
TUESDAY, SEPTEMBER 4, 2012
Expedition 32 ISS Update

1
00:00:01,006 --> 00:00:04,666
The kits both standard
and metric...

2
00:00:04,666 --> 00:00:06,336
This is Mission Control Houston.

3
00:00:06,336 --> 00:00:08,146
Welcome to today's ISS update.

4
00:00:08,146 --> 00:00:10,806
It is Tuesday, September
4, 2012.

5
00:00:10,806 --> 00:00:13,596
This is a live view inside the
International Space Station

6
00:00:13,596 --> 00:00:15,976
Flight Control Room here at
the Johnson Space Center.

7
00:00:16,486 --> 00:00:19,586
It has been an extremely
busy holiday weekend

8
00:00:19,586 --> 00:00:21,096
for the team here
in Mission Control

9
00:00:21,096 --> 00:00:25,346
and also the Expedition 32 crew
onboard the International Space

10
00:00:25,346 --> 00:00:27,836
Station as they get ready
for yet another spacewalk

11
00:00:27,836 --> 00:00:29,416

that will take place tomorrow.

12
00:00:29,416 --> 00:00:32,776
Of course, last week the crew,
specifically Suni Williams

13
00:00:32,776 --> 00:00:36,266
and Aki Hoshide, had a
marathon spacewalk outside the

14
00:00:36,266 --> 00:00:37,996
International Space
Station clocking

15
00:00:37,996 --> 00:00:39,806
in at eight hours
and 17 minutes.

16
00:00:40,266 --> 00:00:41,186
The crew was attempting

17
00:00:41,186 --> 00:00:45,056
to install a brand-new
Main Bus Switching Unit.

18
00:00:45,056 --> 00:00:47,876
This is one of the big four
boxes that's on the outside

19
00:00:47,876 --> 00:00:50,926
of the station that helps route
power from the solar arrays

20
00:00:50,926 --> 00:00:52,176
to different parts
of the station.

21
00:00:52,606 --> 00:00:55,146
They encountered some
trouble with a sticky bolt

22
00:00:55,146 --> 00:00:56,936
on the bottom side
of the new unit.

23
00:00:56,936 --> 00:00:59,596
So that installation
was called off

24
00:00:59,596 --> 00:01:02,696
and that device was
temporarily stored up there

25
00:01:02,696 --> 00:01:04,996
on its mounting location
while the teams here

26
00:01:04,996 --> 00:01:08,146
in Houston spent the
entire weekend taking a look

27
00:01:08,146 --> 00:01:10,326
at what could be causing
the issue with that bolt

28
00:01:10,746 --> 00:01:12,196
and also coming up with a plan

29
00:01:12,196 --> 00:01:15,456
for tomorrow's spacewalk The
crew will venture back outside

30
00:01:15,456 --> 00:01:19,126
tomorrow beginning at
6:15 a.m. Central time,

31
00:01:19,126 --> 00:01:20,976
7:15 a.m. Eastern time.

32

00:01:21,426 --> 00:01:23,536
The spacewalk last
six-and-a half hours.

33
00:01:23,536 --> 00:01:25,506
The main focus of it
is of course to get

34
00:01:25,506 --> 00:01:28,866
that Main Bus Switching
Unit installed back

35
00:01:28,866 --> 00:01:30,586
down on what's called
the cold plate.

36
00:01:30,586 --> 00:01:31,676
That's where it is mounted.

37
00:01:32,066 --> 00:01:35,726
The teams here in Houston
did spend several hours

38
00:01:35,726 --> 00:01:38,666
over the weekend
taking a look at a model

39
00:01:38,666 --> 00:01:39,976
of that Main Bus Switching Unit

40
00:01:39,976 --> 00:01:41,286
and the bolt that's
on the bottom of it.

41
00:01:41,286 --> 00:01:42,706
They came up with
a plan for the crew

42
00:01:42,706 --> 00:01:46,596
to basically do an extremely

detailed cleaning job

43
00:01:46,976 --> 00:01:49,336
on both the post, where
that bolt is going

44
00:01:49,336 --> 00:01:52,586
to be driven into,
and the bolt itself.

