera and you made sure it

109
00:03:13,670 --> 00:03:12,800
turned on

110
00:03:15,110 --> 00:03:13,680
now you're going to check out the

111
00:03:16,710 --> 00:03:15,120
different capabilities you can look at

112
00:03:17,990 --> 00:03:16,720
the zoom mode you're going to look at

113
00:03:19,670 --> 00:03:18,000

the panoramic mode you're going to look

114
00:03:21,190 --> 00:03:19,680
at all these capabilities now we're

115
00:03:23,110 --> 00:03:21,200
going to do that functional test to make

116
00:03:25,750 --> 00:03:23,120
sure it's functioning correctly both for

117
00:03:27,350 --> 00:03:25,760
the wide field camera and this new sic

118
00:03:28,949 --> 00:03:27,360
engage this command and data handling

119
00:03:31,030 --> 00:03:28,959
computer so that's going to be a full

120
00:03:32,949 --> 00:03:31,040
day tomorrow

121
00:03:35,030 --> 00:03:32,959
with hubble now on its work stand the

122
00:03:37,270 --> 00:03:35,040
telescope is ready for five consecutive

123
00:03:38,869 --> 00:03:37,280
days of hands-on work by pairs of space

124
00:03:40,149 --> 00:03:38,879
walking astronauts

125
00:03:42,149 --> 00:03:40,159
beginning tomorrow morning the

126
00:03:44,470 --> 00:03:42,159
astronauts will install the first of the

127
00:03:46,630 --> 00:03:44,480
two new science instruments and replace

128
00:03:48,390 --> 00:03:46,640
the command and data unit

129
00:03:50,710 --> 00:03:48,400
as a way of giving an overview of the

130
00:03:53,270 --> 00:03:50,720
planned five spacewalks for the

131
00:03:55,110 --> 00:03:53,280
telescope the following chart gives a

132
00:03:56,949 --> 00:03:55,120
graphic representation of all the plan

133
00:03:58,630 --> 00:03:56,959
due hardware that is planned to be

134
00:04:01,270 --> 00:03:58,640
installed on hubble

135
00:04:03,429 --> 00:04:01,280
on the first eva as mentioned by keith

136
00:04:05,750 --> 00:04:03,439
the new wide field camera 3 as well as

137
00:04:08,309 --> 00:04:05,760
this science instrument command and data

138
00:04:11,190 --> 00:04:08,319

handling unit will be installed

139
00:04:14,149 --> 00:04:11,200
eva number 2 will see the installation

140
00:04:17,110 --> 00:04:14,159
of the first set of batteries on hubble

141
00:04:18,550 --> 00:04:17,120
as well as six new gyros that are each

142
00:04:20,629 --> 00:04:18,560
contained in

143
00:04:22,710 --> 00:04:20,639
pair units

144
00:04:24,310 --> 00:04:22,720
the third space walk will see the

145
00:04:26,230 --> 00:04:24,320
installation of the second new science

146
00:04:28,390 --> 00:04:26,240
instrument known as koss or cosmic

147
00:04:30,230 --> 00:04:28,400
origin spectrograph as well as the

148
00:04:31,830 --> 00:04:30,240
repair efforts for the advanced camera

149
00:04:34,550 --> 00:04:31,840
for survey

150
00:04:36,629 --> 00:04:34,560
thursday's spacewalk will see the repair

151
00:04:39,030 --> 00:04:36,639
of the stis instrument

152
00:04:41,030 --> 00:04:39,040
as well as installation of some of the

153
00:04:43,189 --> 00:04:41,040
new outer blanket layer material that's

154
00:04:45,350 --> 00:04:43,199
being put on the telescope and the fifth

155
00:04:48,230 --> 00:04:45,360
and final spacewalk we'll see the second

156
00:04:51,990 --> 00:04:48,240
set of batteries as well as a new fine

157
00:04:58,550 --> 00:04:55,110
the new wide field camber 3 instrument

158
00:05:00,710 --> 00:04:58,560
will extend hubble's capability not only

159
00:05:03,110 --> 00:05:00,720
being able to see deeper into the

160
00:05:05,510 --> 00:05:03,120
universe but also by providing

161
00:05:08,310 --> 00:05:05,520
wide field imagery in all three regions

162
00:05:11,270 --> 00:05:08,320
of the spectrum from ultraviolet into

163
00:05:13,189 --> 00:05:11,280

