1
00:00:04,870 --> 00:00:03,110
from nasa's goddard space flight center

2
00:00:07,430 --> 00:00:04,880
in greenbelt maryland this is the flight

3
00:00:08,710 --> 00:00:07,440
day 4 stock update report

4
00:00:10,150 --> 00:00:08,720
the orbit team of stock flight

5
00:00:12,789 --> 00:00:10,160
controllers had a very productive day

6
00:00:14,950 --> 00:00:12,799
today as they oversaw the installation

7
00:00:17,189 --> 00:00:14,960
of a new science instrument along with a

8
00:00:19,349 --> 00:00:17,199
new command data handling package on the

9
00:00:21,670 --> 00:00:19,359
hubble telescope two of the three

10
00:00:22,790 --> 00:00:21,680
highest priorities for the sts-125

11
00:00:26,630 --> 00:00:22,800
mission

12
00:00:28,550 --> 00:00:26,640
keith wallis just after he and his team

13
00:00:30,070 --> 00:00:28,560

had concluded their day to get his

14
00:00:31,589 --> 00:00:30,080
thoughts on how things went with the

15
00:00:36,389 --> 00:00:31,599
first of the five planned hubble

16
00:00:39,030 --> 00:00:37,750
so today we have the first spacewalk of

17
00:00:40,709 --> 00:00:39,040
the mission and there are two major

18
00:00:42,709 --> 00:00:40,719
activities the first we were changing

19
00:00:43,670 --> 00:00:42,719
out the wide field planetary camera 2

20
00:00:45,350 --> 00:00:43,680
which is installed in the first

21
00:00:47,990 --> 00:00:45,360
servicing mission and we're putting in

22
00:00:50,229 --> 00:00:48,000
this new generation wide field camera 3.