45
00:01:52,796 --> 00:01:55,366
Drew Feustel, who you
see there in the photo,

46
00:01:55,366 --> 00:01:57,226
as well as Mike Fossum
and Dave Wolf,

47
00:01:57,226 --> 00:02:00,966
all three of them veteran
astronauts, station visitors

48
00:02:00,966 --> 00:02:03,896
as well and veteran
spacewalkers were there

49
00:02:03,896 --> 00:02:06,226
with the engineers coming
up with a plan for the crew,

50
00:02:06,596 --> 00:02:08,816
coming up with the
choreography for what is

51
00:02:08,816 --> 00:02:10,276
to take place tomorrow.

52
00:02:10,656 --> 00:02:13,146
And they feel like
they've got a good shot

53
00:02:13,146 --> 00:02:16,106
at getting this Main Bus
Switching Unit actually

54
00:02:16,106 --> 00:02:18,766
installed tomorrow during the
six-and-a half hour spacewalk.

55
00:02:18,766 --> 00:02:21,836
There is a bingo time in
the middle of the spacewalk

56
00:02:21,836 --> 00:02:24,746
at about the four hour mark
that if the crew is not able

57
00:02:24,746 --> 00:02:27,276
to get this Main Bus Switching
Unit installed by that point

58
00:02:27,276 --> 00:02:31,066
in time they will begin the
process of actually cleaning it

59
00:02:31,066 --> 00:02:33,366
up and moving it back
inside the Quest airlock

60
00:02:33,776 --> 00:02:36,276
where it will be taken
back inside the station

61
00:02:36,276 --> 00:02:40,576
for some more extensive
operation and mechanics

62
00:02:40,636 --> 00:02:44,486
that will be done to that box
if they cannot have success

63
00:02:44,836 --> 00:02:46,216
by the four hour mark.

64
00:02:46,506 --> 00:02:48,426
If things go according to
plan, as we talked about,

65
00:02:48,426 --> 00:02:53,246
the crew will have a series
of the handmade improv tools

66
00:02:53,246 --> 00:02:54,166
that they will be using...

67
00:02:54,166 --> 00:02:56,596
sort of a toothbrush, a wire
cleaner, some other items

68
00:02:56,596 --> 00:03:00,156
to clean out the post and
the bolt that'll be driven

69
00:03:00,376 --> 00:03:04,916
down into the bottom side of
that box and the station itself.

70
00:03:05,356 --> 00:03:07,516
They'll also be driving a
brand-new bolt if they need

71
00:03:07,516 --> 00:03:11,346
to that'll hopefully
clean up that area and get

72
00:03:11,346 --> 00:03:14,716
that Main Bus Switching Unit
secured down to the station

73

00:03:14,716 --> 00:03:16,186
and back up and operational.

74
00:03:16,186 --> 00:03:18,186
So again, NASA TV
coverage tomorrow

75
00:03:18,186 --> 00:03:20,966
at 5 a.m. Central time,
6 a.m. Eastern time.

76
00:03:21,306 --> 00:03:24,676
The spacewalk will begin
at 6:15 a.m. Central time,

77
00:03:25,026 --> 00:03:28,776
7:15 a.m. Eastern time
here on NASA television.

78
00:03:28,776 --> 00:03:31,276
A couple of other issues
to talk to you about.

79
00:03:31,276 --> 00:03:34,566
On Saturday and there was
another error onboard the

80
00:03:34,566 --> 00:03:35,876
International Space Station

81
00:03:35,876 --> 00:03:39,406
as what is called a Direct
Current Switching Unit, or DCSU,

82
00:03:39,876 --> 00:03:43,846
Remote Bus Isolator, or
RBI, suffered a trip.

83
00:03:44,656 --> 00:03:47,266
This is on one of the

station's solar arrays.

84
00:03:47,946 --> 00:03:51,086
There are four of those big
giant wings outside the station.

85
00:03:51,086 --> 00:03:53,166
Each one of them has two
channels assigned to it.

86
00:03:53,696 --> 00:03:56,416
Two of them have already been
taken down, what's called the 1A

87
00:03:56,416 --> 00:03:59,916
and 1B, because of this Main
Bus Switching Unit issue.

88
00:04:00,266 --> 00:04:03,236
But another one on the 3A array,

89
00:04:03,236 --> 00:04:07,886
which is on the starboard truss
assembly, suffered a power trip.

90
00:04:07,886 --> 00:04:09,506
They do not know
exactly what caused it.