visible and then into the near infrared

164
00:05:15,510 --> 00:05:13,199
it is this wide what is known as

165
00:05:17,749 --> 00:05:15,520
panchromatic type coverage

166
00:05:19,029 --> 00:05:17,759
of light that makes wide field camera 3

167
00:05:21,110 --> 00:05:19,039
so unique

168
00:05:23,110 --> 00:05:21,120
as mentioned earlier the second major

169
00:05:25,510 --> 00:05:23,120
activity for tomorrow's spacewalk will

170
00:05:27,590 --> 00:05:25,520
be the installation of the new science

171
00:05:31,749 --> 00:05:27,600
instrument control and data handling or

172
00:05:34,469 --> 00:05:32,710
when you're working with the hubble

173
00:05:35,350 --> 00:05:34,479
space telescope program anything can

174
00:05:37,909 --> 00:05:35,360
happen

175
00:05:40,550 --> 00:05:37,919
and in fact just a few weeks before we

176
00:05:43,110 --> 00:05:40,560
were scheduled to launch back in october

177
00:05:44,230 --> 00:05:43,120
the data handling system the sic and dh

178
00:05:47,110 --> 00:05:44,240
went down

179
00:05:49,430 --> 00:05:47,120
the sic gate it is critical to the

180
00:05:51,430 --> 00:05:49,440
hubble space telescope because without

181
00:05:53,189 --> 00:05:51,440
it you have no telescope you have no

182
00:05:55,270 --> 00:05:53,199
science information

183
00:05:56,870 --> 00:05:55,280
nasa administration decided that it

184
00:05:58,710 --> 00:05:56,880
would be worth it to postpone the

185
00:06:00,070 --> 00:05:58,720
servicing mission so that we could get

186
00:06:02,309 --> 00:06:00,080
the flight spare

187
00:06:03,749 --> 00:06:02,319
and test and verify it and replace it on

188
00:06:07,350 --> 00:06:03,759

this servicing mission

189
00:06:09,990 --> 00:06:07,360
the sic-d-h function is to take the data

190
00:06:11,749 --> 00:06:10,000
from the science instruments and

191
00:06:14,950 --> 00:06:11,759
it formats it

192
00:06:16,710 --> 00:06:14,960
it puts it in a command sequence that is

193
00:06:18,830 --> 00:06:16,720
then transmitted to the ground and then

194
00:06:21,670 --> 00:06:18,840
deciphered back on the

195
00:06:24,870 --> 00:06:21,680
ground without it you have no science

196
00:06:25,909 --> 00:06:24,880
information and by putting a

197
00:06:28,550 --> 00:06:25,919
new

198
00:06:30,309 --> 00:06:28,560
sic day chapter you gain the redundancy

199
00:06:33,510 --> 00:06:30,319
back and you're not one failure away

200
00:06:37,990 --> 00:06:35,510
the final activity of the spacewalk on

201
00:06:40,309 --> 00:06:38,000
thursday will involve securing the soft

202
00:06:43,029 --> 00:06:40,319
capture mechanism to the bottom of the

203
00:06:45,350 --> 00:06:43,039
telescope the soft capture mechanism

204
00:06:47,590 --> 00:06:45,360
will enable the future rendezvous

205
00:06:48,790 --> 00:06:47,600
capture and safe disposable safe

206
00:06:53,029 --> 00:06:48,800
disposal

207
00:06:54,950 --> 00:06:53,039
of hubble by a crude or robotic mission

208
00:06:57,830 --> 00:06:54,960
so the hubble space telescope now sits

209
00:06:59,830 --> 00:06:57,840
in atlantis payload bay near the 22 000

210
00:07:01,909 --> 00:06:59,840
pounds of hardware that will give the

211
00:07:03,589 --> 00:07:01,919
telescope a longer life and increased

212
00:07:05,830 --> 00:07:03,599
observation strength

213
00:07:07,510 --> 00:07:05,840

the sm-4 team here at goddard will be

214
00:07:09,430 --> 00:07:07,520
standing by for tomorrow's spacewalk

215
00:07:11,029 --> 00:07:09,440
which will see the start of work to

216
00:07:12,390 --> 00:07:11,039
bring hubble to the apex of its

217
00:07:14,070 --> 00:07:12,400
capabilities

218
00:07:16,550 --> 00:07:14,080
we now return to mission control in

219
00:07:19,430 --> 00:07:16,560
houston for nasa television's coverage