23
00:00:52,229 --> 00:00:50,239
so the old workhorse instrument is now

24
00:00:53,750 --> 00:00:52,239
being replaced by the new one

25
00:00:55,510 --> 00:00:53,760
it took a while to get it done there

26
00:00:57,750 --> 00:00:55,520
were some issues with the eva trying to

27
00:00:59,670 --> 00:00:57,760
get the camera out crew did a fantastic

28
00:01:01,270 --> 00:00:59,680
job they worked through it and we got

29
00:01:03,189 --> 00:01:01,280
the new camera in when that old camera

30
00:01:04,630 --> 00:01:03,199
got out and the new one got in there was

31
00:01:06,469 --> 00:01:04,640
a huge cheer which erupted from the

32
00:01:07,910 --> 00:01:06,479
control center and right after that we

33
00:01:09,590 --> 00:01:07,920
had our job to do so then we had to

34
00:01:11,429 --> 00:01:09,600
check out this camera

35
00:01:13,350 --> 00:01:11,439
is it alive do we have power are there

36
00:01:14,789 --> 00:01:13,360
heaters is everything working fine in

37
00:01:16,550 --> 00:01:14,799
fact right now we're going through what

38
00:01:18,070 --> 00:01:16,560

we call a functional test to make sure

39
00:01:19,190 --> 00:01:18,080
it's functioning all those other

40
00:01:20,710 --> 00:01:19,200
functions

41
00:01:22,070 --> 00:01:20,720
how well can you zoom do all the

42
00:01:23,990 --> 00:01:22,080
different channels do all the different

43
00:01:26,310 --> 00:01:24,000
types of light will they all be well

44
00:01:27,510 --> 00:01:26,320
that all work in this camera we're going

45
00:01:29,109 --> 00:01:27,520
through that more detailed test right

46
00:01:30,950 --> 00:01:29,119
now so that was the first part and

47
00:01:32,789 --> 00:01:30,960
everything's going fantastically well

48
00:01:34,710 --> 00:01:32,799
the second part is the reason for the

49
00:01:37,190 --> 00:01:34,720
delay of six months

50
00:01:39,270 --> 00:01:37,200
we change out our computer our science

51
00:01:40,630 --> 00:01:39,280
and data handling computer which ships

52
00:01:42,149 --> 00:01:40,640
all the data from the instruments

53
00:01:43,590 --> 00:01:42,159
through the telescope and then it gets

54
00:01:46,230 --> 00:01:43,600
sent back down to earth that had a

55
00:01:47,990 --> 00:01:46,240
problem back in september so now we have

56
00:01:50,469 --> 00:01:48,000
this new one actually it's not a new one

57
00:01:53,030 --> 00:01:50,479
it's 19 years old it's a flight spare we

58
00:01:54,230 --> 00:01:53,040
tested that we flew it we installed it

59
00:01:55,910 --> 00:01:54,240
we've checked it out we've done the

60
00:01:58,789 --> 00:01:55,920
aliveness test we've done the functional

61
00:02:01,590 --> 00:01:58,799
test it's all working perfectly well so

62
00:02:03,030 --> 00:02:01,600
it's just a great feeling that first day

63
00:02:05,190 --> 00:02:03,040

we got it all accomplished it's

64
00:02:07,749 --> 00:02:05,200
fantastic we got a little bit ahead on

65
00:02:09,990 --> 00:02:07,759
tasks that are coming up on eba 3 we're

66
00:02:11,910 --> 00:02:10,000
going to be doing not only installing

67
00:02:13,030 --> 00:02:11,920
the new cosmic origin spectrograph

68
00:02:14,790 --> 00:02:13,040
instrument but we're going to be

69
00:02:16,949 --> 00:02:14,800
repairing the advanced camera for

70
00:02:18,949 --> 00:02:16,959
surveys it's going to be a long task on

71
00:02:20,710 --> 00:02:18,959
that day so we actually did some things

72
00:02:23,030 --> 00:02:20,720
we worked on the doors a little bit to

73
00:02:24,869 --> 00:02:23,040
make them easier to open for day three

74
00:02:26,390 --> 00:02:24,879
this will save us some time and make it

75
00:02:28,229 --> 00:02:26,400
a little easier to get everything done

76
00:02:29,990 --> 00:02:28,239
on that very busy day so we call those

77
00:02:31,990 --> 00:02:30,000
get ahead tasks we got a couple of them

78
00:02:33,509 --> 00:02:32,000
done additionally there's one other task

79
00:02:35,430 --> 00:02:33,519
that we got done today it's a soft

80
00:02:37,990 --> 00:02:35,440
capture mechanism and this grips on the

81
00:02:40,390 --> 00:02:38,000
back of hst so in the future if there

82
00:02:42,470 --> 00:02:40,400
was to be a rendezvous with hubble it'll

83
00:02:44,710 --> 00:02:42,480
be easier we looked a while ago at a

84
00:02:47,190 --> 00:02:44,720
robotic mission of how we could actually

85
00:02:48,949 --> 00:02:47,200
grab hubble and service it robotically

86
00:02:50,630 --> 00:02:48,959
and one of the biggest problems we saw a

87
00:02:52,710 --> 00:02:50,640
few years ago was trying to actually

88
00:02:55,190 --> 00:02:52,720

grasp hubble because hubble was built to

89
00:02:57,830 --> 00:02:55,200
be grasped by a shuttle with an arm not

90
00:02:59,350 --> 00:02:57,840
by a remote satellite so this is

91
00:03:01,350 --> 00:02:59,360
something in the future if that ever has

92
00:03:03,110 --> 00:03:01,360
to be done that capability is there

93
00:03:05,190 --> 00:03:03,120
it'll be much easier

94
00:03:07,030 --> 00:03:05,200
well tomorrow is more for some of the

95
00:03:08,869 --> 00:03:07,040
engineering tests to make sure

96
00:03:10,869 --> 00:03:08,879
hubble is going to run better the two

97
00:03:12,790 --> 00:03:10,879
big tasks are our gyros and our

98
00:03:15,190 --> 00:03:12,800
batteries our batteries these are the

99
00:03:16,710 --> 00:03:15,200
original batteries from 19 years old and

100
00:03:18,710 --> 00:03:16,720
just like any other battery the battery

101
00:03:20,390 --> 00:03:18,720
in your car batteries run down over time

102
00:03:22,470 --> 00:03:20,400
still working fine but they're running

103
00:03:24,390 --> 00:03:22,480
down so we're gonna install a new set of