91
00:04:09,996 --> 00:04:13,666
But it did shut off that power
channel as things got rerouted

92
00:04:13,666 --> 00:04:15,996
to other parts of the station.

93
00:04:15,996 --> 00:04:18,416
So out of eight channels
of power

94
00:04:18,416 --> 00:04:19,726
on the International
Space Station,

95
00:04:19,726 --> 00:04:21,626
coming from those big
giant solar arrays,

96
00:04:22,366 --> 00:04:24,746
three of them are suffering
some challenges right now

97
00:04:24,746 --> 00:04:25,556
as we speak.

98
00:04:25,556 --> 00:04:28,796
So they're taking a look at
that to figure out exactly how

99
00:04:28,796 --> 00:04:29,706
that needs to be reset.

100
00:04:30,186 --> 00:04:33,156
And of course, this is unrelated
to the issue we've been talking

101
00:04:33,156 --> 00:04:34,876
about with the Main
Bus Switching Unit.

102
00:04:35,126 --> 00:04:37,226
Also this morning, one

103
00:04:37,226 --> 00:04:39,876
of the thermal valves
inside the Tranquility node,

104
00:04:39,876 --> 00:04:43,486
or Node 3 as well call it here

at NASA, did suffer a failure.

105
00:04:43,486 --> 00:04:45,206
They're taking a look at that.

106
00:04:46,796 --> 00:04:49,466
It is a stuck in the closed
position as they call it.

107
00:04:49,496 --> 00:04:50,366
But again this is part

108
00:04:50,366 --> 00:04:52,056
of the cooling system
inside Tranquility

109
00:04:52,546 --> 00:04:53,876
and the thermal experts here

110
00:04:53,876 --> 00:04:55,606
in Mission Control are taking
a look at that to figure

111
00:04:55,606 --> 00:04:57,656
out exactly how they can
get it opened back up.

112
00:05:20,596 --> 00:05:24,146
The crew today has
half of an off-duty day

113
00:05:24,146 --> 00:05:25,316
which this is standard

114
00:05:25,316 --> 00:05:26,666
and traditional anytime
they're getting ready

115
00:05:26,666 --> 00:05:28,056

to do a spacewalk the next day.

116
00:05:29,016 --> 00:05:30,766
So they've been extremely busy

117
00:05:30,766 --> 00:05:32,536
over the weekend getting
these tools ready to go

118
00:05:32,536 --> 00:05:33,826
for tomorrow's activities.

119
00:05:36,036 --> 00:05:38,626
Both Joe Acaba and Aki Hoshide
have what's called a robot

120
00:05:38,626 --> 00:05:41,296
session where they will
just practice the maneuvers

121
00:05:41,296 --> 00:05:44,426
that will take place tomorrow
as Hoshide once again gets

122
00:05:44,426 --> 00:05:48,176
on the end of the station's
arm to position himself sort

123
00:05:48,176 --> 00:05:51,856
of at the top of the bottom side
of this Main Bus Switching Unit

124
00:05:51,856 --> 00:05:53,636
so he has a little
bit easier access.

125
00:05:53,636 --> 00:05:54,376
So he'll be on the end

126

00:05:54,376 --> 00:05:58,266
of the arm while Joe
Acaba helps fly it along

127
00:05:58,266 --> 00:05:59,946
with some ground
commanding that'll be done.

128
00:05:59,946 --> 00:06:00,836
So they're running through that.

129
00:06:02,926 --> 00:06:06,236
The U.S. crew members also
have a procedure review coming

130
00:06:06,236 --> 00:06:07,826
up here shortly where
they will take a look

131
00:06:07,826 --> 00:06:10,866
at the extensive procedures
that were written for them

132
00:06:10,866 --> 00:06:13,206
over the weekend by
the spacewalk team.

133
00:06:13,206 --> 00:06:15,226
Of course the spacewalk
officer Kieth Johnson,

134
00:06:15,586 --> 00:06:19,206
who was on console last week,
he'll be on again tomorrow.

135
00:06:19,206 --> 00:06:22,196
He and his team have been
busy writing a script,

136
00:06:22,376 --> 00:06:24,736

the choreography for tomorrow's
activities that was sent

137
00:06:24,736 --> 00:06:26,636
up to the crew earlier.

138
00:06:27,146 --> 00:06:30,486
So they're going to be looking
at that and getting ready to go.

139
00:06:30,576 --> 00:06:34,556
And then Suni and
Aki are finishing

140
00:06:34,556 --> 00:06:36,996
up the tool configurations
for tomorrow as well.

141
00:06:36,996 --> 00:06:41,886
They really are putting together
several different tools that'll

142
00:06:41,886 --> 00:06:43,496
be used tomorrow
including a toothbrush

143
00:06:43,496 --> 00:06:45,376
which is exactly
what it sounds like.

144
00:06:45,376 --> 00:06:46,506
It's just a red toothbrush.

145
00:06:46,506 --> 00:06:48,626
They have put some
tape around on the end,

146
00:06:49,046 --> 00:06:50,416
sort of a wand that'll be used

147
00:06:50,416 --> 00:06:52,936
to clean the post
and the bolt itself.

148
00:06:54,066 --> 00:06:56,146
They also have a wire cleaner
it looks just like it does here

149
00:06:56,146 --> 00:06:57,776
on Earth that they
have a mocked up.

150
00:06:58,036 --> 00:07:02,506
And they'll be using that to
hopefully solve this issue

151
00:07:02,506 --> 00:07:03,066
that we saw.

152
00:07:03,536 --> 00:07:08,266
So the first step in the
spacewalk tomorrow will be

153
00:07:08,656 --> 00:07:11,286
to remove the MBSU
from the cold plate

154
00:07:11,286 --> 00:07:12,286
that it is currently sitting on.

155
00:07:12,286 --> 00:07:15,786
It was temporarily tied down
with a tether at the end

156
00:07:15,786 --> 00:07:17,686
of the spacewalk last
week when it became clear

157
00:07:18,146 --> 00:07:20,436

that it was not going
to be successful

158
00:07:20,436 --> 00:07:21,756
in terms of bolting it down.

159
00:07:21,756 --> 00:07:24,526
You're seeing a graphic
hear of the green side,

160
00:07:24,526 --> 00:07:26,736
on the left side, that
is the MBSU number one

161
00:07:27,196 --> 00:07:28,126
on the truss itself.

162
00:07:28,126 --> 00:07:32,736
That handhold piece
of metal there that's

163
00:07:32,736 --> 00:07:35,876
on the right-hand side that is
what that MBSU is currently tied

164
00:07:35,876 --> 00:07:38,446
onto with that strap you
see there indicated in red.

165
00:07:38,926 --> 00:07:41,236
So they're going to remove it

166
00:07:41,236 --> 00:07:43,026
with what's called
a torque multiplier.

167
00:07:43,216 --> 00:07:46,346
If you watched the spacewalk
last week you saw the silver

168
00:07:46,786 --> 00:07:49,356
pistol grip tool which is
basically the astronaut's drill

169
00:07:49,356 --> 00:07:49,896
that they use.

170
00:07:50,306 --> 00:07:52,236
There's a torque multiplier
that they put on the end

171
00:07:52,236 --> 00:07:55,736
of it they will use to actually
unbolt this big box which weighs

172
00:07:55,736 --> 00:07:57,916
about 220 pounds
from the cold plate.

173
00:07:58,496 --> 00:08:01,556
So they'll take a look at it.

174
00:08:01,726 --> 00:08:03,266
You see the actual
picture of it there.

175
00:08:03,266 --> 00:08:04,446
They'll take a look
at it and inspect it.

176
00:08:04,446 --> 00:08:06,706
They'll lubricate the
actual post which is

177
00:08:06,706 --> 00:08:07,806
on the cold plate itself.

178
00:08:07,806 --> 00:08:09,016
That's what the bolt goes into.

179
00:08:09,556 --> 00:08:10,876
There's two different
ones of those.

180
00:08:10,876 --> 00:08:11,496
One's called H1.

181
00:08:11,496 --> 00:08:12,556
One's called H2.

182
00:08:12,556 --> 00:08:15,626
You see the one on the left
and H2 there on the right.

183
00:08:16,176 --> 00:08:19,896
So they will lubricate
H1, clean the H2 post,

184
00:08:19,896 --> 00:08:22,866
which is where they saw some of
the issues, with a wire brush.

185
00:08:22,866 --> 00:08:25,776
They'll lubricate it,
basically put some grease on it

186
00:08:26,636 --> 00:08:30,116
with a toothbrush and then they
will thread in a brand-new bolt

187
00:08:30,696 --> 00:08:32,736
to hopefully clean up the
threads that are inside there.