104
00:03:25,670 --> 00:03:24,400
batteries which will give us an extended

105
00:03:26,789 --> 00:03:25,680
life with hubble for these so we

106
00:03:28,390 --> 00:03:26,799
shouldn't have any worries about the

107
00:03:30,229 --> 00:03:28,400
batteries in the future

108
00:03:32,390 --> 00:03:30,239
the other are the gyros we have six

109
00:03:34,470 --> 00:03:32,400
gyros on board and these gyros they

110
00:03:36,630 --> 00:03:34,480
start to fail they break over time we

111
00:03:39,430 --> 00:03:36,640
last changed them out in 1999 there were

112
00:03:41,509 --> 00:03:39,440
six gyros we now have three working we

113
00:03:43,509 --> 00:03:41,519

nominally operate with just two gyros at

114
00:03:45,589 --> 00:03:43,519
a time but we want to have six so in

115
00:03:47,430 --> 00:03:45,599
case any break we can still operate so

116
00:03:49,750 --> 00:03:47,440
we're going to take all the old six ones

117
00:03:53,910 --> 00:03:49,760
out and put in a brand new set of six it

118
00:03:57,830 --> 00:03:55,429
as keith mentioned the two main

119
00:03:59,910 --> 00:03:57,840
objectives during tomorrow's sts-125

120
00:04:01,750 --> 00:03:59,920
spacewalk will contribute to extending

121
00:04:03,750 --> 00:04:01,760
hubble's operating life with the

122
00:04:05,110 --> 00:04:03,760
installation of new gyroscopes and new

123
00:04:07,270 --> 00:04:05,120
batteries

124
00:04:09,350 --> 00:04:07,280
after leaving the airlock and completing

125
00:04:11,429 --> 00:04:09,360
their initial payload-based setup work

126
00:04:13,270 --> 00:04:11,439
astronauts mike massimino and mike good

127
00:04:16,069 --> 00:04:13,280
will first focus their attention on

128
00:04:22,310 --> 00:04:16,079
replacing all six of hubble's gyroscopes

129
00:04:27,030 --> 00:04:25,030
hubble has six gi arrows in total

130
00:04:29,270 --> 00:04:27,040
and over time they wear out

131
00:04:31,110 --> 00:04:29,280
we're down to three working gyros but

132
00:04:32,230 --> 00:04:31,120
we're only using two we're keeping one

133
00:04:34,469 --> 00:04:32,240
in spare

134
00:04:36,629 --> 00:04:34,479
and in the next servicing mission we're

135
00:04:39,030 --> 00:04:36,639
going to replace all the gyros that we

136
00:04:40,070 --> 00:04:39,040
have full gyro capability for years to

137
00:04:42,710 --> 00:04:40,080
come

138
00:04:44,790 --> 00:04:42,720

well we have six gyros and what we do is

139
00:04:47,830 --> 00:04:44,800
we package two of them

140
00:04:50,390 --> 00:04:47,840
into a box with a handle

141
00:04:52,070 --> 00:04:50,400
it's not an easy test to replace these

142
00:04:54,710 --> 00:04:52,080
these rate sensor units these three

143
00:04:57,270 --> 00:04:54,720
boxes the star trackers have these long

144
00:04:59,670 --> 00:04:57,280
tubes on them so called sun shades so

145
00:05:01,749 --> 00:04:59,680
when the astronauts have to replace the

146
00:05:05,110 --> 00:05:01,759
gyros they have to sort of wedge

147
00:05:12,790 --> 00:05:05,120
themselves into this very small area

148
00:05:17,270 --> 00:05:15,110
gyros help us in two ways when we move

149
00:05:20,150 --> 00:05:17,280
from target to target the gyros help the

150
00:05:22,550 --> 00:05:20,160
computer know how quickly we're turning

151
00:05:25,510 --> 00:05:22,560
once we get locked in on a target those

152
00:05:27,590 --> 00:05:25,520
gyros help us steady the vehicle so that

153
00:05:39,590 --> 00:05:27,600
we can collect all that scientific data

154
00:05:43,590 --> 00:05:41,510
the second activity by massimino and

155
00:05:46,230 --> 00:05:43,600
good on friday's spacewalk will be to

156
00:05:48,550 --> 00:05:46,240
replace one of the two bmus or battery

157
00:05:51,110 --> 00:05:48,560
module units on the telescope the

158
00:05:54,310 --> 00:05:51,120
telescope has two battery module units

159
00:05:55,909 --> 00:05:54,320
each containing three 125 pound nickel

160
00:05:57,430 --> 00:05:55,919
hydrogen batteries

161
00:05:59,270 --> 00:05:57,440
these batteries provide all the

162
00:06:01,350 --> 00:05:59,280
electrical power to support hubble

163
00:06:02,390 --> 00:06:01,360

operations during the night portion of

164
00:06:04,469 --> 00:06:02,400
its orbit

165
00:06:07,029 --> 00:06:04,479
the telescope's orbit is approximately

166
00:06:09,670 --> 00:06:07,039
96 minutes long about 60 minutes of

167
00:06:21,430 --> 00:06:09,680
which is spent in sunlight and 36

168
00:06:26,070 --> 00:06:24,070
the batteries we're operating on are are

169
00:06:30,070 --> 00:06:26,080
the original batteries that were

170
00:06:33,670 --> 00:06:30,080
launched with the observatory in 1990

171
00:06:37,270 --> 00:06:33,680
the design life span was five years so

172
00:06:39,430 --> 00:06:37,280
these batteries are operating well past

173
00:06:41,110 --> 00:06:39,440
what they were designed for

174
00:06:43,749 --> 00:06:41,120
it's time to change them out we are

175
00:06:47,189 --> 00:06:43,759
losing capacity

176
00:06:49,990 --> 00:06:47,199
we're installing six new batteries

177
00:07:06,790 --> 00:06:50,000
arranged in two modules of three packs

178
00:07:10,790 --> 00:07:08,950
so it's one down and four to go with the

179
00:07:12,390 --> 00:07:10,800
five space walks that are planned for

180
00:07:14,550 --> 00:07:12,400
the mission that will extend the

181
00:07:17,029 --> 00:07:14,560
telescope's life and increase its

182
00:07:19,029 --> 00:07:17,039
observation capabilities

183
00:07:21,830 --> 00:07:19,039
we will now return to the johnson space

184
00:07:23,510 --> 00:07:21,840
center coming up next on nasa tv the

185
00:07:26,629 --> 00:07:23,520
first airing of the flight day 4