188
00:08:32,736 --> 00:08:35,646
This that you see right there
is the actual bottom side

189

00:08:36,046 --> 00:08:37,656
of the MBSU itself.

190
00:08:37,656 --> 00:08:40,746
That large, what looks
like a funnel or a siphon,

191
00:08:40,746 --> 00:08:41,376
or whatever it may be,

192
00:08:41,876 --> 00:08:43,486
that's just called a
fine alignment guide.

193
00:08:43,486 --> 00:08:46,596
That actually helps the
bolt go into the post itself

194
00:08:46,596 --> 00:08:48,096
because obviously
it's on the bottom.

195
00:08:48,316 --> 00:08:49,976
The astronauts can't
get up under there

196
00:08:49,976 --> 00:08:50,846
and take a look at it.

197
00:08:50,846 --> 00:08:53,916
So they need some
physical and visual guides

198
00:08:53,916 --> 00:08:56,246
to help bolt that
entire box down.

199
00:08:57,516 --> 00:08:58,806
But you see the screw
there in the middle.

200
00:09:02,576 --> 00:09:04,906
So they've got another Acme
bolt that they will try

201
00:09:04,956 --> 00:09:07,376
that they've scavenged
from another location

202
00:09:07,846 --> 00:09:10,956
and then they will try a
few different techniques,

203
00:09:11,166 --> 00:09:13,666
sort of rocking the
box back and forth

204
00:09:13,666 --> 00:09:16,446
and also increasing
the torque step-by-step

205
00:09:16,446 --> 00:09:19,576
which is very similar to what
they did last week to see if any

206
00:09:19,576 --> 00:09:21,186
of these techniques do work.

207
00:09:22,776 --> 00:09:25,356
So again there's a four-hour
bingo time in the middle

208
00:09:25,356 --> 00:09:27,876
of the spacewalk that if
this box is not installed

209
00:09:27,876 --> 00:09:31,626
by that point in time
they will switch tactics

210
00:09:31,626 --> 00:09:34,166
and begin the process of moving
it back inside the Quest airlock

211
00:09:34,636 --> 00:09:36,066
for further action.

212
00:09:36,456 --> 00:09:41,006
In addition to the spacewalk
choreography the team has also

213
00:09:41,006 --> 00:09:42,286
come up with what's
called a crib sheet

214
00:09:42,286 --> 00:09:44,116
which is typical
of any spacewalk.

215
00:09:44,116 --> 00:09:46,796
Basically it's the
"if-then" document meaning

216
00:09:46,796 --> 00:09:49,936
that if this happens or if this
doesn't work then they try all

217
00:09:49,936 --> 00:09:50,766
of these different techniques

218
00:09:50,766 --> 00:09:52,986
that are already
prescribed out for them.

219
00:09:52,986 --> 00:09:55,826
This document for tomorrow
is about 15 pages long.

220
00:09:55,826 --> 00:09:59,516

So these teams here on the
ground in Houston have gone

221
00:09:59,516 --> 00:10:03,046
through pretty much
any imaginable scenario

222
00:10:03,046 --> 00:10:05,536
that the two crew members
could face tomorrow

223
00:10:06,006 --> 00:10:08,056
and have some really
good instructions

224
00:10:08,056 --> 00:10:11,176
on what the crew needs to
do to tackle those issues

225
00:10:11,176 --> 00:10:12,606
if they do present themselves.

226
00:10:12,606 --> 00:10:15,806
But again the spacewalk is due
to last six-and-a half hours.

227
00:10:15,806 --> 00:10:18,326
There's a four hour mark in
the middle of it that is sort

228
00:10:18,326 --> 00:10:21,256
of our line in the sand
for lack of a better word

229
00:10:21,676 --> 00:10:25,536
that if this box is not
installed by that point in time,

230
00:10:25,536 --> 00:10:27,236
they'll call it off and move

it inside the Quest airlock

231
00:10:27,236 --> 00:10:29,076
and move on to some
other, some other items.

232
00:10:29,076 --> 00:10:31,406
So again 5:00 a.m.
Central time is

233
00:10:31,406 --> 00:10:34,826
when our spacewalk coverage
will begin, 6 a.m. Eastern time.

234
00:10:34,826 --> 00:10:38,906
The spacewalk itself will begin
at 6:15 a.m. Central time,